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**Prepared By:** SystemShield Field Safety Division

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## **SYSTEMSHIELD™ EMERGENCY GROUND TESTING PROTOCOLS**

### **PURPOSE**

This document outlines the emergency procedures for assessing the integrity of SystemShield™ grounding systems following a grounding incident, electrical shock, equipment failure, or discovery of suspected bonding degradation. These protocols must be followed immediately when a compromised ground is suspected.

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### **WHEN TO INITIATE EMERGENCY GROUND TESTING**

Initiate this protocol under any of the following conditions:

- Personnel report electrical shock when touching bonded equipment
  - Ground resistance tests return values above 1.0 ohm
  - Physical damage observed to lugs, bus bar, or connected wires
  - SystemShield grounding path disturbed, moved, or partially disconnected
  - After lightning strike, electrical surge, or arc flash in the system
  - Loose or detached grounding conductors identified during inspection
  - Safety officer mandates retesting due to incident or near-miss
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### **STEP-BY-STEP EMERGENCY RESPONSE**

#### **1. ISOLATE THE SYSTEM**

- De-energize equipment immediately
  - Lockout/Tagout (LOTO) affected panels and circuits
  - Prevent re-energization until testing is completed and documented
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#### **2. IDENTIFY TEST POINTS**

- Reference all SystemShield termination points:

- Bus bar
  - Panel/chassis connections
  - #6 and #12 AWG wire ends
  - Mark each test point clearly using approved labels
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### 3. PERFORM EMERGENCY RESISTANCE TEST

- Use a calibrated low-resistance ohmmeter or digital clamp meter
  - Measure resistance between each ground point and primary bonded location
  - Acceptable threshold:  $\leq 1.0 \text{ ohm}$
  - Log all values on a new **Resistance Testing Record Sheet (Emergency Copy)**
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### 4. INSPECT ALL PHYSICAL CONNECTIONS

Visually inspect and gently test for:

Component	Inspection Focus
<b>Lugs</b>	Flush seating, no movement, signs of corrosion or deformation
<b>Wires</b>	Insulation integrity, crimps, no pullout or kinks
<b>Bus bar</b>	Solid mount, no rotation or displacement
<b>Fasteners</b>	Tightness, visible torque indicator (if used), no rust or oxidation

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### 5. IDENTIFY ROOT CAUSE

Based on findings:

- If test failure is localized → correct fastener, lug, or connection
  - If test failure is systemic → replace full wire or perform continuity tracing
  - If environmental factors are involved (moisture, corrosion) → escalate to supervisor
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### 6. CORRECTIVE ACTION

Take immediate steps to:

- Retorque or reterminate connections as needed
- Replace wires or lugs if visual indicators are present
- Remove corrosion or reapply anti-corrosion compound where required

- File a **Defect Report Form** if damage is confirmed
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#### 7. RETEST AND SIGN OFF

- Retest all affected points after correction
  - Re-verify that all test values are  $\leq 1.0 \text{ ohm}$
  - Complete and sign a new **Final Inspection Sign-Off Sheet (Emergency Copy)**
  - Do not return power to system until fully signed off by supervisor or safety officer
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#### SUPPORTING DOCUMENTS

Required for emergency testing:

- Resistance Testing Record Sheet
  - Final Inspection Sign-Off Sheet
  - Defect Report (if applicable)
  - Field Inspection Checklist (for revalidation)
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#### SAFETY & COMPLIANCE NOTES

- Always comply with NEC 250.4(A)(5) and 250.92(B) for effective ground path testing
  - Follow NFPA 70E for approach boundaries and PPE during post-failure inspections
  - If arc flash or surge occurred, test all grounding paths — even if not visibly damaged
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#### SUPPORT

For escalation procedures, part replacement, or guidance during emergency testing:

**Email:** [systemshieldgrounding@gmail.com](mailto:systemshieldgrounding@gmail.com)

**Website:** [www.systemshield.tech](http://www.systemshield.tech)

**Secure Portal:** <https://systemshield.tech/distributor-access>