



Routine service of fire protection systems and equipment



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- Australian Institute of Refrigeration, Air-conditioning and Heating
 - Australasian Fire Authorities Council
 - Communications, Electrical and Plumbing Union
 - Department of Defence
 - Department of Human Services
 - Fire Protection Association of Australia
 - Engineers Australia
 - National Association of Testing Authorities, Australia
 - National Electrical & Communications Association
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 - FP-002—Fire Detection and Alarms
 - FP-003—Fire Extinguishers
 - FP-004—Automatic Fire Sprinkler Systems
 - FP-007—Fire Hose Reels
 - FP-008—Fire Pumpsets
 - FP-009—Fire Hydrants
 - FP-011—Special Fire Hazards
 - FP-017—Emergency Management Procedures
 - FP-019—Passive Fire Systems
 - ME-062—Ventilation and Airconditioning
-

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Australian Standard[®]

Routine service of fire protection systems and equipment

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PREFACE

This Standard was prepared by the Standards Australia Committee FP-001, Maintenance of Fire Protection Systems and Equipment, to supersede AS 1851—2005, *Maintenance of fire protection systems and equipment*.

This Standard incorporates Amendment No. 1 (November 2016). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

This edition of AS 1851 incorporates a considerable amount of new material and technical changes for the routine service (maintenance) of fire protection systems and equipment in the light of user experience and feedback from regulatory bodies.

The scope of this Standard is applicable to the routine service procedures for fire protection systems and fire equipment. Routine service procedures for pre-engineered fire systems and other building safety measures such as emergency lighting and exit signs, emergency lifts or standby generator sets can be found in the relevant system Standard.

This edition retains a uniform structure for routine service (maintenance) requirements. Section 1 sets out general requirements applying to all systems and equipment. The other Sections contain the additional requirements specific to particular fire protection systems or equipment.

The following summarizes the major changes made to AS 1851—2005:

- (a) Title changed to overcome reported ambiguity but still reflect the concept of inspection, test and preventive maintenance. The term ‘maintenance’ has been replaced by ‘routine service’.
- (b) Restructured documentation requirements into service records and reporting to assist regulatory use.
- (c) Defined the relationship between initial installation, routine service and annual regulatory compliance (see Figure 1.7).
- (d) Critically appraised and refined the routine service technical requirements in light of field experience and studies including, battery load testing, detector sensitivity testing and system interface testing (examples include change in frequencies and specific application instructions).
- (e) Facilitating the implementation of the Standard by the responsible entity and service provider (e.g. the consolidation of sections and consistency across sections, for the fire alarm, special hazards and mechanical services).
- (f) A thorough overhaul of the general requirements of Section 1 to remove administrative requirements and avoid regulatory conflict.
- (g) Tables in Sections 2 to 14 changed from type based to frequency based, and yearly service separated from supportive routine service schedules.
- (h) Clarified requirements for interface testing.
- (i) Clarified role of commissioning and baseline data as part of the approved design.
- (j) Deletion of specific competency qualifications.
- (k) Distinguished between critical defects, non-critical defects and non-conformances.
- (l) Extensively revised records (logbooks, tags, labels and summary records) and reporting requirements.
- (m) Removed ambiguity relating to current design Standards versus the design Standards applicable at the time of original systems installation, i.e. the approved design.

- (n) Sections 6 to 10 of the 2005 edition covering fire detection, alarms, sound systems and intercom systems have been combined in a new Section 6 with the previous Section 8 (Fire alarm monitoring) being removed from this revised document.
- (o) The routine service requirements for the fire detection and control equipment of special hazard systems and smoke hazard management systems have been relocated from their respective sections into Section 6.
- (p) A new Section 5 has been included, covering water storage tanks for fire protection systems to address the new design Standard AS 2304, *Water storage tanks for fire protection systems*.
- (q) Sections 11 (Gaseous fire extinguishing systems), 12 (Fixed aerosol systems) and 13 (Water mist systems) of the 2005 edition have been combined in a new Section 7 (Special hazards).
- (r) Several new appendices have been included to expand on Section 1 content— baseline data (Appendix C) and systems interface testing (Appendix D), with two normative appendices, battery capacity testing (Appendix F) and fire detector testing (Appendix G). Extensive detail on mechanical services included in the normative section of the 2005 edition has been relocated in two appendices, both informative.

A1 | The objectives of Amendment 1 are to address editorial errors and baseline data.

Since its implementation, it became clear that baseline data in AS 1851—2012 had not been interpreted correctly by the fire protection industry. As such, FP-001 has revised this to clarify the intent of the committee.

The definition of baseline data and Clause 1.8 have been updated to reflect that the baseline data required by AS 1851—2012 is only what is required to verify the result of a service activity and only required where such baseline data was required by the approved design.

Appendix C and references to specific baseline data in the service schedules were removed accordingly so that the focus is, as intended, only on what baseline data was required by the approved design.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of the Standard, whereas an ‘informative’ appendix is only for information and guidance.

Notes in this Standard are advisory only.

This Standard incorporates a Commentary on some clauses. The Commentary directly follows the relevant clause, is designated by ‘C’ preceding the clause number and is printed in italics in a panel. The Commentary is for information only and does not need to be followed for compliance with the Standard.

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FOREWORD

The criteria adopted for revising this Standard include reliability, integrity, functionality and performance of fire protection systems and equipment. Consideration has also been given to the interfaces between fire protection systems and other building safety systems.

The Standard contains inspection, test, preventive maintenance and survey requirements to demonstrate that the fire systems and equipment installed in a building are achieving a standard of performance to which they were designed (the approved design). The Standard may be applied to fire systems and equipment regardless of building age. The Standard may be applied to demonstrate the minimum performance standard required by the National Construction Code (NCC) BCA, Volume 1, for new buildings or it may also be applied to existing buildings constructed to an approved design prior to the current BCA edition of the NCC. The Standard may also be used to develop specific routine service requirements for fire systems or equipment that are part of an alternative solution designed to satisfy the performance requirements of the NCC. Application of the Standard may also support health and safety acts and regulations.

The scope of this Standard is identified as Stage 2 of the process and procedures diagram in Figure 1.7. It includes the inspection, test, preventive maintenance and survey, coupled with records to be kept and reports to be made, culminating in the issue of a yearly condition report.

The revised inspection, test, preventive maintenance and survey regimes in this Standard address the functional aspects of installed fire protection systems and equipment on a periodic basis, with the objective that systems and equipment operate effectively at all times. The regimes aim to ensure that fire protection systems and equipment are in working order throughout the year or period of interest; not only at the time of annual inspection and test. A significant objective of this Standard is to provide reliability of fire protection systems and equipment, linking design, installation, commissioning and maintenance.

This Standard includes a requirement to annually test all aspects of system interconnection; for example, detection and alarm systems with atrium smoke exhaust plant, alarm systems with stairwell pressurization, automatic fire sprinkler systems with mechanical services fire mode operation and warning facilities. This will require adequate documentation of interconnections between the various systems as required in the design, installation and commissioning Standards.

Training of personnel to the appropriate levels for inspection, testing, preventive maintenance and survey of fire protection systems has not been directly addressed in this Standard; however, it is recognized that effective maintenance programs depend on suitably competent personnel.

This Standard provides a set of requirements to increase the probability that fire protection systems and equipment will function as intended by the respective design, installation and commissioning Standards, thus achieving reliability.

Continuous correct functioning is a basic criterion, and the yearly survey requirement also assures that system performance capability (efficacy) is not degraded by building or occupancy changes, which could otherwise adversely affect the capability of the system to perform as originally intended.

Routine service (maintenance) is concerned with the principle that a system will continue to perform to the approved design when routine service is conducted on a pre-determined and regular basis. Surveys are scripted activities in the routine service schedules as a check for any component degradation or building changes that may impact on system performance. The survey requirements of this Standard do not require auditing to AS 4655, *Fire safety audits*.

STANDARDS AUSTRALIA

Australian Standard**Routine service of fire protection systems and equipment**

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out requirements for the routine servicing (inspection, testing, preventive maintenance and survey) of fire protection systems and equipment.

1.2 OBJECTIVE

The objective of this Standard is to maintain the reliability of fire protection systems and equipment such that they continue to meet the requirements of the approved design and are likely to do so until the next scheduled activity.

1.3 APPLICATION

This Standard provides a systematic basis for minimum routine service applicable to fire protection systems and equipment. It also may be used to develop specific routine service requirements for systems or equipment that are part of an alternative solution. It requires evidence, in the form of records and reports of completion of the periodic inspection (including survey), testing and preventive maintenance activities required by this Standard.

NOTE: The documentary evidence resulting from compliance with this Standard is intended to support the responsible entity to satisfy regulatory obligations.

1.4 REFERENCED DOCUMENTS

The documents referred to in this Standard are listed in Appendix A.

1.5 DEFINITIONS**1.5.1 Adverse operating environments**

Any environment or condition that may adversely affect the reliability of fire protection systems and equipment (see Clause 1.13.)

1.5.2 Approved design

The design of fire protection systems and equipment approved by the authority having jurisdiction at the time of installation or subsequent modification.

1.5.3 Authority having jurisdiction

A minister of the Crown, a government department, or other authority having power to issue regulations, orders or other instructions having the force of law or, in cases where none of these apply, the responsible entity.

1.5.4 Baseline data

A1

Data either provided by or derived from the approved design and commissioning thereof, which, when and where provided, would serve as a basis for verification of results of routine servicing.

1.5.5 Competent person

A person who has acquired through training, qualification, experience, or a combination of these, the knowledge and skill enabling them to correctly perform the required task.

1.5.6 Defect classification and non-conformance

1.5.6.1 Critical defect

A defect that renders a system inoperative.

NOTE: Examples of critical defects include an impaired water supply which is unable to provide water to a sprinkler system or an inoperative fire indicator panel which is unable to warn the building occupants of fire. A critical defect is reasonably likely to have a significant adverse impact upon the safety of occupants of part, or all, of the building (see Figure 1.5.6 and Clauses 1.8 and 1.9).

1.5.6.2 Non-conformance

A1 Missing information or incorrect feature that does not affect the system operation but is required to facilitate ongoing routine service.

NOTE: Examples of non-conformance include missing or incorrect sprinkler block plan as required, missing spare sprinklers, missing sprinkler guards, missing equipment location signs or illegible labels and non-availability of required information required to validate a service activity (see Figure 1.5.6 and Clauses 1.8 and 1.9).

1.5.6.3 Non-critical defect

A system impairment or faulty component not likely to critically affect the operation of the system.

NOTE: Examples of non-critical defects include, local alarm bell not operating, water motor alarm failure (see Figure 1.5.6).

1.5.7 High-rise

A multistorey building with storeys exceeding an effective height of 25 m.

1.5.8 Inspection

Visual examination of the components of fire protection systems or equipment to establish correct settings, physical condition or fitness for purpose.

1.5.9 Mechanical services

Air-handling plant and systems dedicated to or arranged for dual duty to control the spread of fire and smoke in buildings.

