150 kW SIAC-B Three-Wire
150 kW SIAC-B Four-Wire
200 kW SIAC-B Three-Wire
200 kW SIAC-B Four-Wire
Installation and Operation Manual
IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS

This manual contains important instructions that you should follow during installation and maintenance of the UPS and batteries. Please read all instructions before operating the equipment and save this manual for future reference.

CONSIGNES DE SÉCURITÉ IMPORTANTES — CONSERVER CES INSTRUCTIONS

Ce manuel comporte des instructions importantes que vous êtes invité à suivre lors de toute procédure d’installation et de maintenance des batteries et de l’onduleur. Veuillez consulter entièrement ces instructions avant de faire fonctionner l’équipement et conserver ce manuel afin de pouvoir vous y reporter ultérieurement.

IMPORTANT

To ensure you have the most up-to-date content and information for this product, please review the latest manual revision on our website, www.eaton.com/93PM.
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Chapter 1 Introduction

The Eaton® 93PM 150 kW and 200 kW Three-Wire Sidecar Integrated Accessory Cabinet-Bypass (SIAC-B) is designed for use with the 93PM 150 kW and 200 kW Three-Wire UPS systems. The 93PM 150 kW and 200 kW Four-Wire SIAC-B is designed for use with the 93PM 150 kW and 200 kW Four-Wire UPS systems. The SIAC-B provides maintenance bypass functions with configurable features, enabling adaptation and expansion without costly electrical rework.

NOTE

Startup and operational checks must be performed by an authorized Eaton Customer Service Engineer, or the warranty terms specified in Chapter 9 Warranty become void. This service is offered as part of the sales contract for the UPS. Contact an Eaton service representative in advance (a minimum two-week notice is required) to reserve a preferred startup date.

1.1 Features

The following descriptions provide a brief overview of the SIAC-B functions:

- Two breaker configuration: The bypass sidecar contains only a Maintenance Bypass (MBP) and Maintenance Isolation (MIS) breaker. This allows Maintenance bypass for system repair or maintenance. The critical load is NOT protected in the Maintenance bypass mode.

- Three breaker configuration (used with single-feed systems): Maintenance Bypass (MBP) and Maintenance Isolation (MIS) breakers, and a Bypass Input Breaker (BIB) enable power to completely bypass the UPS. The UPS can then be safely serviced or replaced without interrupting power to critical systems.

- Four breaker configuration (used with dual-feed systems): Maintenance Bypass (MBP) and Maintenance Isolation (MIS) breakers, and a Bypass Input Breaker (BIB) enable power to completely bypass the UPS. A Rectifier Input Breaker (RIB) provides a convenient method for removing power from the UPS when using the maintenance bypass to supply the load. The UPS can then be safely serviced or replaced without interrupting power to critical systems.

Figure 1 shows the SIAC-B. Figure 2 and Figure 3 show the SIAC-B mounted to the UPS cabinet.

1.2 Installation Features

The SIAC-B is housed in a single cabinet factory or field attached to and directly integrated with the UPS cabinet and can be ordered mounted on either the left or right side of the UPS, or shipped separately. The SIAC-B matches the UPS cabinet in style and color. It has safety shields behind the removable front panel for hazardous voltage protection and 2-hole bus bar lug input and output terminals reduce installation time. Power wiring between the UPS and SIAC-B are factory installed. Output power wiring to the critical load is routed using external conduit.

1.3 Model Configurations

The following model configurations are available:

- Eaton 93PM 150 kW Three-Wire SIAC-B, Eaton 93PM 150 kW Four-Wire SIAC-B, Eaton 93PM 200 kW Three-Wire SIAC-B, and Eaton 93PM 200 kW Four-Wire SIAC-B
  - Right-mounted two breaker configuration containing a MBP with auxiliary contacts and MIS
  - Right-mounted three breaker configuration containing a MBP with auxiliary contacts, a MIS, and a BIB
  - Right-mounted four breaker configuration containing a MBP with auxiliary contacts, a MIS, a BIB, and a RIB
  - Left-mounted two breaker configuration containing a MBP with auxiliary contacts and MIS
Introduction

- Left-mounted three breaker configuration containing a MBP with auxiliary contacts, a MIS, and a BIB
- Left-mounted four breaker configuration containing a MBP with auxiliary contacts, a MIS, a BIB, and a RIB

Figure 1. Eaton 93PM SIAC-B (Three or Four Wire)
Figure 2. Eaton 93PM 150 Capacity UPS with SIAC-B (Three or Four Wire)
1.4 Using This Manual

This manual describes how to install the SIAC-B and is divided into chapters. Read and understand the procedures described to ensure trouble-free installation and operation.

Read through each procedure before beginning the procedure. Perform only those procedures that apply to the UPS system being installed or operated.

1.5 Conventions Used in This Manual

This manual uses these type conventions:

- **Bold type** highlights important concepts in discussions, key terms in procedures, and menu options, or represents a command or option that you type or enter at a prompt.
- Italic type highlights notes and new terms where they are defined.
- Screen type represents information that appears on the screen or LCD.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Note</strong></td>
<td>Information notes call attention to important features or instructions.</td>
</tr>
<tr>
<td>[Keys]</td>
<td>Brackets are used when referring to a specific key, such as [Enter] or [Ctrl].</td>
</tr>
</tbody>
</table>
In this manual, the term UPS refers only to the UPS cabinet and its internal elements. The term UPS system refers to the entire power protection system – the UPS cabinet, an external battery system, and options or accessories installed.

The term line-up-and-match refers to accessory cabinets that are physically located adjacent to the UPS. The term standalone refers to accessory cabinets that are located separate from the UPS.

1.6 Symbols, Controls, and Indicators

The following are examples of symbols used on the UPS or accessories to alert you to important information:

**RISK OF ELECTRIC SHOCK** - Observe the warning associated with the risk of electric shock symbol.

**CAUTION: REFER TO OPERATOR’S MANUAL** - Refer to your operator’s manual for additional information, such as important operating and maintenance instructions.

This symbol indicates that you should not discard the UPS or the UPS batteries in the trash. This product contains sealed, lead-acid batteries and must be disposed of properly. For more information, contact your local recycling/reuse or hazardous waste center.

This symbol indicates that you should not discard waste electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste center.

1.7 For More Information

Refer to the Eaton 93PM UPS (20–150 kW, 480V – 150 kW Capacity Frame) Installation and Operation Manual, the Eaton 93PM UPS (20–150 kW, 480V Four Wire – 150 kW Capacity Frame) Installation and Operation Manual, the Eaton 93PM Emergency Lighting UPS (20–40 kW, 480V Four Wire UL 924) Installation and Operation Manual, the Eaton 93PM UPS (20–200 kW, 480V – 200 kW Frame) Installation and Operation Manual, or the Eaton 93PM UPS (20–200 kW, 480V Four Wire –200 kW Frame) Installation and Operation Manual for the following additional information:

- UPS, optional components, and accessory installation instructions, including site preparation, planning for installation, and wiring and safety information. Detailed illustrations of cabinets and optional accessories with dimensional and connection point drawings are provided.
- UPS operation, including UPS controls, functions of the UPS, standard features and optional accessories, procedures for starting and stopping the UPS, and information about maintenance and responding to system events.
- Communication capabilities of the UPS system.

Refer to the Eaton 93PM Integrated Accessory Cabinet-Distribution (50 kW, 100 kW, 150 kW, and 200 kW IAC-D) Installation and Operation Manual for the following additional information:

- Installation instructions, including site preparation, planning for installation, wiring and safety information, and detailed illustrations of cabinets with dimensional and connection point drawings.
Introduction

- Operation, including breakers, standard features and optional accessories, procedures for using the tie and bypass functions, and information about maintenance

Visit [www.eaton.com/powerquality](http://www.eaton.com/powerquality) or contact an Eaton service representative for information on how to obtain copies of these manuals.

1.8 Getting Help

If help is needed with any of the following:

- Scheduling initial startup
- Regional locations and telephone numbers
- A technical question about any of the information in this manual
- A question this manual does not answer

Please call the Customer Reliability Center at:

- United States: 1-800-843-9433
- Canada: 1-800-461-9166 ext 260
- All other countries: Call your local service representative

Please use the following e-mail address for manual comments, suggestions, or to report an error in this manual:

E-ESSDocumentation@eaton.com

1.9 Equipment Registration

Please visit [www.eaton.com/pg/register](http://www.eaton.com/pg/register) to register your new Eaton UPS / Eaton UPS Accessory.

**Model Number:**


**Serial Number:**


Chapter 2  Safety Warnings

IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS

This manual contains important instructions that should be followed during installation and maintenance of the UPS system and batteries. Read all instructions before operating the equipment and save this manual for future reference.

The UPS system is designed for industrial or computer room applications, and contains safety shields behind the door and front panels. However, the UPS system is a sophisticated power system and should be handled with appropriate care.

DANGER

This UPS system contains LETHAL VOLTAGES. All repairs and service should be performed by AUTHORIZED SERVICE PERSONNEL ONLY. There are NO USER SERVICEABLE PARTS inside the UPS.

WARNING

- The UPS system is powered by its own energy source (batteries). The output terminals may carry live voltage even when the UPS is disconnected from an AC source.
- To reduce the risk of fire or electric shock, install this UPS system in a temperature and humidity controlled, indoor environment, free of conductive contaminants. Ambient temperature must not exceed 40°C (104°F). Do not operate near water or excessive humidity (95% maximum). The system is not intended for outdoor use.
- As a result of the connected loads high leakage current is possible. Connection to earth ground is required for safety and proper product operation. Do not check UPS system operation by any action that includes removal of the earth (ground) connection with loads attached.
- Ensure all power is disconnected before performing installation or service.
- ELECTRIC ENERGY HAZARD. Do not attempt to alter any UPS system or battery wiring or connectors. Attempting to alter wiring can cause injury.

CAUTION

- Installation or servicing should be performed by qualified service personnel knowledgeable of UPS and battery systems, and required precautions. Keep unauthorized personnel away from equipment. Consider all warnings, cautions, and notes before installing or servicing equipment.
- Keep the Accessory cabinet doors closed and front panels installed to ensure proper cooling airflow and to protect personnel from dangerous voltages inside the unit.
- Do not install or operate the UPS system close to gas or electric heat sources.
- The operating environment should be maintained within the parameters stated in this manual.
- Keep surroundings uncluttered, clean, and free from excess moisture.
- Observe all DANGER, CAUTION, and WARNING notices affixed to the inside and outside of the equipment.
Safety Warnings
Chapter 3  Installation Plan and Unpacking

This chapter includes planning for the Eaton 93PM 150 kW and 200 kW Sidecar Integrated Accessory Cabinet-Bypass (SIAC-B).

NOTE  The SIAC-B is typically attached to and directly integrated with the UPS cabinet at the factory but it can be ordered and shipped separately from the UPS and installed onsite. This section must be used along with the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, during installation planning and unpacking.

3.1  Use the following basic sequence of steps to install the SIAC-B:

1. Create an installation plan for the SIAC-B.
2. Prepare your site for the SIAC-B.
3. Inspect and unpack the SIAC-B.
4. Unload and install the SIAC-B.
5. Externally wire the SIAC-B.
6. Complete the Installation Checklist.
7. Have authorized service personnel perform preliminary operational checks and start up the system.

NOTE  Startup and operational checks must be performed by an authorized Eaton Customer Service Engineer, or the warranty terms specified in Chapter 9 Warranty become void. This service is offered as part of the sales contract for the UPS. Contact an Eaton service representative in advance (usually a two-week notice is required) to reserve a preferred startup date.

3.2  Creating an Installation Plan

Before installing the SIAC-B, read and understand how this manual applies to the system being installed. Use the procedures and illustrations in this section to create a logical plan for installing the SIAC-B.

3.3  Preparing the Site

For the UPS system to operate at peak efficiency, the installation site should meet the environmental parameters outlined in this manual. The operating environment must meet the weight, clearance, and environmental requirements specified for the applicable accessory cabinet. Specifications subject to change.

3.3.1  Environmental and Installation Considerations

The UPS system installation, including the SIAC-B, must meet the following guidelines:

- The system must be installed on a level floor suitable for computer or electronic equipment.
- The system must be operated at an altitude no higher than 1500m (5000 ft) without derating. For additional assistance with high altitude operation, contact an Eaton service representative (see paragraph 1.8 Getting Help).
- The system must be installed in a temperature and humidity controlled indoor area free of conductive contaminants.

Failure to follow guidelines may void your warranty.

The basic environmental requirements for operation of the SIAC-B are:
• Ambient Temperature Range: 5–40°C (41–104°F)
• Recommended Operating Range: 5–40°C (41–104°F)
• Maximum Relative Humidity: 5–95%, noncondensing

The SIAC-B operating environment must meet the weight requirements shown in Table 1. The SIAC-B size requirements are shown in Figure 4 through Figure 6 or Figure 7 through Figure 9. Dimensions are in millimeters (inches).

