

INSTRUCTIONS FOR STRAY VOLTAGE INVESTIGATION

Please note that this report is not intended as a comprehensive stray voltage investigation. It is only designed to define some basic electrical system parameters and how they may relate to the Ronk BLOCKER[®] operation.

Two additional ground rods are required in addition to those normally existing in a typical installation. The first of these is connected to the secondary neutral (NS) in the installation procedure. The second is a reference earth (E) ground rod. Existing grounds at the pole will remain connected to the primary neutral (NP). All readings on the report may be taken by connecting as described to these three points.

ORIGINAL CONDITIONS: These should be taken prior to BLOCKER installation, when the service neutral is still connected to the primary neutral. Connect a voltmeter to E and NP and record voltages under typical loads and again with the service disconnect open. These readings indicate the typical range of voltages being coupled into the service ground. (0 - 10V)

TEST CONDITIONS: Following completion of the measurements above, installation may be completed except for the final connection to the BLOCKER. Connect the voltmeter leads to E and NS; connect ammeter leads to NP and NS. Readings on the meters should be taken simultaneously and recorded. The service ground impedance may then be calculated by dividing V_{NS-E} by I_{NS} . (The current may measure 50 mA to several amps.)

NOTE: If only one multimeter is available, connect as ammeter to NP and NS and record current. Disconnect meter, connect jumper to NP and NS and connect voltmeter to NS and E.

OPEN BOND TEST: Disconnect ammeter (or jumper shunt) and record primary neutral and secondary neutral voltage. The primary will typically be 0 – 10 volts to ground; higher voltages indicate possible neutral faults. The secondary should be near zero; significant voltage indicates that isolation was not properly formed.

BLOCKER INSTALLED: Following the above measurements, installation of the BLOCKER should be completed and the service energized. Voltage measurements may then be taken with the service disconnect open and again under typical load. Primary neutral voltages in excess of 10 volts may indicate low grade faults to the neutral conductor, high neutral impedance, or poor grounding of the neutral. Voltages appearing on the secondary neutral are the result of neutral voltage drop due to secondary neutral current and/or secondary faults.

PERIODIC BLOCKER CHECK: Measure the voltage across the terminals of the BLOCKER during normal operation. Voltage drop should be similar to OPEN BOND TEST and/or previous installation data. If zero/minimal voltage drop, then there may be a new path around the BLOCKER, the BLOCKER may have failed, or the original stray voltage problem was fixed. Repeat INVESTIGATION REPORT to determine which condition exists. If it appears that the BLOCKER has failed, contact RONK for additional information.

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STRAY VOLTAGE INVESTIGATION REPORT

DATE: _____

LOCATION: _____

OPERATORS: _____

POWER SUPPLIER: _____

POWER SUPPLY: _____

COMMENTS

ORIGINAL CONDITIONS:

V_{NP-E} (LOADED) _____

V_{NP-E} (NO LOAD) _____

TEST CONDITIONS:

V_{NS-E} (NO LOAD) _____

I_{NS} (NO LOAD) _____

Z_{NS} (SECONDARY GROUND) _____

OPEN BOND TEST:

V_{NP-E} _____

V_{NS-E} _____

BLOCKER[®] INSTALLED:

SERIAL NUMBER: _____

V_{NP-E} (NO LOAD) _____

V_{NS-E} (NO LOAD) _____

V_{NP-E} (LOADED) _____

V_{NS-E} (LOADED) _____

PERSONNEL: _____

ADDITIONAL NOTES: _____

