



Australian Government

Department of Education, Employment and Workplace Relations

RTC2301A Undertake operational maintenance of machinery

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This competency standard covers basic maintenance procedures required to support machinery operations. It involves non-specialist skills to perform basic servicing and repairs on a range of machinery according to scheduled maintenance programs. Competency requires an awareness of workplace safety, and positive environmental practices associated with maintenance activities. The work is likely to be carried out under limited supervision with checking only related to overall progress within established enterprise routines and procedures.

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Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

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Element	Performance Criteria
1 Prepare for maintenance	1.1 Maintenance plans are accessed and understood prior to undertaking maintenance work. 1.2 Tools and supplies are selected appropriate to job requirements and confirmed against maintenance plan. 1.3 Tools are inspected for serviceability and prepared for use according to manufacturers specifications and enterprise requirements. 1.4 OHS hazards in the workplace are identified, risk assessed and reported according to enterprise requirements.
2 Perform scheduled maintenance	2.1 2.5 More serious or complex faults are reported for referral according to enterprise requirements. 2.2 2.1 Suitable personal protective equipment is selected, used, maintained and stored according to OHS requirements. 2.3 2.2 Greasing, lubrication and other basic servicing of machinery is carried out according to manufacturers specifications and enterprise requirements. 2.4 2.3 Equipment is adjusted according to manufacturers specifications and enterprise requirements. 2.5 2.4 Basic diagnostic techniques are applied and mechanical faults are identified and rectified according to manufacturers specifications.
3 Complete maintenance activities	3.1 Tools are cleaned and stored according to OHS and enterprise requirements. 3.2 Waste from maintenance activities is collected, treated and disposed or recycled according to enterprise environmental requirements. 3.3 Work areas are cleaned, returned to operating condition and maintained according to OHS and

enterprise requirements.

- 3.4 **Relevant information** is documented according to industry and enterprise requirements.

Required Skills and Knowledge

Not applicable.

Evidence Guide

What evidence is required to demonstrate competence for this standard as a whole?

Competence in performing operational maintenance of machinery requires evidence of the ability to select and match the correct tools and supplies to carry out scheduled servicing and minor repairs to a range of plant and equipment. It also requires the ability to apply operational safety procedures, access and interpret maintenance plans, apply basic diagnostic techniques, recognise and rectify minor mechanical faults, and maintain maintenance records. The skills and knowledge to undertake operational maintenance of machinery must be **transferable** to a different work environment. For example, this could include different machinery and equipment, and workplaces.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

Servicing characteristics of plant and equipment.

Types and uses of lubricants and other commonly used servicing materials.

Operational principles of machinery including mechanical and auto-electrical systems.

Types, characteristics, uses and limitations of hand and power tools.

Functions of components of common mechanical and hydraulic systems.

Working principles of 2-stroke, 4-stroke, petrol and diesel engines.

Set-up requirements of plant and equipment, and principles of calibration.

Basic diagnostic processes and techniques.

Environmental Codes of Practice with regard to maintenance activities.

OHS legislative requirements and Codes of Practice.

Hazard identification and assessment.

OHS procedures.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

Select and match tools with work requirements.

Apply hand-eye coordination.

Apply basic diagnostic techniques.

Recognise and rectify common mechanical faults.

Perform scheduled maintenance including basic servicing and minor mechanical repairs.

Read and interpret maintenance plans, manufacturers specifications, safety decals and MSDS.

Effectively communicate with work team and supervisor, report faults, and maintain records.

Measure and calculate volumes, consumption and lubrication requirements.

What processes should be applied to this competency standard?

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

1. How can **communication of ideas and information (1)** be applied? Information with regard to complex mechanical faults may be reported and referred for repair or replacement.
2. How can **information be collected, analysed and organised (1)**? Information with regard to machinery servicing, identified faults and repairs undertaken may be documented for reference and analysis, and organised by reports.
3. How are **activities planned and organised (1)**? Machinery maintenance activities may be planned and coordinated with maintenance schedules and work schedules, or sequenced as required.
4. How can **team work (1)** be applied? In the application of communication, methods and procedures to complete individual tasks to achieve scheduled maintenance requirements.
5. How can the use of **mathematical ideas and techniques (1)** be applied? Basic mathematical techniques may be applied in the calculation and measurement of volumes, weights and consumption, particularly in relation to lubrication and fuel requirements.
6. How can **problem-solving skills (1)** be applied? Tool faults or malfunctions will need to be repaired or replaced to complete and minimise disruption to scheduled maintenance work.
7. How can the **use of technology (1)** be applied? To communicate, measure and record information with regard to machinery maintenance, usage and performance.

