



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **PRMPFES42A Install, inspect, test and maintain pre-engineered fire system for transportable equipment**

Release: 1

## **PRMPFES42A Install, inspect, test and maintain pre-engineered fire system for transportable equipment**

### **Modification History**

Not Applicable

### **Unit Descriptor**

#### **Unit descriptor**

This unit of competency covers the requirements for a fire system technician to install, commission, inspect, test, maintain and rectify a pre-engineered foam fire suppression system to protect mobile and transportable equipment. All work in this area must be completed in accordance with relevant legislative, industry, customer and organisational requirements, including occupational health and safety (OHS) policies and procedures.

### **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

| ELEMENT                                                                                        | PERFORMANCE CRITERIA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 Interpret and comply with legal and industry requirements relating to fire system operations | <ul style="list-style-type: none"><li>1.1 Apply knowledge and understanding of <i>legislative and industry requirements</i>, including relevant state/territory building codes, to <i>work procedures</i></li><li>1.2 Confirm or clarify knowledge and understanding of <i>legislative and industry requirements</i>, including state/territory building codes, where necessary, with relevant persons</li><li>1.3 Identify <i>potential and actual breaches</i> of <i>legislative and industry requirements</i> and take action according to <i>organisational requirements and OHS policies and procedures</i></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2 Install a pre-engineered fire suppression system to mobile and transportable equipment       | <ul style="list-style-type: none"><li>2.1 Obtain all necessary work permits prior to entering customer premises</li><li>2.2 Conduct risk assessment of equipment and determine risk reduction measures in accordance with <i>legislative and industry requirements</i>.</li><li>2.3 Confirm the installation site as appropriate according to <i>customer requirements</i> and manufacturers' specifications</li><li>2.4 Determine system scope of protection, fire system operational parameters and fire system/equipment interfaces according to <i>customer requirements</i>, Australian Standards and manufacturers' specifications</li><li>2.5 Plan the installation and location of all equipment with <i>relevant person</i> to satisfy <i>customer requirements</i> and manufacturers' specifications</li><li>2.6 Assemble materials ready for installation in accordance with <i>manufacturer specifications</i></li><li>2.7 Install all <i>system components</i> according to <i>customer requirements</i>, Australian Standards, manufacturers' instructions and specifications</li><li>2.8 Install auxiliary shutdown fire system/equipment interface and alarm device connections in accordance with <i>customer requirements</i>, Australian Standards and manufacturers' specifications</li><li>2.9 <i>Commission</i> system in accordance with <i>customer requirements</i>, Australian Standards and manufacturers' specifications</li></ul> |

## ELEMENT

## PERFORMANCE CRITERIA

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|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>3 Inspect pre-engineered fire suppression system fitted to mobile and transportable equipment</p>           | <p>2.10 Leave the installation site clean and tidy on completion of work functions</p> <p>2.11 Complete all <i>documentation</i> and provide system manual to client specific to the installed equipment</p> <p>3.1 Identify the type of fire suppression equipment and system to be inspected and tested according to manufacturers' mode of operation and application</p> <p>3.2 Identify, locate and inspect components of the <i>pre-engineered fire suppression system</i> according to function, manufacturers' manuals and Australian Standards</p> <p>3.3 Identify and inspect auxiliary shutdown fire system/equipment interfaces and alarm devices forming part of the <i>fire suppression system</i></p> <p>3.4 Identify potential and actual breaches of the fire suppression equipment and system performance in reference to and in accordance with state/territory building codes, manufacturers' documentation and Australian Standards</p> |
| <p>4 Test an installed fire suppression system fitted to mobile and transportable equipment</p>                | <p>4.1 Obtain all necessary work permits prior to entering customer premises</p> <p>4.2 Complete pre-testing procedures according to the requirements of the service manual and manufacturers' instructions and specifications</p> <hr/> <p>4.3 Adhere to all <i>safety procedures</i> according to <i>organisational requirements, customer requirements</i> and manufacturers' requirements</p> <p>4.4 Complete and record testing procedures according to the relevant maintenance schedule, Australian Standards and manufacturers' documentation</p> <p>4.5 Complete <i>documentation</i> for recording test and inspection results according to <i>organisational requirements, customer requirements</i> and manufacturers' requirements</p>                                                                                                                                                                                                         |
| <p>5 Maintain and repair an installed fire suppression system fitted to mobile and transportable equipment</p> | <p>5.1 Obtain all necessary work permits prior to entering customer premises</p> <p>5.2 Consult with <i>relevant persons</i> before commencing maintenance and repair procedures</p> <p>5.3 Maintain the system according to the requirements of the relevant maintenance</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## ELEMENT

