APC®

www.apc.com

Operation and Maintenance

Symmetra PX Battery Enclosure

80kW

Contents

Safety

⚠️ **Warning: ALL safety instructions in the Safety Sheet (990-2984) must be read, understood and followed. Failure to do so could result in equipment damage, serious injury, or death.**

For safety reasons, the trained user is only allowed to operate the display and replace the following parts:

- Battery module
- System Power Supply Card
- Battery Monitoring Card
- Battery Communication Card
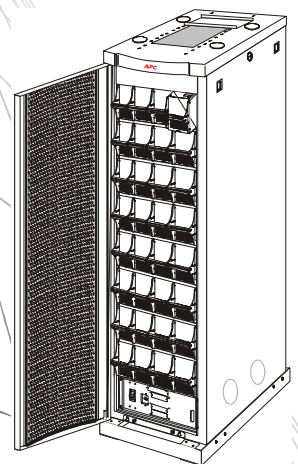
ON, OFF & STAND-BY switch symbols

Ⅰ   Indicates the ON position for a switch or breaker.

○   Indicates the OFF position for a switch or breaker.

⏻   Indicates the STAND-BY position for a switch or breaker.

Overview

System Components Overview

Front view of Battery Enclosure

Battery Enclosure
Empty 455 lb. (206 kg)

8 battery
module
bays

Battery module (4 battery units)
4x50 lb. (4x23 kg)

System Power
Supply Card

DC disconnect
switch

Battery Enclosure
Address Switch (the
plate must be
removed to gain
access)

Battery Monitor Cards

Battery Enclosure
Communication
Card
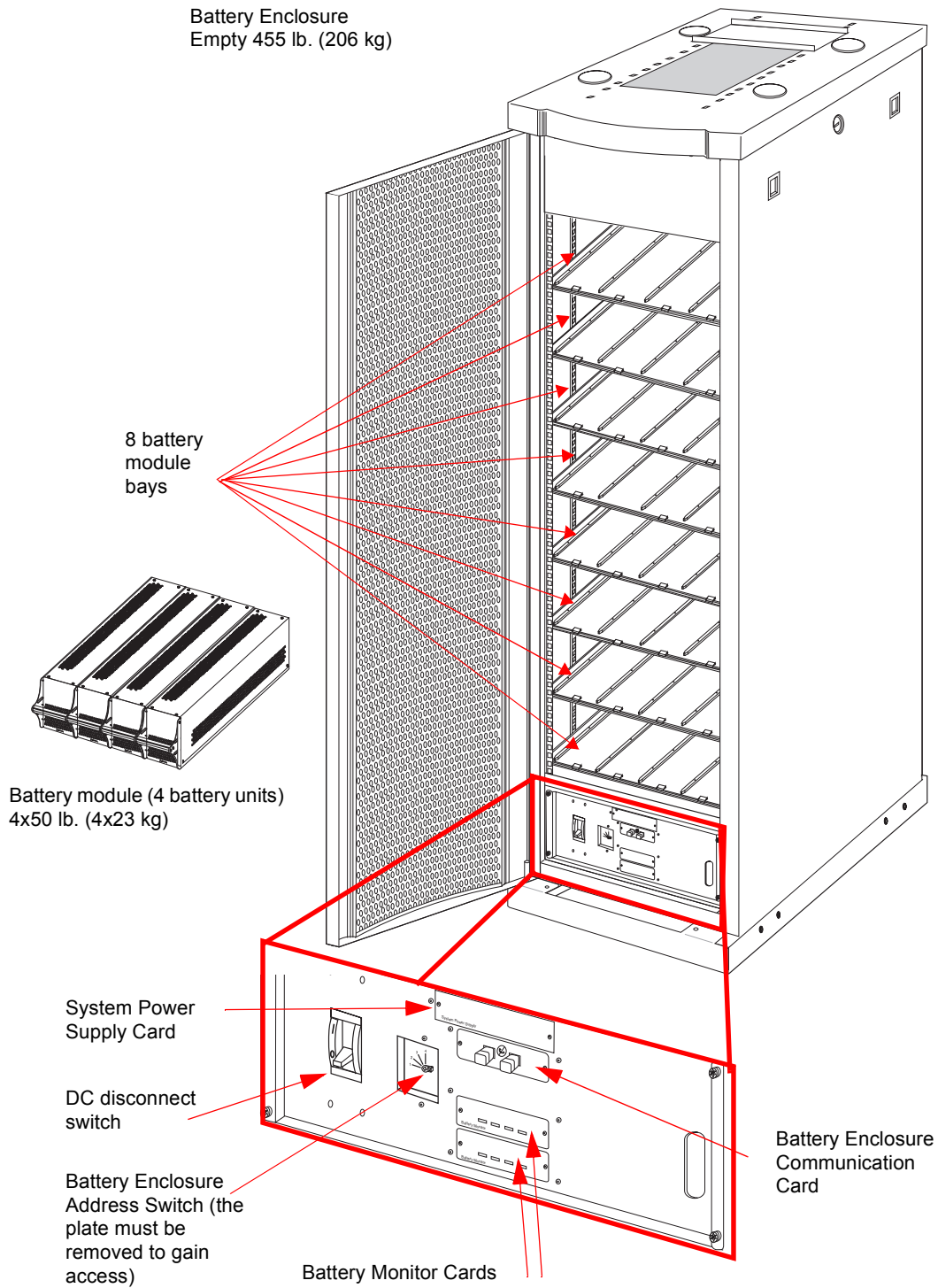
Operation

