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SSIT-703 Fouling Circuits

Purpose

Fouling circuit tests shall be performed to verify the fouling circuits are functioning properly and are in good condition.

Test Intervals

Fouling circuit inspections shall be performed when installed, as required, and at least once every six (6) months. Test to be performed following Insulated Track Hardware tests *SSIT-702 Track Circuits* to ensure integrity of track circuits prior to testing. Tests shall be performed at same time as switch circuit controller tests *SSIT-801 Switch Circuit Controllers* to maximize efficiency. 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. **At time of installation and following any track changes, fouling track circuits shall be checked for proper polarity stagger on both sides of insulated joints.**

Equipment Manuals

A copy of the relay(s) manufacturer's manual should be on hand for reference when performing tests.

Procedure

The following tests are to be performed for each fouling circuit:

Step	Procedure
1. Inspect Bonds	→ Check all rail joints within the turnout are bonded. → Check proper bonding around the frog. → Check all bonds are in good condition.
2. Inspect Fouling Jumpers	→ Check number of jumpers is in accordance with design. → Check jumper connections to rail are properly installed. → Check jumper connections to rail and in good condition.
3. Obtain Minimum Drop Away Voltage (as required)	• Open the track leads to relay circuit. • Measure the resistance of relay (or equivalent) using an ohmmeter. • Obtain minimum current value for the relay (or equivalent) as defined on relay sticker. • Multiply minimum current by measured voltage to obtain the minimum relay drop away voltage. • Reconnect track leads.
4. Check Fouling Circuit Voltage	• Connect DC voltmeter at relay (or equivalent) end of track circuits containing fouling circuit. → Note track (peak) voltage reading.

Continued on next page…

Step	Procedure
5. Shunt Track	• Place 0.06ohm shunt across rails as shown in diagrams on following pages. → Check the peak voltage drops to below the minimum relay drop away voltage. → Check the track relay (or equivalent) drops. • Remove the shunt and meter from track.
6. Check Next Fouling Circuit Voltage	• Repeat steps 2 and 3 for each subsequent shunt location. **If voltage not within 90% of previous peak voltage:** Check the track circuit configuration and advise the ONR S&C Supervisor for further instructions.
7. Update Log Book	• Add any notes of issues observed, or adjustments made.
8. Complete Test Form	• Record the test as completed on SSIT test form.

Fouling Circuit Shunt Diagrams

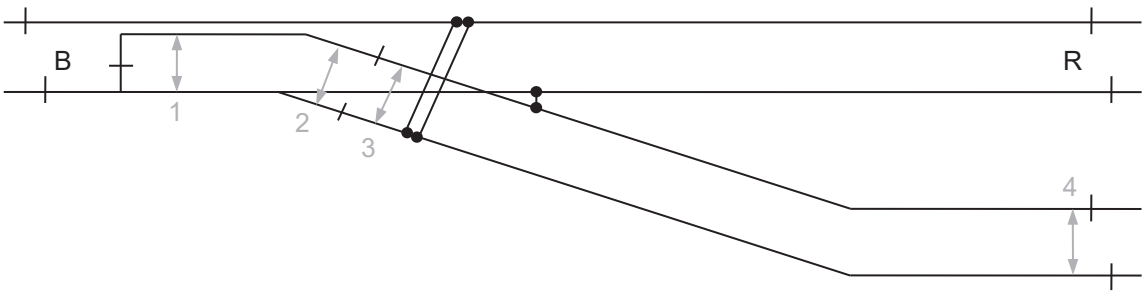

Figure 1: Turnout Shunt Fouling (4 shunt locations)

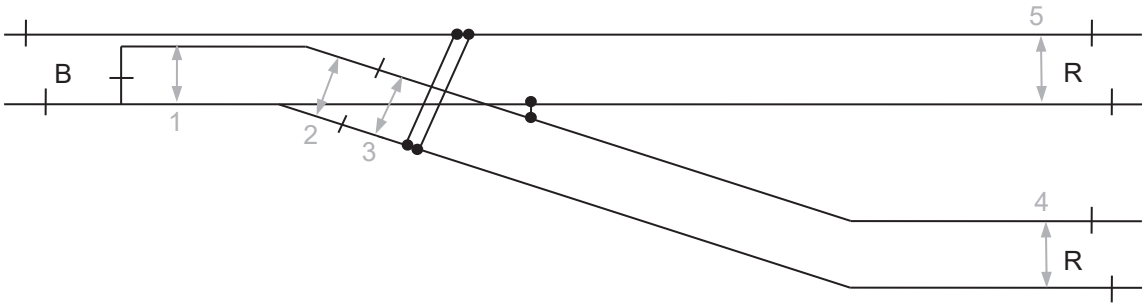

Figure 2: Turnout Series Fouling, 2 Relays (5 shunt locations)

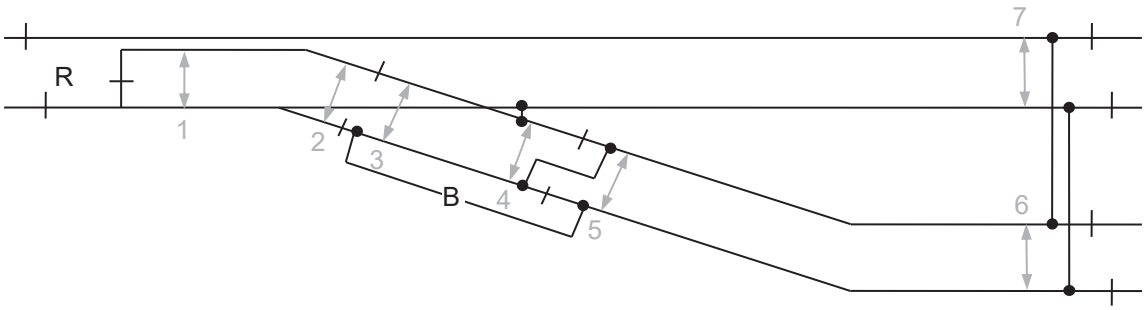

Figure 3: Turnout Series Fouling, 1 Relay (7 shunt locations)

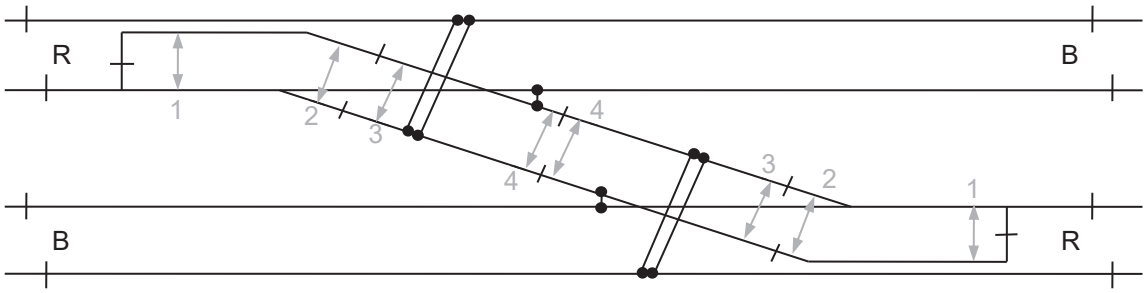

Figure 4: Crossover Shunt Fouling (4 shunt locations per turnout)