Table 1. SIAC-B Cabinet Weights

<table>
<thead>
<tr>
<th>UPS Model</th>
<th>Power Rating – UPM Quantity</th>
<th>Left or Right-Mounted SIAC-B Model</th>
<th>Weight kg (lb)</th>
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<tbody>
<tr>
<td><strong>Eaton 93PM Capacity Three-Wire UPS</strong></td>
<td></td>
<td></td>
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<tr>
<td>150-1</td>
<td>Three-Wire SIAC-B (2-Breaker)</td>
<td>572 (1259)</td>
<td>541 (1192)</td>
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<tr>
<td>150-2</td>
<td>Three-Wire SIAC-B (2-Breaker)</td>
<td>635 (1399)</td>
<td>604 (1332)</td>
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<td>150-3</td>
<td>Three-Wire SIAC-B (2-Breaker)</td>
<td>699 (1540)</td>
<td>668 (1473)</td>
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<td>585 (1289)</td>
<td>554 (1222)</td>
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<td>649 (1430)</td>
<td>618 (1363)</td>
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<td>713 (1570)</td>
<td>682 (1503)</td>
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<td><strong>Eaton 93PM Capacity Four-Wire UPS</strong></td>
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<td>Three-Wire SIAC-B (4-Breaker)</td>
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Table 1. SIAC-B Cabinet Weights (Continued)

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<tr>
<th>UPS Model</th>
<th>Power Rating – UPM Quantity</th>
<th>Left or Right-Mounted SIAC-B Model</th>
<th>Weight kg (lb)</th>
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</tr>
<tr>
<td>200-2</td>
<td>Four-Wire SIAC-B (2-Breaker)</td>
<td></td>
<td>721 (1589)</td>
</tr>
<tr>
<td>200-3</td>
<td>Four-Wire SIAC-B (2-Breaker)</td>
<td></td>
<td>785 (1730)</td>
</tr>
<tr>
<td>200-4</td>
<td>Four-Wire SIAC-B (2-Breaker)</td>
<td></td>
<td>849 (1875)</td>
</tr>
<tr>
<td>200-1</td>
<td>Four-Wire SIAC-B (4-Breaker)</td>
<td></td>
<td>871 (1479)</td>
</tr>
<tr>
<td>200-2</td>
<td>Four-Wire SIAC-B (4-Breaker)</td>
<td></td>
<td>735 (1619)</td>
</tr>
<tr>
<td>200-3</td>
<td>Four-Wire SIAC-B (4-Breaker)</td>
<td></td>
<td>799 (1760)</td>
</tr>
<tr>
<td>200-4</td>
<td>Four-Wire SIAC-B (4-Breaker)</td>
<td></td>
<td>862 (1900)</td>
</tr>
</tbody>
</table>

The clearances required around the SIAC-B are the same as the attached UPS.
Installation Plan and Unpacking

Figure 4. Eaton 93PM 150 kW Capacity UPS with SIAC-B (Three or Four Wire) Dimensions (Front View)

UPS with Left-Mounted SIAC-B

UPS with Right-Mounted SIAC-B

Dimensions are in millimeters [inches]
Figure 5. Eaton 93PM 150 kW Capacity UPS with SIAC-B (Three or Four Wire) Dimensions (Top and Bottom Views)

Dimensions are in millimeters [inches]
Figure 6. Eaton 93PM 150 kW Capacity UPS with Left-Mounted SIAC-B (Three or Four Wire) – Center of Gravity

Dimensions are in millimeters [inches]

<table>
<thead>
<tr>
<th></th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>C (mm)</th>
<th>Installed Weight (kg/lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eaton 93PM-150-1 Capacity UPS with 2-Breaker SIAC-B</td>
<td>862 (33.9)</td>
<td>508 (20.0)</td>
<td>501 (19.7)</td>
<td>541 (1192)</td>
</tr>
<tr>
<td>Eaton 93PM-150-2 Capacity UPS with 2-Breaker SIAC-B</td>
<td>913 (35.9)</td>
<td>510 (20.1)</td>
<td>518 (20.4)</td>
<td>604 (1332)</td>
</tr>
<tr>
<td>Eaton 93PM-150-3 Capacity UPS with 2-Breaker SIAC-B</td>
<td>985 (38.8)</td>
<td>512 (20.2)</td>
<td>531 (20.9)</td>
<td>668 (1473)</td>
</tr>
<tr>
<td>Eaton 93PM-150-1 Capacity UPS with 4-Breaker SIAC-B</td>
<td>870 (34.3)</td>
<td>507 (20.0)</td>
<td>494 (19.4)</td>
<td>554 (1222)</td>
</tr>
<tr>
<td>Eaton 93PM-150-2 Capacity UPS with 4-Breaker SIAC-B</td>
<td>819 (32.6)</td>
<td>509 (20.0)</td>
<td>510 (20.1)</td>
<td>618 (1363)</td>
</tr>
<tr>
<td>Eaton 93PM-150-3 Capacity UPS with 4-Breaker SIAC-B</td>
<td>989 (38.9)</td>
<td>511 (20.1)</td>
<td>524 (20.6)</td>
<td>682 (1503)</td>
</tr>
</tbody>
</table>

**NOTE**

The 93PM 150 kW Capacity UPS is shown with a left-mounted SIAC-B. A UPS with a right-mounted SIAC-B is the mirror image.
### Weight and Center of Gravity with Right-Mounted 150 kW Three-Wire SIAC-B (letters A, B, and C map to Figure 6)

<table>
<thead>
<tr>
<th></th>
<th>A (mm/in)</th>
<th>B (mm/in)</th>
<th>C (mm/in)</th>
<th>Installed Weight (kg/lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eaton 93PM-150-1 Capacity UPS with 2-Breaker SIAC-B</td>
<td>862 (33.9)</td>
<td>508 (20.0)</td>
<td>437 (17.2)</td>
<td>541 (1192)</td>
</tr>
<tr>
<td>Eaton 93PM-150-2 Capacity UPS with 2-Breaker SIAC-B</td>
<td>913 (35.9)</td>
<td>510 (20.1)</td>
<td>420 (16.5)</td>
<td>604 (1332)</td>
</tr>
<tr>
<td>Eaton 93PM-150-3 Capacity UPS with 2-Breaker SIAC-B</td>
<td>985 (38.8)</td>
<td>512 (20.2)</td>
<td>407 (16.0)</td>
<td>668 (1473)</td>
</tr>
<tr>
<td>Eaton 93PM-150-1 Capacity UPS with 4-Breaker SIAC-B</td>
<td>870 (34.3)</td>
<td>507 (20.0)</td>
<td>445 (17.5)</td>
<td>554 (1222)</td>
</tr>
<tr>
<td>Eaton 93PM-150-2 Capacity UPS with 4-Breaker SIAC-B</td>
<td>819 (36.2)</td>
<td>509 (20.0)</td>
<td>428 (16.9)</td>
<td>618 (1363)</td>
</tr>
<tr>
<td>Eaton 93PM-150-3 Capacity UPS with 4-Breaker SIAC-B</td>
<td>989 (38.9)</td>
<td>511 (20.1)</td>
<td>414 (16.3)</td>
<td>682 (1503)</td>
</tr>
</tbody>
</table>

### Weight and Center of Gravity with Left-Mounted 150 kW Four-Wire SIAC-B (letters A, B, and C map to Figure 6)

<table>
<thead>
<tr>
<th></th>
<th>A (mm/in)</th>
<th>B (mm/in)</th>
<th>C (mm/in)</th>
<th>Installed Weight (kg/lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eaton 93PM-200-1 UPS with 2-Breaker SIAC-B</td>
<td>853 (33.6)</td>
<td>552 (21.7)</td>
<td>501 (19.7)</td>
<td>569 (1255)</td>
</tr>
<tr>
<td>Eaton 93PM-200-2 UPS with 2-Breaker SIAC-B</td>
<td>903 (35.5)</td>
<td>550 (21.7)</td>
<td>517 (20.3)</td>
<td>633 (1395)</td>
</tr>
<tr>
<td>Eaton 93PM-200-3 UPS with 2-Breaker SIAC-B</td>
<td>973 (38.3)</td>
<td>548 (21.6)</td>
<td>529 (20.8)</td>
<td>696 (1536)</td>
</tr>
<tr>
<td>Eaton 93PM-200-1 UPS with 4-breaker SIAC-B</td>
<td>861 (33.9)</td>
<td>553 (21.8)</td>
<td>494 (19.4)</td>
<td>583 (1285)</td>
</tr>
<tr>
<td>Eaton 93PM-200-2 UPS with 4-breaker SIAC-B</td>
<td>909 (35.8)</td>
<td>551 (21.7)</td>
<td>510 (20.1)</td>
<td>646 (1425)</td>
</tr>
<tr>
<td>Eaton 93PM-200-3 UPS with 4-breaker SIAC-B</td>
<td>977 (38.5)</td>
<td>549 (21.6)</td>
<td>523 (20.6)</td>
<td>710 (1556)</td>
</tr>
</tbody>
</table>

### Weight and Center of Gravity with Right-Mounted 150 kW Four-Wire SIAC-B (letters A, B, and C map to Figure 6)

<table>
<thead>
<tr>
<th></th>
<th>A (mm/in)</th>
<th>B (mm/in)</th>
<th>C (mm/in)</th>
<th>Installed Weight (kg/lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eaton 93PM-200-1 UPS with 2-Breaker SIAC-B</td>
<td>853 (33.6)</td>
<td>552 (21.7)</td>
<td>421 (16.6)</td>
<td>569 (1255)</td>
</tr>
<tr>
<td>Eaton 93PM-200-2 UPS with 2-Breaker SIAC-B</td>
<td>903 (35.5)</td>
<td>550 (21.7)</td>
<td>407 (16.0)</td>
<td>633 (1395)</td>
</tr>
<tr>
<td>Eaton 93PM-200-3 UPS with 2-Breaker SIAC-B</td>
<td>973 (38.3)</td>
<td>548 (21.6)</td>
<td>395 (15.5)</td>
<td>696 (1536)</td>
</tr>
<tr>
<td>Eaton 93PM-200-1 UPS with 4-breaker SIAC-B</td>
<td>861 (33.9)</td>
<td>553 (21.8)</td>
<td>429 (16.9)</td>
<td>583 (1285)</td>
</tr>
<tr>
<td>Eaton 93PM-200-2 UPS with 4-breaker SIAC-B</td>
<td>909 (35.8)</td>
<td>551 (21.7)</td>
<td>414 (16.3)</td>
<td>646 (1425)</td>
</tr>
<tr>
<td>Eaton 93PM-200-3 UPS with 4-breaker SIAC-B</td>
<td>977 (38.5)</td>
<td>549 (21.6)</td>
<td>402 (15.8)</td>
<td>710 (1556)</td>
</tr>
</tbody>
</table>
Figure 7. Eaton 93PM 200 kW UPS with SIAC-B (Three or Four Wire) Dimensions (Front View)

Dimensions are in millimeters [inches]
Figure 8. Eaton 93PM 200 kW UPS with SIAC-B (Three or Four Wire) Dimensions (Top and Bottom Views)

Dimensions are in millimeters [inches]
Figure 9. Eaton 93PM 200 kW UPS with Left-Mounted SIAC-B (Three or Four Wire) – Center of Gravity

Dimensions are in millimeters [inches]

A
B
C

Dimensions are in millimeters [inches]
Figure 10. Eaton 93PM 200 kW UPS with Right-Mounted SIAC-B (Three or Four Wire) – Center of Gravity

Dimensions are in millimeters [inches]

<table>
<thead>
<tr>
<th>Description</th>
<th>A (mm/in)</th>
<th>B (mm/in)</th>
<th>C (mm/in)</th>
<th>Installed Weight (kg/lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eaton 93PM-200-1 UPS with 2-Breaker SIAC-B</td>
<td>855 (33.7)</td>
<td>564 (22.2)</td>
<td>590 (22.8)</td>
<td>593 (1307)</td>
</tr>
<tr>
<td>Eaton 93PM-200-2 UPS with 2-Breaker SIAC-B</td>
<td>866 (34.1)</td>
<td>561 (22.1)</td>
<td>587 (23.1)</td>
<td>656 (1447)</td>
</tr>
<tr>
<td>Eaton 93PM-200-3 UPS with 2-Breaker SIAC-B</td>
<td>908 (35.7)</td>
<td>558 (22.0)</td>
<td>593 (23.3)</td>
<td>720 (1588)</td>
</tr>
<tr>
<td>Eaton 93PM-200-4 UPS with 2-Breaker SIAC-B</td>
<td>968 (38.1)</td>
<td>559 (21.9)</td>
<td>598 (23.5)</td>
<td>784 (1728)</td>
</tr>
<tr>
<td>Eaton 93PM-200-1 UPS with 4-Breaker SIAC-B</td>
<td>864 (34.0)</td>
<td>575 (22.6)</td>
<td>574 (22.6)</td>
<td>606 (1337)</td>
</tr>
<tr>
<td>Eaton 93PM-200-2 UPS with 4-Breaker SIAC-B</td>
<td>873 (34.4)</td>
<td>571 (22.5)</td>
<td>582 (22.9)</td>
<td>670 (1477)</td>
</tr>
<tr>
<td>Eaton 93PM-200-3 UPS with 4-Breaker SIAC-B</td>
<td>914 (36.0)</td>
<td>568 (22.4)</td>
<td>598 (23.1)</td>
<td>734 (1618)</td>
</tr>
<tr>
<td>Eaton 93PM-200-4 UPS with 4-Breaker SIAC-B</td>
<td>973 (38.3)</td>
<td>566 (22.3)</td>
<td>594 (23.4)</td>
<td>797 (1758)</td>
</tr>
</tbody>
</table>
### Weight and Center of Gravity with Right-Mounted 200 kW Three-Wire SIAC-B (letters A, B, and C map to Figure 10)

<table>
<thead>
<tr>
<th></th>
<th>A (mm in)</th>
<th>B (mm in)</th>
<th>C (mm in)</th>
<th>Installed Weight (kg / lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eaton 93PM-200-1 UPS with 2-Breaker SIAC-B</td>
<td>857 (33.7)</td>
<td>566 (22.3)</td>
<td>593 (23.3)</td>
<td>593 (1307)</td>
</tr>
<tr>
<td>Eaton 93PM-200-2 UPS with 2-Breaker SIAC-B</td>
<td>868 (34.2)</td>
<td>563 (22.2)</td>
<td>563 (22.2)</td>
<td>656 (1447)</td>
</tr>
<tr>
<td>Eaton 93PM-200-3 UPS with 2-Breaker SIAC-B</td>
<td>909 (35.8)</td>
<td>561 (22.1)</td>
<td>538 (21.2)</td>
<td>720 (1588)</td>
</tr>
<tr>
<td>Eaton 93PM-200-4 UPS with 2-Breaker SIAC-B</td>
<td>970 (38.2)</td>
<td>559 (22.0)</td>
<td>517 (20.4)</td>
<td>784 (1728)</td>
</tr>
<tr>
<td>Eaton 93PM-200-1 UPS with 4-Breaker SIAC-B</td>
<td>864 (34.0)</td>
<td>575 (22.6)</td>
<td>599 (23.6)</td>
<td>606 (1337)</td>
</tr>
<tr>
<td>Eaton 93PM-200-2 UPS with 4-Breaker SIAC-B</td>
<td>874 (34.4)</td>
<td>571 (22.5)</td>
<td>568 (22.4)</td>
<td>670 (1477)</td>
</tr>
<tr>
<td>Eaton 93PM-200-3 UPS with 4-Breaker SIAC-B</td>
<td>914 (36.0)</td>
<td>568 (22.4)</td>
<td>543 (21.4)</td>
<td>734 (1618)</td>
</tr>
<tr>
<td>Eaton 93PM-200-4 UPS with 4-Breaker SIAC-B</td>
<td>974 (38.3)</td>
<td>566 (22.3)</td>
<td>522 (20.6)</td>
<td>797 (1758)</td>
</tr>
</tbody>
</table>

