		(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).	Any activity deemed included
		(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.	
1.3	Pump water supply valves	CHECK that all valves are in the open position or the closed position, is 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.	
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.	
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.	Any activity deemed included
		(c) TEST the float charge voltage of both the monitor and engine start batteries and record result.	
		(d) CHECK electrolyte levels and top up with distilled water as necessary.	Any activity deemed included
		(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.	Any activity deemed included
1.10	Pump controller	(a) CHECK enclosure for corrosion and ingress of water, dust or insects.	Any activity deemed included
		(b) CHECK operation of all visual indicators, switches and sounders.	
1.11	Pump controller status	(a) CHECK the main isolating switch is in the 'ON' position and secured in position where facilities are provided and, where fitted, the green power supply indicators are illuminated and that no red warning lamps are on.	
		(b) CHECK all lights are functional by pressing the indicator test button, where fitted.	Any activity deemed included
1.12	Pre-test checks	Prior to commencing any test function: (a) CHECK all safety guards are in place and secure.	
		(b) CHECK the water supply availability—town main pressure adequate or suction tank is full.	
		(c) Where compression ignition engine driven pumpsets are installed, CHECK that water, oil, belt drives and exhaust condensate drains and cooling water valves are in the correct position. Check fuel water-trap/filter for water contamination. Rectify where required.	Any activity deemed included
1.13	Pump starting devices— Compression ignition engine	(a) START each pumpset by reducing the applied water pressure to the starting device and for compression ignition engines run engine continuously for not less than 10 min on the first automatic start and check that the driver achieves full speed within 15 s of starting.	
		(b) RESTART the pumpset using the manual starting device.	
		(c) RECORD the starting pressures, test run time and the hour meter reading at completion of the test.	
1.14	Run test checks	During and after the running period CHECK: (a) Pump operates at the correct discharge pressure. Record suction and discharge pressure. NOTE: The discharge pressures may vary with varied suction static pressure. An excessive negative suction pressure may indicate a suction partial blockage or partially closed valve.	

		(b) Pump gland and drain (where applicable) operates efficiently.	Any activity deemed included
		(c) Out-of-balance condition or abnormal noises are not evident.	
		(d) All local and remote 'pump running' alarms operate.	
		(e) Running speed is correct, and record the result.	
		(f) Water, oil and fuel leaks are not evident and fittings on ancillary equipment are secure.	
		(g) Battery charger or alternator/generator is operating at required value within tolerances.	
		(h) Engine stop mechanism returns to start position automatically.	
		(i) Belt drives are in good condition.	
		(j) Battery charger power failure alarm operates correctly.	
		(k) Engine instrumentation is operating. Record the results.	
		(l) Flow is evident from the circulation relief valve when the pump is operating at shut-off head and ceases at the appropriate pressure.	
		(m) Exhaust system is leak free.	Any activity deemed included
		(n) Cooling water (heat exchanger cooled engines only) is discharging.	
1.15	Electric motor driven pumpset— Precautions	Prior to commencing any test function: (a) CHECK all safety guards are in place and secure.	
		(b) CHECK enclosure for corrosion and ingress of water, dust or insects.	Any activity deemed included
1.16	Pump controller status	CHECK that the main isolating switch is in the ON position and secured in position where facilities are provided and, where fitted, the green power supply lamps are illuminated and that no red warning lamps are on. Ensure all lights are functional by pressing the lamp test button, where fitted.	Any activity deemed included
1.17	Pump starting devices	(a) START each pumpset by reducing the applied water pressure to the starting device and run motor continuously for at least 3 minutes.	
		(b) RESTART each pumpset using the manual starting device and run motor continuously for at least 3 minutes.	
		(c) RECORD the starting pressures and the run time at the completion of the test.	
1.18	Run test checks	During and after the running period CHECK: (a) Pump operates at the correct discharge pressures allowing for varying suction conditions. Record suction and discharge pressure.	
		(b) Pump glands and drain or mechanical seal(s) operate efficiently.	Any activity deemed included
		(c) Out-of-balance condition or abnormal noises are not evident.	
		(d) Both local and remote 'pump running' alarms and lights operate.	
1.19	Controller batteries	(a) CHECK battery complies with details on identification plate fitted to the enclosure.	
		(b) CHECK battery for corrosion, physical damage and security.	Any activity deemed included
		(c) CHECK battery enclosure for corrosion, and the ingress of water, dust and insects.	Any activity deemed included
		(d) CHECK float voltage of the battery and record.	

1.20	Restoration to operational condition all pumpsets	After completion of testing procedures, RETURN all equipment to the operational condition.	

3.4.2 Six-monthly service schedule

Routine service of fire pumpsets on a six-monthly basis shall be carried out in accordance with Table 3.4.2.

Routine service of fire hose reel and automatic pressure maintenance pumps shall be carried out in accordance with Clause 3.4.5.2.

TABLE 3.4.2
SIX-MONTHLY SERVICE SCHEDULE FIRE PUMPSETS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
2.1	Monthly service	Complete all monthly service activities, as listed in Table 3.4.1.	
2.2	Alternative power-supplies— Electric motor- driven pumpset	In addition to the requirement of Item 1.17 of Table 3.4.1, where alternative power supplies are provided, RUN the pump(s) continuously for not less than 3 minutes off the alternative supply.	
2.3	Hydro-pneumatic accumulator (where fitted)	CHECK accumulator air pressure.	

3.4.3 Yearly service schedule

Routine service of fire pumpsets on a yearly basis shall be carried out in accordance with Table 3.4.3. Fire hose reel pumpsets are excluded from yearly activities.

TABLE 3.4.3
YEARLY SERVICE SCHEDULE FIRE PUMPSETS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
3.1	Monthly and six-monthly service	Complete all monthly and six-monthly service activities as listed in Tables 3.4.1 and 3.4.2.	
3.2	Annual full flow test— Compression ignition (diesel) driven pumpset— Sprinklers and hydrants load test. This test may be combined with tests required by Table 2.4.2.3, Item 3.5 if applicable	(a) With the pump room door(s) closed, and the pump testing technician present: (i) RUN the pumpset at shut-off (zero flow) for 10 min to allow all equipment to attain normal operating temperature.	
		(ii) RUN the pumpset at 130% of duty flow (sprinklers, hydrants or combined as applicable) for 10 min and record the result.	
		(iii) Reduce the flow to the duty flow (sprinklers, hydrants or combined) for sufficient time to record the water supply proving test results.	
		(iv) Further reduce the flow until shut-off (zero flow) is achieved and continue to run the pumpset until total run time has reached 30 min.	
		(v) During this period RECORD the following for actions (ii), (iii) and (iv) above: (A) Suction pressures.	
		(B) Discharge pressure.	
		(C) Engine running temperature.	
		(D) Engine oil pressure.	
		(E) Air temperature at the engine intake manifold. NOTE: If the pump room temperature rises more than 10°C above ambient temperature, this could indicate inadequate ventilation and possible reduction in engine power.	
		(F) Engine RPM, using both installed tachometer and calibrated tachometer. Record variations.	
		(vi) While carrying out the above procedures, CHECK temperature of bearings and stuffing box leakage and note and report any abnormality.	
		(b) SIMULATE an engine fail to start and ensure that engine-start cycling requirements and alarm activations are satisfied.	
		(c) TEST correct operation of pump priming tanks and associated equipment, where fitted.	
3.3	Annual full flow test— Electric motor- driven pumpset— Sprinklers and hydrants load test	(a) With the pump room door(s) closed and the pump testing technician present: (i) RUN the pumpset at shut-off (zero flow) for 3 min.	
		(ii) RUN the pumpset at 130% of duty flow (sprinklers, hydrants or combined as applicable) for 4 min and record the result.	
		(iii) Reduce the flow to the duty flow (sprinklers, hydrants or combined) for sufficient time to record the water supply proving test results.	
		(iv) Further reduce the flow until shut-off (zero flow) is achieved and continue to run the pumpset until total run time has reached 10 min.	

