



Australian Government

AURJTD3003 Diagnose and repair motorcycle suspension systems

Release 1

AURJTD3003 Diagnose and repair motorcycle suspension systems

Modification History

Release	Comment
Release 1	Replaces AURTM316166A Repair suspension systems (motorcycle) Performance Criteria, Range Statement and Critical Aspects of Evidence updated to reflect modern motorcycle technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose and repair suspension systems fitted to motorcycles. It involves diagnosing deviations from correct operation, repairing suspension system components and associated systems, and undertaking post-repair testing procedures. Licencing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.
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Application of the Unit

Application of the unit	Work applies to the suspension systems of motorcycles.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose and repair a motorcycle suspension system	1.1. Workplace instructions are used to determine job requirements 1.2. Workplace health and safety (WHS) requirements are observed and applied throughout the work 1.3. Procedures and information relating to motorcycle suspension systems are sourced and interpreted 1.4. Diagnosis options are analysed and those most appropriate to the circumstances are selected 1.5. Appropriate diagnostic tools and equipment are selected and prepared
2. Diagnose a motorcycle suspension system	2.1. Diagnostic tests are performed according to workplace procedures and without causing damage to components or systems 2.2. Faults are identified from diagnostic test results and causes of faults are determined 2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair a motorcycle suspension system	3.1. Repair options are analysed and those most appropriate to the circumstances are selected 3.2. Appropriate tools, techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage to components or systems and according to workplace procedures and manufacturer and component supplier specifications 3.4. Post-repair testing is carried out according to workplace procedures and relevant legislation
4. Clean up work area and finalise work processes	4.1. Final inspection is made to ensure work is to workplace expectations and vehicle is presented ready for use 4.2. Tools and equipment are checked and stored according to workplace expectations 4.3. Workplace documentation is processed according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills

REQUIRED SKILLS AND KNOWLEDGE

- communication skills to:
 - clarify workplace instructions and determine job requirements
 - gain information from appropriate persons and assistance as required
- initiative and enterprise to adapt to new and emerging situations in the workplace
- learning skills to:
 - identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
 - participate in self-improvement activities
- literacy skills to:
 - understand quality procedures
 - read, interpret and follow information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
 - obtain and record measurements
 - document repairs and parts required
- numeracy skills to:
 - measure and calculate length, area and volume
 - assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
 - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
 - identify risk factors and take action to minimise risk
- problem-solving skills to:
 - determine the underlying causes of faults
 - recognise a workplace problem or a potential problem and take action
 - refer problems outside area of responsibility to appropriate person and suggest possible causes
 - seek information and assistance as required to solve problems
- self-management skills to:
 - select and use appropriate equipment, materials, processes and procedures
 - recognise limitations and seek timely advice
 - plan own work requirements, setting own work program and managing time to ensure tasks are finished on time
 - follow workplace documentation, such as codes of practice or operating procedures
- teamwork skills to:
 - identify and describe own role and role of others
 - work within a team
 - work with diverse individuals and groups
 - apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace technology and tools related to the repair of motorcycle suspension systems, including the use of:
 - specialist tools and equipment

REQUIRED SKILLS AND KNOWLEDGE**Required knowledge**

- WHS regulations, requirements, equipment and material, and personal safety requirements relating to diagnosing and repairing motorcycle suspension systems
- dangers of working with motorcycle suspension systems
- operating principles of motorcycle suspension systems
- application, purpose and operation of motorcycle suspension systems
- testing procedures for motorcycle suspension systems
- repair procedures for motorcycle suspension systems, including:
 - front fork cartridge removal and replacement procedures, including seal replacement, oil replacement and air purging
 - front fork slider bushes replacement procedures
 - rear shock absorber removal and replacement procedures
 - rear shock absorber dismantle and repair procedures
 - steering damper assembly repair procedures
- post-repair testing procedures for motorcycle suspension systems

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Critical aspects for assessment and evidence required to demonstrate competency in this unit

The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge.

A person who demonstrates competency in this unit must be able to:

- observe safety procedures and requirements
- select methods and techniques appropriate to the circumstances
- complete preparatory activity in a systematic manner
- diagnose and repair a range of motorcycle suspension systems including:
 - front fork cartridge removal and replacement, including seal replacement, oil replacement and air purging
 - rear shock absorber removal and replacement
 - diagnosis and repair motorcycle suspension systems according to workplace, manufacturer and component supplier requirements
- present motorcycle in a condition the complies with workplace requirements.

Context of, and specific resources for assessment

Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting.

Assessment is to occur:

- using standard workplace practices and procedures
- following safety requirements
- applying environmental constraints.

Assessment is to comply with relevant:

- regulatory requirements
- Australian standards
- industry codes of practice.

The following resources must be made available for the assessment of this unit:

- workplace location or simulated workplace

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- motorcycles with suspension system faults relevant to the qualification being sought
- equipment appropriate for the testing of motorcycle suspension systems
- motorcycle specifications and workplace instructions
- tooling appropriate for the repair, replacement and adjustment of motorcycle suspension systems.

Method of assessment

Assessment must satisfy the endorsed Assessment Guidelines of this Training Package.

Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge.

Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application.

Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role.

Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients.

Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Workplace instructions may include:	• computer-generated instructions • verbal instructions • written instructions.
Job requirements may include:	• motorcycle suspension system diagnosis and repair methods, processes and equipment.
Workplace health and safety (WHS) requirements:	• are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures • may include: • protective clothing and equipment • use of tools and equipment • handling of material • use of fire-fighting equipment • first aid equipment • hazard control, including control of hazardous materials and toxic substances.
Procedures and information may include:	• verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the diagnosis and repair of motorcycle suspension systems • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards • motorcycle service requirements and repair manuals.
Motorcycle suspension systems may include:	• telescopic fork suspension • inverted telescopic fork suspension • front telelever and duolever • rear swing arm suspension (twin-sided, monoshock and paralever).

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<i>Diagnosis tests</i> may include:	• visual inspection of suspension system components • evaluation of suspension during mobile or stationary tests • isolation of fault(s).
<i>Fault(s)</i> may include:	• lack of front or rear suspension rebound damping • excessive front or rear suspension rebound damping • lack of front or rear suspension compression damping • excessive front or rear suspension compression damping.
<i>Repair options</i> may include:	• component repair procedures, including • removal, replacement and adjustment procedures • dismantle, repair, re-assembly and adjustment procedures.
<i>Post-repair testing</i> may include:	• mobile or stationary tests to evaluate suspension system performance • bounce-test to ensure air has been purged from front fork assembly.

Unit Sector(s)

Unit sector	Mechanical – Motorcycle
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Co-requisite units

Not applicable.

Competency field

Competency field	Technical – Steering and Suspension
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