

PROCEDURE

Electrical safety



Issued with the authority of the Chief Commissioner
and Chief Executive Officer of Scouts Australia NSW

Chief Commissioner signature		Chief Executive Officer signature	
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Electrical safety

Contents

1	Purpose.....	3
2	Responsibilities.....	3
3	General risk controls.....	3
	Informal visual observation.....	3
	Residual Current Devices (RCD).....	3
	Power Boards.....	4
	Surge protection.....	4
	Cord management.....	4
4	Inspection and testing.....	5
	Visual inspection.....	5
	Testing and tagging.....	6
	Testing of RCD's.....	7
5	New or second-hand electrical equipment.....	7
6	Performing electrical work.....	7
	Electrical Work on energised equipment.....	8
7	Faulty electrical items.....	8
8	Disposal of electrical items.....	8
9	Overhead and underground power lines.....	9
10	Records/references.....	9
11	Associated forms.....	9
12	Appendices.....	9
	Electrical inspection frequencies.....	10

1 Purpose

This procedure describes the steps taken to eliminate or reduce risks to health and safety associated with electrical hazards. It covers properties under the control of Scouts NSW, as well as temporary set ups such as major events, and applies to employed staff, volunteers and other position holders. Collectively, these individuals are called “workers”.

Test and tagging can identify additional problems – both visible and not visible. Unsafe electrical equipment must be disconnected or isolated until repaired or disposed of.

2 Responsibilities

Site Managers (eg Activity Centre Managers, Group Leaders, Region Office Managers and Camp Caretakers) are responsible for implementation of this procedure and in particular for ensuring that electrical maintenance schedules are adhered to and inspection and testing records maintained appropriately.

Workers/Contractors using electrical equipment must inspect the item of equipment within their level of competency and only operate if no obvious faults are detected. If faults are detected, personnel must take appropriate action as described later in this procedure. Only individuals with the appropriate electrical licenses are permitted to undertake electrical work within the scope of their license.

3 General risk controls

The following requirements to control hazards associated with electrical equipment apply to all Scouts properties and workers on an everyday basis.

Informal visual observation

Many people are aware that testing and tagging can be performed for electrical equipment, however, most electrical faults can be detected visually. Users of electrical equipment should observe the condition of the electrical equipment informally before use. Equipment must not be used if there is evidence of damage such as cord fraying, melting, bare wires, singeing, loose plugs, cracks in casement, piggy backing or overloading.

Residual Current Devices (RCD)

Buildings of a certain age have RCD’s fitted at the main switchboard. RCD’s are designed to protect people from electrocution. RCD’s do not prevent all electrical hazards therefore they must not be relied upon as the sole protection. For example, they will not necessarily stop a fire starting from an electrical fault in a power board.

RCD's can develop faults which mean they won't function properly when needed. Therefore, RCD's should be tested at reasonable intervals by a competent person. For information about testing of RCDs, see the *Inspection and testing* section of this procedure.

If an RCD is tripped and disconnects the power, it is important to identify the reason for the trip by inspecting each item before the power is turned back on. The faulty item must be disconnected, then follow the steps under the section in this procedure called Faulty electrical items and incidents.

NSW WHS Regulation Clause 164 requires that each socket in a *hostile operating environment* must be protected with a residual current device (RCD). Electrical equipment that is hand held, moved during operation, moved between operations or used for construction work must be protected by a RCD. RCDs must be tested regularly by a competent person and records kept of the test. RCD must be replaced if not operating correctly.

Power Boards

Power boards must be of satisfactory quality and must never be overloaded. Even occasional overloading of a powerboard can lead to irreversible damage that can start a fire later in the power board's life-cycle. This can be regardless of the presence of an RCD.

Never *piggy back* power boards or double adaptors as this can lead to overloading. Employ good housekeeping and dust regularly. Dispose of powerboards that show visible signs of heat damage or discolouration as this can indicate permanent damage as a result of present or previous overloading.

Surge protection

Surge protection is different from RCD's. Surge protection aims to protect the electrical device from damage. Surge protection is not designed to protect a person from injury, whereas RCD's are designed to prevent electrocution.

Cord management

Electrical cords can cause trip hazards. Cords that are not stored appropriately can get damaged and present an elevated electrical risk. All workers are to observe proper power cord management, eg:

- not running leads across the floor or ground, through doorways and over sharp edges
- using lead stands or insulated cable hangers to keep leads off the ground
- using cable protection ramps or covers to protect cables and cords, where applicable
- keeping dust away from electrical sockets

4 Inspection and testing

The type of electrical item and the surrounds in which electrical equipment is stored and operated affects the level of electrical risk presented. The inspection and testing requirements are determined taking into account the risk level.

Scouts NSW has developed three risk levels to assist in the management of electrical hazards— *higher, medium and lower risk*. [Appendix 1 –Electrical inspection frequencies](#) describes examples for each risk category and their testing frequencies at Scouts NSW.

Higher risk (including hostile operating environments) can be described as any environment where the equipment or the cord is subject to frequent flexing, rough treatment, or is in a *hostile operating environment*.

