



Australian Government

Department of Education, Employment and Workplace Relations

CPPFES2047A Inspect and test control and indicating equipment

Release: 1

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Modification History

Revised unit

Unit updated and equivalent to PRMPFES47A Inspect and test control and indicating equipment

Unit Descriptor

This unit of competency specifies the outcomes required to complete routine monthly and six-monthly inspect and test procedures to verify that control and indicating equipment (CIE) for a fire alarm system functions as intended. The unit involves working safely, isolating and resetting CIE, conducting compliance tests, visually inspecting, identifying non-compliance defects, and fulfilling mandatory reporting requirements.

Application of the Unit

This unit of competency supports fire protection technicians responsible for inspecting CIE and routinely testing their operational functions to ensure that fire alarm systems are working as intended.

Licensing/Regulatory Information

The unit supports one or more extinguishing agent handling licences (EAHL) prescribed under the Ozone Protection and Synthetic Greenhouse Gas Management Act 1989.

Licence to practise: The skills and knowledge described in this unit do not require an electrical licence or an Australian Communications and Media Authority cabling licence to practise.

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.

Candidates are advised to check for regulatory limitations.

Pre-Requisites

Not applicable.

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 performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

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| 1 | Plan to conduct routine monthly or six-monthly inspect and test operations on CIE. | 1.1 | <i>Occupational health and safety (OHS) policies and procedures</i> for a given work area are obtained and reviewed. |
| | | 1.2 | Established OHS requirements, risk control measures for ozone depleting substance (ODS) and synthetic greenhouse gas (SGG) emission, and <i>organisational requirements</i> are followed in preparation for <i>maintenance activity</i> . |
| | | 1.3 | Safety <i>hazards</i> are noted, and established risk control measures for on-site work are implemented. |
| | | 1.4 | <i>Work permits</i> are organised prior to entering customer premises. |
| | | 1.5 | <i>Relevant persons</i> are consulted to coordinate work effectively with other work site staff. |
| | | 1.6 | Locations of <i>system components and materials</i> are determined from specifications and <i>installation drawings</i> . |
| | | 1.7 | Inspection and test procedures are arranged to suit <i>CIE</i> according to <i>legislative and industry requirements</i> , Australian standards, job schedule and manufacturers' instructions. |
| | | 1.8 | <i>Documentation</i> needed to conduct tests is confirmed according to <i>work procedures</i> and job requirements. |
| | | 1.9 | <i>Tools, equipment and test devices</i> are checked for correct operation and safety according to work procedures and job requirements. |

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| 2 | Inspect CIE. | 2.1 | ODS, SGG and OHS policies and procedures are followed and risk control measures are applied when inspecting CIE. |
| | | 2.2 | CIE functions to be used to conduct routine tests according to relevant Australian standard, are identified in manufacturers' instructions. |
| | | 2.3 | Alarm zone circuits, plant and other system interfaces to be isolated to allow conduct of maintenance activity are identified according to OHS, ODS and SGG extinguishing agent emission requirements and work procedures. |
| | | 2.4 | Circuits and actuators to be isolated are identified. |
| | | 2.5 | Visual inspections are conducted according to relevant Australian standard for monthly and six-monthly testing. |
| | | 2.6 | CIE inspection results are validated against requirements according to relevant Australian standard. |
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| 3 | Test CIE. | 3.1 | ODS, SGG and OHS policies and procedures are followed and risk control measures are applied when testing CIE. |
| | | 3.2 | Circuits, actuators, back-to-base facilities and other system interfaces are isolated according to work procedures. |
| | | 3.3 | Alarm zone circuits, plant and other system interfaces are confirmed as isolated to make sure system cannot be activated during testing. |
| | | 3.4 | Monthly and six-monthly tests are performed according to AS 1851, with CIE and components checked to confirm functionality according to manufacturers' instructions, system finalised design documentation and organisational requirements. |
| | | 3.5 | Methods for dealing with unexpected situations are discussed with relevant persons and documented. |
| | | 3.6 | Approval of authorised relevant persons is obtained in order to deal safely with unexpected situations. |

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| 4 | Report findings of inspection and testing. | 4.1 | ODS, SGG and OHS policies and procedures, risk control measures and work procedures are followed when reporting inspect and test findings. |
| | | 4.2 | Work site and equipment are cleaned and made safe according to work procedures. |
| | | 4.3 | Non-compliance defects are identified and reported according to work procedures. |
| | | 4.4 | Recommendations for rectifying defects are made according to work procedures. |
| | | 4.5 | CIE is reset to operational state. |
| | | 4.6 | Documentation is completed according to work procedures and relevant persons are notified. |

