



**AUSTRALIA'S MOST COMPREHENSIVE
MARINA & SHIPYARD**

**BEST PRACTICE GUIDELINES
-SHORE POWER ELECTRICAL
LEADS-**

**gccm.com.au | + 61 (07) 5502 5888
info@gccm.com.au**

Best Practice Guideline

-Shore Power electrical leads-

Introduction

This guide is designed to assist and make recommendations to vessel owners, operators and crew on the best practices on shore power and electrical safety.

Gold Coast City Marina (GCCM) offers a reliable 240V low voltage electrical supply for your vessel, adhering to AS/NZS 3004:2014 standards. We offer a number of services such as lead hire, tag and testing, regular lead checks, as well as shore supply from 15amp to 125amp.

Unlike household appliances, marine electrical systems operate in a corrosive environment, requiring regular inspection and maintenance to avoid corrosion, UV damage and water ingress.

Properly connecting to shore power not only links your vessel to the marina's earth grounding system but also minimises the risk of damage. Following best practices for connecting to the marina's electrical supply will enhance safety for you and others.

TABLE OF CONTENTS

Practices	4
GCCM Marina Rules and requirements	5
Connecting and Disconnecting	6
Lead and Electrical Equipment hire	9
Test and Tag	10
IP rated leads	12
References	14
Contacts	15



Practices

Use Cable trays	Storage of leads - keep on the boat	Keep leads out of the water
<p>While your lead travels from your boat to the pedestal, it may sit on the ground or along a walkway. Use cable trays both on the marina and shipyard hardstand to protect your lead from damage, either caused by trolleys, foot traffic or pinching.</p>	<p>Reduce the amount of cable that lays on the dock or wrapped around pedestals. Store the lead where it can be kept safe and dry on your vessel away from the risk of damage.</p>	<p>Avoid cables being kept in any body of water. Over time, salt water, UV and other elements can age your leads. This may result in damage to your vessel, risk of injury like electrocution or risk of damage by fire or similar.</p>
Regular checks and Test & Tag	Have the correct length	Turn circuit breakers off
<p>Regularly check for kinks or damage, this might even mean dis-colouring caused by UV damage. Have your leads test and tagged by a certified electrician, and replace where necessary. It is a marina rule for all leads to be Test and Tagged. See more below.</p>	<p>Short leads can damage property and vessels, they can be put under undue stress if too tight.</p> <p>If your lead is not of adequate length, extension leads could be required and the length could drop the voltage.</p> <p>A recommended length is 15 - 20 meters.</p>	<p>While connecting or disconnecting your vessel to shore power, turn circuit breakers off prior to connection.</p> <p>Never have a live lead travel over water and then connect to the vessel. Always have the vessel connection point locked into place before connecting to shore power.</p>

GCCM Marina rules and requirements

It is important that as the vessel operator/owner or crew, you are made aware that we at GCCM are serious about ensuring safety for both you and your equipment. Please familiarise yourself with our Terms and Conditions as found in our Marina, Shipyard and Dry Storage agreements. For more information please visit our website: <https://www.gccm.com.au/downloads/>

Marina Rules

Marina Rule #26

26. All shore power cables and extension cords must be kept clean and dry at all times, have waterproof plugs, be maintained to an acceptable standard, and be safely placed across pontoons. Licensees must only use shore power cables (and any extension cords) that are either:

- a) Provided by Gold Coast City Marina (at the licensee's expense) or,
- b) inspected and tagged by a certified electrician and approved by the Marina Manager.

Appendix 1 - Customer Safety and Environmental requirements

All electrical leads used to access shore power need to be IP56 rated and show a current test and tag label.



Connecting/Disconnecting your vessel

Power Supply Information:

- The marina provides 240V, 50Hz power via standard socket outlets for boats.
- Maximum current options available: 15Amp single phase or 32Amp, 63Amp, and 125Amp 3 phase.
- Your Vessel's electrical system must comply with AS/NZS 3004.2 - Boat installations.

Installation Guidelines:

- Use an isolating transformer on your boat to reduce corrosion from the marina's electrical system.
- Consider using galvanic isolators to further reduce corrosion effects.
- All electrical supplies to your boat should be connected through an isolating transformer with the hull bonded.

Safety Precautions:

- Unskilled individuals should not attempt repairs; consult marina management if needed.



