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SSIT-1001(d)2 Gate Mechanism - Inspection

Purpose

These instructions describe the inspections required of gate mechanisms at grade crossing warning systems equipped with gates to verify they are in good condition and functioning as intended.

Test Intervals

Tests are performed when installed, as required, and at least once every six (6) 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.

Equipment Manuals

A copy of the gate mechanism manufacturer's manual should be on hand for reference when performing tests.

Gate Torque

Gate horizontal and vertical torque to be checked whenever a gate is replaced, or gate repairs result in a change in weight distribution. Gate torque values are not to exceed Manufacturer's recommendations.

Procedure

The following tests are to be performed at each crossing warning system location equipped with gate mechanisms:

Step	Procedure
1. Check Voltage	→ Check voltage at gate mechanism terminals is within operating specifications.
2. Check Gate Up	→ Check gates are not greater than 89 degrees in the up position. → Check the gates do not protrude further than the light signal within 5.2m of the roadway. • Measure vertical gate torque and compare to manufacturer's specifications.
3. Check Casing	→ Check casing is free of moisture and rust. → Check there are no loose objects that could jam mechanism.
4. Check Mechanics	→ Check commutator and brushes are clean and in good condition. → Check brush contact area is smooth and coffee coloured. → Check the brush is longer than manufacturer's minimum. → Check relay contacts have no signs of arcing or wear → Check proper clearance between gear mechanisms.

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Step	Procedure
5. Check Gate Descent	• Release gate using mechanism. → Check gate movement is smooth and continuous. → Check brushes move smoothly over motor commutator. → Check relay contacts wipe properly. → Check gate descent stops with obstruction and exerts no down force. → Check gate continues decent with clearing of obstruction.
6. Check Gate Down	→ Check gate comes to rest perpendicular to travelled way with no rebound. • Measure horizontal gate torque and compare to manufacturer's specifications.
7. Check Gate Ascent	• Measure voltage at mechanism motor terminals during gate up cycle. • Raise gate using mechanism. → Check gate movement is smooth and continuous. → Check brushes move smoothly over motor commutator. → Check relay contacts wipe properly. → Check terminal voltage do not drop below 11V. → Check gate ascent stops with obstruction and exerts no straining force. → Check gate continues ascent with clearing of obstruction.
8. Test Hold/Clear	• Test hold/clear device for proper operation. → Verify mechanical clearances. • Inspect tooth disk (motor) or pawl (hold clear) for wear or burring. **If Hold/Clear device shows wear:** Contact the ONR S&C Supervisor to arrange replacement.
9. Activate Warning System	• Open Test Switch. → Re-check gate operations following tests.
10. Restore Warning System	• Close Test Switch. → Re-check gate operations following tests.
11. Update Log Book	• Add any notes of issues observed, or adjustments made.
12. Complete Test Form	• Record the test as completed on Grade Crossing Warning System Test Form.