



Australian Government

PMBPROD384 Operate multi-axis router

Release: 1

PMBPROD384 Operate multi-axis router

Modification History

Release 1. Supersedes and is equivalent to PMBPROD384A Operate multi-axis router

Application

This unit of competency covers the skills and knowledge required to set up and operate multi-axis routers. It applies to any type and application of multi-axis routers, for example:

- two axis routers used to cut shapes from polymer sheets
- three, four or five axis routers used to trim thermally formed sheet products
- computer numerically controlled (CNC) routers or similar CNC machining centres
- multi-axis routers used to make 3-D moulds
- moulded, cast or fabricated products requiring multi-axis routing to produce the required final shape.

This unit of competency applies to experienced operators who are required to set up programming; select and install tooling, jigs and fixtures; trial and operate the process; make adjustments to remedy faults and non-conformity and solve problems within area of responsibility.

This unit of competency applies to an experienced operator demonstrating theoretical and technical knowledge and well developed skills in situations that require some discretion and judgement. The operator may work alone or as a member of a team or group and will work in liaison with other shift team members, team leader and supervisor, as appropriate.

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

Pre-requisite Unit

Nil

Competency Field

Production

Unit Sector

Not applicable

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 | Prepare for work | 1.1 Determine job requirements, including design, quality, materials, equipment and quantities, from work instructions |
| | | 1.2 Apply work health and safety (WHS) requirements, including personal protection needs, throughout the job |
| | | 1.3 Select material for machining and inspect for appropriate quality |
| | | 1.4 Determine procedures for minimising waste material |
| | | 1.5 Identify and apply procedures for maximising energy efficiency throughout the job |
| 2 | Set up for machining and processing | 2.1 Set program according to job requirements |
| | | 2.2 Check safety equipment, including emergency stops, gauges, guards and controls |
| | | 2.3 Set and adjust machining and processing in accordance with job requirements and machining and processing and tool manufacturer instructions |
| | | 2.4 Check machining and processing, cutting tools and jigs for safe and effective operation |
| | | 2.5 Conduct trial runs to check machining and processing operation and quality of finished work |
| | | 2.6 Make final adjustments to programs and equipment according to workplace procedures |
| 3 | Operate machining and processing centres | 3.1 Operate and monitor machining and processing centres to ensure product quality and output |
| | | 3.2 Check waste quantities and minimise waste |
| | | 3.3 Identify problems with the required work and report to appropriate persons |

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| | | 3.4 | Identify items that do not meet quality requirements and take action to repair, recycle or discard according to workplace procedures |
| | | 3.5 | Follow any authorised changes in working procedures |
| 4 | Clean up work area and maintain equipment | 4.1 | Collect and store material that can be reused |
| | | 4.2 | Remove waste and scrap according to workplace procedures |
| | | 4.3 | Apply workplace procedures to clean and inspect equipment and work area for serviceable condition |
| | | 4.4 | Complete operator maintenance in accordance with manufacturer specifications and site procedures |
| | | 4.5 | Tag unserviceable tools and equipment and identify faults in accordance with workplace procedures |
| | | 4.6 | Maintain equipment and tooling in accordance with workplace procedures |
| 5 | Anticipate and solve problems | 5.1 | Recognise a problem or a potential problem |
| | | 5.2 | Determine problems needing priority action |
| | | 5.3 | Refer problems outside area of responsibility to appropriate person, with possible causes |
| | | 5.4 | Seek information and assistance as required to solve problems |
| | | 5.5 | Solve problems within area of responsibility |
| | | 5.6 | Follow through items initiated until final resolution has occurred |

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

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.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include:

- health, safety and environmental (HSE) legislation, regulations and codes of practice relevant to the workplace, manual handling and hazardous materials
- Australian/international standards relevant to the materials being used and products being made
- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent HSE requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and such requirements the legislative requirements take precedence.

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or any combination of:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Tools and equipment Tools and equipment include:

- multi axis router which may be moving bed or moving bridge type machine
- ancillary equipment that is integral to the process

- stand-alone or integral computing systems
- work clamps, jigs, fixtures, vacuum tables
- machine specific tools.

Additional tools and equipment will be selected as required from:

- measuring devices
- relevant personal protective equipment (PPE).

Hazards

Hazards must be identified and controlled. Identifying hazards requires consideration of:

- fumes/vapours
- weight, shape, volume of materials to be handled
- hazardous products and materials
- rotational equipment or vibration
- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- smoke, dust or other atmospheric hazards
- high temperatures
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- equipment failures
- machinery, equipment and product mass
- other hazards that might arise.

Problems

Routine and non-routine problems must be resolved.

Non-routine problems must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts, to:

- determine problems needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred
- report problems outside area of responsibility to designated person.

Non-routine problems are unexpected problems or variations of previous

problems and include one or more of:

- material degradation
- tool selection and design problems
- emergency situations
- intermittent faults.

Operational knowledge includes one or more of:

- procedures
- training
- technical information, such as journals and engineering specifications
- remembered experience
- relevant knowledge obtained from appropriate people.

Routine problems are predictable and have known solutions and include one or more of:

- processing problems
- equipment malfunctions
- out-of-specification equipment operation
- problems with work clamps, jigs and fixtures.

Unit Mapping Information

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Links

MSA Training Package Implementation Guides - <http://mskills.org.au/training-packages/info/>