Operation Procedures

How to perform a system start-up procedure with additional battery enclosures

> **Note:** The UPS is assumed to be powered and operating during this start-up procedure; if not, power up the UPS now.

> **Note:** A "no good batteries" fault will occur until at least one battery module is reinserted.
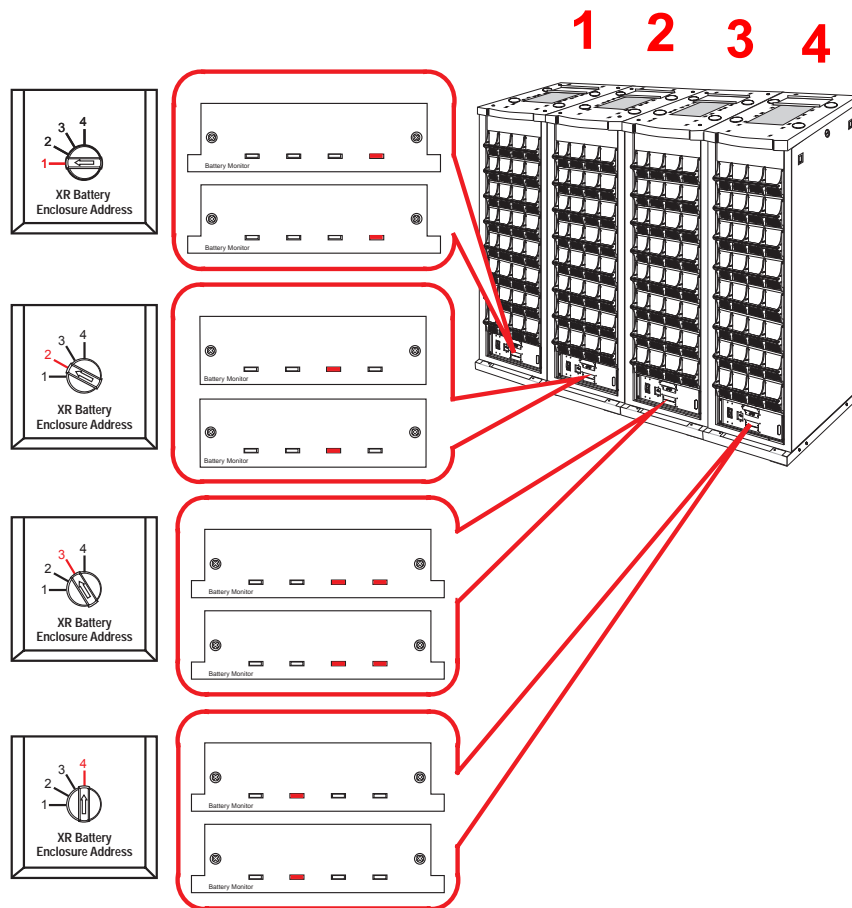
❶ Check that each battery enclosure is set to a different enclosure address in each battery monitor card. If not, remove all the batteries to the red disconnect line, and follow the procedure under Maintenance: How to replace a battery module.