		During this period RECORD the following for Items (ii), (iii) and (iv) above:	
		(A) Suction pressure.	
		(B) Discharge pressure.	
		(C) Air temperature at the electric motor.	
		(D) Motor RPM.	
		(E) Amps (all three phases). NOTE Ensure current does not exceed full load current of the electric motor.	
		While carrying out the above procedure, CHECK temperature of bearings and stuffing box leakage and note and report any abnormality.	
		(b) TEST correct operation of pump priming tanks and associated equipment, were fitted.	
3.4	All batteries	(a) CHECK each battery for any condition likely to indicate an adverse effect on its function.	
		(b) Where batteries are replaced they shall comply with batteries manufactured in accordance with AS 4029 (series).	
3.5	Engine start batteries	REPLACE all engine-starting batteries after a maximum of 2 years service, irrespective of condition. Record date of replacement on the new battery and the date the batteries were replaced in the service record.	
	Control batteries	When 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.	
3.7	Battery charger	Test and record battery charger voltage output.	
3.8	Compression- ignition (diesel) driven pumpset	(a) REPLACE engine oil with new oil that meets the engine manufacturer's specification. More frequent oil changes shall be carried out if recommended by the engine manufacturer.	
		(b) REPLACE engine oil filter and fuel filters and, if required, air filters.	
		(c) CHECK the condition of the fuel. NOTE: Visually check a sample of the fuel for foreign particles, contamination, fungal growth, appropriate smell and colour, etc. If suspect, report, replace or send the sample to an independent testing agent.	
		(d) INSPECT engine cooling hoses and replace where necessary.	
		(e) FLUSH engine cooling system and refill using manufacturer's approved corrosion inhibitor (water-cooled engines only).	Any activity deemed included
		(f) PRESSURE TEST engine cooling system in accordance with the manufacturer's recommendations (radiator and heat exchanger cooled engines only).	Any activity deemed included
		(g) CHECK correct operation of the engine cooling system pressure-reducing valves, where fitted.	
		(h) REMOVE and CLEAN or REPLACE heat exchanger strainer(s).	Any activity deemed included
		(i) CARRY out any other routine service procedures in accordance with the engine manufacturer's requirements.	Any activity deemed included
		(j) INSPECT pump/driver coupling for wear and alignment. Replace worn or damaged components.	
		(k) GREASE jump bearings to the manufacturer's specifications where greased nipples are provided.	Any activity deemed included
		(l) Where the pump bearings are of the oil- lubricated type, REPLACE the bearing oil with new oil that meets the pump manufacturer's specification (does not apply to turbine type vertical shaft centrifugal pumps).	Any activity deemed included
		(m) REPLACE the oil in right-angle gearboxes with new oil that meets the manufacturer's specification.	
3.9	Electric motor- driven pumpset	With all electrical equipment isolated from all power supplies:	
		(a) INSPECT the condition of all exposed heavy current-carrying contacts. Report any item showing any signs of wear or corrosion.	
		(b) INSPECT pump/driver coupling for wear and alignment. Report worn or damaged components.	
		(c) Where grease nipples are provided, GREASE pump and motor bearings to the manufacturer's specifications.	Any activity deemed included
		(d) Where the pump bearings are of the oil- lubricated type, REPLACE the bearing oil with new oil that meets the pump manufacturer's specification (does not apply to turbine type vertical shaft centrifugal pumps).	Any activity deemed included

3.10	Non-return valves	ENSURE all non-return valves are operating freely and are seating correctly.	
3.11	Pipework corrosion	SURVEY the system and equipment to identify external corrosion, and detail extent and location accordingly.	
3.12	System pressure-relief valve	CHECK that the system pressure relief valve opens and closes at the pressure required. NOTE: 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.	Any activity deemed included
3.13	Restoration to operational condition	After completion of testing procedures, RETURN all equipment to the operational condition.	
3.14	Overspeed shutdown device	Operate engine overspeed test switch. Ensure the engine shuts down and engine, overspeed light illuminates on the controller.	
3.15	Variable speed control	Operate the pump at 50% of duty flow and 100% of duty flow, and ensure duty head is not exceeded by more than 10%.	
3.16	Remote pump start/stop function	Operate the pump start/stop functions from the remote location, and ensure the appropriate indications are received at the FIP/remote stop/start panel.	

3.4.4 Five-yearly service schedule

Routine service of fire pumpsets on a five-yearly basis shall be carried out in accordance with Table 3.4.4.

TABLE 3.4.4
FIVE-YEARLY SERVICE SCHEDULE FIRE PUMPSETS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
4.1	Monthly, six- monthly and yearly service	COMPLETE all monthly, six-monthly and yearly activities, as listed in Tables 3.4.1, 3.4.2 and 3.4.3.	
4.2	Pump	REPACK pump glands.	
4.3	Relief, engine cooling and pressure regulating valves	OVERHAUL the following valves in accordance with supplier's specifications:	
		(a) Circulation-relief valves.	Any activity deemed included
		(b) Pressure-relief valves.	Any activity deemed included
		(c) Engine cooling valve.	Any activity deemed included
		(d) Pressure regulating valve.	Any activity deemed included
4.4	Stop valves	(a) FIT new gland packing and lubricate spindles.	Any activity deemed included
		(b) For ball and butterfly valves, CHECK for leakage and replace if necessary.	Any activity deemed included
4.5	Compression ignition engine	Replace engine air filters. NOTE: The air filter should be marked with install date.	Any activity deemed included
4.6	Restoration to operational condition	After completion of testing procedures, RETURN all equipment to the operational condition.	

3.4.5 Hose reel and pressure maintenance/jacking pumpsets

3.4.5.1 *Monthly service schedule*

TABLE 3.4.5.1
MONTHLY SERVICE SCHEDULE
HOSE REEL AND PRESSURE MAINTENANCE/JACKING PUMPSETS

Item No.	Item	Action required and pass/fail requirement	Inspection only

			(green), activity required (red)
5.1	Pump areas	(a) CHECK that pump areas are unobstructed, not used for storage and lighting is adequate.	Any activity deemed included
		(b) Where pump pressure-relief valves are fitted, CHECK that the discharge will not cause flooding or water damage.	
		(c) CHECK for any obvious signs of physical damage or deterioration and that all safety guards are in place and secure.	
5.2	Valves	ENSURE that all valves are in the open position or the closed position, as labelled, and secured where applicable.	
5.3	Water supply tank (where fitted)	CHECK that the water supply tank is full.	
5.4	Pump controller status	CHECK that the main isolating switch is in the on position and secured (where facilities are provided), the green power supply lamps are illuminated and that no red warning lamps are on. Ensure all lights are functional by pressing the lamp test button, where fitted.	
5.5	Pump	(a) VERIFY operation (manual and automatic).	
		(b) RECORD cut-in and cut-out pressures.	

3.4.5.2 *Six-monthly service schedule*

Routine service of hose reel and pressure maintenance/jacking on a six-monthly basis shall be carried out in accordance with Table 3.4.5.2.

TABLE 3.4.5.2
SIX-MONTHLY SERVICE SCHEDULE
HOSE REEL AND PRESSURE MAINTENANCE/JACKING PUMPSETS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
6.1	Monthly service	COMPLETE all monthly service activities, as listed in Table 3.4.5.1.	
6.2	Hydro- pneumatic accumulator	VERIFY that the air pressure is correct.	

SECTION 4 FIRE HYDRANT SYSTEMS

4.4 ROUTINE SERVICE SCHEDULES

4.4.1 Fire hydrant systems—Monthly service schedule

Routine service of hydrant systems on a monthly basis shall be carried out in accordance with Table 4.4.1.

TABLE 4.4.1
MONTHLY SERVICE SCHEDULE FIRE HYDRANT SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
1.1	Monthly service	Where pumpsets are fitted complete all pumpset monthly service activities, as listed in Table 3.4.1.	
1.2	Pump-starting devices	(a) CHECK that all isolating valves to pump- starting pressure devices are secured in the open position.	
		(b) CHECK that pressure switches are securely mounted and are protected against the ingress of water, dust and insects.	Any activity deemed included
1.3		(a) START each pumpset by reducing the applied water pressure to the pump-starting device and run engine, in accordance with Section 3.	