Connecting the Vessel to Shore power

Threaded Locking Ring: Ensure the locking ring is properly threaded, secured, and tightened on the pedestal. This provides protection from water ingress and weather.

Cables Condition: Check that cables are in good condition, out of the water, but loose enough in length. Have your leads tested and tagged regularly.

Avoid Wrapping Leads: Do not wrap cables around cleats, pedestals, emergency call points, or metal objects to prevent inductive current and corrosion.

Circuit Breaker: Always turn off the circuit breaker at the shore power pedestal before connecting the vessel lead.

Cable Management: Avoid tightly wrapping cables around cleats. Keep leads clear of pylons to prevent damage. Use a single length and avoid coiling the lead.

Plug Damage. Do not connect any lead if there is damage to the plug itself. Altered equipment can lead to other risks such as fire or electrolysis.



Safe Storage: Store cables on the vessel to avoid trip hazards and damage from trolleys.

Extension Leads: Contact the marina office for extension leads and adaptors if needed.

Walkway Safety: Ensure leads are not over walkways; use cable protectors to avoid damage and trip hazards.

Allow Movement: Ensure the supply lead allows for boat movement without tension. Do not add stress to the lead as this may cause damage.

Minimize Disconnection Risks: Ensure connections are secure to prevent accidental disconnection and ensure safety for nearby individuals.

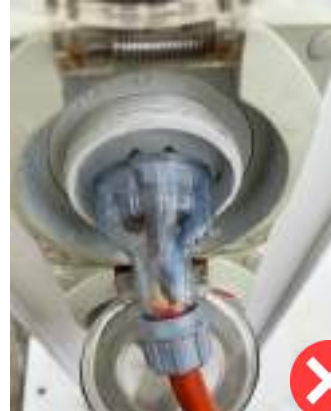
Stay Safe: If you are unsure, concerned or you think something might be unsafe, please call the marina office to let us know. One of our team members can help you connect safely.

Disconnection the vessel from Shore Power

Circuit Breaker: Switch off the marina power supply and disconnect the supply lead, from the marina power supply first, then from your boat.

Removal: Unscrew the threaded ring and remove the plug from the outlet. If force is required, there could be damage, e.g. corrosion or damage to the pins, Contact the marina office to send someone who can check.

Storage: Replace any weather protection covers and store the lead in a dry location, safely on your vessel.



Lead and Electrical Equipment for hire

For any electrical equipment needs, please visit the marina office to arrange for the rental of extension leads, cable protectors, and other essential equipment.

All equipment provided by GCCM is thoroughly tested and tagged, complete with an asset identification label for your convenience. We offer a variety of items for hire, including extension leads, lead adaptors, and electrical hubs, all available on a daily basis.

Electrical hubs are particularly advantageous, as they allow multiple smaller leads to be powered simultaneously, making them ideal for situations where several trades are operating in close proximity.

In instances where it is unavoidable to run a lead across walkways or driveways, we also offer cable tray protection to ensure safety and compliance with regulations.



Test and Tag

Test and Tag is a crucial process that ensures the safety of portable electrical appliances and leads. This procedure begins with a comprehensive visual inspection to identify any visible damage, followed by an electrical assessment using a Portable Appliance Tester (PAT).

When an appliance or lead is confirmed to be safe, it is labeled with a tag that includes the test date, the technician's details, and the schedule for the next inspection, which may be quarterly, bi-annually, or annually.

This testing and tagging process adheres to Australian standards and is a minimum requirement on worksites and marinas across Australia, as specified in AS/NZS 3760:2010.

If you require assistance, our customer service team is available to help coordinate Test and Tag services on your behalf. Should you need a replacement lead, we can facilitate that directly. Additionally, our Chandlery, "Australian Boating Supplies," maintains an inventory of Test and Tag compliant leads for your convenience.



