Perform Preventative Maintenance on an F-17	
Purpose:	To keep an F-17, with a MX 100 control panel, with in specifications.
When:	When directed by a service order.

Required Tools & Equipment:	
Basic electricians hand tools	PPE
Clamp-on ammeter	Rubber Insulating Gloves Class 0
Multimeter Digital or Analog	Safety Glasses
Lubriplate 105	Electrical hazard safety shoes
ISO Form 5-F504-C Preventive Maintenance Report Form	ISO Form 5-F506-B milliVolt Drop Test
ATS door key	Infra-red scanner

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 following ISO forms:

   5-F504-C Preventive Maintenance Report Form
   5-F506-B milliVolt Drop Test

2. *Complete* the top section of form 5-F504-C.
3. Obtain the ATS door key.

4. *Inspect* the outside of the cabinet for:

   Front Panel Operation
   Physical Damage
   Rust
   Corrosion
   Water Damage/Contamination
   Intact Conduit
   Operation of the Lock
   Hinges

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5. *Open* the front cover.
6. *Place* the disconnect switch to “Inhibit”.
7. *Disconnect* the J8 plug from the RT box.

   Note: This will disable the automatic transfer.

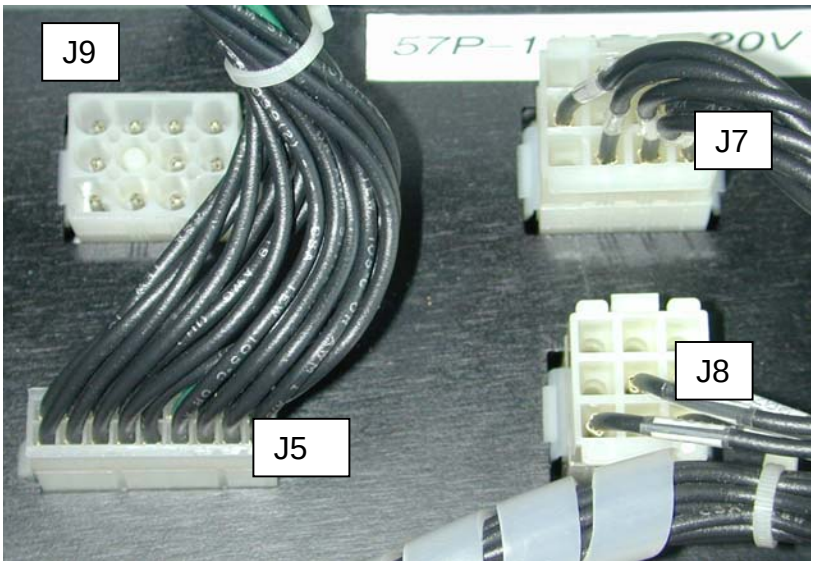

Figure 1.

8. *Inspect* the inside of the cabinet and switch for:

   Burnt lugs
   Burnt contacts on the micro switch
   Burnt wires
   Wire Integrity, Crimps and insertion into the connectors

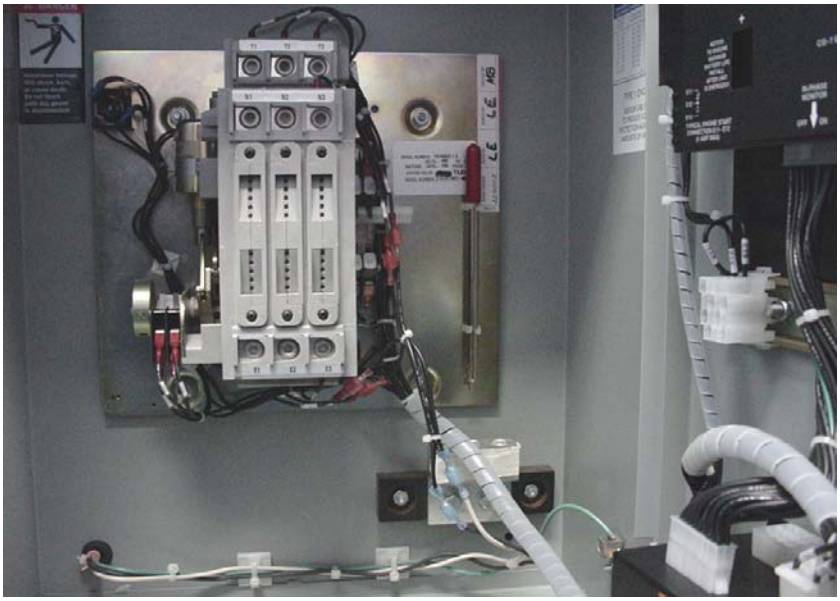

Figure 2.

