

Electrical Safety Policy

The Student Robotics Club of South Australia Incorporated

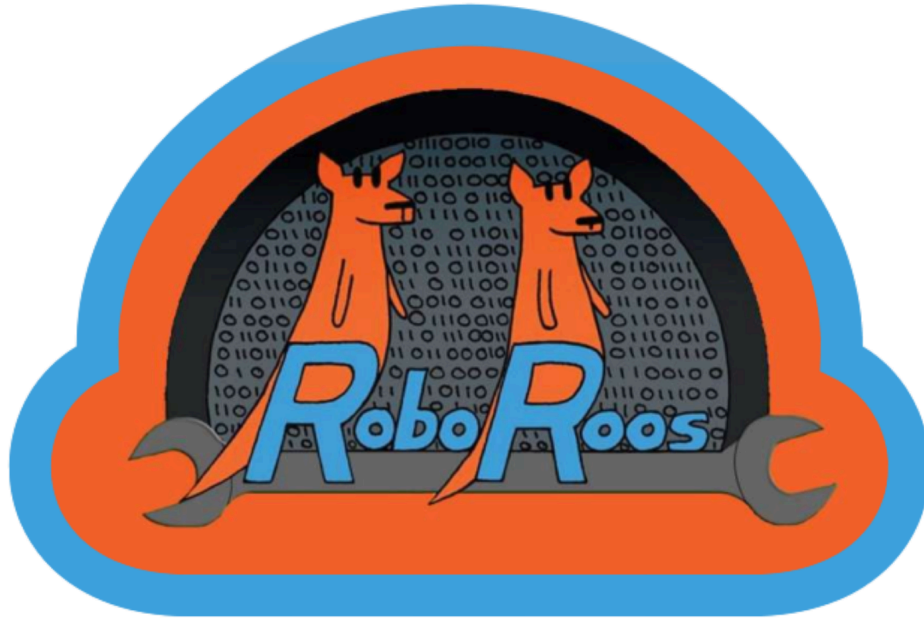


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1. Change Register

Version	Date	Description	Author
1	09/10/2024	Initial Release	BS

2. Introduction

To protect the safety of our members, this policy on electrical safety at the club has been written.

The Student Robotics Club of South Australia (SRCSA) uses many power tools and appliances while delivering our programs, and many of the tools we have are donated to the club.

This policy outlines the requirements and precautions taken to protect the SRCSA's members against electrical hazards.

3. Scope

This policy applies to all electrical equipment and appliances owned, used and/or stored at SRCSA facilities and used by club members.

4. Risk Assessment

The following risks have been identified relating to electrical equipment within the SRCSA club:

Risk	Probability	Impact
Electrocution	Unlikely	Major
Fire	Moderate	Significant
Equipment Damage	Unlikely	Minor

In the following sections, we will provide controls to mitigate these risks.

5. Hazard Reduction Controls

Before operating equipment, a SRCSA member must be appropriately trained and inducted to use the appliance. The member will also be required to wear appropriate PPE. This will assist in reducing risk arising from inappropriate use of equipment.

Some equipment, even when operated correctly, can still present risks. This can be due to age, neglect, damage, or failures in a manufacturer's QA processes.

To reduce these risks, the SRCSA employs testing and tagging to the AS/NZS 3730 standard to detect, quarantine, repair and dispose of faulty equipment, in addition to using Residual Current Devices.

6. Testing and Tagging

6.1 Responsible Person

For the purposes of this policy, the responsible person is the designated safety officer.

6.2 Competent Persons

Testing and tagging for the club must only be undertaken by a competent person.

The Australian standard AS/NZS 3760 defines a competent person as having the necessary practical and theoretical skills, acquired through training, qualification, experience or a combination of these, to correctly undertake the required tasks.

For the SRCSA's purposes, a competent person shall have completed a recognised testing and tagging course provided by a registered training organisation.

The SRCSA will maintain a register of all competent persons allowed to perform testing and tagging for the club. The register will contain at minimum:

- Name; and
- Contact information; and
- Certification/Licence number; and
- Copy of certificate.

6.3 Equipment

The SRCSA, through the delivery of its programs and activities, utilise the following equipment:

- Fixed equipment; and
 - Eg Lathes, drill presses, 3D printers
- Portable equipment; and
 - Eg Heat guns, corded drills, computers, compressors
- Extension cords; and
- Power boards (EPODs); and
- Residual Current Devices (RCDs); and
- Battery chargers.
 - Eg Laptops, robot batteries, tool batteries

Examples of equipment are not limited to the above.