### Weight and Center of Gravity with Left-Mounted 200 kW Four-Wire SIAC-B (letters A, B, and C map to Figure 9)

<table>
<thead>
<tr>
<th></th>
<th>A (mm in)</th>
<th>B (mm in)</th>
<th>C (mm in)</th>
<th>Installed Weight (kg / lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eaton 93PM-200-1 UPS with 2-Breaker SIAC-B</td>
<td>844 (33.2)</td>
<td>562 (22.2)</td>
<td>590 (23.2)</td>
<td>627 (1382)</td>
</tr>
<tr>
<td>Eaton 93PM-200-2 UPS with 2-Breaker SIAC-B</td>
<td>855 (33.7)</td>
<td>560 (22.0)</td>
<td>595 (23.4)</td>
<td>690 (1522)</td>
</tr>
<tr>
<td>Eaton 93PM-200-3 UPS with 2-Breaker SIAC-B</td>
<td>896 (35.3)</td>
<td>558 (22.0)</td>
<td>600 (23.6)</td>
<td>754 (1663)</td>
</tr>
<tr>
<td>Eaton 93PM-200-4 UPS with 2-Breaker SIAC-B</td>
<td>955 (37.6)</td>
<td>556 (21.9)</td>
<td>604 (19.8)</td>
<td>818 (1808)</td>
</tr>
<tr>
<td>Eaton 93PM-200-1 UPS with 4-Breaker SIAC-B</td>
<td>852 (33.6)</td>
<td>573 (22.6)</td>
<td>582 (22.9)</td>
<td>640 (1412)</td>
</tr>
<tr>
<td>Eaton 93PM-200-2 UPS with 4-Breaker SIAC-B</td>
<td>863 (34.0)</td>
<td>570 (22.4)</td>
<td>588 (23.1)</td>
<td>704 (1552)</td>
</tr>
<tr>
<td>Eaton 93PM-200-3 UPS with 4-Breaker SIAC-B</td>
<td>902 (35.5)</td>
<td>567 (22.3)</td>
<td>593 (23.4)</td>
<td>768 (1693)</td>
</tr>
<tr>
<td>Eaton 93PM-200-4 UPS with 4-Breaker SIAC-B</td>
<td>960 (37.8)</td>
<td>565 (22.2)</td>
<td>598 (23.5)</td>
<td>831 (1833)</td>
</tr>
</tbody>
</table>

### Weight and Center of Gravity with Right-Mounted 200 kW Four-Wire SIAC-B (letters A, B, and C map to Figure 10)

<table>
<thead>
<tr>
<th></th>
<th>A (mm in)</th>
<th>B (mm in)</th>
<th>C (mm in)</th>
<th>Installed Weight (kg / lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eaton 93PM-200-1 UPS with 2-Breaker SIAC-B</td>
<td>846 (33.3)</td>
<td>564 (22.2)</td>
<td>575 (22.6)</td>
<td>627 (1382)</td>
</tr>
<tr>
<td>Eaton 93PM-200-2 UPS with 2-Breaker SIAC-B</td>
<td>857 (33.7)</td>
<td>562 (22.1)</td>
<td>548 (21.6)</td>
<td>690 (1522)</td>
</tr>
<tr>
<td>Eaton 93PM-200-3 UPS with 2-Breaker SIAC-B</td>
<td>897 (35.3)</td>
<td>560 (22.0)</td>
<td>525 (20.7)</td>
<td>754 (1663)</td>
</tr>
<tr>
<td>Eaton 93PM-200-4 UPS with 2-Breaker SIAC-B</td>
<td>957 (37.7)</td>
<td>558 (22.0)</td>
<td>506 (19.9)</td>
<td>818 (1808)</td>
</tr>
<tr>
<td>Eaton 93PM-200-1 UPS with 4-Breaker SIAC-B</td>
<td>863 (34.0)</td>
<td>570 (22.4)</td>
<td>556 (21.9)</td>
<td>704 (1552)</td>
</tr>
<tr>
<td>Eaton 93PM-200-2 UPS with 4-Breaker SIAC-B</td>
<td>863 (34.0)</td>
<td>565 (22.2)</td>
<td>514 (20.2)</td>
<td>831 (1833)</td>
</tr>
</tbody>
</table>
3.3.2 Floor Mounting Brackets

Floor mounting brackets are optionally available to secure the UPS and SIAC-B to the facility floor. Figure 11 through Figure 14 show the mounting hole locations for the brackets.

Figure 11. Eaton 93PM 150 kW Capacity UPS Cabinet with SIAC-B Floor Mounting Bracket Dimensions — Rear View

NOTE

The 93PM 150 kW Capacity UPS is shown with a left-mounted SIAC-B. A UPS with a right-mounted SIAC-B is the mirror image.
Figure 12. Eaton 93PM 150 kW Capacity UPS Cabinet with SIAC-B Floor Mounting Bracket Dimensions — Top View

NOTE

The 93PM 150 kW Capacity UPS is shown with a left-mounted SIAC-B. A UPS with a right-mounted SIAC-B is the mirror image.
The 93PM 200 kW UPS is shown with a left-mounted SIAC-B. A UPS with a right-mounted SIAC-B is the mirror image.
Figure 14. Eaton 93PM 200 kW Capacity UPS Cabinet with SIAC-B Floor Mounting Bracket Dimensions — Top View

NOTE

The 93PM 200 kW UPS is shown with a left-mounted SIAC-B. A UPS with a right-mounted SIAC-B is the mirror image.

3.3.3 SIAC-B Power Wiring Preparation

Read and understand the following notes while planning and performing the installation:

WARNING

As a result of the connected loads high leakage current is possible. Connection to earth ground is required for safety and proper product operation. Do not check SIAC-B operation by any action that includes removal of the earth (ground) connection with loads attached.

- Refer to national and local electrical codes for acceptable external wiring practices.
- For external wiring, use 75°C copper wire. Wire sizes listed in Table 2 and Table 3 are for copper wiring only. If wire is run in an ambient temperature greater than 40°C, higher temperature wire and/or larger size wire may be necessary. Wire sizes are based on using the specified breakers.

- Recommended wire sizes are based on NFPA National Electrical Code® (NEC®) Table 310.15(B)(16) 75°C ampacity with 40°C ambient correction factors.

- Three-wire SIAC-B models do not use a neutral. Four-wire SIAC-B models use a neutral for bypass input and load output, but not for rectifier input.

- The neutral conductor is sized the same as the phase conductor for balanced and resistive loads. Non-linear loads, up to the maximum of 1.5x the load current, require a larger neutral conductor and should be sized in accordance with NFPA NEC 70 Article 310.15(B)(5).

- Refer to NEC Article 250 and local codes for proper grounding practices.

- Phase rotation must be clockwise starting with phase A (rotation A, B, C).

- Per NEC Article 300-20(a), all three-phase conductors must be run in the same conduit. A ground wire must be run in the same conduit as the phase conductors.

- Conduit is to be sized to accommodate three phase conductors, one neutral conductor (four-wire models only), and one ground conductor. If an oversized neutral conductor (four-wire models only) is to be installed, a larger conduit size is needed to accommodate the oversized neutral.

- Refer to the appropriate Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, for UPS cabinet conduit and terminal specifications and locations.

- Material and labor for external wiring recommendations are to be provided by the customer.

- If installing an external maintenance bypass, all feeds to the UPS including the Rectifier Input Breaker (RIB) (if installed) must have a service disconnect independent of the maintenance bypass power path. Most maintenance bypass solutions provide UPS input feeds derived from but isolated from the maintenance bypass power path. If the maintenance bypass solution being installed does not provide such functionality, DO NOT use a single feeder breaker to supply both the UPS and the maintenance bypass.

- The term line-up-and-match refers to accessory cabinets that are physically located adjacent to the UPS. The term standalone refers to accessory cabinets that are located separate from the UPS.

For three-wire SIAC-B external power wiring recommendations, including the minimum AWG size of external wiring, see Table 2 or Table 3. Wire sizes listed are for copper wiring only.

### Table 2. External Power Wiring Recommendations: Eaton 93PM 150 kW and 200 kW Three-Wire SIAC-B – Two and Three Breaker Maintenance Bypass

<table>
<thead>
<tr>
<th>Basic Unit Rating</th>
<th>Voltage</th>
<th>Units</th>
<th>Rating 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input/Output Voltage</td>
<td>Volts</td>
<td>kW</td>
<td>150</td>
</tr>
<tr>
<td>AC Input to Maintenance Bypass</td>
<td>Maximum Amps</td>
<td>218</td>
<td>291</td>
</tr>
<tr>
<td>(3) Phases, (1) Ground</td>
<td>AWG or kcmil (each)</td>
<td>2/0</td>
<td>4/0</td>
</tr>
<tr>
<td>Minimum Conductor Size (Phase A, B, and C) Number per Phase</td>
<td></td>
<td>(2)</td>
<td>(2)</td>
</tr>
<tr>
<td>Minimum Conductor Size (Ground) Number per Phase</td>
<td>AWG or kcmil (each)</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1)</td>
<td>(1)</td>
</tr>
<tr>
<td>AC Output to Critical Load</td>
<td>Maximum Amps</td>
<td>180</td>
<td>240</td>
</tr>
<tr>
<td>Full Load Current (3) Phases, (1) Ground</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 2. External Power Wiring Recommendations: Eaton 93PM 150 kW and 200 kW Three-Wire SIAC-B – Two and Three Breaker Maintenance Bypass (Continued)

<table>
<thead>
<tr>
<th>Minimum Conductor Size (Phase A, B, and C)</th>
<th>AWG or kcmil</th>
<th>Number per Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number per Phase</td>
<td>1</td>
<td>(2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minimum Conductor Size (Ground)</th>
<th>AWG or kcmil</th>
<th>Number per Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number per Phase</td>
<td>4</td>
<td>(2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building and Inter-Cabinet Ground</th>
<th>AWG or kcmil</th>
<th>Number per Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Conductor Size (Ground)</td>
<td></td>
<td>(2)</td>
</tr>
</tbody>
</table>

**NOTE** Callout letters A and C map to Figure 39, Figure 40, Figure 42, and Figure 43.

### Table 3. External Power Wiring Recommendations: Eaton 93PM 150 kW and 200 kW Three-Wire SIAC-B – Four Breaker Maintenance Bypass

<table>
<thead>
<tr>
<th>Basic Unit Rating</th>
<th>Units</th>
<th>Rating 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Unit Rating</td>
<td>kW</td>
<td>150</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Input/Output Voltage</th>
<th>Volts</th>
<th>480/480</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>AC Input to Maintenance Bypass (3 Phases, (1) Ground)</th>
<th>Maximum Amps</th>
<th>218</th>
<th>291</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Conductor Size (Phase A, B, and C) Number per Phase</td>
<td>AWG or kcmil</td>
<td>2/0</td>
<td>4/0</td>
</tr>
<tr>
<td>Minimum Conductor Size (Ground) Number per Phase</td>
<td></td>
<td>(2)</td>
<td>(2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AC Input to RIB (3 Phases, (1) Ground)</th>
<th>Maximum Amps</th>
<th>218</th>
<th>291</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Conductor Size (Phase A, B, and C) Number per Phase</td>
<td>AWG or kcmil</td>
<td>2/0</td>
<td>4/0</td>
</tr>
<tr>
<td>Minimum Conductor Size (Ground) Number per Phase</td>
<td></td>
<td>(2)</td>
<td>(2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AC Output to Critical Load (3 Phases, (1) Ground)</th>
<th>Maximum Amps</th>
<th>180</th>
<th>240</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Conductor Size (Phase A, B, and C) Number per Phase</td>
<td>AWG or kcmil</td>
<td>1</td>
<td>2/0</td>
</tr>
<tr>
<td>Minimum Conductor Size (Ground) Number per Phase</td>
<td></td>
<td>(2)</td>
<td>(2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building and Inter-Cabinet Ground</th>
<th>AWG or kcmil</th>
<th>Number per Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Conductor Size (Ground)</td>
<td></td>
<td>(2)</td>
</tr>
</tbody>
</table>

**NOTE** Callout letters A, B and C map to Figure 41 and Figure 44.
For four-wire SIAC-B external power wiring recommendations, including the minimum AWG size of external wiring, see Table 4 or Table 5. Wire sizes listed are for copper wiring only.

**NOTE**
The UL 924 Emergency Lighting UPS utilizes the SIAC-B for maintenance purposes only. The SIAC-B is not used for protection of conductors and is utilized as a switching component only. Use the tables provided in the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, for the appropriate conductor and upstream breaker size.

