



Australian Government

MARB034 Carry out basic welding, brazing, cutting and machining operations on a coastal vessel

Release: 2

MARB034 Carry out basic welding, brazing, cutting and machining operations on a coastal vessel

Modification History

Release 2. This is the second release of this unit of competency in the MAR Maritime Training Package.

- Minor statement changes in unit Application
- Minor MO505 statement changes in Knowledge Evidence
- Minor statement changes in Assessment Conditions.

Release 1. This is the first release of this unit of competency in the MAR Maritime Training Package.

Application

This unit involves the skills and knowledge required to carry out basic welding, brazing, cutting and machining tasks.

It includes carrying out basic welding, brazing, cutting and machining tasks and following safety and risk control procedures.

This unit applies to persons working in the maritime industry in the capacity of Marine Engine Driver Grade 1 Near Coastal.

Licensing/Regulatory Information

Legislative and regulatory requirements are applicable to this unit.

This unit is one of the requirements to obtain Australian Maritime Safety Authority (AMSA) certification as a Marine Engine Driver Grade 1 Near Coastal as specified in Marine Order 505.

Seafarers seeking certification should check with AMSA

Pre-requisite Unit

Not applicable.

Competency Field

B - Equipment Checking and Maintenance

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

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

1 Carry out basic welding tasks

- 1.1** Requirements for welding tasks are correctly interpreted from work instructions
- 1.2** Parts are prepared for welding according to established practice
- 1.3** Parts are welded according to established practice and work requirements
- 1.4** Weld defects are identified and appropriate actions taken according to established practice and operating procedures
- 1.5** Flame gouging methods are used to remove plate and weld material according to established practice and operating procedures
- 1.6** Finished work is checked against work instructions for accuracy and quality

2 Carry out basic brazing tasks

- 2.1** Requirements for brazing tasks are correctly interpreted from work instructions
- 2.2** Parts are prepared for brazing according to established practice and work requirements
- 2.3** Brazing equipment is prepared for brazing operations according to established procedures
- 2.4** Parts are brazed using established procedures
- 2.5** Finished work is checked against work instructions for accuracy and quality

3 Carry out basic cutting tasks

- 3.1** Instructions are reviewed, and required size and shape of cut work is correctly identified and interpreted
- 3.2** Work is correctly marked out in preparation for cutting according to established practice and operating procedures
- 3.3** Thermal cutting plant and equipment is set up according to established procedures

- | | | |
|----------|--|---|
| | 3.4 | Steel plate and/or rolled sections are cut to shape and size according to established practice and operating procedures |
| | 3.5 | Finished work is checked against work instructions for accuracy and quality according to operating procedures |
| 4 | Carry out basic machining tasks | |
| | 4.1 | Requirements for basic machining tasks are correctly interpreted from work instructions according to operating procedures |
| | 4.2 | Work is correctly marked out in preparation for basic machining according to established practice and operating procedures |
| | 4.3 | Machine is set up according to established procedures |
| | 4.4 | Machining is carried out according to established procedures |
| | 4.5 | Finished work is checked against work instructions for accuracy and quality according to operating procedures |
| 5 | Follow safety and hazard control procedures | |
| | 5.1 | Required safety precautions and regulations are followed when carrying out basic welding |
| | 5.2 | Operational hazards are identified and actions are taken to eliminate or, where elimination is not possible, to minimise, risk to personnel |

Foundation Skills

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

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to MARB008 Carry out basic welding, brazing, cutting and machining operations on a coastal vessel.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>

Assessment Requirements for MARB034 Carry out basic welding, brazing, cutting and machining operations on a coastal vessel

Modification History

Release 2. This is the second release of this unit of competency in the MAR Maritime Training Package.

- Minor statement changes in unit Application
- Minor MO505 statement changes in Knowledge Evidence
- Minor statement changes in Assessment Conditions.

