

ABC
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Charging Systems on Van Hool Coaches



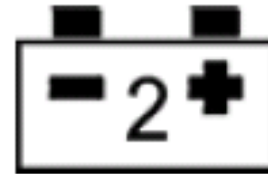
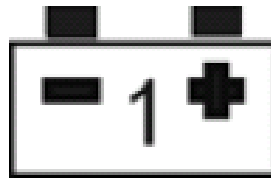
Exclusive U.S. **VANHOOL** Distributor



Charging System

Prior to starting the coach:

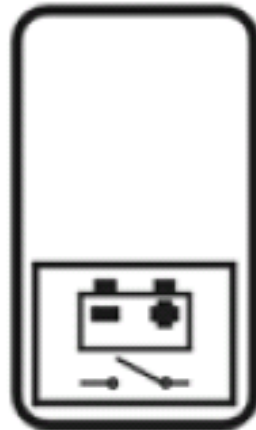
- Pre-trip inspection should involve checking the charging system.
 - Observe 2 battery symbols on the dash



Charging System

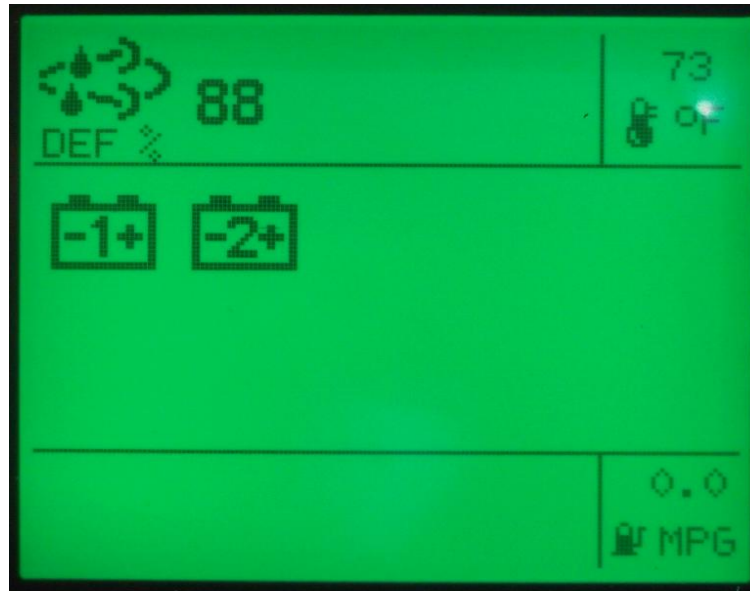
- 2 battery symbols should remain on the dash once the Master and Ignition switches have been cycled on.

MASTER SWITCH



Charging System

- The battery symbols represent the alternators are online and ready to start charging.



Charging System

Once the coach is running:

- The alternator output will cancel the battery symbol for its related alternator.
 - This is done with the D+ terminal on the back of the alternator.
- As the alternator rotor rotates and increases the current output, the rise in voltage is the message to the coach that the alternator is charging.



Charging System

Troubleshooting

If you find only one battery symbol displayed on the dash at the time the ignition is turned on, the following checks can be made to determine the problem:

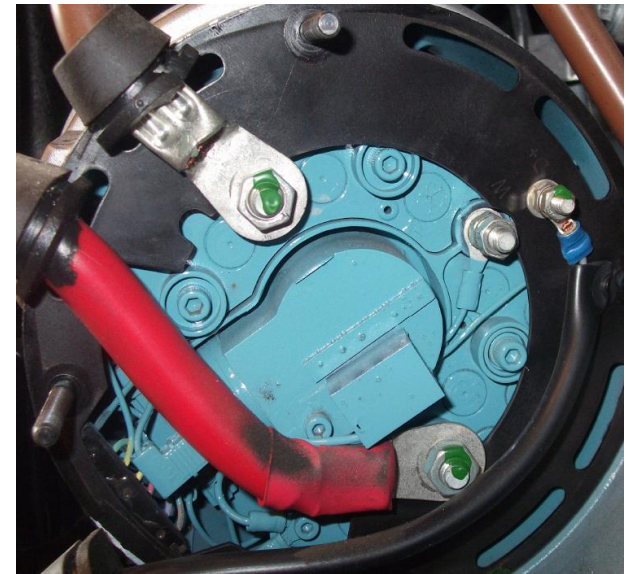


Charging System

Troubleshooting missing battery symbol

A good visual inspection of the charging system can be of great value.

