

SSIT-801 Switch Circuit Controllers

Purpose

Switch circuit controller tests shall be performed to verify the switch circuit controllers are working properly and equipment is in good condition.

Test Intervals

Switch circuit controller tests shall be performed when installed, as required, and at least once every three (3) months. Tests shall be performed at same time as fouling circuit tests *SSIT-703 Fouling Circuits* to maximize efficiency.

Centering devices shall be tested at the same time as switch circuit controller tests.

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.

Equipment Manuals



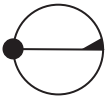
A copy of the switch circuit controller(s) manufacturer's manual should be on hand for reference when performing tests.

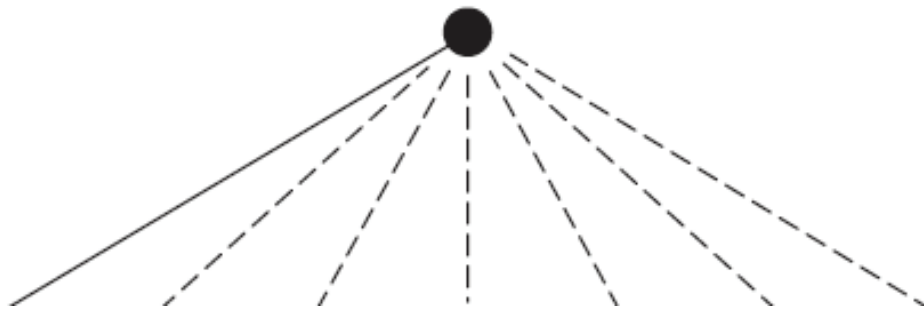
Switch Circuit Applications

The following chart outlines the different uses for switch circuit controllers. Each configuration has its own test procedure to be followed:

SSIT Number	Description
<i>SSIT-801(a)</i>	Break (One Direction) - When switch is opened, the switch circuit controller opens the track or line circuit (fed from one direction).
<i>SSIT-801(b)</i>	Break (Both Directions) - When switch is opened, the switch circuit controller opens the track or line circuit (fed from both direction).
<i>SSIT-801(c)</i>	Break and Shunt - When switch is opened, the switch circuit controller opens the track or line circuit, and shunts the relay side of the track or line circuit.
<i>SSIT-801(d)</i>	Switch Repeater (WP Circuit) - When switch is opened, the switch circuit controller controls the state of one or more switch correspondence relays.
<i>SSIT-801(e)</i>	Centering Device – A mechanism attached to circuit controller that will force the crank and cams of the controller to the center position if the connecting rod to switch points breaks or disconnects.

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Symbol	Description
	Normal Contact. Dot represents heel contact.
	Reverse Contact. Dot represents heel contact.
	Normal and reverse contacts. Small triangle indicates moment that circuit opens during contact transfer.



Name	N	B	G	C	H	D	R
Meaning	Full Normal	¼" from Normal	1" from Normal	Center	1" from Reverse	¼" from Reverse	Full Reverse

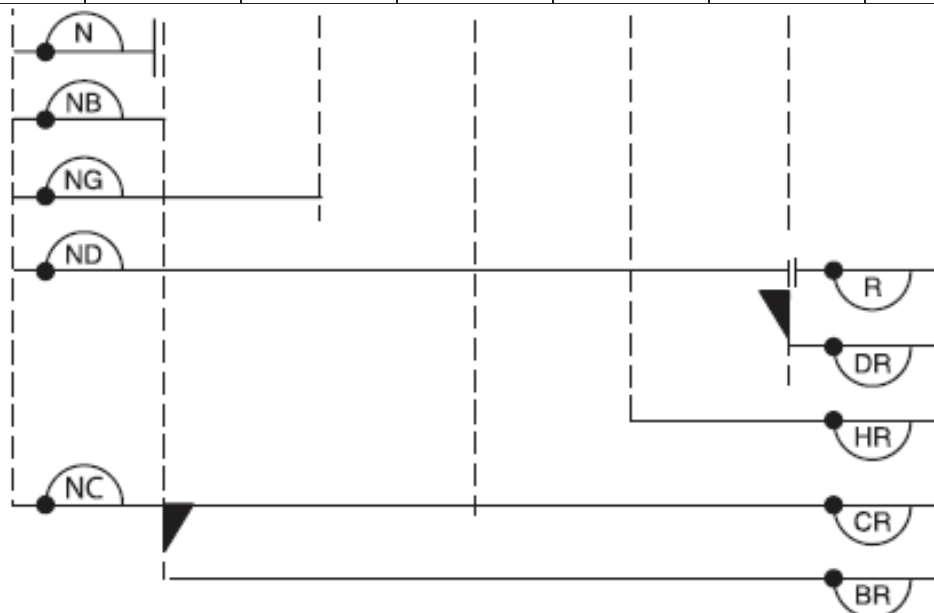


Figure 1: Switch Circuit Controller Adjustment Diagram

Visual Inspections

The following visual inspections are to be performed at each location equipped with switch circuit controllers:

