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Replace the Solenoid, Rectifier & Disconnect Switch Block for a 600 to 1200 Amp ZBTS 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 that the load is shifted to the bypass before working on the ATS power panel.

Do These Steps:

1. *Obtain* the proper documentation.
2. *Bypass* the ATS.
   1) *Open* the bottom cabinet door.
   2) *Place* the Disconnect Switch (DS) to "Inhibit".
   3) *Turn* the Bypass Selector Switch (BSS) to the same power source as the ATS.
   4) *Move* the Manual Bypass Handle (MBH) upward.

      Note: This will place the load onto the bypass section of the switch.
3. *Isolate* the ATS
   1) Rotate the crank mechanism counterclockwise until the ATS Isolate light is illuminated.

      Note: The ATS location pointer will also indicate when the ATS is isolated.

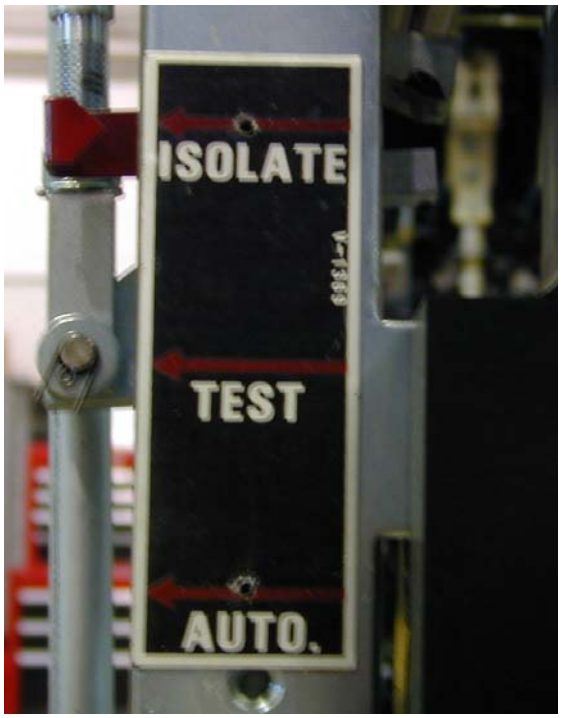

Figure 1.

4. Remove the ATS.
    1) Disconnect the multi-pin plugs from the ATS.
    2) Disconnect the external connections to the ATS.
    3) Place the ATS movement ramps.
    4) Slide the four (4) corner latches of the ATS to the innermost position.
    5) Remove the ATS from the bypass cabinet.
5. Close the cabinet door.
6. Remove the solenoid operator cover.

Figure 2.

7. 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.

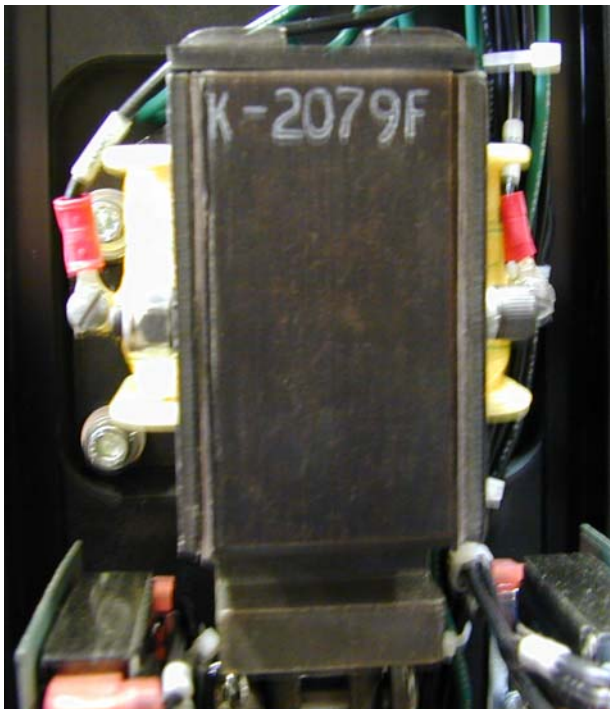

Figure 3.

