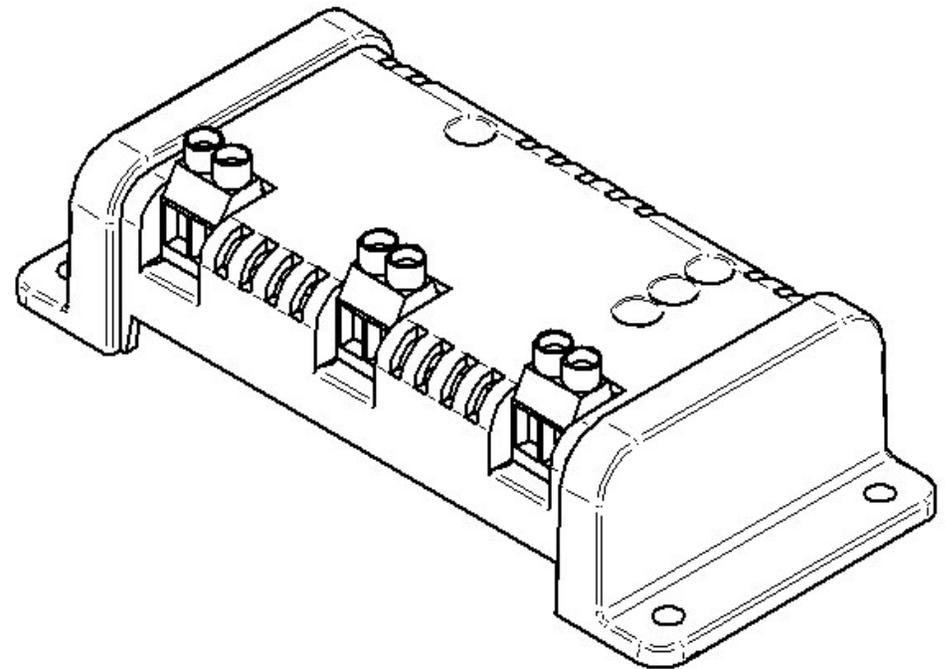
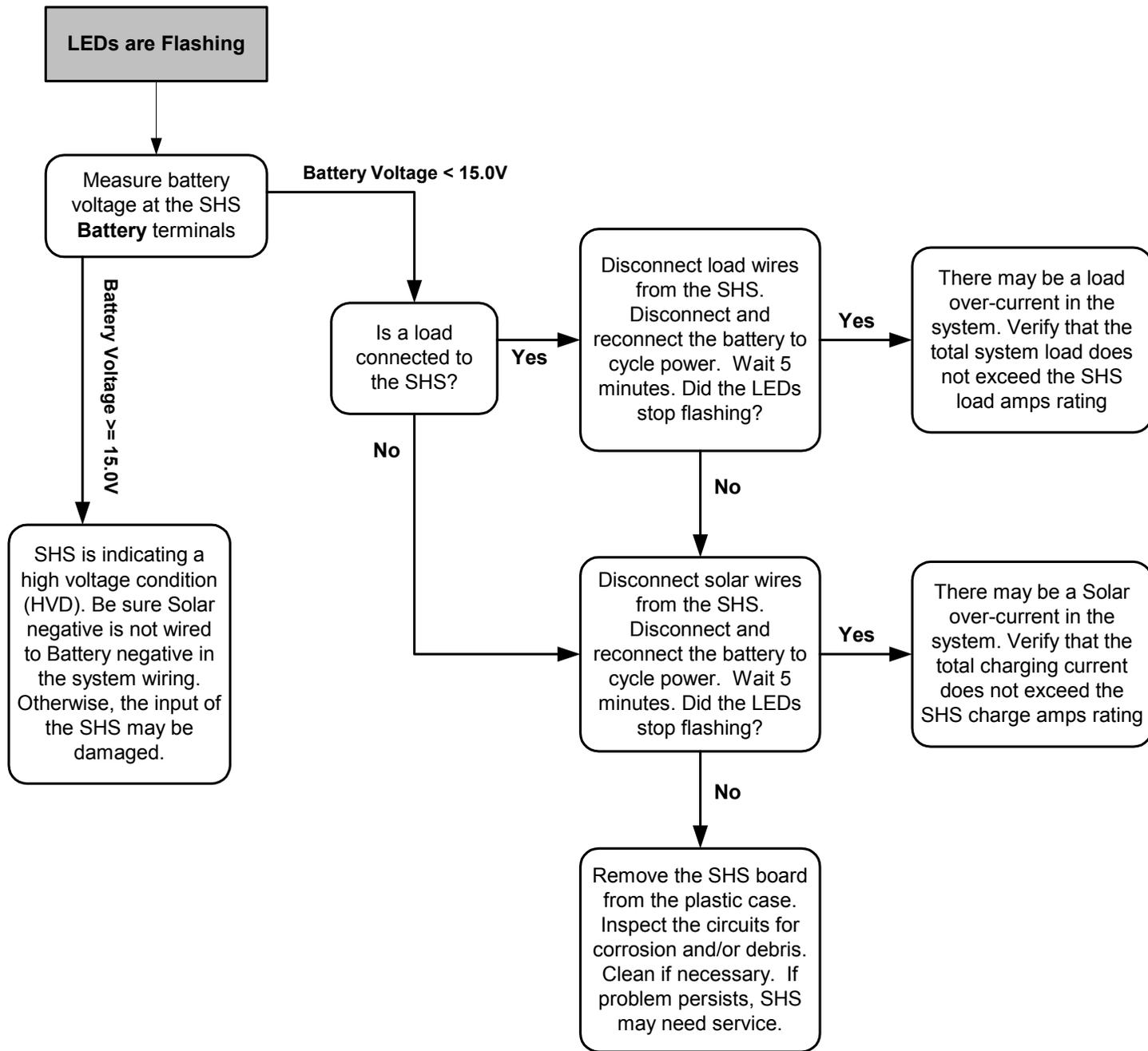