Step	Procedure
1. Check Drainage	<ul style="list-style-type: none"> → Check there is adequate drainage around switch circuit controller case. → Check there is adequate drainage under the crank and rod connecting to switch point.
2. Check for Wear	<ul style="list-style-type: none"> → Check external connections to track are secure. → Check nuts are tight and not stripped. → Check lags are secured. → Check rods are properly adjusted. → Check cotter pins are in place as required.
3. Check Ventilation (if applicable)	<ul style="list-style-type: none"> → Check ventilator screens are free of dirt, debris, and paint (if applicable).
4. Check Ribbons (if applicable)	<ul style="list-style-type: none"> → Check ribbons are properly connected and in good condition (if applicable).
5. Check Cable Entrances	<ul style="list-style-type: none"> → Check entrances are sealed as required. → Check gaskets are properly placed and in good condition.
6. Check Controller Condition	<ul style="list-style-type: none"> → Check contact surfaces, rollers, cams, and bushings are not excessively worn. → Check case is free of dirt, rust, and debris. → Check contacts are free of dirt, rust, and grease.
7. Check Wiring	<ul style="list-style-type: none"> → Check terminals are tight and in good condition. → Check wires are clear of moving parts. → Check wires are clear of adjacent terminals. → Check wires are properly tagged.
8. Check Contact Opening	<ul style="list-style-type: none"> → Check opening between movable contact and stationary contacts is not less than $\frac{1}{16}$" when switch is full normal and full reverse.
9. Check Wiping Action	<ul style="list-style-type: none"> → Check wiping action between movable contact and each stationary contact is not less than $\frac{1}{32}$" → Check contact meets surfaces squarely → Check contacts are not excessively burnt or pitted.
10. Check Forced Contacts	<ul style="list-style-type: none"> → Check cam rides smoothly along rollers for entire motion. → Check normally made contacts are mechanically forced open. → Check track shunting contacts are mechanically forced closed.
11. Check Lubrication	<ul style="list-style-type: none"> → Check controller attachments are lubricated as per manufacturer's recommendations.

SSIT-801(a) Switch Circuit Controller - Break (One Direction)

Purpose

Switch Circuit Controller - Break (one Direction) tests shall be performed to verify the switch break (one direction) circuit is functioning as intended and the switch circuit controller (SCC) is adjusted properly and in good condition.

Test Intervals

SCC equipment configured for Break (One Direction) inspections and tests shall be performed when installed, as required, and at least once every three (3) months. Tests shall be performed at same time as fouling circuit tests *SSIT-703 Fouling Circuits* 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.

Equipment Manuals

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

Track Circuit – Break (One Direction) Diagram

The following diagram shows a typical switch circuit controller configured for a break - one direction circuit and the location of the test meter connections (1):

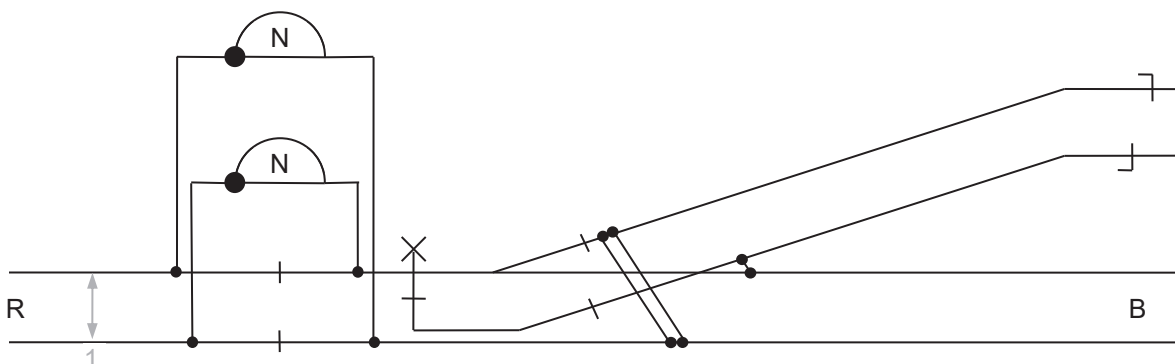


Figure 1: Switch Circuit Controller: Break, One Direction

Test Procedure – Track Circuits

The following tests are to be performed on each SCC configured for Break (One Direction) on track circuits:

Step	Procedure
1. Check Drawings	<ul style="list-style-type: none"> Refer to the site drawings to determine the SCC contact adjustment requirements. Refer to <i>Symbols and Nomenclature</i> table for details on symbols.
2. Test SCC Contact Adjustments	<ul style="list-style-type: none"> Place the appropriate obstruction (as determined in step 1) 6" back from switch point. In most cases the SCC adjustment will require the contacts to be closed between the normal switch position and ¼" from normal point. → Check the SCC contact(s) open and close as required. If contact(s) not working as required: Calibrate switch circuit controller to work as per design. Refer to manual for procedure.
3. Inspect Mechanics	<ul style="list-style-type: none"> Throw the switch slowly from full normal to full reverse, and back. → Observe each contact in use for proper operation. → Check the cam rides and is in control of the rollers throughout motion.
4. Check Initial State	<ul style="list-style-type: none"> Set the multi-meter voltage to a low voltage range. Connect the meter between the rails of the relay side as indicated in Figure 1 with proper polarity. → Check the meter indicates normal track voltage.
5. Check the Track Circuit De-energizes	<ul style="list-style-type: none"> Open the switch points until meter shows 0V, indicating the circuit is open. → Check the track circuit de-energizes.
6. Check Insulation	<ul style="list-style-type: none"> Jumper across the open set of contacts one at a time. → Check the track voltage remains close to 0V. Remove the jumper. If the SCC terminals are not insulated: The Switch circuit controller requires repairs or replacement. Contact the ONR S&C Supervisor to make necessary arrangements. Provide track protection as necessary.
7. Verify SCC Adjustment	<ul style="list-style-type: none"> Verify the SCC adjustment by placing a switch obstruction gauge (¼" or as determined in step 1) in the opening between stock rail and point at a point measured 6" back from the point of switch. → Check the track circuit de-energizes. → Verify the opening is the same as determined in step 2. If the opening not consistent with contact adjustments: Repeat test procedures from step 1 onward.
8. Finish Test	<ul style="list-style-type: none"> Remove the meter, close and secure the switch circuit controller case, and return switch to normal position.
9. Update Log Book	<ul style="list-style-type: none"> Add any notes of issues observed, or adjustments made.
10. Complete Test Form	<ul style="list-style-type: none"> Record the test as completed on SSIT test form.

Line Circuits – Break (One Direction) Diagram

The following diagram shows a typical switch circuit configuration break (one direction) in a line circuit application and the location of the test meter connection (1):

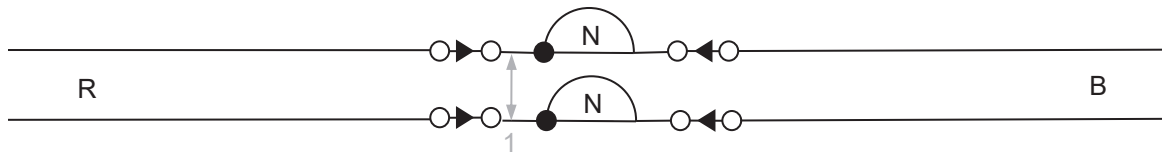


Figure 2: Line Circuit Configuration: Break, One Direction

Test Procedure – Line Circuit

The following tests shall to be performed on each SCC configured with Break (One-Direction) circuits:

Step	Procedure
1. Check Drawings	<ul style="list-style-type: none"> Refer to the site drawings to determine the SCC contact adjustment requirements. Refer to <i>Symbols and Nomenclature</i> table for details on symbols
2. Test SCC Contact Adjustments	<ul style="list-style-type: none"> Place the appropriate obstruction (as determined in step 1) 6" back from switch point. In most cases the SCC adjustment will require the contacts to be closed between the normal switch position and ¼" from normal point. → Check the SCC contact(s) open and close as required. If contact(s) not working as required: Calibrate the switch circuit controller to work as per design. Refer to manual for procedure.
3. Inspect Mechanics	<ul style="list-style-type: none"> Throw the switch slowly from full normal to full reverse, and back. → Observe each contact in use for proper operation. → Check the cam rides and is in control of the rollers throughout motion.
4. Check Initial State	<ul style="list-style-type: none"> Switch the multi-meter to a low voltage range. Connect the meter to the line circuit terminals on relay side as indicated in Figure 2, with proper polarity. → Check the line voltage is present.
5. Verify SCC Adjustment	<ul style="list-style-type: none"> Verify the SCC adjustment by placing a switch obstruction gauge (¼" or as determined in step 1) in the opening between stock rail and point at a point measured 6" back from the point of switch. → Check voltage drops to 0V.
6. Check Isolation	<ul style="list-style-type: none"> Jumper across each open set of contacts one at a time. → Check track voltage remains close to 0V. Remove the jumpers. If terminals are not isolated: The switch circuit controller requires repairs or replacement. Contact the ONR S&C Supervisor to make necessary arrangements. Provide track protection as necessary.

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Step	Procedure
7. Finish Test	<ul style="list-style-type: none"> Remove the meter, close and secure the switch circuit controller case, and return switch to normal position.
8. Update Log Book	<ul style="list-style-type: none"> Add any notes of issues observed, or adjustments made.
9. Complete Test Form	<ul style="list-style-type: none"> Record the test as completed on SSIT test form.

SSIT-801(b) Switch Circuit Controller - Break (Two Directions)

Purpose

Switch Circuit Controller – Break (Two Directions) break tests shall be performed to verify the switch circuit break (two directions) circuit is functioning as intended and the switch circuit controller (SCC) is adjusted, properly and in good condition.

Test Intervals

SCC configured for Break (Two Directions) inspections and tests shall be performed when installed, as required, and at least once every three (3) months. Tests shall be performed at same time as fouling circuit tests *SSIT-703 Fouling Circuits* 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.