1.5.10 Preventive maintenance

A series of actions including lubrication, cleaning, adjustment and replacement of components at a predetermined frequency, to minimize the incidence of breakdown.

1.5.11 Rectification

The repair or replacement of components found to be defective.

1.5.12 Responsible entity

The entity responsible for the routine service of the fire protection systems and equipment.

NOTE: Typically the building owner, the building occupier or the building owner's agent.

1.5.13 Routine service

Inspection (including survey), testing and preventive maintenance at specific intervals (see Figure 1.7).

1.5.14 Service penetrations

Penetrations of fire-resistant building elements by electronic, electrical, plumbing, mechanical ventilation, airconditioning or other services.

1.5.15 Shall

Indicates a mandatory requirement.

1.5.16 Should

Indicates a recommendation (advisory, not mandatory).

1.5.17 Simulate

Rendering the equipment in a state or condition without necessarily carrying out the action that causes that state.

1.5.18 Survey

Visual inspection, typically conducted from floor level, to identify if the fire protection system or equipment has been inappropriately altered, damaged or compromised by changes in the occupancy, environment or building.

CI.5.18 Where an upgrade or modification has resulted in a change of the performance capability, the system should be appraised against the new approved design.

1.5.19 Systems interface

A connection between two or more systems forming part of the approved design.

1.5.20 Testing

Confirmation of correct function or performance of a component or system.

1.5.21 Yearly condition report

A report prepared annually for the responsible entity, which summarizes the routine service activities, records operational status, notes defects and non-conformances and confirms that the installed fire protection systems and equipment generally accord with the approved design (see Clause 1.17.2).

1.5.22 Where fitted

A phrase in the service schedule tables to recognize that the absence of elements or components of a system that were not required as part of the approved design need not be retrofitted and the related routine service activity is not to be considered a defect or non-conformance if not performed (see also Clause 1.9).

CI.5.22 This Standard has been written with the objective of providing relevant routine service activities applicable to fire protection systems and equipment, of any age, that may have been designed and/or installed to an earlier version of their relevant installation Standard. It is not the intent of this Standard to require system or equipment to be upgraded to meet current installation Standards.

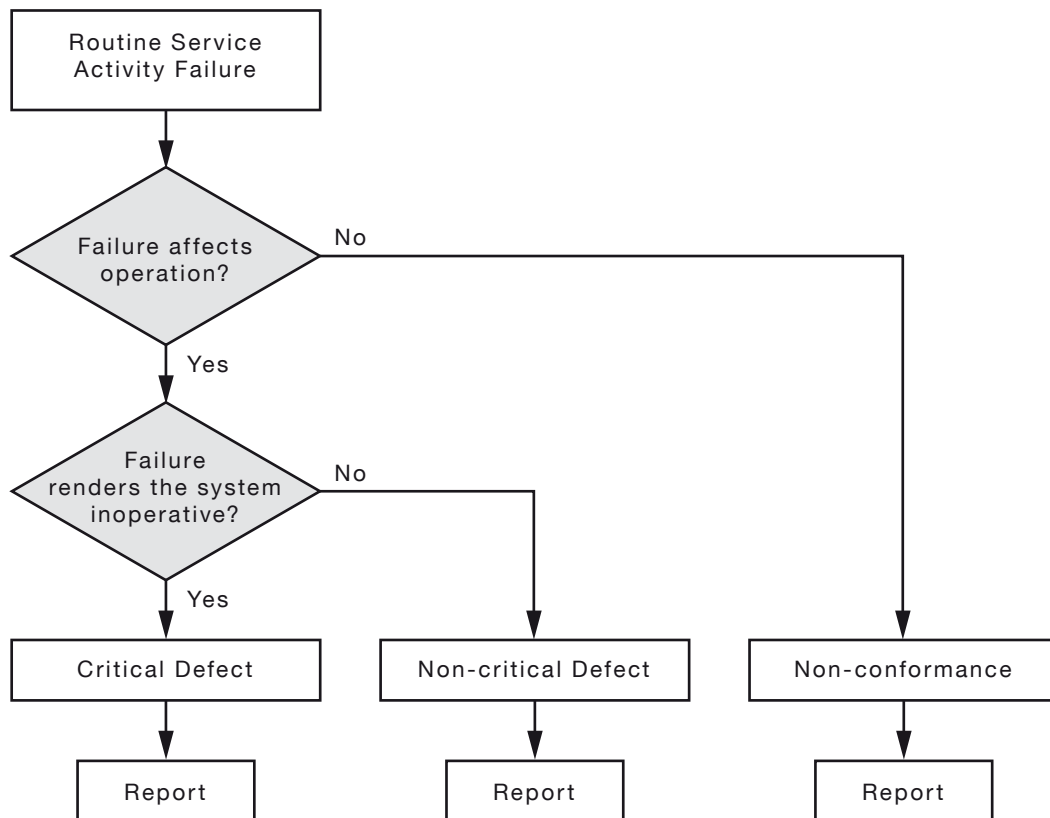


FIGURE 1.5.6 ROUTINE SERVICE ACTIVITY FAILURE

1.6 ABBREVIATIONS

The following abbreviations are used in this Standard:

ASE	Alarm signalling equipment
CIE (c.i.e.)	Control and indicating equipment
DBEP	Designated building entry point
DSEP	Designated site entry point
ECO	Emergency control organization
EPC	Emergency planning committee
EWS	Emergency warning systems
f.b.p	Fire brigade panel
FFCP	Fire fan control panel
FIP	Fire indicator panel (also known as c.i.e.)
FRL	Fire resistance level
HVAC	Heating, ventilation and airconditioning
ISO	International Organization for Standardization
LCS	Local control station
MJC	Multiple jet control
OHS	Occupational health and safety
RTI	Response time index (sprinklers)

SSVI	Sprinkler stop valve inside
VAV	Variable air volume
VFI	Variable frequency inverter
VWD	Visual warning device
WIP	Warden intercom point

1.7 ROUTINE SERVICE PROCESS AND PROCEDURES

1.7.1 General

The routine service process and procedures in this Standard are governed by the overarching requirements of this section, the introductory clauses in Sections 2 to 14 and the tables that follow.

1.7.2 Process

The process of routine service covered by this Standard commences with a service activity and concludes with completion of the Yearly Condition Report by the service provider (see Figure 1.7).

NOTES:

- 1 This process is dependent upon the satisfactory commissioning of fire systems and equipment together with required baseline data to ensure that the service provider has the necessary information to execute the service routine.
- 2 See Appendix B for an explanation of the elements contained in Figure 1.7.

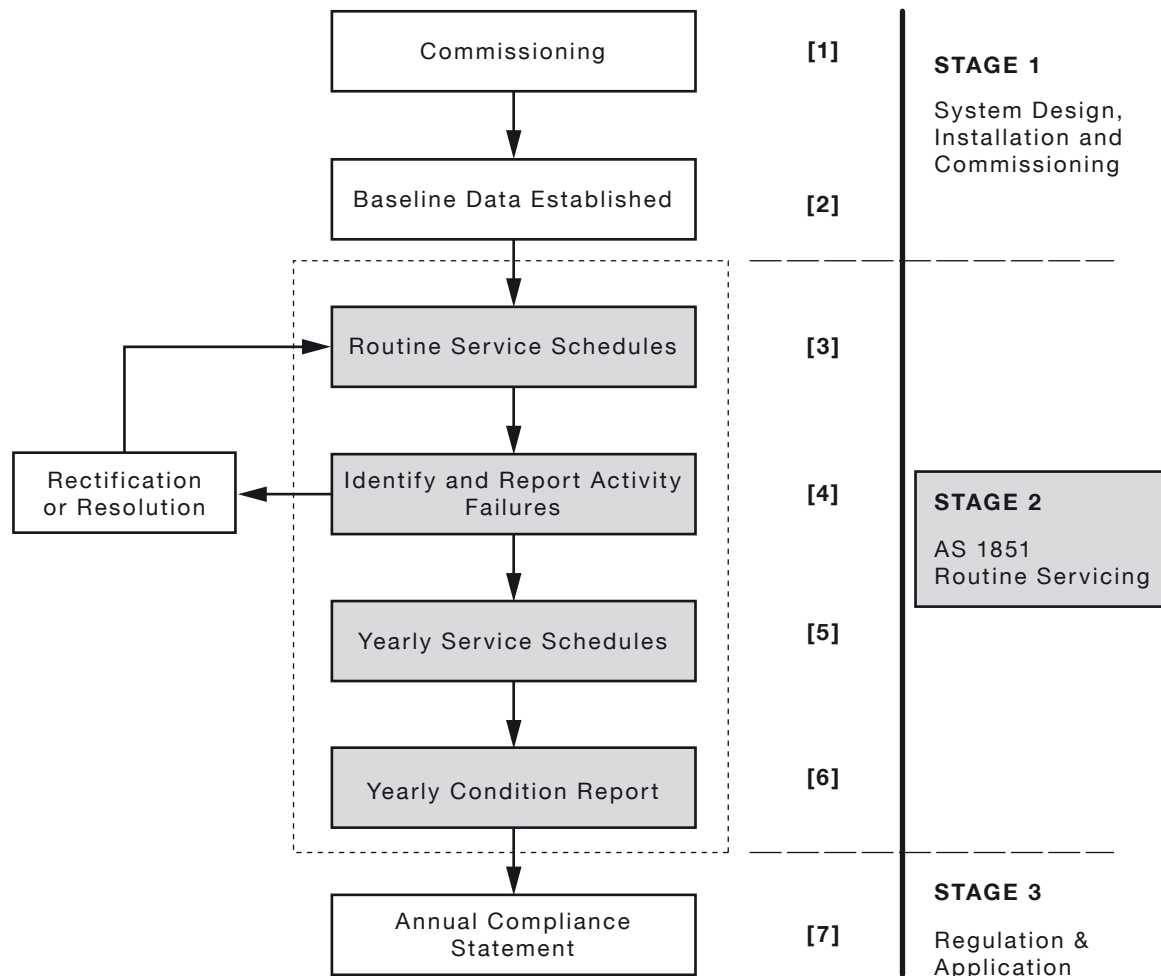
1.7.3 Procedures

Routine service procedures shall be carried out in accordance with this Section, together with Sections 2 to 14 and the criteria to which fire protection systems or equipment were designed, installed and commissioned, or subsequently modified, upgraded and recommissioned.

NOTES:

- 1 Routine service procedures are not intended to be used as substitutes for commissioning.
- 2 In addition to the requirements of this Standard, any additional manufacturer's maintenance requirements should also be considered.

CI.7.3 *Construction of building services does not always finish at the time of handover of the project, resulting in fire protection systems that have not been fully commissioned. The fire safety services need to be completed and commissioned in order for the results of inspection and test work to be meaningful.*



NOTE: See Appendix B for explanations of Items 1 to 7.

FIGURE 1.7 PROCESS AND PROCEDURES DIAGRAM—ROUTINE SERVICING OF FIRE SAFETY SYSTEMS AND EQUIPMENT

1.8 BASELINE DATA

A1 Baseline data may be required to verify the result of a routine service activity required by an applicable service schedule.