## PERFORMANCE CRITERIA

- schedule, Australian Standards and manufacturers' documentation
- 5.4 Report and rectify faulty equipment and/or *extinguishing agent* in accordance with *work procedures, customer requirements* and manufacturers' technical specifications
- 5.5 Reinstall system to fully operational status as specified in manufacturers' documentation and system design standards
- 5.6 Adhere to all safety procedures according to *organisational requirements, customer requirements* and manufacturers' requirements.
- 5.7 Complete all *documentation* relating to maintenance and repairs carried out, advise client and distribute according to *organisational requirements* and *customer requirements*

## Required Skills and Knowledge

Refer to Evidence Guide

## Evidence Guide

### EVIDENCE GUIDE

#### **Knowledge needed to achieve the performance criteria**

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

- The key features of legislation and regulations relevant to mobile and transportable equipment.
- Manufacturers' requirements and standards applicable to design, installation, commissioning, inspecting, testing and maintaining a pre-engineered mobile and transportable equipment fire suppression system.
- The implications of NOT applying legislative requirements to job functions.
- Action to take when a breach of health, safety and other policies occurs.
- Purpose of fire suppressions systems.
- Design, installation and commission requirements and limitations of the manufacturers' proprietary system.
- Procedures for inspection, testing and maintenance of the system to verify operation to manufacturers' requirements.
- Identification and purpose of the major components in the fire suppression system for different manufacturers' proprietary systems.
- Limitations of maintenance and repair by the service technician.
- Purpose for installing the system.
- Reasons for commissioning after installation.
- Implications of not adhering to safety procedures.
- Implications of incorrect inspecting, testing and maintenance functions.

#### **Specific skills needed to achieve the performance criteria**

To achieve the performance criteria, some complementary skills are required. These relate to the ability to:

- use hand and power tools safely and with dexterity
- operate standard controls on proprietary systems to verify system operation to manufacturers' requirements
- install system components in accordance with manufacturers' requirements
- terminate/join flexible high-pressure hose and metal tubing to meet manufacturers' requirements
- install brackets and high-pressure hose and metal tubing to meet manufacturers' requirements
- locate nozzles, pipe runs, containers, actuators, fire detectors and other system components to meet manufacturers' requirements
- handle and transport cylinders in accordance with legislation, manufacturers' procedures and work procedures
- replace extinguishing agent and components in a manner that conforms to OHS requirements, environmental requirements and manufacturers' specifications
- report and record information neatly and legibly when completing documentation
- plan and organise work in order to estimate time to complete activities and prioritise tasks
- apply language, literacy and numeracy skills to:

- communicate with others in a clear and concise manner in both written and verbal modes
- read, understand and comply with work instructions/specifications
- read, understand and record measurements
- use appropriate workplace housekeeping procedures
- utilise effective customer service skills and relate to people from a range of social and cultural backgrounds

### **Other units of competency that could be assessed with this unit**

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

### **Resources required to assess this unit**

The following resources should be available:

- access to customer premises or a simulated workplace environment
- assessment documentation
- all necessary tools, specialist equipment, manuals and relevant documentation
- training and assessment record book.

### **Gaining evidence to assess this unit**

For valid and reliable assessment of this unit, the competency should be demonstrated over a period of time and be observed by the assessor (or assessment team working together to conduct the assessment). The competency is to be demonstrated in a range of situations, which may include customer/workplace interruptions and involvement in related activities normally experienced in the workplace.

Assessment of competence over the full range of performance criteria should be made through practical demonstrations at a customer's premises. However, at times this may not be practicable, and in these situations the conditions normally available to the candidate may be simulated in an environment suitable for assessment.

Competency is to be demonstrated through a single, practical demonstration covering the full range of performance criteria for each proprietary system. The ability to transfer skills to other situations described in the range statement is inferred from this assessment. (Oral questioning may be used to provide evidence of this ability.)

