

**Specification of Competency Standards**  
**for the Automotive Industry**  
**Unit of Competency**

Functional Area - Vehicle Servicing

Title	Conduct fault diagnosis and analysis on vehicle air-conditioning and ventilation systems
Code	108708L3
Range	This unit of competency is applicable in vehicle servicing workshops. Practitioners should be able to independently check, repairing, conducting diagnosis and analysis on vehicle air-conditioning and ventilation systems according to statutory requirement and the instructions in the vehicle manufacturer's servicing manual and the relevant requirements on environment, occupational safety and health regulations. They should also be capable of conducting system test and providing written report upon completion of work.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Knowledge (Structure and operating principles of vehicle air-conditioning and ventilation systems)</p> <ul style="list-style-type: none"> <li>• Master the types of vehicle refrigerants, their characteristics and relevant handling procedure and the possible impact on environmental protection as well as relevant statutory requirements.</li> <li>• Good understanding of the structure and operating principles of vehicle air-conditioning and ventilation systems.</li> <li>• Good understanding of the principles of refrigeration and electricity.</li> <li>• Good understanding of the inspection and service procedure for vehicle air-conditioning and ventilation systems according to relevant local statutory requirement and the servicing instructions provided by the vehicle manufacturer.</li> <li>• Understand the environmental protection regulations and requirements on the recovery of refrigerants.</li> <li>• Understanding of the relevant legal requirements on road and vehicle safety and environment protection.</li> </ul> <p>2. Performance (Conduct fault diagnosis on vehicle air-conditioning and ventilation systems)</p> <ul style="list-style-type: none"> <li>• Safely conduct fault diagnosis on vehicle air-conditioning and ventilation systems and also repair them according to relevant local statutory requirement, the information in the vehicle manufacturer's servicing manual and the requirements of occupational safety and health as well as environmental protection, including: <ul style="list-style-type: none"> <li>○ Find out common problems of vehicle air-conditioning and ventilation system components by visual inspection</li> <li>○ Select suitable tools or instruments to inspect and analyse vehicle air-conditioning and ventilation systems faults</li> <li>○ Check and repair the parts and electric/electronic equipment of vehicle air-conditioning and ventilation systems according to data obtained by measurement; work may include dismantle, replace, re-assemble, fine-tune and test relevant system components and accessories</li> <li>○ Select suitable tools or instruments to accurately check refrigerant leakage in the systems</li> <li>○ With the use of suitable tools or instruments and application of the theories of refrigeration and electricity, calculate, analyse and assess the faults and efficiency of vehicle air-conditioning and ventilation systems</li> <li>○ Maintain record on the consumption of refrigerants according to environmental protection regulations</li> <li>○ Provide written report after confirming that rectification is done.</li> </ul> </li> </ul>

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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"><li>• Capable of independently conducting complicated fault diagnosis on vehicle air-conditioning and ventilation systems according to the instructions in the vehicle manufacturer's servicing manual;</li><li>• Capable of safely collecting and handling the refrigerants for vehicle air-conditioning and ventilation systems according to relevant legislative provisions and the instructions in the vehicle manufacturer's servicing manual and the relevant requirements on environment, occupational safety and health regulations;</li><li>• Capable of conducting leakage test on refrigerants for vehicle air-conditioning and ventilation systems; and</li><li>• Capable of implementing or arranging rectification work for relevant systems according to diagnostic results; and conducting system test and evaluation upon completion of work; and providing written report.</li></ul>
Remark	<p>The credits value of this unit of competency is set on the presumption that the practitioner concerned has already possessed the knowledge of vehicle electronic and electric systems servicing and know how to handle refrigerants.</p>