Baseline data required by this Standard is limited to that—

- (a) necessary to verify a routine service activity result; and
- (b) prescribed by the regulations, codes or Standards that applied to the approved design.

Irrespective of the availability of baseline data, the routine service activity shall be carried out and the result recorded and reported. Where required baseline data is available, the routine service result shall be verified against it. Where required baseline data is unavailable, its unavailability shall be recorded and reported as a non-conformance.

NOTE: The supply and generation of baseline data is beyond the scope of this Standard.

1.9 SYSTEM RETROFIT

A1 Absent elements or components of a system or systems that were not required as part of an approved design to a Standard that is now superseded are not required to be retrofitted and the related routine service activity shall not be considered a defect or non-conformance if not able to be performed.

A1

Example 1:

A system installed to AS CA16 (superseded) does not require the retrospective fitting of flow test equipment.

Example 2:

An emergency warning system installed to AS 2220.2 (superseded) does not require a speech intelligibility test.

1.10 COMPETENT PERSONS

Routine service of fire protection systems and equipment shall be conducted by competent persons.

NOTE: Competence may be further defined by the authority having jurisdiction. Governments may have in place occupational licensing schemes or other means of determining competence. Where this is not the case, competencies may be demonstrated in accordance with Australian Qualification Framework (AQF).

CI.10 Sections 2 to 14 nominate the routine service required by this Standard. Equipment and systems have been grouped within these sections simply to comply with normal industry trade demarcations. It is, however, the intention of this Standard that all required tasks be performed by the most appropriately qualified, experienced and competent persons, rather than the trade/discipline normally associated with that particular section of the Standard.

1.11 FREQUENCY AND TOLERANCES OF ROUTINE SERVICE INTERVALS

1.11.1 General

The frequencies adopted in this Standard are set out in Table 1.11(A) and tolerances that apply to the frequency intervals are set out in Table 1.11(B). Tolerances shall be applied to the scheduled date of the initial activity. An activity that is not conducted within the tolerance period for that activity shall be reported as an out of tolerance activity within one week of the end of the tolerance period.

NOTE: A more rigorous routine service program may be recommended by insurers or authorities having jurisdiction to conduct additional visual inspections and specific tests that may be carried out by either the responsible entity or the service provider.

A1

CI.11.1 If the initial monthly activity is scheduled for the 20th of the month then subsequent monthly activities are required to be carried out within five working days either side of the 20th of the month.

1.11.2 Change of scheduled date

The scheduled date may be brought forward by agreement between the responsible entity and the service provider subject to the ongoing frequencies and tolerances applying and the required number of activities being completed within the prescribed period.

A1

CI.11.2 If the initial scheduled date is the 27th of the month and the agreed new scheduled date is the 10th of the month (outside tolerance limits) then, by agreement, the date may be brought forward by performing the test on the 27th of the month and again on the 10th of the next month. This may necessitate an additional test. The new scheduled date would now be the 10th of the month, the date that will consequently be used for tolerance purposes.

1.11.3 Transitional arrangements

Arrangements for transitioning from previous editions of this Standard (AS 1851) shall be treated on a site-by-site basis.

A1

C1.11.3 *Where this Standard contains a new activity, the scheduled date for that activity may start from commencement of routine service in accordance with this Standard except that, in order to observe the intended frequency interval between activities, new monthly, three-monthly and six-monthly activities should start approximately one month, three months or six months, respectively, after the previous yearly activity.*

Where this Standard provides a schedule for an activity that is identical or similar to an activity required by a previous Standard, the frequency interval for that activity may start from the date the frequency interval for the corresponding activity commenced. By way of example, where a five-yearly activity was conducted two years prior to introducing this Standard the five-yearly activity should be conducted in three years time.

TABLE 1.11(A)
ROUTINE SERVICE FREQUENCIES FOR EACH SECTION

AS 1851 Section		Monthly	Three-monthly	Six-monthly	Yearly	Five-yearly	Ten-yearly	Twenty-five-yearly	Thirty-yearly
2	Automatic fire sprinkler systems	✓		✓	✓	✓	✓	✓	✓
3	Fire pumpsets	✓		✓	✓	✓			
4	Fire hydrant systems	✓*			✓	✓			
	Hydrant valves			✓	✓				
5	Water storage tanks for fire protection systems	✓		✓	✓		✓		
6	Fire detection and alarm systems	✓		✓	✓	✓			
7	Special hazard systems	✓		✓	✓		✓		
8	Delivery lay flat fire hose				✓				
9	Fire hose reels			✓	✓				
10	Portable and wheeled fire extinguishers			✓	✓	✓			
11	Fire blankets			✓					
12	Passive fire and smoke systems		✓**	✓	✓				
13	Fire and smoke control features of mechanical services	✓	✓	✓	✓	✓			
14	Emergency planning in facilities			✓	✓				

*Where pumpsets are fitted.

**Where horizontal sliding doors are fitted.

NOTE: The responsible entity may elect to conduct monthly activities on a weekly frequency.

TABLE 1.11(B)
FREQUENCY TOLERANCES

Frequency	Tolerance (±)
Monthly	5 working days
Three-monthly	10 working days
Six-monthly	1 month
Yearly	2 months
Five-yearly	3 months
Ten-yearly	6 months
Twenty-five-yearly	6 months
Thirty-yearly	6 months

NOTE: The tolerance schedule is not intended to require additional routine service activities to be carried out (e.g. six monthly routines carried out at five or seven monthly intervals).

1.12 SYSTEMS INTERFACE TEST

Where fire protection systems are interfaced to other systems, ‘end-to-end’ tests shall be conducted to confirm that each interface operates in accordance with the approved design. Tests shall take into account all fire protection systems that interface with other systems to ensure that all systems function in accordance with the approved design.

NOTES:

- 1 For an example of a system interface diagram, see Table 1.12.
- 2 Automatic sprinkler and fire alarm systems, for example, when activated, may be arranged to automatically cause operation of fire and smoke hazard management systems, release fire doors, operate roof vents, shut down non-fire essential plant, operate elevator override controls.
- 3 **‘Text deleted’.**
- 4 Worked examples of systems interface are given in Appendix D.
- 5 To limit disruption, the responsible entity should coordinate testing of the interfaced fire protection systems. This may require the attendance during testing of technicians specializing in fire alarms, sprinklers, mechanical services, electrical power and control, building management, etc. Advance notice should be given to the occupants advising of scheduled test date, procedures and purpose. Fire protection system interface documentation and its accuracy is the responsibility of the responsible entity.
- 6 Systems interface excludes interconnections within an integrated system such as a fire indicator panel dedicated to a gaseous fire suppression system or a fire pumpset interconnected with an automatic fire sprinkler system.
- 7 The interface test is not a commissioning test of each system; it is to establish that each interface operates correctly.
- 8 Where an interfaced system would be operated more than once during interface testing, it may be isolated provided at least one complete end to end test of the systems has been carried out and there is an indication that a signal has been received at the interfaced system for all other tests.

		Effect												
		Stair pressurization	Door release	Roof vents	Sound systems for emergency purposes	Plant shutdown	Fuel isolation	Elevator override	Alarm monitoring	Smoke exhaust fans	Smoke curtains	Smoke spill mode	HVAC shutdown	Damper closure
Cause	Sprinkler systems	•	•	•	•	•			•	•		•	•	
	Fire detection and alarm systems	•	•	•	•	•	•	•	•	•	•	•	•	•
	Smoke/heat alarm systems	•	•					•	•	•	•	•	•	•
	Gaseous systems		•		•	•	•		•				•	•
	Aerosol systems		•		•	•	•		•				•	•
	Water mist systems	•	•	•	•	•		•						
	Hydrants								•				•	
	Hose reels								•				•	

FIGURE 1.12 EXAMPLE OF A SYSTEMS INTERFACE DIAGRAM

1.13 ADVERSE OPERATING ENVIRONMENTS

In adverse operating conditions, such as aggressive environments, high equipment usage or where high defect rates are experienced, a more rigorous routine service program than the minimum requirements set out in Sections 2 to 14 shall be developed. The program shall be determined by the responsible entity in consultation with the service provider.

CI.13 *A more rigorous routine service program may involve supplementary inspections or greater frequency of routine service. For example, the responsible entity may elect to conduct weekly inspections and require the service provider to conduct six-monthly service activities on a monthly basis.*

Adverse environments may include, but are not limited to, the following:

- (a) Exterior situations exposed to the weather or salt spray.*
- (b) Corrosive atmospheres.*
- (c) Abnormally dusty or moisture-laden (humid) atmospheres.*
- (d) Environments having extremes of temperature.*
- (e) Environments having increased risk of physical damage to equipment.*
- (f) Environments that subject the systems or equipment to continuous or intense vibrations.*

Examples of high usage include frequently used fire and smoke doors in such occupancies as health care buildings, shopping centres and airport terminals resulting in excessive wear on latch mechanisms and door leaf closing sequencing.

High defect rates may result from tampering, excessive vibration, frequent tenancy changes, vandalism or inappropriate occupant activity.

1.14 PRECAUTIONS

Prior to commencing any routine service, the following precautions shall be carried out:

- (a) Take all reasonable precautions to not adversely affect the normal operation of any system, except for those systems to be serviced, or to adversely affect occupants of the building, or to cause any situation that will result in an unwanted alarm.
- (b) Inform the responsible entity or nominated person that routine service is to be carried out, which may adversely affect the occupants or operations of the building.
- (c) Inform the responsible entity or nominated person of the extent and expected duration of the impairment during the routine service so that alternative safety arrangements can be implemented.
- (d) Notify the monitoring service provider where testing or service may cause signals to be transmitted.

NOTE: The notification may be by configuring the alarm signalling equipment to test mode and confirmation that the system has been restored to 'normal' by the alarm signalling equipment returning to 'normal'.

- (e) On completion of any routine service, return all controls to their prior state. When any function is left impaired, disabled or is not restored to 'normal', record in the system logbook and notify the owner or agent.
- (f) If on-site welding is to be carried out, it shall be in accordance with the requirements of AS 1674 and the hot work procedures applicable to the building.

NOTE: On-site welding should be avoided wherever possible and particularly when sprinkler systems are inoperative.

NOTES:

- 1 During periods when the system is inoperative it is recommended that all fire extinguishing appliances be held in special readiness for immediate use, and that a watchperson be on duty throughout non-working hours. Where a water supply from a particular source is curtailed for any protracted period, e.g. as in time of drought, special attention should be given to the routine service of any other water supplies.
- 2 In the case of multiple installations, each individual installation should be returned to service before work commences on subsequent installations.

1.15 DEFECT RECTIFICATION

On completion of defect rectification, the system or component shall be tested for correct function.

NOTE: It may be necessary for the responsible entity to implement interim prevention/protection measures pending the rectification of any defects.