8. Remove the input voltage wires from the solenoid.
9. Place the ATS into emergency.
10. Remove the Clevis pin from the main transfer operating linkage.
11. Remove the four (4) socket head cap screws from the solenoid.
12. Remove the solenoid and plunger assembly.

13. Remove the associated contact block from the disconnect switch.

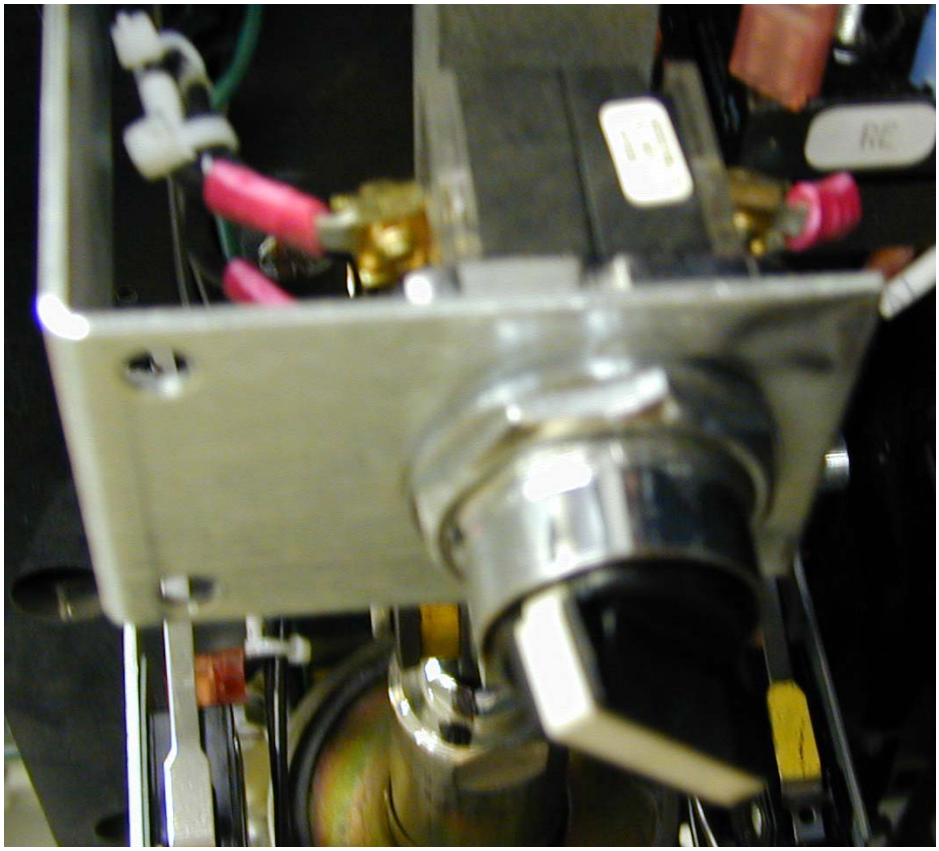

Figure 4.

14. Install the new contact block into the disconnect switch.
15. Connect the plunger to the main transfer operating linkage.
16. Slide the plunger into the new solenoid.
17. Attach the solenoid to the ATS
18. Tighten the socket head cap screws o hand tight.
19. Adjust the solenoid to the scribed mark.
20. Torque the cap screws to 25 ft-lbs.

21. 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.

22. Place the ATS into the normal position.

23. 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 22.

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 22.

