Specification of Competency Standards
for the Automotive
Unit of Competency

Functional Area - Vehicle Servicing

Title	Master the complicated techniques of transmission systems
Code	111756L4
Range	This unit of competency is applicable to technicians working in vehicle service and inspection departments. Practitioners should be able to master the impact of transmission systems on driving performance and stability to enhance the efficiency and accuracy of inspection and complicated fault diagnosis.
Level	4
Credit	9 *(For Reference Only)*
Competency	**Performance Requirements** 1. Knowledge (Power transmission) • Good understanding of the working efficiency and application limits of different power transmission methods (including friction, hydraulic, adhesion, gear and electromagnet) • Good understanding of the working efficiency and application limits of different power distribution methods (e.g., friction, hydraulic and gear), and the principle of torque distribution ratio • Good understanding of the performance of transmission systems. • Good understanding of the relationship of engine power output, driving resistance, vehicle speed and accelerating performance. • Master the effects of gearbox, speed reduction / torque increase ratio setting on vehicle performance and fuel consumption. • Good understanding of the effects of transmission fluid quality and characteristics on transmission efficiency, shift control and protection of components. • Good understanding of the working principle and operation of transmission systems. • Master the structure, functions, operating principles and specifications of various kinds of transmission components (including relevant electronic control systems and components). 2. Performance (Inspection, fault diagnosis and analysis on transmission systems) • Conduct inspection, fault diagnosis and analysis procedures according to the fault symptoms (including recurrent and intermittent phenomena) of various types of transmission systems and related components. • Conduct inspection, fault diagnosis and analysis procedures in accordance with fault symptoms of driving performance and stability, such as: ◦ Fail to attain the expected highest speed ◦ Fail to reach expected maximum driving power ◦ Fail to perform the expected slip limitation or lock effect of the differential unit ◦ Abnormal noise or vibration when operating • Analyse the working fluid quality to evaluate the system operating condition • Review the causes of defects and diagnostic methods; submit written report to seniors covering preventive measures, instructions on inspection and maintenance, as well as suggestions for improvement.

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, functions, and operating principles of various types of transmission systems, including related components, to enhance the efficiency and accuracy of inspection and complicated fault diagnosis; • Capable of mastering the principle of power transmission as well as the effects of engine power output, driving resistance and speed reduction / torque increase ratio setting on vehicle performance and fuel consumption to solve the complicated technical problems, such as insufficient power output, inaccurate speed changing timing or obtuse response, abnormal tyre wear of traction wheels, operational noise and vibration, etc., effectively and accurately; and • Capable of compiling reports covering preventive measures and instructions on inspection and maintenance, as well as providing suggestions for improvement, etc., according to the specific defects relating to respective transmission systems.
Remark	The credit value for this competency unit assumes that the practitioner already possesses extensive knowledge of automotive technology, vehicle repair and testing procedures. (This UoC replaced 108734L4)