1.16 ROUTINE SERVICE RECORDS

1.16.1 General

Records necessary to comply with this Standard comprise logbooks or, in the case of tags and labels, hardcopy summary records in accordance with Table 1.16.1.

TABLE 1.16.1
ROUTINE SERVICE RECORDS

Section No.	Systems or equipment	Service records			
		Logbooks	Tags	Labels	Summary records
2	Automatic fire sprinkler systems	✓	—	—	—
3	Fire pumpsets	✓	—	—	—
4	Fire hydrant systems	✓	—	—	—
4	Fire hydrant valves	—	✓	✓	✓
5	Water storage tanks for fire protection systems	✓	—	—	—
6	Fire detection and alarm systems	✓	—	—	—
7	Special hazard systems	✓	—	—	—
8	Delivery lay flat fire hose	—	✓	✓	✓
9	Fire hose reels	—	✓	✓	✓
10	Portable and wheeled fire extinguishers	—	✓	✓	✓
11	Fire blankets	—	✓	✓	✓
12	Passive fire and smoke systems	✓	—	✓	✓
13	Smoke and heat control features of mechanical services	✓	—	—	—
14	Emergency planning in facilities	✓	—	—	—

1.16.2 Logbooks, tags, labels and summary records

Service records, including the pass/fail criteria, shall be captured at the time of routine service. These records may be captured in the form of—

- (a) hardcopy logbook;
- (b) electronic log; or
- (c) tags and labels with hardcopy summary records (see Table 1.16.2).

For all methods of recording, a hardcopy of the service record [paper-based logbooks or printed and signed paper-based copy of the electronic log (see Clause 1.16.3)] shall be left on site at the completion of the test. Where tags or labels are permitted, a printed and signed paper-based copy of the summary record (see Clause 1.16.5) may be provided to the responsible entity within one week from the date of service.

NOTE: Clause 1.16.6 requires the responsible entity to retain hard copy service records on site.

Where tags or labels are used, the recording of the completed activity shall be as specified in Clause 1.16.4.1. A service tag or label shall be provided to record the last level of service performed in accordance with Sections 4, 8, 9, 10, 11 and 12. The tag or label shall be permanently marked with a number to correspond with the frequencies as set out in Table 1.16.2.

The record of each non-conformance or defect when using the tag or label system shall be captured in the summary record.

TABLE 1.16.2
SERVICE TAGS OR LABELS—FREQUENCY OF APPLICATION

Section	Equipment	Frequency					
		Three-monthly	Six-monthly	Yearly	Three-yearly	Five-yearly	After use
4	Fire hydrant valves	—	✓	✓	—	✓	—
8	Delivery lay flat fire hose	—	—	✓	—	—	✓
9	Hose reels	—	✓	✓	—	—	—
10	Portable and wheeled fire extinguishers	—	✓	✓	✓ (Note 1)	✓	✓
11	Fire blankets	—	✓	—	—	—	(Note 2)
12	Passive fire and smoke systems	✓	✓	✓	—	—	—

NOTES:

- 1 For adverse operating environments, refer to Clause 10.2.3.
- 2 Discard blanket after any use.

1.16.3 Logbooks

Service records in the form of logbooks (hardcopy or electronic) shall contain the following information:

- (a) Name and address of building or site.
- (b) Date and frequency of service performed.
- (c) System or equipment identification and location.
- (d) Each activity performed, including recorded results if required, and 'pass' or 'fail' as appropriate.
- (e) Details of each non-conformance or defect including its classification, location and any rectification completed.
- (f) Name of responsible entity (owner/occupier).
- (g) Name and signature of the service person and date.
- (h) Name of the service provider or company.

1.16.4 Tags and labels

1.16.4.1 General

Service records in the form of tags or labels shall contain the following information:

- (a) A title 'AS 1851 Service record'.
- (b) Recording of the following—
 - (i) The service performed on fire hydrant valves, lay flat hose, hose reels, fire extinguishers, fire blankets, which shall be etched, embossed, stamped or indelibly marked on the tag or label in the space corresponding to the year and month in which the service was performed, with a figure representing the activity, as follows:
 - = three-monthly (identifiable by a dot on a label or a hole in a tag.)
 - 1 = six-monthly
 - 2 = yearly
 - 3 = three-yearly, where applicable [see Item 2.3(b) of Table 10.4.2]
 - 4 = five-yearly
 - 5 = recharged after use, where applicable [see Item 2.3(b) of Table 10.4.2]
 - (ii) The service performed on passive fire and smoke systems, which shall be indelibly marked on the label in the space corresponding to the year and month in which the service was performed, with a figure representing the activity as detailed in Section 12.
- (c) Date (month/year).

A service tag or label, as shown in Figure 1.16.4.1, shall be attached to the item serviced. The figures shall be not less than 3 mm high, and the markings shall be such that the figures are legible.

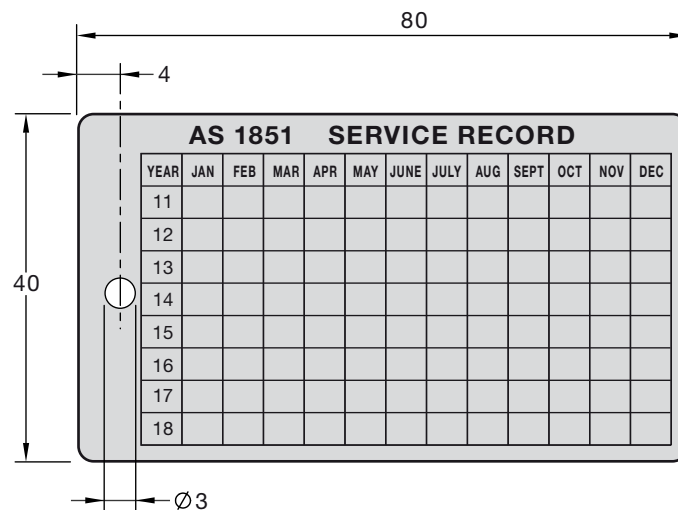
Where a service tag is used, it shall be attached so that the force necessary to detach the tag is not less than 200 N.

1.16.4.2 Requirements

Service tags and labels shall—

- (a) be made from a durable material (adhesive backed in the case of labels);
- (b) have lettering, figures, and lines on the tag printed in black;
- (c) have a continuous background colour of approximately Golden Yellow (Y15 of AS 2700);
- (d) have the dimensions and show only the information detailed in Figure 1.16.4.1 and the recorded information specified in this Clause; and
- (e) have the previous full year service record transferred from the expired tag or label to the new tag when a new tag or label is provided.

The label shall be applied adjacent to the completed label so that the previous service history is not obscured when a new label is provided.



DIMENSIONS IN MILLIMETRES

FIGURE 1.16.4.1 SERVICE TAG OR LABEL (TYPICAL)

1.16.5 Summary record

Where tags or labels are used, a supporting hardcopy summary record shall be completed and shall include a register of the equipment on the premises, a statement of the service performed and details of missing or defective items as follows:

- A1 |
- (a) Name and address of building or site.
 - (b) Date of service.
 - (c) Details of equipment on site as listed in the Equipment Register.
 - (d) Scheduled date of service (see Clause 1.11).
 - (e) Quantity and type of equipment serviced and frequency of service performed.
 - (f) Quantity and location of equipment not serviced.
 - (g) Details of each non-conformance or defect including its classification, location and any rectification completed.
 - (h) Name of responsible entity.
 - (i) Name and signature of the service person and date.
 - (j) Name of the service provider or company
 - (k) For fire extinguishers, the date of manufacture or the date of the last pressure test.
 - (l) For fire hose reels, details of the flow test results for the most hydraulically disadvantaged hose reel.
 - (m) Any other applicable comments (e.g. additional activities as a result of adverse operating environments).

1.16.6 Records retention

The responsible entity shall retain the service records [logbook(s) and summary record(s)] on site, which shall be available at all times. Service records shall be retained for a minimum period of seven years.

1.17 REPORTS

1.17.1 Defects, non-conformances and out of tolerance activities

The responsible entity shall be notified of critical defects before leaving site, or where this cannot be achieved, as soon as possible. Critical defects shall be confirmed in writing within 24 h of the defect identification and reconfirmed each time the defect is identified.

The responsible entity shall be notified of non-critical defects, non-conformances and out of tolerance activities within one week.

NOTES:

- 1 The full report should be submitted as soon as practicable, thereafter.
- 2 A recommendation should be sent to the responsible entity that critical defects be rectified with the minimum of delay, non-critical defects and non-conformances be rectified as soon as practicable prior to the next yearly condition report.

1.17.2 Yearly condition reports

Evidence of compliance with this Standard shall take the form of one or more condition reports. Condition report(s) shall provide a summary of the service records for the year's activities and shall be issued yearly to the responsible entity.

The condition report shall contain details of outstanding defects and non-conformances. If the outstanding defects result in the fire system or equipment being no longer operational, such non-operational status shall be noted on the report. The yearly condition report shall contain the following:

- (a) Name and address of building or site.
- (b) Period covered by this report.
- (c) System or equipment identification and location.
- (d) Applicable approved design Standard.
- (e) Defects outstanding.
- (f) Non-conformances outstanding.
- (g) Summary of the relevant records of service.
- (h) Statement of condition.
- (i) Name and address of responsible entity.
- (j) Name and signature of service provider representative and date.
- (k) Name of the service provider or company.

NOTES:

- 1 It is recognized that different parties may undertake portions of the routine service.
- 2 An example of a condition report is given in Appendix E.

The condition report shall contain acknowledgment of missed service activities or outstanding defects and non-conformances. If the outstanding defects report results in the fire system or equipment being no longer operational, such non-operational status shall be noted on the report.

CI.17.2 *It is intended that the yearly condition report be used as supporting evidence for State or Territory regulatory compliance of fire protection systems and equipment.*

SECTION 2 AUTOMATIC FIRE SPRINKLER SYSTEMS

2.1 GENERAL

This Section sets out requirements for the routine servicing (inspection, testing, preventive maintenance and survey) of automatic fire sprinkler systems.

NOTE: Home sprinkler systems are covered in AS 2118.5.

The following systems are covered in this Section:

- (a) Wet pipe systems.
- (b) Dry pipe systems.
- (c) Deluge and water spray systems.
- (d) Pre-action systems.

Routine service of combined sprinklers and hydrant systems shall be carried out in accordance with the requirements of this Section for automatic fire sprinkler systems and Section 4 for fire hydrant systems.

NOTES:

- 1 For drencher systems (wall wetting) refer to Clause 2.4.1.
- 2 For pumpsets refer to Section 3.
- 3 For water storage tanks refer to Section 5.

This Section shall be read in conjunction with Section 1.

2.2 ROUTINE SERVICE PROCESS AND PROCEDURES

2.2.1 Routine service

Sprinkler systems shall be subjected to routine service in accordance with this Section.

2.2.2 Survey

Sprinkler systems shall be surveyed in accordance with the survey requirements specified in Clauses 2.4.1 to 2.4.4.

C2.2.2 A survey is typically conducted visually from floor level to identify changes to the sprinkler system or the building and its environment, which could impair the performance of the sprinkler system.