	Pump-starting devices function test— Compression ignition engine (diesel)	(b) RESTART the pumpset using the manual starting device and again run the compression ignition engine 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 (see also Table 3.4.3, Items 3.6 and 3.7).	
		(c) RECORD the pump cut-in pressures and verify that they are within the ranges required.	
1.4	Pump-starting devices function test— Electric motor drivers	(a) START each pumpset by reducing the applied water pressure to the starting device and run motor in accordance with Section 3.	
		(b) RESTART the pumpset using the manual starting device and again run the motor in accordance with Section 3.	
		(c) 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.	

4.4.2 Six-monthly service schedule

Routine service of fire hydrant systems on a six-monthly basis shall be carried out in accordance with Table 4.4.2.

TABLE 4.4.2
SIX-MONTHLY SERVICE SCHEDULE FIRE HYDRANT SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
2.1	Monthly service	COMPLETE all monthly service activities, as listed in Table 4.4.1.	
2.2	Water supply stop valves and isolating valves	OPERATE (two full turns) all water supply stop valves (including backflow prevention stop valves and underground key-operated valves except where owned by the water supply authority) and verify they are fully open, secure in the open position (relaxed ¼ turn if appropriate) and are correctly labelled. NOTES: **'Text deleted'**	
2.3	Hydrant valves (above ground)	CHECK all hydrant valves: (a) Are accessible.	
		(b) Hand-wheels are securely fitted.	Any activity deemed included
		(c) Blanking caps, where fitted, are in good condition.	
2.4	Hydrant valves (below ground)	CHECK all hydrant valves: (a) Are accessible.	
		(b) Blanking caps, where fitted, are in good condition.	
		(c) Check cover plate for ease of opening.	
		(d) Not leaking.	
2.5	Booster assembly (where fitted)	CHECK all booster assemblies: (a) Are accessible.	
		(b) Hand-wheels are securely fitted.	Any activity deemed included
		(c) Pressure gauges and blanking caps, where fitted, are in good condition.	
		(d) For condition of washers on booster assembly connection inlets.	
		(e) For legible labelling indicating maximum system working pressure.	
		(f) For legibility of hydrant system block plan where fitted.	
2.6	Remote pump starting	DEPRESSURIZE the hydrant system(s) at the most hydraulically disadvantaged hydrant and CHECK that the pump starts.	
2.7	Hydrant and booster connections— Compatibility	CHECK that all hydrant and booster connection points are compatible with local brigade requirements.	
2.8	Hydrant hose (where fitted)	CHECK all branch pipes, nozzles and hose couplings are in good condition, compatible with the hydrant valves and properly stowed.	

4.4.3 Yearly service schedule

Routine service of the fire hydrant systems on a yearly basis shall be carried out in accordance with Table 4.4.3.

TABLE 4.4.3
YEARLY SERVICE SCHEDULE FIRE HYDRANT SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
3.1	Monthly and six- monthly service	COMPLETE all monthly and six-monthly service activities, as listed in Tables 4.4.1 and 4.4.2.	
3.2	Hydrant valves (above and below ground)	OPEN partially all hydrant valves in the system and prove the presence of water at each point. NOTE: To prevent water damage, it is recommended that a suitable adapter to limit water flow be used for this test on internal hydrants. Each hydrant in the system should be opened separately.	
3.3	Hydrant water supply valves	(a) OPERATE (two full turns) all water supply valves—above ground, underground key- operated valves (except where owned by the water supply authority) and subsidiary stop valves (e.g., floor isolation valves). Ensure they are fully open and, where applicable, secured in the open position (relaxed ¼ turn where applicable) 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.	
		(b) VERIFY that the valve position indicators are securely mounted and indicate correctly.	Any activity deemed included
		(c) TEST each valve monitor (where fitted) by closing and re-opening the valve. Verify correct indication at the CIE.	
3.4	Non-return valves	VERIFY that all non-return valves are operating freely and are seating correctly.	
3.5	Hydrant hose (where fitted)	VERIFY all branch pipe, nozzles and hose couplings waterways are unobstructed and in good condition.	
3.6	Pressure-reducing station 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.	
		(c) OPERATE pressure-relief valve and record operating pressure. If necessary, adjust the setting to relieve at 50 kPa above the operating pressure of the pressure-reducing valve. Replace the tamper seal if necessary. NOTE: The pressure-relief valve test may be carried out using a portable test apparatus.	Any activity deemed included
3.7	Water supply proving test	CONDUCT a water supply proving test for each water supply verifying that the system flow and pressure requirements meet the design criteria, using either— (a) a fixed flow meter test facility; or	
		(b) a portable test apparatus at the most hydraulically disadvantaged hydrant valve(s).	
		NOTES: 1 Where the water supply is the sole source of water for both sprinkler and hydrant systems, both sprinkler and hydrant demands should be available simultaneously. 2 In high-rise buildings where there are multiple pressure zones, a water supply proving test should be carried out on the most remote hydrant in each zone.	
3.8	Hydrant system interface control test (fire trips)	(a) CONDUCT a functional system test via the pressure switch or flow switch with other interfaced fire systems.	
		(b) VERIFY that the interface functions as required. NOTE: It is recommended that the responsible entity coordinate testing the interfaced fire protection systems.	
3.9	Water supply tanks— Atmospheric	Perform routine service in accordance with Section 5.	
3.10	Water supply (river, lake, etc.) Strainers/screens	(a) CHECK suction inlet strainer(s) or screen(s).	
		(b) Following water supply proving test (Table 4.4.2 Item 2.6), CLEAN suction inlet strainer(s). Lower raised screen and raise and clean 'in-use' screen.	Any activity deemed included
3.11	Survey—Installation	(a) Pipework—CHECK that exposed water distribution system, including pipework, pipe supports and valve, appears free from corrosion and damage, not subject to external loads and pipework is properly supported.	
		(b) Hydrant obstructions—CHECK for obstructions likely to impede hydrant valve access.	
3.12	Survey—Design	(a) Occupancy—CHECK that hydrant design remains applicable for current building arrangement or use.	

		(b) Site documentation—CHECK that block plans, emergency instructions and pressure schedules contain the details required in accordance with AS 2419.1.	

4.4.4 Five-yearly service schedule

Routine service of fire hydrant systems on a five-yearly basis shall be carried out in accordance with Table 4.4.4.

TABLE 4.4.4
FIVE-YEARLY SERVICE SCHEDULE FIRE HYDRANT SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
4.1	Monthly, six-monthly and yearly service	COMPLETE all monthly, six monthly and yearly service activities, as listed in Tables 4.4.1, 4.4.2 and 4.4.3.	
4.2	Booster connection flow test (where fitted)	CONDUCT a flow test through booster connection in accordance with AS 2419.1 or to approved design Standard. NOTE: Conduct the flow test after a satisfactory (pass) hydrostatic test.	
4.3	Hydrostatic test	Where a booster is fitted CONDUCT a hydrostatic pressure test on the entire system at 1.5 times the system working pressure of the required design Standard.	
4.4	Booster assembly	(a) CHANGE all washers on booster assembly connection inlets.	Any activity deemed included
		(b) LUBRICATE internal non-return spring check valves on a 10-yearly basis.	Any activity deemed included
4.5	Drain and test valve washers	For screw-down style valves, EXAMINE seating and fit new washers. For packed gland variants, FIT new gland packing.	Any activity deemed included
4.6	Stop valves	FIT new gland packing and lubricate spindle.	Any activity deemed included
4.7	Hydrant valves	FIT new seatings to all hydrant valves and lubricate spindles. (Perishable items only.) NOTE: This activity should be completed prior to conducting the hydrostatic pressure test.	Any activity deemed included
4.8	Water supply non- return valves	RENEW water supply non-return valve seatings and gaskets.	Any activity deemed included
4.9	Gauges	CHECK all pressure gauges against calibrated gauge.	Any activity deemed included
4.10	Water supply tanks— Atmospheric	Perform routine service in accordance with Section 5.	Any activity deemed included

SECTION 5 WATER STORAGE TANKS FOR FIRE PROTECTION SYSTEMS

5.4 ROUTINE SERVICE SCHEDULES

5.4.1 Water storage tanks—Monthly service schedule

Routine service of water storage tanks for fire protection systems on a monthly basis shall be carried out in accordance with Table 5.4.1

TABLE 5.4.1
MONTHLY SERVICE SCHEDULE WATER STORAGE TANKS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)

1.1	Water level	CHECK that the tank is full.	
1.2	Water level indicator	CHECK for correct operation and reading of water level indicator.	
1.3	Water supply pressure tank (where fitted)	VERIFY: (a) Gauge glass indicates the correct water level.	
		(b) Tank pressure gauge reads within the range nominated.	
		(c) Air pressure switch operates at specified compressor cut-in and cut-out pressures.	Any activity deemed included
			Any activity deemed included
		(d) Low tank pressure alarm operates at specified pressure.	
		(e) Air compressor or gas cylinder supply is operational.	

