Signals Standards Bulletin #001
Various Sections

October 3, 2023 Bulletin No. 001

REVISED

Refer to GO TRANSIT SIGNALS & COMMUNICATIONS GENERAL INSTRUCTIONS, GI-332(c) Section 4 and add new clause:

4.2 The use of bonds around a joint where the bond is greater than 5 inches is prohibited.

Refer to GO TRANSIT SIGNALS & COMMUNICATIONS CODES OF PRACTICE, SCP-005 Section 7 and add new clause:

7.4 The use of bonds around a joint where the bond is greater than 5 inches is prohibited.

Refer to GO TRANSIT SIGNALS & COMMUNICATIONS GENERAL INSTRUCTIONS, Table 305(a)-08 and revise to read:

Table 305(a)-08

Step	Action
1	Measure and note the battery block temperature and the AC voltage to the charger of the battery to be tested.
2	Take a battery voltage reading with the AC power on and note this value as the battery charge voltage. Divide this reading by the number of cells to obtain the cell charge voltage, and record on Form 1205 unless otherwise directed. For VRLA batteries only: measure individual cell voltages and verify they are within 0.10V of the cell charge voltage, otherwise consider replacing the cell(s). Banks with individual VRLA cells measuring very low voltages (less than 1.90V) require immediate replacement, particularly for crossing locations.

<table>
<tr><td>3</td><td>If the battery is charged with a constant voltage rectifier, proceed to Step 4, otherwise note the battery charging current.
<table>
<tr><th>For constant current rectifiers, if...</th><th>Then...</th></tr>
<tr><td>The cell charge voltage is within .03V of the rated charge voltage for the type of battery (after temperature adjustments).</td><td>The constant current rectifier does not require any adjustments. Proceed to Step 4.</td></tr>
<tr><td>The cell charge voltage is not within .03V of the rated charge voltage for the type of battery (after temperature adjustments).</td><td>Correct the constant current rectifier settings. Restart at Step 1.</td></tr>
</table></td></tr>
<tr><td>4</td><td>• Disconnect the AC power to the charging circuit and allow the battery to discharge with normal current draw (crossing not operating) for 15 minutes.
• Take a battery voltage reading and note this value as the start battery discharge voltage.
• Divide the start battery discharge voltage by the number of cells to obtain the start cell discharge voltage.
• Ensure the calculated cell discharge voltage is not more than .03V below the rated start discharge voltage (see tables). Note: It may be necessary to obtain specific manufacturer rated tables if the values are consistently out of range.
• If these values are confirmed to be out of range for the brand of battery being tested, advise the responsible Supervisory Officer, and consider performing a deep discharge test to verify actual battery capacity.
NOTE: When performing a deep discharge test, the battery must be discharged to the point where the average cell voltage is at the
rated end voltage (see tables). Refer to SCP-1402 Storage Batteries and Chargers.</td></tr>
<tr><td>5</td><td>
<table>
<tr><th>If...</th><th>Then...</th></tr>
<tr><td>The battery is a single cell.</td><td>• Visually inspect all terminals and wires in accordance with GI-302.
• Measure voltage across charger output and battery terminal for each polarity and ensure the voltage reading is below 0.15V for up to the first 10A and 0.15V for each additional 10A charger output.
• If the voltage measured exceeds the calculated value, investigate to find the source of the high resistance component, and rectify accordingly.</td></tr>
<tr><td>The battery is a 12V block battery such as Marathon).</td><td>• Visually inspect all terminals and wires in accordance with GI-302.
• Measure voltage across charger output and battery terminal for each polarity and ensure the voltage reading is below 0.15V for each 10A charger output.
• If the voltage measured exceeds the calculated value, investigate to find the source of the high resistance component, and rectify accordingly.</td></tr>
</table></td></tr>
</table>

	The battery is a bank of cells.	• Measure each individual cell voltage and verify each is within 0.03V (NiCad) or 0.05V (VRLA, Lead Acid) of the start cell discharge voltage as calculated in Step 4. • If any cells vary by more than this amount, advise the responsible Supervisory Officer, and consider performing a deep discharge test to verify actual battery capacity. Alternatively, consider equalizing the battery, then repeating test from Step 1. • -+NOTE: Always check electrolyte levels before and after applying an equalizing charge (for flooded batteries). • Visually inspect all terminals and wires in accordance with GI-302. • Measure voltage across charger output and battery terminal for each polarity and ensure the voltage reading is below 0.15V for each 10A charger output. • If the voltage measured exceeds the calculated value, investigate to find the source of the high resistance component, and rectify accordingly.
6	Reconnect the AC power to the charging circuit.	

Refer to GO TRANSIT SIGNALS & COMMUNICATIONS GENERAL INSTRUCTIONS, GI-305(a) Section 7 and add new clauses:

7.2 Upon entry into a Signal housing where storage batteries are installed, Signals personnel MUST verify that each battery chargers equipped with an output gauge or charging indicators are supplying current. If found otherwise, it must be immediately reported to Fault Control and investigated as soon as possible.

7.3 Upon entry into a Signal housing where storage batteries are installed, Signals personnel MUST verify that each battery charger equipped with an output current gauge is not at max or current limit indicators are not on. If found otherwise, it must be reported to Fault Control and investigated as soon as possible.

7.4 The smell of burning equipment or insulation must be investigated and reported to Fault Control immediately.

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These changes are effective immediately.

END