Service Bulletin

Bulletin No: SB-0005-18-239-SW Effective Date: 08-26-2018 Type: Instruction

Subject: Testing and operation of the Superwind STOP Switch.

Scope
This service bulletin provides instructions for operational verification and testing of the Superwind STOP switch.

Background
The purpose of the STOP switch is to enable a user to shut down the wind turbine during extreme wind events or to prevent starting of the rotor during maintenance, repairs or when working in the turbine operational area.
In the "stop" position, the switch internally connects (shorts) the positive and negative output wires of the Superwind turbine, short-circuiting its generator and substantially reducing rotor speed. In the "stop" position, the switch also disconnects the shorted generator from the battery circuit, effectively disconnecting the wind generator from the battery bank in a safe manner. When placed in the "run" mode, the switch internally decouples the output wires from the turbine and reconnects them to the battery bank, enabling the wind turbine to generate power and charge the batteries when there is sufficient wind.

STOP switch operation verification
If there is adequate wind and the turbine rotor is spinning, proper operation of the stop switch can be visually confirmed by placing the STOP switch in the "stop" position and observing the rotor. With the switch in the "stop" position the rotor should stop completely or turn slowly in moderate to high wind conditions. This result verifies proper operation of the "stop" function of the STOP switch and turbine, as well as the continuity of the wires from the turbine to the stop switch.

STOP switch test points and procedures
If the rotor is unaffected by the position of the STOP switch and continues to rotate freely in the above scenario, proper operation of the STOP switch can be verified by conducting the following tests on the STOP switch:

1. Remove the two leads (positive and negative output wires) from the wind turbine (STOP switch terminals 2 and 6) and the two leads to the charge controller (STOP switch terminals 7 and 3).
2. Connect (short) the positive and negative output wires of the wind turbine. This short-circuits the wind turbine in the same manner as the STOP switch, safely placing it out of operation during testing the STOP switch.

Technician test note: If the rotor continues to spin freely with the turbine positive and negative output wires shorted, there is a problem with the wiring and/or the turbine itself. Proper operation of the STOP switch should still be verified however.

3. Tighten **all** screw terminals on the STOP switch, including those that are unused. Pay particular attention that screw terminals 1 and 5 are tightened and that the jumper connecting them is installed (see *Figure 1* below).

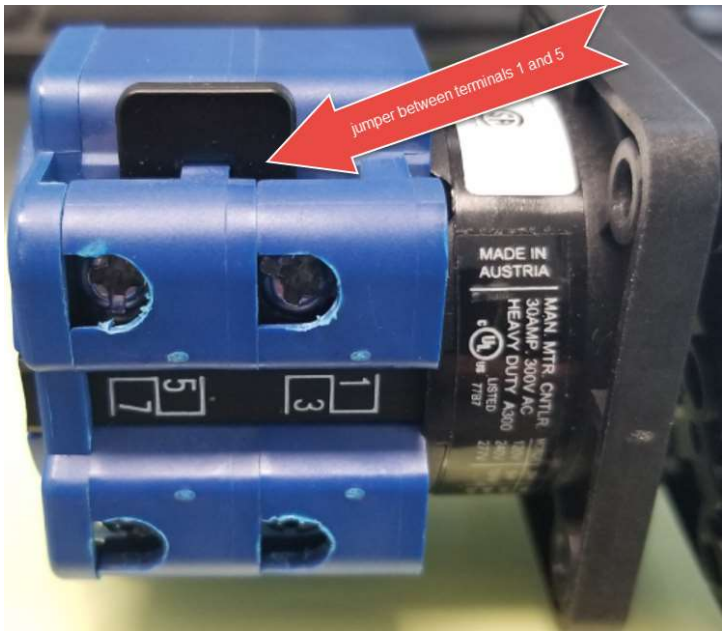

Figure 1

4. Place the STOP switch in the "stop" position, then use a multi-meter to measure the resistance between terminals 6 and 2. The multi-meter reading should show a short (0 ohms).
5. With the STOP switch still in the "stop" position, measure the resistance between terminals 6 and 7, then between terminals 2 and 3. Both of these measurements should show an open or OL reading for both checks.
6. Place the STOP switch in the "run" position and measure the resistance between terminals 6 and 2. The multi-meter should show an open or OL.
7. With the STOP switch still in the "run" position, measure the resistance between terminals 6 and 7, then between terminals 2 and 3. The multi-meter should show a short (0 ohms) for both checks.
8. If the above checks are correct, the STOP switch is operating properly.
9. Reconnect the wires to the STOP switch, ensuring that all 8 terminal screws are tightened. Any loose terminal screws (including those for the unused terminals 8 and 4) can impede system operation or cause a safety hazard.

Use the following table to ensure all wires are correctly connected to the appropriate terminals on the STOP switch.

SWITCH TERMINALS		
	Description	**Terminal Number**
1	Superwind generator (+) Positive	2
2	Superwind generator (-) Negative	6
3	Charge regulator input (+)	3
4	Charge regulator input (-)	7
5	No connection allowed	4
6	No connection allowed	8

For more information or additional test procedure assistance please contact

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