Equipment Manuals

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

Track Circuit - Break (Two Directions) Diagram

The following diagram shows the typical circuits for a Switch Circuit Configuration – Break (Two Directions) location and of the test meter connections (1, 2):

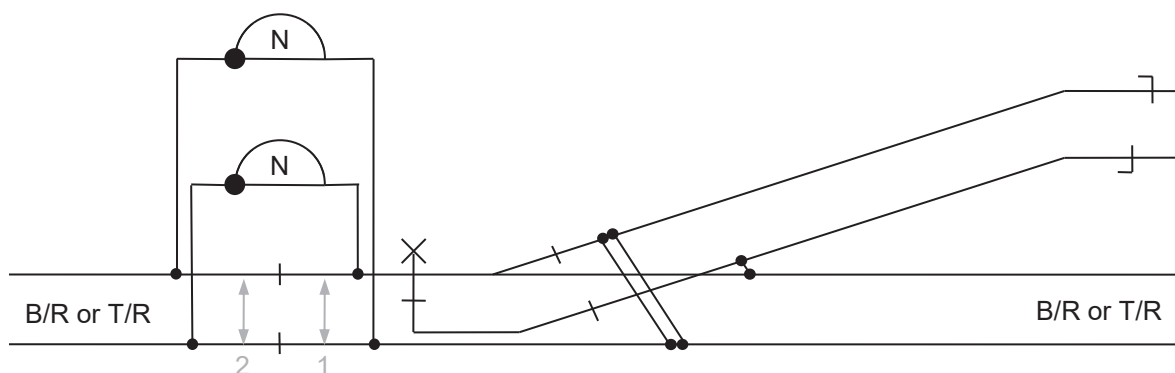


Figure 1: Switch Circuit Controller: Break (Two Directions)

Test Procedure - Track Circuits

The following tests are to be performed on each SCC configured for Break (Two Directions) on track circuits:

Step	Procedure
1. Check Drawings	<ul style="list-style-type: none"> Refer to the site drawings to determine the SCC contact adjustment requirements. Refer to <i>Symbols and Nomenclature</i> table for details on symbols
2. Test SCC Contact Adjustments	<ul style="list-style-type: none"> Place the appropriate obstruction (as determined in step 2) 6" back from switch point. In most cases the SCC adjustment will require the contacts to be closed between the normal switch position and ¼" from normal point. → Check contact(s) open and close as required. If contact(s) not working as required: Calibrate switch circuit controller to work as per design. Refer to manual for procedure.
3. Inspect Mechanics	<ul style="list-style-type: none"> Throw the switch slowly from full normal to full reverse, and back. → Observe each terminal with termination for proper operation. → Check the cam rides and is in control of the rollers throughout motion.
4. Check Initial State	<ul style="list-style-type: none"> Switch the multi-meter to a low voltage range. Connect meter between rails at location 1 as indicated in Figure 1, with the proper polarity. → Check meter indicates normal track voltage. Connect 0.06 ohm shunt at location 2 as indicated in Figure 1. → Check the meter indicates a voltage drop due to shunt.
5. Check Insulation	<ul style="list-style-type: none"> Open the switch points until meter shows voltage slightly above normal rail voltage. Jumper across each open set of contacts one at a time. → Check the track voltage remains the same as in step 4. Remove jumper. If terminals not insulated: The switch circuit controller requires repairs or replacement. Contact the ONR S&C Supervisor to make necessary arrangements. Provide track protection as necessary.
6. Relocate Meter	<ul style="list-style-type: none"> Connect the multi-meter between rails at location 2 as indicated in Figure 1, with proper polarity. → Check the meter indicates a voltage drop close to step 4 due to the shunt. Remove 0.06 ohm shunt.
7. Verify SCC Adjustment	<ul style="list-style-type: none"> . Verify the SCC adjustment by placing a switch obstruction gauge (¼" or as determined in step 1) in the opening between stock rail and point at a point measured 6" back from the point of switch. → Check the track circuit de-energizes. → Verify spacing is the same as determined in step 2. If the opening not consistent with contact adjustments: Repeat the test procedures from step 1 onward.
8. Finish Test	<ul style="list-style-type: none"> Remove the meter, close and secure switch circuit controller case, and return switch to normal position.

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Step	Procedure
9. Update Log Book	<ul style="list-style-type: none"> Add any notes of issues observed, or adjustments made.
10. Complete Test Form	<ul style="list-style-type: none"> Record the test as completed on SSIT test form.

Line Circuits - Break (Two Directions) Diagram

The following diagram shows a typical break (two direction) line circuit and location of the test meter connections (1, 2):

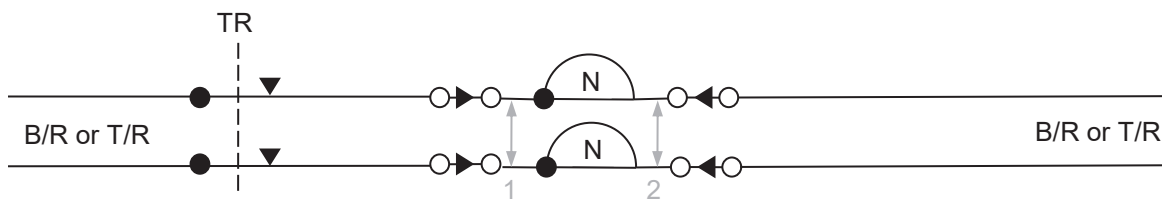


Figure 2: Line Circuit: Break, Two Directions

Test Procedure - Line Circuits

The following tests are to be performed on each SCC configured for Break-(two Directions) in line circuit applications:

Step	Procedure
1. Check Drawings	<ul style="list-style-type: none"> Refer to site plans to determine contact adjustment requirements. Refer to <i>Symbols and Nomenclature</i> table for details on symbols.
2. Test SCC Contact Adjustments	<ul style="list-style-type: none"> Place the appropriate obstruction (as determined in step 1) 6" back from switch point. In most cases the SCC adjustment will require the contacts to be closed between the normal switch position and 1/4" from normal point. → Check the SCC contact(s) open and close as required. If contact(s) not working as required: Calibrate the switch circuit controller to work as per design. Refer to manual for procedure.
3. Inspect Mechanics	<ul style="list-style-type: none"> Throw the switch slowly from full normal to full reverse, and back. → Observe each contact in use for proper operation. → Check the cam rides and is in control of the rollers throughout motion.
4. Check Initial State	<ul style="list-style-type: none"> Switch the multi-meter to a low voltage range. Connect the meter to the line circuit terminals as indicated in Figure 2, with proper polarity. → Check the proper line voltage is present at both location 1 and location 2. Drop Track Circuit (TR). → Check the proper line voltage is still present at both location 1 and location 2.

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Step	Procedure
5. Check Isolation	<ul style="list-style-type: none"> Place the appropriate obstruction (as determined in step 1) 6" back from switch point. In most cases the SCC adjustment will require the contacts to be closed between the normal switch position and ¼" from normal. → Check the line voltage goes to 0V at location 1. → Check the line voltage is present at location 2. Jumper across open set of contacts one at a time. → Check the line voltage remains close to 0V. <p>If terminals not isolated: The switch circuit controller requires repairs or replacement. Contact the ONR S&C Supervisor to make necessary arrangements. Provide track protection as necessary.</p>
6. Verify the SCC Adjustment	<ul style="list-style-type: none"> → Verify the SCC adjustment by placing a switch obstruction gauge (¼" or as determined in step 1) in the opening between stock rail and points at a point measured 6" back from the point of switch. Check the line circuit de-energizes. → Verify spacing is the same as determined in step 2. If the opening not consistent with contact adjustments: Repeat test procedures from step 1.
7. Finish Test	<ul style="list-style-type: none"> Remove the meter, close and secure the switch circuit controller case, and return switch to normal position.
8. Update Log Book	<ul style="list-style-type: none"> Add any notes of issues observed, or adjustments made.
9. Complete Test Form	<ul style="list-style-type: none"> Record the test as completed on SSIT test form.

SSIT-801(c) Switch Circuit Controller - Break and Shunt

Purpose

Switch Circuit Controller - Break and Shunt tests shall be performed to verify the switch circuit break and shunt circuit is functioning as intended and the switch circuit controller (SCC) is adjusted properly and in good condition.

Test Intervals

SCC using break and shunt configuration inspections and tests shall be performed when installed, as required, and at least once every three (3) months. Tests shall be performed at same time as fouling circuit tests *SSIT-703 Fouling Circuits* 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.

Equipment Manuals

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

Track Circuit - Break and Shunt Circuit Diagrams

The following diagrams shows typical switch circuit configuration - break and shunt circuit for track circuit applications and the location of the meter connections (1):

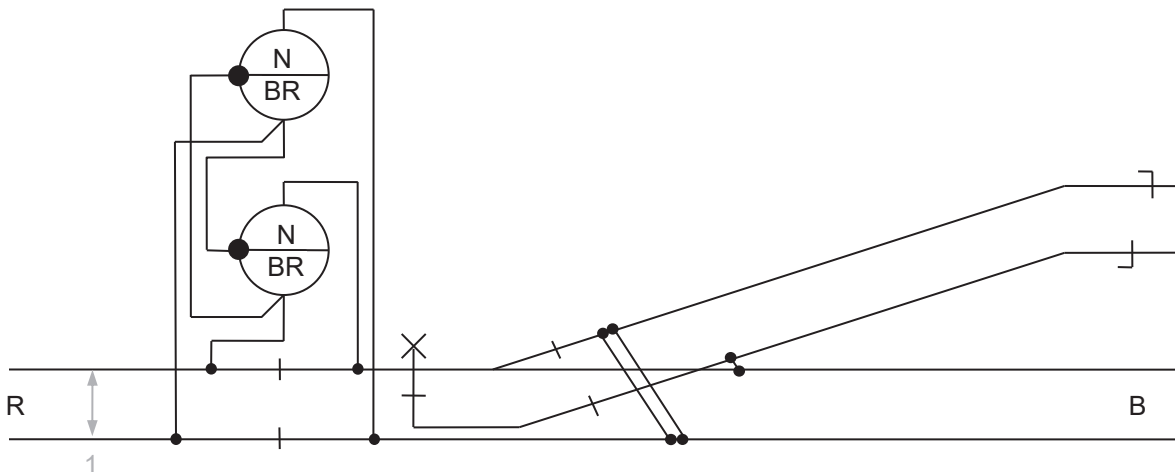


Figure 1: Track Circuit: Break and Shunt

Test Procedure - Track Circuits

The following tests shall be performed at each SCC configured with break and shunt track or line circuits:

Step	Procedure
1. Check Drawings	<ul style="list-style-type: none"> Refer to the site drawings to determine the SCC contact adjustment requirements. Refer to <i>Symbols and Nomenclature</i> table for details on symbols.
2. Test SCC Contact Adjustments	<ul style="list-style-type: none"> Place the appropriate obstruction (as determined in step 1) 6" back from switch point. In most cases the SCC adjustment will require the contacts to be closed between the normal switch position and 1/4" from normal point. → Check the SCC contact(s) open and close as required. If contact(s) not working as required: Calibrate switch circuit controller to work as per design. Refer to manual for procedure.
3. Inspect Mechanics	<ul style="list-style-type: none"> Throw the switch slowly from full normal to full reverse, and back. → Observe each contact in use for proper operation. → Check the cam rides and is in control of the rollers throughout motion.
4. Check Initial State	<ul style="list-style-type: none"> Switch the multi-meter to a low voltage range. Connect the meter between the rails as indicated in Figure 1, with the proper polarity. → Check meter indicates normal track voltage.
5. Check Circuit Drop	<ul style="list-style-type: none"> Open switch points until meter shows 0V, indicating shunt. → Check track drops.
Check Isolation	<ul style="list-style-type: none"> Switch the multi-meter to ohm setting and check the resistance is close to 0 ohms. Place insulating material between heel and back contacts of each terminal individually. → Check track voltage remains close to 0 ohms. Place insulating material between heel and all back contacts. → Verify there is very low reading of only a few ohms. Repeat for all terminals in use in the switch circuit controller. If terminals not isolated: Switch circuit controller requires repairs or replacement. Contact the ONR S&C Supervisor to make necessary arrangements. Provide track protection as necessary.
7. Verify SCC Adjustment	<ul style="list-style-type: none"> Verify the SCC adjustment by placing a switch obstruction gauge (1/4" or as determined in step 1) in the opening between stock rail and point at a point measured 6" back from the point of switch. → Check either the track circuit or the line circuit de-energizes. → Verify spacing is same as determined in step 2. If spacing not consistent with contact adjustments: Repeat procedure from step 1.

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Step	Procedure
8. Finish Test	<ul style="list-style-type: none"> Remove meter, close and secure switch circuit controller case, and return switch to normal position.
9. Update Log Book	<ul style="list-style-type: none"> Add any notes of issues observed, or adjustments made.
10. Complete Test Form	<ul style="list-style-type: none"> Record the test as completed on SSIT test form.

Line Circuits - Break and Shunt Circuit Diagrams

The following diagrams shows typical switch circuit configuration - break and shunt circuit for line circuit applications and the location of the meter connections (1):

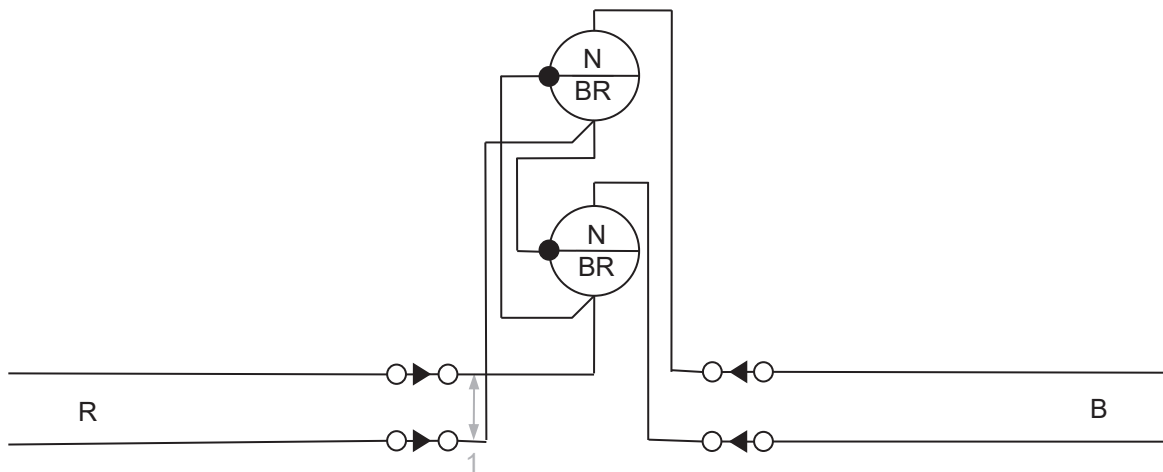


Figure 2: Line Circuit: Break and Shunt

Test Procedure - Line Circuits

The following tests shall be performed at each SCC configured with break and shunt track or line circuits:

Step	Procedure
1. Check Drawings	<ul style="list-style-type: none"> Refer to the site drawings to determine the SCC contact adjustment requirements. Refer to <i>Symbols and Nomenclature</i> table for details on symbols.
2. Test SCC Contact Adjustments	<ul style="list-style-type: none"> Place the appropriate obstruction (as determined in step 1) 6" back from switch point. In most cases the SCC adjustment will require the contacts to be closed between the normal switch position and 1/4" from normal point. → Check the SCC contact(s) open and close as required. If contact(s) not working as required: Calibrate switch circuit controller to work as per design. Refer to manual for procedure.

