ARCO Zeus Alternator & Regulator OEM Troubleshooting Guide

INITIAL CHECKS

- [ ] Ensure all harnesses are connected and seated properly.
- [ ] Verify the fuse on the “ALT V+” line of the Alternator Harness is intact (visually and with continuity test).
- [ ] Check the engine belt around the alternator pulley for proper tension and engagement.
- [ ] Ensure the main battery disconnect switch is in the “ON” position.

REGULATOR

Is not powering on

With the engine off, remove the Battery/Control Harness from the Regulator, use a multi-meter to measure:

- [ ] Pin 4 (Batt V+) to Pin 5 (Batt Gnd). *Appendix A Measured value (volts):_____

Is battery voltage present?

- [ ] If no, ensure the harness has continuity (end-to-end) and has not been damaged during installation.
- [ ] If yes, re-connect to the regulator and attempt to try and connect with the ARCO App.

If the device does not power on, it will need to be evaluated by ARCO.

Measured voltage shows 0.0v in ARCO App (Not a CAN-Bus System)

With the engine off, remove the Battery/Control Harness from the Regulator, use a multi-meter to measure:

- [ ] Pin 10 (Batt V+ Sense) to Pin 2 (Batt V- Sense). *Appendix A Measured value (volts):_____

Is battery voltage present?

- [ ] If no, ensure the harness has continuity (end-to-end) and has not been damaged during installation. Check the main fuse integrity and replace it if necessary.
- [ ] If yes, re-connect to the regulator and verify the voltage is seen in the App.

If the device does not show measured voltage, it will need to be evaluated by ARCO.

Battery Current not showing in ARCO App (Not a CAN-Bus System)

Ensure these connections are correct.

- ☐ Bat Shunt+ (White w/Blue Tracer) wire is connected to the battery side of the shunt?
- ☐ Bat Shunt- (White w/Orange Tracer) wire is connected to the load side of the shunt?

If these connections are verified.

- ☐ Check the crimp connectors to ensure proper end termination.
- ☐ Ensure the harness has continuity (end-to-end) and has not been damaged during installation.

If the device does not show measured current, it will need to be evaluated by ARCO.

Battery Data not showing in ARCO App (CAN-Bus System)

- ☐ Validate that the batteries are compatible with the regulator and support the N2K or RV-C protocol.
- ☐ Check the ethernet cables for damage, and ensure the connectors are fully seated and locked into their ports.
- ☐ Ensure the network is properly terminated with TWO resistors, one at each end of the system.
- ☐ Validate that the devices on the network (batteries, bms, etc.) are configured to transmit their data over the CAN Bus.
- ☐ Ensure that the regulator is set to the correct 'Sync Mode' for the system it is installed in.

ALTERNATOR

The system is not charging

With the engine off, remove the Alternator Harness from the Regulator, use a multi-meter to measure:

- ☐ Pin 3 (Alt V+) to Pin 1 (Alt Gnd). *Appendix A Measured value (volts):_____

If battery voltage is present:

- ☐ Ensure the Alt Field wire (Blue w/Black Tracer) has continuity (end-to-end).
- ☐ All crimped connections are properly terminated and seated.

If battery voltage is not present:

- ☐ Ensure the Alt V+ and Alt Gnd wires have continuity (end-to-end).
- ☐ All crimped connections are properly terminated and seated.
- ☐ Inspect the Main System fuse's integrity and replace it if necessary (on positive cable from alt to battery bank).
- ☐ The 15A fuse is intact and not broken. Visually inspect and test with a multi-meter for continuity (a half-popped fuse will still have continuity). Replace if there is any question about its integrity.
- ☐ Inspect the main battery switch for full functionality and that it is in the ON position.

Re-measure the pins and resolve any issues. When battery voltage is measured, re-connect the harness and re-test to ensure the system is charging properly.

Engine RPM is not showing in the App

With the engine off:

- ☐ Check the Alt Tach (White) wire for continuity (end-to-end) and ensure it has not been damaged during installation. If a fuse is installed on this line, check the fuse integrity and replace it if necessary. *Appendix A
- ☐ Once verified that the harness and connections are good, reconnect it to the regulator.

