

Installation Instructions

HP StorageWorks Replacing an HSG60 and HSG80 External Cache Battery (ECB)

*Read instructions completely before
beginning the installation procedure*



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Replacing an HSG60 and HSG80 External Cache Battery (ECB)
Installation Instructions
Sixth Edition (March 2005)
Part Number: EK-80ECB-IM. F01

About these instructions

This document contains instructions for replacing the ECB in an HP StorageWorks HSG60 or HSG80 subsystem.

For instructions on upgrading a single-controller configuration to a dual-redundant controller configuration, refer to the appropriate array controller user guide or maintenance and service guide.

ECB replacement procedures provided in these instructions include:

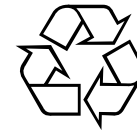
- Replacing an ECB in HP StorageWorks Model BA370 enclosures, page 1
- Replacing an ECB in HP StorageWorks Model 2100 and 2200 enclosures, page 2
- Replacing an ECB in HP StorageWorks Model 2100 and 2200 enclosures using hot-pluggable procedure, page 3

General information

The type of ECB used depends on the HP StorageWorks controller enclosure type.

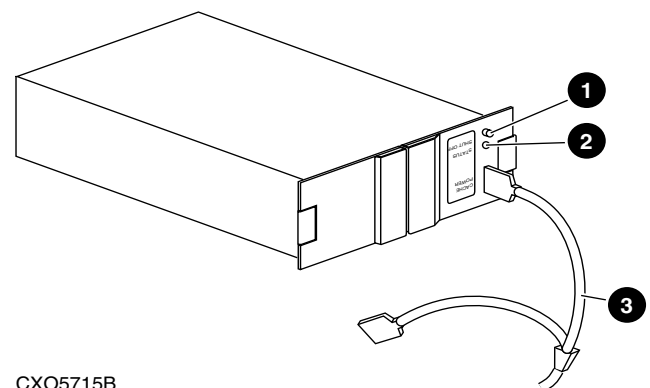


WARNING: The ECB is a sealed, rechargeable, lead acid battery that must be recycled or disposed of properly according to local regulations or policies after replacement. Do not incinerate the battery. Improper handling may cause personal injury. The ECB displays the following label:



Replacing an ECB in HP StorageWorks Model BA370 enclosures

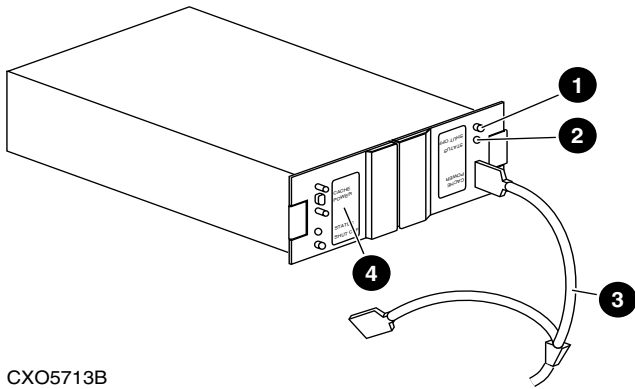
Figure 1 and Figure 2 provide information about the ECBs used in HP StorageWorks model BA370 controller enclosures.



CXO5715B

- 1 Battery disable switch (shutoff)
- 2 Status LED
- 3 ECB Y-cable

Figure 1: Single ECB for single-controller configurations in a BA370 enclosure



CXO5713B

- ❶ Battery disable switch (shutoff)
- ❷ Status LED
- ❸ ECB Y-cable
- ❹ Faceplate and controls for second battery (dual ECB configuration only)

Figure 2: Dual ECB for dual-redundant controller configurations in a BA370 enclosure

Use the following steps including [Figure 1](#) (on page 1) and [Figure 2](#), as appropriate, to replace an ECB in single-controller and dual-redundant controller configurations using the *Field Replacement Utility (FRUTIL)*:

1. Connect a PC or terminal to the maintenance port of the controller with the defective ECB.
The controller connected to the PC or terminal becomes “this controller.”
2. Verify the system time setting by entering the following command:
`SHOW THIS_CONTROLLER FULL`
3. If the system date and time is not set or current, enter current date and time by entering the following command:
`SET THIS_CONTROLLER TIME=dd-mm-yyyy:hh:mm:ss`

Note: An internal clock monitors the life of the ECB battery. This clock is automatically reset as part of the *FRUTIL* procedure.

4. Start *FRUTIL* with the following command:
`RUN FRUTIL`
5. Follow on-screen instructions concerning availability and replacement questions for the ECB.

Caution: Ensure that at least one ECB is connected to the ECB Y-cable at all times during this procedure. Otherwise, cache memory data is not protected and is subject to loss.

Caution: The ECB Y-cable has a 12-volt and a 5-volt pin. Improper handling or misalignment while connecting or disconnecting the ECB can cause these pins to contact ground, resulting in cache module damage.

Note: If an empty bay is not available, temporarily place the replacement ECB on top of the enclosure or at the bottom of the rack.

