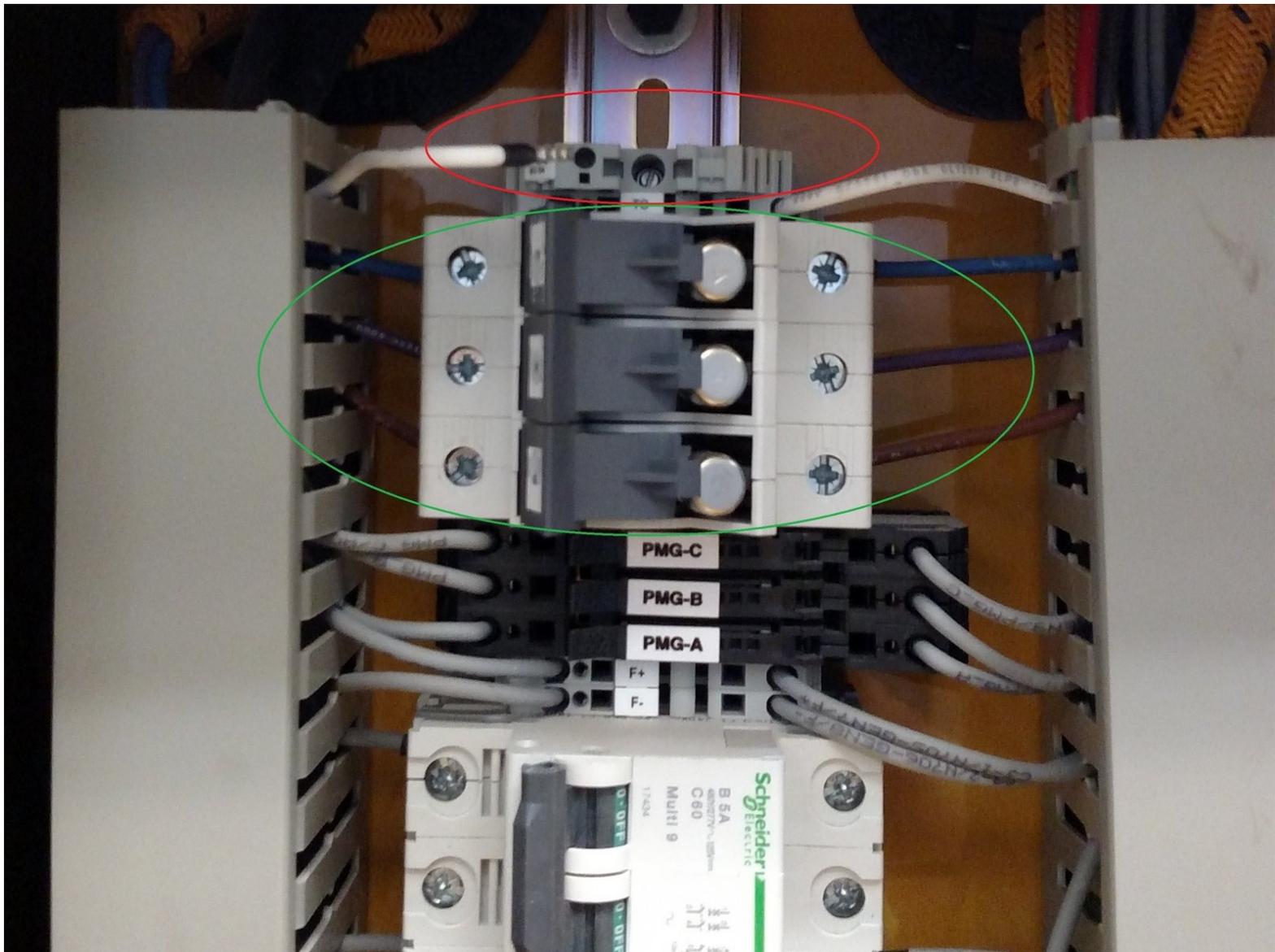




How to perform a polarization index test of a CAT generator

Instructions to perform a polarization index test of an engine generator.

Written By: paul myers



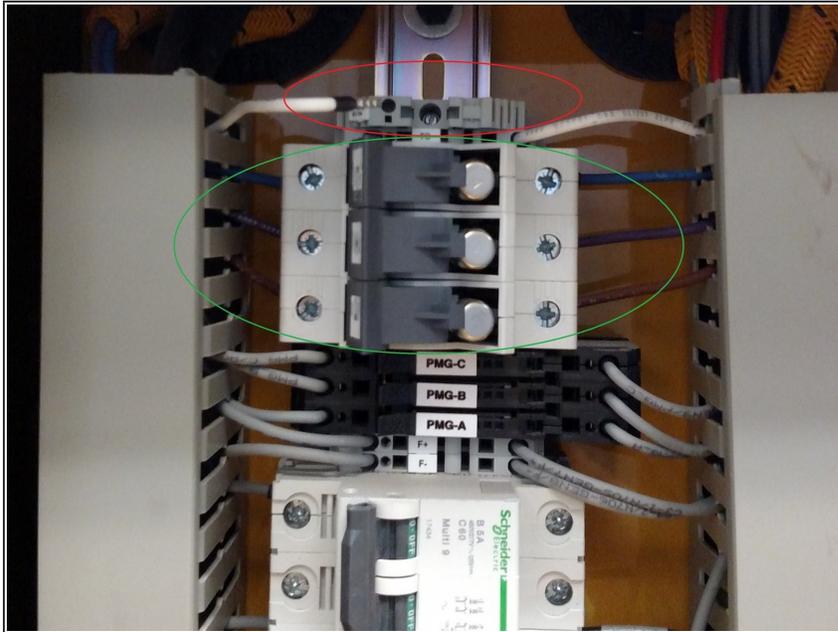
INTRODUCTION

These instructions assume that the reader has a basic understanding of operating electrical test equipment, and electrical safety.

