# Specification of Competency Standards
# for the Automotive
# Unit of Competency

**Functional Area - Vehicle Servicing**

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| **Title** | Check and repair the low-voltage electrical systems onboard |
| **Code** | 111675L2 |
| **Range** | This unit of competency is applicable in vehicle service workshops. Practitioners should be able to check and repair various vehicle low-voltage electrical systems safely according to the instructions in the vehicle manufacturer's service manual and the relevant requirements on environmental protection, occupational safety and health regulations. They should also be capable of conducting rectification and tests on components and providing written report upon completion of work. |
| **Level** | 2 |
| **Credit** | 8 *(For Reference Only)* |
| **Competency** | **Performance Requirements**<br><br>1. Knowledge (Structure and basic operating principles of various vehicle low-voltage electrical systems)<br>• Comprehend the principles of electricity and electronics.<br>• Identify the function and application of general electronic / electric tools and equipment for circuit / component testing.<br>• Understand the requirements of local legislative provisions in relation to various vehicle low-voltage electrical systems, such as:<br>  ◦ lighting, signalling and warning systems;<br>  ◦ infotainment and communication systems;<br>  ◦ security and monitoring systems; and<br>  ◦ other related systems/components.<br>• Understand the electrical circuits, structure and basic operating principles of various vehicle low-voltage electrical systems, including their sensors and major components, such as:<br>  ◦ interior and exterior lighting, signalling and warning systems;<br>  ◦ windscreen wiper, electrical operating door, seat, sunroof and window systems;<br>  ◦ security and monitoring systems;<br>  ◦ infotainment and communication systems; and<br>  ◦ other related electronic/electrical systems.<br>• According to the instructions in the vehicle manufacturer's service manual, comprehend the general checking and repairing procedure for the various vehicle low-voltage electrical systems as well as their major components.<br>• Understanding of the relevant legal requirements on road and vehicle safety and environmental protection. |

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| | 2. Performance (Check and repair various vehicle low-voltage electrical systems)<br>• According to the instructions in the vehicle manufacturer's service manual and the requirements of occupational safety and health as well as that of environmental protection, safely check and repair various low-voltage electrical systems with the application of specified tools and equipment, including:<br>  ◦ Identify the general circuitry and component problems for the:<br>  ▪ lighting, signalling and warning systems;<br>  ▪ windscreen wiper, electrical operating door, seat, sunroof and window systems;<br>  ▪ security and monitoring systems;<br>  ▪ infotainment and communication systems; and<br>  ▪ other related electrical systems.<br>  ◦ Conduct functional tests to eliminate the failure problem of the systems/components.<br>  ◦ Conduct dismantlement, replacement, reassembly and rectification of relevant system components and accessories.<br>• Conduct performance and safety inspection after the work and provide written report focusing on:<br>  ◦ Abnormalities<br>  ◦ Measured data or system performance<br>  ◦ Major decisions for problem solving<br>• Identify the low-voltage electrical systems for compliance with relevant regulations and ordinances in accordance with relevant local legislative provisions, including:<br>  ◦ lighting, signalling and warning systems;<br>  ◦ security and monitoring systems; and<br>  ◦ infotainment and communication systems. |
| **Assessment Criteria** | The integrated outcome requirements of this unit of competency are that the practitioner being assessed shall prove that he/she is:<br>• Capable of checking the circuitries of various vehicle low-voltage electrical systems and identifying the associated component faults according to the instructions in the vehicle manufacturer's service manual and relevant requirements on environmental protection, occupational safety and health regulations, including the:<br>• lighting, signalling and warning systems,<br>• wiper, door, seat, sunroof and window systems,<br>• security and monitoring systems, and<br>• infotainment and communication systems;<br>• Capable of conducting rectifications and performance tests safely on the above low-voltage electrical systems and respective components and filling out a work report upon completion of the work; and<br>• Capable of identifying the above low-voltage electrical systems if they meet the requirements as specified under relevant legislative provisions of Hong Kong and the vehicle manufacturer's service manual. |
| **Remark** | The credit value of this unit of competency is set on the presumption that the practitioner concerned has already possessed comprehensive knowledge of vehicle electronic and electrical systems servicing.<br>The major ordinance involved in this unit of competency is as follows:<br>• Road Traffic (Construction and Maintenance of vehicles) Regulations<br>• Occupational Safety and Health Ordinance<br>(This UoC replaced 108652L2, 108653L2, 108654L2 and 108686L2 ) |