

UPS System Maintenance & PM Requirements

- **One (1) year full maintenance coverage: (2 Liebert UPS & 5 STS)**
 - **Emergency Service 7x24, 365**
 - **All parts, labor and expenses**
 - **Response time: four (4) hours or less**
- **One PM Inspections: (2 Liebert UPS @ 5 STS)**
 - **System overview with customer and detailed inspection report**

STATIC TRANSFER SWITCH

SCOPE OF WORK

- Perform a complete visual inspection of the equipment, including sub-assemblies, wiring harnesses, contacts, cables and major components.
- Check all mechanical connections for tightness and heat discoloration, making corrections where necessary.
- Clean foreign material and dust from internal compartments. Perform a status check of alarm circuits.
- Calibration of the equipment to meet manufacturer's specifications.
- Operational checkout of the system to include transfers and proper status indications.
- Install or perform Engineering Field Change Notices (FCN) as necessary.
- Return unit to operational service with normal load then measure and verify display indications.
- Perform additional checks as consistent with customary commercial practice.
- Review system performance with customer to address any questions and to schedule any repairs.
- Provide a detailed written report noting any deficiencies and corrective action needed, taken and/or planned.

BATTERY SYSTEM

SCOPE OF WORK

- Clean normal cell top dirt accumulation.
- Measure and record the total battery float voltage and charging current.
- Measure and record the overall AC ripple voltage.
- Visually inspect the jars and covers for cracks and leakage.
- Visually inspect for evidence of corrosion.

- Measure and record the ambient temperature.
- Verify the integrity of the battery rack/cabinet.
- Measure and record 100% of the jar temperatures.
- Measure and record the float voltage of all jars.
- Measure and record all internal ohmic readings.
- Re-tighten all connections to the battery manufacturer's specifications, if required.
- Measure and record all battery connection resistances in micro-ohms, when applicable.
- Refurbish cell connections as deemed necessary.
- Check integrity of battery cabinet.
- Check for NO-OX grease or oil on all connections (if applicable).
- Check battery jars for proper liquid level (if flooded cells).
- Check for corrosion on all the terminals and cables.
- Examine the physical cleanliness of the battery room and jars.
- Measure and record DC bus ripple voltage (if applicable). Measure and record total battery float voltage.
- Perform additional checks as consistent with customary commercial practice.
- Review system performance with customer to address any questions and to schedule any repairs.
- Provide a detailed written report noting any deficiencies and corrective action needed, taken and/or planned.

UNINTERRUPTIBLE POWER SYSTEMS

SCOPE OF WORK

- Perform temperature check on all breakers, connections, and associated controls. Repair and/or report all high temperature areas.
- Perform a complete visual inspection of the equipment including subassemblies, wiring harnesses, contacts, cables, and major components.
- Check air filters for cleanliness. (if applicable)
- Check rectifier and inverter snubber boards for discoloration.
- Check power capacitors for swelling or leaking oil.
- Check for DC capacitor vent caps that have extruded more than 1/8". (if applicable)
- Record all voltage and current meter readings on the module control cabinet or the system control cabinet.
- Measure and record harmonic trap filter currents.
- Check the inverter and rectifier snubbers.
- Check all nuts, bolts, screws, and connectors for tightness and heat discoloration.
- Check fuses on the DC capacitor deck for continuity (if applicable).
- With customer approval, perform operational test of the system including unit transfer and battery discharge.
- Calibrate and record all electronics to system specifications.
- Check or perform Engineering Field Change Notices (FCN) as

necessary. Measure and record all low-voltage power supply levels.

- Record phase-to-phase input voltage and currents.
- Perform additional checks as consistent with customary commercial practice.
- Review system performance with customer to address any questions and to schedule any repairs.
- Provide a detailed written report noting any deficiencies and corrective action needed, taken and/or planned.