- Check circuit breakers **Z70** and **Z71**
 - assure breakers are in position
 - assure center reset pin is not pushed out
- Check the alternators
 - verify connections are clean and cables secure
 - no damage or unnecessary exposed copper wire strands



Charging System

Troubleshooting

- Once the visual inspection checks out, we can start testing with the Volt Ohm Multimeter.
- Being familiar with your VOM can be a time saver for diagnostics.
- Using the VOM, we can move toward the suspected alternator; if battery #1 symbol is displayed, then we start at alternator #2.

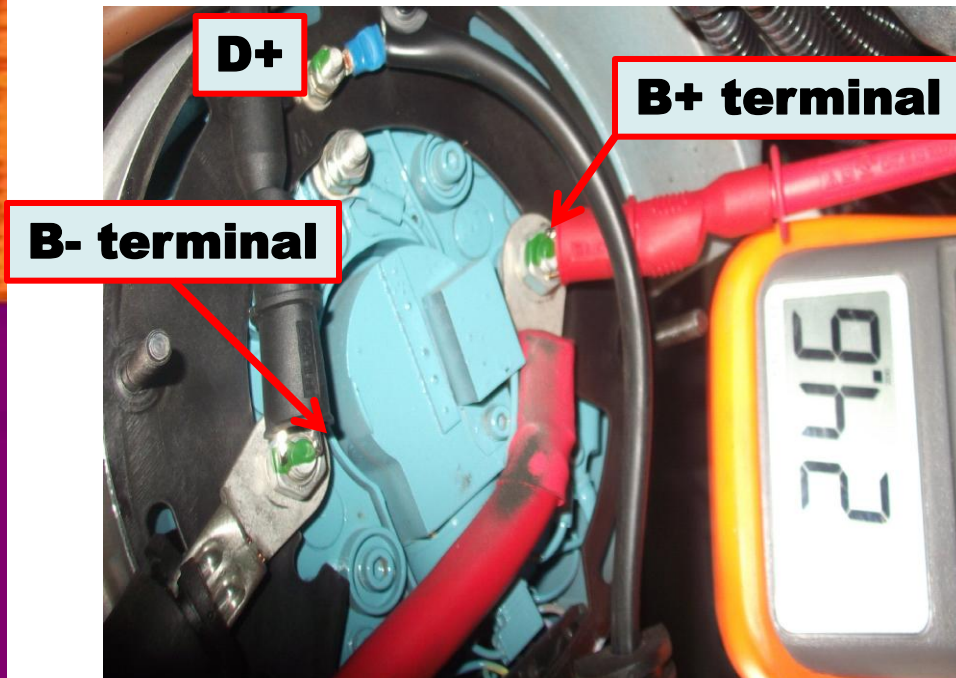


Charging System

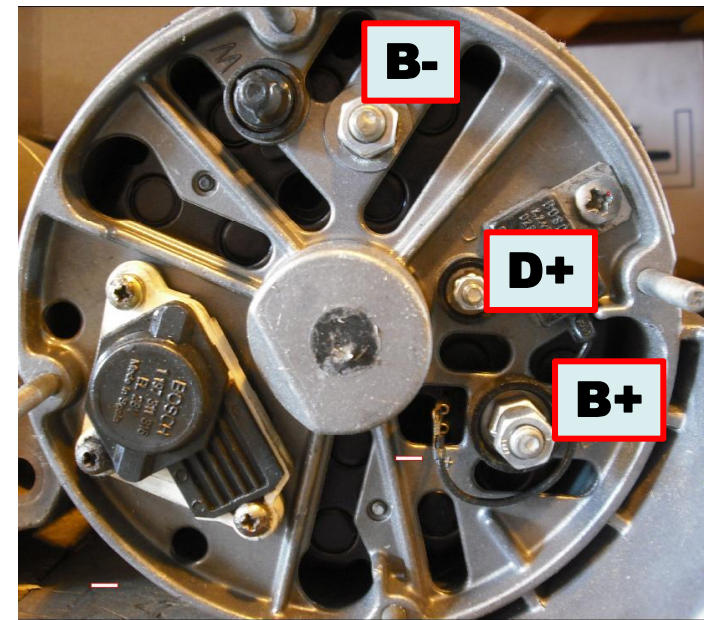
Troubleshooting

- At the back of the alternator, attach the black lead from the VOM to B- terminal, which should have a cable attached that runs directly to chassis ground.
- Attach the red lead of the VOM to B+ terminal. With the master switch on, we can confirm full battery voltage to the alternator.

(Terminal positions shown below.)



