

Specification of Competency Standards
for the Automotive Industry
Unit of Competency

Functional Area - Vehicle Servicing

Title	Master the complicated techniques of exhaust emission control
Code	108742L4
Range	This unit of competency is applicable to technicians working at vehicle servicing and inspection departments. Practitioners should be able to master the operating principles of exhaust emission control systems and their effectiveness in pollutant treatment to enhance the efficiency and accuracy of inspection and fault diagnosis on exhaust emission problems.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Knowledge (Pollutants generated by vehicles)</p> <ul style="list-style-type: none"> • Master the pollutants generated during normal or abnormal fuel oxidization process. • Good understanding of the impact of different fuels on the generation of pollutants. • Good understanding of the harm of various kinds of pollutants. • Master the causes and sources of various kinds of pollutants generated in internal combustion engines. • Good understanding of the sources of vehicle pollutants. • Good understanding of the methods of reducing vehicle pollutants, including driving patterns, design of power systems and after-treatment of exhaust emission. • Good understanding of the testing methods of exhaust emission level, including the selection and use of related equipment as well as measuring methods. • Master the standards of vehicle manufacturers on pollutants emission level, and governing regulations set by Environmental Protection Department. • Understand the structure, functions, control methods and operating principles of various kinds of emission control systems (including related components) such as exhaust gas recirculation, valve timing control, evaporative emission control, catalytic converter, particulate filter and selective catalytic reduction. <p>2. Performance (Inspection, fault diagnosis and analysis of the emission control systems performance)</p> <ul style="list-style-type: none"> • Conduct fault diagnosis and analysis procedures according to the performance inspection results of evaporative emission control systems and related components. • Conduct inspection, fault diagnosis and analysis procedures for various emission control and after-treatment systems (including sub-systems and related components) and engine performance according to the pollutants concentrations in exhaust gas. • Review the causes of defects and diagnostic methods; compile report covering preventive measures, instructions on inspection and maintenance as well as suggestions for improvement.
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are that the practitioner being assessed shall prove that he/she is:</p> <ul style="list-style-type: none"> • Capable of mastering the structure, functions, control methods and operating principles of various kinds of emission control systems (including related components and sub-systems) to enhance the efficiency and accuracy of inspection and complicated fault diagnosis; • Capable of mastering the factors affecting pollutant emission control such as the causes of pollutants generation, emission control methods, engine design and exhaust gas

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	<p>after-treatment to solve the complicated technical problems effectively and accurately such as pollutant emission reduction and power lose; and</p> <ul style="list-style-type: none">• Capable of compiling report covering preventive measures, compiling instructions on inspection and maintenance as well as providing suggestions for improvement, etc. according to specific defects found in respective emission control systems.
Remark	<p>The credit value of this competency unit assumes that the practitioner has already possessed extensive knowledge of automobile construction and understanding on how the various systems of vehicle work.</p>