❷ Set the DC disconnect switches in all your battery enclosures to the ON position. Wait 15 seconds for the battery enclosure to start up. The PowerView will display the following message:
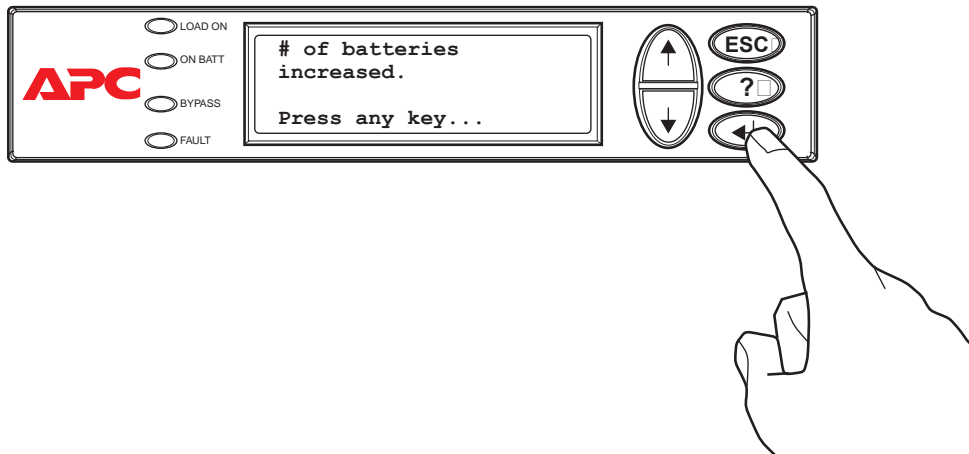
❸ From the top-level menu, select status and scroll down to verify the battery unit count.

```
  Control      Logging
➡ Status       Display
  Setup        Diags
  Accessories  Help
```
Top-Level Menu

```
Bat Voltage: 218V    ↑
Bat Capacity 100.0%
Runtime: 01hr 30min
32 Batts, 0 Bad
```
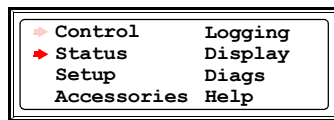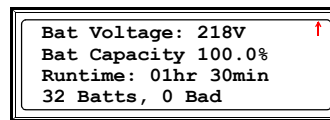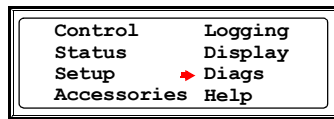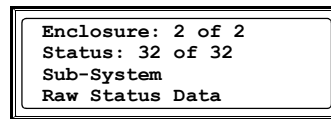**Sub-Sub-Status Screen**

❹ From the top-level menu, select **Diags**, enclosure **Status**, and verify the enclosure count.

```
  Control      Logging
  Status       Display
  Setup      ➡ Diags
  Accessories  Help
```
Top-Level Menu

```
Enclosure: 2 of 2
Status: 32 of 32
Sub-System
Raw Status Data
```
Enclosure-Status Screen

Note: If the total number of battery units or enclosures do not equal the amount in your configuration, ensure that all components are correctly installed (see the procedure Maintenance: How to replace a battery module). If the problem persists, see Troubleshooting.

How to perform a total power off procedure

Warning: All safety instructions in the Safety Sheet (990-2984) must be read, understood and followed prior to performing a total power off procedure.

Note: For local, country-specific centers: go to www.apc.com/support/contact or see the back cover of the operation manual (990-4147) for phone numbers.

Electrical Hazard: Before electrical installation/module handling begins, verify that all systems are in the total power off mode by following this procedure.

❶ Set the System Enable switch on the UPS to the STAND-BY position.
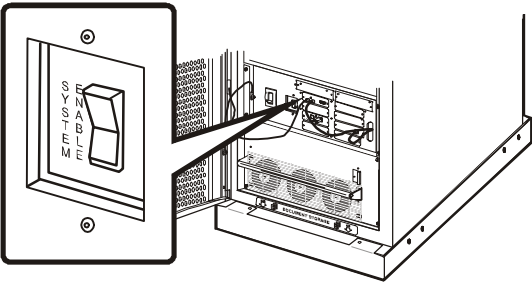
❷ Set the DC disconnect switch on the UPS and all battery enclosures in the system to the OFF position.
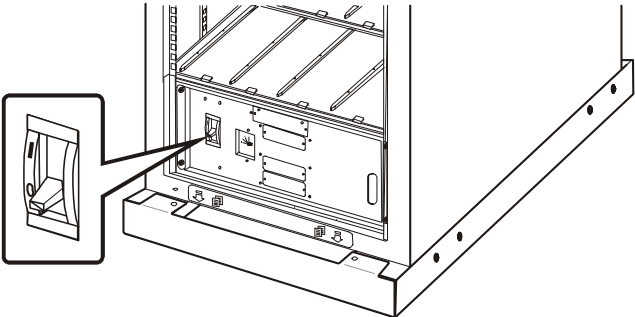
❸ Disconnect all the battery units by removing or pulling them out to the red disconect line.