9. *Check* the normal source voltage. 
   A to B, B to C, C to A.

   Note: On a four pole you will need to check the neutral.

10. *Check* normal source current on each phase with a clamp-on ammeter. 

    Note: Typically you need to look for equal current between phases.

11. *Start* the emergency source.

12. *Repeat* steps 9 and 10 for the emergency source. 

13. *Check* the frequency of the generator set.

14. *Check* the normal current path integrity [milivolt test]. 

    Note: You will need to use a Clamp on ammeter & DMM, or an Infra-red scanner.

15. Connect the J8 plug into the RT box.
16. Place the Engine Control Switch (ECS) into the “Auto” position.
17. *Transfer* the load to the emergency source.
18. *Perform* step 14 on the emergency side of the switch.

    Note: You need to check the frequency under load.
19. *Transfer* the load to the normal source.
20. *Disable* the generator start up by removing the grounded wire from the terminal block mounted on the DIN rail.

Danger

HAZARDOUS VOLTAGE
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On systems with multiple ATS’s connected to a single generator, you will need to lockout all energy sources to the ATS before continuing on.

Figure 3.

21. *Disconnect* the J8 plug from the RT box.

    Note: This will disable the automatic transfer.
22. *De-energize* the Automatic Transfer Switch (ATS).

    Note: You need to open the breaker on both the normal and emergency sources.

23. *Check* for loose or deteriorated connections in the bus bar and lugs.

24. *Inspect* the mounting and hardware.

25. *Check* the torque on each of the normal, emergency and line lugs to 31 ft-lbs.

26. *Lubricate* the plunger and linkage with Lubriplate 105.

Figure 4.

27. *Check* the integrity of the limit switches.
SCE /SCN, SN/A4, SE/A3.

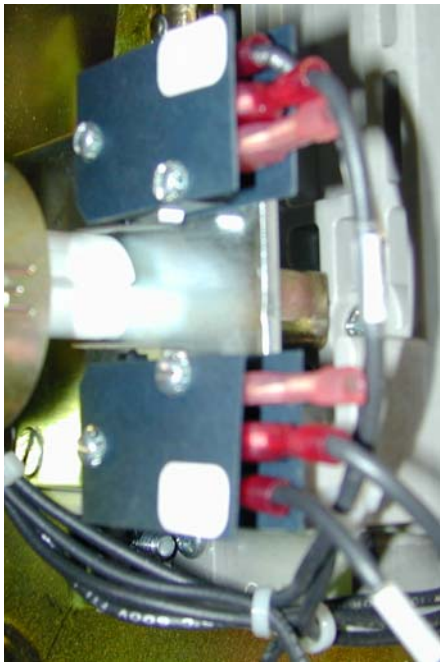

Figure 5.

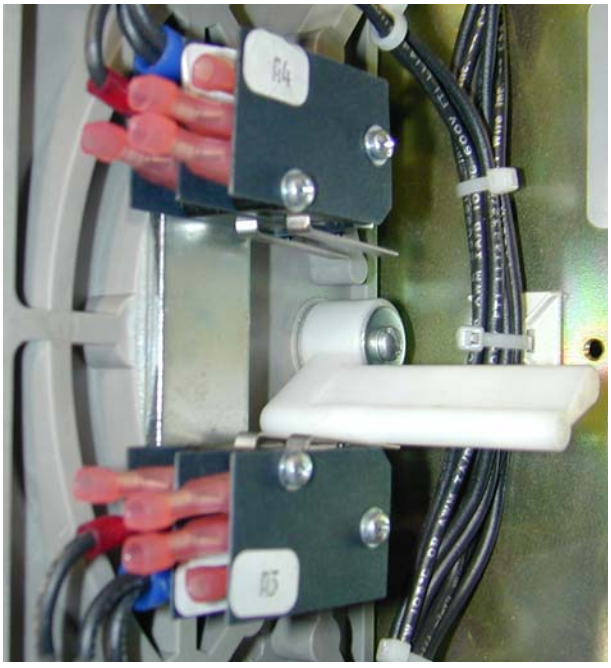

Figure 6.

