

Domain	AUTOMOTIVE MECHANICS	Unit ID: 226
Title:	Overhaul manual transmission system of a motor vehicle	
Level: 4		Credits: 6

Purpose

This unit standard specifies the competencies required to overhaul manual transmission system of a motor vehicle. It includes applying inspection and assessment methods. This unit standard is intended for those who work as automotive mechanics.

Special Notes

1. Entry information:
 - Prerequisite
 - Unit 65 - *Apply safety rules and regulations in an automotive mechanics workshop* or demonstrated equivalent knowledge and skills.
2. Assessment evidence may be collected from a real workplace or a simulated real workplace or an appropriate simulated realistic environment in which automotive mechanics operations are carried out.
3. Performance of all elements in this unit standard must comply with manufacturers' specifications, workplace specific requirements and reasonable flat rate time.
4. Glossary of terms:
 - '*specifications*' refers to any, or all of the following: manufacturers' specifications and recommendations, workplace specific requirements
 - '*manual transmission system*' refers to conventional, transaxle and overdrive type manual transmissions and transfer cases.
5. Regulations and legislation relevant to this unit standard include the following:
 - Labour Act, No. 6, 1992
 - Occupational Health and Safety Regulations No. 18, 1997
 - Road Traffic and Transport Regulations No. 266, 2000
 and all subsequent amendments.
6. This unit standard applies to passenger and light commercial vehicles with a Gross Vehicle Mass \leq 5 500 kg (Petrol & Diesel).

Quality Assurance Requirements

This unit standard and others within this subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority. All approved unit standards, qualifications and national assessment arrangements are available on the Namibia Training Authority website www.nta.com.na.

Elements and Performance Criteria

Element 1: Plan and prepare for work

Range

Planning and preparation may include but is not limited to workplace inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements.

Tools and equipment may include but are not limited to standard tool set, power tools, measuring equipment, lifting and supporting equipment.

Materials may include but are not limited to lubricants, spare parts and cleaning materials.

Performance Criteria

- 1.1 Work instructions, including repair order forms, specifications and operational details are obtained, confirmed and applied.
- 1.2 Safety requirements are followed in accordance with safety plans and policies.
- 1.3 Tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults rectified or reported prior to commencement.
- 1.4 Material requirements are identified and obtained in accordance with repair order form and/or specifications.
- 1.5 Materials are safely handled and located ready for use in line with workplace procedures.
- 1.6 Technical and/or calibration requirements for tools and equipment are sourced and implemented in line with workplace procedures.
- 1.7 Environmental protection requirements are identified and applied in line with environmental plans and regulatory obligations.

Element 2: Inspection and assess manual transmission system and associated components

Range

Inspection methods are to include but are not limited to functional testing, measurements, visual, aural and functional assessment (including: fluid leaks, wear, damage, corrosion) in line with manufacturers' specifications.

Associated components may include but are not limited to clutch assembly (including: single or multi-plate, wet and dry construction, standard and heavy duty types), clutch actuating mechanism (including: mechanical and hydraulic).

Faults may include but are not limited to noisy operation, jumping out of gear, sluggish gear shift, external oil leaks, and loss of drive.

Performance Criteria

- 2.1 Procedures and information required for inspecting and assessing a manual transmission system and associated components are identified and sourced in line with workplace procedures.
- 2.2 Inspection is implemented according to workplace procedures and manufacturers' specifications.
- 2.3 Inspection results are compared with manufacturers' specifications.
- 2.4 Results are documented with evidence and supporting information and recommendation(s) is made in line with workplace procedures.
- 2.5 Report is forwarded to appropriate personnel according to workplace procedures.

Element 3: Overhaul manual transmission system and associated components

Range

Overhaul methods are to include the complete dismantling of component parts, measuring and evaluation of wear, the replacement, repair, rebuilding or reconditioning of parts comparable to original parts, the assembly of parts, and performance of functional testing in line with manufacturers' specifications.

Associated components may include but are not limited to clutch assembly (including: single or multi-plate, wet and dry construction, standard and heavy duty types), clutch actuating mechanism (including: mechanical and hydraulic).

Performance Criteria

- 3.1 Information required for overhauling a manual transmission system and associated components is accessed and interpreted from manufacturers' specifications in line with workplace procedures.
- 3.2 Manual transmission and/or associated components are overhauled using approved methods, equipment and materials, according to manufacturers' specifications and tolerances.
- 3.3 All adjustments made during the overhaul are according to manufacturers' specifications.
- 3.4 Unexpected or unplanned contingencies that are encountered in overhauling manual transmission system and associated components are addressed through applying workplace procedures, previous experience and manufacturers' technical information.
- 3.5 Final performance test is conducted and results compared with manufacturers' specifications.

Element 4: Complete work and clean up

Range

Work completion details may include but are not limited to repair order form, sign-out form for equipment, service record book and service plan form.

Performance Criteria

- 4.1 Work is completed and appropriate personnel notified in accordance with workplace procedures.
- 4.2 Work area is cleared of waste, cleaned, restored and secured in accordance with workplace procedures.
- 4.3 Reusable material is collected and stored in accordance with workplace procedures.
- 4.4 Equipment used is cleaned, checked, maintained and stored in accordance with workplace procedures.
- 4.5 Work completion details are finalised in accordance with workplace procedures.

Registration Data

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