⚠ **Caution:** To ensure solid stability, do not pull battery units out beyond the red disconnect line unless completely removing them from the enclosure.

Red disconnect line
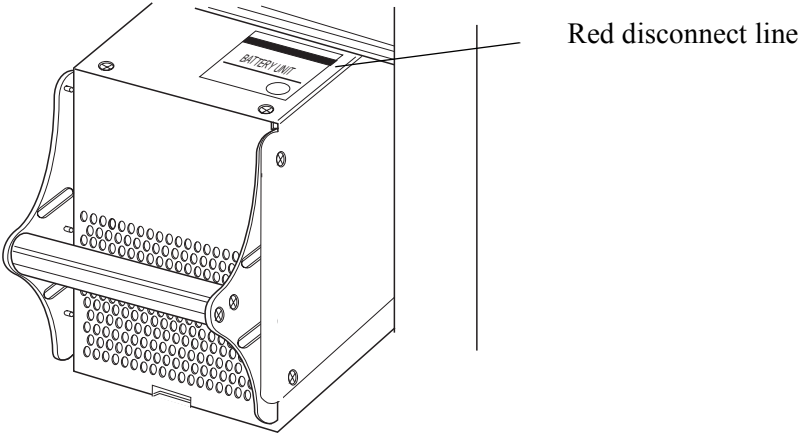
❹ Set the upstream utility/mains to the OFF or LOCKED OUT position. If the UPS has dual utility/ mains supply, set both supplies to the OFF or LOCKED OUT position.

Maintenance

Parts Replacement

How to determine if you need a replacement part

To determine if you need a replacement part, contact APC Customer Support and follow the procedure below so that the APC Customer Support representative can assist you promptly:

1. In the event of a module failure, the display interface may show additional "fault list" screens. Press any key to scroll through these fault lists, record the information, and provide it to the representative.

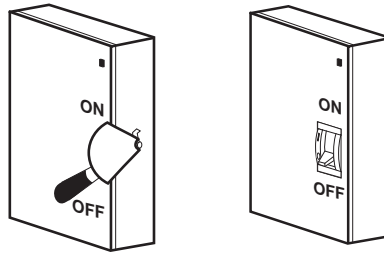2. Write down the serial number of the unit so that you will have it easily accessible when you contact APC Customer Support.

3. If possible, call APC Customer Support from a telephone that is within reach of the UPS display interface so that you can gather and report additional information to the representative.

4. Be prepared to provide a detailed description of the problem. A representative will help you solve the problem over the telephone, if possible, or will assign a return material authorization (RMA) number to you. If a module is returned to APC, this RMA number must be clearly printed on the outside of the package.

5. If the unit is within the warranty period, repairs or replacements will be performed free of charge. If it is not within the warranty period, there will be a charge.

6. If the unit is covered by an APC service contract, have the contract available to provide information to the representative.

How to return parts to APC

Call APC Customer Support to obtain an RMA number.

To return a failed module to APC, pack the module in the original shipping materials, and return it by insured, prepaid carrier. The APC Customer Support representative will provide the destination address. If you no longer have the original shipping materials, ask the representative about obtaining a new set. Pack the module properly to avoid damage in transit. Never use styrofoam beads or other loose packaging materials when shipping a module. The module may settle in transit and become damaged. Enclose a letter in the package with your name, RMA number, address, a copy of the sales receipt, description of the problem, a phone number, and a check as payment (if necessary).

Note: Damages sustained in transit are not covered under warranty.

User replaceable components

Part	Part Number
Battery Enclosure	SYCF8BF
Battery Module	SYBT4
Battery Unit	SYBTU1
System Power Supply Card	SYCSPS
Battery Monitoring Card	SYCBTMON
Battery Communication Card	SYCXRCOM

How to replace a card

Electrical Hazard: Only APC-trained personnel familiar with the construction and operation of the equipment, and the electrical and mechanical hazards involved, may install and remove system components.