### Table 4. External Power Wiring Recommendations: Eaton 93PM 150 kW and 200 kW Four-Wire SIAC-B – Two and Three Breaker Maintenance Bypass

<table>
<thead>
<tr>
<th>Basic Unit Rating</th>
<th>Units</th>
<th>Rating 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>kW</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td></td>
<td>200</td>
</tr>
<tr>
<td>Input/Output Voltage</td>
<td>Volts</td>
<td>480/480</td>
</tr>
<tr>
<td></td>
<td></td>
<td>480/480</td>
</tr>
<tr>
<td>AC Input to Maintenance Bypass</td>
<td>Maximum Amps</td>
<td>218</td>
</tr>
<tr>
<td>(3) Phases, (1) Neutral – see Note, (1) Ground</td>
<td></td>
<td>291</td>
</tr>
<tr>
<td>Minimum Conductor Size (Phase A, B, and C and Neutral) Number per Phase</td>
<td>AWG or kcmil (each)</td>
<td>3/0 (2) 300 (2)</td>
</tr>
<tr>
<td>Minimum Conductor Size (Ground) Number per Phase</td>
<td>AWG or kcmil (each)</td>
<td>4 (1) 3 (1)</td>
</tr>
<tr>
<td>AC Output to Critical Load</td>
<td>Maximum Amps</td>
<td>180</td>
</tr>
<tr>
<td>Full Load Current (3) Phases, (1) Neutral – see Note, (1) Ground</td>
<td></td>
<td>240</td>
</tr>
<tr>
<td>Minimum Conductor Size (Phase A, B, and C and Neutral) Number per Phase</td>
<td>AWG or kcmil (each)</td>
<td>2/0 (2) 4/0 (2)</td>
</tr>
<tr>
<td>Minimum Conductor Size (Ground) Number per Phase</td>
<td>AWG or kcmil (each)</td>
<td>4 (1) 3 (1)</td>
</tr>
<tr>
<td>Building and Inter-Cabinet Ground</td>
<td>AWG or kcmil (each)</td>
<td>4 (1) 4 (1)</td>
</tr>
</tbody>
</table>

**NOTE**
Callout letters A and C map to Figure 39, Figure 40, Figure 45, and Figure 46.
The neutral conductor is sized the same as the phase conductor for balanced and resistive loads. Non-linear loads, up to the maximum of 1.5x the load current, require a larger neutral conductor and should be sized in accordance with NFPA NEC 70 Article 310.15(B)(5).

**NOTE**
The UL 924 Emergency Lighting UPS utilizes the SIAC-B for maintenance purposes only. The SIAC-B is not used for protection of conductors and is utilized as a switching component only. Use the tables provided in the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, for the appropriate conductor and upstream breaker size.
### Table 5. External Power Wiring Recommendations: Eaton 93PM 150 kW and 200 kW Four-Wire SIAC-B – Four Breaker Maintenance Bypass

<table>
<thead>
<tr>
<th>Basic Unit Rating</th>
<th>Units</th>
<th>Rating 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>kW</td>
<td>150</td>
</tr>
<tr>
<td>Input/Output Voltage</td>
<td>Volts</td>
<td>480/480</td>
</tr>
</tbody>
</table>

#### AC Input to Maintenance Bypass
(3) Phases, (1) Neutral – see Note, (1) Ground

<table>
<thead>
<tr>
<th>Minimum Conductor Size (Phase A, B, and C and Neutral) Number per Phase</th>
<th>Maximum Amps</th>
<th>AWG or kcmil</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(each)</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>218</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>218</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minimum Conductor Size (Ground) Number per Phase</th>
<th>AWG or kcmil</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(each)</td>
</tr>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>B</td>
</tr>
</tbody>
</table>

#### AC Input to RIB
(3) Phases, (1) Ground

<table>
<thead>
<tr>
<th>Minimum Conductor Size (Phase A, B, and C) Number per Phase</th>
<th>Maximum Amps</th>
<th>AWG or kcmil</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(each)</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>218</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>218</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minimum Conductor Size (Ground) Number per Phase</th>
<th>AWG or kcmil</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(each)</td>
</tr>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>B</td>
</tr>
</tbody>
</table>

#### AC Output to Critical Load
Full Load Current
(3) Phases, (1) Neutral – see Note, (1) Ground

<table>
<thead>
<tr>
<th>Minimum Conductor Size (Phase A, B, and C and Neutral) Number per Phase</th>
<th>Maximum Amps</th>
<th>AWG or kcmil</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(each)</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>180</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minimum Conductor Size (Ground) Number per Phase</th>
<th>AWG or kcmil</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(each)</td>
</tr>
<tr>
<td></td>
<td>C</td>
</tr>
</tbody>
</table>

#### Building and Inter-Cabinet Ground
Minimum Conductor Size (Ground) Number per Phase

<table>
<thead>
<tr>
<th>Minimum Conductor Size (Ground) Number per Phase</th>
<th>AWG or kcmil</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(each)</td>
</tr>
<tr>
<td></td>
<td>C</td>
</tr>
</tbody>
</table>

**NOTE** Callout letters A, B and C map to Figure 41 and Figure 47.

The neutral conductor is sized the same as the phase conductor for balanced and resistive loads. Non-linear loads, up to the maximum of 1.5x the load current, require a larger neutral conductor and should be sized in accordance with NFPA NEC 70 Article 310.15(B)(5).

The power wiring terminals for the 93PM 150 kW Three-Wire SIAC-B are pressure terminations. The power wiring connections for this equipment are UL and CSA rated. See Table 6 for external power cable terminations.

Figure 34 or Figure 35 show the location of the SIAC-B power cable terminals.
### Table 6. External Input Power Cable Terminations for the Eaton 93PM 150 kW Three-Wire SIAC-B

<table>
<thead>
<tr>
<th>Terminal Function</th>
<th>Terminal</th>
<th>Function</th>
<th>Number and Size of Pressure Termination (AWG or kcmil)</th>
<th>Tightening Torque Nm (lb in)</th>
<th>Size Screw and Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Input to RIB – Source 1 (4-breaker version only)</td>
<td>E1 (RIB–1)</td>
<td>Phase A</td>
<td>2 – #4–350 or 1 – 2/0–250</td>
<td>19.9 (177)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E2 (RIB–3)</td>
<td>Phase B</td>
<td>2 – #4–350 or 1 – 2/0–250</td>
<td>19.9 (177)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E3 (RIB–5)</td>
<td>Phase C</td>
<td>2 – #4–350 or 1 – 2/0–250</td>
<td>19.9 (177)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td>AC Input to Maintenance Bypass – Source 2</td>
<td>E6</td>
<td>Phase A</td>
<td>2 – #6–300 or 1 – 2/0–250</td>
<td>31 (275)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E7</td>
<td>Phase B</td>
<td>2 – #6–300 or 1 – 2/0–250</td>
<td>31 (275)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E8</td>
<td>Phase C</td>
<td>2 – #6–300 or 1 – 2/0–250</td>
<td>31 (275)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td>AC Output to Critical Load</td>
<td>E9</td>
<td>Phase A</td>
<td>2 – #6–300 or 1 – 2/0–250</td>
<td>31 (275)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E10</td>
<td>Phase B</td>
<td>2 – #6–300 or 1 – 2/0–250</td>
<td>31 (275)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E11</td>
<td>Phase C</td>
<td>2 – #6–300 or 1 – 2/0–250</td>
<td>31 (275)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td>Building, Inter-Cabinet, and Load Ground</td>
<td>TBG Ground</td>
<td></td>
<td>4 – #14–1/0</td>
<td>5.1 Nm (45)</td>
<td>Slotted</td>
</tr>
</tbody>
</table>

The power wiring terminals for the 93PM 150 kW Four-Wire SIAC-B are pressure terminations. The power wiring connections for this equipment are UL and CSA rated. See Table 7 for external power cable terminations.

Figure 34 or Figure 35 show the location of the SIAC-B power cable terminals.

### Table 7. External Input Power Cable Terminations for the Eaton 93PM 150 kW Four-Wire SIAC-B

<table>
<thead>
<tr>
<th>Terminal Function</th>
<th>Terminal</th>
<th>Function</th>
<th>Number and Size of Pressure Termination (AWG or kcmil)</th>
<th>Tightening Torque Nm (lb in)</th>
<th>Size Screw and Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Input to RIB – Source 1 (4-breaker version only)</td>
<td>E1 (RIB–1)</td>
<td>Phase A</td>
<td>2 – 2/0–250 or 1 – 2/0–500</td>
<td>31 (275) &amp; 42 (375) or 42 (375)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E2 (RIB–3)</td>
<td>Phase B</td>
<td>2 – 2/0–250 or 1 – 2/0–500</td>
<td>31 (275) &amp; 42 (375) or 42 (375)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E3 (RIB–5)</td>
<td>Phase C</td>
<td>2 – 2/0–250 or 1 – 2/0–500</td>
<td>31 (275) &amp; 42 (375) or 42 (375)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td>AC Input to Maintenance Bypass – Source 2</td>
<td>E6</td>
<td>Phase A</td>
<td>2 – #6–300</td>
<td>31 (275)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E7</td>
<td>Phase B</td>
<td>2 – #6–300</td>
<td>31 (275)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E8</td>
<td>Phase C</td>
<td>2 – #6–300</td>
<td>31 (275)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E12</td>
<td>Neutral</td>
<td>2 – #6–300</td>
<td>31 (275)</td>
<td>5/16&quot; Hex</td>
</tr>
</tbody>
</table>
### Table 7. External Input Power Cable Terminations for the Eaton 93PM 150 kW Four-Wire SIAC-B (Continued)

<table>
<thead>
<tr>
<th>Terminal Function</th>
<th>Terminal Function</th>
<th>Number and Size of Pressure Termination (AWG or kcmil)</th>
<th>Tightening Torque Nm (lb in)</th>
<th>Size Screw and Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Output to Critical Load</td>
<td>E9 Phase A</td>
<td>2 – #6–300</td>
<td>31 (275)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E10 Phase B</td>
<td>2 – #6–300</td>
<td>31 (275)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E11 Phase C</td>
<td>2 – #6–300</td>
<td>31 (275)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E12 Neutral</td>
<td>2 – #6–300</td>
<td>31 (275)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td>Building, Inter-Cabinet, and Load Ground</td>
<td>TBG Ground</td>
<td>4 – #14–1/0</td>
<td>5.1 Nm (45 lb in)</td>
<td>Slotted</td>
</tr>
</tbody>
</table>

The power wiring terminals E1 through E3 for the 93PM 200 kW Three-Wire SIAC-B are pressure terminations. Power wiring terminals E6 through E11 for the 93PM 200 kW Three-Wire SIAC-B are 2-hole bus bar mountings for standard NEMA 2-hole barrel lugs. The power wiring connections for this equipment are UL and CSA rated. See Table 8 for external power cable terminations, for supplied external wiring terminal hardware, and for recommended installation parts and tools not supplied by Eaton.

Figure 36 or Figure 37 show the location of the SIAC-B power cable terminals.

### Table 8. External Input Power Cable Terminations for the Eaton 93PM 200 kW Three-Wire SIAC-B

<table>
<thead>
<tr>
<th>Terminal Function</th>
<th>Terminal Function</th>
<th>Number and Size of Pressure Termination (AWG or kcmil)</th>
<th>Tightening Torque Nm (lb in)</th>
<th>Size Screw and Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Input to RIB – Source 1 (4-breaker version only)</td>
<td>E1 (RIB–1) Phase A</td>
<td>2 – 3/0–250</td>
<td>42 (31)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E2 (RIB–3) Phase B</td>
<td>2 – 3/0–250</td>
<td>42 (31)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td></td>
<td>E3 (RIB–5) Phase C</td>
<td>2 – 3/0–250</td>
<td>42 (31)</td>
<td>5/16&quot; Hex</td>
</tr>
<tr>
<td>AC Input to Maintenance Bypass – Source 2</td>
<td>E6 Phase A</td>
<td>2 – 2 bolt mounting</td>
<td>35 (26)</td>
<td>M12 Hex Bolt</td>
</tr>
<tr>
<td></td>
<td>E7 Phase B</td>
<td>2 – 2 bolt mounting</td>
<td>35 (26)</td>
<td>M12 Hex Bolt</td>
</tr>
<tr>
<td></td>
<td>E8 Phase C</td>
<td>2 – 2 bolt mounting</td>
<td>35 (26)</td>
<td>M12 Hex Bolt</td>
</tr>
<tr>
<td>AC Output to Critical Load</td>
<td>E9 Phase A</td>
<td>2 – 2 bolt mounting</td>
<td>35 (26)</td>
<td>M12 Hex Bolt</td>
</tr>
<tr>
<td></td>
<td>E10 Phase B</td>
<td>2 – 2 bolt mounting</td>
<td>35 (26)</td>
<td>M12 Hex Bolt</td>
</tr>
<tr>
<td></td>
<td>E11 Phase C</td>
<td>2 – 2 bolt mounting</td>
<td>35 (26)</td>
<td>M12 Hex Bolt</td>
</tr>
<tr>
<td>Building, Inter-Cabinet, and Load Ground</td>
<td>TBG Ground</td>
<td>4 – #14–1/0</td>
<td>5.1 Nm (45 lb in)</td>
<td>Slotted</td>
</tr>
</tbody>
</table>

The power wiring terminals E1 through E3 for the 93PM 200 kW Four-Wire SIAC-B are pressure terminations. Power wiring terminals E6 through E11 for the 93PM 200 kW Four-Wire SIAC-B are 2-hole bus bar mountings for standard NEMA 2-hole barrel lugs. The power wiring connections for this equipment are UL and CSA rated. See Table 9 for external power cable terminations, for supplied external wiring terminal hardware, and for recommended installation parts and tools not supplied by Eaton.
Figure 36 or Figure 37 show the location of the SIAC-B power cable terminals.

Table 9. External Input Power Cable Terminations for the Eaton 93PM 200 kW Four-Wire SIAC-B

<table>
<thead>
<tr>
<th>Terminal Function</th>
<th>Terminal</th>
<th>Function</th>
<th>Number and Size of Pressure Termination (AWG or kcmil)</th>
<th>Tightening Torque Nm (lb in)</th>
<th>Size Screw and Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Input to RIB – Source 1 (4-breaker version only)</td>
<td>E1 (RIB–1)</td>
<td>Phase A</td>
<td>2 – 3/0–250</td>
<td>42 (31)</td>
<td>5/16“ Hex</td>
</tr>
<tr>
<td></td>
<td>E3 (RIB–5)</td>
<td>Phase C</td>
<td>2 – 3/0–250</td>
<td>42 (31)</td>
<td>5/16“ Hex</td>
</tr>
<tr>
<td>AC Input to Maintenance Bypass – Source 2</td>
<td>E6</td>
<td>Phase A</td>
<td>2 – 2 bolt mounting</td>
<td>35 (26)</td>
<td>M12 Hex Bolt</td>
</tr>
<tr>
<td></td>
<td>E7</td>
<td>Phase B</td>
<td>2 – 2 bolt mounting</td>
<td>35 (26)</td>
<td>M12 Hex Bolt</td>
</tr>
<tr>
<td></td>
<td>E8</td>
<td>Phase C</td>
<td>2 – 2 bolt mounting</td>
<td>35 (26)</td>
<td>M12 Hex Bolt</td>
</tr>
<tr>
<td></td>
<td>E12</td>
<td>Neutral</td>
<td>4 – 2 bolt mounting</td>
<td>35 (26)</td>
<td>M12 Hex Bolt</td>
</tr>
<tr>
<td></td>
<td>E12</td>
<td>Neutral</td>
<td>4 – 2 bolt mounting</td>
<td>35 (26)</td>
<td>M12 Hex Bolt</td>
</tr>
<tr>
<td></td>
<td>TBG</td>
<td>Ground</td>
<td>4 – #14–1/0</td>
<td>5.1 Nm (45 lb in)</td>
<td>Slotted</td>
</tr>
</tbody>
</table>

3.3.4 SIAC-B Interface Wiring Preparation

Control wiring for features and options should be connected at the customer interface terminal block located inside the SIAC-B.

