HP Model A2941A PowerTrust

PowerTrust System Guide

(Floor Standing UPS)

HP Part No. 5961-8383
Printed in U.S.A. 1994

Edition 3
E0194

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Printing History

New editions are complete revisions of the manual. The dates on the title page change only when a new edition is published. No information is incorporated into a reprinting unless it appears as a prior update; the edition does not change if an update is incorporated.

Many product updates and fixes do not require manual changes and, conversely, manual corrections may be done without accompanying product changes. Therefore, do not expect a one-to-one correspondence between product updates and manual updates.

First Edition ..... October 1993
Second Edition ..... November 1993
Third Edition ..... January 1994

List of Effective Pages

The List of Effective Pages gives the date of the current edition and of any pages changed in a new edition. New information is incorporated into a reprinting as a new edition when the product or documented information changes.

All ..... January 1994

Safety and Regulatory Information

Important safety instructions. Save These Instructions. For your protection this product has been tested to various national and international regulations and standards. The scope of this regulatory testing includes electrical/mechanical safety, radio frequency interference, ergonomics, acoustics, and hazardous materials. Where required, approvals obtained from third-party test agencies are shown on the product label. In addition, various regulatory bodies require some information under the following headings.

Safety Considerations

This product and related documentation must be reviewed for familiarization with safety markings and instructions before operation. The following figure shows some of the safety symbols used on the product to indicate various safety considerations.

Warning

The WARNING sign denotes a hazard. It calls attention to a procedure, practice, or the like, which if not done correctly or adhered to, could result in injury. Do not proceed beyond a WARNING sign until the indicated conditions are fully understood and met.

Caution

The CAUTION sign denotes a hazard. It calls attention to an operating procedure, practice, or the like, which if not done correctly or adhered to, could damage or destroy part or all of the product. Do not proceed beyond a CAUTION sign until the indicated conditions are fully understood and met.

FCC Statement (USA only)

FCC rules part 15, subpart A, class A devices.

Information to User (section 15.105)

Note

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used *in accordance* with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Japanese Radio Frequency Interference

この装置は，第一種情報装置（商工業地域において使用されるべき情報装置）で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）基準に適合しております。

従って，住宅地域またはその隣接した地域で使用すると，ラジオ，テレビジョン受信機等に受信障害を与えることがあります。

取扱説明書に従って正しい取り扱いをして下さい。

Japanese Radio Frequency Notice

Acoustics (Germany)

Laermangabe (Schalldruckpegel LpA) gemessen an Arbeitsplatz bei normalem Betrieb nach DIN 45635, Teil 19: Acoustic Noise (A-weighted Sound Pressure Level LpA) measured at operator's position, normal operation, to ISO7779.

A2941A with no fan accessory: $\leq$ 3.5 BELS (LpA)

Product Warnings

Warning

- **Serious injury can occur if the unit enclosure is opened by unqualified personnel. There is a risk of electric shock and/or burn. Hazardous live parts inside the unit are energized from the battery supply even when the input power is disconnected. Do not remove the cover; no user-serviceable parts inside. Refer repair to qualified service personnel.**
- **The PowerTrust unit is capable of supplying AC voltage even if there is no input power present. Although the output enable switch on the front of the unit is protected from accidental actuation, do not allow the unit to become enabled without the operator's knowledge.**
- **A battery can present a risk of electrical shock and/or burn from high short-circuit current. Observe proper precautions.**
- **For all PowerTrust units (except the A2998A) the input cord is the mains disconnect. Der netzkabel is der netztrennung.**
- **DO NOT touch un-insulated battery terminals.**

Battery Notices

This product contains a sealed, lead acid battery. The batteries in the A2941A PowerTrust are not accessible, therefore, the batteries can not be replaced.

Recycle used batteries adhering to local codes.

Warning

Fire, explosion and severe burn hazard! Do not crush, disassemble, heat, incinerate, or expose the battery to water. DO NOT puncture or subject batteries to mechanical shock.

Symbol Definitions	
Symbol	Description
	ATTENTION or CONSULT ACCOMPANYING DOCUMENTS
	Dangerous voltage
	On (power: connection to the mains) or Output Enabled
	Off (power: disconnection from mains) or Output Disabled
	Stand-by
	Alternating current
	Direct current
N	Connection for the neutral conductor on PERMANENTLY INSTALLED EQUIPMENT
	Earth (ground)
	Protective earth (ground)
	Noiseless (clean) earth (ground)
	Battery Check
	Output Receptacle
	Silence Alarm
	Battery Power
	Flashing LED

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Preface

This manual is intended for the person who purchased the PowerTrust unit for connection to a computer product. This person should be familiar with the physical activity of connecting electronic components together to form a computer system.