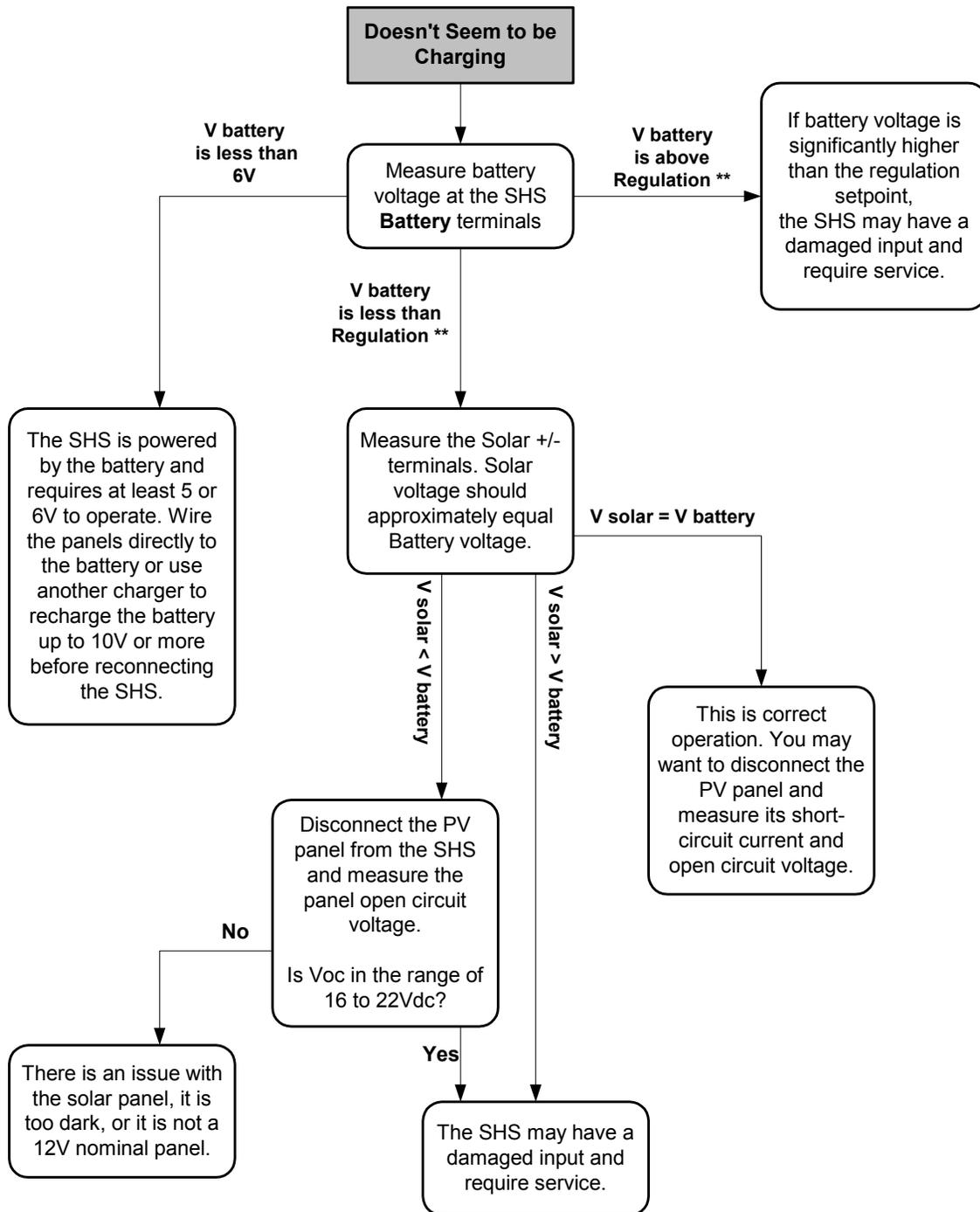
The SHS Field Testing Document allows the user to troubleshoot a Morningstar SHS-6 or SHS-10 charge controller installed in a system. The user will need a Multimeter capable of measuring DC voltage. The following pages contain flow charts for troubleshooting a fault indication, charging problems, and load control issues.

**Check these items first before troubleshooting:**

- ✓ Check system fuses and circuit-breakers
- ✓ Check wiring for breaks and shorts
- ✓ Test with a healthy battery. Swap a known good battery into the system for testing if necessary
- ✓ Verify that PV panels are exposed to natural sunlight without shading
- ✓ Test the system loads. Wire them directly to the battery to verify correct operation if necessary.
- ✓ Check grounding points and common bus bars. The SHS switches in the negative leg. Grounding more than one negative terminal will bypass the load and/or charging functions.







**\*\* Regulation Voltage:**

Regulation voltage changes with ambient temperature.

At 25C, Vreg = 14.3 Vdc. Below are some sample voltages at various temperatures. Match the approximate ambient temperature of the SHS with the chart below to find the Regulation Voltage.

0 C	15.00 V
10 C	14.75 V
20 C	14.45 V
25 C	14.30 V
30 C	14.15 V
40 C	13.85 V
50 C	13.55 V

