

LAMBERT ENTERPRISES INC.

1553 HEWLETT DRIVE * STARKVILLE, MS 39759 * TELEPHONE (662) 323-9200,
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Instructions for the Model LE-415 Super *Keep-It-Up* Battery Maintainer

Note: Your Model LE-415 may not appear to operate when it is first installed. Its green pilot lamp may not glow and you will think something is wrong. This is because your coach battery is fully charged and your converter/inverter is providing only a "float" voltage. If this occurs, you can activate your Model LE-415 by starting your vehicle's engine and running it at a fast idle for a few seconds. This will activate your Model LE-415. You will not have to perform this activation again because the normal operation of your motorhome will keep it activated.

Your Model LE-415 Super *Keep-It-Up* Battery Maintainer keeps your vehicle's chassis (engine) battery charged between trips and while you are set up at a campground. You won't have to start your engine periodically to keep the chassis battery charged, or use a battery charger. Your chassis battery will be maintained in a charged condition whenever your vehicle is connected to shore power (plugged into a 110 V. receptacle). Your converter/inverter is specifically designed to keep your coach battery fully charged, but not overcharged. With your Model LE-415 installed, your converter/inverter will also keep your chassis battery fully charged, but not overcharged. Your rig will be ready to go whenever you are, and your chassis battery will last longer because you will avoid charge/discharge cycles. The October 1995 issue of Consumer Reports, p. 675 states: "Batteries last longer if they're maintained as close to fully charged as possible."

While connected to shore power you can even turn on your radio, cellular phone, cigarette lighter, or anything else plugged into your lighter socket without running your chassis battery down. Your Model LE-415 will protect the chassis battery from such loads by drawing up to 15 Amp. from your converter/inverter. Your LE-415 is internally protected against loads exceeding 15 A. If such loads occur, your LE-415 will shut itself down. After a short time it will start up again automatically. If the load is still too high, it will repeatedly shut down then start up again until the excess load is

removed.

Most motorhomes have small parasitic ("hidden") loads imposed on the chassis battery by electronically controlled transmissions, radios, clocks, etc. These loads will remain even if the vehicle is parked and you have turned off everything connected to the chassis battery. The Model LE-415 will keep parasitic loads from draining your battery between trips provided you are connected to shore power.

When you are dry camping, your Model LE-415 will sense that your converter/inverter is not powered up, and it will shut itself down. This feature protects your coach battery from being drained in the event that your chassis battery has gone bad. When you resume your trip however, your Model LE-415 will resume its normal operation. The green pilot lamp will glow whenever the Model LE-415 is operating.

Your Model LE-415 is conservatively designed for reliability and long life. Installation is simple, requiring only three connections. Connect the red wire (from the terminal labeled "Chassis/Eng.") to the "hot" (ungrounded) terminal of the chassis battery, or to the terminal on your isolator that is connected to the chassis battery. Connect the black wire (from the terminal labeled "Coach/Aux.") directly to the "hot" (ungrounded) terminal of your coach battery. Lastly, connect the yellow wire (from the terminal labeled "Negative") directly to the negative (ground) terminal of the coach battery. Connect the yellow wire last, after the red and black wires have been connected. Connect the yellow wire only to the negative terminal of the coach battery, or to a reliable chassis ground. If it is connected to a less reliable ground, your Model LE-415 may not properly sense when your converter/inverter is powered up. Caution: When connecting your Model LE-415 be sure to route your wires carefully to avoid any contact between a bare wire or connector and the metal case or the metallic foil end labels.

The three terminals of your Model LE-415 are permanently marked so you will be able to identify them even if the original labels have been removed. The Chassis/Eng. terminal is slotted, the Coach/Aux. terminal is not slotted, and the Negative terminal is located between the other two terminals and is much smaller.

WARRANTY

Your Model LE-415 Super *Keep-It-Up* Battery Maintainer is warranted to be free from defects in materials or workmanship for a period of one year from time of purchase. If you feel your product is defective please return it to Lambert Enterprises Inc., freight prepaid, with a note explaining the problem in detail. If

it shows no signs of improper installation or use, it will be repaired or replaced free of charge. Lambert Enterprises Inc. accepts no responsibility for any damages consequent to the use of this product. No other warranties written or otherwise are made with regard to this product.

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PROCEDURE FOR TESTING THE MODEL LE-415 SUPER *Keep-It-Up* BATTERY MAINTAINER

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General

The Model LE-415 has two operating states: Active and Inactive. The state is indicated by the green LED: ON when Active, OFF when Inactive.

When in the Inactive state (green LED of off) the LE-415 is idling and it neither charges nor discharges the Chassis (engine) battery. The LE-415 becomes inactive while dry camping (i.e. when the coach is not plugged into shore power and the generator is not running). This keeps the coach battery from being drained into a defective chassis battery (with a dead cell, for example).

When in the Active state (green LED is on), the LE-415 passes current from the Inverter (Converter) to the Chassis battery keeping it charged. The LE-415 becomes active whenever the Inverter (Converter) is powered up (i.e. the coach is plugged

into shore power, or the generator is running). The green LED is located next to the Negative terminal.

The LE-415 uses the Coach (house) battery voltage to indicate whether the Inverter (Converter) is powered up. When the Coach battery voltage exceeds 13.5 volts, the LE-415 becomes active, and remains active until the coach battery voltage drops to 12.8 volts.

The LE-415 will not pass current from the Chassis battery to the Coach battery under any circumstances.

Testing the LE-415 is a simple procedure comprising two parts: (a) does the unit become Active at the proper voltage?, (b) does the unit conduct current properly?

In-Vehicle Testing

Tools needed: (a) digital voltmeter, (b) 12V. test lamp.

1. Disconnect the coach from shore power, and kill the engine.
2. Disconnect the wire from the Chassis battery terminal of the LE-415.
3. Connect a 12V. test lamp between the Chassis battery terminal of the LE-415 and chassis ground.
4. Connect a digital voltmeter between the Coach battery terminal of the LE-415 and the Negative terminal of the LE-415.
5. Observe the green LED. If it is OFF, go to step #7.
6. If the green LED is ON, turn on some interior lights to drain the Coach battery until the green LED goes OFF.
7. Connect the coach to shore power and read the digital voltmeter. If it reads 13.5 volts or higher, the green LED should be ON. If it is not ON, the LE-415 should be replaced.
8. If the digital voltmeter reads less than 13.5 volts, start the engine and run it for a few seconds. The charging current from the engine's generator will raise the voltage above 13.5 volts and turn the Model LE-415 ON. If the digital voltmeter reads 13.5 volts or higher, the green LED should be ON. If it is not ON, the LE-415 should be replaced.

9. Whenever the green LED is ON, the 12 V. test lamp should light. If it doesn't, the LE-415 should be replaced

"In Pursuit of Excellence"