



Australian Government

MEM27015 Diagnose and rectify drive line and final drives

Release: 1

MEM27015 Diagnose and rectify drive line and final drives

Modification History

Release 1. Supersedes and is equivalent to MEM18044C Diagnose and rectify drive line and final drives

Application

This unit of competency defines the skills and knowledge required to assess drive line and final drive operation, and repair or replace faulty components.

Testing and assessment of performance would typically require operation of plant and equipment. A licence may be required and users should check with the relevant authorities.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Band: A

Unit Weight: 4

Pre-requisite Unit

MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12023	Perform engineering measurements
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information
MEM18001	Use hand tools
MEM18002	Use power tools/hand held operations
MEM18055	Dismantle, replace and assemble engineering components

Competency Field

Fixed and mobile plant

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|---|--|-----|--|
| 1 | Determine job requirements | 1.1 | Follow standard operating procedures (SOPs) |
| | | 1.2 | Comply with work health and safety (WHS) requirements at all times |
| | | 1.3 | Use appropriate personal protective equipment (PPE) in accordance with SOPs |
| | | 1.4 | Identify job requirements from specifications, drawings, job sheets or work instructions |
| | | | |
| 2 | Assess drive line and final drive operation | 2.1 | Apply operating principles of universal and constant velocity joints, conventional/limited slip and locking, differential action and reduction systems, and conventional/swing axle to assess operation of the drive line and final drive assemblies |
| | | 2.2 | Obtain and interpret relevant information prior to any testing |
| | | 2.3 | Undertake preliminary checks safely to prescribed procedures |
| | | 2.4 | Isolate faults to component level and determine appropriate corrective action |
| | | 2.5 | Use test equipment in accordance with SOPs |
| | | 2.6 | Assess component parts for reuse, repair or replacement |
| | | | |
| 3 | Repair/replace faulty components | 3.1 | Determine component wear and clearances using appropriate test equipment and manufacturer recommendations |
| | | 3.2 | Select replacement components using manufacturers' data |
| | | 3.3 | Remove and refit components to driveline and final drive assemblies using appropriate tools, equipment and techniques |

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 3.4 Make adjustments using appropriate tooling/equipment and manufacturers' data
- 3.5 Verify drive line and final drive assemblies are free of excessive noise and operate to specification after work is carried out
- 3.6 Record all test and repair/replacement activities

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Test and rectification activities are associated with one (1) or more of the following used in conventional and all-wheel drive equipment:

- wheeled plant/vehicles
- tracked plant/vehicles
- drive line assemblies
- final drive assemblies

Reduction systems include one (1) or more of the following:

- single reduction carrier
- double reduction carrier
- hub reduction

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM18044C Diagnose and rectify drive line and final drives

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM27015 Diagnose and rectify drive line and final drives

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting specifications, charts, lists, drawings and service documents to diagnose and rectify drive lines and final drives
- checking drive line and final drive for compliance with specifications using appropriate tools, techniques and test equipment
- undertaking calculation and numerical operations associated with diagnosing and rectifying drive lines and final drives
- testing the drive line and final drive components for conformance to specifications and identifying faulty components by using appropriate testing equipment and identifying components for reuse or replacement
- removing and refitting components to drive line and final drive assemblies and selecting replacement parts using manufacturer catalogues and data
- adjusting drive line and final drive components using appropriate tools, techniques and equipment
- operating the drive line and final drive assembly free of excessive noise and in compliance with specifications
- recording/reporting all service/work activities in accordance with SOPs.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures and use of personal protective equipment (PPE)
- principles of operation of drive lines and final drives
- functions of universal and constant velocity joints, differentials and axles
- procedures for:
 - checking drive lines and final drives for correct operation
 - testing drive lines and final drives
 - checking drive line and final drive components for wear and clearance

- removing, refitting and adjusting drive line and final drive components
- recording test and work activities
- faulty drive line and final drive components and appropriate action to correct the faulty components
- test equipment to be used in checking/testing drive lines and final drives for correct operation
- component parts for reuse or replacement
- tools, techniques and equipment to be used to determine component wear and clearance
- replacement components using manufacturers' data
- tools, techniques and equipment to be used to maintain and repair drive line and final drive assemblies
- effects of the adjustments on drive line and final drive operation
- drive line and final drive assembly specifications.

Assessment Conditions

- Assessors must:
 - have vocational competency in diagnosing and rectifying drive line and final drives at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

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