

SSIT-303 Lightning & Surge Protection

Purpose

Lightning arrester tests shall be performed when installed and as required to verify the lightning arresters are installed properly and in good condition to provide adequate protection.

Test Intervals

Employee shall inspect lightning arresters frequently to ensure adequate protection. **Surge protection tests shall be performed as soon as possible after an electrical storm.** Refer to *SSIT-7 Signal System Inspection and Test Intervals* for all test intervals.

Rail Safety

Employee shall ensure the site is safe for employees, the public, vehicular traffic and train operations as defined in *SSIT-8 Protecting Train Operations* prior to performing tests and inspections.

Personal Safety

Always replace defective lightning arresters connected to AC supply lines prior to disconnecting or opening the ground system. A faulty arrester that causes leakage from AC supply could cause the voltage of the grounding system to reach dangerous levels when ground system is disconnected.

Procedure

The following verifications are to be performed at each location equipped with lightning and surge protection devices:

Step	Procedure
1. Check Primary Device (if installed)	→ Check load center breaker is not tripped (if applicable). → Check health indicator is lit (if applicable). If health indicator flickering or out: Arrange to have primary surge arrester serviced or replaced.
2. Visually Check Air Gap Arresters	→ Check arrester covers are in place and are not damaged or discoloured. → Check the correct arrestors are installed. If arrester fails visual check: Proceed to step 3 for more detailed check.
3. Check Air Gap Arresters (if applicable)	→ Check discharge electrodes (teeth) are pointed up when arrester is mounted horizontally. → Check at least 25% of teeth are not burnt out. → Check no contamination or debris bridges air gap. If arrester fails detailed check: proceed to step 4.
4. Test Arresters (if applicable)	→ Check air gap provides isolation using a multimeter. If arrester shows leak: Replace the arrester in kind. If terminal(s) still have leak: replace terminal(s).
5. Update Log Book	<ul style="list-style-type: none"> Add any notes of issues observed, or adjustments made.
6. Complete Test Form	<ul style="list-style-type: none"> Record the test as completed on SSIT test form.