2.2.3 Baseline data

A1 | Baseline data shall be in accordance with Clause 1.8.

2.2.4 Service records

Service records of activities and results detailed in Clause 2.4.1 shall be kept in accordance with Clause 1.16.

2.2.5 Reports

Critical defects, non-critical defects, non-conformances and yearly condition reports shall be prepared and distributed in accordance with Clause 1.17.

2.3 FREQUENCY

The frequency of routine servicing of sprinkler systems, as set out in Clause 2.1, shall be in accordance with Clause 2.4 and the following:

- (a) Monthly.
- (b) Six-monthly.
- (c) Yearly.
- (d) Five-yearly.
- (e) Ten-yearly.
- (f) Twenty-five yearly.
- (g) Thirty yearly.

2.4 ROUTINE SERVICE SCHEDULES

2.4.1 Sprinkler system service schedule requirements

2.4.1.1 *Wet pipe systems*

Routine service of wet pipe systems, drencher systems (wall wetting) and combined sprinklers and hydrants shall be carried out in accordance with Clause 2.4.2 (only for the components that are installed). Routine service of sprinkler systems pumpsets and water storage tanks shall be carried out in accordance with Sections 3 and 5 respectively.

2.4.1.2 *Dry pipe systems*

Routine service of dry pipe systems shall be carried out in accordance with Clause 2.4.3. Pumpsets shall be serviced in accordance with Section 3 and tanks with Section 5. All the water supply components upstream of the dry pipe valve shall be serviced in accordance with Clause 2.4.1.1.

2.4.1.3 *Deluge and water spray systems*

Routine service of deluge and water spray systems shall be carried out in accordance with Clause 2.4.4. All the water supply components upstream of the dry pipe valve shall be serviced in accordance with Clause 2.4.1.1. Routine service of deluge and water spray system pumpsets shall be in accordance with Section 3 and deluge and water spray system tanks with Section 5.

2.4.1.4 *Pre-action systems*

Routine service of pre-action systems shall be carried out in accordance with Clause 2.4.5. All the water supply components upstream of the dry pipe valve shall be serviced in accordance with Clause 2.4.1.1. Pre-action system pumpsets shall be serviced in accordance with Section 3 and pre-action tanks with Section 5.

2.4.2 Wet pipe system service schedules

2.4.2.1 *Monthly service schedule*

Routine service of wet pipe systems on a monthly basis shall be carried out in accordance with Table 2.4.2.1.

TABLE 2.4.2.1
MONTHLY ROUTINE SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
WET PIPE SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
	1.1 Control valve assembly	CHECK that control valve assembly area is unobstructed and free of any condition that may adversely affect the operation or access.			
	1.2 Sprinkler spares, sprinklers and sprinkler spanner	CHECK that there are spare sprinklers of appropriate quantity and type including a matching sprinkler spanner for each type of sprinkler fitted, available.			
A1	1.3 Signage	CHECK for damage, legibility and appropriate location of required signage.			
A1	1.4 Fire brigade booster connection	CHECK that the booster connection or enclosure is unobstructed and for any condition that may adversely affect the operation or access. CHECK that the booster connection coupling type is as per the local fire brigade requirements.			
A1	1.5 Main stop valves and alarm cocks	INSPECT each main stop valve and alarm cock for each control assembly is secured in the open position and the main stop valve is correctly labelled. NOTES: 'Text deleted'			
	1.6 Pump starting devices isolating valve	CHECK that each isolating valve to each automatic pump start device is locked in the open position.			
	1.7 Pressure switches	CHECK each pressure switch and ensure that the cover is in place, correctly labelled, securely mounted and free from any condition likely to adversely affect its function.			
	1.8 Alarm signalling equipment (ASE) (stand-alone)	CHECK the alarm signalling equipment to ensure that it is securely mounted, free from any condition likely to adversely affect its function and is not indicating alarm, fault, loss of connection, or isolated.			
	1.9 Sprinkler system interface to other systems	CHECK the sprinkler system alarm interface with other systems is not isolated, inhibited or disabled.			

(continued)

TABLE 2.4.2.1 (continued)

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
A1	Water supply stop valves	(a) OPERATE (two full turns) all water supply stop valves (including backflow prevention stop valves but excluding underground key-operated valves) and verify they are fully open, secure in the open position (relaxed ¼ turn if appropriate) and are correctly labelled. NOTES: 1 Where more than 12 water supply stop valves are distributed throughout a high-rise building, forming part of a combined sprinkler/hydrant system, the actions under actions (a) and (b) may be conducted on a rotating basis. 2 The period between testing of all water supply stop valves should not exceed 3 months.			
		(b) VERIFY that the valve position indicators are securely mounted and indicate correctly.			
		(c) ‘Text deleted’			
A1	System pressure gauge readings before alarm function test	(a) RECORD reading from each pressure gauge.	kPa		
		(b) VERIFY pressure gauge readings are within the ranges required.			
A1	Control assembly, alarm gong, alarm-initiating device, fire brigade alarm test and DSEP/DBEP strobes (Alarm function test)	(a) OPERATE each alarm valve by opening each 15 mm test valve or 10 mm for residential sprinkler systems serving buildings up to 4 storeys in height. Where more than 12 control assemblies are distributed throughout a high-rise building forming part of a combined sprinkler/hydrant system, and initiate the fire brigade alarm, testing may be conducted on a rotating basis. The period between testing of all control assemblies shall not exceed 3 months.			
		(b) RECORD time(s) to operation of alarm gong(s) and verify that time does not exceed 180 s for general systems or 90 s for residential sprinkler systems.	s		
		(c) RESET the alarm test valve on completion of each test.			
		(d) Where multiple control valve assemblies are separately identified at an FIP, only one transmission from the FIP to the monitoring station is required.			
1.13	Alarm signal	VERIFY the correct operation of each alarm signal. Where the system is monitored ensure the alarm has activated the alarm signalling equipment.			
1.14	DSEP/DBEP strobe indicator	INSPECT for the correct operation of each DSEP/DBEP strobe indicator, where fitted.			

(continued)

TABLE 2.4.2.1 (continued)

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
A1	1.15	(a) RECORD reading from each pressure gauge.	Inst kPa Below SV...kPa WS1 kPa WS2 kPa		
		(b) VERIFY pressure gauge readings are within the ranges required.			
A1	1.16	(a) TEST each automatic pump starting device and pump operation by reducing the applied water pressure to the starting device and run pump, in accordance with Section 3. Where more than one starting device is installed, including the manual starting device, the test may be carried out on a rotating basis. The period between the exercising of each starting device is not to exceed 3 months. Where this would require the pump to start more than 5 times in succession, the period may be extended to 6 months.			
		(b) RECORD the pump cut-in pressures and verify that they are within the ranges required.			
	1.17	Manual pump start device, function test	TEST each manual pump starting device and pump operation in accordance with Section 3.		
	1.18	Water supply tanks—Atmospheric or pressure	Perform routine service in accordance with Section 5.		
	1.19	Foam water sprinkler systems—foam concentrate	CHECK that the concentrate level is correct and level indicator reads correctly.		

2.4.2.2 Six-monthly service schedule

Routine service of wet pipe systems on a six-monthly basis shall be carried out in accordance with Table 2.4.2.2.

TABLE 2.4.2.2
SIX-MONTHLY ROUTINE SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
WET PIPE SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
	2.1 Monthly service	COMPLETE all monthly service activities, as listed in Table 2.4.2.1.			
	2.2 Floor/zone indication test (where fitted)	(a) OPERATE each flow switch test arrangement (automatic or manual).			
		(b) VERIFY correct flow switch indication at the CIE.			
A1	2.3 Underground key-operated and subsidiary valves	(a) Except where owned by the water supply authority, OPERATE (two full turns) all underground key-operated valves and verify they are fully open, secure in the open position (relaxed ¼ turn if appropriate) and are correctly labelled. NOTE: Where underground key-operated valves are owned by the water supply authority, the owner should arrange for the water supply authority to test the valve(s) to confirm the valve(s) is operational and in the correct position.			
A1		(b) OPERATE all subsidiary stop valves (floor isolation valves, tail-end valves). Ensure that they are fully open and, where applicable, secured in the open position and are correctly labelled. NOTE: 'Text deleted'.	Number checked		
	2.4 Valve-monitoring device test	Test each valve monitor by operating the valve and VERIFY the correct indication at the CIE.	Number checked		
A1	2.5 Pressure gauge readings before main drain test	RECORD reading from each pressure gauge. VERIFY pressure gauge readings are within the ranges required.	Inst kPa Below SV ..kPa WS1 kPa WS2 kPa		

(continued)

TABLE 2.4.2.2 (continued)

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
2.6	Main drain valve water supply test—Town main supply only	(a) OPEN the sprinkler control assembly main drain valve without pump(s) running. In the case of grouped valve sets, open one only.			
		(b) VERIFY that residual water supply pressure, with drain valve open, is within 10% of the original value recorded.	Stabilize flow water supply pressure kPa		
		(c) CLOSE main drain valve and record time for pressure recovery.	Time for pressure recovery s		
		(d) VERIFY that the time for pressure recovery aligns with previously recorded value. NOTE: Where the building exceeds four storeys in height, care should be taken to ensure that the static head of the installation does not excessively elevate the residual pressure reading.			
2.7	Water supply (river, lake, etc.) strainers/screens	CHECK suction inlet strainer(s) or screen(s) for any condition likely to affect its function. Where blocked, CLEAN the suction inlet strainers or screens.			

2.4.2.3 *Yearly service schedule*

Routine service of wet pipe systems on a yearly basis shall be carried out in accordance with Table 2.4.2.3.

TABLE 2.4.2.3
YEARLY ROUTINE SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
WET PIPE SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
3.1	Monthly and six-monthly service	COMPLETE all monthly and six-monthly service activities, as listed in Tables 2.4.2.1 and 2.4.2.2.			
3.2	Pressure-reducing valve test	(a) OPERATE all pressure-reducing valves and verify correct operation under flow conditions.			
		(b) VERIFY that pressure readings on the low pressure side of the valves are within the range stated at the pressure-reducing valve station.	High pressure gauge kPa Low pressure gauge kPa		

(continued)

TABLE 2.4.2.3 (continued)

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
A1	3.3 Pressure-relief valve test	OPERATE pressure-relief valve and note operating pressure is within the range stated on the nameplate provided at the reducing valve station. NOTES: 1 This test of the pressure-relief valve may be carried out using a portable test apparatus. 2 Inappropriate settings for pressure-relief valves can result in very large quantities of water flowing to waste. Ensure settings are maintained to have pressures as identified and not higher than allowed by system component rated working pressures.	Operating pressure kPa		
A1	3.4 Water supply tanks—Atmospheric or pressure	Perform routine service in accordance with Section 5.			
A1	3.5 Water supply proving test	(a) CONDUCT a water supply test, subject to limitations imposed by the water agency controlling the supply source. The test may be a combination of physical testing and calculation as necessary.	Static supply pressure kPa		
		(i) Discharge water through the flow-measuring device at the flow corresponding to the hydraulically most favourable duty flow. Record the flowing pressure.	Flow L/min @ pressure kPa		
		(ii) Reduce the water flow through the flow measuring device to that corresponding to the most unfavourable duty point. Record the flowing pressure.	Flow L/min @ pressure kPa		
		(iii) Shut off water flow to flow-measuring device. Record static pressure.	Static supply pressure kPa		
		(b) VERIFY that the system flow and pressure requirements are satisfied.			
		(c) COMPLETE a water supply test report in accordance with AS 2118.1. NOTE: This test should be conducted by substituting the installation and below stop valve pressure gauges with calibrated gauges of known accuracy. Where pumpsets are fitted, the water supply flow test should be performed combined with the pumpset load test requirements in Section 3.			
A1	3.6 Alarm valve—Remote test valve	(a) OPERATE the alarm valve by opening each remote test valve.			
		(b) RECORD time(s) to operation of alarm gong(s) and verify that time does not exceed 360 s for AS 2118.1 and 180 s for AS 2118.4 systems.	 s		
		(c) CLOSE remote test valve(s) and verify that alarm valve has reseated.			