6.4 Environments and Testing Intervals

The areas within facilities used by the SRCSA fall into a number of categories depending on the hazards present within each. Testing periods and justification are provided in the below table:

Use	Risks	Rating	Testing Period
Meetings	<ul style="list-style-type: none"> • Cord flexing and movement of appliances. 	Low	Annually
Lego robotics	<ul style="list-style-type: none"> • Cord flexing and movement of appliances. 	Low	Annually
Building mid sized robots	<ul style="list-style-type: none"> • Cord flexing and movement of appliances; and • Robots driving within a containing barrier; and • Cutting and drilling of robot parts. 	Moderate	6 Monthly
Building large sized robots	<ul style="list-style-type: none"> • Cord flexing and movement of appliances; and • Driving large robots without a containing barrier; and • Cutting, grinding, soldering of robot parts. 	High	6 Monthly
Kitchen	<ul style="list-style-type: none"> • Potentially wet environment; and • Food preparation. 	Low	Annually
Server IT Equipment	<ul style="list-style-type: none"> • Appliances ageing. 	Very Low	5 Yearly

Appliances likely to be moved between areas are to be tested at the shortest period of areas they are, or are likely to be, in.

6.5 Labelling and Record Keeping

Test tags should be colour coded to aid in identifying tag currency.

5 yearly tags should be coloured burgundy, annual tags should be coloured black, 6 monthly tags should be coloured either white or orange depending on the month tested. Testing in the first half of the year should use orange, the second half should use white.

Tag labels will contain at a minimum:

- Tag number; and
- Name of tester; and
- Name of entity (SRCSA); and
- Test date; and
- Retest/expiry date; and

- Compliance statement.

Tag labels will be chosen and applied such that they comply with AS/NZS 3760.

A log of all testing activities will be kept by the club containing at minimum:

- Tag number; and
- Item description; and
- Item type; and
- Result of the test (Pass/Fail); and
- Person conducting the test; and
- Date of the test; and
- Retest/expiry date.

6.6 Failed Equipment

Any equipment or appliances which fail testing activities, will be logged and a fail tag applied.

The equipment will then be quarantined for either repair or disposal.

6.7 New and Second Hand Equipment

New equipment will be labelled with a new to service tag, and may be used before inspection and testing.

Second hand equipment which is entered into service but does not already have a valid AN/NZS 3760 compliant test tag will be quarantined and cannot be used until it has passed testing.

If a second hand appliance is labelled with a valid test tag, it may be used before inspection and testing.

In both instances, the responsible person will be notified and the appliance will be inspected and tested as soon as practicable.

6.8 Club Appliance Testers

If the club owns Portable Appliance Testers (PATs) and they are used for testing activities, the club will calibrate the PATs at least once every 2 years.

6.9 Non-Club Owned Devices

The SRCSA regularly hosts robotics tournaments inviting other robotics clubs to compete at SRCSA facilities. These other teams may bring equipment that has not been tested to the AS/NZS 3760 standard.

Club members also bring personal devices to club activities (eg, laptops) and may need to connect them to a mains outlet (to charge).

In these instances, these appliances shall be exempt from the SRCSA's requirements on testing and tagging provided the equipment is not used regularly or stored at the club.

Members (and non-members) are, however, strongly encouraged to have these devices tested either during club testing activities, or on an ad-hoc basis depending on tester availability.

7. RCD Protection

To further reduce the risk of injury or damage in the event of an appliance fault, mains operated equipment must only be plugged into Residual Current Device (RCD) protected circuits.

If a circuit is not RCD protected, a separate inline Portable RCD device must be used.

8. Appliance Usage

8.1 Extension Cords and Power Boards

When extension cords are required, they will only be operated when fully uncoiled. An extension cord of the appropriate length and rating should be selected for the application used.

Power boards must contain a thermal circuit breaker and must not be daisy chained. Power boards may be plugged into a Residual Current Device (RCD) provided the RCD contains a circuit breaker rated for less than or equivalent to upstream wiring.

Double adapters are not permitted to be used for SRCSA activities or in SRCSA facilities.

8.2 Portable Appliances

Users of portable appliances will take care when setting up and packing away as to not damage the appliance or appliance cord.

When using portable appliances, users are reminded to be mindful of where the cord is while under operation, so as to not damage it.

When a portable appliance is not in use, members should pack it away to prevent damage and/or loss.

8.3 Fixed Appliances

Appliances which are not moved regularly such as lathes, drill presses and 3D printers, shall be set up in such a way which minimises the risks associated with appliance and cord damage.

Fixed equipment should be turned off when not in use.

8.4 Battery Chargers

The SRCSA uses many types of batteries for a variety of purposes, with battery chemistries including but not limited to (Sealed) Lead Acid, Lithium and NiCad. And purposes including portable tools, robot driving and laptops.

To reduce the risk of fires arising from charging batteries, they may only be charged while members are present to monitor them. This means batteries cannot be charged overnight.

The only exception to this is laptop and phone batteries, which are generally considered safe enough to charge unattended.

All battery charging must be performed in a well ventilated area, with precautions such as smoke detectors in place. Chargers must be set up in a way which is neat and unlikely to create a fire hazard.

Batteries should not be left in a device when not in use. When a member is done with using a battery operated device, they should disconnect the battery, remove it and store it safely.

9. Relevant Documents

- *AS/NZS 3760 - In service safety inspection and testing of electrical equipment and RCD's*