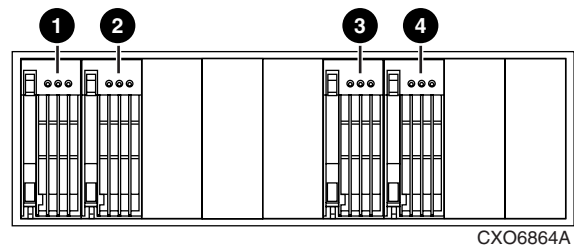
6. Insert the replacement ECB into an appropriate bay or near the ECB being removed.
7. Connect the new battery to the unused end of the Y-cable attached to cache A.
8. Disconnect the old battery. Do not wait for the new battery status light to turn solid green.
9. Press **Enter** or **Return**.
The ECB expiration date and deep discharge history are updated. *FRUTIL* exits.
10. Complete one of the following options:

- For single ECB replacement:
 - 1) Remove the old ECB, and then place it in an antistatic bag or on a grounded antistatic mat.
 - 2) If the replacement ECB is not placed within an available bay, install it into the vacant bay of the old ECB.
 - 3) Disconnect the PC terminal from the controller maintenance port.
- For dual ECB replacement:
 - 1) If the other cache module is also to be connected to the new dual ECB, connect the PC or terminal to the “other controller” maintenance port.
The connected controller becomes “this controller.”
 - 2) Repeat [step 2](#) through [step 9](#) as required.
 - 3) Disconnect the PC terminal from the controller maintenance port.

Replacing an ECB in HP StorageWorks Model 2100 and 2200 enclosures

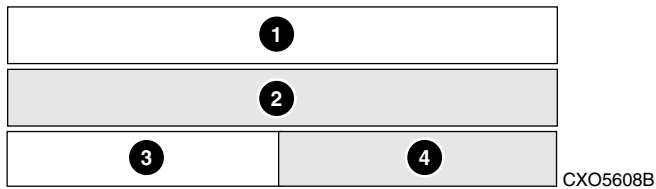
Unlike the BA370 enclosure, the HP StorageWorks Model 2100 and 2200 controller enclosures use a type of ECBs that does not require an ECB Y-cable. These enclosures contain four ECB bays: two bays support Cache A (bays A1 and A2) and two bays support Cache B (bays B1 and B2)—see this relationship in [Figure 3](#) and [Figure 4](#) on page 3.

Note: No more than two ECBs are supported within an HP StorageWorks Model 2100 or 2200 controller enclosure at any time—one for each array controller and cache set. Blanks must be installed in the remaining vacant ECB bays for controlling air flow.



- ❶ B1 supports cache B
- ❷ B2 supports cache B
- ❸ A2 supports cache A
- ❹ A1 supports cache A

Figure 3: ECB locations in an HP StorageWorks Model 2100 and 2200 enclosure



- ❶ Controller A
- ❷ Controller B
- ❸ Cache A
- ❹ Cache B

Figure 4: Cache module locations in an HP StorageWorks Model 2100 and 2200 enclosure

Note: If you are replacing an ECB (see [Figure 5](#)), match the vacant ECB bay with the supported cache module. This bay is always next to the failed ECB.

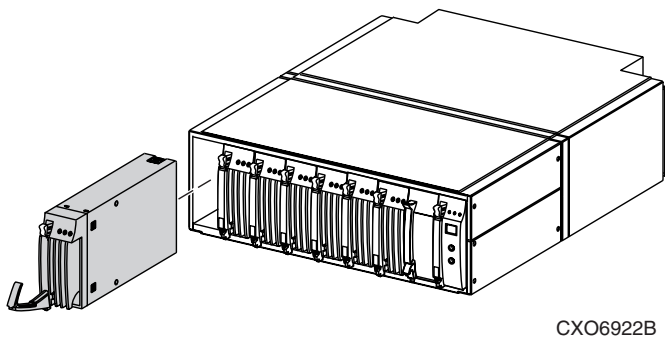


Figure 5: Removing an ECB that supports cache module B in an HP StorageWorks Model 2100 and 2200 enclosure

Use the following steps and [Figure 3](#), [Figure 4](#) and [Figure 5](#), as appropriate, to replace an ECB in single-controller and dual-redundant controller configurations using the *Field Replacement Utility (FRUTIL)*:

- Connect a PC or terminal to the maintenance port of the controller that has the defective ECB.
The controller connected to the PC or terminal becomes “this controller.”
- Enter the following command to verify that system time is set:
`SHOW THIS_CONTROLLER FULL`
- If system time is not set or current, enter current data using the following command:
`SET THIS_CONTROLLER TIME=dd-mm-yyyy:hh:mm:ss`

Note: An internal clock monitors the life of the ECB battery. This clock is automatically reset as part of the *FRUTIL* procedure.

- Start *FRUTIL* with the following command:
`RUN FRUTIL`
- Follow on-screen instructions to replace the ECB.

Caution: Do not remove the old ECB until the ECB charged LED on the replacement ECB turns on (see [Figure 7](#), on page 4).

