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Replace the Solenoid, Rectifier & Disconnect Switch Block for a 600 to 1200 Amp ZTS Switch

Purpose:	To replace a defective Solenoid, Rectifier Disconnect Switch Block.
When:	When directed by a service order.

Required Tools & Equipment:	
Basic electricians hand tools	PPE
Multimeter Digital or Analog	Rubber insulating gloves class 0
Solenoid	Safety glasses
Tie wraps	Electrical hazard safety shoes
Contact Block for Disconnect Switch	
Rectifier Assembly	

Danger

HAZARDOUS VOLTAGE
Can Cause Severe Injury or Death

Ensure before the enclosure is opened, you must lockout all energy sources to the ATS.

Do These Steps:

1. *Obtain* the proper documentation.
2. *Open* the front Enclosure.
3. *Place* the disconnect switch to "Inhibit".
4. *Disable* the generator start-up circuit.

Danger

HAZARDOUS VOLTAGE
Can Cause Severe Injury or Death

On systems with multiple ATS's connected to a single generator, you must lockout all energy sources to the ATS, before continuing on.

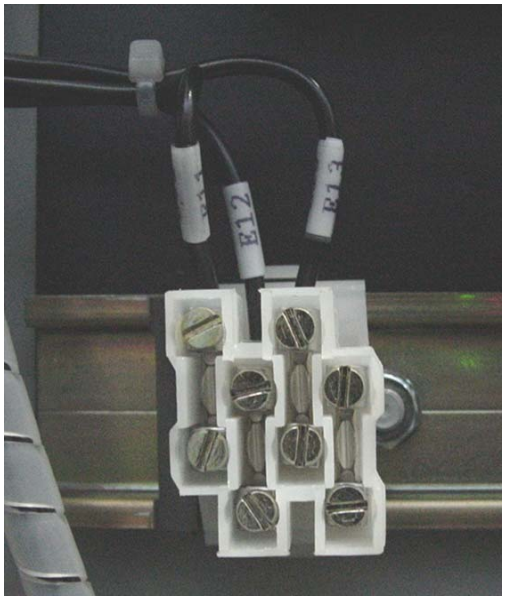

Figure 1.

5. *Disconnect* Main Power
6. *Verify* zero volts across each phase.

7. Remove the solenoid operator cover.

Figure 2.

8. Scribe the solenoid position.

   Note: The scribe mark is used to return the solenoid to the manufacturing position.

   Note: This switch uses an AC solenoid.

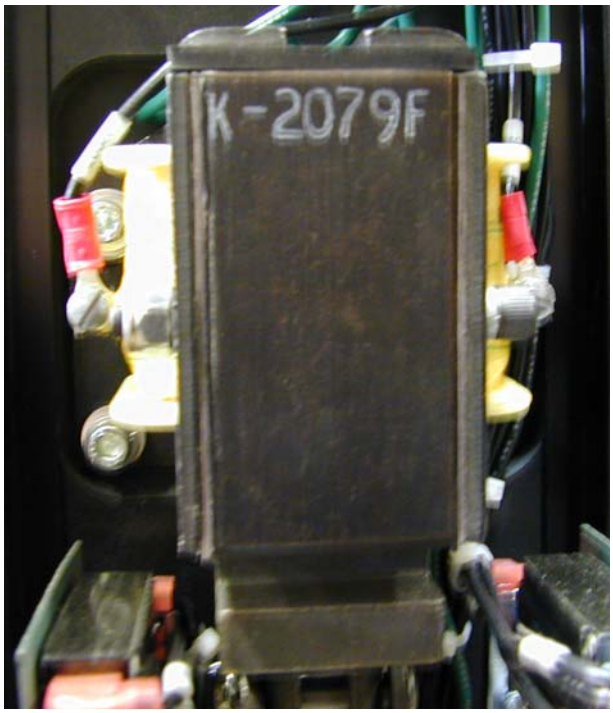

Figure 3.

9. Remove the input voltage wires from the solenoid.
10. Place the ATS into emergency.
11. Remove the Clevis pin from the main transfer operating linkage.
12. Remove the four (4) socket head cap screws from the solenoid.
13. Remove the solenoid and plunger assembly.
14. Remove the associated contact block from the disconnect switch.
15. Install the new contact block into the disconnect switch.
16. Connect the plunger to the main transfer operating linkage.
17. Slide the plunger into the new solenoid.
18. Attach the solenoid to the ATS

19. Tighten the socket head cap screws o hand tight.
20. Adjust the solenoid to the scribed mark.
21. Torque the cap screws to 25 ft-lbs.
22. Examine the incoming voltage wires for problems.

If the insulation is:	Then
Good	Continue on.
Burning/charring no more than two individual wires.	Repair wiring. Continue on.
Burning/charring of three or more wires.	Call for service tech to replace the harness.

23. Place the ATS into the normal position.
24. Adjust the Limit Switches.
    1) Place solenoid into the Zero Toggle position.

    Note: Zero toggle is obtained when the contact block in the rear of the panel is parallel to the ground.

    2) Check to ensure that the micro switch is activated.

    Note: You should hear the micro switch click, to activate.

    Note: If you do not have some small amount of free play, adjust the solenoid up a few thousands upwards.

