GENERAC

INSTRUCTION SHEET

Set-Up and Adjustment for Voltage Regulator 67680 and 79018

Voltage Regulator Switches

See ***Figure 1.*** With the introduction of Generac's new line of permanent magnet Generators (PMG), the solid state Voltage Regulator had to be updated as well. New Voltage Regulator circuit boards mount three (3) miniature switches, identified on the board as Switch 1, Switch 2, and Switch 3. In the event that a Voltage Regulator must be replaced, the technician must make sure that all switches are properly positioned as follows:

Switch 1: If the generator is a direct excited unit with brushes, set the switch to "1".

For all brushless units, set the switch to "2".

NOTE: On early production voltage regulators, set the switch to Position "E" for brushless generators; to "B" for units with brushes.

Switch 2: For all standard (non-PMG) units, set this switch to "STD". For all PMG (permanent magnet generator) units, set the switch to "PM".

Switch 3: If a seventh wire has been attached to the Voltage Regulator, set this switch to "ON". If a seventh wire has NOT been added to the Voltage Regulator, set the switch to "OFF".

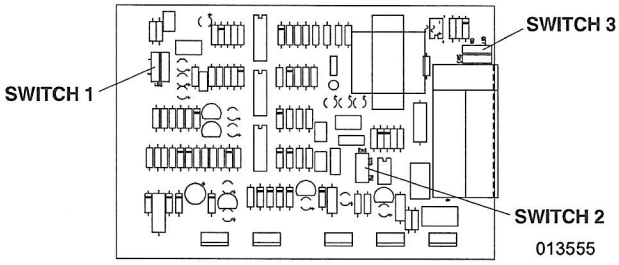

Figure 1. Switch Location

Connecting the Wires to 0676800SRV Voltage Regulator

There are six wires coming out of the voltage regulator: Black, Green, Orange, Blue, Yellow and Brown. Those wires correspond to the following circuits.

- Black – Wire 0 (zero) or 1 (one)
- Green – Wire 162 or 2 (two)
- Orange – Wire S16 or 00 (Neutral)
- Blue – Wire 4 (four)
- Yellow – S15 or 11 (eleven)
- Brown – Wire 6 (six)

Cut the wires from the harness connector and strip 3/8 in (9.525 mm) from each wire. Select the matching lug to the circuit listed above and crimp the lug onto the associated wire, pulling on the completed crimped connection to confirm secure connection. Connect the wires appropriately and mount the regulator within the control box.

Discussion:

*See **Figure 2.** Four adjustment potentiometers are provided on the standby voltage regulator. These are (a) voltage adjust, (b) gain, (c) stability, and (d) underfrequency adjust.*

Procedure:

1. Connect an accurate AC voltmeter and AC frequency meter to the generator's AC output leads.
2. On the regulator, set the potentiometers as follows:
   - **A.** Set the "Voltage Adjust" pot at midpoint.
   - **B.** Set "Gain" to its centered (mid) position.
   - **C.** Set "Stability" to its centered (mid) position.
   - **D.** Turn the "Underfrequency Adjust" pot fully clockwise.
3. On the generator console, set the voltage adjust potentiometer to its centered or mid-position.
4. Turn OFF all electrical loads. Startup and initial adjustment will be done under a "no-load" condition.
5. Start the engine. Let it stabilize and warm up at no-load.
6. Check the reading on the frequency meter with a multimeter. Ensure the unit is running at rated speed (60 Hz electronic governor, 62 Hz mechanical governor).
7. With the unit running at correct no-load frequency, observe the lamps (LED's) on the voltage regulator. All lamps should be ON.
8. Turn the regulators "Voltage Adjust" pot to obtain a line-to line voltage output as shown in ***Table 1.***

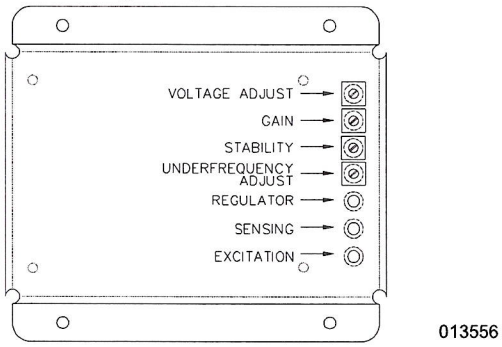

Figure 2. Check and Adjust Voltage Regulator

TABLE 1. Voltage Code Adjustment

Voltage Code	Rated Voltage
A	240 Volts
B	208 Volts
C	416 Volts
D	240 Volts
G	208 Volts
H	416 Volts
J	240 Volts
K	480 Volts
M	220 Volts
N	380 Volts
O	416 Volts

9. If the red "Regulator" lamp (LED) is flashing, turn the "Stability" potentiometer either direction until the flashing stops.
10. Apply an electrical load slowly, and check engine speed recovery.
    - **A.** With full load, place multimeter leads on S15 and S16.
    - **B.** Slowly turn under frequency counterclockwise.
    - **C.** When voltage starts to drop, turn pot back to the point where the voltage was just before it started to drop. For example, if voltage is at 239 while adjusting the under frequency, once the voltage starts to drop, slowly reverse the adjustment until it reaches 239 volts again.
11. With electrical load still applied, check the "Regulator" lamp for flashing. If lamp is flashing, adjust the "Stability" pot until flashing stops.
12. If better response is needed, adjust the "Gain" pot clockwise as needed. Then (if needed), correct for instability by adjusting the "Stability" pot.
13. Turn off electrical loads. Then, recheck the regulator lamps (LED's) at no-load.

When all adjustments have been completed, let the engine run at no-load for a few minutes to stabilize internal engine-generator temperatures. Then, shut the generator down.

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Generac Power Systems, Inc.
S45 W29290 Hwy. 59
Waukesha, WI 53189
1-888-GENERAC (1-888-436-3722)
www.generac.com