(continued)

TABLE 2.4.2.3 (continued)

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
3.7	Anti-freeze solution test (where applicable)	(a) DRAW a sample of anti-freeze solution.			
		(b) VERIFY correct specific gravity and top up to correct solution level.			
3.8	Sprinkler system interface control test (fire trips)	(a) CONDUCT a functional system test via the pressure switch or flow switch with each interfaced system.			
		(b) VERIFY that the interface functions as required.			
3.9	Water motor alarm gong	CLEAN the strainer and lubricate the external gong mechanism.			
3.10	Water motor direct brigade alarm	CLEAN the strainer.			
3.11	Alarm signalling equipment (ASE) (Standalone)	Where an ASE is standalone and is connected to a power supply unit and batteries: (a) CHECK the batteries for any condition likely to adversely affects its function and (b) Where the battery has not been replaced in the previous two years, VERIFY the battery condition by carrying out a battery discharge test in accordance with Appendix F.	Date last replaced or Test load current A Final test voltage V		
3.12	Tank quick fill (reduced capacity or break tank)	CONDUCT a water supply test through a flow-measuring device or other appropriate methods that the flow corresponds to the required quick fill-rate.	Flow L/min @ pressure kPa		
3.13	Spray booths and ducts	INSPECT accumulated spray residue on sprinklers and reapply protective medium (petroleum jelly/paper bags). NOTE: The required frequency of inspection depends upon the amount of spraying being done and could be accomplished at the same time as the cleaning of booth.			
3.14	Kitchen hoods and ducts	INSPECT all sprinklers inside kitchen hoods and ducts and CLEAN if necessary to remove accumulated grease and any other foreign matter and verify that the sprinkler head is appropriate for this application.			
3.15	Foam water sprinkler systems—Foam concentrate	DRAW a sample and verify condition in accordance with NFPA 11 (pH, specific gravity, sediment, expansion ratio, 25% drain time).			
3.16	Foam concentrate strainer (where fitted)	CHECK and clean foam concentrate strainer (fitted upstream of proportioning device).			

(continued)

TABLE 2.4.2.3 (continued)

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
3.17	Survey—Pipes and hangers	CHECK that exposed water distribution system, including pipework, pipe supports and valves, appear free from corrosion and damage, not subject to external loads and pipework is properly supported.			
3.18	Survey—Sprinkler condition	CHECK sprinklers for any condition, including physical damage, contamination, and paint on operating elements or cover plates, likely to adversely affect their function. NOTE: Sprinkler frames may be painted as part of the manufacturing process; however, the heat response elements should not be painted as this will delay or prevent operation and paint accumulated at the seat of the sprinkler may affect operation. Minor spatter on the fusible elements may be acceptable but operation should be checked if doubt exists.			
3.19	Survey—Escutcheons, cover plates or guards	CHECK for poorly fitting or missing escutcheons or cover plates, damaged guards, and attachment of foreign material.			
3.20	Survey—Sprinkler obstructions	CHECK for obstructions likely to impede sprinkler discharge and for adequate clear space below sprinklers.			
3.21	Survey—Unprotected areas	(a) CHECK for presence of unprotected areas such as mezzanines, platforms and building extensions.			
		(b) CHECK for sprinkler spacing and location relative to wall, bulkhead and partition alterations and the introduction of fixtures and fittings shielding sprinkler discharge.			
		(c) CHECK for the need to install sprinkler guards.			
3.22	Survey—Sprinkler compatibility	CHECK that sprinklers within a compartment are of similar operating characteristics (e.g. area coverage, RTI and temperature rating).			
3.23	Survey—Sprinkler ambient conditions	CHECK for localized changes in ambient temperatures, which may require different sprinkler temperature ratings (e.g. exposure to freezing or high temperature conditions).			
3.24	Survey—External sprinklers	CHECK for new building structures, yard storage or the like, exposing unprotected openings, non-fire resistant walls that may require the provision for external sprinklers.			
3.25	Survey—Occupancy	CHECK that sprinkler design remains applicable for the occupancy hazard classification and the category of storage involved.			

(continued)

TABLE 2.4.2.3 (continued)

A1

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
3.26	Survey—Storage heights, encapsulation	(a) CHECK that sprinkler design remains applicable for storage heights. If height limits are exceeded, check for in-rack (intermediate) sprinklers.			
		(b) CHECK for shrink wrapping (encapsulation) where not employed previously.			
3.27	Survey—Site documentation (where required)	(a) CHECK that block plans and emergency instructions contain the required details.			
		(b) CHECK that up-to-date sprinkler plans are available on site.			

2.4.2.4 Five-yearly, ten-yearly, twenty-five yearly and thirty-yearly service schedule

Routine service of wet pipe systems on a five-yearly, ten-yearly, twenty-five year and thirty year basis shall be carried out in accordance with Table 2.4.2.4.

TABLE 2.4.2.4
FIVE-YEARLY, TEN-YEARLY, TWENTY-FIVE-YEARLY AND THIRTY-YEARLY
ROUTINE SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
WET PIPE SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
FIVE-YEARLY					
4.1	Monthly, six-monthly and yearly service	COMPLETE all monthly, six-monthly and yearly service activities, as listed in Tables 2.4.2.1, 2.4.2.2 and 2.4.2.3.			
4.2	Alarm valve (wet)	FIT new alarm valve seating or port seating (perishable items), check and clean annular groove and outlet ports, polish and lubricate seating spindle/shaft, and check operation of compensator valve if fitted. Fit a new alarm valve faceplate gasket.			
4.3	Main drain and test valve	(a) For screw-down style valves, EXAMINE seating and fit new washers.			
		(b) For packed gland variants, FIT new gland packing.			
		(c) For ball valves, CHECK for leakage and replace if leaking.			
4.4	Alarm cock plug type	REMOVE alarm cock barrels, clean, lap in, grease and reinstall. For packed gland variants, fit new gland packing.			
4.5	Jacking pump (where fitted)	INSPECT hand pump seatings and FIT new pump washers and path cock washers. FIT new gland packing. For electric jacking pumps, maintain as per manufacturer’s instructions.			

(continued)

TABLE 2.4.2.4 (continued)

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
4.6	Retard chambers (where fitted)	CLEAN orifice, check seals and overhaul, where indicated, by a functional test.			
4.7	Stop valves	(a) FIT new gland packing and lubricate spindle.			
		(b) For ball and butterfly valves, CHECK for leakage and replace if necessary.			
4.8	Water supply non-return valves	RENEW water supply non-return valve seatings and gaskets.			
4.9	Water motor alarm gong	CLEAN strainer on inlet line, clear water jet, flush drain, renew gasket, check operation of main spindle and striker, remove excess grease and then lubricate.			
4.10	Water motor direct brigade alarm (where fitted)	CLEAN out well of direct brigade alarm, clear water jet, renew gasket, flush drain pipe, remove gear train, check operation of main spindle, remove excess grease and then lubricate.			
4.11	Gauges	CHECK all pressure gauges against a master gauge of known accuracy. Verify that the reading of the gauge under test is within ± 30 kPa of the reading of the master gauge at the nominal pressure.			
4.12	Special valves (other than alarm valves)	OVERHAUL all pressure-reducing valves, pressure-relief valves, tail-end system valves, and any other special valves that are installed in accordance with suppliers' specifications.			
4.13	Anti-freeze systems	DRAIN tail-end anti-freeze systems, including individual sprinkler heads on droppers and refill with new solution.			
4.14	Water supply tanks—Atmospheric	Perform routine service in accordance with Section 5.			
4.15	Air compressor (where fitted)	SERVICE the air compressor assembly in accordance with the manufacturer's instructions. [Periodic hydrostatic testing of air receivers is not required (see AS/NZS 3788)].			
4.16	Foam quality	GENERATE foam through test foam maker or by other means. Check proportioning ratio (refractometer or conductivity test) and drainage rate. Top up foam concentrate tank.			
4.17	Water supply tanks—Pressure	Perform routine service in accordance with Section 5.			

(continued)

A1

TABLE 2.4.2.4 (continued)

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
TEN-YEARLY, TWENTY-FIVE YEAR AND THIRTY-YEAR					
A1	4.18	Sprinklers	Subject the sample sprinklers to the following tests conducted by a registered testing authority:		
			(a) Release temperature.		
			(b) Functional test.		
			(c) Leak resistance test—Maximum system design pressure test.		
			REMOVE and TEST a representative sample of sprinklers at the following intervals:		
		(i) Dry pendent sprinklers (representative sample), every 10 years.			
		(ii) All other sprinklers (not less than 14 samples), at 25 years, then every 10 years.			
		NOTE: For all the above sprinklers, using ISO 6182-6, ISO 6182-7 and ISO 6182-12 component Standards, sample sprinklers should be selected from the range of site environmental conditions to which the system(s) is subjected (i.e. office, factory, boiler house environments, etc.). Should one or more sprinklers fail any of the above tests, further sampling and testing should be conducted until the results can be considered truly representative. The extent of sprinkler replacement, if any, will be dependent on the results of testing.			
4.19	Multiple jet controller (MJC)	At 30 years and every 10 years thereafter:			
		(a) Single MJC installed for alarm purposes only or to control a group of distributors, CHECK in situ for evidence of paint loading, corrosion, etc. Replace if necessary.			
		(b) Multiple MJC installed for alarm purposes only or to control groups of distributors, REPLACE a representative sample. Subject the sample to the following tests conducted by a registered testing laboratory:			
		(i) Leak resistance test.			
		(ii) Maximum system design pressure test (nominally 1200 kPa or 2000 kPa).			
		(iii) Functional test. Use ISO 6182-1.			
		NOTE: Should the sample MJC fail any of the above tests, further sampling and testing should be conducted until the results can be considered truly representative.			

