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SSIT-1001(e)2 Battery Load Test

Purpose

These instructions describe the battery load tests required at grade crossing warning systems to ensure they have sufficient capacity to maintain crossing operation during AC power outages.

Test Intervals

Tests are performed when installed, as required, and at least once every twelve (12) months as prescribed in *SSIT-7 Signal System Inspection and 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

Caution: Load testing of battery banks discharges a large amount of power, and the batteries can become very hot creating a risk of explosion. Ensure there is plenty of ventilation when performing tests. Wear the proper protection and use a fan to help cool down the batteries. Check the leads to the charger and load are #10AWG gauge cable or greater.

Procedure

The following tests are to be performed at each crossing warning system location **Test is only required for battery bank(s) connected to crossing equipment**:

Step	Procedure
1. Check Initial State	• Check bungalow has AC power upon arrival. **If AC disconnected:** Restore AC power or deploy generator. Report outage to the ONR S&C Supervisor and note in site Log Book.
2. Check Battery Voltages (AC Power)	• Using voltmeter, test the voltage of operating battery bank. Note initial voltage.
3. Switch to Standby Power	• Disconnect the AC power feed to the operating bank charger.
4. Connect Load Resistor	• Attach a resistor across the battery bank as defined by the battery bank voltage: ○ 12VDC = 1.2 ohm, 120 watt ○ 16VDC = 1.6 ohm 160 watt ○ 24VDC = 2.4 ohm 240 watt • Allow load to run for 30 minutes. *Other tests may be performed while battery is depleting as long as maintainer remains on site in event of failure.*

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Step	Procedure
5. Check Depleted Voltages (DC Power)	• Using voltmeter, test the voltage of operating battery bank. → Check voltage does not fall significantly below initial voltage reading. • Using voltmeter, test individual cells of operating battery bank. → Check voltages do not vary by more than 0.03V between cells. • Disconnect load resistor from the battery bank. **If cells show variance:** Cell(s) may require repair or replacement. Refer to *SSIT-202 Primary Batteries - Inspecting & Testing* and *SSIT-203 Secondary Batteries - Inspecting & Testing* for procedures.
6. Test Crossing	• Open Test Switch. → Check lights illuminate and flash properly. → Check bell rings properly. → Check gates lower properly. • Close Test Switch. → Check gates raise properly. **If warning system is not operating properly:** Battery bank requires repair or replacement.
7. Update Battery Card	• Add any notes of issues observed, or adjustments made on battery card.
8. Restore AC Power and Complete Test Form	• Restore AC power to the operating bank charger. • Record the test as completed on Grade Crossing Warning System Test Form.