*Shore Power Grounding Investigation*

Quick Reference Guide

Get history, if possible, from owner/operator

Start by exploring the system:

***Safety***

* You’ll be working on the AC system
* Use voltage detector
* PPE, ear & eye

***Gather all tools***

* Tool bag, Socket set, Multi-meter,
* AC Split Cord, AC leak Detector?

Start by plugging in an AC device ​in a *non-inverted* outlet

Note:\*if entire boat goes through inverter, you need to perform these test on the input side of the inverter

* Using an AC appliance or electrical tester, we are verifying power is working onboard
* With some load turned on in the vessel, test for AC leakage, report if found.
* Make sure the outlet works​ and has correct polarity
* \**Do not*, turn off, the main shore breaker onboard the vessel​

Shut off shore power:

* Turn off the breaker at pylon​
* Bring the power pylon end into vessel at outlet or inverter input.

Test#1 Check the ground circuit with DVOM​

* Check ground pin on outlet to ground on cord.​
	+ If “0” ohms resistance (or very low)​
		- Vessel is safe, but doesn’t have galvanic protection​
		- *Recommend* installing a galvanic isolator​:
		- Skip to Test#3 and check for a transformer

Test#2 the ground circuit with DVOM checking for Galvanic Isolator

* Check ground pin on outlet to ground on cord.​
	+ Run the Test procedure for a Galvanic Isolator​
	+ \*Remember, could have capacitors​
	+ Report findings of G.I. on report. Stop test here

Test#3 the ground circuit with DVOM checking for Isolation Transformer

* Check ground pin on outlet to ground on cord.​
	+ If “OL” on resistance, an open line​ 🡪 Verify findings​
	+ Verify No Galvanic Isolator​
	+ Ensure you are on the ground pin of cord​
* Possibly:​
	+ Isolation Transformer​
	+ Or Un-safe vessel​
	+ Ensure you are on the ground pin of cord​
* Check for transformer​
* \*main breaker must be on!​
* Check the hot/neutral wires for connectivity ​
* If the hot/neutral wires don’t have path an “OL”​, Then you know it has transformer because you had power onboard when starting this test​
* Possibly locate the transformer and give it basic inspection

If “OL” resistance, an open line​ on Green, but not the Hot/Neutral

* Verify findings​
* Verify: No Galvanic Isolator​
* Verify: No transformer [hot/neutral wire open]​
* Verify: No connectivity on green wire [OL]​
* Report: *Unsafe vessel, must report*​

Tech Tip#74 Video about testing shore power isolation with Nigel Calder

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