

Uninterruptible power supplies (10 kVA and above)

Use form EPF/LV/003 to record any readings.

1 'C' Examination

1.1 Vented Lead Acid Batteries (where fitted)

Check and top-up electrolyte levels.

2 'E' Examination

2.1 UPS Cubicle

- a) Interrogate meters, indication, and error logging systems. Determine whether unit is functioning correctly. Record time and duration of any equipment failures and overloading.
- b) At time of visit, obtain and record UPS load. Include any observations on whether the recorded value is within or exceeds the designed rating.
- c) Obtain and record cubicle temperature along with an observation on whether the value is within the accepted tolerance for the batteries and UPS.
- d) Examine cubicle ventilation. Clean and remove obstructions from ducts/filters. Remove dust using a vacuum cleaner/suction device.
- e) Using a non-intrusive method, confirm that fans/internal cooling system are functioning correctly.
- f) Clean and dust, switchgear, control, UPS and battery panels.

2.2 UPS Alarms and Controls

- a) Test UPS System alarms and remote monitoring signals.
- b) Where fitted and operational, test harmonic voltage monitoring (HVM).
- c) Where fitted and operational, check HVM settings are correct.
- d) Test automatic shutdown of battery charging facility.
- e) (Where fitted) test temperature control for battery charging facilities.

2.3 UPS Functional Tests

Carry out routine functional tests in accordance with manufacturer's instructions.

2.4 Batteries (where accessible)

- a) Check battery covers are in place, and that terminations are correct.
- b) Clean and test battery connections. Make an assessment of their electrical and mechanical integrity.

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- c) Replace batteries if corrosion cannot be removed or if they are damaged.
- d) Inspect battery stand for signs of damage, corrosion, wear and tear.
- e) Compare cell spacing with manufacturer's recommendations. Where required, make adjustments.

2.5 Battery Impedance Test (where cells are accessible)

This test needs to be carried out before the discharge capacity test

- a) Test, record, and evaluate, the individual cell impedances. Determine expected remaining life of the cell.
- b) Replace any individual faulty or life expired cells. Replace all cells in the battery if a significant number are faulty or if they will be life expired before the inspection.

2.6 Battery Discharge Capacity Test (where cells are inaccessible)

Battery must be fully charged before this test is carried out

- a) For UPS without a facility to measure the amount of time left before battery failure, perform an extended discharge test and record the voltage of each battery string at the times specified by the E&PME.
- b) For UPS with a facility to measure the amount of time left before battery failure, perform an extended discharge test to 25% discharge using the connected load, or a load bank rated to the full load of the UPS.
- c) Record the following data at the appropriate intervals:

- Battery discharge voltage
- Float condition –drawing current
- Battery temperature
- Discharge current
- Battery terminal voltage
- Any additional data that may contribute to the assessment of battery life or condition.

- d) Review recorded overall and group voltages against previous test values and manufacturer's degradation charts.