

CHAPTER 23

ROTARY UNINTERRUPTIBLE POWER SUPPLY

23-1. Minimum maintenance activities for rotary uninterruptible power supply

The tables located at the end of this chapter indicate items that must be performed to maintain systems and equipment at a minimum level of operational readiness. The listed minimum action items should be supplemented by manufacturer-recommended maintenance activities and procedures for specific pieces of equipment.

23-2. General maintenance procedures for rotary uninterruptible power supply

Maintenance tasks for rotary uninterruptible power supply (UPS) systems may involve many of the same activities as for static UPS systems. Additional maintenance not covered elsewhere in this manual is required for the induction coupler, synchronous machine and free wheeling coupler. Maintenance actions included in this chapter are summarized in table 23-1.

a. Insulation tests. Induction coupler and synchronous machine insulation shall be tested as described below.

(1) Perform insulation resistance tests using a megohmmeter in accordance with Institute of Electrical and Electronic Engineers (IEEE) 43, Recommended Practice for Testing Insulation Resistance of Rotating Machinery (2000) on the stator and rotor of the machine.

(2) Perform dielectric absorption testing using a megohmmeter.

b. Inspect bearings. The following tasks associated with bearings for induction coupler, synchronous machine and free-wheeling coupler should be performed.

(1) Inspect bearings.

(2) Verify bearings are properly lubricated with the correct lubricant per manufacturers' recommendation.

(3) Perform vibration tests.

(4) Check alignment.

c. Replace free wheeling coupler. Operating experience indicates the coupler on induction-coupled UPS systems should be replaced every 5 years.

d. Operate test mode. Applicable rotary UPS systems should be load tested weekly to ensure proper operation. Testing should be done with at least 50 percent electrical load and with sufficient time to bring all components to normal operating temperatures.

Table 23-1. Rotary uninterruptible power supply

| Rotary Uninterruptible Power Supply | |
|--|------------------|
| <i>Action</i> | <i>Frequency</i> |
| WARNING! | |
| MAINTENANCE PERSONNEL SHALL LOCKOUT/TAG EQUIPMENT TO ENSURE DE-ENERGIZATION DURING MAINTENANCE PROCEDURES. | |
| <u>Test induction coupler & synchronous machine insulation</u> | |
| Perform insulation resistance tests using a megohmmeter in accordance with IEEE 43 on the stator and rotor of the machine. | yr |
| Perform dielectric absorption testing using a megohmmeter. | yr |
| <u>Inspect bearings for induction coupler, synchronous machine, and free wheeling coupler.</u> | |
| Verify bearings are properly lubricated with the correct lubricant per manufacturers' recommendation. | yr |
| Perform vibration tests. | yr |
| Check alignment. | yr |
| Replace free wheeling coupler | 5 yrs |
| Perform load test | 3 mos |