2.4.3 Dry pipe system service schedules

2.4.3.1 Monthly service schedule

Routine service of dry pipe systems on a monthly basis shall be carried out in accordance with Table 2.4.3.1.

TABLE 2.4.3.1
MONTHLY SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
DRY PIPE SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
1.1	Monthly service	COMPLETE all monthly wet pipe service activities listed in Table 2.4.2.1 that are applicable to a dry pipe system.			
1.2	System air pressure	CHECK system air pressure is reading within the range required.	kPa		
1.3	System air desiccator or dryer	CHECK desiccant condition and replace if necessary.			
1.4	Air compressor oil level	CHECK oil level and visually assess condition of oil.			
1.5	Air compressor	VERIFY that air compressor operates at specified cut-in and cut-out pressures.	Cut-in kPa Cut-out kPa		
1.6	Low air pressure alarms(s)	VERIFY: (a) Low air pressure alarm operates at predetermined levels.	kPa kPa		
		(b) Low air pressure alarm(s) visual indicator and sounders are operational.			
1.7	Local alarm and fire brigade test simulation (in lieu of Item 1.12, Table 2.4.1.1)	SIMULATE operation of dry pipe alarm valve and OPERATE local and fire brigade alarms through the bypass valve(s). Where the system is monitored, ensure the alarm has activated the alarm signalling equipment. (Refer to manufacturer's operating manual.) NOTE: Where multiple control valve assemblies are separately identified at an FIP, only one transmission from the FIP to the monitoring station is required.			
1.8	Air receiver condensate	DRAIN condensate from condensate trap.			

A1

2.4.3.2 Six-monthly service schedule

Routine service of dry pipe systems on a six-monthly basis shall be carried out in accordance with Table 2.4.3.2.

TABLE 2.4.3.2
SIX-MONTHLY SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
DRY PIPE SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
A1	2.1 Monthly and six-monthly service	COMPLETE all monthly service activities listed in Table 2.4.3.1 and all six-monthly wet pipe service activities listed in Table 2.4.2.2 that are applicable to a dry pipe system.			
A1	2.2 Alarm valve and auxiliaries, local alarm and fire brigade alarm test (in lieu of Item 1.12 in Table 2.4.2.1)	(a) Where fitted, CLOSE isolation valve located above alarm valve (to prevent entry of water into system piping).			
		(b) OPERATE each alarm valve by releasing air from system.			
		(c) CHECK for correct operation of alarms and accelerator or exhaustor.			
		(d) RECORD time(s) to operation of alarms gong(s) and verify that these do not exceed 180 s.	 S		
		(e) VERIFY correct operation of the fire brigade alarms from each control assembly or group of control assemblies. Where the system is monitored, ensure the alarm has activated the alarm signalling equipment. NOTE: Where multiple control valve assemblies are separately identified at an FIP, only one transmission from the FIP to the monitoring station is required.			
		(f) Where an isolation valve has not been fitted above the alarm valve, the main stop valve should be mostly closed, enabling a partial test of the alarm valve. NOTE: Consider full testing at the first opportunity (at which time the isolation test valve should be installed).			
	2.3 Installation pressure	RESTORE system air pressure and verify the alarm has resealed.			
	2.4 FIP/ASE	RESTORE FIP/ASE to operational status.			
A1	2.5 Pressure gauge readings	(a) RECORD reading from each pressure gauge.	Inst.....kPa		
		(b) VERIFY pressure gauge readings are within the ranges required.	Below SV.....kPa WS1.....kPa WS2.....kPa		
	2.6 Control assemblies resetting	RESET and SECURE all valve and alarms cocks in the open position or the closed position, as labelled.			

2.4.3.3 Yearly service schedule

Routine service of dry pipe systems on a five-yearly basis shall be carried out in accordance with Table 2.4.3.3.

TABLE 2.4.3.3
YEARLY SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
DRY PIPE SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
3.1	Monthly and six-monthly service	COMPLETE all monthly and six-monthly service activities listed in Tables 2.4.3.1 and 2.4.3.2 and all yearly wet pipe service activities listed in Table 2.4.2.3 that are applicable to a dry pipe system.			
3.2	System air desiccators or dryer	REPLACE the desiccators.			
3.3	Survey—Pipes and hangers	CHECK that the water distribution pipe work is correctly pitched to drain.			

2.4.3.4 Five-yearly service schedule

Routine service of dry pipe systems on a five-yearly basis shall be carried out in accordance with Table 2.4.3.4.

TABLE 2.4.3.4
FIVE-YEARLY SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
DRY PIPE SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
4.1	Monthly, six-monthly and yearly service	COMPLETE all monthly, six-monthly and yearly service activities, listed in Tables 2.4.3.1, 2.4.3.2 and 2.4.3.3.			
4.2	Wet pipe systems five yearly service	COMPLETE all five-yearly wet pipe service activities listed in Table 2.4.2.4 that are applicable to a dry pipe system.			
4.3	Valve overhaul	FIT new dry pipe valve seats and seals. FIT new faceplate gasket (perishable items).			
4.4	Accelerator/exhauster	FIT new seals as appropriate. CHECK and CLEAN operating mechanism. FIT a new faceplate.			

2.4.4 Deluge and water spray system service schedules

2.4.4.1 Monthly service schedule

Routine service of deluge and water spray systems on a monthly and six-monthly basis shall be carried out in accordance with Table 2.4.4.1.

TABLE 2.4.4.1
MONTHLY SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
DELUGE AND WATER SPRAY SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
A1	1.1 Monthly service activities	COMPLETE all monthly wet pipe service activities listed in Table 2.4.2.1 that are applicable to a deluge and water spray system.			
	1.2 Pressure gauge readings	CHECK that all pressure gauge readings are within the ranges required and RECORD reading from each pressure gauge.	Pilot line kPa Diaphragm line kPa Below main stop valve kPa		
A1	1.3 Air compressor oil level (where fitted)	(a) CHECK oil level is correct and visually assess condition of oil.			
		(b) CHECK regulator is locked and set in the correct position.			
	1.4 Electrical detection (where fitted)	INSPECT and TEST in accordance with Section 6.			
	1.5 Detector sprinkler line (where fitted)	CHECK detector sprinkler line valves are in the correct operating position.			
	1.6 Air compressor (where fitted)	VERIFY that air compressor operates at specified cut-in and cut-out pressures.	Cut in.....kPa Cut out.....kPa		
	1.7 Solenoid valve(s)	TEST solenoid valves for correct operations.			
	1.8 Low air pressure alarm(s)	VERIFY:			
		(a) Low air pressure alarm operates at predetermined levels.	kPa		
		(b) Low pressure alarm(s) visual indicator and sounders are optional.			
A1	1.9 Local alarm and fire brigade test simulation in lieu of Item 1.12 in Table 2.4.2.1	(a) GENERATE a test of the alarm signalling equipment and local alarm in accordance with the manufacturer's operating manual. NOTE: Where fitted, bypass valve may be used for this test.			
		(b) OBSERVE correct operation of the fire brigade alarm from each deluge and water spray valve or group of deluge and water spray valves. Where the system is monitored, ensure the alarm has activated the alarm signalling equipment. NOTE: Where multiple deluge and water spray valve assemblies are separately identified at the FIP, only one transmission from the FIP to the monitoring station is required.			

2.4.4.2 Six-monthly service schedule

Routine service of deluge systems on a six-monthly basis shall be carried out in accordance with Table 2.4.4.2.

TABLE 2.4.4.2
SIX-MONTHLY SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
DELUGE AND WATER SPRAY SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
A1	2.1 Monthly service activities	COMPLETE all monthly service activities listed in Table 2.4.4.1 and all six-monthly wet pipe service activities listed in Table 2.4.2.2 that are applicable to a deluge and water spray system.			
A1	2.2 Deluge valve and auxiliaries, local alarm and fire brigade alarm test (in lieu of Item 1.12 and Table 2.4.2.1)	(a) Where fitted, CLOSE isolation valve located above deluge valve (prevents entry of water into system piping). (b) OPERATE each deluge valve by releasing the system via each installed means. (c) CHECK for correct operation of alarm. (d) RECORD times to operation of alarm(s) and verify that these do not exceed 30 s. s (e) VERIFY correct operation of the fire brigade alarms from each deluge valve or group of deluge assemblies. Where the system is monitored, ensure the alarm has activated the alarm signalling equipment. NOTE: Where multiple deluge valve assemblies are separately identified at an FIP, only one transmission from the FIP to the monitoring station is required. (f) Where an isolation valve has not been fitted above the alarm valve, the main stop valve should be closed, enabling a partial test of the alarm valve. NOTE: Consider full testing at the first opportunity (at which time the isolation test valve should be installed).			
	2.3 Deluge valve resetting	CLOSE main stop valve. CLOSE drain and RESET manual operating valve.			
	2.4 Detector sprinkler line pressure (where fitted)	RESET deluge valve and RESTORE detector sprinkler line pressure. OPEN and SECURE main stop valve. OPEN and secure test-isolating valve (where fitted) in an open position.			
	2.5 Electrical control unit (and FIP/ASE) (where fitted)	RESTORE units to operational status.			

(continued)

TABLE 2.4.4.2 (continued)

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
2.6	Pressure gauge readings	(a) RECORD readings from each pressure gauge.	Supervisory pressure kPa		
		(b) VERIFY pressure gauge readings are within the ranges required.	Diaphragm line kPa Below stop valve..... kPa		
2.7	Valve and cocks	SECURE all valves and alarm cocks in the open position or the closed position as labelled.			

2.4.4.3 *Yearly service schedule*

Routine service of deluge and water spray systems on a yearly basis shall be carried out in accordance with Table 2.4.4.3.

TABLE 2.4.4.3
YEARLY SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
DELUGE AND WATER SPRAY SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
3.1	Monthly and six-monthly service	COMPLETE all monthly and six-monthly service activities, listed in Tables 2.4.4.1 and 2.4.4.2.			
3.2	Yearly services	COMPLETE all yearly wet pipe service activities listed in Table 2.4.2.3 that are applicable to a deluge and water spray system.			
3.3	Full discharge operation test	Where practicable, CONDUCT full discharge test to check all open sprinklers and nozzles are unobstructed and provide appropriate coverage.			
3.4	Foam concentrate or premix solution (where applicable)	DRAW a sample and verify condition in accordance with NFPA 11 (pH, specific gravity, sediment, expansion ratio, 25% drain time).			
3.5	Foam concentrate strainer (where fitted)	CHECK and clean foam concentrate strainer (fitted upstream of proportioning device).			
3.6	Pilot line strainers	REMOVE and CLEAN strainer.			
3.7	Electrical detection (where fitted)	INSPECT and test in accordance with yearly requirements in Section 6.			
3.8	Installation	To the extent practicable, CHECK that pipe hangers are secure and open sprinklers and spray nozzles are unobstructed. Where applicable, check for missing nozzle dust plugs/caps.			
3.9	System configuration	CHECK that system layout remains appropriate for protected hazard. Check for possible misalignment of spray nozzles.			

