Australian Government

MARA023 Manage trim, stability and stress of a vessel

Release: 1

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Modification History

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 control trim, stability and stress within safe limits at all times on a vessel 500 gross tonnage (GT) or more.

This unit applies to people working in the maritime industry in the capacity of:

- Master of a commercial vessel Unlimited.

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 Master Unlimited and to meet regulatory requirements this unit must be delivered consistent with Marine Orders and with the relevant sections of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).

- Those regulatory requirements include STCW International Maritime Organization (IMO) model course competencies and areas of knowledge, understanding and proficiency, together with the estimated total hours required for lectures and practical exercises. Teaching staff should note that timings are suggestions only and should be adapted to suit individual groups of trainees depending on their experience, ability, equipment and staff available for training.

Pre-requisite Unit

Not applicable.

Competency Field

A – Handling cargo and vessel stability

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 Manage vessel trim under normal operating conditions	**1.1** Stability analysis and weight distribution planning are conducted at a time frequency and scope appropriate to the proposed nature of the voyage and vessel operation
	1.2 Weight distribution is arranged to maintain vessel within acceptable stability limits for the anticipated operational situations likely to be experienced during the voyage
	1.3 Calculations are made to determine the draught and centre of gravity (CG) of vessel after adding, removing or shifting weight
	1.4 Factors affecting the stability and trim of vessel are identified and allowances are made in calculations
	1.5 Trim, draughts and list of vessel are controlled, as required, to ensure they are suitable to progress all anticipated vessel operations
2 Control vessel stability when compartment is flooded	**2.1** Damage to vessel and nature of flooding of compartments is assessed
	2.2 Effect upon vessel stability of flooded and flooding compartments is evaluated
	2.3 Suitable strategy for maintaining or restoring trim and stability is devised
	2.4 Where stress limits of the vessel are exceeded as a consequence of damage and/or flooding, appropriate action is initiated to ensure safety of personnel, including abandoning the vessel, as required
3 Manage stress conditions of the vessel	**3.1** Stress levels of the vessel are assessed according to manufacturer specifications
	3.2 Stability of the vessel is monitored at a frequency and scope relevant to vessel operations, sufficient to enable stress and stability to be maintained within acceptable limits at all times

		3.3	Appropriate action is taken where weight distribution has or could exceed acceptable safety limits
4	**Maintain records of stability management**	**4.1**	Data and information related to stability management is accurately recorded
		4.2	Data and information related to stability management is filed and stored according to organisational procedures

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 MARA009 Manage stability of a vessel 500 gross tonnage or more.

Links

Companion Volume implementation guide can be found in VetNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2