



**Australian Government**

# **DEFCA311B Operate an inland tug boat**

**Release: 2**

## DEFCA311B Operate an inland tug boat

### Modification History

Release	TP version	Comments
2	DEF12 V2	Unit Descriptor clarified. Application added. Pre-requisite removed.
1	DEF12 V1	First release on TGA.

### Unit Descriptor

This unit covers the competency required to operate an inland tug boat, specifically a purpose built motorised vessel up to ten metres in length capable of manoeuvring pontoons and raft, with a maximum of five crew. This Unit of Competency covers the operation of the tug while towing/pushing unloaded pontoons of up to thirty ton.

The watercraft will normally be driven in an environment of protected or inland waterways, while conducting a range of tasks including transporting personnel and/or equipment. While the technical aspects of this competency are concerned with 'operating a boat', the specialisation of the skill, and safety issues associated with waterborne operations confer additional responsibilities upon the operator.

For all watercraft operations the individual may need to provide directions to personnel within the boat concerning specific safety matters such as seating, movement and actions on incidents such as 'man overboard' and 'capsize'. The individual must demonstrate sound judgement in the use of authority, and where possible, work within the existing lines of authority.

To operate an inland tug boat, relevant state/territory and commonwealth licensing requirements must be met.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication. In a Defence context, this means that there is no civilian need to hold this unit in order to meet licensing, legislative, regulatory or certification requirements.

### Application of the Unit

This competency was developed for combat engineer personnel required to operate an inland tug boat in a deployed operational environment but is applicable to any individual in this field of work.

The individual will usually operate the boat independently or under indirect supervision and may command a crew of up to five persons, use discretion and judgement, and take responsibility for the quality of their outputs.

All activities are carried out in accordance with relevant organisational policies and procedures.

## Licensing/Regulatory Information

Not applicable.

## Pre-Requisites

Not applicable.

## Employability Skills Information

This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a Unit of Competency.

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<p><b>1. Prepare for tug boat operations</b></p>	<p>1.1 <i>Operating instructions</i> are interpreted to determine the task, the cargo, the destination and route, and navigation data is compiled in accordance with <i>standard procedures</i>.</p> <p>1.2 Cargo weight is within the safe operating limit of the craft and manifests are completed to ensure passengers and cargo are safe to move in accordance with standard procedures.</p> <p>1.3 <i>Equipment</i> is selected, checked for serviceability and unserviceable items are replaced or rejected, and reported to supervisor in accordance with standard procedures.</p> <p>1.4 <i>Shore preparation</i> is conducted in accordance with standard procedures and watercraft is prepared and readied for launch and <i>watercraft operations</i>.</p> <p>1.5 Appropriate personal protective equipment is selected and worn by all personnel in accordance with standard procedures.</p>
<p><b>2. Drive tug boat</b></p>	<p>2.1 Passengers and crew are briefed on safety issues prior to embarking in accordance with standard procedures.</p> <p>2.2 Tug is launched safely in accordance with standard procedures and local conditions.</p> <p>2.3 Tug is loaded and trimmed to ensure safety of crew and craft in accordance with standard procedures.</p> <p>2.4 Tug is driven consistent with <i>hazards and environmental conditions</i>, and in accordance with standard procedures.</p> <p>2.5 Directions are provided, as necessary, to passengers in order to maintain safety and efficient boat operation in accordance with standard procedures.</p> <p>2.6 <i>Contingency and emergency drills</i> are carried out, as necessary, to minimise threat to personnel and equipment in accordance with standard procedures.</p>
<p><b>3. Manoeuvre pontoon using tug boat</b></p>	<p>3.1 Crew are directed to assist with securing and manoeuvring of pontoon.</p> <p>3.2 Uncontrolled <i>pontoons</i> are captured, secured and controlled safely in accordance with standard procedures.</p> <p>3.3 Pontoons are manoeuvred and assembled in accordance with standard procedures.</p>

**4. Recover and restore tug boat**

- 3.4 Supervisor's directions/commands are complied with to control the movement and momentum of the pontoon in accordance with standard procedures.
- 4.1 Personnel and/or equipment are disembarked and/or unloaded safely in accordance with standard procedures.
- 4.2 Tug is recovered safely in accordance with standard procedures from a ramp or expedient landing site.
- 4.3 Tug and associated equipment are checked for serviceability, cleaned and serviced, defects are reported and documentation is completed in accordance with standard procedures.
- 4.4 Debriefings are completed in accordance with standard procedures.
- 4.5 Post activity reports and documentation are completed in accordance with standard procedures.