➊ Loosen the Phillips screw at each side of the card.

➋ Carefully pull the card outward.

➌ Verify that the UPS display interface shows a message reporting that it has registered the removal.
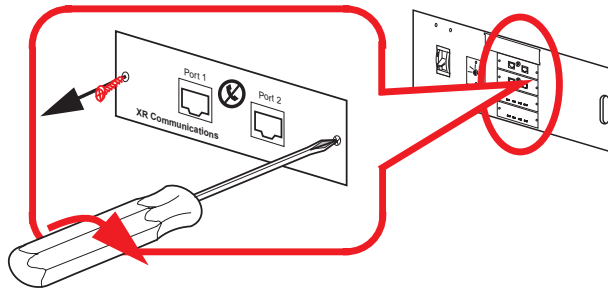
➍ Install the new card, carefully sliding the card on the guide rails in the card slot.

➎ Re-insert the Phillips screw at each side of the card and tighten.

➏ Verify that the UPS display interface shows a message reporting that it has registered the installation.

How to replace a battery module

Note: The UPS display will indicate the location of the faulty battery module (rows L1 through L8).

Warning: Only trained persons familiar with the construction and operation of the equipment, as well as the electrical and mechanical hazards involved, may install and remove system components.

Caution: Wait until the system is ready to be powered up before installing battery modules in the UPS. Failure to do so can result in a deep discharge of the batteries and cause permanent damage (the time from the battery installation time till the UPS is powered up should not exceed 72 hours or 3 days).

Directions for replacement

Caution: Do not mix battery units. Replace with same model.

Battery enclosures with four batteries in a row.

APC recommends that a whole battery module (one row of batteries) is replaced at the same time to ensure optimal run-time (see example 1). However, it is only necessary to replace two batteries at the same time according to example 2 and 3 in the table below.
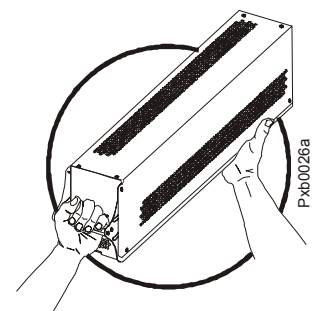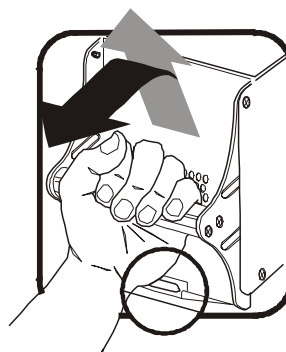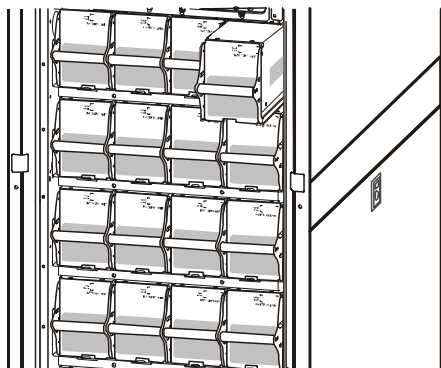
ACCEPTABLE	Column A	Column B	Column C	Column D
Example 1	New	New	New	New
Example 2	New	New	Old	Old
Example 3	Old	Old	New	New

The following examples are **NOT** acceptable:

NON-ACCEPTABLE	Column A	Column B	Column C	Column D
Example 1	Old	New	New	Old
Example 2	Old	New	Old	New

Use two people to lift components weighing between 18–32 kg/40–70 lb.

❶ Holding the handle, gently lift the battery unit and pull it halfway out. A lock mechanism prevents it from being pulled all the way out.

❷ Release the lock by pushing the battery unit upwards and pull the battery unit all the way out while supporting it.

❸ Take the replacement battery unit and push it into the system.

(!) **Note:** Allow for a 24-hour recharging period of the batteries after system start-up/battery replacement for battery monitoring data to become fully reliable.

How to store the battery modules

The battery modules must be stored indoors and with their protective packaging still in place.

Ambient temperature: -15° to 40°C/5°F to 104°F	Relative Humidity: 25-85% Non-condensing	Storage place free from vibration, dust, direct sunlight, and moisture.

