

## Eaton Valve Regulated (Sealed) Battery System Preventive Maintenance Scope of Work Attachment R-5

Battery Maintenance of Battery Equipment includes, and is expressly limited to, those tasks set forth below. <sup>1</sup>Due to the size and type of battery, testing and work procedures vary between battery jars above and below 100 watts per battery; work procedures may vary by UPS or related device and battery type and may be limited by safety requirements. All additional work will be billable at the applicable rates per Attachment X-1.

| <b>Performed During Each Preventive Maintenance Visit<sup>1</sup>:</b>  | <b>Below<br/>100W/Jar</b> | <b>100W+/Jar</b> |
|---|---------------------------|------------------|
| <b>A. Measure and Record the following:</b>   |                           |                  |
| 1. Individual cell/battery float voltages and overall float voltage   | Yes                       | Yes              |
| 2. Charger output current and voltage   | Yes                       | Yes              |
| 3. AC ripple current and voltage imposed on the battery   | Yes                       | Yes              |
| 4. Internal ohmic values of each cell/battery or perform a continuity test of each cell/battery   | No                        | Yes              |
| 5. Connection Resistance of 10% of the inter cell/battery connection  | No                        | Yes              |
| 6. Ambient temperature  | Yes                       | Yes              |
| 7. Negative terminal temperature of one cell/battery per battery cabinet shelf or rack tier   | Yes                       | Yes              |
| <b>B. Visually inspect conditions and appearance of the following:</b>  |                           |                  |
| 1. Connection terminals inter cell/battery connectors, cables and associated hardware   | Yes                       | Yes              |
| 2. Cell/battery covers, containers, and post seals  | Yes                       | Yes              |
| 3. Battery racks or cabinets and associated components and hardware   | Yes                       | Yes              |
| 4. Cell/battery jar or cover, noting any excessive distortion   | Yes                       | Yes              |
| <b>C. Perform cleaning of all accessible surfaces as required</b>   | Yes                       | Yes              |
| <b>Performed Once Per Calendar Year:</b>  |                           |                  |
| The yearly maintenance procedure should include all of the above with the addition of the following:  |                           |                  |
| 1. Measure and record the connection resistance of 100% of the inter cell/battery connections.  | No                        | Yes              |
| 2. Re-torque any connection where the resistance is above 20% of the average.   | No                        | Yes              |
| <b>E. Reporting Each Preventive Maintenance Visit:</b>  |                           |                  |
| 1. The technician(s) will issue the customer a verbal report summarizing the condition of the battery and identifying any critical issues before leaving the customer's site. | Yes                       | Yes              |
| 2. A detailed report containing all readings and observations will be sent to the customer within five business days.   | No                        | Yes              |

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