Required Skills and Knowledge

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

Required skills

- customer service skills
- language, literacy and numeracy skills to:
 - communicate with others clearly and concisely, verbally and in writing
 - document test results and non-compliance defects neatly and legibly
 - read and comply with work instructions and specifications
 - read and interpret final design documentation and manufacturers' instructions
 - read and record measurements
- planning and organising skills to:
 - estimate time to complete activities
 - prioritise tasks
- skills to work safely when:
 - applying workplace housekeeping procedures
 - identifying work area hazards in preparation for inspection and test procedures
 - removing debris caused by inspect and test operations in the work area
 - selecting and using tools, equipment and materials for specific tasks
- interpersonal skills to relate to people from a range of social and cultural backgrounds
- technical skills to:
 - check routine service details of fire alarm system components and materials
 - identify and isolate zone circuits, plant, back-to-base facilities, actuators and other system interfaces
 - perform routine monthly and six-monthly inspect and test procedures according to AS 1851 Maintenance of fire protection systems and equipment
 - physically isolate actuators to inhibit operation
 - reset CIE to operational state
 - test actuators for operation and reset to operational state
 - verify compliance and functionality of CIE against monthly and six-monthly schedules in AS 1851 Maintenance of fire protection systems and equipment

Required knowledge

- action to take when a breach of OHS, ODS and SGG or other policy occurs
- awareness of on-site work permit requirements
- common controls and indicators on CIE
- detection and warning components connected to CIE
- environmental conditions that cause actuators to create false alarms
- federal, state or territory legislation that affects organisational operations, including:
 - anti-discrimination and diversity

- equal employment opportunity
- industrial relations issues relevant to inspecting and testing CIE
- key features of legislation, regulations, codes and standards applicable to inspecting and testing CIE, including:
 - implications of not applying legislative requirements to job functions
 - intent of Australian standard AS 1851 Maintenance of fire protection systems and equipment, in relation to CIE inspect and test operations
- key functional differences between a conventional and addressable CIE
- key operational principles of CIE specifically interfaced to fire-suppression systems
- local controls (LC), local control stations (LCS), aural alarms, visual warning devices (VWD) and actuators on fire-suppression systems interfaced to CIE
- methodology used to conduct AS 1851 Maintenance of fire protection systems and equipment, monthly and six-monthly maintenance schedules relevant to conventional and addressable CIE
- operation of actuators
- safety requirements for using tools, equipment and materials
- tools, equipment and materials for conducting monthly and six-monthly inspect and test procedures on CIE according to AS 1851 procedures
- types of electrical safeguards used to protect persons and property

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 observation of at least two practical demonstrations of inspecting and testing CIE specifically interfaced to different fire-suppression systems: • conventional fire indicating panels and microprocessor analogue fire indicating panel fire detection systems • fire alarm systems that comply with AS 1670 Fire detection, warning, control and intercom systems – Fire • emergency warning and intercommunication systems that comply with AS 1670.4 Fire detection, warning, control and intercom systems - System design, installation and commissioning - Sound systems and intercom systems for emergency purposes • fire alarm systems interfaced with activating mechanisms of a fire-suppression system. The type of CIE interfaced to fire-suppression systems tested should correlate to the workplace setting of the candidate.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of the required skills and knowledge specified in this unit. In particular the person should demonstrate the ability to: • locate, interpret and apply relevant information, standards and specifications • comply with site safety plan, OHS regulations, ODS and SGG regulations (where required), and state and territory legislation applicable to workplace operations • comply with organisational policies and procedures, including quality requirements • communicate and work effectively and safely with others • organise work permits • adhere to safety procedures during inspect and test procedures • identify risk-reduction measures • identify and locate system components and materials • identify, select and use tools, equipment and test equipment • identify and isolate alarm zone circuits, back-to-base facilities, actuators, plant and other system interfaces • confirm that circuits, plant and other system interfaces are isolated • complete mandatory and optional test and verification

	requirements applicable to installed fire-suppression systems • perform test procedures on CIE interfaced to fire-suppression systems • visually inspect fire-suppression systems • identify and report non-compliance defects • develop recommendations to rectify defects • reset CIE and fire-suppression system to operational state without unwanted CIE outputs or alarms • complete workplace housekeeping requirements • complete records and documentation.
Context of and specific resources for assessment	Assessment of essential underpinning knowledge may be conducted in an off-site context. It is to comply with relevant regulatory or Australian standards' requirements. Resource implications for assessment include: • access to customer premises or a simulated workplace environment • assessment documentation • necessary tools, specialist equipment, manuals and relevant documentation • training and assessment record books.
Method of assessment	Assessment methods must: • satisfy the endorsed Assessment Guidelines of the 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.
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. This unit could be assessed on its own or in combination with other units relevant to the job function.

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.

