

# Replacing the Batteries in the Patriot SPS 650

This PAT describes how to replace the batteries in Patriot SPS 650 units. Replacing the batteries should take about 30 minutes.

**Batteries should be replaced by a qualified technician. If you have any questions or problems, please call BEST's Technical Support Center at 800-356-5737. (Outside of the U.S. and Canada, call your local BEST office.)**

To replace the batteries, you will need the following:

- Needle Nose Pliers
- Black Electrical Tape
- Phillips Screwdriver — 6" long below handle\*

**\*Note:** The screwdriver should be six inches long below the handle so you can replace the inside screws easily. Using a magnetic screwdriver makes removing and replacing the screws easier.

**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***

## **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.**

**BEST's batteries come with a one-year warranty. Using batteries not supplied by BEST invalidates any BEST service agreement.**

A qualified technician who is familiar with the Patriot 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 Patriot.
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 Patriot's 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 Patriot's cabinet.
4. Align the cables on the battery terminals so that the connector will not contact any part of the Patriot's 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 Patriot's cabinet.

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## **Section 1: Removing the Patriot's Cover**

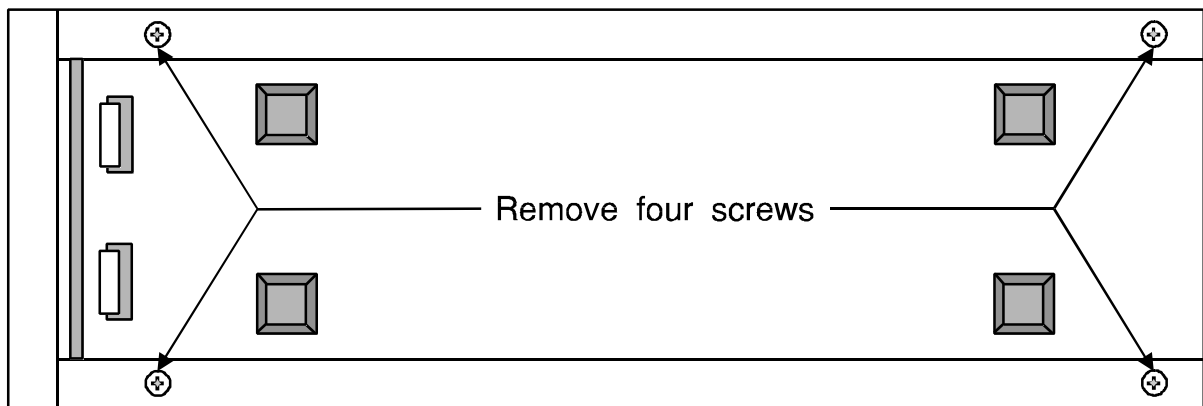
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1. Before you replace the batteries, shut off the equipment plugged into the Patriot and unplug the equipment.
  2. Next, follow these three steps:

- Turn the On/Off (1/0) switch on the back of the Patriot off (to 0).
- Unplug the Patriot.

Remove the power cord from the back of the unit.

3. Carefully turn the Patriot on its side, and look at the bottom of the unit. Remove the four screws and washers in the corners (shown in Figure 1 below).

**Figure 1**



4. Stand the Patriot on its feet again.
5. Make sure the On/Off (1/0) switch on the back of the Patriot is off.
6. Slide the unit's cover back until it comes off.

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## Section 2: Removing the Batteries

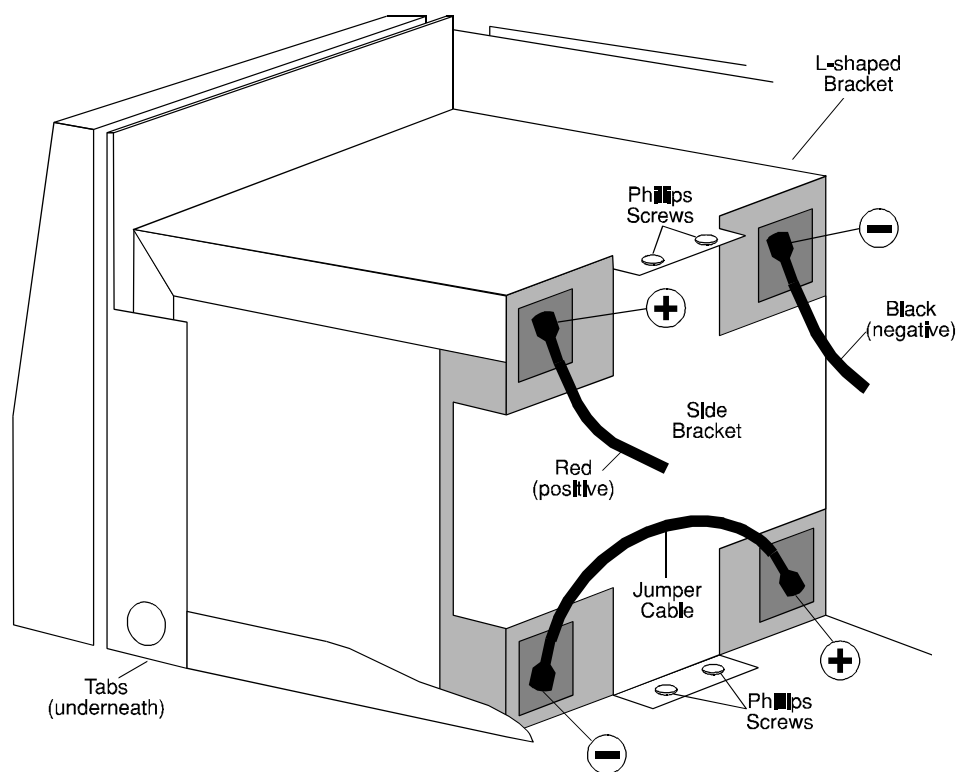
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Figures 2 and 3 on the next page show the battery connections. Compare your Patriot to the drawings and decide which figure shows your unit.

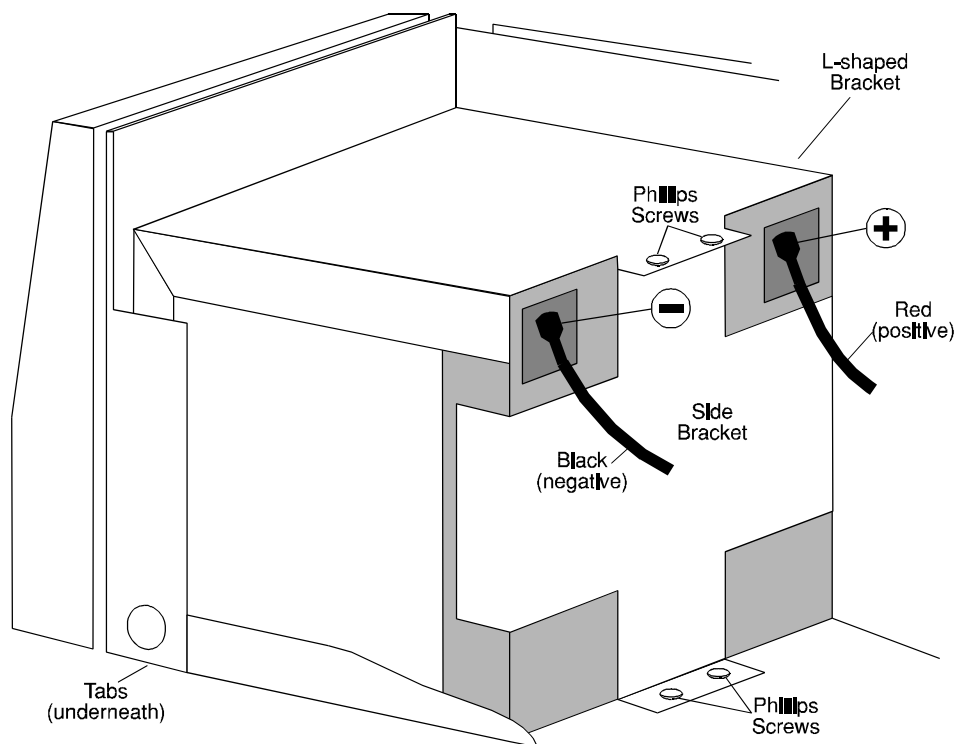
- **Figure 2** is for units with 2 batteries connected with a jumper cable.