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Step	Procedure
3. Inspect Mechanics	<ul style="list-style-type: none"> • Throw the switch slowly from full normal to full reverse, and back. → Observe each contact in use for proper operation. → Check the cam rides and is in control of the rollers throughout motion.
4. Check Initial State	<ul style="list-style-type: none"> • Switch the multi-meter to a low voltage range. • Connect the meter between the line circuit as indicated in Figure 1, with the proper polarity. → Check meter indicates normal track voltage.
5. Check Circuit Drop	<ul style="list-style-type: none"> • Open switch points until meter shows 0V, indicating shunt. → Check track drops.
6. Check Isolation	<ul style="list-style-type: none"> • Switch the multi-meter to ohm setting and check the resistance is close to 0 ohms. • Place insulating material between heel and back contacts of each terminal individually. → Check track voltage remains close to 0 ohms. • Place insulating material between heel and all back contacts. → Verify there is very low reading of only a few ohms. • Repeat for all terminals in use in the switch circuit controller. <p>If terminals not isolated: Switch circuit controller requires repairs or replacement. Contact the ONR S&C Supervisor to make necessary arrangements. Provide track protection as necessary.</p>
7. Verify SCC Adjustment	<ul style="list-style-type: none"> • Verify the SCC adjustment by placing a switch obstruction gauge (¼" or as determined in step 1) in the opening between stock rail and point at a point measured 6" back from the point of switch. → Check either the track circuit or the line circuit de-energizes. → Verify spacing is same as determined in step 2. <p>If spacing not consistent with contact adjustments: Repeat procedure from step 1.</p>
8. Finish Test	Remove meter, close and secure switch circuit controller case, and return switch to normal position.
9. Update Log Book	<ul style="list-style-type: none"> • Add any notes of issues observed, or adjustments made.
10. Complete Test Form	<ul style="list-style-type: none"> • Record the test as completed on SSIT test form.

SSIT-801(d) Switch Circuit Controller - Switch Repeater

Purpose

Switch Circuit Controller – Switch Repeater tests shall be performed to verify the circuits function as intended and the switch circuit controller is adjusted properly and in good condition.

Test Intervals

SCC Switch repeater inspections and tests shall be performed when installed, as required, and at least once every three (3) months. Tests shall be performed at same time as fouling circuit tests *SSIT-703 Fouling Circuits* 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.

Equipment Manuals

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

Switch Repeater - Diagram

The following diagram shows a typical switch repeater circuit and the location of the test meter connections (1):

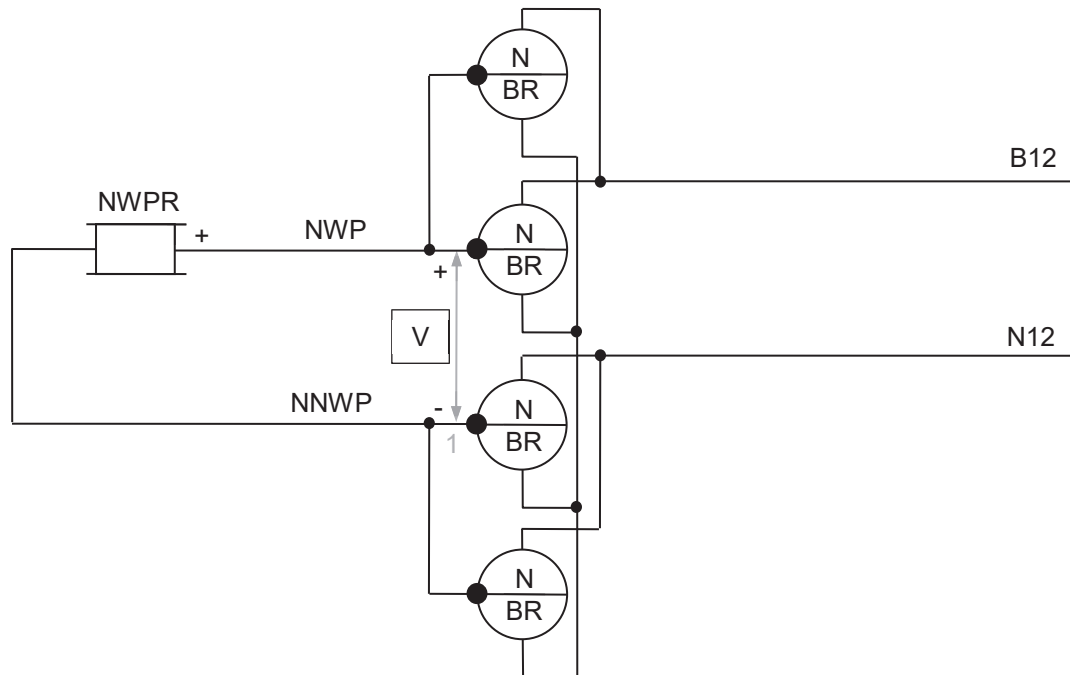


Figure 1: Repeater Circuit

Procedure

The following tests shall be performed on each SCC configured with switch repeater circuits:

Step	Procedure
1. Inspect Mechanics	<ul style="list-style-type: none"> Throw the switch slowly from full normal to full reverse, and back. → Observe each contact in use for proper operation. → Check the cam rides and is in control of the rollers throughout motion.
2. Check Initial State	<ul style="list-style-type: none"> Switch multi-meter to 15 volt range. Connect the meter leads on the SCC heel contacts as indicated in Figure 1 with proper polarity. → Check the meter indicates approximately 10 volts.
3. Check the Circuit De-energizes	<ul style="list-style-type: none"> Throw the switch from normal to reverse (if normal repeater) or reverse to normal (if reverse repeater). → Check the meter shows drop from 10V to 0V. → Check the switch repeater relay de-energizes. <p>If voltage not dropping: Issue with circuits or switch circuit controller. Circuit assessment required.</p>
4. Check Isolation	<ul style="list-style-type: none"> Switch the meter to a low resistance setting and check resistance is close to 0 ohms. Place insulating material between heel and back contacts of each terminal individually. → Check the resistance remains close to 0 ohms. Place insulating material between heel and all back contacts. → Verify there is reading of a few ohms. Repeat for each contact in use in the switch circuit controller. <p>If terminals are not isolated: The switch circuit controller requires repairs or replacement. Contact the ONR S&C Supervisor to make necessary arrangements. Provide track protection as necessary.</p>
5. Verify SCC Adjustment (Pick)	<ul style="list-style-type: none"> Insert a $\frac{3}{16}$" gauge 6" from end of switch point. Throw the switch to normal position (if normal repeater) or reverse (if reverse repeater). → Check meter indicates approximately 10 volts. <p>If voltage drops to 0V: adjust terminals according to manufacturer's recommendations.</p>
6. Verify SCC Adjustment (Drop)	<ul style="list-style-type: none"> Insert a $\frac{1}{4}$" gauge 6" from end of switch point. Throw the switch to normal position (if normal repeater) or reverse (if reverse repeater). → Check meter indicates approximately 0 volts. <p>If voltage picks to 10V: adjust terminals according to manufacturer's recommendations.</p>
7. Finish Test	<ul style="list-style-type: none"> Remove the meter, close and secure the switch circuit controller case, and return switch to normal position.
8. Update Log Book	<ul style="list-style-type: none"> Add any notes of issues observed, or adjustments made.
9. Complete Test Form	<ul style="list-style-type: none"> Record the test as completed on SSIT test form.

SSIT-801(e) Switch Circuit Controller - Centering Device

Purpose

Switch Circuit Controller Centering device tests shall be performed to verify the centering device will force the cranks and cams to the center position if there is a break in the connecting rod or switch point.

Centering devices shall be installed on any new switch circuit controller installations or replacements.

Test Intervals

SCC centering device inspections and tests shall be performed when installed, as required, and at least once every three (3) months. 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.

Equipment Manuals

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

Procedure

The following tests shall be performed on each SCC equipped with centering devices:

Step	Procedure
1. Check Switch Adjustments	<ul style="list-style-type: none"> Switch circuit controller adjustments shall be performed ahead of center device testing as per relevant switch circuit test(s) outlined in <i>SSIT-801</i>.
2. Perform Visual Inspection	<ul style="list-style-type: none"> → Check setscrew is secure. → Check case is free of wear, corrosion, damage, and debris.
3. Activate Centering Device	<ul style="list-style-type: none"> Disconnect crank from circuit controller shaft. → Check centering device engages. <p>If contacts centering device does not engage: There is an issue with the operation of the centering device. Repair or replacement required.</p>
4. Test Centering Device	<ul style="list-style-type: none"> Using a wrench, move the circuit controller crank to full normal position, then release. → Check circuit controller returns to neutral position. → Check normal and reverse closed contacts are open. → Check shunting contacts are forced closed. Move the circuit controller crank to full reverse position, then release. → Check circuit controller returns to neutral position. → Check normal and reverse closed contacts are open. → Check shunting contacts are forced closed. <p>If contacts not automatically setting: There is an issue with the operation of the centering device or switch circuit controller contact adjustments.</p>

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Step	Procedure
5. Reconnect Centering Device	<ul style="list-style-type: none"> • Open switch and reconnect crank to camshaft of circuit controller. • Throw the switch to test switch circuit controller is reconnected correctly. • Close and secure the SCC case. • Return switch to normal position.
6. Update Log Book	<ul style="list-style-type: none"> • Add any notes of issues observed, or adjustments made.
7. Complete Test Form	<ul style="list-style-type: none"> • Record the test as completed on SSIT test form.