The Chapters of this manual contain operator information and product descriptions. The *installation and verification* procedures are intended for use by the person who purchased the PowerTrust product. The A2941A PowerTrust UPS has no user accessible components inside the unit. Please read and become familiar with all procedures and precautions associated with the installation and operation of the equipment.

This edition of the *PowerTrust System Guide* contains technical information about the HP Model A2941A PowerTrust UPS.

Other Documents Referenced in this Guide:

Part Number	Title
32022-61000	*HP 3000 Configuring Systems Serial Device Guide*

DECLARATION OF CONFORMITY

according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name: Hewlett-Packard Company
8000 Foothills Blvd.
Roseville CA. 95747, U.S.A.

declares, that the product:

Product Name: HP PowerTrust Uninterruptible Power System (UPS)

Model Number(s): HP Model: A2941A (600VA)

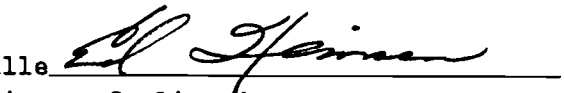
Conforms to the following Product Specifications:

Safety: IEC 950:1986+A1+A2 / EN 60950:1988+A1+A2
pr EN 50091-1

EMC: CISPR 22:1985/EN55022:1988 Class A
IEC 801-2:1991/prEN 55024-2:1992-3kV CD, 8kV AD
IEC 801-3:1984/prEN 55024-3:1991-3V/m
IEC 801-4:1988/prEN 55024-4:1992-0.5kV Signal lines,
1kV Power lines

Suplementary Information:

The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC.

Roseville 
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Introduction

This chapter introduces the Hewlett-Packard A2941A PowerTrust Uninterruptible Power System (UPS).

The HP PowerTrust UPS is a battery backup device that switches to battery power when input AC power fails or the input power falls below, or goes above, a specified utility voltage level. This allows your computer system to function through brief power failures, or allows for an orderly system shutdown during an extended power failure.

The PowerTrust automatically recharges its batteries when the normal AC power returns. Even with normal AC power available, the PowerTrust UPS provides AC noise filtration and power surge protection for your equipment.

Note

The PowerTrust UPS is auto-ranging, meaning it configures itself to the voltage and frequency of the wall outlet power. Once configured, the UPS will supply the configured voltage and frequency to the output receptacles at the back of the UPS. During a power failure, the UPS will supply the voltage and frequency listed in *Chapter 2*.

Since the PowerTrust UPS is auto-ranging to the wall outlet voltage (with the **Output** switch on and the outlet power is normal), there are no voltage setting switches or jumpers to set or configure.

Figure 1-1 shows the A2941A PowerTrust UPS. Refer to *Chapter 2* of this manual for information on the PowerTrust UPS. Please take the time to familiarize yourself with the information contained in *Chapter 2* of this manual.