5.4.2 Six-monthly service schedule

Routine service of water storage tanks for fire protection systems on a six-monthly basis shall be carried out in accordance with Table 5.4.2.

TABLE 5.4.2
SIX-MONTHLY SERVICE SCHEDULE WATER STORAGE TANKS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
2.1	Monthly service	COMPLETE all monthly service activities, as listed in Table 5.4.1.	
2.2	Float valve	VERIFY the operation of the float valve by exercising the valve.	
2.3	Level indicator	VERIFY all water level indicators (mechanical and electronic) are operating properly by exercising the indicator or mechanism.	

5.4.3 Yearly service schedule

Routine service of water storage tanks for fire protection systems on a yearly basis shall be carried out in accordance with Table 5.4.3.

TABLE 5.4.3 YEARLY SERVICE SCHEDULE
WATER STORAGE TANKS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
ALL TANKS			
3.1	Monthly and six- monthly service	COMPLETE all monthly and six-monthly service activities, as listed in Tables 5.4.1 and 5.4.2.	
3.2	Leakage	CHECK for water leakage from all joints, flanges and fittings.	
3.3	Loose components	CHECK for loose bolts, anchors and fittings throughout the tank.	Any activity deemed included
3.4	Damage	CHECK for any physical damage caused by impact, including scratches and dents.	
3.5	Foundation	CHECK for earth subsidence and foundation cracks.	
3.6	Corrosion	CHECK for corrosion of all external components and surfaces, and internal components as far as is safe to do so from the top inspection/access hatch.	
3.7	Access hatch	CHECK to ensure the access hatch is secure and in satisfactory condition.	
3.8	Ladder	CHECK the ladder system is secure and free from corrosion.	
3.9	Roof	CHECK the roof structure for: (a) Stability and security roof sheets are secured.	

		(b) Adequacy of sealing of penetrations.	
3.10	Vermin	CHECK the condition of vermin proofing and adequacy of the positioning.	
3.11	Foreign objects	CHECK for internal foreign objects visually through the top inspection/access hatch.	
3.12	Algae	CHECK for internal accumulation of algae.	
3.13	Vents	CHECK the condition and satisfactory operation of vents and rotary spinners.	
3.14	Accessibility	CHECK for adequate means to access the tank.	
3.15	Signs	CHECK for satisfactory condition of all signs.	
3.16	Gaskets and seals	CHECK the condition of all gaskets and sealants.	
3.17	Vortex inhibitor	CHECK the condition of the vortex inhibitor visually from the access hatch if practicable.	
3.18	Level indicator	LUBRICATE water level indicator, pulleys and cables.	Any activity deemed included
3.19	Fire authority hard suction fittings	CHECK fittings are compatible with the local fire authority's hard suction fittings.	
3.20	Drain, clean and refill Only required after the first year of service and then every 10 years	DRAIN and CLEAN the tank completely including: (a) Removing all sludge and debris.	
		(b) Cleaning all internal surfaces, excluding the roof, with low pressure water spray.	
		(c) Refilling the tank as soon as practicable.	
		NOTES: 1 A diver or other underwater inspection and cleaning technique may be used in lieu of draining the tank in consultation with the tank manufacturer to satisfy warranty requirements. 2 For water conservation measures when tanks need to be drained, see AS 2304.	
TANKS WITH LINERS—(A) ABOVE THE WATERLINE			
3.21	Eyelets and other liner fixing systems	CHECK eyelets, attachment connectors and other mechanical fixings for wear, detachment or corrosion.	
3.22	Discolouration	CHECK to determine the extent of any discolouration to the tank liner and, if significant, contact the liner manufacturer.	
3.23	Shrinkage	CHECK for signs of shrinkage and increased liner tension.	
3.24	Liner brittleness	CHECK for signs of liner brittleness.	
3.25	Cuts and tears	CHECK for signs of cuts and tear.	
3.26	Surface deterioration	CHECK for signs of surface deterioration or chalking.	
TANKS WITH LINERS—(B) BELOW THE WATERLINE			
3.27	Flexibility	CHECK for signs of loss of flexibility.	
3.28	Discolouration	CHECK to determine the extent of any discolouration to the tank liner.	
3.29	Elongation	CHECK for signs of elongation of the liner.	
3.30	Bulging	CHECK for signs of the liner bulging out from under the base girder (external).	
3.31	Leaks, cuts and tears	CHECK for signs of leaks, cuts and tears of the liner.	
3.32	Drain, clean and refill Only required after the first year of service and then every 10 years	DRAIN and CLEAN the tank leaving a minimum of 50 mm of water to prevent liner movement, and— (a) remove all sludge and debris without using sharp tools or shovels to prevent tearing and puncturing of the liner;	
		(b) clean all internal surfaces, excluding the roof, with low pressure water spray using appropriate footwear to avoid damage to the tank liner; and	
		(c) refill the tank as soon as practicable.	
		NOTES: 1 For water conservation measures when tanks need to be drained, see AS 2304. 2 Ensure the liner is in the correct position prior to refilling; this includes the positioning of the neoprene mat (where fitted) under the vortex inhibitor bottom support and strainer. 3 A diver or other underwater inspection and cleaning technique may be used in lieu of draining the tank in consultation with the tank manufacturer to satisfy warranty requirements.	
3.33	Sludge depth	Complete a sludge depth measurement to determine the next period for draining and cleaning the tank.	
3.34	Tank base	Undertake a study of the tank base and liner for weak spots due to undermining, noting that founding material needs to be felt solid at all areas. Minor hollow areas are to be underpinned and major hollowing requires a geotechnical investigation and reassessment of the sealing system.	
RECTANGULAR PANEL TANKS			
3.35	Stay support systems	Complete a visual inspection of the internal stay support system comprising stay bars, bolts and brackets for the following:	
		(a) Corrosion at connection points.	
		(b) Tightness of bolts.	

		(c) Elongation of bolt holes.	
		(d) Distortion of panels and connection points.	
PRESSURE TANKS			
3.36	Pressure tanks	(a) INSPECT externally for structural integrity, freedom from corrosion, and acceptable condition in accordance with AS/NZS 3788.	
		(b) VERIFY low water level alarm switch operates at predetermined level	

5.4.4 Ten-yearly service schedule

Routine service of pressure tanks on a ten-yearly basis and a six-yearly pressure vessel inspection (internal) shall be carried out in accordance with Table 5.4.4.

