

Replacing the Batteries in the Fortress LI 1.3K and LI1420

This FTS describes how to replace the batteries in the Fortress LI 1.3K and LI1420. The battery replacement will take about 40 minutes.

Batteries should be replaced by a qualified technician. If you have any questions or problems, please call Powerware Global Services at 1-800-356-5737 (U.S. and Canada only).

To replace the batteries, you will need the following:

Tools Needed – Use Insulated Tools:

Phillips Screwdriver Electrical Tape Optional torque wrench calibrated in inch pounds or Newton meters

5/16" Open End Wrench Wooden dowel about 7 inches long or wooden pencil

Before you go on to Section 1, 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 should be followed during battery replacement.

WARNING

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 from contacting battery terminals or shorting terminals during battery replacement.

Powerware batteries come with a one-year warranty. Using batteries not supplied by Powerware invalidates any Powerware Service agreement.

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

1. 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

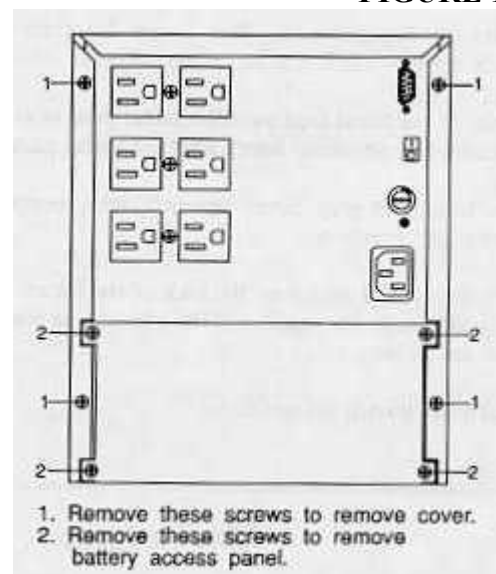
jewelry. Don't carry metal objects in pockets where they can fall into the UPS.

2. 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 batteries.
3. When connecting cables, never allow a cable to short across a battery's terminals or the string of batteries or to the UPS cabinet.
4. Align the cables on the battery terminals so that the cable lug will not contact any part of the UPS cabinet even if the battery is moved. Keep the cable away from any sharp metal edges.
5. Install the battery cables so they cannot be pinched by the UPS cabinet.

Section 1: Removing the Fortress' Cover

1. Before you replace the batteries, shut off the equipment plugged into the Fortress and unplug the equipment.
2. Next, follow these three steps:
 - Turn the On/Off (I/O) switch on the back of the Fortress off (to 0).
 - Unplug the Fortress
 - Remove the power cord from the back of the UPS.
3. Remove the four screws on the back of the Fortress cabinet that are labeled "1" in Figure 1 below.
4. Slide the UPS cover back until it comes off.

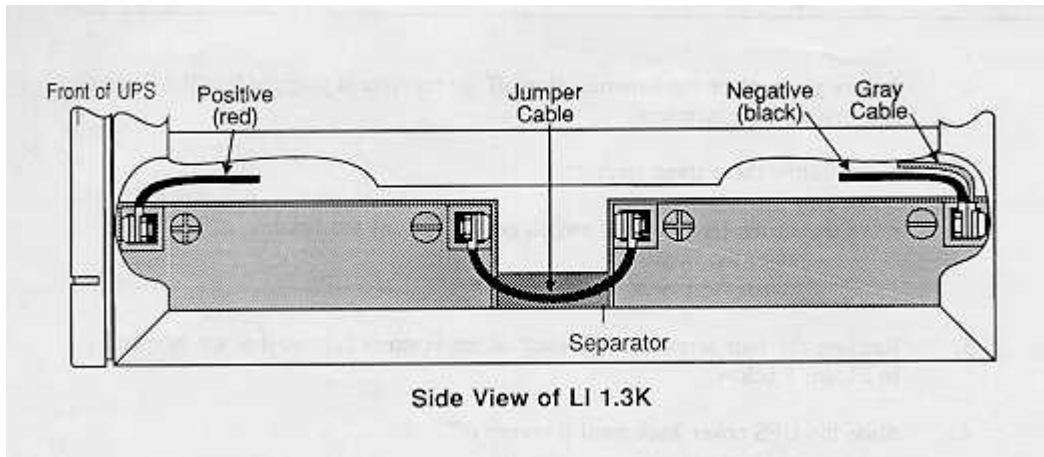
FIGURE 1



Section 2: Removing the Batteries

5. See Figure 1 above. Remove the four screws labeled "2"; these screws secure the battery access panel on the back of the Fortress. Remove the battery access panel.
6. Use the wooden dowel or pencil to hold down any wires that might catch on the cabinet hardware. Then, carefully slide the batteries back until the negative (black) cable is outside of the cabinet.

Figure 2



7. Disconnect the negative cable. (See Figure 2 for the cable's location.) **NOTE:** Disconnect the gray cable attached to the negative cable also.

Put a piece of electrical tape over the metal ends of the black and gray cables so they cannot accidentally touch another metal part.

Bend the black and gray cables upwards; then, temporarily tape them to the cabinet near the receptacles.