Caution: Make sure to install the replacement ECB in a bay that supports the same cache module as the current ECB being removed (see [Figure 3](#)).
Remove the blank bezel from this replacement bay and reinstall the blank bezel in the bay vacated by the current ECB. Failure to reinstall the blank bezel might cause an over-temperature condition and damage the enclosure.

Note: Install a Battery Service Label on the replacement ECB prior to installing the ECB in the enclosure. This label indicates the installation date (MM/YY) for the replacement ECB.

- Attach the Battery Service Label to the replacement ECB as described by the *HP StorageWorks ECB Battery Service Label Placement* installation instructions.
- Remove the blank bezel from the appropriate bay, and then install the replacement ECB.
- Remove the old ECB, and then install the blank bezel in this bay.
- Press **Enter** or **Return**.

Note: The ECB expiration date and deep discharge history are updated. *FRUTIL* exits.

- Disconnect the PC terminal from the controller maintenance port.
- Repeat this entire procedure to replace the ECB for the “other controller.”

Replacing an ECB in HP StorageWorks Model 2100 and 2200 enclosures using hot-pluggable procedure

For a hot-pluggable ECB replacement, use the procedure in this section.

Note: The hot-pluggable procedure (used in the HSG60 and HSG80 controller sections) uses *FRUTIL* to update the ECB expiration date and deep discharge history.

The hot-pluggable procedure in this section is used to replace the ECB only and is not used to update ECB history data.

Use the following procedure to replace an ECB as a hot-pluggable device:

- Using [Figure 3](#) on page 2, determine the specific bay to install the ECB.

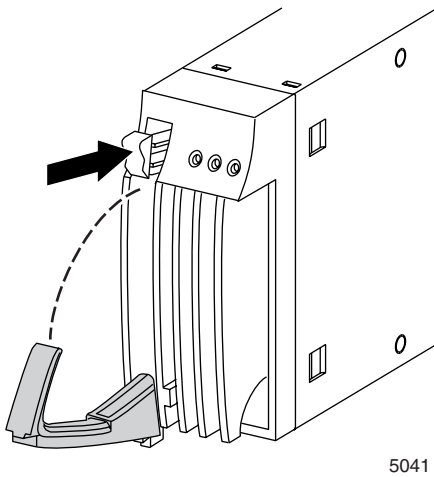
Note: Ensure that the bay supports the same cache module (A or B) as the ECB being removed.

- Press the release tab and pivot the lever downward on the replacement ECB (see [Figure 6](#)).

Updated HP StorageWorks Model 2100 and 2200 enclosure ECB LED definitions

Table 1 replaces Table 6-1 “ECB Status LED Displays” in the *HP StorageWorks Model 2100 and 2200 Ultra SCSI Controller Enclosure User Guide*.

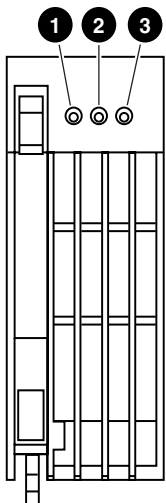
Note: Be sure to identify the existence of this updated table in the user guide.



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Figure 6: Release tab and lever on an ECB

3. Remove the blank panel from the appropriate vacant bay (A or B).
4. Align and insert the replacement ECB into the vacant bay until the lever engages the enclosure (see [Figure 5](#)).
5. Lift the lever upward until the lever locks.
6. If enclosure power is applied, verify that the LED displays a Charge Test state (see [Figure 7](#) for LED locations and [Table 1](#) for the proper display state).
7. Following ECB initialization, verify that the LEDs display either a Charging or Charged state (see [Figure 7](#) for LED locations and [Table 1](#) for the proper display state).
8. Press the release tab on the old ECB, and then pivot the lever downward.
9. Remove the old ECB from the enclosure.
10. Install the blank panel in the vacant ECB bay.



CXO6358A

- ❶ ECB charged LED
- ❷ ECB charging LED
- ❸ ECB fault LED

Figure 7: Status LEDs for an HP StorageWorks Model 2100 and 2200 enclosure ECB

LED Display	ECB State Definition
○ ○ ●	Startup: Checking temperature and voltage. If this state persists for more than 10 seconds, then a temperature fault exists. Backup: If power is removed, a low duty cycle FLASH indicates normal operation.
○ ● ●	Charging: The ECB is charging the battery.
● ○ ○	Charged: The ECB battery is charged.
○ ● ●	Charge Test: The ECB is ascertaining whether the battery is capable of holding a charge.
○ ● ●	Temperature Fault Indications: <ul style="list-style-type: none"> • If this indication displays, the ECB battery charging is suspended until the temperature fault has been corrected. • If this indication displays, the ECB battery is still capable of backup.
● ○ ●	
● ○ ●	ECB Fault: Indicates the ECB has faulted.
○ ○ ●	Battery Fault: The ECB determined the battery voltage is incorrect or the battery is missing.
LED Legend	
○	Off
●	Flashing
●	On

Table 1: ECB Status LED Displays