



Australian Government

CPPSPS3007A Routinely maintain swimming pool and spa heating systems

Release: 1

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Modification History

Version	Comments
1	This version first released with CPP07 Property Services Training Package Version 13.

Unit Descriptor

This unit of competency specifies the outcomes required to carry out routine maintenance of swimming pool and spa heating systems. It includes preparing for routine maintenance to swimming pool and spa heating systems, carrying out routine maintenance and repairs, and completing maintenance activities.

Application of the Unit

This unit of competency supports the work of swimming pool and spa technicians engaged in servicing domestic, commercial and public swimming pools and spas.

Licensing/Regulatory Information

Service technicians are not permitted to undertake any installation, replacement, maintenance and repair functions that are restricted to licensed trades or occupations (subject to relevant state and territory regulations). Different states and territories may have regulatory mechanisms that apply to this unit. Users are advised to check for regulatory limitations.

Pre-Requisites

Nil

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 required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

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| 1 Prepare for routine maintenance. | <p>1.1 Applicable provisions of Australian standards, and legislative, manufacturer and enterprise requirements are identified and followed.</p> <p>1.2 <i>Work instructions</i> are obtained, reviewed and confirmed as required with <i>relevant persons</i>.</p> <p>1.3 Swimming pool or spa heating system to be serviced is identified and confirmed in line with enterprise requirements.</p> <p>1.4 Maintenance requirements of swimming pool or spa heating system are confirmed in line with enterprise procedures.</p> <p>1.5 <i>Tools and equipment</i> needed to carry out the work are selected and checked for correct operation and safety.</p> <p>1.6 Potential and existing <i>risks and hazards</i> in the work area are identified and controlled in line with work health and safety (WHS) and enterprise requirements.</p> |
| 2 Carry out routine maintenance. | <p>2.1 <i>Personal protective equipment</i> is selected and used in line with WHS and enterprise requirements.</p> <p>2.2 Swimming pool or spa heating system is inspected and assessed for operational effectiveness against normal operating criteria.</p> <p>2.3 <i>Routine servicing</i> of swimming pool or spa heating system is carried out in line with manufacturer instructions, legislative and regulatory requirements and</p> |

enterprise procedures.

2.4 ***Faults*** are identified and ***routine repairs*** undertaken in line with manufacturer instructions, and legislative, regulatory, client and enterprise requirements.

2.5 Complex faults and repair requirements are reported to relevant persons in line with enterprise requirements.

3 **Complete maintenance activities.**

3.1 Serviced and repaired swimming pool or spa heating system is reinstated to operational condition in line with work instructions and enterprise procedures.

3.2 Work area is restored to original condition and checked for safety hazards, waste is disposed of, and tools and equipment are cleaned and stored in line with WHS and enterprise requirements.

3.3 Malfunctions, faults, wear or damage to swimming pool or spa, heating system and environs, tools and equipment are reported for repair or replacement in line with enterprise procedures.

3.4 Notification of work completion is made to relevant persons in line with enterprise procedures.

3.5 Information is provided to clients on compliance of swimming pool or spa and environs with safety legislation in line with enterprise requirements.

3.6 Relevant documentation is completed and securely maintained in line with enterprise procedures.

Required Skills and Knowledge

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

Required skills

- communication skills to interact in an ethical manner with clients from diverse social, economic and cultural backgrounds
- decision-making and problem-solving skills to identify and rectify faults in swimming pool and spa heating systems
- literacy skills to read and interpret work instructions
- numeracy skills to interpret mathematical and graphical information related to swimming pool and spa heating systems
- research skills to locate manufacturer's and other information on components and operation of swimming pool and spa heating systems
- technology skills to use tools and equipment required to carry out routine maintenance on swimming pool and spa heating systems

Required knowledge

- Australian Competition and Consumer Commission product safety guidelines
- commonwealth, state or territory, and local government legislation and regulations, Australian standards, and codes of practice impacting on the routine maintenance of swimming pools and spas related to:
 - dangerous goods
 - electrical and plumbing regulations controlling conduct of electrical and plumbing work
 - environment protection
 - environmental health
 - work health and safety
 - private and public swimming pools and spas
 - waste disposal
- energy efficiency:
 - energy consumption of different heating systems
 - ways of maximising energy efficiency of swimming pool and spa heating systems
- hazards associated with heated water in swimming pools and spas:
 - algae
 - bacteria
 - chemical treatment
 - protozoa
 - viruses

