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⚡ Wakespeed WS500 Troubleshooting Guide

This guide outlines initial steps for troubleshooting issues with an electrical system featuring a **Wakespeed WS500 Advanced Alternator Regulator**. A professional electrician is recommended for complex issues or installation.

1. Initial Safety Checks

- **Turn off power** before removing components or removing wiring.
- Ensure **all connections are tight and corrosion-free**.
- Verify **belt tension** on alternator (slippage can mimic electrical faults).
- Inspect **fuses and breakers** in the charging circuit.

2. LED Status Indicators

The WS500 regulator communicates system health via its LED:

LED Color	Meaning	Action
Green / Orange	Normal operation	Proceed to voltage checks
Red (steady)	Fault detected	Check error codes
Red (flashing)	Error code sequence	Count flashes to identify fault

3. Voltage Verification

- Use a **multimeter** at the battery and alternator output post.
- If alternator only shows battery voltage:
    - **Probe the field wire**.
    - Measure voltage at the **blue field wire** (should reflect programmed output %).
    - If no voltage → regulator fault.
    - If voltage is present but alternator not charging → alternator fault.

4. Common Error Sources

- **Loose or corroded connections**
- **Voltage drop** in cabling
- **Improper installation** (wrong polarity, miswired harness)
- **Belt slippage or clutch pulley failure**
- **Uncontrolled disconnects** (battery switch opened under load)

5. Error Code Interpretation

- Red LED flashes in **bursts followed by two-digit sequences**.
- Example: 3 bursts + 5 flashes = Error Code 35.
- Refer to WS500 manual for specific code meanings.
- Get Error codes from the wakespeed app

6. Advanced Diagnostics

- Use the **Wakespeed Configuration & Monitoring Utility App** (Bluetooth or USB).
- Capture a **log file** while the engine runs for 3+ minutes.
- Send logs to technical support if unresolved.
- Logging Video

7. Wiring Diagrams & Visual References

There are wiring diagrams and regulator visuals to assist in troubleshooting:

- **Wiring Diagram (Alternator + WS500 harness)**
- **Installation schematic for lithium battery systems**
- **CANbus integration examples with Victron Cerbo GX**

8. Escalation

If issues persist after these checks:

- Document LED codes and voltage readings.
- Record alternator belt condition and wiring layout.
- Share logs with **Nations Starter Alternator**

📞 Support

If you have any questions or need assistance, please contact us. Thank you for your purchase!

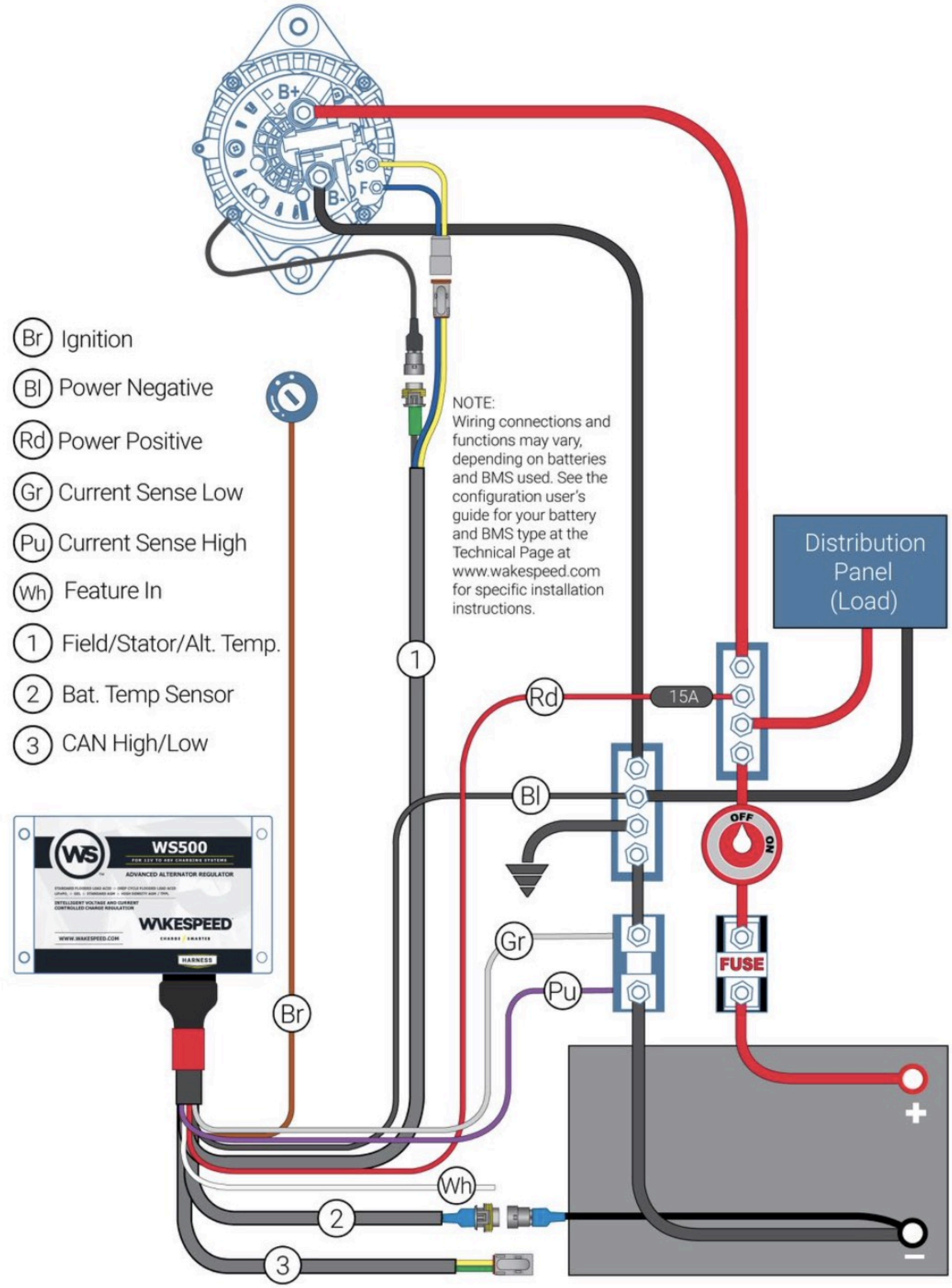
1-888-334-2632

support@nationsstarteralternator.com

wakespeed.com/learn is a great resource for regulator information.

WS500-Product-Manual-10.21.24-compressed.pdf

https://www.wakespeed.com/wp-content/uploads/Wakespeed-Communications-and-Configuration-Guide-v2.6.1-1.pdf



B+
S
F
B-
Br Ignition
Bl Power Negative
Rd Power Positive
Gr Current Sense Low
Pu Current Sense High
Wh Feature In
1 Field/Stator/Alt. Temp.
2 Bat. Temp Sensor
3 CAN High/Low
NOTE:
Wiring connections and functions may vary, depending on batteries and BMS used. See the configuration user's guide for your battery and BMS type at the Technical Page at www.wakespeed.com for specific installation instructions.
Distribution Panel (Load)
1
Rd
15A
Bl
OFF
ON
WS500
ADVANCED ALTERNATOR REGULATOR
WAKESPEED
WWW.WAKESPEED.COM
HARNESS
Gr
Pu
FUSE
Br
Wh
2
3
+
−