



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **AURT309604A Assemble and install pneumatic systems/components**

**Release: 1**

## AURT309604A Assemble and install pneumatic systems/components

### Modification History

Not Applicable

### Unit Descriptor

|                        |  |
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| <b>Unit descriptor</b> | This unit covers the competence required to assemble, install and test pneumatic systems and components. |
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### Application of the Unit

|                                |   |
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| <b>Application of the unit</b> | <p>The unit includes identification and confirmation of work requirement, preparation for work, assembly and installation of pneumatic systems/components, testing and analysis of outcomes and completion of work finalisation processes, including clean-up and documentation.</p> <p>Work involved includes vehicle pneumatic systems, including those involved in the mining and heavy vehicle industry.</p> <p>Work is to include installation of linear or rotary actuators, drive motors, conductors and control valves.</p> <p>Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.</p> <p>Work is carried out in accordance with award provisions.</p> |
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### Licensing/Regulatory Information

Not Applicable

### Pre-Requisites

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| <b>Prerequisite units</b> |  |  |
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| <b>Prerequisite units</b> |  |  |
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## Employability Skills Information

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| <b>Employability skills</b> | This unit contains employability skills. |
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## Elements and Performance Criteria Pre-Content

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| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and 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 assemble and install pneumatic systems/components | 1.1. Nature and scope of work requirements are identified and confirmed<br>1.2. OH&S requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work<br>1.3. Procedures and information such as workshop manuals and specifications, and tooling, are sourced<br>1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared<br>1.5. Technical and testing requirements for pneumatic systems are sourced and support equipment is identified and prepared<br>1.6. Support tooling and equipment are selected and prepared for use<br>1.7. Warnings in relation to working with pneumatic systems are observed |
| 2. Assemble and install pneumatic systems/components            | 2.1. Methods for assembly and installation are implemented in accordance with workplace procedures and manufacturer/ component supplier specifications<br>2.2. Adjustments made during the assembly/installation are in accordance with manufacturer/component supplier specifications<br>2.3. Documentation of observations is completed   |
| 3. Conduct and analyse pneumatic system tests                   | 3.1. Methods for tests are implemented in accordance with workplace procedures and manufacturer/component supplier specifications<br>3.2. Test results are compared with manufacturer/component supplier specifications<br>3.3. Final adjustments are made to achieve compliance with manufacturer/component supplier specifications to indicate compliance or non-compliance<br>3.4. Results are documented with evidence and supporting information and recommendation(s) made<br>3.5. Report is forwarded to persons for action in accordance with workplace procedures  |

| ELEMENT   | PERFORMANCE CRITERIA   |
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| 4. Prepare vehicle/<br>pneumatic system for<br>use or storage | 4.1. Assembly and installation schedule documentation is completed<br>4.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place<br>4.3. Final inspection is made to ensure work is to workplace expectations<br>4.4. Vehicle/pneumatic system is cleaned for use or storage to workplace expectations<br>4.5. Job card is processed in accordance with workplace procedures |

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

#### Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- capacity to apply problem-solving strategies in purposeful ways, both in situations where the problem and desired solution are clearly evident and in situations requiring critical thinking and a creative approach to achieve an outcome
- use workplace technology related to the assembly and installation of pneumatic systems/components, including the use of diagnostic and specialised tooling and

**REQUIRED SKILLS AND KNOWLEDGE**

equipments, measuring equipment, computerised technology and communication devices and the documenting/recording of results

**Required knowledge**

A working knowledge of:

- OH&S and environmental regulations/requirements, equipment, material and personal safety requirements
- types, characteristics, uses and limitations of common pneumatic systems
- operating principles of pneumatic systems and their relationship to each other
- dangers of working with pneumatic systems
- types and layout of service/repair manuals (hard copy and electronic)
- techniques for interpretation of schematic diagrams relevant to pneumatic systems
- techniques for reading and interpreting engineering drawings
- pneumatic systems test procedures
- pneumatic systems assembly/installation procedures
- enterprise quality procedures
- work organisation and planning processes

## Evidence Guide

| <b>EVIDENCE GUIDE</b>   |  |
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| <p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p> |  |
| <b>Overview of assessment</b>   |  |
| <b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>   | <p>It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of:</p> <ul style="list-style-type: none"> <li>• observing safety procedures and requirements</li> <li>• communicating effectively with others involved in or affected by the work</li> <li>• selecting methods and techniques, appropriate to the circumstances</li> <li>• completing preparatory activity in a systematic manner</li> <li>• conducting assembly/installation of a range of pneumatic components in accordance with manufacturer/component supplier and workplace requirements</li> <li>• interpreting test results</li> <li>• completing work within workplace timeframes</li> <li>• vehicle/pneumatic system presentation to customer in compliance with workplace requirements</li> </ul> |
| <b>Context of, and specific resources for assessment</b>  | <p>Application of competence is to be assessed in the workplace or simulated worksite</p> <p>Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints</p> <p>Assessment is to comply with regulatory requirements, including Australian Standards</p> <p>The following resources should be made available:</p> <ul style="list-style-type: none"> <li>• workplace location or simulated workplace</li> <li>• material relevant to the assembly and installation of pneumatic systems/components</li> <li>• equipment, hand and power tooling appropriate to the assembly and installation of pneumatic systems/components</li> <li>• activities covering mandatory task requirements</li> <li>• specifications and work instructions</li> </ul>  |
| <b>Method of assessment</b>   | <p>Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&amp;R Training Package</p>   |

| <b>EVIDENCE GUIDE</b>                      |   |
|--|---|
|  | <p>Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge</p> <p>Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies</p> <p>Assessment may be applied under project related conditions and require evidence of process</p> <p>Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances</p> <p>It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements</p> <p>Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role</p> |
| <b>Guidance information for assessment</b> |   |

## Range Statement

| <b>RANGE STATEMENT</b>   |  |
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| <p>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, if used 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.</p> |  |
| <b>OH&amp;S</b>  | <p>OH&amp;S requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use</p> |



| <b>RANGE STATEMENT</b>                  |   |
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|   | of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances   |
| <b>Personal protective equipment</b>    | Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices   |
| <b>Safe operating procedures</b>        | Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors |
| <b>Emergency procedures</b>             | Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation   |
| <b>Environmental requirements</b>       | Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management  |
| <b>Quality requirements</b>             | Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures   |
| <b>Statutory/regulatory authorities</b> | Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice   |
| <b>Tooling and equipment</b>            | Tooling and equipment may include hand tooling, meters, gauges and load and pressure testing devices  |
| <b>Materials</b>                        | Materials may include spare parts, lubricants, fluids and cleaning materials  |
| <b>Communications</b>                   | Communications are to include, but are not limited to verbal and visual instructions and fault documenting and may include site specific  |

| <b>RANGE STATEMENT</b>       |   |
|------------------------------|---|
|                              | instructions, written instructions, plans or instructions related to job/task, telephones and pagers  |
| <b>Information/documents</b> | <p>Sources of information/documents may include:</p> <ul style="list-style-type: none"> <li>• verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches</li> <li>• safe work procedures related to the assembly and installation of pneumatic system/components</li> <li>• regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules</li> <li>• engineer's design specifications and instructions</li> <li>• organisation work specifications and requirements</li> <li>• instructions issued by authorised enterprise or external persons</li> <li>• Australian Standards</li> </ul> |

### Unit Sector(s)

|                    |           |
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| <b>Unit sector</b> | Technical |
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### Co-requisite units

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| <b>Co-requisite units</b> |  |
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## Competency field

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| Competency field |  |
|------------------|--|