TABLE 5.4.4
TEN-YEARLY AND OTHER SERVICE SCHEDULE WATER STORAGE TANKS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
ALL TANKS			
4.1	Monthly, six- monthly, yearly service	VERIFY completion of all monthly, six-monthly and yearly activities as listed in Tables 5.4.1, 5.4.2 and 5.4.3.	
4.2	Drain, clean and refill	DRAIN and CLEAN the tank completely including—	
		(a) REMOVE all sludge and debris.	
		(b) CLEAN all internal surfaces, excluding the roof, with low pressure water spray.	
		(c) REFILL the tank as soon as practicable.	
		NOTES: 1 A diver or other underwater inspection and cleaning technique may be used in lieu of draining the tank. 2 For water conservation measures when tanks need to be drained see AS 2304.	
TANKS WITH LINERS			
4.3	Drain clean and refill	DRAIN and CLEAN the tank leaving a minimum of 50 mm of water to prevent liner movement, and:	
		(a) REMOVE all sludge and debris without using sharp tools or shovels to prevent tearing and puncturing of the liner.	
		(b) CLEAN all internal surfaces, excluding the roof, with low pressure spray using appropriate footwear to avoid damage to the tank liner.	
		(c) REFILL the tank as soon as practicable.	
		NOTES: 1 For water conservation measures when tanks need to be drained, see AS 2304. 2 Ensure the liner is in the correct position prior to refilling; this includes the positioning of the neoprene mat (where fitted) under the vortex inhibitor bottom support and strainer. 3 A diver or other underwater inspection technique may be used in lieu of draining the tank in consultation with the tank manufacturer (to satisfy warranty requirements).	
PRESSURE TANKS			
4.4	Water supply tanks—Pressure	Conduct a six-yearly inspection by a qualified pressure vessel inspector.	

SECTION 6 FIRE DETECTION AND ALARM SYSTEMS

TABLE 6.4.1.2
MONTHLY ROUTINE SERVICE SCHEDULE
FIRE DETECTION AND ALARM SYSTEM, SPECIAL HAZARD SYSTEMS AND SMOKE HAZARD MANAGEMENT SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
1.1	External alarm	INSPECT the external alarm (bell or strobe light) to ensure it clearly indicates the designated building entry point. Inspect to ensure the external alarm label is legible with the word 'FIRE' in characters not less than 25 mm in height.	

1.2	Control and indicating equipment (CIE)	INSPECT the following as applicable: Fire indicator panel (FIP), sub-indicator panel (SIP), repeater panel, fire brigade panel (FBP), mimic panel, fire fan control panel (FFCP) and— (a) ensure that they are clearly visible, readily accessible and free from dust and contaminants; and (b) where a panel is obscured by a door, check that the door is correctly labelled. Where manual call points use replaceable frangible elements, ENSURE that at least one replacement element and tool are available for replacing the element where required.	Any activity deemed included
1.3	Battery enclosure	Where vented batteries are used, INSPECT the battery enclosure for evidence of corrosion.	
1.4	Fire alarm	SIMULATE an alarm condition and confirm that all required common or general visual and audible indications operate and the external alarm is activated. Where the system is monitored ensure the alarm has activated the alarm signalling equipment. Where CIE is a sub- indicator panel, confirm that the alarm condition is indicated at the FIP.	
1.5	Occupant warning system	SIMULATE an alarm and confirm the alarm initiates the occupant warning system including any visual warning devices (VWD).	
1.6	Isolate/Disable	INITIATE an isolate/disable condition at the fire indicator panel and confirm that all required common or general visual and audible indications operate. Where the system is monitored, ensure the isolate is received by the monitoring service provider alarm signalling equipment. Where the panel is an SIP, confirm that the isolate/disable condition is indicated at the FIP as either a fault or isolate/disable.	
1.7	Filament visual indicators	TEST the operation of each filament type visual indicators.	
1.8	Zone block plan	INSPECT zone block plans to ensure that they are securely mounted and legible and supplementary zone drawings, where required, are available and legible.	
1.9	**'Text deleted'**		

6.4.1.4 *Yearly service*

Routine service and survey for fire detection and alarm systems, special hazard systems and smoke hazard management on a yearly basis shall be carried out in accordance with Table 6.4.1.4.

TABLE 6.4.1.4
YEARLY ROUTINE SERVICE SCHEDULE
FIRE DETECTION AND ALARM SYSTEM, SPECIAL HAZARD SYSTEMS AND SMOKE HAZARD SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
3.1	Monthly and six- monthly service	COMPLETE all monthly and six-monthly service activities, as listed in Table 6.4.1.2 and 6.4.1.3.	
3.2	Manual call points	CHECK all manual call points are free of conditions likely to adversely affect their function.	
3.3	Manual call points	TEST the operation of each manual call point.	
3.4	Other warning devices	Where other warning devices are used as the alarm-indicating devices, INSPECT all devices to ensure that they are in place.	
3.5	Panel switches and keypads	TEST the operation of each control.	
3.6	Visual indicators	TEST the operation of each visual indicator and alphanumeric displays.	
3.7	Battery	MEASURE system quiescent and maximum alarm currents in accordance with Appendix F. Calculate the required battery capacity and CHECK the nominal capacity of the installed batteries is not less than the calculated capacity. **'Text deleted'**	
3.8	Fire Detectors	TEST detectors as specified in Appendix G and confirm correct alarm zone indication. Where the detectors are used as part of special hazards systems 100% of the detectors shall be functionally tested yearly.	
3.9	Audibility	TEST the occupant warning system and check the signals are distinctly audible in all areas of the building. NOTE: In order to reduce the disturbance to occupants an acceptable means of conducting this test is to provide an audio signal other than the warning signal at a reduced sound pressure level. Where the FIP is connected to a sound systems and intercom systems for emergency purposes (AS 1670.4) or EWIS (AS 2220.2) test in accordance with Table 6.4.3.2.	
3.10	Occupant warning system sound pressure level	MEASURE and record the sound pressure level from at least one reference point for each amplifier used and ensure at each reference point the measured value is consistent with the required sound pressure level at each reference point.	
3.11	Alarm acknowledgement facility	TEST not less than 20% of installed alarm acknowledgement facilities in such a manner that over a 5-year period, all facilities are tested. CHECK the alarm acknowledgement facility functions as required.	

3.12	Alarm investigation facility	TEST the alarm investigation facility if enabled and check it functions as required.	
3.13	Batteries condition	When 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.	
3.14	Smoke alarms and heat alarms	Refer to Clause 6.4.2.	
3.15	Service life	Inspect detectors, equipment or other items having a defined service life and report where the service life is exceeded or will be exceeded before the next scheduled service.	
3.16	**'Text deleted'**		
3.17	Protected areas survey	SURVEY all areas of the building from floor level and check— (a) that the fire detection and alarm system has not been altered, damaged or compromised; (b) detection device and remote indicators are appropriate for the current use; (c) for any condition that may cause a nuisance alarm or the unintentional operation of a suppression system; (d) all exposed cabling, conduits, junction boxes and the like for any condition that may impact on the performance of the system and are labelled correctly; and (e) all CIE to ensure all components are appropriately mounted and secure.	Any activity deemed included
3.18	Interfaced system initiation	Simulate alarm(s) to verify that each interface transmission path initiates the corresponding interfaced system(s) as required.	
SMOKE HAZARD MANAGEMENT SYSTEMS—ADDITIONAL ACTIVITIES			
CAUTION: TAKE PRECAUTIONS TO PREVENT UNACCEPTABLE VENTILATION SYSTEM CHANGES			
3.19	FFCP latching and reset	CHECK that after initiation by a signal from the FIP, the FFCP remains operating in the fire mode until reset by the reset switch on the FFCP.	
3.20	Manual override controls	CHECK that manual override ON-AUTO-OFF control operates. NOTE: Manual override should function in normal mode and fire mode.	
3.21	Airflow fault indicator	CHECK the operation of the airflow fault indicator	
3.22	Open-circuit fault indicator	CHECK the operation of the air-handling equipment interconnecting cable open-circuit fault indicator.	
3.23	Closed-circuit fault indicator	CHECK the operation of the air-handling equipment interconnecting cable closed-circuit fault indicator.	
3.24	Electrical	CHECK the operation of the electricity phase- fail fault indicator.	
3.25	Fan-running indicator	CHECK the operation of the fan-running indicator.	
3.26	Fan-stopped indicator	CHECK the operation of the fan-stopped indicator.	
3.27	Fan fault indicator	CHECK the operation of the fan-fault indicator.	

6.4.1.5 *Five yearly service*

Routine service of fire detection and alarm systems, special hazard systems and smoke hazard management on a five-yearly basis shall be carried out in accordance with Table 6.4.1.5.