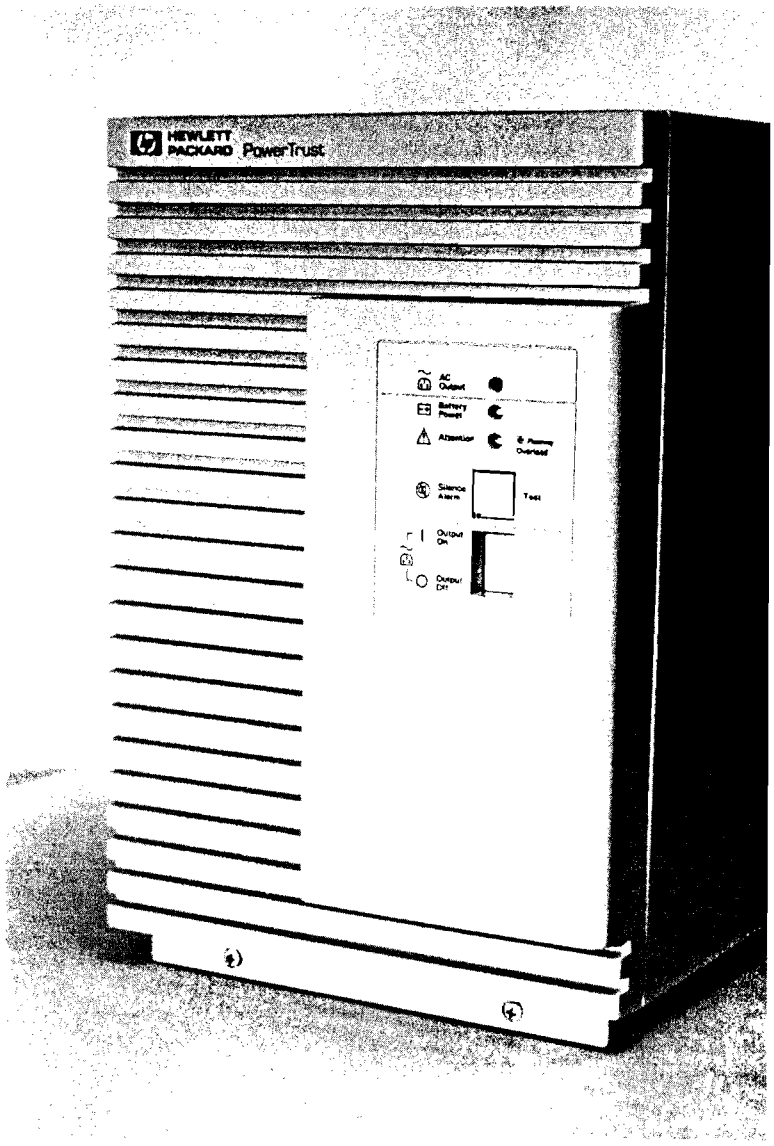

Figure 1-1. Model A2941A PowerTrust

2

Model A2941A PowerTrust

Overview

Chapter 2 contains installation information about the HP Model A2941A PowerTrust UPS. Please take a few minutes to read this chapter and familiarize yourself with the procedures required to successfully install the PowerTrust UPS. Chapter 2 contains information in the following order:

- Safety Considerations
- Product Description
- Specifications
- Unpacking and Inspection
- Installation Instructions
- Configuration Instructions
- Verification Procedures
- Troubleshooting Information
- Replaceable Parts

Safety Considerations

Please read all safety considerations carefully and understand all **WARNINGS** and **CAUTIONS** before proceeding with the installation of your PowerTrust UPS.

Physical Safety Considerations

- The A2941A PowerTrust UPS weighs approximately 27.2 kg (60 lbs.) packed and 22.3 kg (49 lbs) unpacked. Be very careful lifting or moving the UPS. Use proper lifting techniques when moving the UPS.
- The PowerTrust UPS is a physically small package, *Do Not* install the UPS in a high traffic area where people could trip on the UPS or cables.
- *Do Not* place objects or stack other equipment on top of the UPS.
- *Do Not* remove any panels or covers from the UPS; there are no user accessible components in this UPS.
- *Do Not* expose the PowerTrust UPS to excessive moisture or water.
- Allow for approximately 12 inches of space around the UPS for access and cooling purposes.
- The PowerTrust UPS is intended for indoor use only.

Electrical Safety Considerations

- *Do Not* use an extension cord or multiple outlet power strips to provide electrical power to the UPS or any other computer equipment.
- *Do Not* install the UPS next to open windows where uncontrolled environmental conditions could affect the UPS.
- *Avoid* plugging the UPS into a wall outlet controlled by a switch. If the outlet is controlled by a switch, cover or protect the switch from being accidentally turned off.
- *Do Not* place magnetic storage media on the UPS.

Caution

Under power fail conditions, the PowerTrust output will be 115 volts or 230 volts, independent of equipment requirements.

Note

TOTAL HARMONIC DISTORTION NOTICE

Under AC line failure conditions, the PowerTrust UPS should **NOT** be operated from small portable generators, small portable motor generators, or other poorly regulated AC voltage sources. Use only high quality AC sources to supply input voltage to the UPS to insure continued protection of your equipment.

Caution

DO NOT PLUG LASER PRINTERS OR MOTOR OPERATED EQUIPMENT INTO THE PowerTrust UPS. Laser printers have a heating cycle that causes adhesion of the toner to the paper. This heating cycle draws inrush current in excess of the capabilities of this UPS. Protect the printer separately. Since most laser printers are not system critical, they can often be protected by a power conditioner rather that a PowerTrust UPS. Be sure the power conditioner you purchase can accommodate the high inrush currents of a laser printer. Motor operated equipment is an inductive load and is not supported on the A2941A PowerTrust UPS.

DO NOT PLUG HIGHLY CAPACITIVE EQUIPMENT INTO THE PowerTrust UPS. Equipment having input RFI type X capacitors whose total value exceeds 2.0μF should not be connected to the PowerTrust UPS. For non-HP equipment, contact that vendor's sales representative or refer to the equipment's data sheet to verify the capacitor value. For HP equipment, refer to the specific HP document to confirm the connection of the equipment to the PowerTrust UPS does not violate the capacitive equipment requirements stated in this caution.