Are there other competency standards that could be assessed with this one?

This competency standard **could** be assessed on its own or in combination with other competencies relevant to the job function.

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to both the **Assessment Guidelines** and the relevant **Sector Booklet**.

Range Statement

Range of Variables

The Range of Variables explains the range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work situations available

What information may be included in a **maintenance plan**?

This may include details of scheduled maintenance and servicing requirements and procedures, tools and supplies required to undertake maintenance tasks, pre-start and safety checks for tools and machinery, mechanical diagnostic procedures, common mechanical faults and adjustment or repair procedures, current operational details, supervisors instructions and reporting requirements.

What **tools and supplies** may be required?

This may include hand tools, hand held power tools, grease guns, safety equipment, cleaning and maintenance supplies including grease, fuel, oil, chemicals, water steam, power and air.

What may be involved in the **preparation** of tools?

Preparation may include routine safety and pre-start checks, and procedures involving cleaning, lubricating, hand sharpening, priming pumps, clearing filters, basic repairs, tightening and adjustments.

What **enterprise requirements** may be applicable to this standard?

Standard Operating Procedures (SOPs), industry standards, production schedules, Material Safety Data Sheets (MSDSs), work notes and plans, product labels, manufacturers specifications, operators' manuals, enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), and supervisors oral or written instructions.

What **OHS** requirements may be relevant to this standard?

Safe systems and procedures for:
operating and maintaining machinery including hydraulics and guarding of exposed moving parts
hazard and risk control
manual handling including lifting and carrying

	the provision of safety decals and signage handling, application and storage of hazardous substances outdoor work including protection from solar radiation, dust and noise lock out or danger tag procedures protection of people in the workplace the appropriate use, maintenance and storage of personal protective clothing and equipment.
What hazards may be associated with maintenance activities?	Workplace hazards may include exposure to loud noise and fumes, solar radiation, dust, and hazardous substances. It may also include oil and grease spills, electricity, mechanical malfunctions and entanglement with machinery from exposed moving parts including hydraulics.
What personal protective equipment may be relevant to this standard?	This may include boots, hat/hard hat, overalls, gloves, protective eyewear, safety harness, hearing protection, respirator or facemask, and sun protection (sun hat, sunscreen).
What may be involved in basic servicing procedures?	This may include greasing and lubricating, carrying out checks of the cooling system, fuel, grease and oil, battery levels, inspections of tyre pressures, fan belts, leads, lines, connections, air filters, electrical, hydraulics, steering, lighting, transmission, and confirmation of safety guards, PTO stubs and shafts.
What machinery may be covered in this standard?	This may include motorised equipment and implements. Motorised machinery may include sprayers, tractors, mechanical pruners, harvesters, turf mowers, rotary hoes, chainsaws, hedge trimmers, winches, vehicles and motorcycles.
How might mechanical faults be defined in this standard?	Basic faults reasonably within the scope of a non-mechanic and may include damage, wear, malfunction or unsoundness.
What positive environmental practices may	This may include the reduction of excessive noise and exhaust emissions, the safe use and

be relevant to maintenance activities?

disposal of maintenance debris including oil containers, fuel and chemical residues. It may also include preventative measures with regard to soil disturbance, dust and increased run-off flows caused by servicing, maintenance and cleaning activities.

What **relevant information** may be documented?

This may include tool usage and operational faults or malfunctions, machinery servicing and repair procedures and outcomes, machinery performance and operational faults or malfunctions, damage details, and hazard and incident reports.

For more information on contexts, environment and variables for training and assessment, refer to the Sector Booklet.

Unit Sector(s)

Not applicable.