28. *Check* all Faston connections.
29. *Check* the rectifier connections.

Figure 7.

30. *Remove* the solenoid wires from the rectifier.
31. *Check* the coil's resistance.

    Note: If the reading is infinite or shorted, replace the solenoid.

32. *Reconnect* the rectifier leads.

    Note: Ensure that the solenoid lead wires are connected to the rectifier DC terminals.

33. *Remove* the Arc Chutes or Cover Plate.

34. *Inspect* the emergency contacts for a clean smooth appearance.

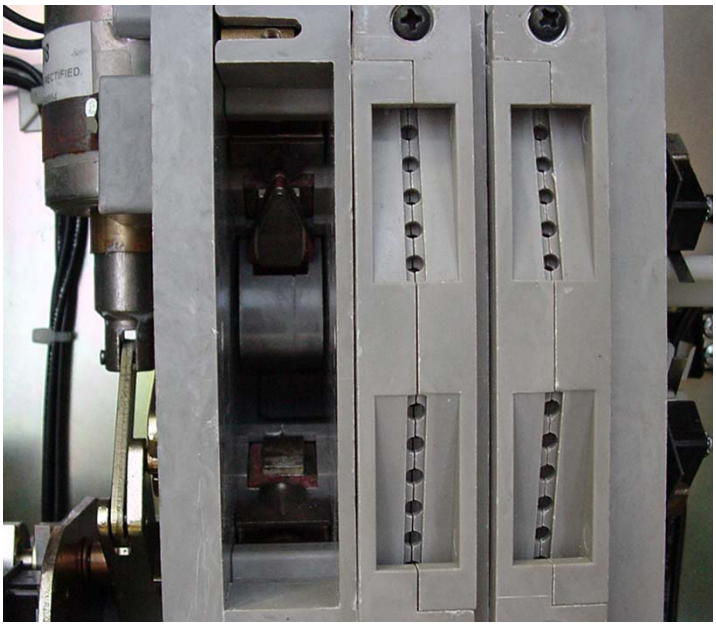

Figure 8.

35. *Transfer* the switch manually.

Note: The switch should transfer smoothly. Any roughness or sticking in the transfer needs to be investigated.

36. *Inspect* the normal contacts for a clean smooth appearance.

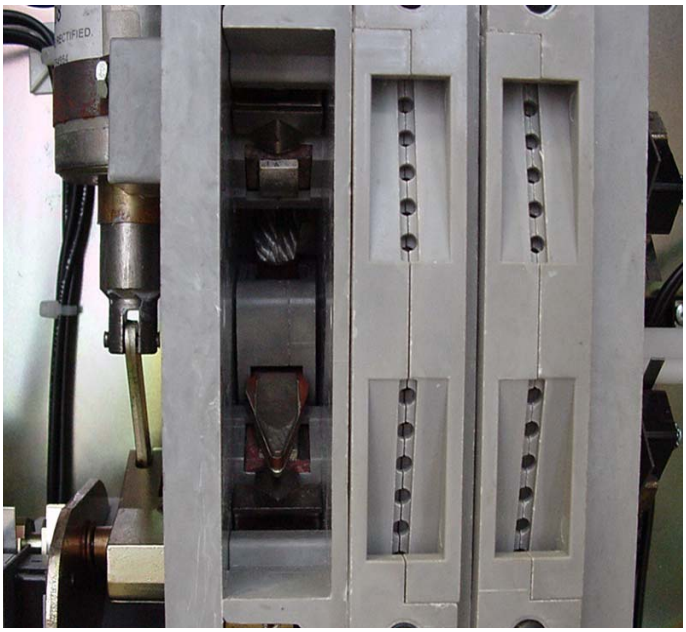

Figure 9.

37. *Inspect* the movable braid for damage.

38. *Transfer* the switch manually three times.

39. *Reinstall* the Arc Chutes or Cover Plate.