A *hostile operating environment* is one where the electrical equipment is exposed to operating conditions that are likely to result in damage to the equipment or a reduction in its expected life span. Electrical equipment must not be operated in a hostile environment unless the appropriate additional precautions are in place. A *hostile operating environment* is defined on the SafeWork NSW website, and includes conditions that involve exposing the electrical equipment to:

- moisture,
- heat,
- vibration,
- mechanical damage,
- corrosive chemicals and
- dust

Note regarding commercial kitchens – Outside of Scouts NSW, commercial kitchens are typically included in the description of a hostile operating environment however the frequency of use of a commercial kitchen at Scouts NSW is lower than at a typical restaurants or cafes. For this reason, Scouts NSW commercial kitchens are placed in the higher risk category, however the environment in which they operate is not considered hostile.

Medium risk includes every-day electrical equipment but in places where there is a relatively high volume of use by various people and groups, or where people sleep overnight.

Lower risk is an environment where the equipment or the cord is typically NOT subject to frequent flexing or rough treatment, and is NOT in a hostile environment.

Visual inspection

In addition to informal inspection by users, more formal visual inspection should be undertaken by site managers. Visual inspection can identify obvious damage, wear or other conditions that might make electrical equipment unsafe. Many electrical defects are detectable by visual inspection.

The following is a guide for visual inspection:

Scouts Australia NSW

File name	PRO 24 Electrical Safety v 2.0	page 5 of 10.
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- looking for obvious damage, defects, or modifications to the electrical equipment including accessories, connectors, plugs or cord extension sockets
- looking for discoloration that may indicate exposure to excessive heat, chemicals or moisture
- ensuring that flexible cords are effectively anchored to equipment, plugs, connectors and cord extension sockets
- looking for damage to flexible cords
- checking that operating controls are in good working order, that is that they are secure, aligned and appropriately identified
- ensuring that covers, guards, etc. are secured and working in the manner intended by the manufacturer or supplier
- ensuring that ventilation inlets and exhausts are unobstructed, and
- checking that the current rating of the plug matches the current rating of the associated electrical equipment.

Managers of State Activity Centres, State office and region offices shall perform a visual inspection of all electrical equipment annually using [24.1 Record of visual inspection of electrical items](#). All other Scout sites, such as Scout Halls, will perform an annual visual inspection of electrical equipment, as part of the annual Safety Inspection – Scout Halls.

Testing and tagging

Regular testing and tagging can detect electrical faults and deterioration that cannot be detected by visual inspection.

Testing and tagging may only be performed by a competent (appropriately qualified person). The frequency of the testing will vary depending on the nature of the workplace and the risks associated with the electrical equipment. See [Appendix - Electrical Inspection Frequencies](#).

All plug in electrical equipment that operates in a *hostile operating environment* must be tested and tagged regularly by a qualified person.

Items of electrical equipment used in lower-risk operating environments do not strictly require testing and tagging (unless the manufacturer's instructions require it). However if during the visual inspection, it is observed that the operating conditions appear to be hostile, then arrangements must be made to return the situation 'lower risk', or where this is not feasible, to commence a test and tag routine for those items.

However, it is recommended that appliances in kitchens as well as power boards and extension cords are tested and tagged at least every two years where practicable, such as in state office, region offices and state activity centres.

Scouts NSW recognises that it is not practicable for all locations to arrange regular testing and tagging however the visual inspection must be performed.

Equipment which compiles must be identified by a visible and durable tag or label which records the date of the most recent testing, and indicates equipment retest date.

Testing of RCD's

There are two types of test for RCD's. Ideally, both tests will be conducted at various times through the life cycle of the RCD to ensure proper functioning. They are: 1) the push button test and 2) the trip time test. The following test frequencies appear in [Appendix- Electrical Inspection Frequencies](#).

PUSH BUTTON TEST: Can be performed by operator or other competent person. No specific Scouts NSW form is available to record this testing however ideally, the site manager will have some form of record via maintenance notes or diary entries etc

- FIXED RCDs every 6 months
- PORTABLE RCDs; prior to each use, or every 3 months whichever is longer.

TRIP TIME TEST: To be performed by a qualified person. No specific Scouts NSW form is available to record this testing, as the technician should have their own recording device and will provide the site manager with a record to keep.

- RCDS in hostile operating environment or commercial kitchen: every 12 months.
- All other RCD's every 2 years RCDs.

5 New or second-hand electrical equipment

Brand-new equipment that is 'out of the box' need not be tested before being put into service unless there are reasonable grounds to believe it is electrically unsafe.

All second hand electrical equipment shall be visually inspected prior to acquiring or using the item for the first time (see section in this procedure called Visual inspection). Items that have obvious faults shall be rejected, or arrangements made for professional repairs prior to first use. In addition, equipment to be used in a hostile operating environment must be tested and tagged prior to first use.

6 Performing electrical work

Only appropriately licensed or registered electricians may carry out electrical work. Evidence of licenses, insurance and safe work systems must be obtained by the site manager or other person engaging the contractor. See [WHS Procedure 26 Contractor WHS Management](#).

