

VESSEL CORROSION SURVEY

PART 1 - Vessel Information

Vessel Name & Location _____ Date _____
Owner Name & Contact Info _____
Make _____ Model _____ Year _____ Hull Length _____ ft
Materials: Hull _____ Shaft _____ Propeller _____ Through Hull _____ Outdrive _____
Trim Tab _____ Struts _____ Rudder _____ Keel _____
Bonding System: Yes / No Wire type _____ Complete? Yes / No
Cathodic Protection: Anode / Controlled / Impressed Current / Gal. Isolator / Isolated Transformer
Anode (type, size, location, condition) _____
Device 1 (make, model, rating, condition) _____
Device 2 (make, model, rating, condition) _____
Cathodic Monitor (make, model, indication) _____
Mooring: Docked / Anchored Lines: conductive / non-conductive Line Type _____
Mooring: Water: Fresh ___ % Brine ___ % Salt ___ % Velocity: Stagnant Flowing Tidal
Usage: At Rest ___ % Underway ___ % Underway Water: Fresh ___ % Brine ___ % Salt ___ %
Cathodic History (i.e. zinc replacement interval) _____
Recent Work History _____

PART 2 - Test Records

Test Performed by _____ Date _____
Reference Cell: Ag/AgCl Cu/CuSO4 Zinc Conventional current reading unless otherwise noted.

- A. AC System Pedestal Test (volts, disconnected from vessel):
1. Ratings: Voltage _____ Power _____ Amps Breaker _____ Amps
 2. Ground to Cell _____ mV Neutral to Cell _____ mV
 3. Neutral to: Line 1 _____ V Line 2 _____ V Line 3 _____ V

- B. Vessel Cord Test (all shore cords disconnected, AC breakers on (all two-pole):
- | | | |
|--|-----------------------------|----------------------|
| Power Cord 1: | Power Cord 2: | |
| 1. ___ ohms. Neu -Grd resistance | ___ ohm Neu -Grd resistance | (Standard: > 25kohm) |
| 2. ___ ohms. Neu -Neu Cord 2 resistance (If two power cords) | | (Standard: open) |
| 3. ___ ohms. Grd -Grd Cord 2 resistance (If two power cords *) | | (Standard: < 1 ohm) |
- * Galvanic Isolator(s) if present may interfere with reading.

- TV cable shield: (connected *)
4. ___ ohms. Shield to hull (vessel side of isolator) (< 1 ohm)
 5. ___ ohms. Shield to hull (dock side of isolator) (open)
- * Cable Box or TV set must have separate ground and neutral, not bonded

C. AC Leakage Test at Shore Cord (Shore cord attached, all conductors clamped, TV cable disconnected):

1. ___ mA. Current measured with Shore Breaker off (Indicates current from other source)
2. ___ mA. Current measured with Shore Breaker on & vessel breakers and all loads on
3. ___ mA. Net vessel water leakage (line 2 minus line 1)
4. ___ mA. Current measured green (Grounding) wire only
5. ___ mA. Fault current (line 4 minus line 2)
6. ___ mA. **Total leakage current** (3 plus 5, >100mA fresh water or >500mA salt water is not within Standard. Indicates problem)
7. AC Leakage Isolation Test
 - a. To determine source of leakage, turn on vessel breakers one at a time with all loads on. Record current for each breaker on Appendix Test Form A-1.
 - b. With single breaker on, turn off respective breaker loads one at a time to isolate fault current source. This procedure may not identify the fault if is a pre power switch fault.
8. ___ mA. TV cable shield current. Current flow (conventional): From vessel / to vessel (Vessel side of isolator if present)

D. Vessel Bond & Grounding Test:

All shore cords disconnected, AC breakers on (all two-pole)

1. ___ ohm Engine Block to Bonding System (Standard: < 1 ohm)
2. ___ ohm AC Grounding to Bonding System (Standard: < 1 ohm)

Generator Running:

3. ___ ohm Engine Block to Ground (vessel side of galvanic isolator) (Standard: < 1 ohm)

Inverter (other AC power source) Running:

4. ___ ohm Engine Block to Ground (vessel side of galvanic isolator) (Standard: < 1 ohm)

E. Galvanic Isolator Test (shore power disconnected, or one end of isolator disconnected):

1. Put meter on diode check scale.
 2. Connect meter leads to each side of isolator. (Or shore cable ground and good vessel ground).
 3. Record reading, reverse leads and record reading.*
 4. ___ VDC Forward Test (Port) (0.8 – 1.1 VDC indicates good isolator)
 5. ___ VDC Reverse Test (Port) (0.8 – 1.1 VDC indicates good isolator)
 6. ___ VDC Forward Test (Starboard) (0.8 – 1.1 VDC indicates good isolator)
 7. ___ VDC Forward Test (Starboard) (0.8 – 1.1 VDC indicates good isolator)
- *Presence of capacitor may slow test reading or drain meter, consult manufacturer instructions for test procedure. Absence of capacitor may disable isolator if AC is present.