- water testing
- swimming pool and spa heat loss and gain:
 - calculations of energy loss and gain
 - conduction loss
 - controlling energy loss
 - convection loss
 - energy loss
 - heat gains:
 - heaters
 - indirect sources
 - sunlight
 - pool and spa covers
 - thermal radiation loss
 - water temperatures for different water-related activities
- swimming pool and spa heating system:
 - appliance details
 - benefits and limitations of different types of heating systems
 - common faults
 - components
 - differences between indoor and outdoor pools and spas:
 - air temperature requirements
 - energy efficiency
 - energy recovery systems
 - heating system impact on water chemistry
 - maintenance procedures and costs
 - operating principles of different heating systems
 - principles underpinning use of pool cover in conjunction with heating system
 - purpose of heating system
 - source of advice on and assistance with heating systems
 - types, operation, fault finding and servicing of heating systems:
 - gas
 - solar
 - electric
 - heat exchangers
 - heat pumps

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	This unit of competency could be assessed by carrying out routine maintenance of the following types of swimming pool and spa heating systems: • gas • solar • electric • heat exchangers • heat pumps.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person should demonstrate the ability to: • locate, interpret and apply relevant information, standards and specifications to carry out routine maintenance of swimming pool and spa heating systems • apply safety requirements throughout the work sequence, including using personal protective clothing and equipment • carry out routine maintenance activities on the heating systems of swimming pools and spas, including identifying faults and undertaking routine repairs in line with manufacturer instructions and client and enterprise requirements • report complex faults and repair requirements to relevant persons in line with enterprise requirements • restore work area to original condition and check swimming pool or spa, heating system and environs for safety hazards • ensure that waste is disposed of and tools and equipment are cleaned and stored in line with WHS and enterprise requirements.
Context of and specific resources for assessment	Assessment of essential underpinning knowledge may be conducted in an off-site context and is to comply with relevant regulatory and Australian Standards' requirements. Resource implications for assessment include: • relevant codes, standards and government regulations • a technical reference library with current publications on different types of swimming pool and spa heating systems and components.
Method of assessment	Assessment methods must: • satisfy the endorsed Assessment Guidelines of the CPP07 Property Services Training Package • include direct observation of tasks in real or simulated work

	conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application • reinforce the integration of employability skills with workplace tasks and job roles • confirm that competency is verified and able to be transferred to other circumstances and environments. This unit could be assessed on its own or in combination with other units relevant to the job function.
Guidance information for assessment	Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support. Assessment processes and techniques should, as far as is practical, take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

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, if used in the performance criteria, is detailed below. 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.

Work instructions may include:	• access to site and specific site requirements • equipment and systems location information • equipment, tools and material requirements • heating system information: • features, functions and capabilities • manufacturer instructions • service and maintenance requirements • type • warranties and guarantees • personal protective clothing and equipment requirements • reporting requirements • specific client requirements • timeframes • work schedules • work tasks and procedures.
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Relevant persons may include:	• business owner • client • colleague • equipment and systems manufacturer • site manager or project manager • supervisor • swimming pool or spa manager or operator • technician.
Swimming pool and spa heating systems may include:	• gas • electric • heat exchangers • heat pumps • solar: • freestanding • glazed • plastic • roof-mounted • rubber • solar blankets.
Tools and equipment may include:	• communications equipment • computer and software • hand tools • ladders • lifting equipment • personal protective equipment • power tools • scaffolds.
Risks and hazards may include:	• burns and scalds • chemical hazards • confined spaces • electrical hazards • exposure to: • asbestos • algae • bodily fluids • contaminated surfaces • contaminated water: • bacteria • faecal • viruses

	• disinfection by products • dogs • dust • fibres • glass • heights • insects • live power • natural and other gas build-up • noise • snakes • spiders • sun • swimming pool and spa chemicals • vermin • weather • gas hazards • inadequate ventilation • manual handling • non-compliance with building codes and regulations • personal health hazards • plant and equipment hazards • trips and falls • unaccompanied minors • water hazards.
Personal protective equipment may include:	• buoyancy vest or personal flotation device (PFD) • gloves • hard hat or protective head covering • hearing protection (e.g. earplugs and earmuffs) • high visibility vest • non-slip and waterproof boots or other safety footwear • protective eyewear and glasses • protective outdoor clothing • respirator or face mask • safety harness • sun protection (e.g. sunhat, sunscreen and sunglasses) • uniforms or overalls • water-resistant clothing.
Routine servicing may include:	• adjustments • cleaning • confirming operation

	• identifying worn parts • inspecting • lubricating • programming automated systems • replacing consumable or worn parts • routine repairs • testing.
<i>Faults</i> may include:	• heating system not operational • leakages • non-compliance with manufacturer's design or recommendations • pool surface staining • pool water quality • reduced performance of swimming pool and spa heating system • water circulation.
<i>Routine repairs</i> are restricted to:	• replacing non-electrical and non-gas components.

Unit Sector(s)

Competency field

Unit sector Swimming pools and spas

Custom Content Section

Not applicable.