8. Now, turn the On/Off switch on the back of the Fortress on (to 1) for about four seconds to discharge the capacitor. (The capacitor is discharged when the display and lights are not longer lit.)
9. Slide both batteries towards the back of the UPS until the jumper cable between the two batteries is outside of the UPS cabinet. (See Figure 2 to find the jumper cable's location.)
10. Disconnect the jumper cable between the two batteries.
11. The first battery should now be out of the cabinet.



CAUTION

Make sure that the terminals do not touch the cabinet or any metal part. Assume that the old batteries are fully charged, and use the same precautions you would use when handling new batteries.

12. Remove and save the separator (thin cardboard or white foam) that is between the two batteries. Slide the second battery towards the back of the UPS until the positive (red) cable is outside of the cabinet.
13. Disconnect the positive (red) cable from the second battery. (See Figure 2 for cable locations.)

Read the caution below; then, lift out the old batteries.



CAUTION

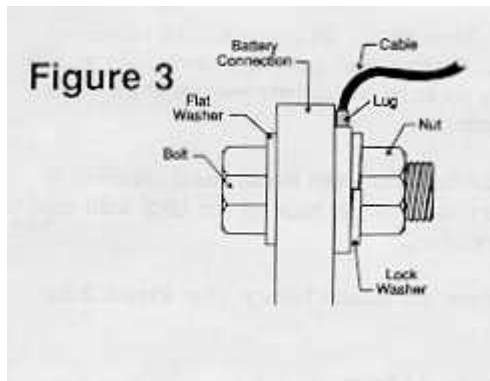
Make sure that the terminals do not touch the cabinet or any metal part. Assume that the old batteries are fully charged, and use the same precautions you would use when handling new batteries. Batteries contain lead. Dispose of the old batteries properly.

Do not dispose of a battery or batteries in a fire; the battery may explode. Do not open or mutilate batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

Go on to “Section 3: Replacing the Batteries”.

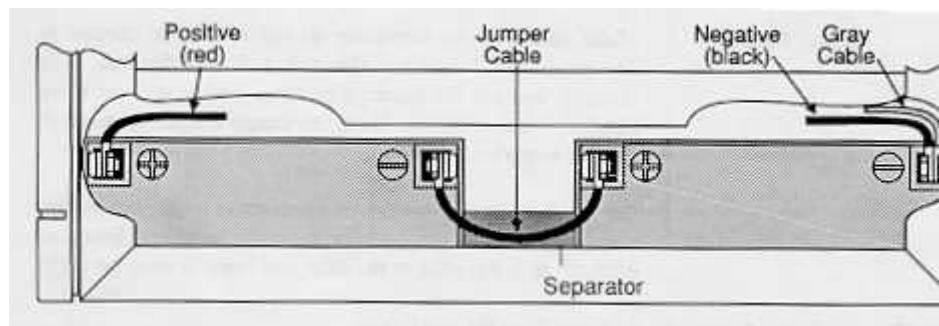
Section 3: Replacing the Batteries

14. Refer to Figure 3. Connect the positive (red) cable to the first new battery and slide it halfway into the UPS cabinet. Figure 3 shows how the batteries should be arranged and where the battery terminals should be.



Important Note: Make sure that the battery cable lugs are aligned so the lug shaft is pointing straight up or down, and not to the side.

Tighten the terminal nuts securely. If a torque wrench is available, torque bolts to 17 in.-lbs (1.9 Newton-meters). During maintenance, retorque terminal bolts to 11 in.-lbs (1.3 Newton-meters).



15. Connect the jumper cable to the first new battery.
16. Slide the first battery into the UPS cabinet and reinstall the separator (thin cardboard or foam) that was between the two batteries.
17. Connect the jumper cable to positive (red) terminal of the second new battery.
18. Slide the second new battery partly into the UPS' cabinet. Leave enough room to make the final connections. **Make certain the On/Off switch is still in the Off (0) position.**
19. Remove the tape from the gray cable. Hold the gray cable's connector to the remaining battery terminal for five seconds. This recharges the capacitor so there will not be an arc when you connect the negative battery cable.

20. Now, remove the tape from the negative (black) cable and connect the black and the gray cables to the second new battery.
21. Slide both batteries all of the way into the UPS cabinet. Refer to Figure 1 and reinstall the battery access panel and the screws labeled “2”
22. Inspect the UPS from either side and make sure there are no wires in or blocking the fan air inlet. The fan air inlet is in the metal cabinet above the spacer between the batteries.

Section 4: Replacing the Fortress’ Cover

23. Slide the cover back on the Fortress cabinet and put the four cover screws, labeled “1” in Figure 1, back in.
24. Plug the Fortress’ power cord back into the UPS and the input receptacle.
25. Turn the Fortress On/Off switch on (to 1). To make sure the UPS’ battery is fully charged, let the UPS charge the battery for at least 9 hours. (The battery charges automatically whenever the “Line” light is on.)
26. To finish the procedure, follow these three steps:
 - Turn the Fortress On/Off switch off (to 0).
 - Turn off the loads (the equipment the Fortress protect) and plug them into the UPS’ receptacles.
 - Turn the Fortress On/Off switch on (to 1), and switch on the equipment plugged into the UPS.