2.4.4.4 *Five-yearly service schedule*

Routine service of deluge and water spray systems on a five-yearly basis shall be carried out in accordance with Table 2.4.4.4.

TABLE 2.4.4.4
FIVE-YEARLY SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
DELUGE AND WATER SPRAY SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
A1	4.1	Monthly, six-monthly and yearly service	COMPLETE all monthly, six-monthly and yearly service activities, listed in Tables 2.4.4.1, 2.4.4.2 and 2.4.4.3.		
	4.2	Five-yearly service	COMPLETE all five-yearly wet pipe service activities listed in Table 2.4.2.4 that are applicable to a deluge and water spray system.		
	4.3	Deluge valves	FIT new deluge valve seats and seals. Check and clean operating mechanism. Fit new faceplate gasket.		
	4.4	Diaphragm valve	FIT a new diaphragm, unless otherwise specified by the manufacturer.		
	4.5	Foam quality	GENERATE foam through delivery device (nozzle, monitor) or test foam maker and check:		
		(a) Proportioning ratio (using conductivity meter or refractometer).			
		(b) 25% drainage time.			
		(c) Expansion ratio.			

2.4.5 Pre-action system

2.4.5.1 Monthly service schedule

Routine service of pre-action systems on a monthly basis shall be carried out in accordance with Table 2.4.5.1.

TABLE 2.4.5.1
MONTHLY SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
PRE-ACTION SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
A1	1.1	Monthly service activities	COMPLETE all monthly wet pipe service activities listed in Table 2.4.2.1 that are applicable to a pre-action system.		
	1.2	Pressure gauge readings	CHECK that all pressure gauge readings are within the ranges required and RECORD readings from each pressure gauge.	Supervisory pressure kPa	
			Diaphragm line kPa		
			Below stop kPa		
A1	1.3	Air compressor oil level (where fitted)	(a) CHECK oil level is correct and visually assess condition of oil.		
			(b) CHECK regulator is locked and set in the correct position.		
	1.4	Electrical detection	INSPECT and TEST in accordance with Section 6.		
	1.5	Air compressor (where fitted)	VERIFY that air compressor operates at specified cut-in and cut-out pressures.	Cut-in kPa Cut-out kPa	
A1	1.6	Nitrogen supply (where fitted)	(a) CHECK cylinder contents per pressure gauge.	Cylinder pressure.....kPa	
			(b) CHECK regulator is locked and set in correct position.		
	1.7	Solenoid valve(s)	TEST solenoid valves for correct operations.		
	1.8	Low air pressure alarms(s)	VERIFY:		
			(a) Low air pressure alarm operates at predetermined levels.	kPa	
			(b) Low air pressure alarm(s) visual indicator and sounders are optional.		
	1.9	Local alarm and fire brigade test simulation in lieu of Item 1.12 in Table 2.4.2.1	(a) GENERATE a test of the alarm signalling equipment and local alarm in accordance with the manufacturer's operating manual. NOTE: Where fitted, bypass valve may be used for this test.		
			(b) VERIFY correct operation of the fire brigade alarm from each pre-action valve or group of pre-action valves. Where the system is monitored, ensure the alarm has activated the alarm signalling equipment. NOTE: Where multiple pre-action valve assemblies are separately identified at the FIP, only one transmission from the FIP to the monitoring station is required.		

2.4.5.2 Six-monthly service schedule

Routine service of pre-action systems on a six-monthly basis shall be carried out in accordance with Table 2.4.5.2.

TABLE 2.4.5.2
SIX-MONTHLY SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
PRE ACTION SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
A1	2.1	Monthly service activities	COMPLETE all monthly service activities listed in Table 2.4.5.1 and all six-monthly wet pipe service activities listed in Table 2.4.2.2 that are applicable to a pre-action system.		
	2.2	Pre-action valve and auxiliaries, local alarm and fire brigade alarm test (in lieu of Item 1.12 in Table 2.4.2.1)	(a) Where fitted, CLOSE isolation valve located above pre-action valve (prevents entry of water into system piping).		
			(b) OPERATE each pre-action valve by releasing the system via electrical detection subsystem.		
			(c) CHECK for correct operation of alarm.		
			(d) RECORD time(s) to operation of alarms and verify that these do not exceed 180 s. s		
			(e) OBSERVE correct operation of the fire brigade alarms from each pre-action valve or group of pre-action assemblies. Where the system is monitored, ensure the alarm has activated the alarm signalling equipment. NOTE: Where multiple pre-action valve assemblies are separately identified at an FIP, only one transmission from the FIP to the monitoring station is required.		
		(f) Where an isolation valve has not been fitted above the alarm valve, the main stop valve should be closed, enabling a partial test of the alarm valve. NOTE: Consider full testing at the first opportunity (at which time the isolation test valve should be installed).			
	2.3	Installation supervisory air pressure	RESET pre-action valve and restore supervisory air pressure.		
	2.4	Electrical control unit (and FIP/ASE)	RESTORE units to operational status.		
A1	2.5	Pressure gauge readings	(a) RECORD readings from each pressure gauge.	Supervisory pressure kPa	
			(b) VERIFY pressure gauge readings are within the ranges required.	Diaphragm line kPa Below stop valve kPa	
	2.6	Valve and cocks	SECURE all valves and alarm cocks in the open position or the closed position as labelled.		

2.4.5.3 Yearly service schedule

Routine service of pre-action systems on a yearly basis shall be carried out in accordance with Table 2.4.5.3.

TABLE 2.4.5.3
YEARLY SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
PRE-ACTION SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
A1	3.1	Monthly and six-monthly service	COMPLETE all monthly and six-monthly service activities, listed in Tables 2.4.5.1 and 2.4.5.2.		
	3.2	Yearly service activities	COMPLETE all yearly wet pipe service activities listed in Table 2.4.2.3 that are applicable to a pre-action system.		
	3.3	Air receiver condensate	DRAIN condensate from:		
		(a) Condensate trap.			
		(b) Air compressor receiver.			
	3.4	Survey—Installation	CHECK that sprinkler piping and detection installations are properly secured throughout the protection area.		
	3.5	Survey—Design	CHECK that pre-action sprinkler protection covers full extend of special hazard area.		

2.4.5.4 Five yearly service schedule

Routine service of pre-action systems on a five-yearly basis shall be carried out in accordance with Table 2.4.4.4.

TABLE 2.4.5.4
FIVE-YEARLY SERVICE SCHEDULE
AUTOMATIC FIRE SPRINKLER SYSTEMS
PRE-ACTION SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Records	
			Task completed	Task completed
			Yes/No	Yes/No
A1	4.1	Monthly, six-monthly and yearly service	COMPLETE all monthly, six-monthly and yearly service activities, listed in Tables 2.4.5.1, 2.4.5.2 and 2.4.5.3.	
	4.2	Five yearly service	COMPLETE all five-yearly wet pipe service activities listed in Table 2.4.2.4 that are applicable to a pre-action system.	
	4.3	Valve overhaul	FIT new pre-action valve seats and seals. CHECK and CLEAN operating mechanism. FIT new cover plate gasket.	

SECTION 3 FIRE PUMPSETS

3.1 GENERAL

This Section sets out the requirements for the routine servicing (inspection, testing, preventive maintenance and survey) of fire pumpsets.

Routine service of pumpsets detailed in this Section shall be carried out in addition to the requirements of Section 2 for sprinkler systems and Section 4 for hydrant systems.

This Section shall be read in conjunction with the relevant clauses of Section 1.

3.2 ROUTINE SERVICE PROCESS AND PROCEDURES

3.2.1 Routine service

All pumpsets including sprinkler, hydrant, hose reel, automatic pressure maintenance and jacking pumpsets shall be subjected to routine service in accordance with this Section.

3.2.2 System inoperative precautions

In addition to the requirements of Clause 1.14, where multiple pumps supply fire protection systems, only one pump shall be rendered inoperative at any time.

3.2.3 Isolation of start devices

Prior to commencing any preventive maintenance function, all automatic start devices, both local and remote, shall be checked to ensure they are isolated and tagged or locked out.

3.2.4 Baseline data

A1 | Baseline data shall be in accordance with Clause 1.8.

3.2.5 Service records

A1 | Records of activities and results detailed in Clause 3.4 shall be kept in accordance with Clause 1.16.

3.2.6 Reports

Critical defects, non-critical defects, non-conformances and yearly condition reports shall be prepared and distributed in accordance with Clause 1.17.

3.3 FREQUENCY

The frequency of routine servicing of pumpsets shall be in accordance with the following and Clause 3.4:

- A1 |
- (a) Monthly.
 - (b) Six-monthly.
 - (c) Yearly.
 - (d) Five-yearly.

3.4 ROUTINE SERVICE SCHEDULES

3.4.1 Fire pumpsets—Monthly service schedule

Routine service of fire pumpsets on a monthly basis shall be carried out in accordance with Table 3.4.1.

Routine service of hose reels and automatic pressure maintenance pumps shall be carried out in accordance with Table 3.4.5.1.

TABLE 3.4.1
MONTHLY SERVICE SCHEDULE
FIRE PUMPSETS

Item No.	Item	Action required and pass/fail requirement	Records		
			Result	Pass/Fail	Comments
1.1	Pump areas	(a) CHECK that pump areas are unobstructed, not used for storage and lighting is adequate.			
		(b) Where pump pressure-relief valves are fitted, CHECK that discharge will not cause flooding or water damage.			
1.2	Signage and ID plates per AS 2941 (where applicable)	(a) CHECK that each pumpset has a clearly visible warning sign stating 'Danger this Pump Starts Automatically'.			
		(b) CHECK that there are readily seen and clearly legible ID plates on each controller, driver (diesel and electric), pumpset (on base plate) and pump (on the pump).			
		(c) CHECK each pump controller is labelled 'Fire Pump Controller', has clear operating instructions posted, has all operating components clearly identified, and has all indicating lights clearly labelled.			
A1	1.3	Pump water supply valves CHECK that all valves are in the open position or the closed position, as labelled, and secured, where applicable. NOTES: 'Text deleted'			
	1.4	Pressure gauges CHECK that all pressure gauges are reading within the ranges required and record pressure.	 kPa kPa		
	1.5	Water supply tank (if installed) Perform routine service in accordance with Section 5.			
	1.6	General inspection CHECK for any obvious signs of physical damage or deterioration.			
A1	1.7	Compression ignition (diesel) driven pumpset(s) Monitor and engine start batteries.			
		(a) CHECK monitor and engine start batteries and enclosures for corrosion, physical damage and secure mounting.			
		(b) REMOVE any corrosion from battery terminals as required.			
		(c) TEST the float charge voltage of both the monitor and engine start batteries and record result.	 V V		
		(d) CHECK electrolyte levels and top up with distilled water as necessary.			
		(e) CHECK warning signage and rating (battery capacity) signage (where required).			
		(f) CHECK battery capacity or cold cranking amperage is appropriate.			
1.8	Engine warming devices	Where fitted, check engine warming device is working appropriately.			
1.9	Fuel tank(s)	CHECK that the fuel tank is full.			

(continued)