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Compaq Computer Corporation

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# Removing and Installing the Battery and Electronics Module on the R6000

*Abstract:* The purpose of this white paper is to discuss the servicing of the Compaq R6000 UPS. This paper will specifically detail battery and electronic module removal and replacement.

## Notice

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Removing and Installing the Battery and Electronics Module on the R6000  
White Paper prepared by Power Products Documentation Group

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## Battery Removal and Replacement

The battery packs are accessed from the front of the unit. A red flashing LED indicates an LCD panel alarm. If the alarm reads “Battery Low,” the batteries should be replaced within 30 to 60 days. The red LED will be accompanied by an audio alarm, if enabled. For a complete summary of the LED status lights, refer to the table on the last page of this paper.

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**Note:** All battery packs should be replaced at the same time. Pairing new batteries with old batteries significantly reduces the life of the new batteries.

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Verify that battery replacement is required by initiating a UPS Self-Test. (Press the lower right button.) If the red LED is still flashing after the test, replace the batteries. Sometimes the alarm condition clears after a UPS Self-Test, but may return after a day or two. During that time, continue to monitor the unit for reoccurrence of the alarm condition.



**WARNING:** To reduce the risk of personal injury or damage to the equipment, verify that the battery circuit breaker is in the Off (down) position before disconnecting or reconnecting battery packs.

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To remove a battery pack:

1. On the rear panel of the UPS, switch to **BYPASS** mode.
2. Remove the bottom bezel.
3. Place the battery circuit breaker in the Off (down) position.



**WARNING:** To reduce the risk of personal injury, do not attempt to replace the batteries unless the battery circuit breaker is in the Off (down) position. There is a +400 Vdc potential across the batteries.

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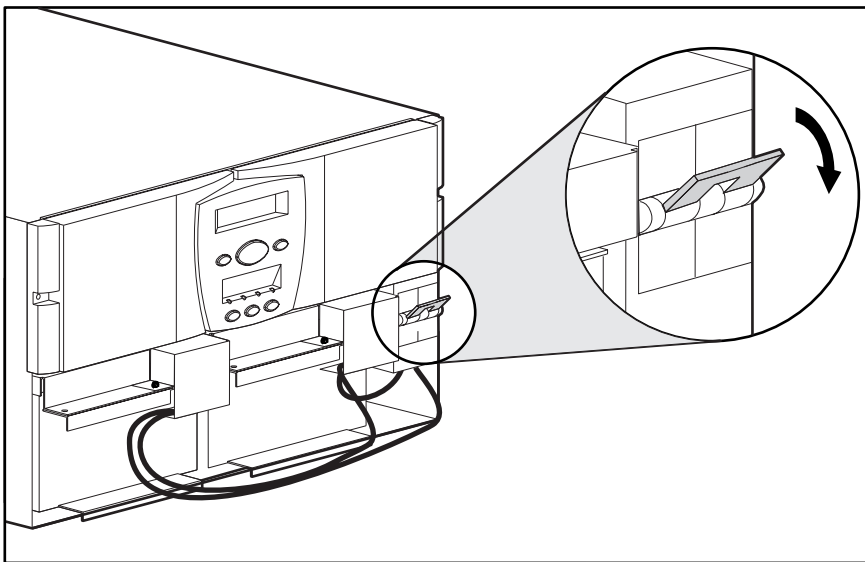
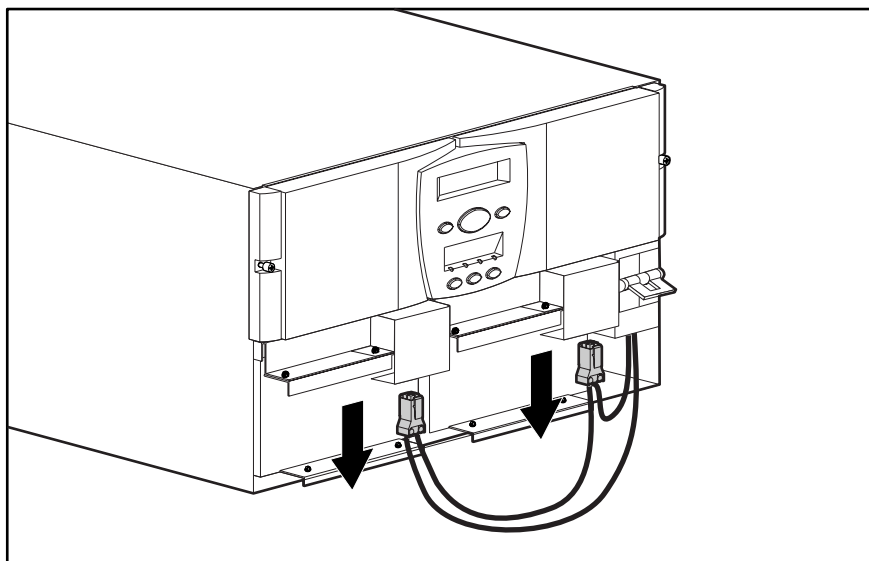


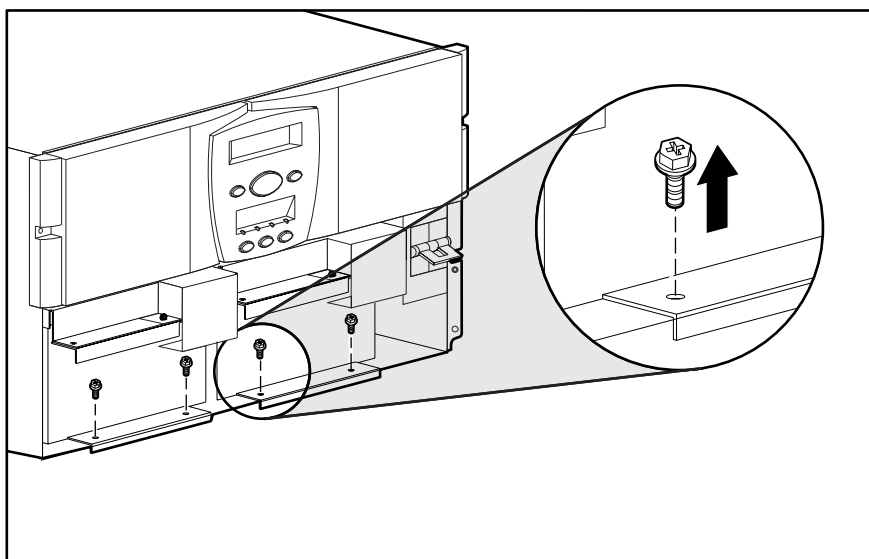
Figure 1. Placing the battery circuit breaker in the Off (down) position

4. Disconnect the battery power cables.



**Figure 2. Disconnecting the battery cables**

5. Remove the screws that secure the battery.



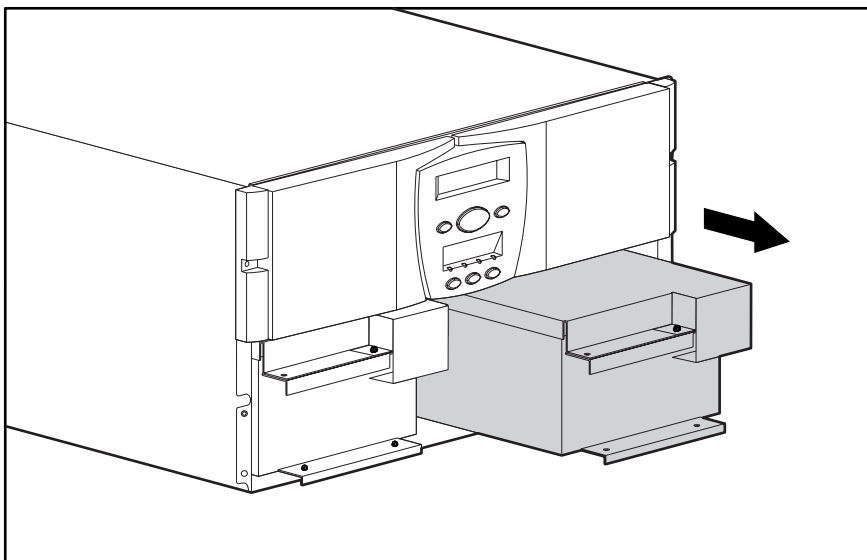
**Figure 3. Removing the battery screws**

6. Remove the battery pack from the UPS.



**WARNING:** To reduce the risk of personal injury or damage to the equipment, handle all R6000 components carefully. Battery packs weigh 75 pounds (35 kg) each.

35 kg / 75 lb



**Figure 4. Removing the battery pack**

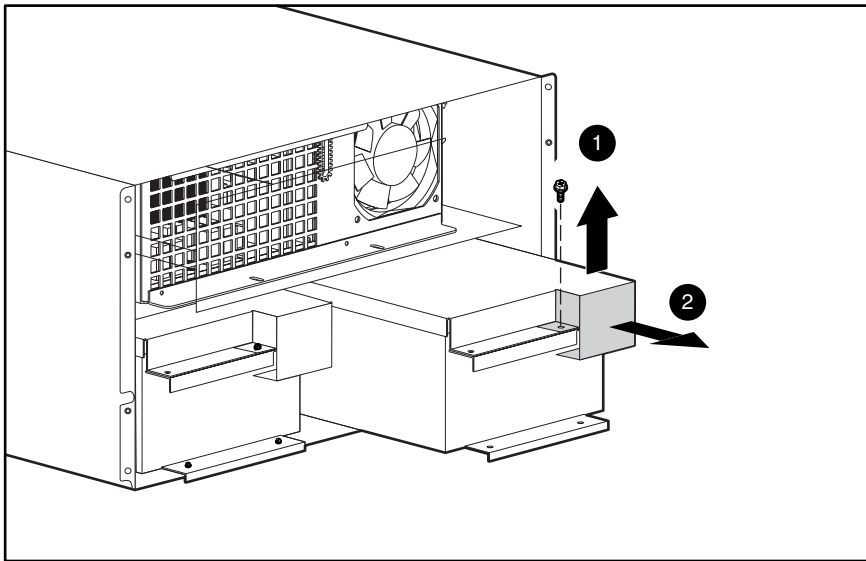
7. Discard the used battery pack in accordance with local requirements. See “Discarding Used Batteries” later in this paper.

## Installing a New Battery

1. Be sure that the manual bypass switch is set to **BYPASS**.
2. Slide in the new battery packs.
3. Remove the cover from the cable receptacle on each battery pack (❶, ❷), if you have not already done so. Replace the screw after the cover is removed.



**WARNING:** To reduce the risk of personal injury, avoid contact with the cable receptacle after the cable receptacle cover has been removed.



**Figure 5. Removing the cover from the cable receptacles**

4. Reinstall the battery screws, securing the new battery packs to the chassis. (Refer to Figure 3 to see the location of the screws.)
5. Reattach the battery connector cable. (Refer to Figure 2 to see the location of the cables.)
6. Turn the battery circuit breaker to the On (up) position.
7. Test the battery by pressing and holding the **Self-Test/Alarm Reset** button until the fan speed increases.

**Note:** If the Self-Test fails, verify that all battery circuit breakers are in the On (up) position and that the battery cables are firmly seated.

8. Reinstall the bottom bezel.
9. Turn the manual bypass switch to the **NORMAL** position.

If the replacement is successful, the R6000 enters Operate mode (indicated by a solid green LED). If the replacement is not successful, the red LED lights.

**Note:** Follow the same procedure as above when replacing battery packs in the Extended Runtime Modules (ERMs).

## Discarding Used Batteries

The UPS uses sealed lead/acid batteries that **must** be disposed of in accordance with local environmental regulations and laws.

If a local approved recycle/disposal site is not available, your replacement battery kit includes the instructions and packaging required to return your used batteries to an appropriate location for disposal.



**Pb**

Do not dispose of used batteries with general office or household waste.  
Return the used battery for proper disposal to:

- A recycling center that meets all local environmental standards.
  - Compaq, your authorized Compaq Partners, or their agents.
-

## Electronics Module

To remove an electronics module:



35 kg / 75 lb

**WARNING:** To reduce the risk of personal injury or damage to the equipment:

- Handle all R6000 components carefully. Battery packs weigh 75 pounds (35 kg) each.
- Do not remove the top bezel while the UPS is online (not in Bypass mode). Auxiliary power (+400 Vdc) will remain in the exposed areas and all loads will be dropped.

1. On the rear panel of the UPS, switch to **BYPASS** mode.
2. Remove the bottom bezel.
3. Place the battery circuit breaker in the Off (down) position.
4. Place the UPS in Standby mode.
5. Remove the top bezel.

**Note:** If the top bezel is removed while the UPS is on, an audio alarm sounds and the UPS shuts down. The input power must be cycled before turning the UPS back on. To cycle the power, turn the Mains breaker Off, and then On.

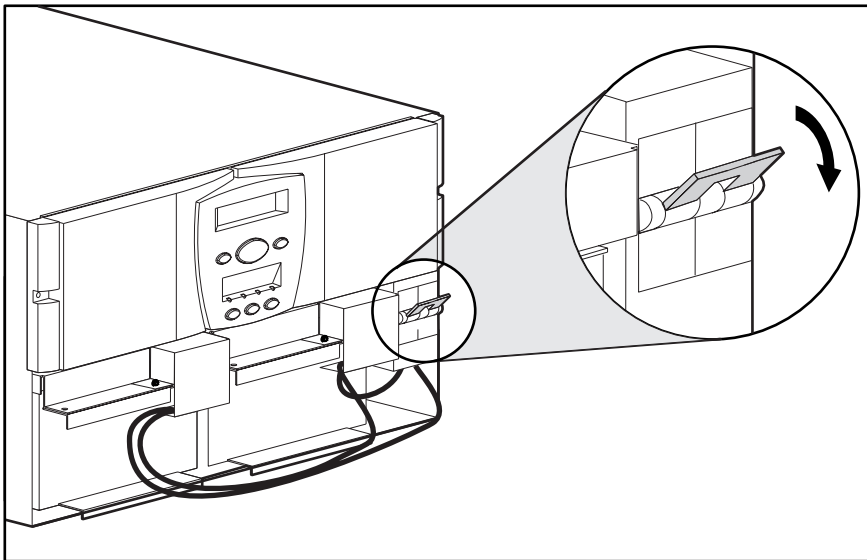
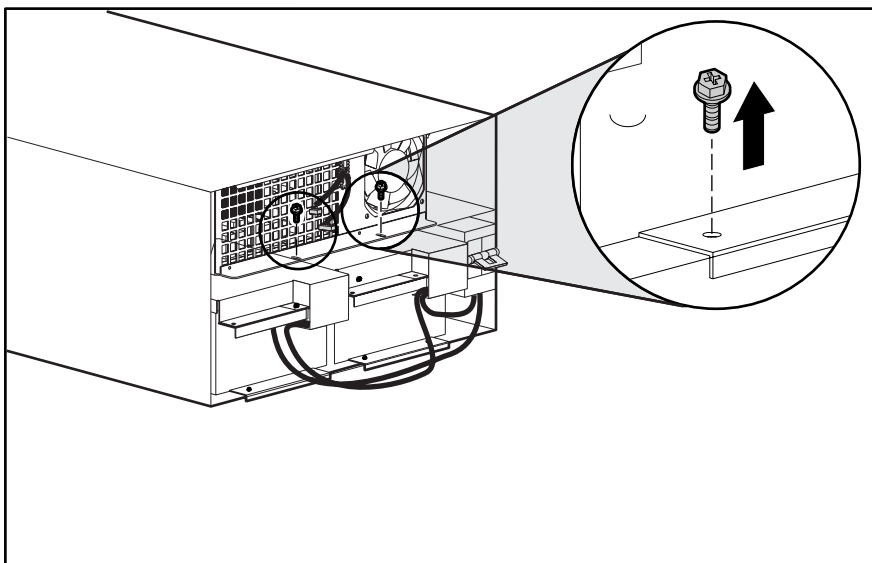


Figure 6. Placing the battery circuit breaker in the Off (down) position

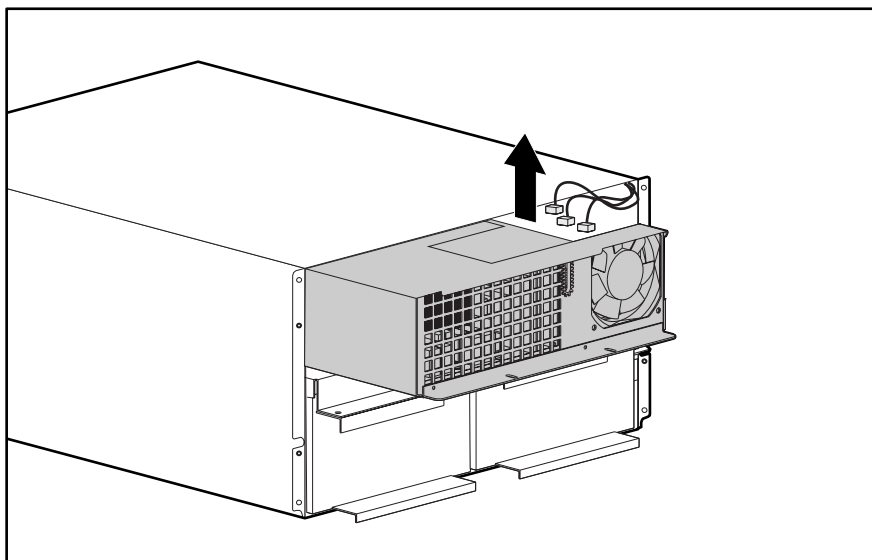


6. Remove the screws securing the electronics module to the chassis.



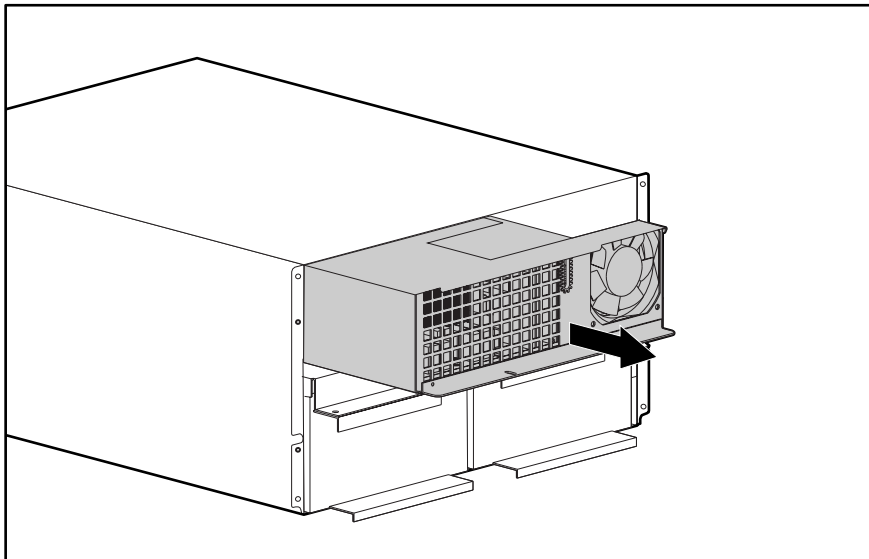
**Figure 7. Removing the screws securing the electronics module**

7. Slide the electronics module partially out of the bay, and then disconnect the three cables from the electronics module.



**Figure 8. Disconnecting the cables from the electronics module**

8. Pull the electronics module out of the bay.



**Figure 9. Removing the electronics module**

9. Proceed to the next section, “Replacing the Electronics Module.”

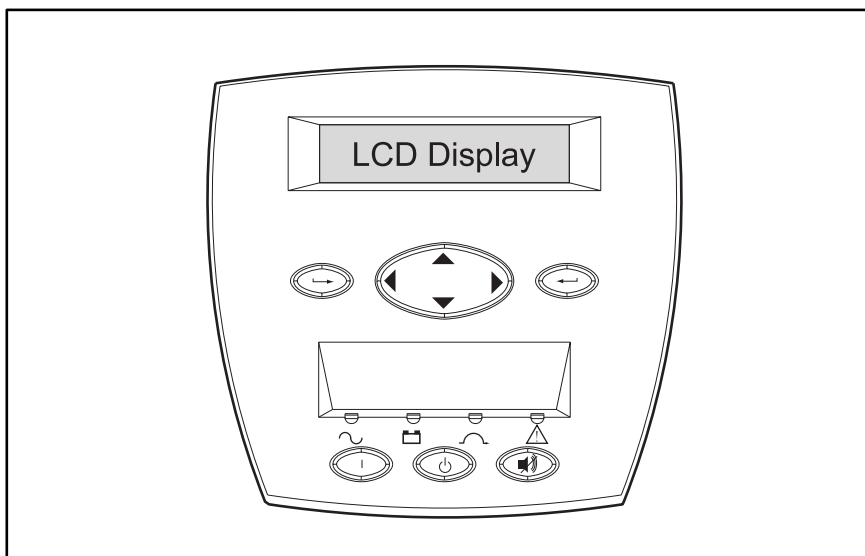
## Replacing the Electronics Module

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**Note:** If you are reinstalling an electronics module that was just removed, wait at least one minute before beginning the reinstallation procedure.

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1. Slide the replacement electronics module partially into the bay.
2. Reconnect the three cables.
3. Slide the electronics module completely into the bay.
4. Reinstall the two retaining screws.
5. Reinstall the top bezel, remembering to reattach the cables to the connectors and reinstall the retaining screws.
6. Place the battery circuit breaker in the On position.
7. A Self-Test should automatically begin. If it does not, initiate it by pressing and holding the **Self-Test/Reset** button until the fan speed increases.



**Figure 10. Initiating a Self-Test**

Since a portion of the Self-Test requires battery power, the Self-Test is not initiated if the batteries are less than 90% charged. If the R6000 detects a problem, the red LED lights. If appropriate, the R6000 sounds an audio alarm. For a complete summary of the LED status lights, refer to the table on the last page of this paper.

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**Note:** If the unit fails to start or fails Self-Test, repeat steps 1 through 7. Be sure to wait at least 3 minutes between removal and reinsertion of the electronics module.

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8. Replace the bottom bezel.

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**Note:** Be sure that the Power On LED is solid green before switching to Bypass mode to prevent dropping the load.

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9. Turn the manual bypass switch on the rear of the UPS to **NORMAL**.

## Summary of LED Status Lights

The following table is an overview of the various operating modes of the R6000 UPS. Each mode is indicated visually on the front of the R6000 via the colored LEDs.






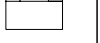




















LED & symbol	1 	2 	3 	4 	Power avail @ UPS output receptacles?	Batteries monitored or charged?	Comments
Mode	Operational 	Battery 	Bypass 	Warning 			
ON Operational					Yes	Yes	
Bypass					Yes	<b>No!</b>	Enabled manually with rear switch; 5 sec. audible alarm
Standby Utility pwr	 Flashing				<b>No</b>	Yes	On Utility power; <b>output receptacles OFF</b>
Standby Battery pwr		 Blinking			<b>No</b>	Yes	UPS on battery; shuts down in 30 secs; <b>output receptacles OFF</b>
UPS on Battery					Yes	monitored only	Shutdown process has begun.
Alarm				 Flashing			Warns of existing or potential problems
Self-Test w/ load					Yes	Yes	
Self-Test no load		 Flashing			Yes	Yes	

Table 1. Legend of Status Light Colors (for black and white print-outs)

Status Light	Color
	Green
	Yellow
	Red