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

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

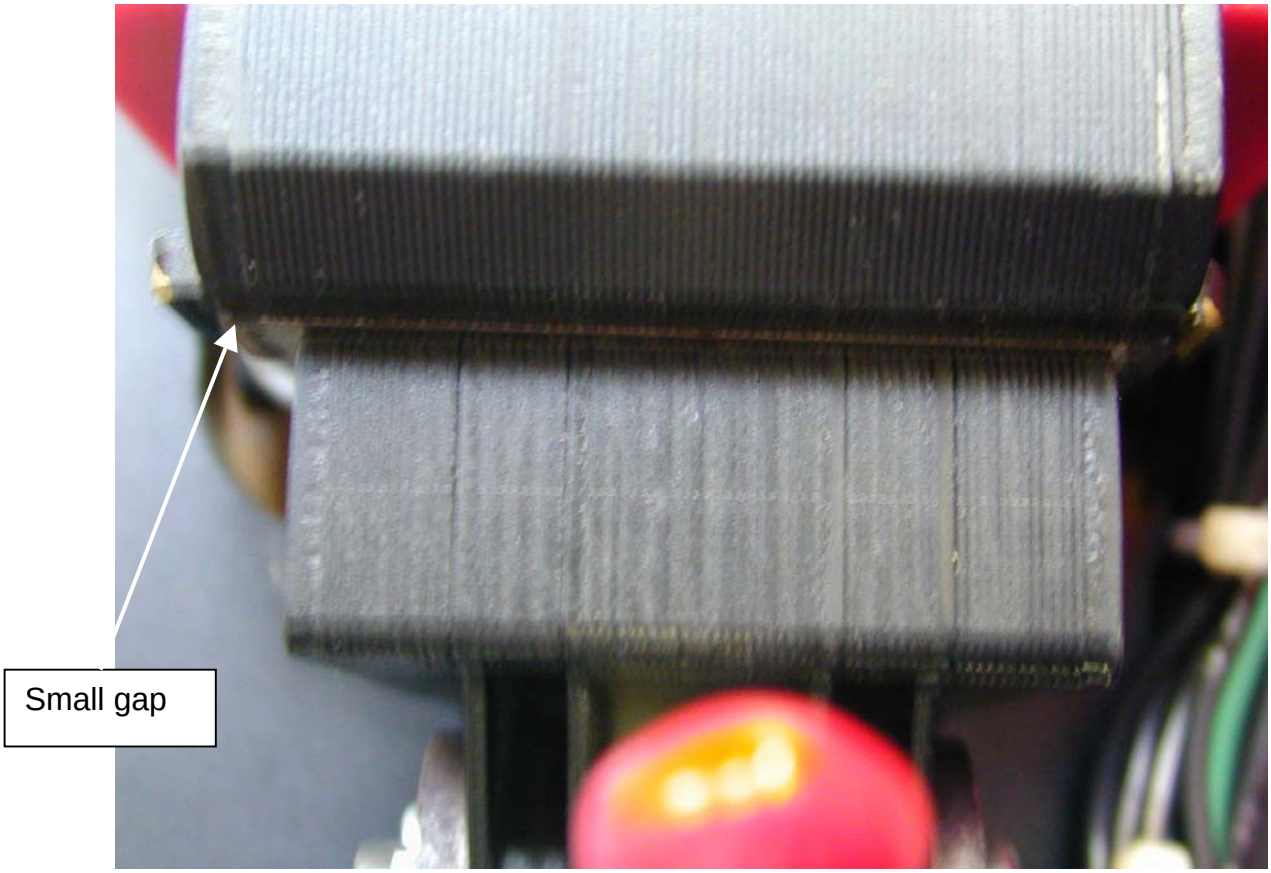

Figure 11.

25. Replace the solenoid operating plate.
26. Install the ATS in the cabinet.
    1) Open the lower cabinet door.
    2) Roll ATS back into the cabinet.
    3) Slide the four corner latches, on the ATS, to the outermost position.
    4) Place the DS into inhibit.
    5) Manually position the ATS into the same position as the Bypass.
    6) Reconnect the multi-pin plugs to the ATS.

7) Reconnect the External connections to the ATS.

27. Test the ATS.

1) Rotate the crank mechanism clockwise until the ATS test light is illuminated.

Note: The ATS location pointer will also indicate when the ATS is in test.

Figure 14.

2) Turn the DS to Auto.

3) Test the ATS electrically three times, with the Test Switch.

28. Reconnect the ATS.

1) Turn the DS to inhibit.

2) Place the ATS is into the same position as the bypass.

3) Rotate the crank mechanism clockwise until the ATS location pointer is aligned with the “Auto” mark.

4) Turn the DS to Auto.

5) Open the Bypass with the MBH.

29. Close the lower cabinet door.
30. *Clean-up* the area.
31. *Complete* the Service Report.
32. *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.