Stored batteries should be recharged at regular intervals depending on the storage temperature:

| Storage Temperature	Recharge interval
-15° to 20°C/5°F to 68°F	9 months
20° to 30°C/68°F to 86°F	6 months
30° to 40°C/86°F to 104°F	3 months

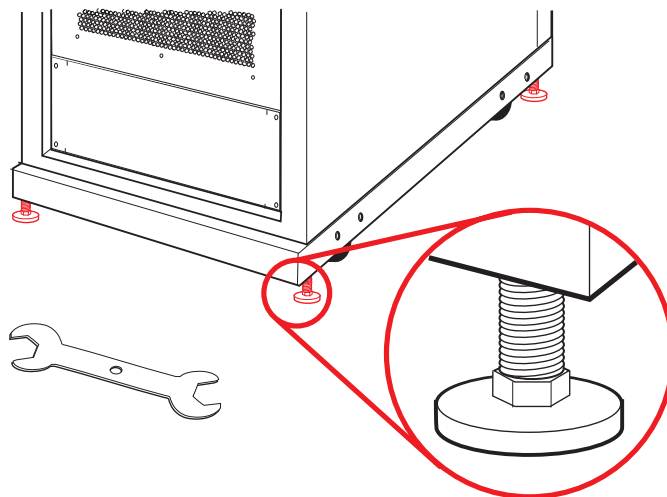**⚠ Caution:** Do not store the batteries for more than 12 months.

Frame Adjustments

If your UPS/battery enclosure has been moved to a new location, follow the below battery enclosure adjustment procedure, and, if applicable, the door reversal procedure.

How to adjust the battery enclosure
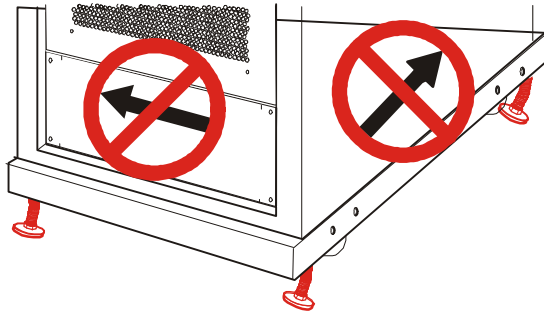
⚠️ **Caution:** Do not move the enclosure after the stabilizing feet have been lowered as the feet may bend.

❶ Secure the enclosure by setting the stabilizing feet.

After the electrical wiring has been completed, secure the enclosure in its final operating position. Use a 14-mm wrench (shipped with the enclosure) to adjust all 4 stabilizing feet until the pads make solid contact with the floor.

❷ Level the enclosure (optional).

Adjust the stabilizing feet to level from the front to the back and from the left to the right.

How to reverse the door (if required for easier access to the battery enclosure) - steps 1- 4

