

Troubleshoot

Rectifier / Regulator



Requirement

Multimeter



The charging system is composed of 3 major components:

- Stator
- Rotor
- Regulator

The stator is the static part attached to the front cover of the engine.

On Kavinci Engines, the rotor is the flywheel.

These 2 components together convert the magnetic field in a AC Voltage.

To finish the regulator bolted on the Kavinci E-Bar Converts the AC Voltage in DC Voltage to Charge the battery when the engine is running.

1. Check the fuses

1. Remove the fuse from the fuse box
2. Visually check if the regulator fuse is blown, if you are not sure you can use your multimeter as continuity mode and put the black probe on one pin of the fuse and the red probe on the other pin
3. If the Regulator fuse is blown or there is no continuity on the pins, **change the fuse**
4. If the fuse keep blowing
 1. When Powering on the Engine, **Replace the Regulator**
 2. When Cranking or Running, **Check The next step and Stator Troubleshoot (or Charging system Troubleshoot)**

2. Check Short Circuit

1. Disconnect the 3 Pins Weather Pack Connector on the Regulator / Rectifier
2. Disconnect the 2 Pins Weather Pack Connector on the Regulator / Rectifier
3. Take a multimeter set in Continuity or Ohm (“Ω”)
4. Test the Continuity between red wire of the Regulator and the Ground Wire of the Regulator
5. Result of the Short Circuit test :

Black probe Red probe	Regulator - Black Wire	Regulator - Red Wire
Regulator - Black Wire (Ground)	x	No Continuity or “OL”
Regulator - Red Wire (Power)	No Continuity or “OL”	x

If one of the tests is not correct, Replace the Regulator



*Weather Pack Connector
3 Pins Female*



*Weather Pack
Connector 2 Pins
Female*

3. Test DIODE Working

1. Test Diode between Power Wire and Ground

1. Disconnect the 3 Pins Weather Pack Connector
2. Disconnect the 2 Pins Weather Pack Connector
3. Take a multimeter set in Diode Testing



4. Test the Continuity between red wire of the Regulator and the Ground Wire of the Regulator
5. Result of the Diode test :

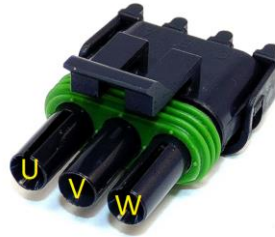
Black probe Red probe	Regulator - Black Wire	Regulator - Red Wire
Regulator - Black Wire (Ground)	x	0.6 – 0.7 V
Regulator - Red Wire (Power)	Open Loop ("OL")	x

If one of the tests is not correct, Replace the Regulator

2. Test Diode on The Ground

1. Disconnect the 3 Pins Weather Pack Connector
2. Disconnect the 2 Pins Weather Pack Connector

3. Take a multimeter set in Diode Testing
4. Test the Diode Voltage between each Phase input of the regulator and the Ground Wire of the Regulator



5. Result of the Diode test :

Black probe Red probe	Regulator - Phase U	Regulator - Phase V	Regulator - Phase W
Regulator - Black Wire (Ground)	0.5 – 0.6 V	0.5 – 0.6 V	0.5 – 0.6 V

If one of the tests is not correct, Replace the Regulator

3. Test Diode on the Power

1. Disconnect the 3 Pins Weather Pack Connector
2. Disconnect the 2 Pins Weather Pack Connector
3. Take a multimeter set in Diode Testing
4. Test the Diode Voltage between each Phase input of the regulator and the Ground Wire of the Regulator
5. Result of the Diode test :

Black probe Red probe	Regulator - Red Wire
Regulator - Phase U	0.15 – 0.25 V
Regulator - Phase V	0.15 – 0.25 V
Regulator - Phase W	0.15 – 0.25 V

If one of the tests is not correct, Replace the Regulator

4. Measure Raw Charging Voltage

1. Let the 3 Pins Weather Pack Connector Connected or Re-Connect the Connector
2. Disconnect the 2 Pins Weather Pack Connector
3. Take a multimeter set in DC Voltage (“ \bar{V} ”) Measure
4. Put the Red Probe on the red wire and the black probe on the Black Wire and Press the Start Button (Cranking or Running)
5. The value should be between 14 V and 18 V and should once the engine stop, the value should slowly decrease (around 10 seconds to fully discharge)

If one of the tests is not correct, Replace the Regulator

Regulator / Rectifier Troubleshoot