If the micro switch is:	Then:
Activated	Continue on.
Not activated	Adjust the micro switch bracket until the switch is activated. Go to step 22.

    3) Throw the ATS into over toggle.

4) Check to ensure the micro switch is not bottomed out.

Note: You should a small amount of play in the switch.

If the micro switch is:	Then:
Not bottomed out	Continue on.
Bottomed out	Adjust the micro switch bracket until the switch has slight play. Go to step 24.

5) Throw the ATS into over toggle in the emergency position.

6) Check to ensure the micro switch is not bottomed out.

Note: You should a small amount of play in the switch.

If the micro switch is:	Then:
Not bottomed out	Continue on.
Bottomed out	Adjust the micro switch bracket until the switch has slight play. Go to step 24.

25. Check for a small amount of lateral free play in the plunger.

    Note: You should have a small gap between the plunger and coil.

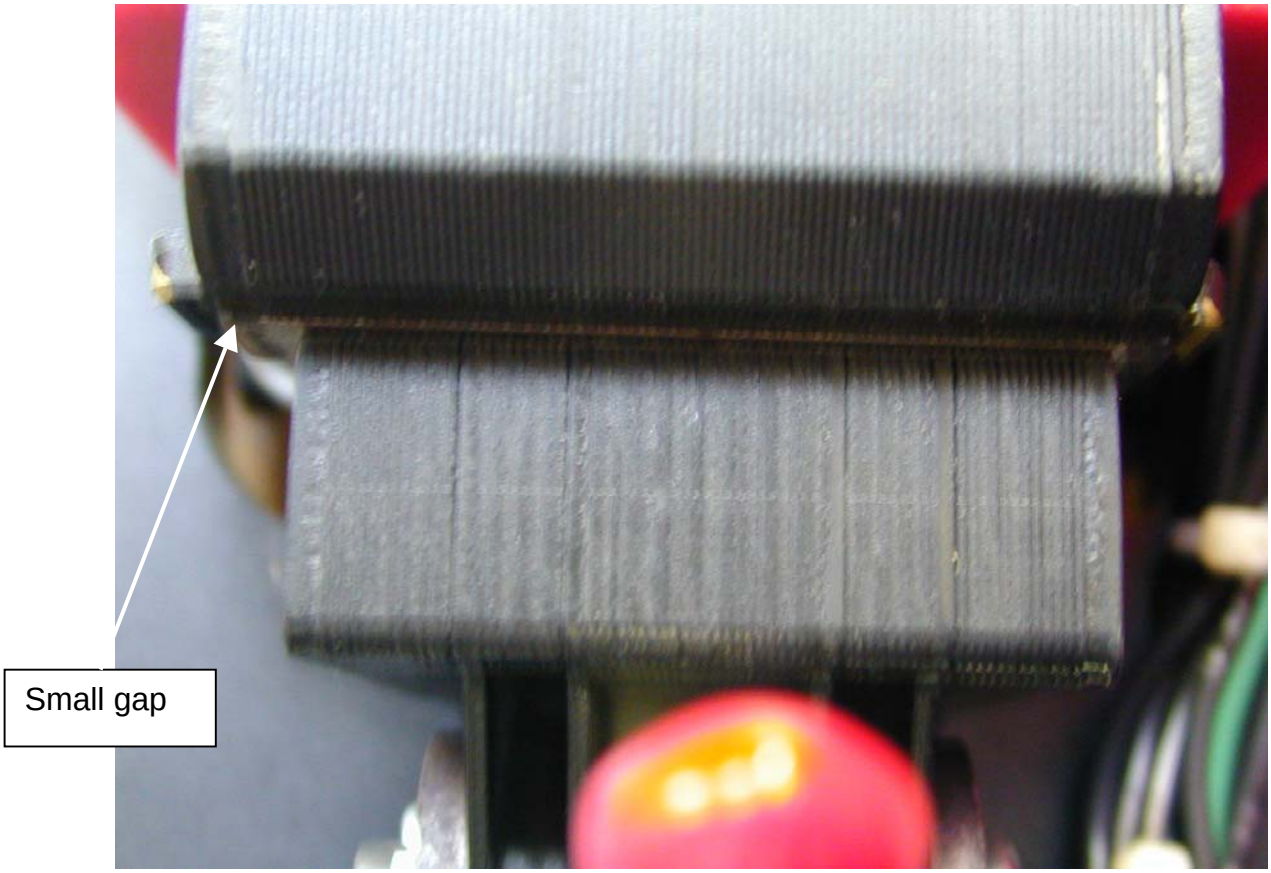

Figure 4.

26. Replace the solenoid operating plate.
27. Clean the inside of the ATS
28. *Energize* the ATS.
29. *Enable* the generator start-up.
30. *Place* the disconnect switch to "Auto".
31. *Close* the enclosure.

32. *Push and hold* the test pushbutton.

    Note: After the time delay switch should automatically transfer to the emergency position.

Figure 5.

33. Release the test pushbutton.

    Note: Once you release the test pushbutton and after the time delay, the ATS should return to the normal position.

34. *Clean-up* the area.

35. *Complete* the Service Report.

36. *Send* Reports to GE Zenith Controls.

You know you are completed when:

☐ The transfer switch is secured and operating properly.

☐ The tools are stored.

☐ The reports are completed.