❶ Remove the handle

❷ Rotate the handle 180°

❸ Re-install the handle

④ Remove the door
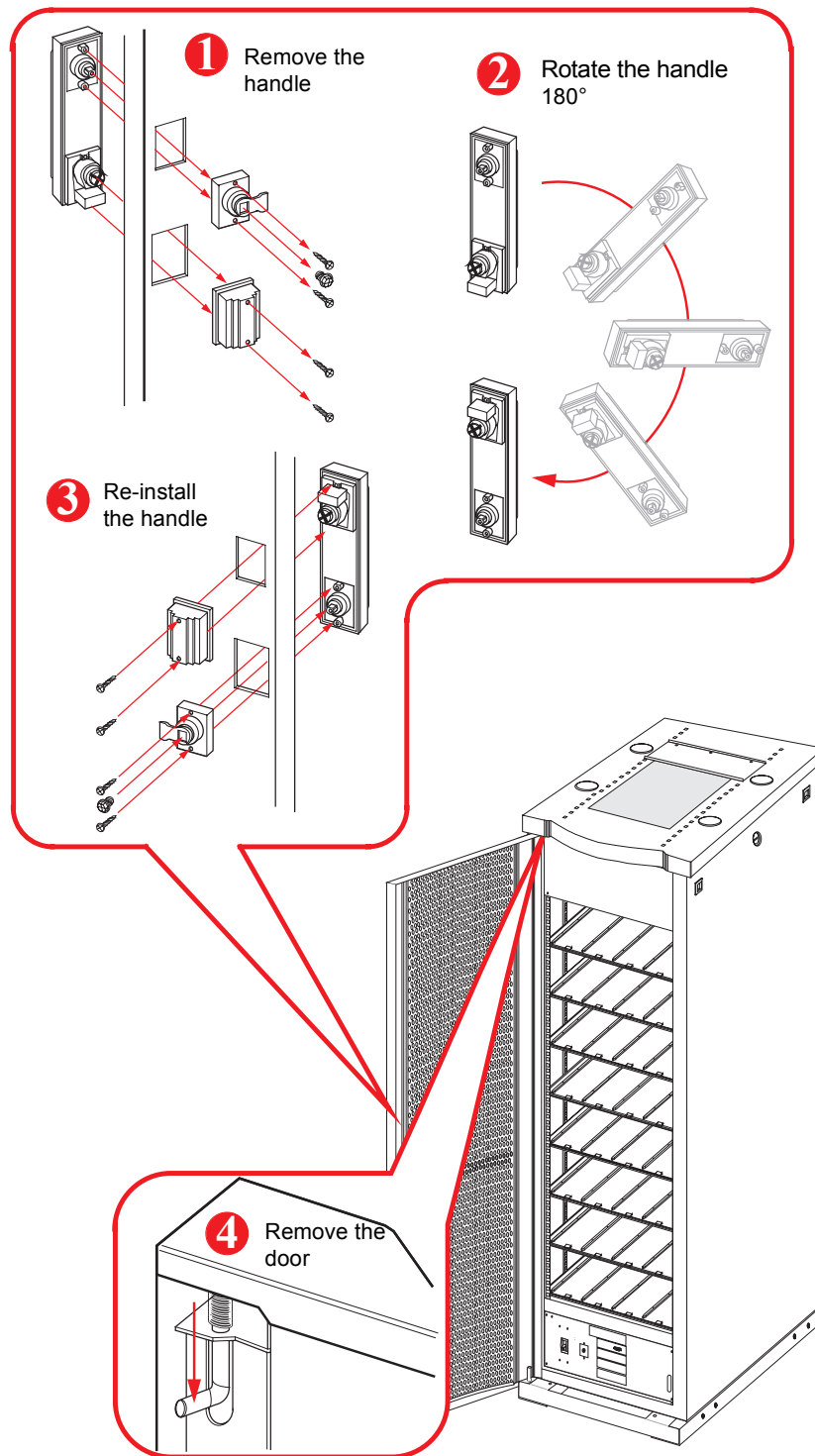
How to reverse the door - steps 5 - 8

5 Remove the hinge pin brackets from their original positions (A) and re-install them to their new positions (B)

(A)
(B)
(A)
(B)

6 Remove the two door bumpers from their original positions (A) and re-install them to their new positions (B)

(B) (A)
(A)
(B)
(A)

