

Replacing the Batteries in Fortress LI 2.5K and LI 3K

This FTS describes how to replace the batteries in Fortress LI 2.5K and LI 3K units. **The batteries should be replaced by a qualified technician. If you have any questions or problems, please call Powerware Global Services at 800-356-5737. (Outside of the U.S. and Canada, call your local Powerware office.)**

When you replace the batteries, you will need the following tools - use insulated tools:

- Phillips Screwdriver
- (2) 7/16" Wrenches
- 1/4" Nutdriver
- 10mm Wrench
- Torque Wrench Capable of Tightening to 55 inch-lbs.
- 7/16" Socket

Before you begin the replacement procedure, read the important safety warnings on the next page.

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IMPORTANT SAFETY INSTRUCTIONS - SAVE THESE INSTRUCTIONS

This publication contains important instructions that you should follow during battery replacement.



Read the following warnings before you go on to Section 1:

The batteries used in this system are capable of producing dangerous voltages and high currents. They may cause severe injury if terminals are shorted together or to ground (earth). Extreme care must be taken to avoid electrical shock and burns caused by contacting battery terminals or shorting terminals during circuit board replacement.

A qualified technician who is familiar with the Fortress should replace the circuit board. The technician must take these precautions:

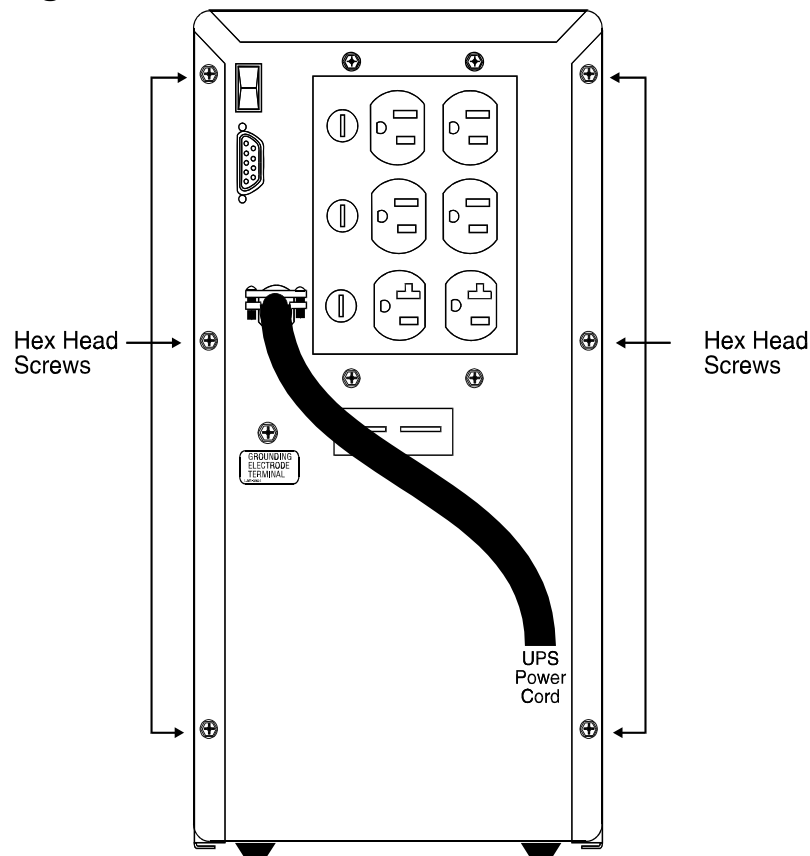
1. Before you remove the UPS' cover, always remove or shut off all sources of AC power and shut off the UPS. You must turn the UPS On/Off (1/0) switch to Off (0) and unplug the input power cord to make sure AC voltage will not be present in the Fortress.
2. Whenever the UPS' On/Off switch is on, there will be AC voltage inside the UPS and at the UPS' receptacles; this is true because the UPS can supply power from AC line or from its batteries. To avoid equipment damage or personal injury, always assume that there may be voltage inside the UPS.
3. All UPS units contain hazardous AC and DC voltages. Because of these voltages, a qualified technician must replace the circuit board.
4. Protective clothing and eye wear must be worn. Batteries contain caustic acids and toxic materials and can rupture or leak if mistreated. Remove rings and metal wristwatches or other jewelry. Don't carry metal objects in pockets where they can fall into the UPS.
5. Tools must be insulated so that they will not short battery terminals. At no time can a tool be allowed to short a battery terminal to another battery terminal or to the UPS cabinet. Do not lay tools or metal parts on top of the batteries.
6. UPS batteries are high current sources. Shorting battery terminals can cause severe arcing, equipment damage and injury. A short circuit can cause a battery to explode. Always wear protective clothing and eye protection and use insulated tools when working near batteries.

