Specification of Competency Standards
for the Automotive
Unit of Competency

Functional Area - Vehicle Servicing

Title	Restore the power unit performance of a classic car
Code	111743L3
Range	This unit of competency is applicable in vehicle service workshops. Practitioners should be able to restore the performance of the power unit for a classic car safely and effectively with reference to the guidelines in the corresponding vehicle manufacturer's service data and according to the legal requirements on road and vehicle safety, environmental protection, occupational safety and health regulations. They should also be able to provide a written report upon completion of work.
Level	3
Credit	3 *(For Reference Only)*
Competency	**Performance Requirements** 1. Knowledge (Structure and operating principle of power unit and associated components) • Conversant with the structure and operating principle of the power unit and associated components, including but limited to, engine, lubrication, cooling, ignition, fuel metering, air intake, exhaust, starting and charging systems. • Master the effects of the major systems/components on the power unit performance. • Master the removal and replacement procedures, testing and tuning techniques for examining and restoring the power unit components and associated systems with reference to the guidelines in the corresponding vehicle manufacturer's service data. • Familiar with the special service tools and test equipment for removing, replacing, testing and tuning the associated systems/components. • Understanding of the relevant legal requirements on road and vehicle safety, and environmental protection.

	2. Performance (Restore the performance of the power unit for a classic car) • With reference to the guidelines in the corresponding vehicle manufacturer's service data, the requirements of occupational safety and health as well as that of environmental protection, apply the correct procedures to examine the conditions of the power unit and associated systems/components using suitable service tools and test equipment, such as: ◦ Stability of engine running, ignition timings, carbon dioxide and hydrocarbon concentrations in tail pipe exhaust over the entire engine operating ranges ◦ Compression pressures of cylinders and the condition of lubricant in the engine ◦ Accelerator cable, throttle control linkages of carburettor and fuel hoses, synchronisation of carburettor operation (for multi-carburettor system only) ◦ Radiator efficiency, engine thermal control and coolant hoses ◦ Electrical wire harness of ignition, starting and charging systems • Execute intensive investigation into the systems/components of substandard examination results to identify the system maladjustments or degraded parts for restoration, such as maladjusted valve clearance, ignition timing and air-fuel ratio, worn or defective engine proper and ignition system, excessive carbon deposit in the carburettor, air intake and exhaust paths, inefficient fuel supply system and cooling system, etc. • Execute intensive checks on the components of carburettor, such as throttle, control linkages, nozzles and accelerating pump, etc. • Execute intensive checks on the engine-related electrical systems. • Masterly restore all the defects identified in examination with appropriate procedures, technique and replacement parts. • Precisely conduct system adjustments to resume the engine performance, such as the valve timing and tappet clearance, ignition timing, air-fuel ratio tuning, and synchronisation of throttle opening (for multi-carburettor system only). • Conduct safety and performance inspection after completion of restoration and provide written report focusing on the abnormality found, data measured, major decision made, the action taken and its 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 applying correct procedures to identify the root causes of performance deficiency of the power unit of the classic car using appropriate service tools and test equipment, with reference to the guidelines in the corresponding vehicle service data and the relevant requirements on environmental protection, occupational safety and health regulations; • Capable of executing the restoration and tuning procedures masterly to resume the normal operation of the power unit; and • Capable of conducting safety and performance inspections after power unit restoration 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 good knowledge and rich experience in the service of traditional internal combustion engine vehicles. The major ordinance involved in this unit of competency is as follows: • Relevant ordinances to the Road Traffic (Construction and Maintenance of Vehicles) Regulations • Occupational Safety and Health Ordinance • Air Pollution Control Ordinance