Candidates should also be given the opportunity to practise and undertake self-assessment of performance before requesting formal assessment.

All safety requirements must be strictly adhered to during all practical activities.

Oral questioning or a written assessment may be used to assess underpinning knowledge. (In assessment situations where the candidate is offered a preference between oral questioning and written assessment, questions are to be identical.)

Assessment of evidence should establish the candidate's ability to perform the job to the standard required in the workplace and meet manufacturers' endorsement and training requirements specific to installing, commissioning, inspecting, testing and maintaining the particular proprietary system.

Supplementary evidence may be obtained from relevant authenticated correspondence or reports from supervisors or team leaders and manufacturers' endorsement of competency on their proprietary system. Other forms of evidence may include audit reports, client/customer survey reports and appraisal reports.

Note: The candidate should be encouraged to compile a portfolio of examples of completed documentation relevant to the candidate's organisation. One accurate example of each completed document is suggested as sufficient to infer competency and the ability to transfer the appropriate skills to each document type when required in the workplace. (Oral questioning may contribute as evidence of this ability.)

Information derived from enterprise policy and practices must be treated as commercial-in-confidence.

Performance and assessment of this unit must be carried out within the relevant requirements of the following legislative and industry framework:

- building Acts/regulations/codes
- Australian Standards identified as relevant to the required maintenance procedure
- environmental regulations
- manufacturers' specifications
- organisational requirements including OHS policies and procedures
- OHS legislation, codes and regulations.

### **Key competency levels**

There are a number of processes learnt throughout work and daily life that are required in all jobs. They are fundamental processes and generally transferable to other work environments. Some of these work processes are covered by the key competencies listed below. Information provided to each question highlights how these processes are applied in this unit of competency.

The number in brackets indicates the level to which the key competency should be demonstrated.

- |                              |                                             |                                                     |
|------------------------------|---------------------------------------------|-----------------------------------------------------|
| <b>1</b> Perform the process | <b>2</b> Perform and administer the process | <b>3</b> Perform, administer and design the process |
|------------------------------|---------------------------------------------|-----------------------------------------------------|

|                                                                             |                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| How can <b>information be collected, analysed and organised</b> (3)?        | Gather information from a number of sources including regulatory, manufacturer and organisational sources ensuring all work falls within service technician's scope of responsibility. Collect information from customer in order for accurate installations, testing and maintenance activities to occur. |
| How can <b>communication of ideas and information</b> (2) be applied?       | Discuss to confirm customer requirements are clearly structured and defined and administrative documentation is completed accurately and clearly.                                                                                                                                                          |
| How are <b>activities planned and organised</b> (3)?                        | Design planning of installation, testing and maintenance activities with regard to assembling appropriate tools and hardware for on-site services and organising work schedules to suit customer and organisational requirements.                                                                          |
| How can <b>teamwork</b> (2) be applied?                                     | Apply consultative and collaborative approaches through support and assistance provided to customers and work groups. Gather source information from team to facilitate effective installations, testing and maintenance activities.                                                                       |
| How can the use of <b>mathematical ideas and techniques</b> (3) be applied? | Apply complex mathematical techniques and time management principles for installation, testing and maintenance on-site activities and reporting requirements while adhering to designated work schedules.                                                                                                  |
| How can <b>problem-solving skills</b> (3) be applied?                       | Identify and apply problem-solving and systematic techniques throughout inspection and servicing activities while considering ambiguous information received from information sources, potential risks and due processes to be followed when unusual faults are detected.                                  |
| How can the <b>use of technology</b> (3) be applied?                        | Demonstrate sound technical knowledge of features of equipment and accuracy throughout inspection and servicing while being able to use, organise, record and present information utilising technology.                                                                                                    |

## Range Statement

### RANGE STATEMENT

The range statement links the required knowledge and organisational and technical requirements to the workplace context. It describes any contextual variables that will be used or encountered when applying the competency in work situations. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The following variables may be present for this particular unit.