Before you replace the batteries in Fortress LI 2.5K and LI 3K units, you must power down the Fortress and remove its cover. See Section 1 below.

Section 1: Removing the Fortress' Cover

1. Shut off the equipment plugged into the Fortress and unplug the equipment.
2. Next, follow these three steps:
 - a. Turn the On/Off (1/0) switch on the back of the Fortress off (to 0).
 - b. Unplug the Fortress.
 - c. If the power cord is removable, remove it from the back of the Fortress.
3. Remove the six screws on the back of the Fortress that hold the cover in place. See Figure 1 below.

Figure 1

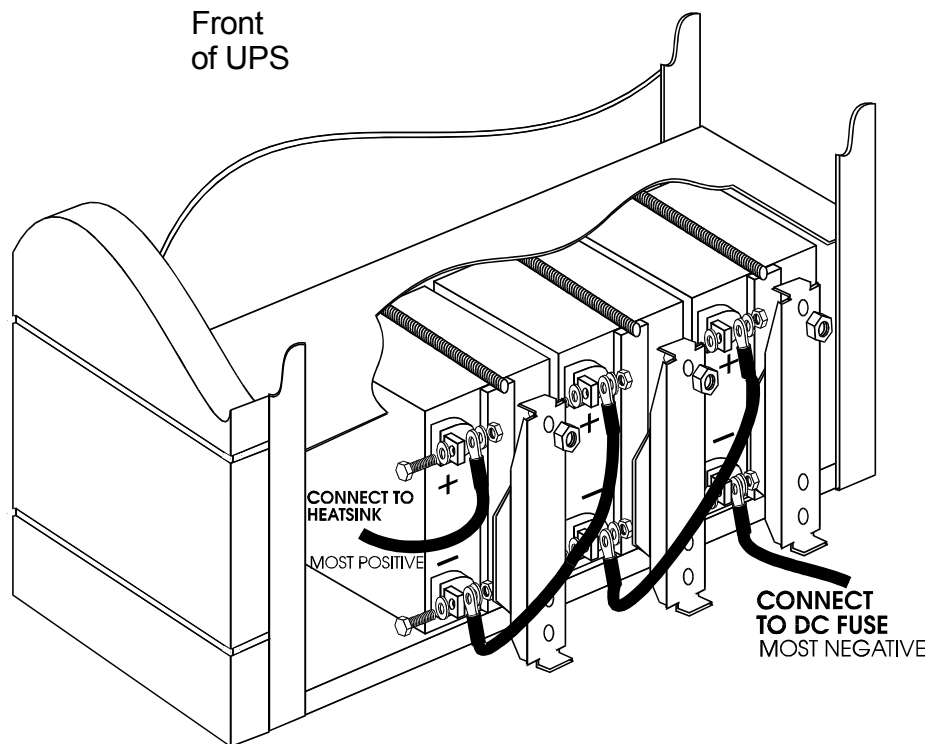


4. Slide the cover back until it comes off.

Section 2: Disconnecting the Fortress' Batteries

1. Disconnect the most negative battery cable connection from the battery terminal. Refer to Figure 2. Use electrical tape to wrap the exposed metal on the battery cable that you just removed.
2. Disconnect the most positive battery cable connection from the battery terminal. Refer to Figure 2 below. Use electrical tape to wrap the exposed metal on the battery cable that you just removed.
3. Turn the On (1) / Off (0) switch to the On (1) position. The front display will light for about five seconds, then go blank. This discharges the DC filter capacitor.