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

#### Required Skills

- apply launch and recovery procedures
- apply pre-start, start and stop procedures
- calculate and record number and weight of passengers, stores and equipment
- capture and control free-launched pontoons without damage to equipment
- constantly monitor hazards and apply safety principles to operations
- encourage other team members
- follow instructions/directives and report information
- read and interpret navigation charts
- read and interpret operating instructions
- use a variety of verbal and non-verbal communication techniques including language style, active listening
- use clear interpersonal communication as operator of the vessel
- use communications equipment
- use knots and lashings to secure watercraft
- work in a team

#### Required Knowledge

- anchorage methods and systems
- applicable statutory waterways rules for watercraft operation
- boat orders
- boat specific safety requirements and fire suppressant system
- complete equipment schedule list and locations
- controls and indicators
- effects of water moving over objects and obstacles
- emergency procedures
- environmental hazards of refuelling over water
- first aid
- forces acting on boats
- hasty buoyancy/floatation calculations
- launch and recovery procedures
- legal responsibilities
- local water hazards and environmental conditions
- methods for towing/pushing pontoons
- methods of connection/securing to pontoons
- night operation constraints
- operating boundaries

**REQUIRED SKILLS AND KNOWLEDGE**

- pre-start, start, stop procedures
- relevant legislation and procedures in relation to environmental requirements
- relevant WHS regulations/requirements, equipment, material and personal safety requirements
- team work including techniques for supporting others, composition of teams, and roles and responsibilities of team members
- verbal and non-verbal communication techniques including language style, active listening

## Evidence Guide

### Critical aspects for assessment and evidence required to demonstrate competency in this unit

Assessment must confirm the ability to safely drive a tug boat on various waterways under a range of environmental conditions without damaging the equipment. The operator must demonstrate the ability to manage the full range of contingency and emergency drills as listed in the Range Statement.

Assessment must also confirm the ability to manoeuvre a pontoon, with a minimum weight of five ton, by:

- towing
- pushing
- effectively directing crew.

Operation of the tug must be completed in a safe manner by day and night over a range of environmental conditions which must include:

- wind gusts of about 10 knots
- small swell
- varying currents.

### Consistency in performance

Competency should be demonstrated over a time frame that allows for the preparation, launch, recovery, driving and maintenance of watercraft under a range of water operating conditions carrying personnel and cargo.

### Context of and specific resources for assessment

#### Context of assessment

Competency should be assessed in the workplace or in a simulated work environment under conditions that safely replicate a range of conditions that could be expected in the workplace.

#### Specific resources for assessment

Access to crew (up to five people); tug boat and its equipment and accessories, including cargo; suitable inland waterways with access to flowing/tidal water; pontoons; and fuel.



## Range Statement

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 in the Performance Criteria is detailed below.

- |  |   |
|--|---|
| <b><i>Tug boat</i></b> would normally be:                            | <ul style="list-style-type: none"> <li>• a purpose built motorised vessel up to ten metres in length capable of manoeuvring pontoons and raft, with a maximum of five crew</li> </ul>   |
| <b><i>Protected or inland waterways environment</i></b> may include: | <ul style="list-style-type: none"> <li>• by day or night and under illumination</li> <li>• in all weather conditions</li> <li>• under a range of water conditions including sea states, in enclosed waters including tidal rivers, protected harbours, non-tidal rivers, lakes and dams</li> </ul>  |
| <b><i>Operating instructions</i></b> may include:                    | <ul style="list-style-type: none"> <li>• access and egress routes</li> <li>• details of ramps or launching points</li> <li>• details of resupply or evacuation requirements</li> <li>• number and nature of personnel</li> <li>• potential hazards</li> <li>• sea states</li> <li>• tidal information</li> <li>• types of general cargo and weights</li> <li>• weather forecast</li> </ul>  |
| <b><i>Standard procedures</i></b> may include:                       | <ul style="list-style-type: none"> <li>• Australian Standards</li> <li>• job guides, pamphlets and other publications</li> <li>• manufacturers' handbooks, industry specifications and technical instructions</li> <li>• work health and safety (WHS) regulations</li> <li>• organisational policies and procedures</li> <li>• relevant local government by-laws</li> <li>• relevant state/territory or federal legislation or regulations</li> <li>• written and verbal orders and job instructions</li> </ul> |
| <b><i>Equipment</i></b> may include:                                 | <ul style="list-style-type: none"> <li>• appropriate rescue and recovery equipment</li> <li>• buoys, fenders, etc.</li> <li>• communications equipment</li> <li>• personal protective equipment such as life jackets, gloves, helmet</li> <li>• ropes, hawser, cables, tensioners</li> <li>• safety equipment that may be required under state/territory legislation or standard procedures</li> <li>• vehicles and equipment used to transport tug</li> </ul>  |
| <b><i>Shore preparation</i></b> may include:                         | <ul style="list-style-type: none"> <li>• crew briefings</li> <li>• engine start-up procedures</li> </ul>  |

***Watercraft operations*** may include:

- launch procedures
- loading of stores and equipment
- non-technical inspection and reporting
- positioning vessel on ramp or launching site
- pre-start checks of engine
- compliance with waterways rules and regulations
- driving the watercraft
- engine start-up procedures
- moving at a safe speed consistent with the conditions
- navigating to destination
- over water refuelling

***Hazards and environmental conditions*** may include:

- adverse weather
- eddies
- fast flowing streams and near still waters
- floating and submerged debris and snags
- fog or drizzle
- heat and cold
- reduced visibility due to after dark operations
- sea states
- spillage
- time constraints
- undertows
- underwater hazards
- wildlife

***Contingency and emergency drills*** must include:

- abandon ship drills
- action on capsize
- diagnosing and rectifying minor engine faults
- fire drills
- man overboard drills
- propeller replacement
- towing vessels
- use of improvised rudder
- use of oars/improvised oars

***Pontoon*** may include:

- bridge modules
- raft
- un-powered (disabled) vessel

## **Unit Sector(s)**

Not applicable.