Warnings and Cautions

Be aware of all **WARNING** and **CAUTION** statements in this manual as well as labeled on the UPS itself. This UPS contains storage batteries that hold hazardous voltages even when the outlet power has failed, or has been turned off via the **Output** switch. Refer to the front material of this manual for a description of Warnings, Cautions, and symbols.

Product Description

This section of Chapter 2 describes the lights, switches, and connectors located on the PowerTrust UPS. Figure 2-1 and Figure 2-2 show the front and rear panels of the UPS.

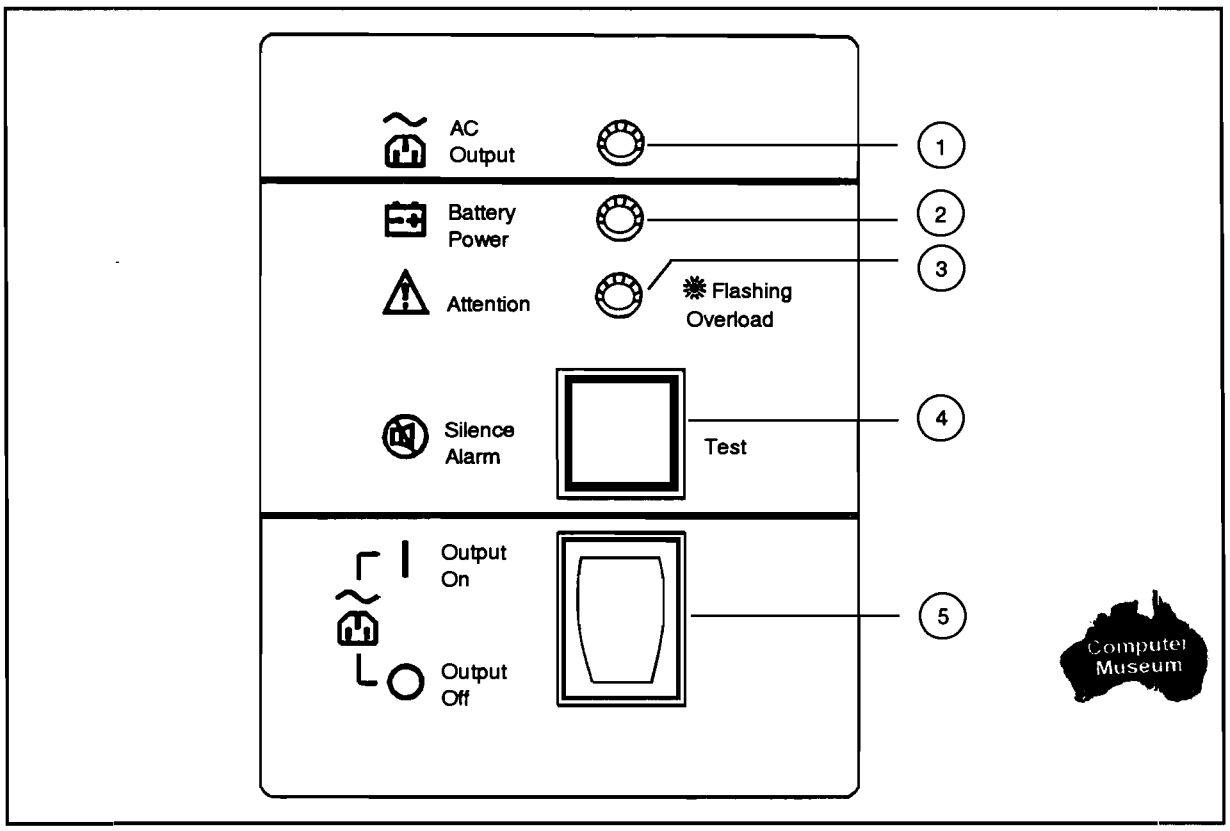

Figure 2-1. A2941A Front Panel

The switches and indicator lights on the front panel are defined as follows:

① **AC Output**	A Green light - indicates that normal AC power is being supplied to the receptacles in the back of the UPS.
② **Battery Power**	A Yellow light - indicates the UPS is supplying power during abnormal AC, or test conditions.
③ **Attention**	A Yellow light - indicates the UPS needs attention. This indicator has multiple meanings (in conjunction with the audible alarm). Refer to the *Troubleshooting* section for definitions.
④ **Silence Alarm/Test**	A Switch - with two functions: first, it will silence an audible alarm in a failure mode; second, it can be used to initiate a test sequence (described in the *Verification Procedures* section).
⑤ **Output On/Output Off**	A Switch - controls the output receptacles in the back of the UPS.

