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🛠️ Wakespeed WS500 Regulator Installation Guide (Van Harness – 48V System)

This guide outlines the steps for wiring a Wakespeed WS500 regulator using the van harness in a **48V battery system**. Always consult the official wiring diagram before beginning installation and follow all safety precautions.

⚠️ **Critical Disclaimer** Improper installation of a 48V charging system can result in **catastrophic failure, fire, or severe equipment damage**. This installation **must be performed by a qualified technician** using properly rated fuses, wiring, and protective devices. Never attempt installation without professional knowledge of high-voltage DC systems.

⚡ Pre-Installation Notes

- The WS500 regulator is preconfigured based on your battery specifications.
- The van harness is designed to:
  - Mount the WS500 regulator near the batteries.
  - Connect to the **shunt on the positive cable** for current sensing and amperage regulation.
  - Provide power and install sensors needed for WS500 proper operation.

🔌 Wiring Instructions

1. Battery Connections

- Connect the **purple and grey current sensing wires** to the shunt on the **positive cable** exactly as shown in the wiring diagram.

- Connect the **blue heat shrink plug** to the battery temperature sensor and install it on one of the **negative posts** of the battery bank.
- Install an **inline 15A fuse (not included)** on the red power/sense wire. Best practice is to connect this wire on the alternator side of the main power cable fuse.
- Connect the **black wire** to a reliable system ground.

2. Alternator Branch

- The alternator branch of the van harness is 27 feet long.
- Connect the **green heat shrink connector** to the alternator temperature sensor.
- Cut off the connector with blue and yellow wires:
  - Connect the **blue wire** to the alternator field wire.
  - The **yellow wire** is only used if there is a Deutsch connector or separate stator connection point.

3. Alternator Output & Ground

- Use appropriately sized cables from the alternator's output and ground to the battery distribution:
  - **Under 20 feet**: Use 1/0 welding cable.
  - **Over 20 feet**: Use 2/0 welding cable.
- Install a **properly rated fuse** for the alternator at the power distribution point near the battery. Standard practice is to size the fuse at **125% of the maximum alternator output**.

4. Grounding Best Practice

- Run a **dedicated ground wire** from the alternator directly back to the battery power distribution.
- Avoid frame grounds, as they are unreliable and can cause performance issues.

5. Ignition Wire

- Route the **brown ignition wire** to the fuse panel or upfitter panel (e.g., in a Sprinter van).
- Connect to a fuse that provides power **only when the vehicle is running**.

🔋 Regulator Startup

- The WS500 regulator has a **startup delay** (default: 30 seconds, programmable).
- Charging begins when the LED transitions to a **fast blink**, typically after 30 seconds.

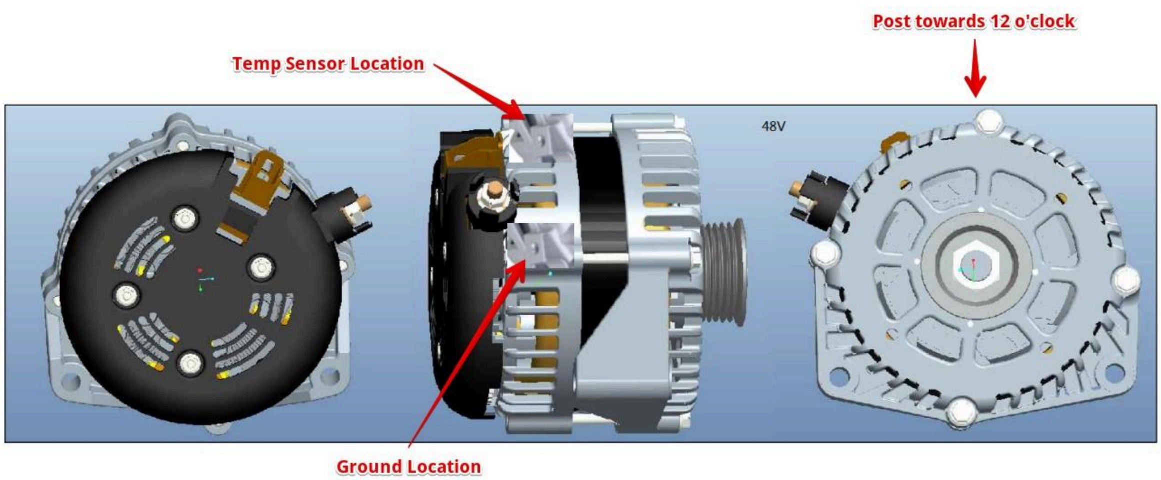
⚠️ Important Safety Notes

- If using service cut-off switches, **do not turn them off while the vehicle is running**. Doing so may cause severe alternator damage.
- Always use **properly rated fuses and wiring** for 48V systems.
- Ensure all connections are secure and torqued to manufacturer specifications.