Figure 2
Standard
LI 2.5 or 3K



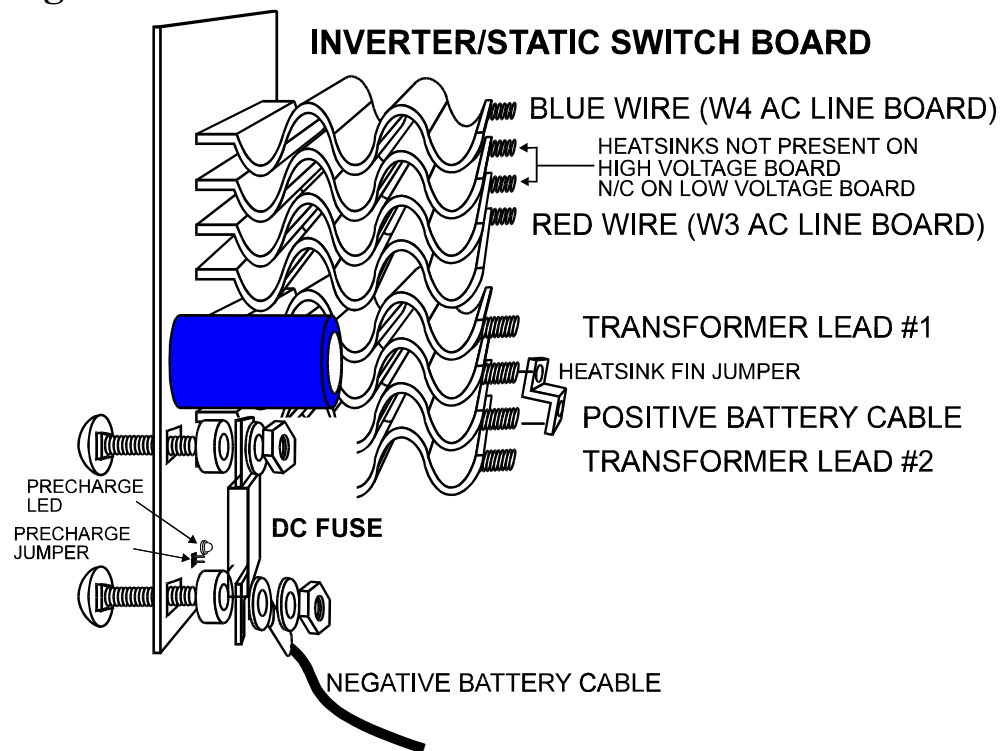
Section 3: Removing the Batteries

Once you have removed the cover and disconnected the batteries, position the Fortress so that the unit faces you.

Follow the steps below to replace the batteries.

1. Refer to Figure 3. Locate the DC fuse on the Inverter/Static Switch printed circuit board. Loosen the hardware and remove the DC fuse.
2. Disconnect the battery cables from the terminals of the battery or batteries that need replacement.
3. Remove the hex head nut securing the battery bracket(s). If you are replacing the front or rear battery in units with extended runtime batteries, you must loosen the center battery bracket and slide the battery forward or back to allow spacing to remove the battery.

Figure 3



4. Remove the battery bracket(s) by tilting the bracket out and lifting the lower tab from the slot on the chassis.

WARNING:

When removing the battery brackets, make sure the bracket is not shorted across the battery terminals.

5. Remove the failed battery or batteries.

Section 4: Installing the New Batteries

1. Install the new battery or batteries in the battery compartment. Allow 1/2" spacing between the batteries for cooling.
2. Place the lower tab on the bracket in the correct slot on the chassis. Lift the bracket flush against the battery and install the hex nut. Tighten the nut until there is 1/8" space between the battery and the top of the bracket.
3. Install the short battery jumpers. Tighten the bolts on the battery terminal to 55 inch-lbs.

Section 5: Reconnecting the Batteries

1. Reconnect the most positive battery cable to the battery terminal.
2. Reconnect the most negative battery cable to the battery terminal. Tighten both cables to 55 inch-lbs.
3. Refer to Figure 3. Locate the precharge jumper on the Inverter/Static Switch printed circuit board. Using a screwdriver, short the pins on the precharge jumper. The precharge LED will light and grow dim after about 20 seconds. Remove the short and install the DC fuse.
4. Turn the On/Off switch on (to 1). The yellow Battery light on the front panel should be on, showing that the unit is running on inverter. Measure the output voltage at the Fortress' output receptacles to make sure the Fortress provides the proper output voltage on inverter.
5. Turn the On/Off switch off (to 0). If the power cord is removable, plug it back into the Fortress.
6. Plug in the Fortress and turn the On/Off switch to on (1). Make sure the unit switches to AC Line power. (The green Line light should light and the yellow Battery light should go out.)

Section 6: Replacing the Fortress' Cover

1. Slide the cover back on the unit.
2. Install and tighten the six hex head screws on the back of the Fortress' cover. (See Figure 1.)
3. To finish the procedure, follow these steps:
 - a. Turn off the loads (the equipment the Fortress protects) and plug them into the UPS' receptacles.
 - b. Turn the Fortress' On/Off switch on (to 1), and switch on the equipment plugged into the UPS.