Shore Power Guidelines

Shore power provides power to your boat/yacht when you are at the docks so you can enjoy your electrical comforts without running your generator. This article provides information on important considerations for using shore power at LGYC and in general.

Connections

LGYC assigned slips are all equipped with electrical service but require members to contract directly with North Alabama Electric Co-op for electric meters and power. Call North Alabama Co-op at (256) 437-2281 and identify yourself as a member of LGYC along with your slip number to get a connection. They will set up an account with you and install a meter at your slip.

The party dock is not metered and members are encouraged to move to the party dock for weekends to socialize and take advantage of the "free" power.

Connecting your vessel to the electrical service is done via shore power cable with either NEMA 50-amp SS2-50P Male Twist-Lock or NEMA L5-30P Male connector into the shore power outlet.

The proper sequence for connecting shore power to the vessel to minimize shock and fire hazards is:

- Turn off all circuit breakers on the vessel AC panel.
- Turn off shore power circuit breakers.
- Connect the service cord(s) to the vessel power inlets. (Reel type cord are always connected)
- Connect the service cord(s) to the dockside outlets.
- Turn on the dockside circuit breakers
- Turn on the vessel master circuit breaker on AC panel
- Check for correct polarity (most vessels have reverse polarity alarms)
- Turn on branch circuit breakers.

Reverse this procedure for disconnecting your shore power as below:

- Turn off branch circuit breakers on vessel panel
- Turn off the vessel master circuit breaker on AC panel
- Turn off the dockside circuit breakers
- Disconnect the service cord(s) from the dockside outlets.
- Disconnect the service cord(s) from the vessel power inlets except for reel type cords which are always connected.
- Safely stow the shore power cords.

Managing shore power cords

Shore Power cord are the designed to carry high current and live in a harsh environment. Properly taken care of, they can have a long life and safely provide power to the boat for many years. The combination of sunlight, a high moisture environment, physical installation and maintenance all have an impact on the life of a shore power cord. The best means of preventing deterioration of outer casing of a shore power cord is to keep it out of the sun. Keep shore power cords under the roof of your boat slip and out of the sun or stowed when not in use. When you will be in the sun for extended time it is recommended that you install a cover over your shore power cord to keep the sun off of the outer casing. If the outer casing deteriorates it can lead to electrical shock or fire. Marinco makes a good product for this available at marine stores or online. See picture below.

Shore power cords have threaded rings on each end to keep the cord secure to your boat socket and to help seal the connection from water and moisture. Use them whenever possible.

Don't spray water directly on the connections! Keep your shore power socket covers closed when not using a shore power cord (both on the boat and at the shore power source).

When installing or removing power cord(s) during rainy weather at the party dock, temporarily cover the power cord plug(s) with a plastic bag (like Ziplock). This ensures that the plug(s) stay dry during transit back to your slip or during storage of power cord(s) while it is raining.

If your shore power cord has a cut or tear in the outer casing that can allow water and moisture to enter, you should replace it.

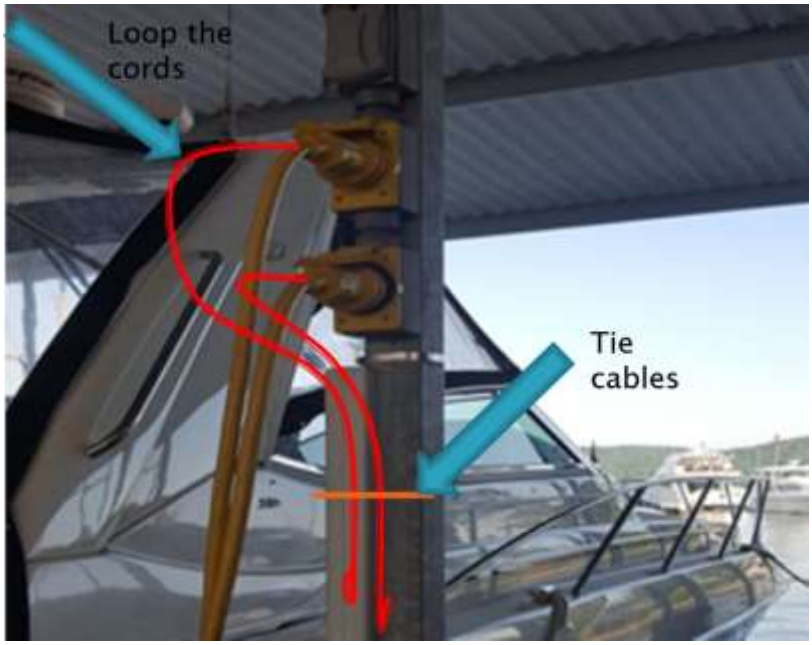
Stow your cords in a DRY environment, not in a wet bilge area that will cause the metal parts to corrode.