**WARNING**

Do not directly connect relay contacts to the mains related circuits. Reinforced insulation to the mains is required.

Read and understand the following notes while planning and performing the installation:

- Use Class 1 wiring methods (as defined by the NEC) for interface wiring from 30V to 600V. The wire should be rated for 600V, 1A minimum. 12 AWG maximum wire size.
- Use Class 2 wiring methods (as defined by the NEC) for interface wiring up to 30V. The wire should be rated for 24V, 1A minimum.
- Use twisted-pair wires for each input and return or common.
- All interface wiring and conduit is to be supplied by the customer.
- Interface wiring can be installed using the inter-cabinet wiring access pass-through or by routing wiring through conduit between cabinets.
- Install the interface wiring in separate conduit from the power wiring.
3.4 Inspecting and Unpacking the SIAC-B

The SIAC-B is typically attached to and directly integrated with the UPS cabinet at the factory but it can be ordered and shipped separately from the UPS and installed onsite. The integrated cabinets are shipped bolted to a metal and wood pallet (see Figure 15 or Figure 16) with outer protective packaging material covering the cabinet. The field installed SIAC-B is shipped bolted to a separate metal and wood pallet (see Figure 17) with outer protective packaging material covering the cabinet. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, for inspection and unpacking instructions.

Figure 15. Eaton 93PM 150 kW UPS with SIAC-B (Three or Four Wire) as Shipped on Pallet
Figure 16. Eaton 93PM 200 kW UPS with SIAC-B (Three or Four Wire) as Shipped on Pallet
Installation Plan and Unpacking

Figure 17. Eaton 93PM Field Installed SIAC-B as Shipped on Pallet
Chapter 4 Installation

This chapter includes installation instructions for the Eaton 93PM 150 kW AND 200 kW Sidecar Integrated Accessory Cabinet-Bypass (SIAC-B).

NOTE

The SIAC-B is typically attached to and directly integrated with the UPS cabinet at the factory but it can be ordered and shipped separately from the UPS and installed onsite. This section must be used along with the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, during installation.

4.1 Preliminary Installation Information

![WARNING]

Installation should be performed only by qualified personnel.

Refer to the following while installing the SIAC-B:

• See Chapter 3 Installation Plan and Unpacking for cabinet dimensions, equipment weight, wiring and terminal data, and installation notes.
• Do not tilt the cabinets more than ±10° during installation.

Use the applicable procedure from the following list for the type of installation being performed:

• For field installation of a separately shipped SIAC-B, proceed to paragraph 4.2 Unloading the Field Installed SIAC-B from the Pallet.
• For site removal and reinstallation of the SIAC-B, proceed to paragraph 4.5 Removing and Reinstalling the Factory Installed SIAC-B.
• For a factory installed SIAC-B, proceed to paragraph 4.6 Unloading the Factory Installed SIAC-B from the Pallet and Mechanical Installation.

4.2 Unloading the Field Installed SIAC-B from the Pallet

The SIAC-B is bolted to a pallet consisting of four metal angle supports secured to two wood supports and four vertical braces.

![WARNING]

The SIAC-B is heavy (approximately 220 kgs/486 lbs). If unpacking and unloading instructions are not closely followed, the cabinet may tip and cause serious injury.

![CAUTION]

• Do not tilt cabinet more than 10° from vertical.
• Lift the cabinet only with a forklift or damage may occur.

For the following steps, verify that the forklift or pallet jack is rated to handle the weight of the cabinet (approximately 220 kgs/486 lbs).

To remove the pallet:
1. If not already accomplished, use a forklift or pallet jack to move the SIAC-B to the installation area, or as close as possible, before unloading from the pallet. Insert the forklift or pallet jack forks between the supports on the bottom of the pallet.

2. Remove the screw securing the bottom of the SIAC-B front panel. Lift the panel straight up to remove it from the panel hanger bracket at the top of the cabinet. Retain screw for later use.

3. Locate the four 1/2” jacking bolts from the parts kit and install them in the threaded holes in the front and rear supports as shown in Figure 18. Place a floor protector from the parts kit underneath each jacking bolt, and screw the bolts down against them.

   The floor protectors protect the floor from being marred by the jacking bolts.

   **Figure 18. Removing the Pallet Skids and Supports – Eaton 93PM Field Installed SIAC-B**

   ![Diagram of SIAC-B installation](image)

   **WARNING**

   Do not remove or loosen the cabinet mounting or cabinet support bolts until instructed.

4. Loosen, but do not remove, the skid mounting bolts holding the pallet skids to the front and rear supports, and to the left and right side supports (see Figure 18).
**WARNING**

RISK OF INSTABILITY. Turning the jacking bolts unevenly may cause the cabinet to become unbalanced. To prevent tipping the cabinet, raise and lower the jacking bolts evenly.

**CAUTION**

CABINET MAY TIP. Raise the SIAC-B no more than 3 mm (1/8") above the floor (just enough to allow the removal of the pallet skids).

5. Turn each jacking bolt consecutively, two full turns, until the pallet skids clear the floor by approximately 3 mm (1/8").

6. Remove the hardware loosened in Step 4.

7. Pull the pallet skids out from under the metal angle supports without disturbing the jacking bolts. Recycle the pallet skids and hardware in a responsible manner.

**CAUTION**

CABINET MAY FALL. Do not loosen the hardware attaching the front supports to the cabinet base. The cabinet must be lowered by the jacking bolts before the supports can be removed.

8. Carefully and evenly lower the cabinet by turning each jacking bolt consecutively two full turns (maximum) until the cabinet side wheels contact the floor and the cabinet is no longer supported by the jacking bolts.

9. After the SIAC-B is resting on the floor, remove the jacking bolts and floor protectors. Recycle them in a responsible manner.

10. Remove the shipping brace screws securing the front left and right shipping braces to the cabinet (see Figure 18). Do not reinstall screws. Recycle the screws in a responsible manner.

11. Remove the bolts securing the front left and right shipping braces to the front cabinet support (see Figure 18). Remove the braces.

12. Remove the screws securing the back left and right shipping braces to the cabinet (see Figure 18). Reinstall the screws (without the nylon washers) to secure the rear panel to the frame.

13. Remove the bolts securing the back left and right shipping braces to the rear cabinet support (see Figure 18). Remove the braces.

14. Remove the cabinet support bolts fastening the front, rear, and side cabinet supports together and remove the side supports (see Figure 18).

15. Remove the cabinet mounting bolts holding the front and rear supports to the cabinet base (see Figure 18).

16. Recycle the bolts along with the shipping braces and support brackets in a responsible manner.

17. Reinstall the SIAC-B front panel and secure with retained screw.

18. If the leveling feet are not retracted, turn all four leveling feet until they are retracted as far into the cabinet as possible.

**NOTE**

In line-up-and-match installations, the SIAC-B and UPS cabinets should be located as shown in Figure 2 or Figure 3.
19. Roll the cabinet close to the final installation location.
20. Proceed to paragraph 4.3 Mechanically Joining the UPS Cabinet and SIAC-B

4.3 Mechanically Joining the UPS Cabinet and SIAC-B

To join the cabinets:
1. Lower all four leveling feet until nearly in contact with the floor.
2. Remove the two SIAC-B side wheels facing the UPS cabinet by removing the single bolt securing the wheel to the cabinet.
3. Move the SIAC-B into position against the UPS cabinet and remove the remaining two SIAC-B side wheels.
4. Use the leveling feet to align and level the SIAC-B vertically with the UPS cabinet.
5. Locate the top tie strap shipped attached to the SIAC-B (see Figure 19) and remove the screws securing the strap to the SIAC-B. Retain the hardware for later use.
6. Remove the screws securing the adjacent cabinet top panel. Retain the hardware for later use.
7. Install the top tie strap between the cabinets and secure the tie strap with the retained hardware.

NOTE
A rear tie strap is attached to the back of the cabinet and is used only for seismic installations.

8. Remove the screws securing the internal safety shield panel and remove the panel to gain access to the pass-through tie strap. Retain the hardware for later use.
9. Locate the pass-through tie strap at the bottom right or left side of the SIAC-B (see Figure 19) and remove the screws securing the strap to the SIAC-B.
10. Remove the corresponding screws at the bottom of the UPS cabinet pass-through. Retain the hardware for later use.
11. Install the pass-through tie strap between the cabinets and secure the tie strap with the retained hardware.
12. If necessary after the installing the attaching straps, secure the SIAC-B in position by adjusting the leveling feet until the cabinet is level and locked in place.
13. Proceed to paragraph 4.4 Electrically Connecting the UPS Cabinet and SIAC-B.
4.4 Electrically Connecting the UPS Cabinet and SIAC-B

Use the following procedures to wire the SIAC-B to the UPS cabinet.

4.4.1 Installing SIAC-B Internal Power Wiring

To Install wiring:

1. Locate and remove the three internal power wiring phase harnesses, two neutral harnesses, and MBP interface harness packed inside the SIAC-B. Retain for later use.

NOTE 1 In the following steps, only two phase harnesses are shipped if an RIB is not installed.

NOTE 2 Neutral harnesses are only provided with four-wire models.

2. Route the phase harness ends marked for the UPS Output, UPS Bypass, and UPS Input (if installed) from the SIAC-B through the bottom of the SIAC-B and UPS inter-cabinet wiring access pass-through to the UPS cabinet terminals. See Figure 20 or Figure 21 for SIAC-B terminal locations. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, for the UPS pass-through and terminal locations.

NOTE 1 When routing cable harnesses, ensure the cables ends marked UPS are routed to the UPS terminals.

NOTE 2 150 kW SIAC-B phase harnesses have ferrules attached to the each end of the cables. 200 kW phase harnesses have ferrules attached to the SIAC-B cable ends and two-hole barrel lugs attached to the UPS cable ends.

3. In the UPS cabinet, locate the harness cable ends marked UPS Output. Connect marked phase A, B, and C cable ends to the corresponding output terminals of the UPS.
4. In the UPS cabinet, locate the harness cable ends marked UPS Bypass. Connect marked phase A, B, and C cable ends to the corresponding bypass input terminals of the UPS.

5. In the UPS cabinet if an RIB is installed, locate the harness cable ends marked UPS Input. Connect marked phase A, B, and C cable ends to the corresponding rectifier input terminals of the UPS.

6. In the SIAC-B, locate the harness cable ends marked MIS. Connect marked phase A, B, and C terminal number cable ends to the corresponding terminal number of the MIS breaker.

   For a detailed view of the MIS breaker terminals, see Figure 22. Tighten terminals to 31Nm (275 lb in) torque.

7. In the SIAC-B, locate the harness cable ends marked MIS. Connect marked phase A, B, and C terminal number cable ends to the corresponding terminal number of the MIS breaker.

   For a detailed view of the BIB breaker terminals, see Figure 23. Tighten terminals to 31Nm (275 lb in) torque.

8. In the SIAC-B if and RIB is installed, locate the harness cable ends marked RIB. Connect marked phase A, B, and C terminal number cable ends to the corresponding terminal number of the RIB breaker.

   For a detailed view of the RIB breaker terminals, see Figure 24. Tighten terminals to 31Nm (275 lb in) torque.

9. If installing a four-wire SIAC-B, proceed to Step 10; otherwise, proceed to Step 15.

   **NOTE**  When routing neutral cable harnesses, ensure the cable ends with the Gray and Red Anderson connectors are routed to the SIAC-B neutral connectors.

10. Route the output and bypass neutral harnesses from the SIAC-B through the bottom of the SIAC-B and UPS inter-cabinet wiring access pass-through to the UPS cabinet terminals. See Figure 20 or Figure 21 for SIAC-B terminal locations. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*, for the UPS pass-through and terminal locations.

11. In the UPS cabinet, locate the harness cable ends marked UPS E12 Output. Connect marked cable ends to the corresponding neutral terminals of the UPS.

12. In the UPS cabinet, locate the harness cable ends marked UPS E12 Bypass. Connect marked cable ends to the corresponding neutral terminals of the UPS.

13. In the SIAC-B, locate the cable with the Gray Anderson connector and connect to the Gray Anderson connector mounted to the cabinet sidewall (see Figure 20 or Figure 21).

14. In the SIAC-B, locate the cable with the Red Anderson connector and connect to the Red Anderson connector mounted to the cabinet sidewall (see Figure 20 or Figure 21).

15. Proceed to paragraph 4.4.2 *Installing SIAC-B Interface Connections*
Figure 20. Left-Mounted SIAC-B – RIB, BIB, and MIS Breaker Terminal Locations

AC Output to UPS Rectifier A, B, C
Output Neutral to UPS (Gray Connector) (Four-Wire Model Only)
Bypass Neutral to UPS (Red Connector) (Four-Wire Model Only)
Ground Terminals

AC Output to UPS Bypass A, B, C
AC Input from UPS Output A, B, C
Ground Terminals
Figure 21. Right-Mounted SIAC-B – RIB, BIB, and MIS Breaker Terminal Locations

- AC Output to UPS Rectifier A, B, C
- AC Output to UPS Bypass A, B, C
- AC Input from UPS Output A, B, C
- Output Neutral to UPS (Gray Connector) (Four-Wire Model Only)
- Bypass Neutral to UPS (Red Connector) (Four-Wire Model Only)
- Ground Terminals
Figure 22. 93PM SIAC-B MIS Input Terminal Detail

Figure 23. 93PM SIAC-B BIB Output Terminal Detail
Figure 24. 93PM SIAC-B RIB Output Terminal Detail

4.4.2 Installing SIAC-B Interface Connections

To Install wiring:

**NOTE 1** The SIAC-B is typically attached to and directly integrated with the UPS cabinet at the factory but it can be ordered and shipped separately from the UPS and installed onsite. This section must be used along with the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, during installation.

