



Marine Shore Power Cords Safety and Care

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Shore power cords make an important and often unrecognized contribution to boating convenience. These flexible power cords make the connection between marina utilities and your vessel's power distribution system. Improper use and poor maintenance can cause serious injury or death, damage to vessels and unplanned repair costs.

Two of the most popular flavors of shore power are 30 ampere 125 volt (NEMA L5-30) and 50 ampere 125/250 volt (NEMA SS-2) configurations. Power cords are designed to avoid mix ups between different types of plugs. The basic concept is to not force a plug into a receptacle. As long as the L-shape terminals of marine shore power plugs remain unaltered, it is hard to plug your boat into the wrong type of shore power. Forcing a modified 30 ampere 125 volt plug into a 50 ampere 125/250 volt receptacle can produce disastrous results.

Forcing the wrong type of shore power plug into a receptacle or using a makeshift plug can inadvertently allow current to enter the water. Alternating current leakage into the water will often not open protective circuit breakers and will endanger anyone who might be in contact with the water. Leakage can also cause damage to boats and marina docks and mooring systems from electrolytic corrosion. A bad neutral or ground wire in a single boat can result in electrolysis throughout the marina showing up as excessive zinc wear or worse; damage to outdrives, propellers, struts, rudders and thru-hulls.

Current leaking into salt water poses less of a problem than the same current being discharged into fresh water. Salt water is conductive and will carry current to earth ground. Fresh water is a poor conductor and leaking current will set up an electrical field around a vessel that is dangerous to swimmers. An amazingly small amount of current can paralyze a swimmer and cause drowning.

Corroded power cord terminals are a sign of either salt water corrosion and/or the result of drawing too much power from the cord. A new 30 ampere cord typically can be used to draw about 20–25 ampere; drawing more power even temporarily, can alter the chemistry of the terminal ends through heating. The result of overdrawing current from a cord is that it will become more resistive to current flow and will require more current to supply the needed power for your boat.

Think of a water hose with a slight bend in it, to get the same volume of water from the end as a hose without the bend, you will have to provide more pressure at the source. Winter customers can see significantly higher electric bills due to the use of older, corroded power cords.

Here are some safety practices for your vessel's shore power cord:

- Purchase a shore power cord that is UL-Marine listed
- Avoid using household or outdoor electrical extension cords to provide power to your boat
- Shore power plugs and receptacles have L-shaped or locking terminals. Be sure to twist the plug into the receptacle until it is fully locked into place
- The male end plug of a shore power cord should be molded on or have a weather proof seal in place to keep water out of the internal electrical connections
- Avoid the use of adapters. If an adapters is warranted, place it on the shore side of the cord connection
- Turn off the main circuit breakers on the dockside and vessel electrical distribution systems before plugging the shore power cord in between them
- Plug the female end of the shore power cord into the boat first and then the dockside pedestal. Reverse the sequence to disconnect them
- Avoid leaving a shore power cord plugged into the dockside power pedestal with the boat end disconnected. The free end can be accidentally kicked into the water creating a hazardous situation
- Check your shore power cord for cuts, exposed conductors, breaks, nicks, burnt plug or receptacle terminals, bent or broken plug blades, corrosion and stiffness
- Avoid coiling a shore power tightly on the dock, hang it up on the boat with large coils
- Keep electrical shore power cord connections clean. Use a corrosion inhibitor and cleaning product like a greaseless lubricant monthly. Avoid products like WD-40 that leave a current resistant film on the cord contacts
- Shore power cords should not be spliced or modified in any way
- Replace stiff or corroded cords
- Consider converting to 50 ampere electric cords for significant electrical heating of your boat

Shore power cords are simple to use and uncomplicated. A little care and caution will prolong their useful life and provide safe electrical service to your vessel.

If you have any questions please contact the dock office and we would be happy to help.

**Have a great (and safe) boating season
Your friends at Constitution Marina**