TOOLS:

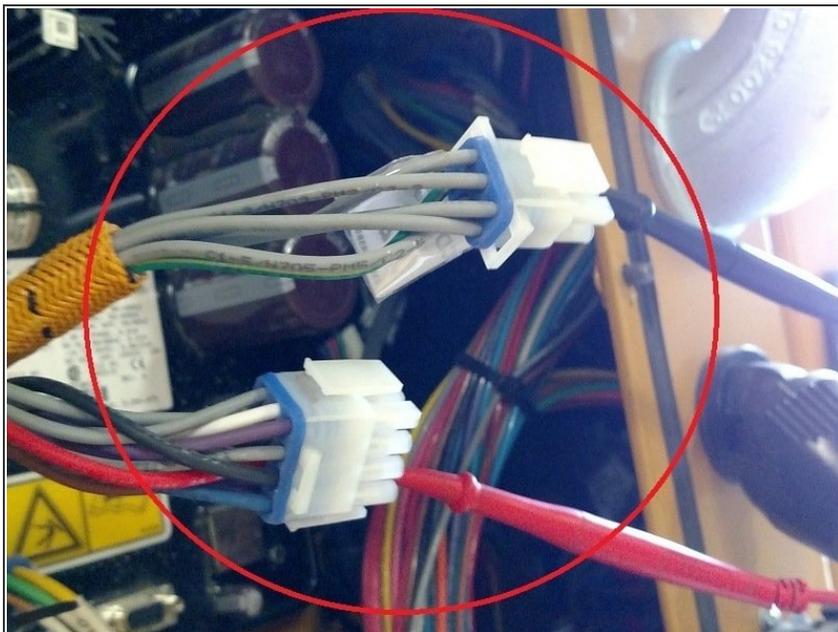
- DC Hi-Pot, Standard wrench set, Metric and Standard socket set. (1)
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Step 1 — Control Panel Isolation



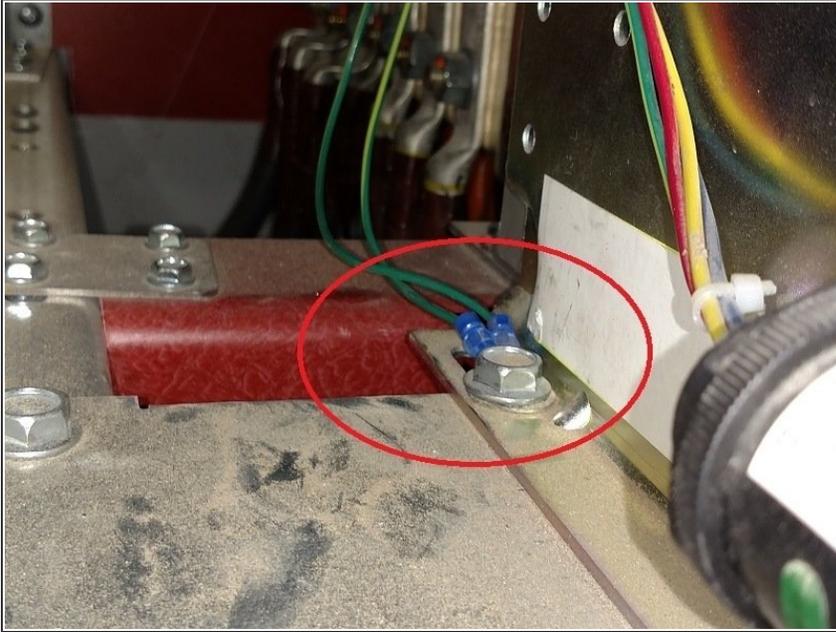
- Facing the alternator, open first control cabinet on the right side of the generator.
- Release the neutral sensing wire from T0 by inserting the blade of a small standard screw driver into the release mechanism just below the wire and gently pulling on the wire. This is the area circled in red just above F4-F6.
- Disconnect voltage sensors by opening F4, F5 and F6, the area circled in green.

Step 2 — Isolating the Voltage Regulator



- Place mat or tarp over the generator housing to prevent getting the top of the housing dirty.
- Remove the bolts on the top of the rear top panel of the generator control cabinet.
- Remove the cover and set aside.
- Disconnect the voltage regulator by depressing the latches on the wire connector. Pull the connections away from each other. This is the connection circled in red.

Step 3 — Disconnect Voltage Indicator Grounds



- Unbolt and open access door covering the generator breakers.
- Using a box wrench remove the bolt securing the two voltage sensing indicator ground wires on the left side of GM breaker, area circled in red.

Step 4 — SIPD and HRG Isolation



- Open SPD breaker, front right side mounted on the generator housing.
- Open HRG disconnect, front right of the generator enclosure.

Step 5 — Perform PI Test



- Verify all generator breakers are open.
 - If the breakers are not open, open all breakers.
 - Turn DC-Hipot on and allow the unit to complete the startup cycle.
 - Set the meter to 500 V DC
 - Connect the meter to the line side of the generator main breaker.
- ⚠** Begin the PI test by starting the meter. Verify immediate readings are in the mega ohm range. If resistance is below 100 mega ohms the generator is below insulation requirements. Contact generator technician for further action.
- Record resistance reading at 1 (R1) and 10 (R10) minutes. $PI = R10/R1$
- ⚠** Record PI value on test sheet, if PI is not greater or equal to 2.0 the test has failed and manufacturer must begin troubleshooting generator.

To reassemble your device, follow these instructions in reverse order.