<i>Occupational health and safety policies and procedures</i> may relate to:	• assessing work site for hazards and risks prior to preparing it for work procedure • displaying signs and using barriers in work area • employer and employee rights and responsibilities • incident and accident investigation • OHS audits and safety inspections • OHS hierarchy of control • risk assessment and control measures • safe operating procedures and instructions, including: • awareness of electrical hazards • emergency procedures • equipment maintenance and use • first aid • following confined spaces procedures • hazard and risk identification and reporting • use and storage of hazardous substances • using personal protective equipment (PPE), including: • appropriate gloves and overalls • dust masks • earmuffs or plugs • hard hats • safety boots or shoes • safety glasses or goggles • sunhats • those for working safely: • around electrical wiring, cables and overhead powerlines • around tools and equipment • on ladders and raised platforms.
<i>Organisational requirements</i> may include:	• documentation and information systems and processes • legal and organisational policies and guidelines, including personnel practices and guidelines outlining work roles, responsibilities and delegations

	• legislation relevant to inspect and test operations for CIE • OHS policies, procedures and programs • procedures and work instructions to prevent the emission of ODS and SGG in the workplace • use of electronic job scheduling and communication devices.
Maintenance activity may include:	• actions to conduct routine maintenance according to AS 1851 Maintenance of fire protection systems and equipment • actions to conduct non-routine maintenance, such as general isolation of a system to allow building works to be completed and subsequent resetting of the system after works completed.
Hazards may include:	• environmental, including: • improper use of hazardous material and other chemicals • improper use or emission of ODS and SGG; emissions may be caused by: • conducting interface tests during commissioning, servicing and decommissioning procedures between container activating mechanisms, CIE and fire alarm system • installing and removing container valve assembly, manifold connection components and activating mechanisms • servicing and maintaining container valve assemblies • transporting, storing and manually handling containers containing ODS and SGG agents • ergonomic, such as incorrect manual-handling methods • obstructive, such as blocked access to emergency entry or exit points • any situation with a potential to cause loss • any source of potential harm • equipment in a work site • hazards associated with electrical or mechanical faults • people in a work site • work methods, plans and procedures.
Work permits may include permits to:	• enter a work site • enter a work site at specific times • enter a restricted area within a work site • ensure that specific OHS requirements are met before entering a work site.
Relevant persons may include:	• building owners or nominated representatives • colleagues • customers • managers • supervisors

	• team leaders.
<i>System components and materials</i> may include:	• colour graphic visual display units (VDUs) • fire indicator panel components • mimic panels • remote indicating equipment, such as: • standby batteries • sub-fire indicator panels • fire detection equipment, such as: • data gathering control units • analogue and analogue addressable smoke, heat and gas detectors • warning system equipment, such as: • alarm bells • mimic and location panels • warning and strobe lights • warning speakers • fire-suppression systems equipment, such as: • actuators, such as pneumatic, electrical, mechanical and manual operation • container discharge valves • fittings, including hose fittings • flexible discharge hoses • pilot and slave tubes • interface equipment to other fire protection and building services systems, such as: • door system release controls • electrical interface relays and contacts • flow switches and pressure switches • optical couplers • utility shutdown devices • solenoid valves and other activating mechanisms • interface communication devices, such as: • remote public address (PA) system outputs • two-way radios • warden intercommunication phones.
<i>Installation drawings</i> may include:	• installation drawings that meet the requirements of AS 4214 Gaseous fire extinguishing systems, and AS 1670 Fire detection, warning, control and intercom systems, parts 1 and 4, including: • ‘for construction’ drawings • ‘as installed’ and ‘as built’ drawings.

Control and indicating equipment may include:	• fire indicating panels (FIP) approved to AS 1603 Automatic fire detection and alarm systems or AS 4428 Fire detection, warning, control and intercom systems – control and indicating equipment • equipment specifically interfaced to fire-suppression systems: • actuation circuit supervision indicators • alarm operation requirements • discharge time delays • dual zone operations • inhibit discharge switches • inoperative status indicators • shutdown operations • system operation indicators • system warning indications.
Legislative and industry requirements may include:	• building surveyor requirements, such as occupancy permits • dangerous goods regulations • environmental regulations, including ODS and SGG legislation, codes and regulations • fire protection industry codes of good practice • licensing arrangements, such as EAHL • manufacturers' system manuals • OHS legislation, codes and regulations • relevant federal, state and territory building Acts, regulations and codes, such as: • Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 • Building Code of Australia (BCA) • relevant Australian standards, such as: • AS 1603 Automatic fire detection and alarm systems • AS 1670 Fire detection, warning, control and intercom systems, parts 1 and 4 • AS 1851 Maintenance of fire protection systems and equipment • AS 4214 Gaseous fire extinguishing systems • AS 4428 Fire detection, warning, control and intercom systems – control and indicating equipment • note: Australian standards are frequently revised and users must always check for currency and amendments • other relevant legislation relating to fire protection equipment, including: • international shipping codes • marine codes for different Australian States