40. *Reconnect* the J8 plug to the RT box.

41. *Energize* the switch.

42. *Inspect* the Pickup and Dropout settings on the back side of the control panel.

Note: If the settings are outside the factory settings, talk to the customer to determine the setting requirements.

Figure 10.

43. *Disconnect* the J5, J6, and J7 plugs from the microprocessor and RT box.

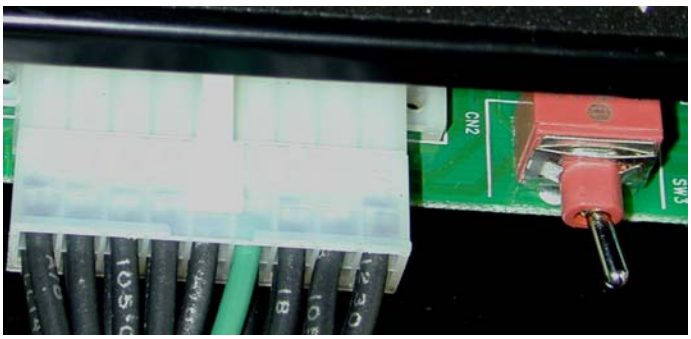

Figure 11. (J5)

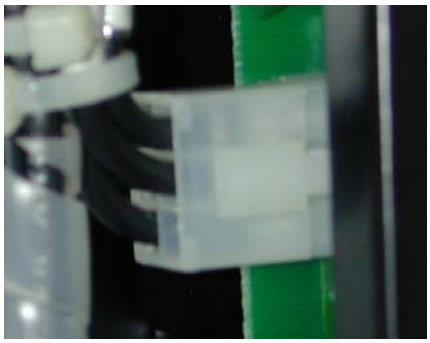

Figure 12. (J6)

44. *Inspect* the Large plug connectors for proper connections.

45. *Inspect* the mini pin connectors for proper connections.

Note: The mini pin connectors are on J5 & J6.

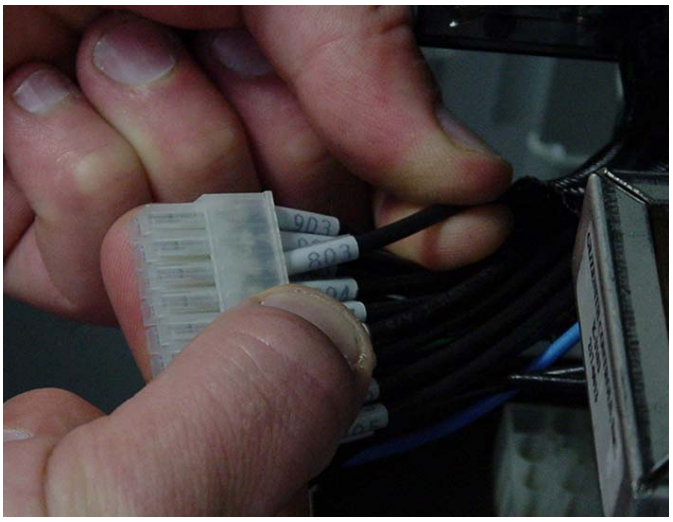

Figure 13. (J5)

46. *Remove* the RT box.

47. *Inspect* the condition of the relays.

Figure 14.

48. *Remove* the relay panel from the RT box.

49. *Inspect* the condition of the Transformers.

Figure 15.

50. *Inspect* the condition of the wires and plugs in the RT box.

51. *Insert* the relay panel into the RT box.

52. *Install* the RT box.

Figure 16.

53. *Connect* the J5, J6, J7, and J8 plugs to the microprocessor and RT box.

54. *Replace* the 9 volt battery in the control panel.

55. *Inspect* the din rail mounted components.

    Note: If you discover any problems, replace the component.

56. *Connect* the ground wire to E11, E12 or E13 depending on the schematic.

57. *Ensure* that the “In-Phase” Monitor is in the customer desired position.

58. *Place*: the disconnect switch to Auto.

59. *Push and hold* the test pushbutton.

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

Figure 17.

60. Release the test pushbutton.

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

Figure 18.

61. *Clean-up* the area.

62. *Complete* the Preventive Maintenance Report.

63. *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.