📞 Support

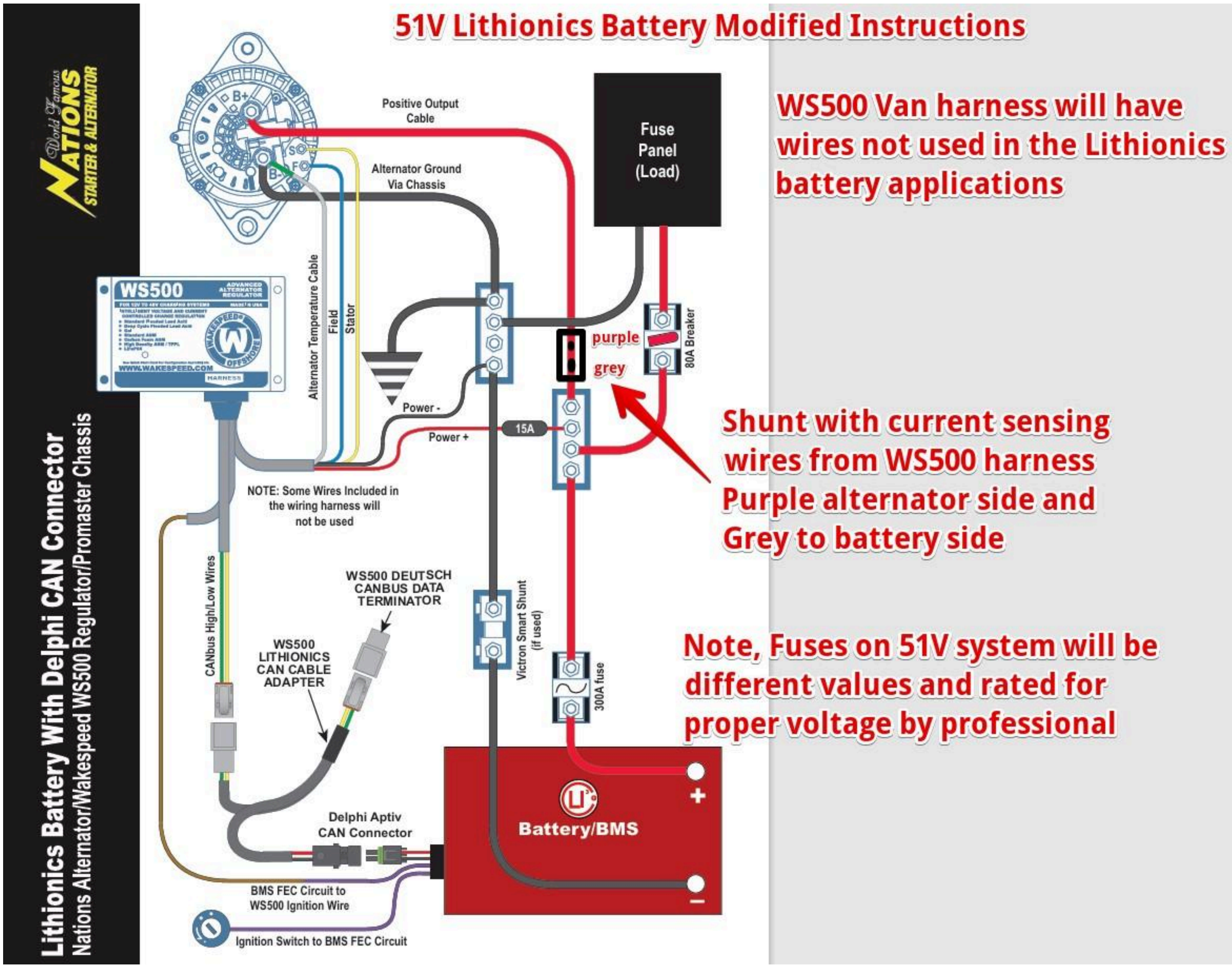
For assistance, please contact:

- Phone: **1-888-334-2632**
- Email: **support@nationsstarteralternator.com**
- Resources: wakespeed.com/learn
- Reference: *WS500 Product Manual – 10.21.24*

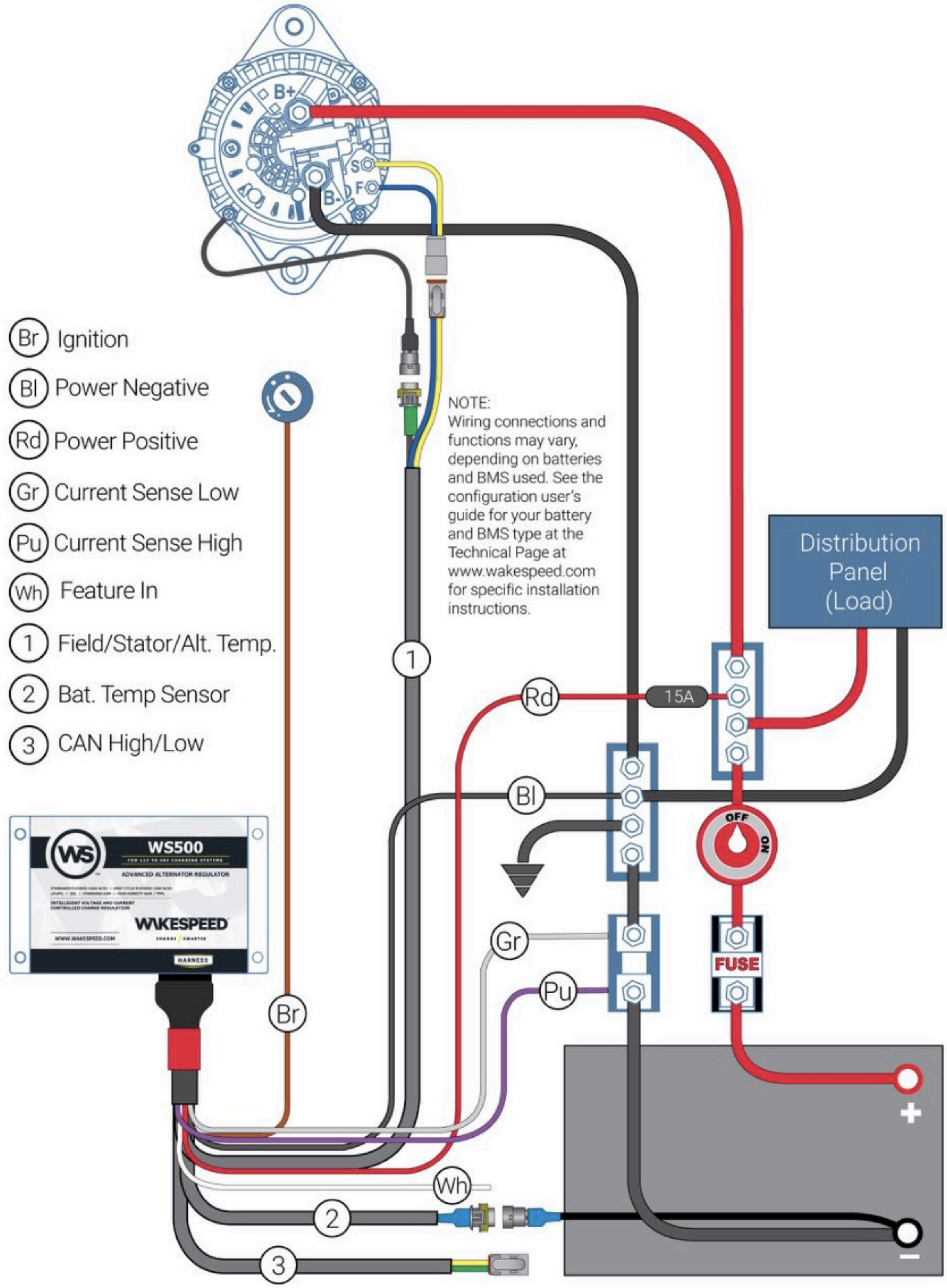


Need a location for ground anywhere on frame for battery cable, regulator ground,
and a temp sensor for external regualtor...


.3M THERMISTOR



Shunt placement for 48v systems will be on the alternator positive cable by distribution for monitoring and limiting amperage.



Shunt will be relocated to the alternator positive in legacy non can installations.