- **Figure 3** is for units with 1 battery (no jumper cable).

## Figure 2



### Figure 3



Check Figure 2 **or** Figure 3 and read step 7 before you continue.

7. Using the needle nose pliers, disconnect the positive (red) cable from the battery by gently pulling the connector down, away from the battery terminal. (See Figure 2 or 3 for terminal locations.)

**Put a piece of black electrical tape over the end of the positive (red) cable so it cannot accidentally touch another metal part.**

NOTE: If there is a jumper cable (as shown in Figure 2), do not try to disconnect the cable; it is permanently connected.

8. Now, turn the On/Off switch on the back of the Patriot on (to 1) for about four seconds to discharge the capacitor. (The capacitor is discharged when the front panel light is no longer lit.)

**Then, turn the switch off again.**



### **WARNING!**

**Make sure you turn the switch off before you continue. When you connect the new batteries, there will be dangerous voltage inside the Patriot if the On/Off switch is on. This is true because the Patriot's battery supplies power even if the unit is not connected to its AC input source.**

9. Disconnect the negative cable using the needle nose pliers. (See Figure 2 **or** Figure 3 for the cable's location.)
10. Now, refer to the figure that shows your unit to find the Phillips screws holding the battery brackets in place. Remove **all four** screws and washers.
11. **Remove the side bracket first.** To remove the bracket, slide it carefully away from the battery and lift it out. **Note:** If there is a piece of thin insulation next to the side bracket, remove this insulation first and save it to use again.

The tabs in the front of the L-shaped battery bracket fit into the slots in the bottom of the Patriot. (See Figure 2 or Figure 3.) Slide the bracket and battery (or batteries) toward the back of the unit until the tabs come out of the slots.

Now, remove the L-shaped bracket.

12. 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.

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### Section 3: Replacing the Batteries

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13. **When you put in the new battery (or batteries), be careful not to hit the LED wires between the circuit board and the front of the Patriot; these wires could be damaged if the new battery or the bracket hits them.**

Now, put the new battery or batteries in place. If you have two new batteries connected by a jumper cable, refer to Figure 2. If you have one new battery without a jumper cable, refer to Figure 3.

14. Put in the L-shaped bracket that fits over the top and one side of the battery (or batteries). Make sure that the tabs in the L-shaped bracket fit into the two slots in the bottom of the Patriot; then, put the side bracket back in place. If there was a thin piece of insulation next to the side bracket, put the insulation back in place.
15. Before you put the Phillips screws and washers back in, make sure you read the following two tips:
- **Put the top two screws in first.**
  - **The two shortest screws are meant to attach the side bracket to the bottom of the Patriot.**

Now, put in the Phillips screws that attach the side bracket to the L-shaped bracket and the bottom of the unit.

16. Before you connect the negative and positive battery cables, make sure the On/Off switch on the back of the unit is still off.

If there is a jumper cable, it should already be connected.

17. Use the needle nose pliers to reconnect the negative cable to the terminal marked "Black (negative)" on Figure 2 **or** Figure 3.

**Caution:**

**There will be an arc when you reconnect the last battery cable (in step 18).**

18. Now, remove the tape from the positive (red) cable and use the needle nose pliers to connect the cable to the positive (red) terminal. (See Figure 2 **or** Figure 3.)

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## **Section 4: Replacing the Patriot's Cover**

19. As you put the cover back on the Patriot, make sure the vent holes are on the side opposite the circuit boards. To secure the cover, carefully turn the Patriot on its side and put the four cover screws back in the bottom of the unit.

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20. Stand the Patriot on its feet again.
  21. Plug the Patriot's power cord back into the unit and the input receptacle.
  22. Turn the Patriot's On/Off switch on (to 1). To make sure the Patriot's battery is fully charged, let the unit charge the battery for at least 12 hours. (The battery charges automatically whenever the front panel light is on but not blinking.)
  23. To finish the procedure, follow these three steps:
    - Turn the Patriot's On/Off switch off (to 0).
    - Turn off the loads (the equipment the Patriot protects) and plug them into the Patriot's receptacles.
    - Turn the Patriot's On/Off switch on (to 1), and switch on the equipment plugged into the unit.