F. Suretest Impedance Tests:

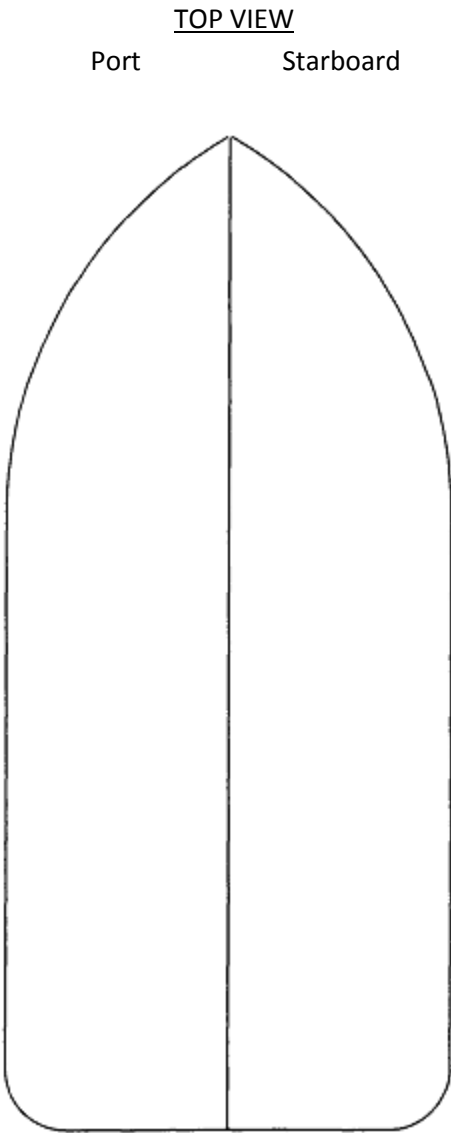
1. ___ ohms, Line
2. ___ ohms, Neutral
3. ___ ohms, Ground (Standard: < 1 ohm)
4. ___ % Voltage Drop (Standard: < 10%)

G. Stray Current Source Test:

Monitor hull potential while momentarily energizing DC loads to test for stray currents. Record all potentials during this test on Appendix Form A-2.

H. Vessel Hull Potential Tests (In water, shore power cord disconnected):

FITTING	POTENTIAL (volts)	
	Port	Starboard
1. <u>THRUSTER</u>	_____	_____
2. _____	_____	_____
3. <u>WINDLASS</u>	_____	_____
4. _____	_____	_____
5. <u>ANCHOR PLATE</u>	_____	_____
6. _____	_____	_____
7. <u>DRAIN TH</u>	_____	_____
8. _____	_____	_____
9. <u>HEAD TH IN</u>	_____	_____
10. <u>HEAD TH OUT</u>	_____	_____
11. <u>GEN TH IN</u>	_____	_____
12. <u>GEN TH OUT</u>	_____	_____
13. <u>ENG THRUHULL</u>	_____	_____
14. _____	_____	_____
15. <u>GENSET</u>	_____	_____
16. _____	_____	_____
17. <u>ENGINE</u>	_____	_____
18. _____	_____	_____
19. <u>SHAFT</u>	_____	_____
20. _____	_____	_____
21. <u>STRUT</u>	_____	_____
22. _____	_____	_____
23. <u>RUDDER POST</u>	_____	_____
24. _____	_____	_____
25. <u>RUDDER LOG</u>	_____	_____
26. _____	_____	_____
27. <u>TRIM TAB</u>	_____	_____
28. _____	_____	_____
29. <u>SWIM STEP</u>	_____	_____
30. _____	_____	_____
31. <u>KEEL BOLTS</u>	_____	_____
32. <u>STERN DRIVE</u>	_____	_____



Use reference number to indicate location of test measurement or underlined letter abbreviation.
 Show reference cell locations.

Reference cell on Port / Starboard
 33. ENGINE ___ / ___ ___ / ___
 Shore power cord connected:
 34. ENGINE _____ _____ Isolated? (same as line 17?): Yes / No
 Engine Running: (Standard = Yes)
 35. ENGINE _____ _____ No change? (same as line 17): Yes / No
 (TH = THROUGH HULL) (Standard = Yes)

I. Bonding Continuity Test (out of water):
 Use Hull Potential test record and use continuity test (ohms) instead of potential.
 Standard is < 1 ohm.

PART 3 – Corrosion Survey Report

To be prepared and attached to survey.

APPENDIX:

A-1 AC Leakage Isolation Test

	<u>Breaker Panel A</u>	<u>Breaker Panel B</u>
1.	_____ mA	_____ mA
2.	_____ mA	_____ mA
3.	_____ mA	_____ mA
4.	_____ mA	_____ mA
5.	_____ mA	_____ mA
6.	_____ mA	_____ mA
7.	_____ mA	_____ mA
8.	_____ mA	_____ mA
9.	_____ mA	_____ mA
10.	_____ mA	_____ mA
11.	_____ mA	_____ mA
12.	_____ mA	_____ mA
13.	_____ mA	_____ mA
14.	_____ mA	_____ mA
15.	_____ mA	_____ mA
16.	_____ mA	_____ mA

A-2 Stray Current Test

<u>Breaker Panel DC</u>
_____ mA
_____ mA
_____ mA
_____ mA
_____ mA
_____ mA
_____ mA
_____ mA
_____ mA
_____ mA
_____ mA
_____ mA
_____ mA
_____ mA
_____ mA
_____ mA
_____ mA

A3 - Visual Corrosion Observations and other notes: