



Australian Government

Department of Education, Employment and Workplace Relations

TDMMR6207A CARRY OUT BASIC WELDING, BRAZING, CUTTING AND MACHINING OPERATIONS ON A COASTAL VESSEL

Release: 1

TDMMR6207A CARRY OUT BASIC WELDING, BRAZING, CUTTING AND MACHINING OPERATIONS ON A COASTAL VESSEL

Modification History

Not applicable.

Unit Descriptor

UNIT DESCRIPTOR:

This unit involves the skills and knowledge required to carry out basic welding, brazing, cutting and machining tasks, as may be required of Marine Engine Driver Grade 1 on board a commercial coastal vessel.

Application of the Unit

Application of the unit	The unit has application in the qualification for Marine Engine Driver Grade 1 (MED 1), i.e. Certificate IV in Transport&Distribution (Marine Engine Driving).
--------------------------------	--

Licensing/Regulatory Information

Licensing/legislative requirements	The unit is consistent with the relevant sections of State and Territory maritime regulations and NSCV/USL Code for a MED 1.
---	--

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>Performance Criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the Evidence Guide.</i>
--	--

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
. 1 Carry out basic welding tasks	. a Requirements for welding tasks are correctly interpreted from work instructions b Parts are prepared for welding in accordance with established practice c Parts are welded in accordance with established practice and work requirements d Weld defects are identified and appropriate action taken in accordance with established practice and standard operating procedures e Flame gouging methods are used to remove plate and weld material in accordance with established practice and standard operating procedures f Finished work is checked work against work instructions for accuracy and quality
2 Carry out basic brazing tasks	a Requirements for brazing tasks are correctly interpreted from work instructions b Parts are prepared for brazing in accordance with established practice and work requirements c Brazing equipment is prepared for brazing operations in accordance with established procedures d Parts are brazed using established procedures e Finished work is checked work against work instructions for

ELEMENT	PERFORMANCE CRITERIA
	accuracy and quality

TDMMR6207A CARRY OUT BASIC WELDING, BRAZING, CUTTING AND MACHINING OPERATIONS ON A COASTAL VESSEL
--

ELEMENT	PERFORMANCE CRITERIA
3 Carry out basic cutting tasks	- a Instructions are understood and required size and shape of cut work correctly identified and interpreted - b Work is correctly marked out in preparation for cutting as per established practice and standard operating procedures - c Thermal cutting plant and equipment is set up in accordance with established procedures - d Steel plate and/or rolled sections are cut to shape and size as per established practice and standard operating procedures - e Finished work is checked against work instructions for accuracy and quality in accordance with standard operating procedures
4 Carry out basic machining tasks	- a Requirements for basic machining tasks are correctly interpreted from work instructions in accordance with standard operating procedures - b Work is correctly marked out in preparation for basic machining as per established practice and standard operating procedures - c Machine is set up in accordance with established procedures - d Machining is carried out in accordance with established procedures - e Finished work is checked against work instructions for accuracy and quality in accordance with standard operating procedures

ELEMENT	PERFORMANCE CRITERIA
5 Follow safety and hazard control procedures	- a All required safety precautions and regulations are followed when carrying out basic welding, brazing, cutting and machining tasks - b Operational hazards are identified and action is taken to minimise or eliminate risk to personnel, vessel and the environment

TDMMR6207A CARRY OUT BASIC WELDING, BRAZING, CUTTING AND MACHINING OPERATIONS ON A COASTAL VESSEL
--

Required Skills and Knowledge

REQUIRED KNOWLEDGE

This describes the knowledge required for this unit.

- 1 Applicable sections of relevant maritime regulations
- 2 Relevant OH&S and pollution control legislation and policies
- 3 Standard operating procedures for the basic welding, brazing, cutting and machining tasks as may be required of a Marine Engine Driver Grade 1
- 4 Hazards and related safety precautions when carrying out basic welding, brazing, cutting and machining tasks
- 5 Techniques for identifying defective welds (within limits of responsibility of a Marine Engine Driver Grade 1)
- 6 Typical work specifications and drawings used on a coastal vessel
- 7 Standard procedures for marking out work to specifications and measuring and checking the quality of finished work, including the correct use of:
 - a rules and tapes
 - b squares
 - c scribes

REQUIRED KNOWLEDGE

- d dividers
- e trammels
- f adjustable gauge
- g centre punch hammers
- h callipers
- i vernier callipers and micrometer

REQUIRED KNOWLEDGE

- 8 Procedures for identifying a glazed, loaded or untrue grinding wheel condition
- 9 Procedures for dressing and/or truing a grinding wheel
- 10 Types, names and identifying features of drilling machines used on coastal maritime vessels
- 11 Characteristics and identifying features of common engineering drill bits
- 12 Environmental protection measures when carrying out basic engineering tasks

TDMMR6207A CARRY OUT BASIC WELDING, BRAZING, CUTTING AND MACHINING OPERATIONS ON A COASTAL VESSEL
--

REQUIRED SKILLS

This describes the basic skills required for this unit.

