


Pantropic Power Generator Winding Insulation Test

Dealer Process

● 14
● 0
● 14
● 1

Inspection Number	18635295	Customer Phone	(561) 243-2084
Serial Number	ZAP00380	Work Order	SC139468
Make	CATERPILLAR	Completed On	8/16/2024 3:43:05 PM
Model	3516	Inspector	Ernesto Jaime
Equipment Family	FAMILY-ALL	PDF Generated On	8/19/2024
SMU	925 Hours	Location	3612 S Ocean Blvd, Highland Beach, FL
Coordinates	6.78705358505249, 26.4105705917575, - 80.0655369814508		
Technician			

General Info & Comments

●
General info/Comments

ACTION

Comments: Performed PM3 megger test.

The unit did not pass the insulation test due to the poor condition of all the generator components. Main rotor, main extator, exter rotor and extator, PMG stator and rectifier. It is recommended to take action as soon as possible since these damages can be solved before the generator is completely damaged and becomes more expensive. The conditions of the winding coils are terrible since the salt has oxidized all the coils and cables.

Space Heater doesn't work recommend installing new ones.

Breaker contacts are disconnected recommended troubleshooting.



Red - Preparation for Insulation Testing

- 1.4 Visually inspect the generator for moisture. If moisture exists, DO NOT perform this insulation test. Dry the unit first. Refer to Special Instructions, SEHS9124, "Cleaning and Drying of Electric Set Generators."

FAIL

Comments: Unit has a lot of rust and humidity.





- **1.9 Electrically disconnect the rotating diodes and varistor from the three exciter rotor AC input leads and two main rotor DC output leads.** *NOT COMPLETED*

Comments: The exciter screws are in very poor condition, which does not allow them to be removed to complete the test and check the diodes and the exciter rotor.
Recommend installing new cables and rectifier.





Red - Main Stator Winding Insulation Test

- 2.4 Set the voltage of the insulation tester according to the rated voltage of the generator. Refer to the rating chart.

NOT COMPLETED

Comments: No pass





● 2.5 Use the 30/60 Time Resistance Method.

FAIL

Comments: Unit in bad condition.





2.5.1 Record temperature in Fahrenheit.

89 °F

2.5.2 Apply voltage.

500 VDC

2.5.3 Observe the readings at 30 seconds. Record the reading at 60 seconds. This reading must be corrected for temperature in Fahrenheit.

0000 megaohms

2.5.4 Remove voltage and discharge the capacitance of the tester leads and generator windings. This can be accomplished by turning the insulation tester off and maintaining connection between T0 and ground.

500 Volts

- 2.6 If the above procedure failed, disconnect all main stator neutral winding cables from T0 and individually test T1, T2 and T3 to ground. *Note* It is only necessary to proceed to the following steps if the 30/60 time resistance method from T0 to ground failed.

NO

Comments: Fail

- 2.7 PHASE (T1) TO GROUND

FAIL

Comments: Fail



2.7.1 Resistance reading

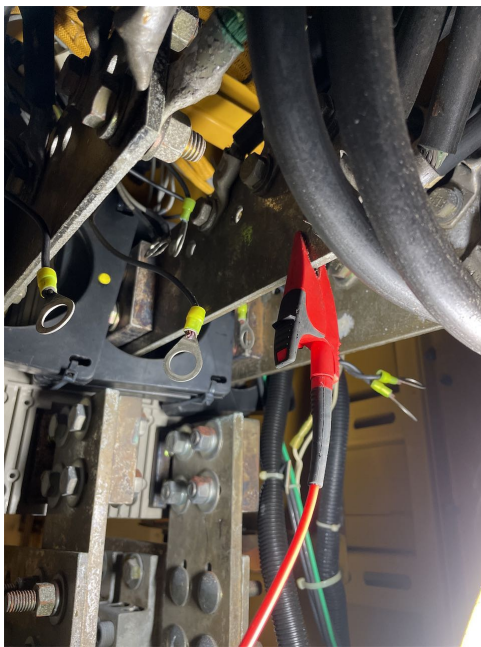


0 megaohms

● 2.8 PHASE (T2) TO GROUND

FAIL

Comments: Fail



2.8.1 Resistance reading



0 megaohms

● 2.9 PHASE (T3) TO GROUND

FAIL



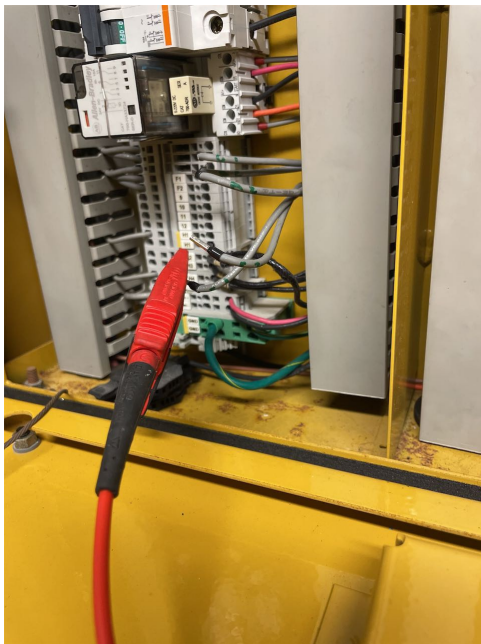
2.9.1 Resistance reading

Red - Exciter Stator and PMG Stator Winding Insulation Test

- 3.2 Connect the insulation tester's RED lead to the two EXCITER STATOR FIELD leads and conduct the 30/60 time resistance method test.

FAIL

Comments: Fail





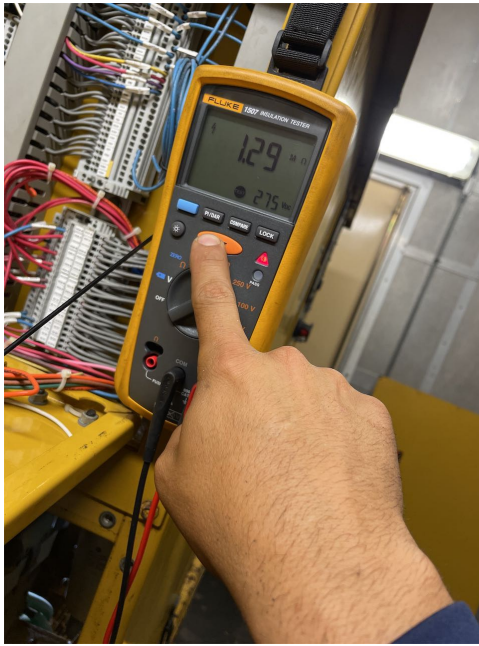
3.2.1 Resistance reading

0.02 megaohms

- **3.3 Connect the insulation tester's RED lead to the two PMG STATOR ARMATURE leads and conduct the 30/60 time resistance method test.** *FAIL*

Comments: PMG Stator in bad condition recommend replacing.





3.3.1 Resistance reading

1.29 megaohms

Red - Main Rotor and Exciter Rotor Winding Insulation Test

- 4.2 Connect the insulation tester's RED lead to the three EXCITER ROTOR ARMATURE leads and conduct the 30/60 time resistance method test. FAIL

Comments: Exciter rotor armature cable and bolts are in bad condition recommend replacing asap.



4.2.1 Resistance reading

0 megaohms

- **4.3 Connect the insulation tester's RED lead to the two MAIN ROTOR FIELD leads and conduct the 30/60 time resistance method test.** *FAIL*

Comments: Fail





4.3.1 Resistance reading

0.08 megaohms

Red - Evaluate the Readings, Reconnect all Connections and Place the Generator Back in Service

- 5.1 The actual value of the resistance may vary greatly between generators. For this reason, the insulation's condition must be evaluated. Base this evaluation on the comparison between the 60 second resistance readings and the readings that were taken on previous dates. These two readings must be taken under similar conditions. If a 60 second resistance reading has a 50% reduction from previous reading, the insulation may have absorbed too much moisture.

FAIL

Comments: Generator in very bad condition. None of the components passed the insulation test. recommend dip & bake and cleaning ASAP. It is not recommended to keep this unit in servicing to avoid damage and higher repair cost.

Green - Preparation for Insulation Testing

- 1.1 **WARNING** - Personal injury can result from electrocution. The Megohmmeter is applying a high voltage to the circuit. To avoid electrocution, do not touch the instrument leads w/out first discharging them. When finished testing also discharge the generator windings.

AGREE

Comments: Ok

- 1.2 Inspect the installation and verify the serial number of the equipment to be tested matches the one on the work order. Ensure the unit is stopped and that the generator breaker is open.

COMPLETED

Comments: Done



- 1.3 Perform Lock-out/Tag-out procedure to isolate all sources of power and take the generator out of service. COMPLETED

Comments: Done

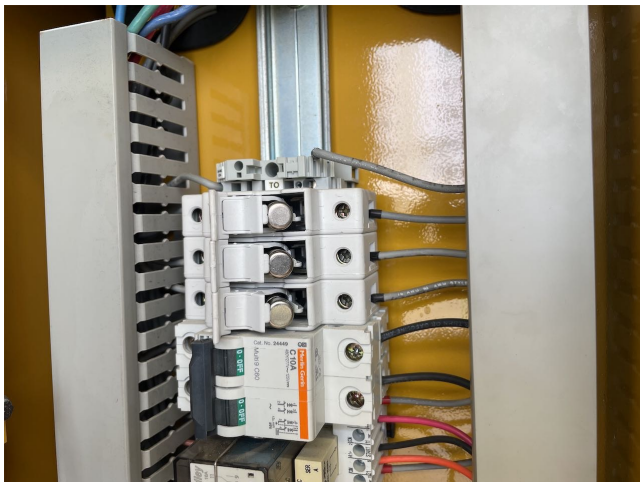


- 1.5 Discharge the capacitance of the windings and verify there is no voltage present. COMPLETED

Comments: Done

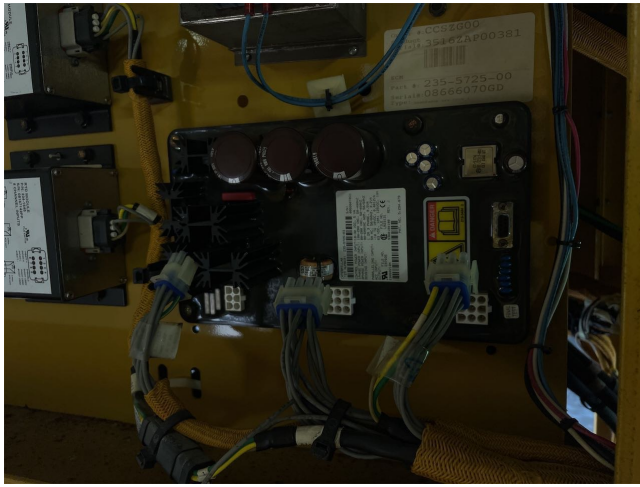
- 1.6 Isolate the control panel by disconnecting the voltage sensing leads and/or line fuses. COMPLETED

Comments: Done



- 1.7 Isolate the Automatic Voltage Regulator (AVR) by disconnecting the power, voltage sensing, PMG input and exciter output leads. COMPLETED

Comments: Done



Green - Main Stator Winding Insulation Test

- 2.1 Disconnect "T0" from ground.

COMPLETED

Comments: Done





- 2.2 Connect the insulation tester's BLACK lead to ground.

COMPLETED

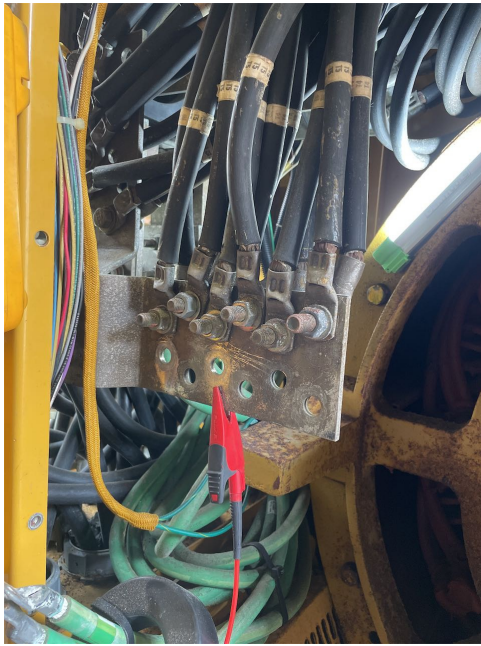
Comments: Done



- 2.3 Connect the insulation tester's RED lead to "T0".

COMPLETED

Comments: Done



Green - Exciter Stator and PMG Stator Winding Insulation Test

- 3.1 Connect the insulation tester's BLACK lead to ground.

COMPLETED

Comments: Done



Green - Main Rotor and Exciter Rotor Winding Insulation Test

- 4.1 Connect the insulation tester's BLACK lead to the rotor shaft.

COMPLETED

Comments: Done



Green - Evaluate the Readings, Reconnect all Connections and Place the Generator Back in Service

- **5.2 Switch the insulation tester to the "OFF" position. This will discharge the insulation tester's leads.** *COMPLETED*

Comments: Done



- **5.3 Reconnect all connections.** *COMPLETED*

Comments: Done

- **5.4 Place the generator back in service.** *COMPLETED*

Comments: Done



Grey - Preparation for Insulation Testing

- 1.8 Isolate the load share module by disconnecting the PT voltage sensing leads.

NOT REQUIRED

Comments: N/A