**NOTE 2** The SIAC-B MBP auxiliary contact control interface wiring is prewired between the attached factory installed SIAC-B and UPS. Table 10 and Table 11, and Figure 25 through Figure 30 are for reference only for the factory installed SIAC-B.

**NOTE 3** Keep interface wiring separate from power wiring.

1. Locate the MBP interface harness removed from inside the SIAC-B in paragraph 4.4.1 Installing SIAC-B Internal Power Wiring.

**NOTE** When routing the MBP interface cable harness, ensure the green ten position terminal header end is routed to the SIAC-B terminal block.

2. Route the SIAC-B MBP auxiliary contact control interface wiring harnesses from the SIAC-B through the bottom of the SIAC-B and UPS inter-cabinet wiring access pass-through to the UPS cabinet terminals. See Figure 25 or Figure 26 for SIAC-B terminal locations, and Figure 28 or Figure 29 for UPS terminal locations. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, for the UPS pass-through location.

3. Connect the MBP interface harness green ten position header to the SIAC-B green terminal block.
4. Connect the MBP interface harness white two position connector to the UPS MBP interface terminal block connector (see Figure 30).

5. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, to complete the mechanical installation of the UPS and SIAC-B. After completing the mechanical installation return to paragraph 4.7 Two-Hole Barrel Lug Terminations to Bus Bar Installation.

Figure 25. 93PM 150 kW Three-Wire and Four-Wire SIAC-B Interface Terminal Location
Figure 26. 93PM 200 kW Three-Wire and Four-Wire SIAC-B Interface Terminal Location
Figure 27. SIAC-B Interface Terminal Detail

NOTE 1  The removable terminal block header faces in for a left-mount SIAC-B and out for a right-mount SIAC-B.

NOTE 2  UPS building alarm signals are customer programmable. Customer interface wiring for the SIAC-B MBP assumes that the UPS Building Alarm is programmed to monitor Normally Open (NO) contacts.

Table 10. SIAC-B Interface Wiring Terminal Block Terminations

<table>
<thead>
<tr>
<th>Terminal Function</th>
<th>Size of Pressure Termination</th>
<th>Tightening Torque Nm (lb in)</th>
<th>Type Screw</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auxiliary Contacts</td>
<td>#26–#16</td>
<td>0.4 (3.5) - 0.8 (7.1)</td>
<td>Slotted</td>
<td>Use twisted-pair wires for each input and return or common. Strip wire insulation back 10 millimeters to wire terminal blocks. Use wire rated for 600V and Class 1 wiring methods.</td>
</tr>
</tbody>
</table>
### Table 11. SIAC-B MBP Interface Terminals

<table>
<thead>
<tr>
<th>SIAC-B Terminal</th>
<th>Name</th>
<th>UPS Terminal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB-1</td>
<td>Not Used</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>TB-2</td>
<td>MBP Aux 1 COM</td>
<td>UPS MBP Return</td>
<td>Output: Normally Open (NO) contact used to indicate whether the MBP is closed and the UPS system is on maintenance bypass. Contacts are closed when the MBP is closed.</td>
</tr>
<tr>
<td>TB-3</td>
<td>MBP Aux 1 NC</td>
<td>UPS MBP</td>
<td>—</td>
</tr>
<tr>
<td>TB-4</td>
<td>Not Used</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>TB-5</td>
<td>Not Used</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>TB-6</td>
<td>Not Used</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>TB-7</td>
<td>Not Used</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>TB-8</td>
<td>Not Used</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>TB-9</td>
<td>Not Used</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>TB-10</td>
<td>Not Used</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

**NOTE**: UPS building alarm signals are customer programmable. Customer interface wiring for the SIAC-B MBP assumes that the UPS Building Alarm is programmed to monitor Normally Open (NO) contacts.

“Return” indicates connection to electronics circuit ground. “Common” indicates connection to common side of isolated relay contact.
Figure 28. 93PM 150 kW Three-Wire and Four-Wire SIAC-B UPS MBP Interface Terminal Location
Figure 29. 93PM 200 kW Three-Wire and Four-Wire SIAC-B UPS MBP Interface Terminal Location
Figure 30. UPS MBP Interface Terminal Detail

4.5 Removing and Reinstalling the Factory Installed SIAC-B

NOTE

The following procedure is to be used in the event that the UPS and factory installed SIAC-B are too wide to fit through doorways at the installation site.

4.5.1 Electrically Disconnecting the UPS Cabinet and SIAC-B

To disconnect wiring:

1. Verify the UPS system is turned off and all power sources are removed. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, for UPS operating instructions.

2. To gain access to the UPS input and output wiring area, refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information.

3. Locate the UPS output, the UPS bypass input, and if an RIB is installed the UPS rectifier input. Tag and disconnect all phase and neutral wiring (four-wire only).

4. Locate the UPS MBP interface harness and connector and disconnect at the UPS connector (see Figure 28 or Figure 29, and Figure 30).

5. Proceed to 4.5.2 Mechanically Disconnecting the UPS Cabinet and SIAC-B.

4.5.2 Mechanically Disconnecting the UPS Cabinet and SIAC-B

To disconnect the cabinets:

1. Remove the screw securing the bottom of the SIAC-B front panel. Lift the panel straight up to remove it from the panel hanger bracket at the top of the cabinet. Retain screw for later use.
2. Remove the screws securing the internal safety shield panel and remove the panel. Retain the hardware for later use.

3. Lower the leveling feet until in contact with the floor.

4. Carefully pull all disconnected cables through the pass-through into the bottom of the SIAC-B.

5. Remove the screws securing the top tie strap and remove the strap (see Figure 19). Retain the strap and hardware for later use.

6. Remove the screws securing the pass-through tie strap and remove the strap (see Figure 19). Retain the strap and hardware for later use.

7. Remove the screws securing the rear shipping bracket and remove the bracket (refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, for strap location). Reinstall the screws.

**CAUTION**

Brace the SIAC-B after removing from the UPS cabinet to prevent the SIAC-B from falling,

8. Carefully slide the SIAC-B away from the UPS cabinet.

9. Move the cabinets to the installation area.

10. Proceed to paragraph 4.5.3 Mechanically Rejoining the UPS Cabinet and SIAC-B.

**4.5.3 Mechanically Rejoining the UPS Cabinet and SIAC-B**

To rejoin the cabinets:

1. Move the SIAC-B into position against the UPS cabinet.

2. Use the leveling feet to align and level the SIAC-B vertically with the UPS cabinet.

3. Reinstall the top tie strap (see Figure 19) removed in paragraph 4.5.2 Mechanically Disconnecting the UPS Cabinet and SIAC-B and secure the tie strap with the retained hardware.

**CAUTION**

A rear tie strap is attached to the back of the cabinet and is used only for seismic installations.

4. Reinstall the pass-through tie strap (see Figure 19) between the cabinets and secure the tie strap with the retained hardware.

5. If necessary after the installing the attaching straps, secure the SIAC-B in position by adjusting the leveling feet until the cabinet is level and locked in place.

6. Proceed to paragraph 4.5.4 Electrically Reconnecting the UPS Cabinet and SIAC-B.

**4.5.4 Electrically Reconnecting the UPS Cabinet and SIAC-B**

To reinstall wiring:

1. Carefully route all disconnected cables through the pass-through into the bottom of the UPS cabinet.

2. Reconnect the UPS output, the UPS bypass input, and if an RIB is installed the UPS rectifier input tagged wiring to the respective UPS terminals. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, for terminal locations and requirements.
3. If installing a four-wire SIAC-B, reconnect the tagged neutral wiring to the respective UPS terminals.

4. Reconnect the UPS MBP interface harness connector to the UPS MBP interface terminal block connector (see Figure 28 or Figure 29, and Figure 30).

5. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, to complete the mechanical installation of the UPS and SIAC-B. After completing the mechanical installation return to paragraph 4.7 Two-Hole Barrel Lug Terminations to Bus Bar Installation.

4.6 Unloading the Factory Installed SIAC-B from the Pallet and Mechanical Installation

The SIAC-B is attached to and directly integrated with the UPS cabinet at the factory. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, for unloading and mechanical installation instructions.

After completing the unloading and installation of the UPS with the attached SIAC-B, return to paragraph 4.7 Two-Hole Barrel Lug Terminations to Bus Bar Installation.

4.7 Two-Hole Barrel Lug Terminations to Bus Bar Installation

Paragraph 4.8 Installing SIAC-B External Power Wiring may require connecting input and output power wiring using 2-hole barrel lugs. See Figure 31 for the hardware sequence when installing the lugs to the bus bars. Tighten the bolt to the torque value listed in the appropriate table based on system being installed (See Table 6 through Table 9).

Proceed to paragraph 4.8 Installing SIAC-B External Power Wiring.

| NOTE | Conical washers are special purpose washers that look similar to flat washers, except for a slight conical shape. When installing conical washers, the top of the dome should be next to the bolt head and the base of the washer should be against a flat surface such as a bus bar, flat washer, or large terminal. |
4.8 Installing SIAC-B External Power Wiring

**NOTE 1** The SIAC-B Bypass Input Breaker (BIB) to UPS bypass input, the output from UPS, and the Rectifier Input Breaker (RIB) to UPS rectifier input (if installed) phase and ground wiring are prewired to the factory installed SIAC-B or have been wired using the procedures in paragraph 4.4 Electrically Connecting the UPS Cabinet and SIAC-B.

**NOTE 2** External power wiring can be routed either through the top or bottom of the SIAC-B.

**NOTE 3** Remove the SIAC-B top or bottom conduit landing plate to drill or punch conduit holes (see Figure 32 or Figure 33).

To install wiring:

1. Remove the screw securing the bottom of the SIAC-B front panel. Lift the panel straight up to remove it from the panel hanger bracket at the top of the cabinet. Retain screw for later use.

2. Remove the screws securing the internal safety shield panel and remove the panel to gain access to the maintenance bypass input, critical load output, and rectifier input (if installed) terminals. Retain the hardware for later use.

3. If wiring the SIAC-B using top entry wiring access, proceed to Step 4; otherwise, proceed to Step 7.

4. **Top Entry Wiring.** Remove the top conduit landing plate (see Figure 32 or Figure 33) from the top of the SIAC-B. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the top cover prior to mounting on the SIAC-B. Install the top conduit plate and install all conduit runs into the top cover.

5. Route the maintenance bypass input, critical load output, and rectifier input (if installed) cables (phase A, B, and C, Ground, and if required Neutral) through the conduit on the top of the SIAC-B to the SIAC-B.
terminals. See Figure 32 or Figure 33 for SIAC-B wiring access information, and Figure 34, Figure 35, Figure 36, or Figure 37 for terminal locations.

6. Proceed to Step 9.

7. **Bottom Entry Wiring.** Remove the bottom conduit landing plate (see Figure 32 or Figure 33) from the bottom of the SIAC-B. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the bottom conduit plate prior to mounting on the SIAC-B. Install the conduit plate and install all conduit runs into the plate.

8. Route the maintenance bypass input, critical load output, and rectifier input (if installed) cables (phase A, B, and C, Ground, and if required Neutral) through the conduit on the bottom of the SIAC-B to the SIAC-B terminals. See Figure 32 or Figure 33 for SIAC-B wiring access information, and Figure 34, Figure 35, Figure 36, or Figure 37 for terminal locations.

9. If wiring a 93PM 200 kW Three-Wire SIAC-B or 93PM 200 kW Four-Wire SIAC-B, proceed to Step 10; if wiring a 93PM 150 kW Three-Wire SIAC-B or 93PM 150 kW Four-Wire SIAC-B, proceed to Step 15.

10. Locate the external wiring terminal hardware kit packed at the bottom of the SIAC-B.

11. Using hardware from the external wiring terminal hardware kit, connect phase A, B, and C, and Ground bypass input power wiring from the utility source to the SIAC-B maintenance bypass input terminals. See paragraph 3.3.3 SIAC-B Power Wiring Preparation, Table 2 or Table 3 and Table 6 through Table 9 for SIAC-B wiring and termination requirements. For SIAC-B terminal phase wiring assignments, see Figure 36 or Figure 37.

12. Using hardware from the external wiring terminal hardware kit, connect phase A, B, and C, and Ground output power wiring from the SIAC-B output terminals to the critical load. For SIAC-B terminal phase wiring assignments, see Figure 36 or Figure 37.

13. If an RIB is installed, use hardware from the external wiring terminal hardware kit to connect phase A, B, and C, and Ground rectifier input power wiring from the utility source to the SIAC-B rectifier input terminals. For a detailed view of the SIAC-B RIB terminals, see Figure 38.


15. Connect phase A, B, and C, Ground, and if required Neutral bypass input power wiring from the utility source to the SIAC-B maintenance bypass input terminals. For SIAC-B terminal phase wiring assignments, see Figure 34 or Figure 35.

16. Connect phase A, B, and C, Ground, and if required Neutral output power wiring from the SIAC-B output terminals to the critical load or Integrated Accessory Cabinet-Distribution (IAC-D). Refer to the Eaton 93PM Integrated Accessory Cabinet-Distribution (50 kW, 100 kW, 150 kW, and 200 kW IAC-D) Installation and Operation Manual, listed in paragraph 1.7 For More Information, for conduit and terminal locations and termination requirements. For SIAC-B terminal phase wiring assignments, see Figure 34 or Figure 35.

17. If an RIB is installed, connect phase A, B, and C, and Ground rectifier input power wiring from the utility source to the SIAC-B rectifier input terminals. For a detailed view of the SIAC-B RIB terminals, see Figure 38.

