

RTC2301A**Undertake operational maintenance of machinery****Unit Descriptor**

Undertake operational maintenance of machinery

Unit Sector

No sector assigned

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 Occupational Health and Safety hazards in the workplace are identified, risk assessed and reported according to enterprise requirements |
| 2. Perform scheduled maintenance | 2.1 Suitable personal protective equipment is selected, used, maintained and stored according to Occupational Health and Safety requirements |
| | 2.2 Greasing, lubrication and other basic servicing of machinery is carried out according to manufacturers specifications and enterprise requirements |
| | 2.3 Equipment is adjusted according to manufacturers specifications and enterprise requirements |
| | 2.4 Basic diagnostic techniques are applied and mechanical faults are identified and rectified according to manufacturers specifications |
| | 2.5 More serious or complex faults are reported for referral according to enterprise requirements |
| 3. Complete maintenance activities | 3.1 Tools are cleaned and stored according to Occupational Health and Safety 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 Occupational Health and Safety and enterprise requirements |
| | 3.4 Relevant information is documented according to industry and enterprise requirements |

KEY COMPETENCIES

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.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	With regard to complex mechanical faults may be reported and referred for repair or replacement	1
Collecting analysing and organising information	With regard to machinery servicing, identified faults and repairs undertaken may be documented for reference and analysis, and organised by reports	1
Planning and organising activities	For machinery maintenance through maintenance schedules and work schedules, or sequenced as required	1
Working with others and in teams	In the application of communication, methods and procedures to complete individual tasks to achieve scheduled maintenance requirements	1
Using mathematical ideas and techniques	May be applied in the calculation and measurement of volumes, weights and consumption, particularly in relation to lubrication and fuel requirements	1
Solving problems	Tool faults or malfunctions will need to be repaired or replaced to complete and minimise disruption to scheduled maintenance work	1
Using technology	To communicate, measure and record information with regard to machinery maintenance, usage and performance	1

RANGE STATEMENT

Maintenance plan

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

Tools and supplies

may include

- hand tools
- hand held power tools
- grease guns
- safety equipment
- cleaning and maintenance supplies including
 - grease
 - fuel
 - oil
 - chemicals
 - water steam
 - power
 - air

Preparations

may include

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

Standard Operating Procedures (SOPs)

may include

- industry standards
- production schedules
- Material Safety Data Sheets (MSDS)
- work notes and plans
- products labels
- manufacturers specifications
- operator's manuals
- enterprise policies and procedures including
 - waste disposal
 - recycling
 - re-use guidelines
- supervisors oral or written instructions

Occupational Health and Safety

may include 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

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

Personal protective equipment

may include

- boots
- hat/hard hat
- overalls
- gloves protective eyewear
- safety harness
- hearing protection
- respirator or facemask
- sun protection, eg, sun hut, sunscreen

Basic servicing procedures 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
- confirmation of safety guards
- Power Take Off (PTO) stubs and shafts

Enterprise requirements applicable to this standard may include

- industry standards
- production schedules
- Material Safety Data Sheets (MSDS)
- work notes and plans
- product labels
- manufacturers specifications
- operator's manuals
- enterprise policies and procedures including
 - waste disposal
 - recycling
 - re-use guide
- supervisors oral or written instructions

Machinery covered may include

- motorised equipment and implements
- motorised machinery may include
 - sprayers
 - tractors
 - mechanical pruners
 - harvesters, turf mowers
 - rotary hoes, chainsaws
 - hedge trimmers
 - winches
 - vehicles
 - motorcycles

Mechanical faults	can be defined as basic faults that are reasonably within the scope of non-mechanical faults and may include • damage, wear, malfunction or unsoundness
Positive environmental practices	relevant to maintenance activities may include • the reduction of excessive noise and exhaust emissions, the safe use and 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
Relevant information	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
The sport and recreation industry	covers • industry sectors of community recreation, fitness, outdoor recreation and sport • significant roles played by activity organisations, industry peak bodies, professional organisations • large volunteer base • high turnover of volunteers • high levels of part time and casual employment • irregular working hours • relatively few professional positions • workforce employed mostly in operational positions • mainly small business or self-employed personnel • slow to take up technology • over 2/3 of the sport and recreation industry have no formal/recognised qualifications • significant reliance upon industry credentials and involvement in the activity itself

EVIDENCE GUIDE

Critical aspects of evidence to be considered

- Assessment must confirm sufficient knowledge in performing operational maintenance of machinery
- Assessment of performance should be over a period of time covering all categories from the Range Statements applicable to the learner's environment
- In particular, assessment must confirm the ability to
 - to select and match the correct tools and supplies to carry out scheduled servicing and minor repairs to a range of plant and equipment
 - apply operational safety procedures
 - access and interpret maintenance plans
 - apply basic diagnostic techniques
 - recognise and rectify minor mechanical faults
 - maintain maintenance records
 - transfer the skills and knowledge to undertake operational maintenance of machinery to a different work environment, eg, this could include different machinery and equipment, and workplace

Interdependent assessment of units

- This unit must be assessed after attainment of competency in the following unit(s)
 - Nil
- This unit must be assessed in conjunction with the following unit(s)
 - Nil
- For the purpose of integrated assessment, this unit may be assessed in conjunction with the following unit(s)
 - Nil

Required knowledge and skills

- Required knowledge
 - Types and uses of lubricants and other commonly used servicing materials
 - Operational principles of machinery including mechanical and auto-electrical systems
 - Servicing characteristics of plant and equipment
 - Types, characteristics, uses and limitations of hand 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
 - Occupational Health and Safety legislative requirements and Codes of Practice
 - Hazard identification and assessment
 - Occupational Health and Safety procedures
- Required skills
 - Nil

Resource implications

- Physical resources - assessment of this competency requires access to
 - personal protective equipment
 - tools and supplies
 - appropriate documentation and resources normally used in the workplace
- Human resources - assessment of this competency will require human resources consistent with those outlined in the Assessment Guidelines. That is, assessors (or persons within the assessment team) should
 - be competent in this unit
 - be current in their knowledge and understanding of the industry through provision of evidence of professional activity in the relevant area
 - have attained the National Competency Standards for Assessment: BSZ401A, BSZ402A and BSZ403A

Consistency in performance

- Competence in this unit must be assessed over a period of time in order to ensure consistency of performance over the Range Statements and contexts applicable to the work environment

Context for assessment

- This unit of competency must be assessed in the context of a sport or recreation activity. For valid and reliable assessment the sport or recreation activity should closely replicate the work environment. The environment should be safe with the hazards, circumstances and equipment likely to be encountered in a real workplace
- Assessment of this unit of competence will usually include questioning of processes and procedures, oral and/or written questioning on required knowledge and skills and consideration of required attitudes
- Where performance is not directly observed and/or is required to be demonstrated over a "period of time" and/or in a "number of locations", any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons

Essential Assessment Information

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 the **Assessment Guidelines** . Further advice may also be sought from the relevant **sector booklet** .