



Australian Government

AURRTE3010 Water test engines in tanks

Release 1

AURRTE3010 Water test engines in tanks

Modification History

Release	Comment
Release 1	Replaces AURR346975B Water test engines in tanks Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to performance test an engine in a water tank. It requires the ability to identify and confirm work requirements, set up testing procedure, performance test an engine in a water tank and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.
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Application of the Unit

Application of the unit	This unit applies to individuals who undertake the performance testing of an engine in a water tank in a marine environment.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices, applicable to the work 1.3. Access and interpret repair method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area
2. Set up testing equipment	2.1. Prepare engine for testing 2.2. Link testing equipment to engine in accordance with manufacturer and component supplier specifications 2.3. Carry out all activities according to industry regulations and guidelines, WHS and environmental legislation, and enterprise policies and procedures
3. Performance test engine	3.1. Conduct test by starting and operating engine through speed ranges as specified in test procedure 3.2. Document performance data during engine test sequence 3.3. Compare engine performance data to manufacturer and component supplier specifications 3.4. Prepare test reports and make recommendations for repairs and/or modifications
4. Clean up work area and finalise work	4.1. Clean and inspect equipment and tooling according to workplace requirements 4.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 4.3. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures 4.4. Finalise and process work completion documentation and give to appropriate persons, as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to marine engine inspection and tank testing, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and diagnosis and repair procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to research, analyse and interpret information related to work orders and manufacturer and component supplier requirements, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements, including assessing tolerances, applying accurate measurements and calculating material requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- marine engine and system components classifications and types
- electronic, electrical and hydraulic controls
- engine operating systems
- engine performance report compilation and presentation
- types and layout of service and/or repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to marine engine inspection and tank testing
- organisational policies and procedures, including quality, reporting and recording procedures, related to marine engine inspection and tank testing

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • performance test a minimum of three (3) ignition engines with fuel and temperature faults within workplace timeframes • complete workplace and equipment records and workplace clean-up requirements.
Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment. • Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints. • Assessment is to comply with relevant regulatory requirements, including specified Australian standards. • Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability. • The following resources should be made available: • workplace location or simulated workplace • faulty engines, including engines with fuel and temperature faults • equipment, hand and power tools appropriate to the water testing of engines in tanks • specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and

EVIDENCE GUIDE

	accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement**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. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Engine systems

Engines systems may include:

- 2- or 4-stroke
- inboard or outboard engine
- fitted or not fitted to a vessel

Prepare engine for testing

Prepare engine for testing may include:

- using lifting equipment to locate engine in tank
- checking security of water tank
- ensuring exhaust emissions are removed as

RANGE STATEMENT	
	required by state and territory laws
Test report	Test report may include: • recommendations for repairs and/or modifications • component conformity to manufacturer and supplier specifications • performance enhancing components which may satisfy the customer requirement • conformity to and implications of local, state and territory regulations and laws which may influence the customer decisions • component manufacturer and component supplier warranty considerations
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine,

RANGE STATEMENT	
	Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements • current boating licence
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management

RANGE STATEMENT**Organisational policies and procedures**

Organisational policies and procedures may include:

- quality policies and procedures, including Australian standards
- WHS, sustainability, environment, equal opportunity and anti-discrimination
- manufacturer specifications and industry codes of practice
- safe work procedures
- reporting and recording procedures

Unit Sector(s)**Unit sector**

Marine

Co-requisite units

Not applicable.

Competency field**Competency field**

Technical - Engines