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SSIT-1001(b)4 Gate Operation

Purpose

These instructions describe the tests required to ensure the gates installed at grade crossing warning systems operate as intended.

Test Intervals

Tests are performed when installed, as required, and at least once a month 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.

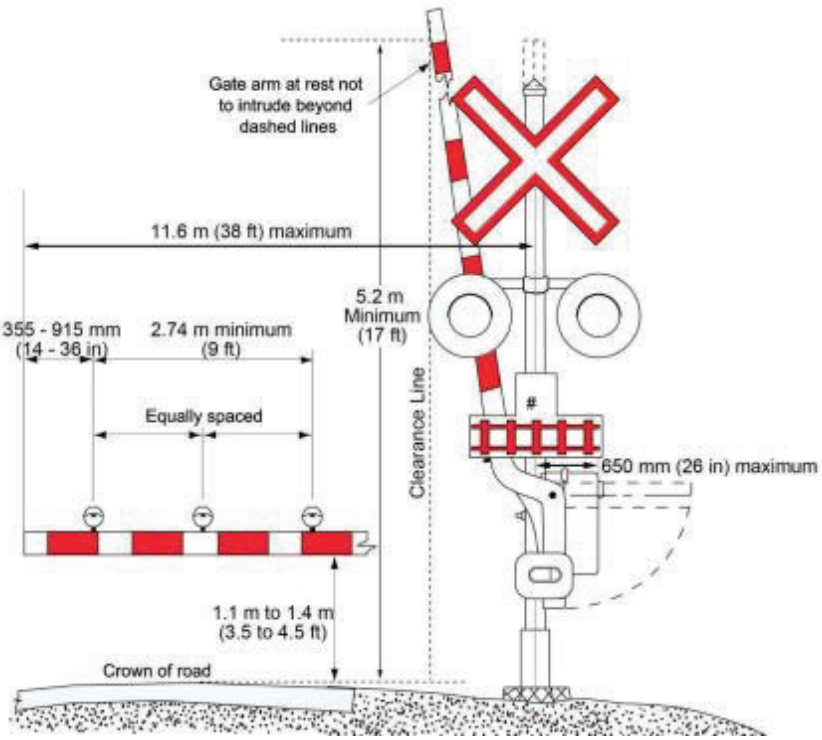
Equipment Manuals

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 the gate arm or mechanism is replaced, or gate repairs result in a change in weight distribution. Gate torque values shall not exceed Manufacturer's recommendations.

Gate Diagram



Grade Crossing Standards, July 2014: Figure 12-2 - Gates

Procedure

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

Step	Procedure
1. Check Gate Arm Vertical Clearance	→ Check the position of the gate arm in the vertical position and verify the tip of the arm does not extend beyond the vertical intersection of the roadway clearance point (refer to Figure 12-2). → **If gate arm position is low:** Refer to *SSIT-1001(g)1 Hold/Clear Devices - Electrical*. The ONR S&C Supervisor must be advised prior to adjustments being made.
2. Clear Obstructions	• Remove any object on railway property that may obstruct the gate movements. **If obstructions cannot be moved due to size or ownership:** Contact the ONR S&C Supervisor to arrange removal of obstructions.
3. Check Mechanism	→ Check and lubricate gate in accordance with Manufacturer's instructions if necessary → Check for moisture and rust within the mechanism housing. Remove and check vents are clear and gate heater is functions.
4. Activate Warning System	• Open test switch. **If warning system fails to activate:** Protect crossing until resolved. Report to the ONR S&C Supervisor. Record in site Log Book.
5. Check Gate Arm Descent	→ Check descent delay is equal to warning system design value. → Check gate descends smoothly within 10 to 15 seconds. → Check gate does not have any rebound or slap in descent. **If error in gate descent:** Make adjustments to gate as per manufacturer's instructions. **If error persists:** Contact the ONR S&C Supervisor and enter in Log Book.
6. Check Gate Arm in Horizontal Position - Condition	• Inspect gate's physical condition. → Check reflective tape is not faded. → Check stripes are all vertical or all diagonal with stripes pointing downward towards road (when gate is horizontal). → Check Gate Keeper for broken, missing, rusted or damaged components (if applicable). • Clean with appropriate cleaning solution and soft cloth as required. **If gate tape faded or inconsistent:** replace reflective tape so that line stripes have correct orientation and reflectivity rating. **If gate severely damaged:** Arrange to have Positive Protection on the crossing until resolved. Report to the ONR S&C Supervisor and enter in Log Book.
7. Check Gate Arm in Horizontal Position - Measurements	→ Check gate arm intersects roadway perpendicular to traffic movement. → Check gate arm extends across at least 90% of travelled way. → Check gate arm does not exceed 11.6m (38 ft) span. → Check gate arm is between 1.1m (3.5 ft) and 1.4m (4.5 ft) of crown of road. **If problem with gate measurements or orientation:** Make adjustments to gate as per manufacturer's instructions.

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Step	Procedure
8. Check Gate Lights	→ Check tip light stays lit*, and inner lights alternate. → Check outer light is between 355mm (14 in) and 915mm (36 in) from gate end. → Check lights span at least 2.74m (9 ft) of gate arm.* **If error in gate light position:** Reposition lights according to manufacturer's instructions.
9. Check Gate Keeper (if applicable)	→ Check mechanism for damaged, rusted, misaligned or missing components. • Raise the gate to approximately 45 degrees. • Walk slowly with gate towards the track until the spring is fully compressed. • Release the gate arm from raised position. → Verify the gate arms swings back smoothly. → Verify the gate arm returns to the normal horizontal resting position perpendicular to the roadway • Repeat for gate toward roadway, if gate keeper equipped for both directions. **If gate does not return to normal position:** Refer to manufacturer manual for adjustment procedures. Advise the ONR S&C Supervisor if repairs cannot be made immediately.
10. Check Gate Down Relay (if applicable)	• Check gate down relay is energized when gate is in the horizontal position.
11. Restore Warning System	• Close test switch.
12. Check Gate Ascent	→ Check gate ascend takes between 6 and 12 seconds. → Check the gate does not have any rebound or slap in ascent. **If error in gate ascent:** Make adjustments to gate as per gate mechanism manufacturer's instructions.
13. Check Gate Down Relay (if applicable)	• Check gate down relay is de-energized when gate returns to the vertical position.
14. Check Gate Mechanism on Standby Power	→ Check operation when the warning system is switched to standby power. Refer to *SSIT-1001(b)5 Standby Power Operation* for procedure.
15. Update Log Book	• Add any notes of issues observed, or adjustments made.
16. Complete Test Form	• Record the test as completed on Grade Crossing Warning System Test Form.

** Gate light requirements different for pedestrian crossing gates. Refer to Transport Canada Grade Crossing Standards Section 12.1(f) for pedestrian gate requirements.*