When you connect your power cords using the correct procedure you have only done part of the job. The proper installation of a shore power cord ensures a safe connection to the power source and longevity of the cord. The proper installation of your power cord should not put any strain/pull on the male connector or the outlet socket. That means there is no up or down pull on the connector. Any strain on this connector between the male connector and the socket

creates a loose connection and allows moisture to enter. These conditions can easily result in a hot connection that can melt the connector and cause significant electrical or fire damage.

The following photos show a connection which can apply strain and potentially result in a loose connection resulting in losing your power but also potentially causing dangerous electrical arcs or overheating causes by poor electrical connections.

The weight of the cords combined with the movement of the boat can pull the connector resulting in a failed connection and damage to both the shore power cord and the outlet. Poor connections can result in overheating, electrical arcs and fires.



A better connection show in red would provide support for the cables so the connector not taking the weight of the cables and is isolated from vessel movements.

If the cord travels horizontally, it should lay flat, have no kinks and not be in your walking path.

Make sure that shore power cables don't dangle in the water.

If you drop the end of the shore power cable into the lake, it needs to be disassembled (if possible) and dried before you plug it back in.

Power cable and connection maintenance

The connectors on our boats and power cables for bringing shore power into the boat require maintenance. This is often maintenance that is overlooked or not understood and is a real threat to your boat and our yacht club. When everything is new, the power can get into our boat with no resistance. The connectors are clean, the wires are tightly attached to the lugs and the conductor is good. Over time, however, things change. The connections get dirty and corroded, the screws that attach the wires to the connections vibrate loose, and sometimes even the contacts get bent and don't fit together well. Any and all of these problems are happening on your boat right now!

As the connections between the power cable and the connections on the boat deteriorate, the ability to transfer current into the boat is reduced. These failing connections act as choke points for the current trying to get into your boat. The choke point has a high resistance. High resistance generates heat and it can generate a LOT of heat.

When your cables and connectors get hot the electrical characteristics of the materials can change PERMANENTLY. The materials typically oxidize and oxides have a high resistance. The problem is that the damage to these connections are permanent and because of that they continue to get worse and worse until they get so hot, they start to arc, smolder and eventually catch on fire. Fire on a boat is the leading cause of boat accidents.

Visually inspect the connections. Check the ends of the shore power cable and the where they plug into. They should be clean without corrosion or indications of arcing. Take a look at the following photos ……. If you see any indication of a problem on your cables or connections stop using them and get them fixed.

Feel the shore power cable. If it is hotter near the connector than it is in the middle of the cable, something is wrong.

If you find this problem, it has to be repaired correctly. Typically, you must replace both mating connectors and you have to cut back the wires far enough to get back to wire that has not been heat damaged. On a shore power cable, you may have to cut 2-3 feet off the end. In boats, you may have to completely replace the wire because typically they are not long enough to cut off a couple of feet. The less heat damage there is, the less you have to cut off, so fix it as soon as you recognize the problem.

You can take steps to avoid serious problems by visually inspect the connection every time you put it together. If you see something discoloring, it is time to get it replaced. Be especially vigilant during seasons of peak loads, like winter heating and summer cooling.

The ABYC recommends tightening all electrical connections on your boat YEARLY. Insure your power is disconnected when tightening any electrical connections!