Access Shore Power
With a Pigtail ?

Topic Background -

- (HERE) is a helpful article on Practical Sailor.
- A typical shore power connection is 30 amp 125V service with GFCI protection.
- Many sailboats are equipped with professionally installed equipment to accept power from a "pedestal" on the dock using a shore power cable. Boats without an onboard shore power capability can install one. Parts required for a minimalist shore power install cost about $400-600, a professional install would likely run $1200-1500.
- Professionally installed systems include safety components that protect wiring from overload, occupants from accidental electrical shock, and reduce corrosion by blocking the flow of damaging low voltage DC electrical currents.
- Our discussion centered on understanding the benefits and risks of connecting to a shore power pedestal with an extension cord and standard NEMA 5-15 plugs on a heavy duty extension cord. The goal would be a temporary and inexpensive connection to operate lighting and power tools with an anticipated load of less than 15 amps.

Technical Background -

- NEMA L5-30P plug rated for 30 amps is protected by a 30 amp GFCI breaker in the pedestal.
- The pigtail that was proposed is a Marinco 199128 Pigtail Adapter which provides GFCI protection but does not provide load protection. This particular pigtail has a 3-way plug on the 15 amp side which implies the pigtail is capable of supplying all 30 amps via three 15 amp extension cords. A quick check with the manufacturer revealed this is not the case, the pigtail is only rated for a **total of 15 amps**.
- NEMA 5-15 plugs are not designed to carry more than 15 amps and extension cords that use these plugs are not designed for more than 15 amps. Sometimes larger conductors are used to reduce voltage drops for long runs, but exceeding the rating on the cord (even when the wire gauge is "oversized") is dangerous due to plug design limits.
- Amps = Watts / Volts. My 1800 watt heat gun @ 120 V draws 15 amps.

Conclusions -

- Use of the pigtail satisfies a narrow use case of serving a load of less than 15 amps, but does not provide a failsafe to avoid damage or injury if the load limit of the pigtail or extension cord(s) is exceeded. Proceed with caution.
- Do not leave a 15 amp pigtail plugged into a 30 amp pedestal unattended.
- Ways to mitigate the risk without installing shore power on your boat.
    - Make friends with your neighbor, run a 15 amp extension from their boat to yours.
    - Replace the 30 amp breaker in the pedestal with a 15 amp breaker.
    - Buy a shore power cord that is compatible with the pedestal and long enough to reach the inside of your boat, and plug the pigtail into the cord. This approach puts the non-weather proofed connection inside the boat and makes it easier to monitor the weakest links (15 amp wiring served by a 30 amp source).
    - Skip the pigtail and wire up a distribution box with a NEMA L5-30P plug that plugs into the pedestal, two 15 amp breakers, and two female NEMA 5-15 plugs to plug the extension cord(s) into. Something like (THIS). Not ideal, but much safer than the pigtail without failsafe load protection. Plus you'd have the option to run two cords for a total of 30 amps. The total cost is a bit more than the pigtail and would take a few hours to source and assemble.