Leece-Neville



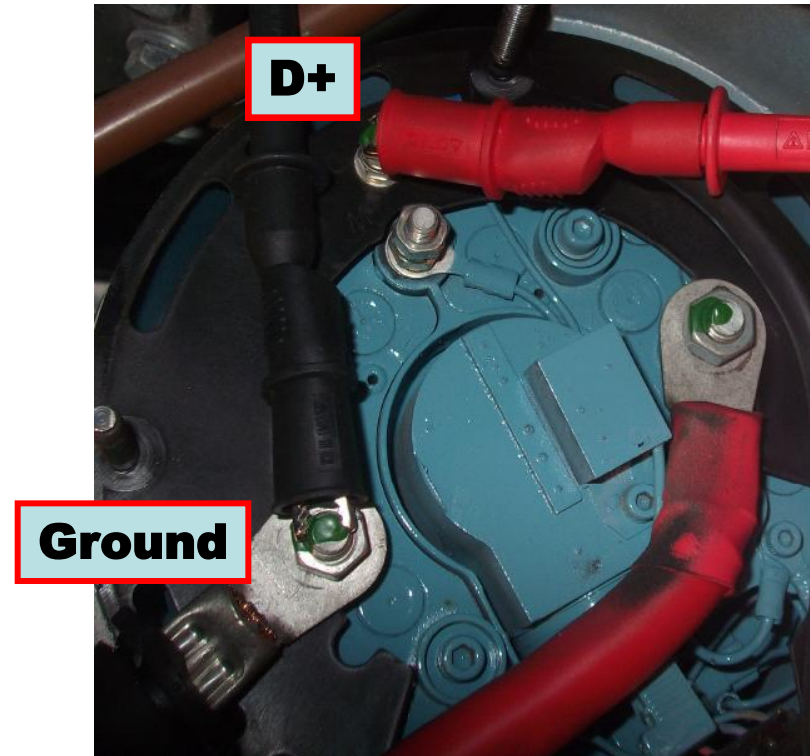
Bosch



Charging System

Troubleshooting missing battery symbol with coach not running

- Move the red lead of the VOM to the D+ terminal.
- Reading should be less than 3 volts.



Charging System

Troubleshooting missing battery symbol with coach not running

This reading will tell us the alternator is absorbing the voltage being supplied to excite the alternator.

- If the reading is more than 3 volts, then internally the alternator has an open circuit.
 - Possibly due to brushes being worn and unable to make good contact with the field coil through the slip rings on the rotor.
- We can also verify voltage at the wire, by removing the wire from the D+ terminal to insure voltage is being supplied at the wire.



Charging System

Troubleshooting with battery symbol displayed with coach running

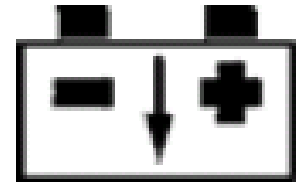
- Using the VOM, start by setting the meter to VDC.
- Connect the black lead to the B- terminal or chassis ground.
- Attach the red lead to the B+ terminal to verify full battery voltage has reached the alternator.
- Once this has been determined, connect the red lead to the D+ terminal.
- A good working alternator should read full charging 27 VDC.
- If a reading of full voltage is read on the meter and the battery indicator remains on the display, this could indicate an open circuit, like a broken wire or tripped circuit breaker.



Charging System

Troubleshooting Low Battery Voltage Symbol

➤ A symbol like this is an indication the electrical system has reached a state of inadequate charge.



➤ If this appears without the coach running, we can suspect the battery voltage has dropped due to:

- Weak batteries caused by extended period of inactivity
- Low water level in batteries
- Loose connection or corrosion
- Load on the system without recharge
- Running the electrical system under full load while the coach is at a low idle speed

Charging System

Troubleshooting Low Battery Voltage Symbol

To determine a defective alternator, it may be necessary to remove the belt from one, or disconnect the cables on the back of the alternator.

1 Before the test, check whether the batteries are in good condition and fully charged. Also check the security of the battery clamps.



Charging System

Troubleshooting Low Battery Voltage Symbol

- 2** Connect an accurate voltmeter to the battery group.
- 3** Let the engine turn at 1000 rpm's.
- 4** Switch on all electrical circuits. The voltmeter should now indicate more than 27 volts.

NOTE: The charging value on a warm system will be .5 volt lower than at initial start.



Charging System

Troubleshooting Low Battery Voltage Symbol

- 5** If the charge is too low, replace voltage regulator of the alternator and repeat test.
- 6** If there is no improvement after carrying out step 5, remove the alternator for repair or replacement.

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