Before electrical work is commenced, the equipment must be tested to ensure that it is not energised. Electrical equipment that has been de-energised must be locked out to prevent the equipment being inadvertently re-energised while work is carried out.

Electrical Work on energised equipment

No electrical work may be carried out whilst the equipment is energised unless necessary and authorised. Where electrical work is permitted on energised equipment, before the electrical work is carried out, the specified preliminary steps are completed, including a risk assessment conducted and recorded by a competent person. Whilst work is being done on energised equipment, no Scouts youth members, members, employed staff or volunteer workers are permitted to enter the area. The contractor will consult with the site manager regarding the specific process required to work on the equipment and will provide, in advance of the work taking place, copies of the risk assessment and the safe work method statements on the task. The site manager will keep a copy of the documents on file for 28 days after the work has taken place, or if there is a notifiable incident, will hold the provided documents for a period of two (2) years.

7 Faulty electrical items

If the appliance is currently connected, turn the appliance off at the power point and disconnect the plug if safe to do so. Label the item 'do not use' (or similar), to alert others of the hazard. Remove the item from service immediately if feasible. Inform the site manager. The site manager, or delegate, will arrange for repair by an authorised repair or service agent, or for disposal. The item must not be reconnected until repaired and tested tagged (this testing is normally done by the repairer).

8 Disposal of electrical items

Sometimes, decommissioning or removing the equipment presents a potential health & safety hazard. Risks can include electric shock, manual handling injuries or falls from height. Make sure you assess the risks and take steps to have the work performed safely. In some cases, such as equipment like air-conditioning or exhaust fans that are hardwired, only an appropriately licenced person may perform the work.

Old plant and equipment that has no further use should be removed from site. Unused items give the property a poor appearance and given time can introduce various unnecessary risks.

If equipment is given away or sold, Scouts NSW must notify the recipient of any known faults that could impact health and safety (preferably in writing). Unsafe equipment that is beyond repair must be disposed of and not sold or given away.

When an electrical item is disposed of due to a safety concern, the socket should be severed from the plug (obviously only after disconnecting from power source), to prevent inadvertent use even after disposal.

9 Overhead and underground power lines

Scouts Australia NSW Members, volunteers and employed staff have a duty to ensure that no person, plant or thing comes within an unsafe distance of an overhead or underground electric line. Hazards could exist when planning high ropes courses, mobile climbing walls, or placement of temporary structures etc. Event organisers and any contractors engaged, must work together to control such hazards during set up and operation.

Where contractors are engaged to perform work at height, Scouts Australia NSW site managers must consult with engaged contractors regarding the location of power lines prior to any work commencing.

10 Records/references

- WHS Volunteers Guide (Safe Work Australia)
- Risk Assessments
- Code of Practice “Managing Electrical Risk in the Workplace”
- NSW WHS Regulation 34,35-37, 147,149, 150, 151,154, 155, 156, 157, 158,159,160,161,162, 163, 164, 165, 166
- Test and Tag Record; RCD Trip Time Test Record; Record of Electrical Cord Inspection
- AS/NZS 3760 In-service safety inspection and testing

11 Associated forms

- WHS 24.1 Record of visual inspection of electrical items

Whenever this procedure is revised, the sponsor of this procedure will review the above forms, to determine whether the changes made to the procedure impact the forms. If so, the sponsor must also make the appropriate revisions to the forms.

12 Appendices

- Electrical inspection frequencies

Electrical inspection frequencies

Type of electrical equipment / operating environment	Scouts examples include:	Test and Tag - Cords , power boards	RCD's			
			Push button test by user		Trip time test & push button	
			Portable	Fixed	Portable	Fixed
HIGHER RISK ITEMS Any environment where the equipment or the cord is subject to frequent flexing, rough treatment, or is in a hostile environment.	<ul style="list-style-type: none"> Commercial kitchens, vacuum cleaners & floor polishers Some extension cords, power boards Portable appliances, power & garden tools, equipment that gets lent out or transported Outdoor equipment NB: Each socket in a <i>hostile</i> environment must have its own RCD	12 months plus visual checks during inspections	3 months	6 months	12 months	12 months
MEDIUM RISK Overnight accommodation, Non-commercial kitchens used by groups	Appliances in sleeping areas of camps Campsite kitchens	2 years plus visual checks during inspections	6 months	6 months	2 years	2 years
LOWER RISK Environment where the equipment or the cord is NOT subject to frequent flexing or rough treatment, and is NOT in a hostile environment.	Office equipment, printers, photocopiers, computers, power boards Low volume kitchens, Scout halls, staff kitchens.* <i>* Inspect staff kitchens regularly and ensure the layout does not expose appliances directly to water or heat with normal use</i>	5 years plus visual checks during inspections	3 months	6 months	2 years	2 years
Repaired, serviced or second hand	Prior to (re) introduction to service. Note that when items are repaired by a qualified technician, it is normally their responsibility to test.					

Commercial kitchens at Scouts NSW have lower usage rates than standard commercial kitchens and this has been taken into account when setting the testing frequency.

Scouts Australia NSW

File name	PRO 24 Electrical Safety v 2.0	page 10 of 10.
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