Release 1. This is the first release of this unit of competency in the MAR Maritime Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and include:

- carrying out basic welding, brazing, cutting and machining tasks while underway, in port and moored or at anchor
- cleaning, sharpening or adjusting tools according to operating procedures
- dressing and truing a grinding wheel
- following required work schedule according to company requirements
- identifying a glazed, loaded or untrue grinding wheel condition and taking appropriate actions
- interpreting and applying instructions and operating procedures relevant to basic welding, brazing, cutting and machining operations required on a coastal vessel
- interpreting work specifications and drawings
- marking out work to specifications, and measuring and checking the quality of finished work
- performing basic calculations required to carry out basic welding, brazing, cutting and machining operations
- recognising routine problems that may occur when performing basic welding, brazing, cutting and machining operations on a vessel and taking appropriate actions
- selecting and safely using welding, brazing, cutting and machining tools and equipment according to operating procedures
- storing welding, brazing, cutting and machining tools and equipment after use according to standard procedures
- taking actions promptly to report operational incidents and problems according to regulations and shipboard procedures
- using effective verbal and other communication skills required when carrying out basic welding, brazing, cutting and machining operations on a vessel
- working safely and collaboratively with others when carrying out basic welding, brazing, cutting and machining operations on a vessel.

Knowledge Evidence

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

- applicable sections of relevant maritime regulations
- applicable legislation, regulations and codes of practice, including:
 - Marine Order 505 and Uniform Shipping Laws (USL) Code
 - relevant Australian engineering standards
 - relevant state and territory marine regulations
 - relevant work health and safety (WHS)/occupational health and safety (WHS/OHS) and pollution control legislation and policies
- basic operations within area of own responsibility, including:
 - basic butt welds
 - basic fillet welds
 - basic machining operation
 - basic pad welds
 - manual metal arc welding
 - oxygen acetylene welding
- characteristics and identifying features of common engineering drill bits
- documentation and records, including:
 - maintenance records
 - manufacturer instructions for tools and equipment
 - relevant safety data sheets (SDS)/material safety data sheets (MSDS)
 - safety management system (SMS) plans, procedures, checklists and instructions
 - work instructions
 - vessel and company procedures
- environmental protection measures when carrying out basic engineering tasks
- hazards and related safety precautions when carrying out basic welding, brazing, cutting and machining tasks
- operational hazards, including:
 - moving and rotating machinery
 - moving heavy loads using unsafe procedures
 - non-compliance with safe working procedures
 - poor housekeeping procedures
 - power tools
 - sharp tools and implements
 - unsecured machinery, components or equipment
 - using equipment beyond safe working limits
 - using welding equipment near explosive/flammable liquids and gases
- operating procedures for basic welding, brazing, cutting and machining tasks required of a Marine Engine Driver Grade 1

- procedures for:
 - identifying a glazed, loaded or untrue grinding wheel condition
 - dressing and/or truing a grinding wheel
- procedures for marking out work to specifications and measuring and checking the quality of finished work, including the correct use of:
 - adjustable gauge
 - callipers
 - centre punch hammers
 - dividers
 - rules and tapes
 - scribes
 - squares
 - trammels
 - vernier callipers and micrometer
- SMS and procedures
- techniques for identifying defective welds within limits of responsibility
- types, names and identifying features of drilling machines used on coastal maritime vessels
- typical work specifications and drawings used on a coastal vessel.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training current at the time of assessment.

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.

Practical assessment must occur in a workplace, or realistic simulated workplace, under the normal range of workplace conditions.

Simulations and scenarios may be used where situations cannot be provided in the workplace or may occur only rarely, in particular for situations relating to emergency procedures and adverse weather conditions where assessment would be unsafe, impractical or may lead to environmental damage.

Resources for assessment must include access to:

- a commercial vessel with inboard diesel propulsion power of greater than or equal to 375 kW or workshop ashore
- tools, equipment, machinery, materials and personal protective equipment (PPE) currently used in industry
- applicable documentation, such as legislation, regulations, codes of practice, workplace procedures and operational manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>