TABLE 6.4.1.5
FIVE-YEARLY ROUTINE SERVICE SCHEDULE FIRE DETECTION AND ALARM SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
4.1	Monthly, six- monthly and yearly service	Complete all monthly, six-monthly and yearly service activities, as listed in Tables 6.4.1.2, 6.4.1.3 and 6.4.1.4.	
4.2	Supervised circuits	TEST each input and output supervised circuit for any condition that prevents the transmission of the required signal and ensure a fault is registered at the FIP.	
4.3	Fault	SIMULATE a circuit fault condition at the FIP and confirm that all required common or general visual and audible indications operate. Where such faults are monitored, ensure the fault has activated the alarm signalling equipment. Where the panel is an SIP confirm that the fault condition is indicated at the FIP.	
4.4	Addressable short circuit isolators	Apply short circuits as required to verify that the short circuit isolation functions as required.	
4.5	Power supply supervision	Where the system is monitored, REDUCE the CIE operating voltage to trigger a power supply supervision fault and CONFIRM that it is received by the monitoring service provider. Where the panel is an SIP or a distributed power supply, confirm that the power supply supervision fault condition is indicated at least as a fault at the FIP.	
4.6	Collective detection circuits	For each collective fire detection circuit, REMOVE the last detector or device on the circuit and confirm that a fault signal is registered at the CIE.	

4.7	Interface and control test	CONDUCT a functional test with each system's interface and VERIFY that each interfaced system responds to the signal as required (see Appendix A).	
4.8	Occupant warning system speaker circuits	MEASURE and record the impedance of each loud speaker circuit and check that it has not changed by more than 15% from the last test nor exceeded the rated output as required for the amplifier.	
4.9	Monitoring connection	Where the system is monitored, TEST that the loss of each of the monitoring links is indicated at the monitored site.	
4.10	Alarm verification facility	TEST one detector of each type per circuit with alarm verification facility enabled to check that it functions as required.	

6.4.2.2 *Six-monthly service*

Inspection, test, routine service and survey for smoke alarms and heat alarms on a six-monthly basis shall be carried out in accordance with Table 6.4.2.2.

TABLE 6.4.2.2
SIX-MONTHLY SERVICE SCHEDULE SMOKE ALARMS AND HEAT ALARMS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
1.1	Smoke alarms and heat alarms	INSPECT all alarms for any condition that is likely to adversely affect their operation, such as excessive deposition of dust or coating of paint.	
1.2	Battery missing indication	INSPECT all alarms to ensure that any required 'battery missing indicator' has not operated.	
1.3	Mains power on indicator	INSPECT that the mains power on indicator is illuminated.	
1.4	Alarm test	ACTIVATE the alarm test function and check correct activation of the audible indication.	
1.5	Other warning devices	Where other sensory warning devices are used as alarm-indicating devices, INSPECT all devices to ensure that they are in place.	

NOTE: Items 1.1 to 1.5 may be carried out by the occupant or owner and not be recorded.

6.4.2.3 *Yearly service*

Inspection, test, routine service and survey for smoke alarms and heat alarms on a yearly basis shall be carried out in accordance with Table 6.4.2.3.

TABLE 6.4.2.3
YEARLY SERVICE SCHEDULE SMOKE ALARMS AND HEAT ALARMS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
2.1	Six-monthly service	COMPLETE all six-monthly service activities, as listed in Table 6.4.2.2.	
2.2	Interconnecting alarms	Where alarms are interconnected, TEST that the activation of each alarm operates the audible alarm indication in other alarms.	
2.3	Smoke alarms	TEST 100% of smoke alarms in accordance with the manufacturer's instructions.	
2.4	Heat alarms	TEST 100% of heat alarms in accordance with the manufacturer's instructions.	
2.5	Other warning devices	Where other sensory warning devices are used as alarm-indicating devices, TEST all devices to ensure that they are functioning correctly.	
2.6	Smoke alarms and heat alarms	CLEAN each alarm in accordance with the manufacturer's instructions.	Any activity deemed included
2.7	Batteries	CHECK the manufacturer's requirements for battery replacement and replace the battery if required.	Any activity deemed included
2.8	Service life	REPLACE smoke alarms and heat alarms where the service life date is exceeded.	
2.9	Survey—Spacing and location	INSPECT each alarm to ensure spacing and location requirements are as required.	

6.4.3 Emergency warning systems

6.4.3.1 *Monthly service*

Inspection, test, routine service and survey for emergency warning systems on a monthly basis shall be carried out in accordance with Table 6.4.3.1.

TABLE 6.4.3.1
MONTHLY SERVICE SCHEDULE EMERGENCY WARNING SYSTEM

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
1.1	**'Text deleted'**		
1.2	Zone Block plan	INSPECT zone block plans to ensure that they are securely mounted and legible and supplementary zone drawings, if provided, are available and legible.	
1.3	Control and indicating equipment	INSPECT the warning system panel, and— (a) ensure that it is clearly visible, readily accessible and free from dust and contaminants; (b) where a panel is obscured by a door, CHECK that the door is correctly labelled; and (c) where manual call points use replaceable frangible elements, ENSURE that at least one replacement element and a tool is available for replacing the element where required.	Any activity deemed included
1.4	Battery enclosure	Where vented batteries are used, INSPECT the battery enclosure for evidence of corrosion.	
1.5	Emergency warning system test	SIMULATE an alarm condition and confirm that the required warning signal(s) operate. NOTE: It is recommended that the warden intercom system is used by the floor wardens to confirm the operation of the warning signals.	

6.4.3.2 *Yearly service*

Inspection, test, routine service and survey for emergency warning systems on a yearly basis shall be carried out in accordance with Table 6.4.3.2.

TABLE 6.4.3.2
YEARLY SERVICE SCHEDULE EMERGENCY WARNING SYSTEM

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
2.1	Monthly service	COMPLETE all monthly service activities, as listed in Table 6.4.3.1.	
2.2	Emergency call points	INSPECT all emergency call points for any condition that is likely to adversely affect their operation.	
2.3	Emergency call points	TEST the operation of each emergency call point.	
2.4	Visual warning devices (VWDs)	Where visual warning devices (VWDs) are used as the alarm-indicating devices, INSPECT all devices for any condition or damage that is likely to adversely affect their operation and ensure that they are clearly and correctly labelled where labelling is required.	
2.5	Visual warning devices (VWDs)	TEST the operation of each visual warning device.	
2.6	Other warning devices	Where other warning devices are used as alarm- indicating devices, INSPECT all devices to ensure that they are in place and ensure that they are clearly and correctly labelled where labelling is required.	
2.7	Other warning devices	TEST for correct operation.	
2.8	As-installed drawings	INSPECT the as-installed drawings to ensure the plan is legible and current.	
2.9	Warning system initiation	SIMULATE an alarm condition via the fire system with the warning system in automatic mode.	
2.10	Fault	SIMULATE a speaker circuit fault, emergency call point circuit fault and visual warning device circuit fault for each circuit and confirm the fault condition is indicated at the emergency warning panel (EWP), FIP and any corresponding SIP.	
2.11	Aural indicators	TEST or confirm the operation of the aural indicators as required.	
2.12	Panel switches and keypads	TEST the operation of each control.	
2.13	Fault	SIMULATE a fault between the fire system and the warning system and confirm the fault condition is indicated at the EWP and the FIP.	
2.14	Visual indicators	TEST the operation of each visual indicator and alphanumeric displays.	
2.15	Nominal battery capacity	MEASURE system quiescent and alarm currents. Calculate the required battery capacity and CHECK the installed battery's nominal capacity is no less than the required capacity. See Appendix F for calculating the required battery capacity.	
2.16	Ancillary controls	TEST the operation of ancillary control functions and ensure that each controlled device can be correctly initiated.	