- 1 Use basic verbal and other communication skills required when carrying out basic welding, brazing, cutting and machining operations on a vessel
- 2 Read, interpret and apply basic instructions and standard operating procedures relevant to basic welding, brazing, cutting and machining operations required on a coastal vessel
- 3 Read and interpret work specifications and drawings
- 4 Work safely and collaboratively with others when carrying out basic welding, brazing, cutting and machining operations on a vessel
- 5 Select and safely use welding, brazing, cutting and machining tools and equipment as per operating procedures
- 6 Carry out basic calculations required when carrying out basic welding, brazing, cutting and machining operations
- 7 Store welding, brazing, cutting and machining tools and equipment after use as per standard procedures
- 8 Recognise routine problems that may occur when carrying out basic welding, brazing, cutting and machining operations on a vessel and take appropriate action

- 9 Clean, sharpen or adjust tools as per standard operating procedures
- 10 Adapt to differences in vessels, equipment and standard operating procedures
- 11 Follow required work schedule as per company requirements
- 12 Mark out work to specifications and measure and check the quality of finished work
- 13 Identify a glazed, loaded or untrue grinding wheel condition and take appropriate action
- 14 Dress and true a grinding wheel

Evidence Guide

Evidence Guide

TDMMR6207A CARRY OUT BASIC WELDING, BRAZING, CUTTING AND MACHINING OPERATIONS ON A COASTAL VESSEL

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 this Training Package.

1 Critical aspects of evidence required to demonstrate competency in this unit	Assessment must confirm appropriate knowledge and skills to: - a Carrying out basic welding, brazing, cutting and machining tasks - b Ensure the exercise of all required safety, environmental and hazard control precautions and procedures during basic welding, brazing, cutting and machining tasks - c Communicate effectively with others during the completion of basic welding, brazing, cutting and machining tasks
2 Evidence required for demonstration of consistent	- a Performance is demonstrated consistently over a period of time and in a suitable range of contexts - b Consistently applies underpinning knowledge and skills

performance	when: 1 carrying out basic welding, brazing, cutting and machining tasks 2 exercising all required safety, environmental and hazard control precautions and procedures during basic welding, brazing, cutting and machining tasks c Shows evidence of application of relevant workplace procedures, including: 1 vessel's safety management system and procedures 2 OH&S regulations and hazard prevention policies and procedures 3 standard operating procedures and work instructions 4 following environmental protection and housekeeping processes d Action is taken promptly to report operational incidents and problems in accordance with regulations and shipboard procedures e Work is completed systematically with required attention to detail f Recognises and adapts appropriately to cultural differences in the workplace, including modes of behaviour and interactions between crew and others
3 Context of assessment	a Assessment of competency must comply with the assessment requirements of the relevant maritime regulations b Assessment of this unit must be undertaken within relevant marine authority approved and audited arrangements by a registered training organisation: 1 As a minimum, assessment of knowledge must be conducted through appropriate written/oral examinations, and

Evidence Guide (continued)

TDMMR6207A CARRY OUT BASIC WELDING, BRAZING, CUTTING AND MACHINING OPERATIONS ON A COASTAL VESSEL

3 Context of assessment (continued)	2 Appropriate practical assessment must occur: - i at the registered training organisation; and/or - ii on an appropriate working or training vessel
4 Specific resources required for assessment	Access is required to opportunities to: - a demonstrate the ability to carry out basic welding, brazing, cutting and machining tasks on board a vessel through appropriate practical exercises and simulated situations; and/or - b carry out basic welding, brazing, cutting and machining tasks on an operational commercial or training vessel

Range Statement

Range Statement

TDMMR6207A CARRY OUT BASIC WELDING, BRAZING, CUTTING AND MACHINING OPERATIONS ON A COASTAL VESSEL

The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

VARIABLE

SCOPE

1. GENERAL CONTEXT

a. Work must be carried out:	1 in compliance with the relevant sections of State and Territory marine regulations, NSCV and USL Code
-------------------------------------	--

The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

b. Work is performed:	1 within broad operational requirements, with responsibility for own outputs in relation to specified quality standards and limited responsibility for others in achieving the specified quality and quantity of outcomes
c. Work involves:	1 the application of basic welding, brazing, cutting and machining procedures and techniques across a defined range of shipboard tasks falling within the limits of responsibility of an Marine Engine Driver Grade 1

2. WORKSITE ENVIRONMENT

a Vessel may include:	1 any Australian commercial coastal vessel
b Basic welding, brazing, cutting and machining tasks may be carried out:	1 while underway 2 while in port 3 while moored or at anchor
c Basic operations within the responsibility of a MED 1 may include:	1 <i>basic fillet welds</i> 2 <i>basic butt welds</i> 3 <i>basic pad welds</i> 4 <i>manual metal arc welding</i> 5 <i>oxygen acetylene welding</i> 6 basic machining operation within the responsibility of a MED 1

Range Statement (continued)

TDMMR6207A CARRY OUT BASIC WELDING, BRAZING, CUTTING AND MACHINING OPERATIONS ON A COASTAL VESSEL

VARIABLE	SCOPE
d Operational hazards when carrying out basic welding, brazing, cutting and machining tasks may include:	1 sharp tools and implements 2 power tools 3 moving and rotating machinery 4 moving heavy loads using unsafe lifting procedures 5 unsecured machinery, components or equipment 6 use of welding equipment near explosive/flammable liquids and gases 7 using equipment beyond safe working limits 8 poor housekeeping procedures 9 non-compliance with safe working procedures
e Documentation and records may include	1 safety management system plans, procedures, checklists and instructions 2 work instructions 3 maintenance records 4 instructions of manufacturer of tools and equipment 5 relevant material safety data sheets 6 vessel and company procedures
h Applicable legislation, regulations and	1 relevant State and Territory marine regulations 2 National Standard for Commercial Vessels (NSCV) and USL

VARIABLE	SCOPE
codes may include	Code
	3 relevant Commonwealth, State and Territory OH&S and pollution control legislation
	4 relevant Australian engineering standards

Unit Sector(s)

Not applicable.

Field

Field MF Carry Out Operations on Equipment and Systems

Relationship to other units

Relationship to other units	The unit must be assessed in conjunction with other units that relate to the functions of the occupation(s) concerned.
------------------------------------	--