Specification of Competency Standards
for the Automotive
Unit of Competency

Functional Area - Vehicle Servicing

Title	Overhaul the drivetrain mechanism
Code	111729L3
Range	This unit of competency is applicable to technicians working in vehicle service workshops. Practitioners should be able to thoroughly understand the structure and operating principles of drivetrain and the impacts on fuel consumption and driving performance, and to inspect and repair the drivetrain mechanism efficiently and accurately according to the instructions in the vehicle manufacturer's service manual and the relevant requirements for environmental protection, occupational safety and health regulations.
Level	3
Credit	6 *(For Reference Only)*
Competency	**Performance Requirements** 1. Knowledge (Structure and operation of various types of drivetrain mechanism) • Master the use and function of special service and measuring tools / equipment, including Prussian blue, for drivetrain component inspection and repair. • Master the structure, materials, functions and service specifications of all drivetrain components. • Good understanding of the working principles, efficiency and application limits of various drivetrain mechanisms and their components, such as manual / automatic transmission systems and the shift controls (manual control mechanism, electrohydraulic control including hydraulic circuit, electronic signalling and actuating), continuously variable transmission, holding mechanism for epicyclic geartrains, torque converter, clutch, half / drive / propeller shaft and their joints, final-drive unit including lock / limited slip differentials and transfer cases. • Understand the effects of transmission fluid quality and characteristics on transmission efficiency, shift control and protection of components. • Understand the impact of operating performance of the drivetrain mechanism on fuel consumption and driving performance.

	2. Performance (Overhaul the drivetrain mechanism) • Conduct dismantling, checking, repairing and restoring procedures for various types of drivetrain mechanisms and corresponding components according to the instructions in the vehicle manufacturer's service manual and the relevant requirements on environmental protection, occupational safety and health regulations. • Determine the serviceability of drivetrain components, including but not limited to bearings, synchronisers, gears, valves, friction discs and linings, drive belts and pulleys, using special service tools and recognised measurement equipment, such as puller, dial gauge for play, Prussian blue for component mating check, etc. • Identify the adaptation of replacement parts, such as springs, solenoid valves, gaskets, seals, etc. • Install and adjust preload for bearings and springs in gearbox, differentials and shafts. • Inspect the effective operation and performance of the driveline mechanism after overhaul. • Review the causes of defects and excessive wear of drivetrain components; submit written report to seniors covering abnormalities, measurement results and decisions made, the proposal of preventive measures and 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 understanding the structure, functions, operating principles and service specifications of various drivetrain mechanisms and corresponding components thoroughly, including but not limited to friction discs and linings, drive belts and pulleys, gears, bearings, valves, and shift controls; • Capable of conducting the drivetrain overhaul procedures, such as precise measurement of drivetrain components, identifying the replacement parts for restoration, replacement of defective parts, adjusting the preload for bearings and springs, etc., according to the instructions in the vehicle manufacturer's service manual and the relevant requirements on environmental protection, occupational safety and health regulations; • Capable of inspecting the effective operation and performance of the driveline mechanism after completion of overhaul service; and • Capable of compiling written reports covering the inspection results and decisions made to resume normal service conditions, the preventive measures proposal and suggestions for improvement, according to the specific defects found in respective drivetrain components.
Remark	The credit for this competency unit assumes that the practitioner has already possessed extensive knowledge of automotive transmission system structure and operating principles, and the general overhaul skills.