2.17	Audibility test	TEST the Emergency warning system and check the signals are distinctly audible in all areas of the building. NOTE: In order to reduce the disturbance to occupants an acceptable means of conducting this test is to provide an audio signal other than the warning signal at a reduced sound pressure level.	
2.18	Override test	CONFIRM that the alarm signal overrides non- emergency audible signals.	
2.19	Interface and control test	CONDUCT a functional system test with other interfaced fire systems (see Appendix A) and CHECK the interface functions as required.	
2.20	Batteries	When 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.	
2.21	Survey—Change of structure	INSPECT all areas of the building to ensure that no structural changes are likely to affect evacuation zones.	
2.22	Survey—Change of occupancy or use	INSPECT all areas of the building to ensure that changes to the occupancy are not likely to affect the required performance of the system.	

6.4.3.3 *Five yearly service*

Inspection, test, routine service and survey for emergency warning systems on a five yearly basis shall be carried out in accordance with Table 6.4.3.3.

TABLE 6.4.3.3
FIVE YEARLY SERVICE SCHEDULE EMERGENCY WARNING SYSTEM

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
3.1	Monthly and yearly Service	Complete all monthly and yearly service activities, as listed in Tables 6.4.3.1 and 6.4.3.2.	
3.2	Speech intelligibility	UNDERTAKE tests to ensure intelligibility in all areas of the building where required.	
3.3	Sound pressure level	MEASURE and record the sound pressure level from at least one reference point for each amplifier used and ensure at each recorded point the measured value is consistent with the reference sound pressure level.	
3.4	Emergency warning system speaker circuits	MEASURE and record the impedance of each loud speaker circuit and check that it has not changed by more than 15% from the last test nor exceeded the rated output as required for the amplifier.	

6.4.4 Emergency intercom systems

6.4.4.1 *Yearly service*

Inspection, test, routine service and survey for emergency intercom systems on a yearly basis shall be carried out in accordance with Table 6.4.4.1.

TABLE 6.4.4.1
YEARLY SERVICE SCHEDULE EMERGENCY INTERCOM SYSTEMS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
1.1	**'Text deleted'**		
1.2	Emergency intercom equipment	INSPECT the intercom panel to ensure that it is clearly visible, readily accessible and free from dust and contaminants. Where the panel is obscured by a door, check that the door is correctly labelled.	
1.3	Visual indicators	TEST the operation of visual indicators and alphanumeric displays.	
1.4	Aural indicators	TEST the operation of the aural indicators.	
1.5	Panel switches and keypads	TEST the operation of each required control (e.g. secondary emergency control panels).	
1.6	Fault	SIMULATE a WIP circuit fault condition and confirm the fault condition is indicated at the intercom panel.	
1.7	Reset	TEST the operation of the reset function.	
1.8	Warden indicator and controls	CHECK the operation of each warden indicator and controls.	
1.9	Warden intercom points (WIPs)	INSPECT all WIPs to ensure they are clearly visible and readily accessible. Where the WIP is obscured by a door, check that the door is correctly labelled.	
1.10	WIP	INSPECT all WIPs to ensure there is no mechanical damage.	
1.11	Stand-alone intercom system (battery enclosure)	Where vented batteries are used, INSPECT the battery enclosure for evidence of corrosion.	

1.12	Outgoing WIPs function test	INITIATE a call from each WIP and confirm that each WIP is indicating correctly and that clear communication is possible with the intercom panel operator.	
1.13	Incoming WIPs function test	INITIATE a call to each WIP and phone and confirm that each WIP is indicating correctly and that clear communication is possible with the intercom panel operator.	
1.14	WIPs all call address	Select the all-call address function and CHECK that the visual indicator for all WIP phones activate. CHECK that the address is heard at all WIP phones. NOTE: This test may be carried out in conjunction with a practice evacuation or ECO training.	
1.15	Stand-alone intercom system Battery capacity	MEASURE system quiescent and alarm currents. Calculate the required battery capacity and CHECK the installed battery's nominal capacity is no less than the required capacity. See Appendix F for calculating the required battery capacity.	
1.16	System interface	CONDUCT a functional test with any interfaced systems (see Appendix A).	
1.17	Stand-alone intercom system (battery condition)	When 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.	
1.18	Survey—Change of structure	INSPECT building to ensure that no structural changes have occurred to change zones.	
1.19	Survey—Change of occupancy or use	INSPECT the building to ensure that no changes to occupancy have affected the required audibility of the warden call signal at the WIP.	
1.20	WIP locations	INSPECT all evacuation zones to ensure at least one WIP is installed where required.	

SECTION 9 FIRE HOSE REELS

9.4.1 Fire hose reels—Six-monthly service

Six-monthly routine service of fire hose reels shall be completed in accordance with Table 9.4.1.

TABLE 9.4.1
SIX-MONTHLY SERVICE SCHEDULE FIRE HOSE REELS

Item No	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
1.1	Accessibility	CHECK that the hose reel is readily accessible with no obstacles restricting its access. Where a hose reel is installed in a recess or cabinet, CHECK that the clearances around the hose reel comply with the requirements of AS 2441.	
1.2	Signage	Where a location sign is required by AS 2441, CHECK that it is correctly located and visible.	Any activity deemed included
1.3	Operating instructions	CHECK that the operating instructions are legible.	
1.4	Damage	CHECK for any damage or corrosion of components that could adversely affect the operation of the hose reel.	
1.5	Cabinet	CHECK that any hose reel cabinet is accessible, clear of extraneous materials, clearly and correctly marked and in good repair.	
1.6	Nozzle interlock	CHECK that the nozzle is retained in the nozzle interlock.	Any activity deemed included
1.7*	Swing arm	Where fitted, TEST the swing arm to ensure it operates correctly and allows the hose to be run off in its intended direction.	
1.8*	Unwind	With the nozzle closed and stop valve open, TEST that the hose reel can be unwound freely in its intended direction by unwinding at least 5 m of hose.	
1.9*	Leakage	With the nozzle closed, pressurize the reel by opening the stop valve. DETERMINE if there are any leaks from the reel's waterway, including glands, nozzle, stop valve, hose or any fittings. NOTE: In order to check that there is no leakage of water from any part of the reel waterway, it is recommended that the hose be completely unwound off the reel, so that all parts of the waterway can be examined.	
1.10*	Flow	TEST water to ensure it is able to flow through the reel by opening and closing the nozzle.	
1.11	Service tag or label	CHECK that the service tag or label is firmly attached to the hose reel.	Any activity deemed included

*After completing these actions, the nozzle shall be re-installed in the nozzle interlock and the hose depressurized (see Clause 9.2.6).

9.4.2 Yearly service

Yearly routine service of fire hose reels shall be completed in accordance with Table 9.4.2.

TABLE 9.4.2
YEARLY SERVICE SCHEDULE FIRE HOSE REELS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
2.1	Six monthly service	COMPLETE all six-monthly service activities, as listed in Table 9.4.1.	
2.2	Anchor points	CHECK that the hose reel is securely mounted and that the anchor points are tight.	Any activity deemed included
2.3	Hose guide	CHECK that any hose guide fixed to the hose reel supply pipe is not able to move upwards and cause the hose to jamb.	
2.4	Hose fittings	CHECK that all hose fittings and connections are tight.	Any activity deemed included
2.5	Bearings	CHECK that the hose reel bearings are not damaged or excessively worn.	
2.6	Flow rate	With the stop valve and nozzle fully opened, MEASURE the water flow rate from the most disadvantaged hose reel. Minimum acceptable flow rates: (a) 0.33 L/s for reels with 19 mm hose. (b) 0.41 L/s for reels with 25 mm hose.	
2.7	Hose	CHECK hose for kinking, excessive damage or wear, or collapse.	
2.8	Ancillary equipment	CHECK that any foam branch pipe or other equipment is in good repair and maintained in accordance with the manufacturer's instructions.	
2.9	Fire hazard	CHECK that the hose reel is appropriate protection for the fire hazard/risk.	
2.10	Obstructions	CHECK that no alterations have been made to the building, which impede access to the hose reel or restrict the running out of the hose, and that the hose can reach the fire hazard/risk in accordance with AS 2441.	