7 Remove the latch plate from its original position (A) and re-install it to its new position (B)

8 Re-install the door
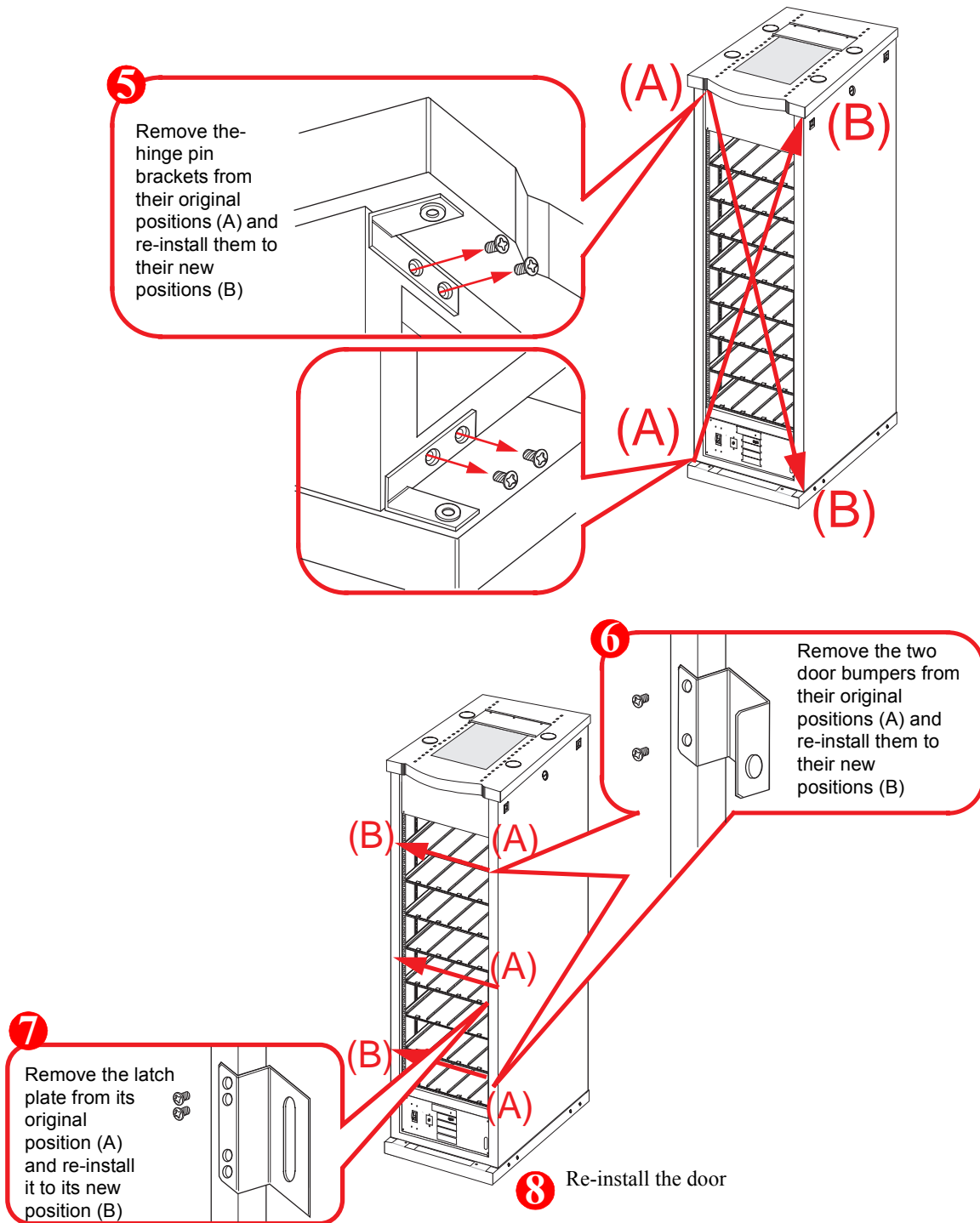
Troubleshooting

This section will help you to solve most problems. If the problem persists, note the UPS/Battery Enclosure # and serial # before contacting APC Customer Support (back cover).

Display Issues	Meaning	Corrective Action
The battery monitor board LEDs do not light up or the PowerView displays an inaccurate number of battery enclosures.	The battery enclosure(s) are not recognized.	Check that the communications cable(s) are connected, and that the battery enclosure selector switch(es) are in the correct position.
The PowerView displays an inaccurate number of batteries.	Unrecognized batteries in your configuration.	Ensure that all batteries and/or communication cables are correctly installed. (See How to replace a battery module).
The PowerView reports a battery unit fault.	A faulty battery has been detected.	(See How to replace a battery module).
The PowerView reports a tripped internal DC disconnect switch.	The DC breaker is open or the DC fuses are blown.	Verify the status of the DC breakers and check the fuses.

APC Worldwide Customer Support

Customer support for this or any other APC product is available at no charge in any of the following ways:

- Visit the APC Web site to access documents in the APC Knowledge Base and to submit customer support requests.
  - **www.apc.com** (Corporate Headquarters)
    Connect to localized APC Web sites for specific countries, each of which provides customer support information.
  - **www.apc.com/support/**
    Global support searching APC Knowledge Base and using e-support.
- Contact an APC Customer Support center by telephone or e-mail.
  - Regional centers

Direct InfraStruXure Customer Support Line	(1)(877)537-0607 (toll free)
APC headquarters U.S., Canada	(1)(800)800-4272 (toll free)
Latin America	(1)(401)789-5735 (USA)
Europe, Middle East, Africa	(353)(91)702000 (Ireland)
Western Europe (inc. Scandinavia)	+800 0272 0272
Japan	(0) 3 5434-2021
Australia, New Zealand, South Pacific area	(61) (2) 9955 9366 (Australia)

  - Local, country-specific centers: go to **www.apc.com/support/contact** for contact information.

Contact the APC representative or other distributor from whom you purchased your APC product for