**Legislative and industry requirements** may include:

- relevant Commonwealth and state/territory building Acts/regulations/codes
- OHS legislation, codes and regulations
- relevant current Australian Standards e.g. AS1851
- system approval listing (SSL, FM and UL)
- risk assessment portion of AS4360 - Risk Management
- manufacturers' system manuals
- dangerous goods regulations
- licensing arrangements
- environmental regulations
- building surveyor requirements
- other relevant legislation (including international and shipping/marine codes) relating to fire protection equipment
- Australian petroleum industries' requirements.

**Work procedures** may include:

- instructions from colleagues/supervisor/manager
- specific customer requirements
- assignment instructions
- equipment manufacturers' requirements
- reporting and documentation requirements
- personal protective equipment requirements.

**Relevant persons** may include:

- team leaders
- supervisors
- managers
- colleagues
- customers.

**Potential and actual breaches of legislative and industry requirements** could be identified by:

- direct observation
- as part of workplace quality assurance teams.

**Organisational requirements** may be located in quality assurance and/or procedures manuals relating to:

- legal and organisational policy/guidelines
- personnel practices and guidelines outlining work roles, responsibilities and delegations
- legislation relevant to the service operation
- OHS policies, procedures and programs
- documentation and information systems and processes
- use of electronic job scheduling and communication devices.

**OHS policies and procedures** may relate to:

- employer/employee rights and responsibilities
- the OHS hierarchy of control
- assessing the worksite for hazards and risks prior to preparing the worksite for the work procedure
- displaying signs and/or utilising barriers in the work area
- hazard and risk identification and reporting
- risk assessment and control measures
- incident/accident investigation
- OHS audits and safety inspections
- safe operating procedures/instructions including:
  - working safely around electrical wiring, cables and overhead powerlines
  - working safely around tools and equipment
  - working safely off ladders and raised platforms
  - risk and hazard recognition
  - emergency procedures
  - awareness of electrical hazards
  - following confined spaces procedures
  - utilising personal protective equipment including:
    - safety glasses or goggles
    - safety boots or shoes
    - hard hat
    - ear muffs or plugs
    - appropriate gloves and overalls
    - sun hat
    - dust mask
- equipment maintenance and use
- use and storage of hazardous substances
- First Aid.

**Pre-engineered fire suppression systems** relevant to this unit of competency may include those fitted to the following equipment:

- to industrial vehicles including:
  - draglines
  - earthmovers
  - graders
  - trucks
  - loaders
- to commercial and recreational vehicles registered for road use including:
  - buses
  - four-wheel drives
  - forklifts
- for the range of industry sectors including:
  - mining
  - forestry
  - waste management.

**Extinguishing agents** may be:

- powder
- aqueous (with or without additives)
- wet chemical
- water mist
- a combination of any of the above when compatible.

**Customer requirements** may include:

- system specifications
- insurance requirements
- industry requirements
- provision of routine services
- provision of non-routine or urgent services
- confirmation of, or variations to, service instructions
- sighting work permits
- sign-in/out procedures for entry to or exit from premises
- written or verbal confirmation of services provided and/or future maintenance schedule.

**System components** may include:

- extinguishing agent containers (tanks/cylinders)
- container valves
- actuation devices
- support brackets
- control equipment
- agent distribution, pipe-work and hose
- agent discharge nozzles
- detection devices.

**Documentation** may include:

- manufacturers' system documentation
- job card
- customer recommendation forms
- service agreements
- expense claims
- application for credit form
- equipment recommendation form
- Fleetcard
- corrective action report
- petty cash voucher
- certificate of inspection
- product documentation
- maintenance record system.

**Maintenance schedules** may include:

- system manufacturers'
- Australian Standards
- customers'.

**Safety procedures** may include:

- working safely around electrical wiring, cables and overhead powerlines
- working safely around tools and equipment
- risk and hazard recognition
- emergency procedures
- awareness of electrical hazards
- following confined spaces procedures
- First Aid
- utilising personal protective equipment including:
  - safety glasses or goggles
  - safety boots or shoes
  - hard hat
  - ear muffs or plugs.

**Discharge test for commissioning purposes** may involve:

- powder
- aqueous (with or without additives)
- wet chemical
- water mist
- combination of any of the above when compatible.

**Testing procedures** may include:

- discharge
- pressure
- leak
- visual inspection
- recharging.

Note: Australian Standards are frequently revised and users must always check for currency.

## **Unit Sector(s)**

Not Applicable