Inspecting Your Leads and Appliances: Key Checks

Regularly inspecting your leads and appliances helps ensure safety. Here are important items to look for:

- **Visible Damage:** Check for cracks, dents, or any visible defects in the leads and appliances.
- **Connectors and Plugs:** Look for signs of damage or modifications on connectors and plugs.
- **Discolouration:** Watch for discolouration from excessive UV exposure.
- **Secure Attachments:** Ensure cords are securely attached to the equipment.
- **Outer Covering:** Inspect the cord's outer covering for cuts or damage.
- **Electrical Tape Repairs:** Be cautious of damage hidden under electrical tape.
- **Blocked Air Vents:** Ensure air vents are clear for proper airflow.
- **Warning Labels:** Check that warning labels are legible; they may indicate maximum load.
- **Buttons and Switches:** Make sure buttons are secure, movable, and properly labeled.
- **Protective Covers:** Confirm all protective covers are in place.
- **Pin Inspection:** Look for damaged or missing insulation on pins.
- **Socket Flange:** Check the flange of the socket for damage or breakage.
- **Plug Ratings:** Ensure the plug's current rating matches the appliance's needs (e.g., a 15 amp appliance should use a 15 amp plug).
- **Moisture Check:** Look for any visible moisture or water trapped in the socket.

IP rated power leads

GCCM requires all shore power leads to have a minimum rating of IP56, this is the level or protection for 1 = intrusion and 2 = moisture.

IP ratings, or Ingress Protection ratings, are critical for understanding the durability and safety of electrical leads.

These ratings consist of two components: the first digit indicates protection against solid objects and dust, while the second digit signifies protection against moisture and water.

The first digit ranges from 0 to 6, with higher numbers representing better protection from dust ingress. For example, a rating of 5 means the lead is dust-protected, while a rating of 6 signifies it is completely dust-tight.

The second digit ranges from 0 to 9, with higher numbers indicating increased water resistance. A rating of 0 means no protection, while a rating of 8 indicates the lead can withstand continuous immersion in water at specified conditions.

Together, these components help ensure that electrical leads are suitable for various environments, enhancing both performance and safety.



1st #	level of protection	2nd #	level of protection
0	no protection	0	no protection
1	protected against solid objects over 50mm in size - back of the hand	1	Protected against drops of water falling vertically.
2	protected against solid objects over 12mm in size - fingers and hands	2	protected against drops of water falling vertically on object tilted 15 degrees from normal position
3	Protected against solid objects over 2.5mm in size - ball bearings	3	Protected against direct spraying water up to 60 degrees from vertical
4	Protected against solid objects over 1mm in size - small tools or wires	4	Protected against direct spraying water and splashes from all directions
5	Limited protection against dust ingress – no harmful deposits of dust	5	Protected against low pressure jets of water from all directions
6	Complete protection from dust	6	Protected against heavy seas or strong jets of water from all directions
		7	Protected against temporary immersion in water up to 1 metre
		8	Protected against continuous immersion in water up to 1 metre

References

Australian/ New Zealand Standard - Electrical installations - Marinas & Boats.

Part 1 AS/NZS 3004.1:2014

Part 2 AS/NZS 3004.2:2014

Marine Pro Systems - resources/handouts

<https://www.marineprosystems.com/resources>

Test and Tag Training.

<https://www.testandtagtraining.co.nz/what-is-test-and-tag>

<https://www.testandtagtraining.co.nz/test--tag-visual-inspection-checklist>

IP Ratings Explained

<https://www.amplex.com.au/blog/ip-ratings-explained#:~:text=For%20example%2C%20IP56%20means%20protection,of%20water%20from%20all%20directions.>

QLD Government Electrical Safety

<https://www.electricalsafety.qld.gov.au/resources>

SET Marine and Electrical : Connecting to marina power – have you got it right?

<https://setmaritime.com.au/connecting-to-marina-power-have-you-got-it-right/>

Logix Group Consulting

<https://www.logixgroup.com.au/corrosion-resources>

Contacts

GC test and Tag - 07 5518 7833

info@gctestandtag.com.au

<https://gctestandtag.com.au>

Benson and Brown - 07 5573 6022

admin@bensonandbrown.com.au

Bensonandbrown.com.au

South Pacific Marine Group - 07 5502 7111

admin@spmarinegroup.com

<https://www.spmarinegroup.com/>

Ocean Electrics - 07 5502 9333

sales@oceanelectrics.com.au

<https://oceanelectrics.com.au/>

Logix Group Consulting - 02 4381 0790

info@logixgroup.com.au

<https://www.logixgroup.com.au/>

Visit our Marine Directory on the GCCM website for more on each Business Partner.

<https://www.gccm.com.au/marine-directory/>