18. Reinstall the internal safety shield panel and secure with retained screws.

19. Reinstall the SIAC-B front panel and secure with retained screw.

20. After the SIAC-B is wired, return to the applicable Eaton 93PM UPS installation and operation manual, listed in paragraph 1.7 For More Information, to complete the UPS wiring.
Figure 32. 93PM 150 kW Three-Wire and Four-Wire SIAC-B Conduit Landing Wire Entry Locations

- **Top View**
  - UPS with Left-Mounted SIAC-B
  - UPS with Right-Mounted SIAC-B

- **Bottom View**
  - UPS with Left-Mounted SIAC-B
  - UPS with Right-Mounted SIAC-B

Top Entry Conduit Landing (Remove plate to drill or punch conduit holes.)

Bottom Entry Conduit Landing (Remove plate to drill or punch conduit holes.)
Figure 33. 93PM 200 kW Three-Wire and Four-Wire SIAC-B Conduit Landing Wire Entry Locations

UPS with Left-Mounted SIAC-B

Top Entry Conduit Landing
(Remove plate to drill or punch conduit holes.)

Bottom Entry Conduit Landing
(Remove plate to drill or punch conduit holes.)

UPS with Right-Mounted SIAC-B
Figure 34. 93PM 150 kW Three-Wire and Four-Wire SIAC-B Left-Mounted Bypass — Terminal Locations

- Phase A (E6)
- Phase B (E7)
- Phase C (E8)
- AC Input to Maintenance Bypass (Source 2)
- AC Input to UPS Rectifier (Source 1)
- Output Neutral (E12) (Four-Wire Model Only)
- Bypass Neutral (E12) (Four-Wire Model Only)
- AC Output to Critical Load
- Ground Terminals
- Front
Figure 35. 93PM 150 kW Three-Wire and Four-Wire SIAC-B Right-Mounted Bypass — Terminal Locations

- AC Input to Maintenance Bypass (Source 2)
  - Phase A (E6)
  - Phase B (E7)
  - Phase C (E8)
- AC Input to UPS Rectifier (Source 1)
  - A, B, C
- AC Output to Critical Load
  - Phase A (E9)
  - Phase B (E10)
  - Phase C (E11)
- Output Neutral (E12) (Four-Wire Model Only)
- Bypass Neutral (E12) (Four-Wire Model Only)
- Ground Terminals
  - Phase A (E6)
  - Phase B (E7)
  - Phase C (E8)
  - AC Input to Maintenance Bypass (Source 2)
  - Phase A (E9)
  - Phase B (E10)
  - Phase C (E11)
  - Ground Terminals

Front
Figure 36. 93PM 200 kW Three-Wire and Four-Wire SIAC-B Left-Mounted Bypass — Terminal Locations

- **Output Neutral (E12)** (Four-Wire Model Only)
- **Bypass Neutral (E12)** (Four-Wire Model Only)
- **AC Input to UPS Rectifier** (Source 1) A, B, C
- **AC Output to Critical Load**
- **AC Input to Maintenance Bypass (Source 2)**
- **Phase A (E6)**
- **Phase B (E7)**
- **Phase C (E8)**
- **Phase A (E9)**
- **Phase B (E10)**
- **Phase C (E11)**
- **Ground Terminals**
Figure 37. 93PM 200 kW Three-Wire and Four-Wire SIAC-B Right-Mounted Bypass — Terminal Locations

- **AC Input to Maintenance Bypass (Source 2)**
  - Phase A (E6)
  - Phase B (E7)
  - Phase C (E8)

- **AC Input to UPS Rectifier (Source 1)**
  - A, B, C

- **AC Output to Critical Load**
  - Phase A (E9)
  - Phase B (E10)
  - Phase C (E11)

- **Output Neutral (E12)** (Four-Wire Model Only)
- **Bypass Neutral (E12)** (Four-Wire Model Only)
- **Ground Terminals**

Front
4.9 Initial Startup

Startup and operational checks must be performed by an authorized Eaton Customer Service Engineer, or the warranty terms specified in Chapter 9 Warranty become void. This service is offered as part of the sales contract for the UPS. Contact an Eaton service representative in advance (usually a two-week notice is required) to reserve a preferred startup date.

4.10 Completing the Installation Checklist

The final step in installing the SIAC-B is completing the following Installation Checklist. This checklist ensures that you have completely installed all hardware, cables, and other equipment. Complete all items listed on the checklist to ensure a smooth installation. Make a copy of the Installation Checklist before filling it out, and retain the original.

After the installation is complete, an Eaton Customer Service Engineer must verify the operation of the UPS system and commission it to support the critical load. The service representative cannot perform any installation tasks other than verifying software and operating setup parameters. Service personnel may request a copy of the completed Installation Checklist to verify all applicable equipment installations have been completed.

**NOTE** The Installation Checklist MUST be completed prior to starting the UPS system for the first time.

4.11 Installation Checklist

- All packing materials and restraints have been removed from each cabinet.
- The SIAC-B is joined to the UPS cabinet.
Installation

- The UPS and SIAC-B are installed on a level floor in a suitable location for computer or electronic equipment.
- All conduits and cables are properly routed between the SIAC-B and the UPS.
- All power cables are properly sized and terminated.
- A ground conductor is properly installed.
- Interface wiring between the SIAC-B and UPS cabinets is properly installed.
- Air conditioning equipment is installed and operating correctly.
- The area around the UPS system is clean and dust-free.
- Adequate workspace exists around the SIAC-B and other cabinets.
- Adequate lighting is provided around all SIAC-B and UPS equipment.
- A 120 Vac service outlet is located within 7.5m (25 ft) of the SIAC-B and UPS equipment.
- Startup and operational checks are performed by an authorized Eaton Customer Service Engineer.
Chapter 5  Onelines and Schematics

5.1  Onelines

Figure 39, Figure 40, and Figure 41 show the simplified internal structure of the Sidecar Integrated Accessory Cabinet-Bypass (SIAC-B) for the following configurations:

- Two-breaker Maintenance Bypass with a Maintenance Isolation Breaker (MIS) and a Maintenance Bypass Breaker (MBP)
- Three-breaker Maintenance Bypass with a MIS, a MBP, and a Bypass Input Breaker (BIB)
- Four-breaker Maintenance Bypass with a MIS, a MBP, a BIB, and a Rectifier Input Breaker (RIB)

Figure 39. Two-Breaker SIAC-B Internal Oneline
Figure 40. Three-Breaker SIAC-B Internal Oneline

150 kW SIAC-B (3-Breaker Version)
200 kW SIAC-B (3-Breaker Version)

480V 3-Phase Input from UPS Inverter Output

MIS

MBP

Input Terminals

BIB

Output Terminals

480V 3-Phase Output to Critical Load

480V 3-Phase Output to UPS Bypass Input

480V 3-Phase Input to Maintenance Bypass

480V 3-Phase

Input from UPS Inverter Output

A

C
5.2 System Onelines

The system oneline drawings in this section show the simplified internal structure of the UPS, battery supply, and SIAC-B.

<table>
<thead>
<tr>
<th>Oneline Drawing</th>
<th>UPS Model</th>
<th>Input</th>
<th>Output</th>
<th>System Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>See Figure 42</td>
<td>93PM-150 3-Wire</td>
<td>480</td>
<td>480</td>
<td>Single reverse transfer three-wire UPS with external battery and two-breaker three-wire SIAC-B</td>
</tr>
<tr>
<td></td>
<td>93PM-200 3-Wire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>See Figure 43</td>
<td>93PM-150 3-Wire</td>
<td>480</td>
<td>480</td>
<td>Single reverse transfer three-wire UPS with external battery and three-breaker three-wire SIAC-B</td>
</tr>
<tr>
<td></td>
<td>93PM-200 3-Wire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>See Figure 44</td>
<td>93PM-150 3-Wire</td>
<td>480</td>
<td>480</td>
<td>Single reverse transfer three-wire UPS with external battery and four-breaker three-wire SIAC-B</td>
</tr>
<tr>
<td></td>
<td>93PM-200 3-Wire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oneline Drawing</td>
<td>UPS Model</td>
<td>Input</td>
<td>Output</td>
<td>System Type</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------------</td>
<td>-------</td>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>See <a href="#">Figure 45</a></td>
<td>93PM-150 4-Wire</td>
<td>480</td>
<td>480</td>
<td>Single reverse transfer four-wire UPS with external battery and two-breaker four-wire SIAC-B</td>
</tr>
<tr>
<td></td>
<td>93PM-200 4-Wire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>See <a href="#">Figure 46</a></td>
<td>93PM-150 4-Wire</td>
<td>480</td>
<td>480</td>
<td>Single reverse transfer four-wire UPS with external battery and three-breaker four-wire SIAC-B</td>
</tr>
<tr>
<td></td>
<td>93PM-200 4-Wire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>See <a href="#">Figure 47</a></td>
<td>93PM-150 4-Wire</td>
<td>480</td>
<td>480</td>
<td>Single reverse transfer four-wire UPS with external battery and four-breaker four-wire SIAC-B</td>
</tr>
<tr>
<td></td>
<td>93PM-200 4-Wire</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 42. Eaton 93PM 150 kW or 200 kW UPS with Two-Breaker SIAC-B (Three-Wire) — System Online

NOTE: 150 kW Capacity Frame models contain a maximum of three UPMs. 200 kW Frame models contain a maximum of four UPMs.
Figure 43. Eaton 93PM 150 kW or 200 kW UPS with Three-Breaker SIAC-B (Three-Wire) — System Online

NOTE: 150 kW Capacity Frame models contain a maximum of three UPMs. 200 kW Frame models contain a maximum of four UPMs.
Figure 44. Eaton 93PM 150 kW or 200 kW UPS with Four-Breaker SIAC–B (Three-Wire) — System Online
Figure 45. Eaton 93PM 150 kW or 200 kW UPS with Two-Breaker SIAC-B (Four-Wire) — System Online

Onelines and Schematics

NOTE 150 kW Capacity Frame models contain a maximum of three UPMs. 200 kW Frame models contain a maximum of four UPMs.
Figure 46. Eaton 93PM 150 kW or 200 kW UPS with Three-Breaker SIAC-B (Four-Wire) — System Online

NOTE 150 kW capacity frame models contain a maximum of three UPMs. 200 kW frame models contain a maximum of four UPMs.
Figure 47. Eaton 93PM 150 kW or 200 kW UPS with Four-Breaker SIAC-B (Four-Wire) — System Online

5.3 Three Wire Schematics

Figure 51, Figure 52, and Figure 53 show the SIAC-B three wire schematics.
Figure 48. Eaton 93PM 150 kW or 200 kW Three-Wire SIAC-B — Two-Breaker Schematic
Figure 49. Eaton 93PM 150 kW or 200 kW Three-Wire SIAC-B — Three-Breaker Schematic
5.4 Four Wire Schematics

Figure 51, Figure 52, and Figure 53 show the SIAC-B four wire schematics.
Figure 51. Eaton 93PM 150 kW or 200 kW Four-Wire SIAC-B — Two-Breaker Schematic
Figure 52. Eaton 93PM 150 kW or 200 kW Four-Wire SIAC-B — Three-Breaker Schematic
Figure 53. Eaton 93PM 150 kW or 200 kW Four-Wire SIAC-B — Four-Breaker Schematic
Chapter 6 SIAC-B Operating Instructions

This section describes how to operate the Sidecar Integrated Accessory Cabinet-Bypass (SIAC-B).

### NOTE 1
Before using the SIAC-B, ensure all installation tasks are complete and a preliminary startup has been performed by authorized service personnel. The preliminary startup verifies all electrical interconnections to ensure the installation was successful and the system operates properly.

### NOTE 2
Read this section of the manual and have thorough knowledge of UPS and SIAC-B operation before attempting to operate any of the controls.

### 6.1 Sidecar Integrated Accessory Cabinet-Bypass

#### 6.1.1 Circuit Breakers

*Figure 54* or *Figure 55* identifies and shows the location of the circuit breakers in the SIAC-B. The descriptions provide a brief overview of the SIAC-B breaker use.

- **Maintenance Bypass Breaker** – The Maintenance Bypass Breaker (MBP) transfers the load from the UPS output to the bypass input feeder.
- **Maintenance Isolation Breaker** – The Maintenance Isolation Breaker (MIS) isolates the UPS from the bypass feed and the load.
- **Bypass Input Breaker** – (Optional – only three and four breaker configurations) The Bypass Input Breaker (BIB) provides a single point of input power control to the UPS on single-feed systems or bypass input power control to the UPS on dual-feed systems. Using the BIB easily removes power from the UPS for servicing.
- **Rectifier Input Breaker** – (Optional – only four breaker configurations) The optional Rectifier Input Breaker (RIB) (four-breaker version only) provides a single point of rectifier input power control to the UPS on dual-feed systems and easily removes power from the UPS for servicing.

#### 6.1.2 Using the UPS when an SIAC-B is Installed

To operate the SIAC-B:

1. Remove the screw securing the bottom of the SIAC-B front panel. Lift the panel straight up to remove it from the panel hanger bracket at the top of the cabinet. Retain screw for later use.
2. Close the SIAC-B bypass input feeder circuit breaker.
3. If an BIB is installed, close the SIAC-B bypass input feeder breaker.
4. If an RIB is installed, close the SIAC-B rectifier input feeder breaker.
5. Verify that the SIAC-B circuit breakers are set as follows (see *Figure 54* or *Figure 55* for breaker locations):

<table>
<thead>
<tr>
<th>Breaker</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBP</td>
<td>OPEN</td>
</tr>
<tr>
<td>MIS</td>
<td>CLOSED</td>
</tr>
<tr>
<td>BIB (if installed)</td>
<td>CLOSED</td>
</tr>
<tr>
<td>RIB (if installed)</td>
<td>CLOSED</td>
</tr>
</tbody>
</table>

6. Start the UPS. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, for UPS operating procedures.
7. Reinstall the SIAC-B front panel and secure with retained screw.