	• requirements of Australian petroleum industry.
Documentation may include:	• corrective action reports • customer recommendation forms • equipment recommendation forms • expense claims • job cards • maintenance record system • manufacturers' system documentation • product documentation • service agreements • service test record logbooks • test results and test reports.
Work procedures may include:	• assignment instructions • equipment manufacturers' requirements • instructions from colleagues, supervisors and managers • ODS, SGG and OHS requirements • PPE requirements • reporting and documentation requirements • specific customer requirements.
Tools, equipment and test devices may include:	• hand tools, including: • hammers • pliers • screwdrivers • spanners • spirit levels • fire equipment spare parts, including: • anti-tamper seals • batteries • bulbs and globes • service tags • manual-handling aids, including: • hand trucks • lifting straps • trolleys • power tools, including: • battery powered drills • hammer drills • servicing tools and test devices, including: • barcode readers • electrical multimeters

	• hydrostatic test equipment • recharging and pressurising equipment • safety equipment • scales • service tag punches • simulator actuators • sound meters.
System interfaces may include:	• building management systems • building warning systems • controls for pressurisation systems, air conditioning system shutdowns and smoke spills • operating signals between CIE and building services systems, such as utility shutdown devices.
ODS and SGG extinguishing agents may include: Note list format: product name (other names) use Check the latest amendments to the Ozone Protection and Synthetic Greenhouse Gas Management Act for the current list of ODS and SGG extinguishing agents.	• ODS and SGG extinguishing agents commonly used in Australia: • FM200 (FE-227 Heptafluoropropane, HFC-227ea) used as a total flooding extinguishing agent and as a replacement for Halon 1301 • Halon 1211 (BCF, Halon 1211 BCF, Bromochlorodifluoromethane) used as a streaming agent – requires a special permit in Australia • Halon 1301 (BTM, Halon 1301 BTM, Bromotrifluoromethane) used as a total flooding agent – requires a special permit in Australia • NAF-P-III (HCFC Blend C) used as a streaming agent • NAF-P-IV (HCFC Blend E) used as a streaming agent • NAF-S-III (HCFC Blend A) used as a total flooding agent • SF6 (Sulfurhexafluoride) used as an inerting agent in sealed high voltage switchgear • ODS and SGG extinguishing agents not commonly used in Australia: • Blitz III (HCFC Blend D) used in flooding systems • CFC-11 (Trichlorofluoromethane) may be found as a propellant in some powder fire extinguishers (this product is banned in Australia but may be found on incoming foreign vessels) • FC-2-1-8 (CEA-308) used in flooding systems • FC-3-1-10 (CEA-410) used in flooding systems • FC-5-1-14 (CEA-614) used as a streaming agent • FE-13 (Trifluoromethane, HFC-23) used as a total flooding agent • FE-241 (Chlorotetrafluoroethane, HCFC-124) used as a total

	flooding agent for non-occupied spaces and as a streaming agent • FE-25 (Pentafluoroethane, HFC-125) used in inerting and explosion suppression applications • FE-36 (Hexafluoropropane, HFC-236fa) used in portable fire extinguishers – is a replacement for Halon 1211 and Halon 1301 • FM100 (HBFC-22B1) used in portable fire extinguishers • Halon 2402 (Dibromotetrafluoroethane) limited use in military systems – requires a special permit in Australia • Halotron I (HCFC Blend B or HCFC-123) used as a total flooding agent and streaming agent • Halotron II (blend of HFC-143a and HFC-125) used as a total flooding agent and as a replacement for Halon 1301 • HCFC-22 (Chlorodifluoromethane) used as a propellant in some powder fire extinguishers (this product is banned in Australia but may be found on incoming foreign vessels) • HFC-134a (Unsymmetric tetrafluoroethane) used as a propellant in some powder fire extinguishers.
Actuators (also known as actuation control devices) may include:	• electrical operation: signal generated from CIE panel as part of a fire alarm detection system • manual operation: by direct push lever or pull cable system • mechanical operation: via signal from local control station or fire detector • pneumatic operation: from fire detector (typically heat).
Back-to-base facilities include:	• monitoring equipment which is connected by alarm signalling equipment (ASE) from CIE to a communication path (telephone line or radio link) to a monitoring centre • monitoring centres can be operated by or on behalf of a fire authority for the purposes of mobilising and directing firefighting resources to the site where the CIE is installed.
Finalised design documentation may include:	• documentation that meets the requirements of AS 4214 Gaseous fire extinguishing systems, and AS 1670 Fire detection, warning, control and intercom systems, parts 1 and 4, including: • system concentration and calculations • technical bulletins • material safety data sheets on agents and equipment • manufacturers' information.

Unit Sector(s)

Fire protection equipment

Custom Content Section

Not applicable.