For systems with “Tach Required” enabled:

- [ ] Ensure the “Duty Minimum (%)” under the Alternator tab is set to between 5 and 7 percent. Save any changes using the orange floppy disk in the top right corner of the app.
- [ ] Start the engine.
  Check the crimp connectors to ensure proper end termination.
- [ ] You should immediately see the engine rpm populate. If you see the message “Waiting for tach” displayed in the app, turn off the engine and increase the “Duty Minimum (%)” by one percent and save the change. Repeat this process until you get an rpm reading or reach 10% duty.

If the device does not show measured current, it will need to be evaluated by ARCO.

For systems with “Tach Required” Disabled:

- [ ] Connect to the regulator with the ARCO App and observe the charging sequence and engine rpm. When the regulator begins the “Soft Ramp” state and the “Alt Duty” percentage increases, you should see the engine rpm populate.
    - o If the engine rpm stays at zero, is the “Battery Amps” increasing?
        - If yes, there is a connection/harness issue on the Alt Tach signal line. Re-evaluate these connections for any issues that may have been missed.
        - If not, the alternator needs to be inspected by ARCO.

Measured Current and Voltage is not present in the App

With the engine off:

- [ ] The Alternator shunt is installed on the positive line of the alternator.
- [ ] Alt Shunt+ (Green w/Blue Tracer) wire is connected to the alternator side of the shunt.
- [ ] Alt Shunt- (Green w/Orange Tracer) wire is connected to the battery side of the shunt.

In the ARCO App:

- [ ] The Alternator shunt is enabled and configured properly.

If these connections are verified:

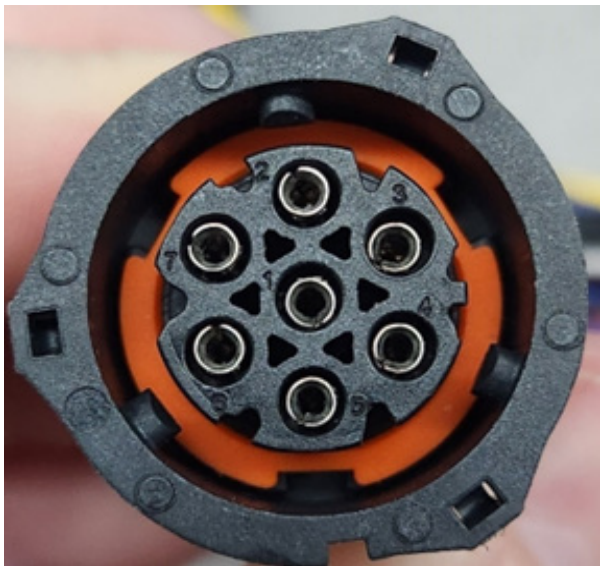
- [ ] Check the crimp connectors to ensure proper end termination.
- [ ] Ensure the harness has continuity (end-to-end) and has not been damaged during installation.

If the device does not show measured current and voltage, it will need to be evaluated by ARCO.

Name of evaluator _____ Date of evaluation _____

APPENDIX A

7-Pin Alternator Connector		
PIN #	**FUNCTION**	**COLOR**
1	Alt Gnd	Yellow w/Black
2	Alt Field	Blue w/Black
3	Alt V+	Red w/Black
4	Alt Temp (+)	Black
5	Alt Temp (-)	Black w/White
6	Alt Tach (T/W)	White
7	Input 2	Purple w/Yellow



7-Pin Alternator Connector		
PIN #	**FUNCTION**	**COLOR**
1	Batt Temp (-)	Black w/White
2	Batt V- Sense	Green w/Yellow
3	Output 1 (Lamp)	Purple w/Light Purple
4	Batt V+	Red
5	Batt Gnd	Yellow
6	Alt Shunt (-)	Green w/Orange
7	Alt Shunt (+)	Green w/Blue
8	Batt Temp (+)	Black w/White
9	Enable (ATC)	Gray
10	Batt V+ Sense	Orange
11	Batt Shunt (-)	White w/Orange
12	Batt Shunt (+)	White w/Blue
13	Input 1	Purple
14	Ignition	Brown

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