Figure 54. Eaton 93PM 150 kW or 200 kW SIAC-B (Three or Four Wire) Breakers – Left-Mounted SIAC-B

NOTE: The 200 kW UPS is shown.
NOTE: The 200 kW UPS is shown.
6.1.3 Transferring the UPS to Maintenance Bypass using an SIAC-B

**CAUTION**

Only trained personnel familiar with the operation of this equipment should transfer loads. Failure to follow this transfer sequence may cause loss of power to loads.

**CAUTION**

In Bypass mode, the critical load is not protected from commercial power interruptions and abnormalities.

To transfer the load to maintenance bypass:

1. Remove the screw securing the bottom of the SIAC-B front panel. Lift the panel straight up to remove it from the panel hanger bracket at the top of the cabinet. Retain screw for later use.
2. Transfer the UPS from normal mode to bypass mode. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, for UPS operating procedures.

**CAUTION**

Failure to close the MBP before opening the MIS will result in the loss of power to the critical load.

3. Close the MBP.
4. Slide the bypass interlock plate to the left (see Figure 54 or Figure 55).
5. Open the MIS.
   
   The critical load is supplied by the maintenance bypass source.
6. Shut down the UPS. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, for UPS operating procedures.

**WARNING**

The BIB and RIB (if installed) or the bypass feeder breaker must be opened to electrically isolate the UPS.

7. If installed, open the BIB.
8. If installed, open the RIB.
9. Reinstall the SIAC-B front panel and secure with retained screw.

6.1.4 Transferring the UPS from Maintenance Bypass using an SIAC-B

**CAUTION**

Only trained personnel familiar with the operation of this equipment should transfer loads. Failure to follow this transfer sequence may cause loss of power to loads.

To transfer the load from maintenance:

1. Remove the screw securing the bottom of the SIAC-B front panel. Lift the panel straight up to remove it from the panel hanger bracket at the top of the cabinet. Retain screw for later use.
2. If installed, close the BIB.
3. If installed, close the RIB.
4. Start the UPS in bypass mode. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, for UPS operating procedures.

**CAUTION**

Failure to close the MIS before opening the MBP will result in the loss of power to the critical load.

5. Close the MIS.

6. Slide the bypass interlock plate to the right (see Figure 54 or Figure 55).

7. Open the MBP.

8. Reinstall the SIAC-B front panel and secure with retained screw.

9. Transfer the UPS to Normal mode. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 For More Information, for UPS operating procedures.
Chapter 7 Maintenance

The components inside the Sidecar Integrated Accessory Cabinet-Bypass (SIAC-B) is secured to a sturdy metal frame. All repairable parts and assemblies are located for easy removal, with very little disassembly. This design allows authorized service personnel to perform routine maintenance and servicing quickly.

You must schedule periodic performance checks of the UPS system to keep it running properly. Regular routine checks of operation and system parameters enable your system to function efficiently for many trouble-free years.

7.1 Important Safety Instructions

Remember that your UPS system is designed to supply power **EVEN WHEN DISCONNECTED FROM THE UTILITY POWER**.

**WARNING**

- No user serviceable components.
- Servicing and maintenance should be performed by qualified service personnel only.
- LETHAL VOLTAGE PRESENT. This unit should not be operated with the cabinet doors open or protective panels removed. Do not make any assumptions about the electrical state of any cabinet in the UPS system.

7.2 Performing Preventive Maintenance

The UPS system requires very little preventive maintenance. However, the system should be inspected periodically to verify that the units are operating normally. Record maintenance results and any corrective actions in a suitable log.

**7.2.1 DAILY Maintenance**

Perform the following steps daily:

1. Check the area surrounding the UPS system. Ensure the area is not cluttered, allowing free access to the unit.
2. Ensure the air intakes on the Accessory cabinets are not blocked.
3. Ensure the operating environment is within the parameters specified in paragraph **3.3.1 Environmental and Installation Considerations** and **Chapter 8 Product Specifications**.

**7.2.2 PERIODIC Maintenance**

Periodic inspections of the SIACs should be made to determine if components, wiring, and connections exhibit evidence of overheating. Particular attention should be given to the compression lug connections. Maintenance procedures should specify that the compression lug connections be retorqued to values listed in this manual.

**7.2.3 ANNUAL Maintenance**

Annual preventive maintenance should be performed only by authorized service personnel familiar with maintenance and servicing of the UPS system. Contact an Eaton service representative for more information about service offerings.
7.3 Maintenance Training

A basic training course, available from Eaton, gives you a competent working knowledge of the UPS system operation and teaches you how to perform first level corrective maintenance. For more information about training and other services, contact the Customer Reliability Center (see paragraph 1.8 Getting Help).
Chapter 8  Product Specifications

This section provides the following specifications:

- Model numbers
- Input specifications
- Output specifications
- Environmental and safety specifications

8.1  Model Numbers

The Sidecar Integrated Accessory Cabinet-Bypass (SIAC-B) is available in the model listed below to meet the needs of the Eaton 93PM 150 kW and 200 kW UPS product line.

<table>
<thead>
<tr>
<th>Sidecar Integrated Accessory Cabinet Models</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eaton 93PM 150 kW Three-Wire SIAC-B</td>
<td>SIAC-B for the Eaton 93PM 150 kW Capacity Three-Wire UPS</td>
</tr>
<tr>
<td>Eaton 93PM 150 kW Four-Wire SIAC-B</td>
<td>SIAC-B for the Eaton 93PM 150 kW Four-Wire Capacity UPS</td>
</tr>
<tr>
<td></td>
<td>SIAC-B for the Eaton 93PM 120 kW Emergency lighting UPS</td>
</tr>
<tr>
<td>Eaton 93PM 200 kW Three-Wire SIAC-B</td>
<td>SIAC-B for the Eaton 93PM 200 kW Three-Wire UPS</td>
</tr>
<tr>
<td>Eaton 93PM 200 kW Four-Wire SIAC-B</td>
<td>SIAC-B for the Eaton 93PM 200 kW Four-Wire UPS</td>
</tr>
</tbody>
</table>

8.2  Specifications

The following sections detail the input, output, and environmental and safety specifications for the SIAC-B.

8.2.1  Input

Operating Input Voltage and Frequency  
480 Vac, 60 Hz

Input Wiring – Three-Wire Model  
3 wire + ground – No neutral

Input Wiring – Four-Wire Model  
4 wire + ground

Operating Input Current  
For Three-Wire configurations, see Table 2 or Table 3.

8.2.2  Output

Operating Output Voltage and Frequency  
480 Vac, 60 Hz

Output Wiring – Three-Wire Model  
3 wire + ground – No neutral

Output Wiring – Four-Wire Model  
4 wire + ground

Output Current  
For Three-Wire configurations, see Table 2 or Table 3.

For Four-Wire configurations, see Table 4 or Table 5.
## 8.2.3 Environmental and Safety Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>5 to 40°C (41 to 104°F) without derating. The recommended operating temperature is 25°C (77°F)</td>
</tr>
<tr>
<td><strong>Storage Temperature</strong></td>
<td>-25 to +55°C (-13 to +131°F)</td>
</tr>
<tr>
<td><strong>Operating Altitude</strong></td>
<td>Maximum 1500m (5000 ft) at 40°C without derating</td>
</tr>
<tr>
<td><strong>Ventilation</strong></td>
<td>Convection</td>
</tr>
<tr>
<td><strong>Relative Humidity (operating and storage)</strong></td>
<td>5% to 95% maximum noncondensing</td>
</tr>
<tr>
<td><strong>Acoustical Noise</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Safety Conformance</strong></td>
<td>UL 924 for 4-wire 150 kW models</td>
</tr>
<tr>
<td></td>
<td>UL1778 4th edition</td>
</tr>
<tr>
<td><strong>Agency Markings</strong></td>
<td>cULus</td>
</tr>
<tr>
<td></td>
<td>ULus for UL 924</td>
</tr>
</tbody>
</table>
Chapter 9  Warranty

9.1  Limited Factory Warranty for Three-Phase Eaton 93PM UPS and 93PM UPS Accessory Products

WARRANTOR: The warrantor for the limited warranties set forth herein is Eaton (“Eaton”).

LIMITED WARRANTY: This limited warranty (this “Warranty”) applies only to the original end-user (the “End-User”) of the Eaton Three-Phase 93PM UPS and 93PM UPS Accessory Products (the “Product”) and cannot be transferred. This restriction applies even in the event that the Product is initially sold by Eaton for resale to an EndUser. This Warranty gives you specific legal rights, and you may also have other rights which vary from State to State (or jurisdiction to jurisdiction).

WHAT THIS LIMITED WARRANTY COVERS: The warrantor warrants, with the terms of this Warranty, that the Eaton three-phase UPS electronics, Eaton-built accessories, and Eaton-built battery cabinets (individually and collectively, the “Warranted Items”) are free from defects in material and workmanship.

For Product installed (and currently located) in the fifty (50) United States and the District of Columbia, if, in the opinion of Eaton, a Warranted Item is defective, Eaton’s sole obligation, at the option of Eaton, will be to refurbish or replace such defective Warranted Item (including the costs of providing diagnosis, service, and labor (“labor coverage”)). The defective Warranted Item will be refurbished or replaced onsite at the End-User’s location or such other location as determined by Eaton. Any parts that are replaced may be new or reconditioned. All parts replaced by Eaton shall become the property of Eaton.

For Product installed (and currently located) outside the fifty (50) United States and the District of Columbia, if, in the opinion of Eaton, a Warranted Item is defective, Eaton’s sole obligation, at the option of Eaton, will be to refurbish or replace such defective Warranted Item (not including the costs of labor coverage). The defective Warranted Item will be refurbished or replaced onsite at the End-User’s location or such other location as determined by Eaton. Any parts that are replaced may be new or reconditioned. All parts replaced by Eaton shall become the property of Eaton.

LIMITED WARRANTY PERIOD: The period covered by this Warranty for Product installed (and currently located) in the fifty (50) United States and the District of Columbia is six (6) months from the date of Product purchase for labor coverage when no startup is performed by an authorized Eaton Customer Service Engineer or Agent or twelve (12) months from the date of Product purchase with startup performed by an authorized Eaton Customer Service Engineer or Agent and twelve (12) months from the date of Product purchase or eighteen (18) months from date of Product shipment, whichever occurs first, for the refurbishment/replacement of parts.

The period covered by this Warranty for Product installed (and currently located) outside the fifty (50) United States and the District of Columbia is twelve (12) months from the date of Product purchase or eighteen (18) months from the date of Product shipment, whichever occurs first, for the refurbishment/replacement of parts.

WHAT THIS LIMITED WARRANTY DOES NOT COVER: This Warranty does not cover any defects or damages caused by: (a) failure to properly store the Product before installation, including the “trickle charge” of batteries no later than the date indicated on the packaging; (b) shipping and delivery of the Product if shipping is FOB Factory; (c) neglect, accident, fire, flood, lightning, vandalism, acts of God, Customer’s neglect, abuse, misuse, misapplication, incorrect installation; (d) repair or alteration not authorized in writing by Eaton personnel or performed by an authorized Eaton Customer Service Engineer or Agent; or (e) improper testing, operation, maintenance, adjustment, or any modification of any kind not authorized in writing by Eaton personnel or performed by an authorized Eaton Customer Service Engineer or Agent.

This Warranty is not valid: if the Product’s serial numbers have been removed or are illegible. Any Warranted Items repaired or replaced pursuant to this Warranty will be warranted for the remaining portion of the original Warranty subject to all the terms thereof. Eaton does not provide a labor warranty for Product located outside of the fifty (50) United States or the District of Columbia. Any equipment, parts, or materials included in the Product and not manufactured by Eaton are warranted solely by the manufacturer of such equipment, parts, or materials and are not included as part of this Warranty. Batteries are not warranted by Eaton.
THIS WARRANTY IS THE ENDUSER'S SOLE REMEDY AND IS EXPRESSLY IN LIEU OF, AND THERE ARE NO OTHER, EXPRESSED OR IMPLIED GUARANTEES OR WARRANTIES (INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE, WHICH ARE EXPRESSLY DISCLAIMED). SOME STATES OR JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF EXPRESS OR IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU. IN THAT EVENT, SUCH WARRANTIES ARE LIMITED IN DURATION TO THE LIMITED WARRANTY PERIOD. SOME STATES OR JURISDICTIONS DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND/OR EXCLUSIONS MAY NOT APPLY TO YOU.

LIMITATION OF LIABILITY: In no event shall Eaton be liable for any indirect, incidental, special or consequential damages of any kind or type whatsoever, resulting from or in connection with any claim or cause of action, whether brought in contract or in tort (including negligence and strict liability). Some States or jurisdictions do not allow the exclusion of limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. Eaton shall not be responsible for failure to provide service or parts due to causes beyond Eaton's reasonable control. In no case will Eaton’s liability under this Warranty exceed the replacement value of the Warranted Items.

END-USER'S OBLIGATIONS: In order to receive the benefits of this Warranty, the End-User must register the product warranty (via mail or online at www.eaton.com/pg/register “product registration”); use the Product in a normal way; follow the Product’s user’s guide; and protect against further damage to the Product if there is a covered defect.

OTHER LIMITATIONS: Eaton’s obligations under this Warranty are expressly conditioned upon receipt by Eaton of all payments due to it (including interest charges, if any). During such time as Eaton has not received payment of any amount due to it for the Product, in accordance with the contract terms under which the Product is sold, Eaton shall have no obligation under this Warranty. Also during such time, the period of this Warranty shall continue to run and the expiration of this Warranty shall not be extended upon payment of any overdue or unpaid amounts.

COSTS NOT RELATED TO WARRANTY: The End-User shall be invoiced for, and shall pay for, all services not expressly provided for by the terms of this Warranty, including without limitation site calls involving an inspection that determines no corrective maintenance is required. Any costs for replacement equipment, installation, materials, freight charges, travel expenses, or labor of Eaton representatives outside the terms of this Warranty will be borne by the End-User.

OBTAINING WARRANTY SERVICE: In the USA, call the Eaton Customer Reliability Center 7x24 at 800-843-9433. Outside of the USA, call your local Eaton sales or service representative, or call the Eaton Customer Reliability Center in the United States at 919845-3633. For comments or questions about this Limited Factory Warranty, write to the Customer Quality Representative, 8609 Six Forks Road, Raleigh, North Carolina 27615 USA.