SECTION 10 PORTABLE AND WHEELED FIRE EXTINGUISHERS

10.4.1 Fire extinguishers—Six-monthly service

TABLE 10.4.1
SIX-MONTHLY SERVICE SCHEDULE FIRE EXTINGUISHERS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
1.1	Accessibility	CHECK the extinguisher is conspicuous, readily accessible and in its assigned location. *All extinguisher types*	
1.2	Anti-tamper device	CHECK that the anti-tamper device is intact. *All extinguisher types*	
1.3	Exterior and operating instructions	CHECK that the extinguisher is clean and the operating instructions are legible. *All extinguishers types*	
1.4	Service tag or label	CHECK that the service tag or label is firmly attached to the extinguisher. *All extinguisher types*	Any activity deemed included
1.5	External damage	CHECK that the extinguisher, including any attachments, is not damaged (see AS 2337.1). *All extinguisher types*	
1.6	External corrosion	CHECK that the exterior of the extinguisher is not pitted or otherwise damaged by corrosion (see Clause 10.2.5 and AS 2337.1). *All extinguisher types*	

1.7	Outlet hose assembly	CHECK that the hose is securely fitted, the nozzle is securely attached, the assembly is free from obstruction, and the hose shows no cracking or other signs of damage or deterioration. *All extinguisher types*	
1.8	Pressure indicator	Where fitted, CHECK that the pressure indicator is legible, and registering within the operable range. *All extinguisher types*	
1.9	Contents	WEIGH the extinguisher to determine that it is fully charged. *All extinguisher types*	
1.10	Signage	CHECK that the location sign is visible. *All extinguisher types*	
1.11	Support bracket	CHECK that the appropriate support bracket is securely attached to wall or other suitable feature. *All extinguisher types*	
1.12	Discharge nozzle	CHECK that the appropriate discharge nozzle is fitted and is not blocked or damaged. *All extinguisher types*	
1.13	Discharge nozzle and control valve	CHECK that the discharge nozzle is not blocked and that the control valve is functional. *All wheeled extinguishers*	
1.15	Powder— Portable extinguishers	INVERT the extinguisher and ensure that the powder remains free flowing. *Powder (stored pressure), powder (gas container)*	
1.16	Compressed gas container	DETERMINE that the compressed gas container is the correct size and type, in good condition, fully charged, and subjected to service as per AS 2030.5. *All gas container extinguishers*	
1.17	Actuating device	DETERMINE, where possible and without discharging any contents, that the actuating device is free of corrosion, moves freely and is undamaged. *Water (stored pressure), wet chemical, foam (stored pressure), powder (stored pressure), carbon dioxide, vaporizing liquid*	
1.18	Internal components	DETERMINE that the internal discharge tube and strainer (where fitted) provide clear passage and are securely attached. *Water (gas container), foam (gas container)*	

10.4.2 Yearly service

Yearly routine service of portable and wheeled fire extinguishers shall be completed in accordance with Table 10.4.2.

TABLE 10.4.2

YEARLY SERVICE SCHEDULE FIRE EXTINGUISHERS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
2.1	Six-monthly service	COMPLETE all six-monthly service activities, as listed in Table 10.4.1.	
2.2	Operating head or cap	CHECK that the threads on operating head or cap are not damaged, vent(s) is (are) not blocked, and any strainer or expansion device is unobstructed. For heads with no screw thread, determine that security locking device is undamaged and operational. *Water (gas container), foam (gas container), water with additive (stored pressure), foam (stored pressure), powder (gas container)*	
2.3	Discharge	CHECK that the extinguisher functions in accordance with the operating instructions and that the discharge is satisfactory. Recharge in accordance with Item 2.8. (a) *Water with additive (stored pressure), foam (stored pressure)* (b) *Water with corrosion inhibitors or freezing point depressants (stored pressure)** * To be discharged on a three-yearly frequency.	Any activity deemed included
2.4	Actuating device	CHECK that the actuating device is free of corrosion, moves freely, and is undamaged; any cutting edge is sharp; and all sealing gaskets are in good condition. *Water (gas container), foam (gas container), foam (stored pressure) powder (gas container)*	
2.5	Internal components	(a) CHECK that the internal discharge tube, strainer and anti-overfill tube (where fitted) provide clear passage and are securely attached, and that the anti-overfill device is undamaged. *Water with additive (stored pressure), foam (stored pressure)*	
		(b) CHECK that the internal discharge tube, or the gas inlet tube or ports, provide clear passage and are correctly installed, and that the powder is free flowing. *Powder (gas container)*	

2.6	Internal condition— Portable extinguishers	CHECK that the interior of cylinder is clean, is not pitted by corrosion (see AS 2337.1), and any internal lining is in good condition. *Water (gas container), water with additive (stored pressure), foam (gas container), foam (stored pressure), powder (gas container)*	
2.8	Extinguishing agent replacement	RECHARGE the extinguisher with fresh extinguishing agent in accordance with the manufacturer's instructions. *Water with additive (stored pressure), foam (gas container), foam (stored pressure)*	
		Upon the completion of recharging stored pressure type extinguishers, perform a leak test as per Item 2.10.	Any activity deemed included
2.9	Seals	CHECK that the operating head or cap seal is in good condition. *Water (gas container), water with additive (stored pressure), foam (gas container), foam (stored pressure), powder (gas container)*	
2.10	Leak detection	CHECK if there are any leaks at the joints and seals that were renewed or disturbed during recharging. *Water with additive (stored pressure), foam (stored pressure)*	
2.11	Fire hazard	CHECK that the fire hazard/risk to be protected has not changed. *All extinguisher types*	
2.12	Suitability	CHECK that the extinguisher is the correct type, class, size and/or rating for the hazard to be protected. *All extinguisher types*	
2.13	Obstructions	(a) CHECK that no alterations have been made to the building that may impede access to the extinguisher or increase the travel distances to more than those required. *All portable extinguishers*	

10.4.3 Five-yearly service

Five-yearly routine service of portable and wheeled fire extinguishers shall be completed in accordance with Table 10.4.3.

TABLE 10.4.3
FIVE-YEARLY SERVICE SCHEDULE FIRE EXTINGUISHERS

Item No.	Item	Action required and pass/fail requirement	Inspection only (green), activity required (red)
3.1	Six-monthly and yearly service	COMPLETE all six-monthly and yearly service activities, as listed in Table 10.4.1 and 10.4.2.	
3.2	Discharge	CHECK that the extinguisher functions in accordance with the operating instructions and that the discharge is satisfactory. Recharge in accordance with Item 3.9. *Water (gas container), water (stored pressure), wet chemical, foam (gas container), powder (gas container), powder (stored pressure), carbon dioxide, vaporizing liquid*	
3.3	Actuating device	CHECK that the actuating device is free of corrosion, moves freely, and is undamaged; any cutting edge is sharp; and all sealing gaskets are in good condition. *Water (stored pressure), wet chemical, powder (stored pressure), carbon dioxide, vaporizing liquid*	
3.4	Internal components	(a) CHECK that the internal discharge tube, strainer and anti-overfill tube (where fitted) provide clear passage and are securely attached, and that the anti overfill device is undamaged. *Water (stored pressure), wet chemical*	
		(b) CHECK that the internal discharge tube provides clear passage, is securely attached, and there is no evidence of moisture or foreign matter in the cylinder. *Powder (stored pressure), carbon dioxide, vaporizing liquid*	
3.5	Internal condition— Portable extinguishers	CHECK that the interior of the cylinder is clean, is not pitted by corrosion (see AS 2337.1), and any internal lining is in good condition. Where the lining cannot be removed to inspect the interior of the cylinder, the cylinder shall be accepted or rejected as per AS 2337.1. *Water (stored pressure), wet chemical, powder (stored pressure), vaporizing liquid.*	
		For carbon dioxide extinguishers, this examination shall be in accordance with AS 2030.5, and shall be performed at a gas cylinder test station certified by a registered certifying body (see AS 2337.1).	
3.7	Seals	CHECK that the operating head or cap seal is in good condition. *Water (stored pressure), wet chemical, powder (stored pressure), carbon dioxide, vaporizing liquid*	