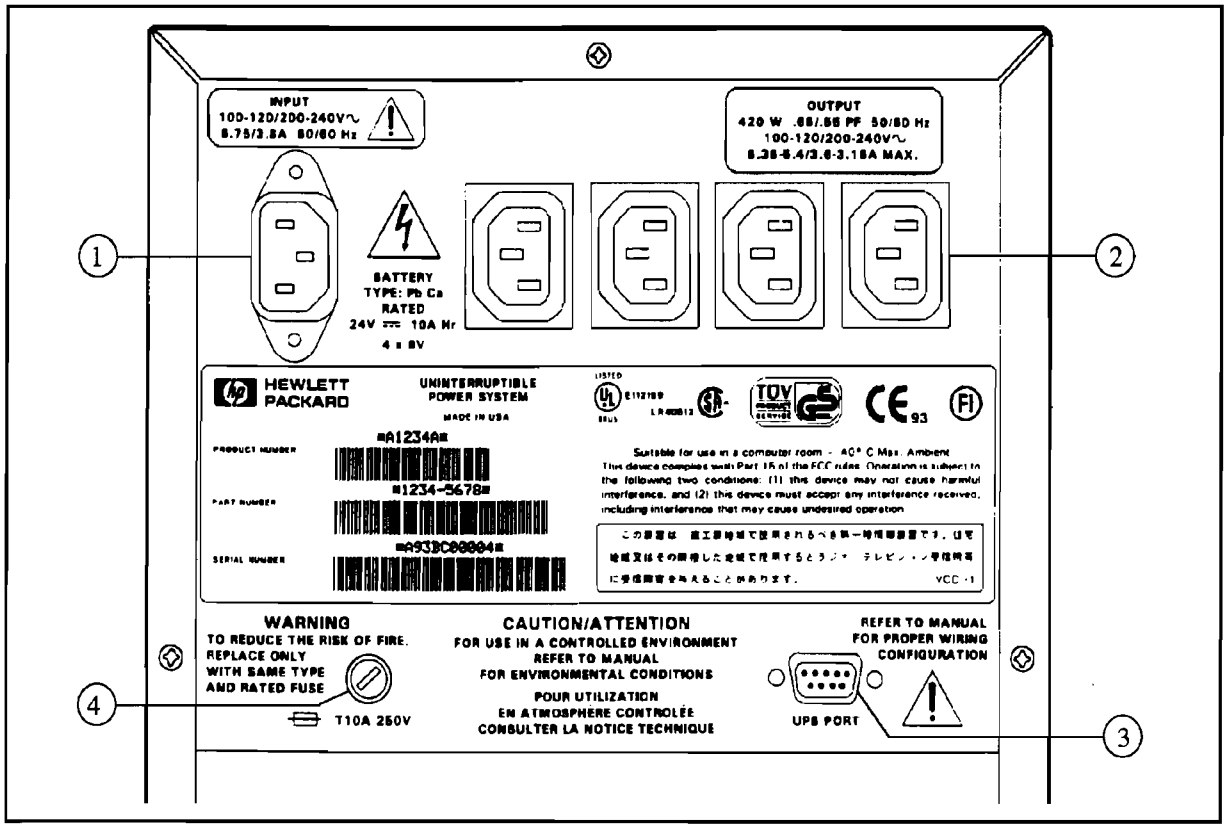

Figure 2-2. A2941A Back View

The connectors on the back of the UPS are defined as follows:

① Input Receptacle - there is one input receptacle to plug the UPS into an appropriate wall outlet for AC power.

② Output Receptacle - there are four output receptacles that supply AC power to your equipment from the wall outlet or the UPS's internal battery.

③ UPS Port Connector - a 9 pin D-type connector for communication to a computer system, using an HP cable to connect to the computer RS-232 port. Refer to *Specifications* section for pin descriptions.

④ T10A 250V Fuse - a time delay (slow-blow) ten-amp fuse.

Warning **To reduce the risk of fire, replace only with same type and rated fuse. Refer to Table 2-4 for the proper HP part number.**

Specifications

Table 2-1. A2941A Specifications

Description	Specification
Environmental Specifications	
Operating Temperature	5° to 40°C (41° to 104°F)
Storage Temperature	-30° to 50°C (-20° to 122°F) Battery life is severely shortened if the temperature exceeds 25°C (77°F) for extended periods of time. Refer to *Storage Requirements* for more storage specifications.
Recommended Temperature	20° to 25°C (68° to 77°F)
Operating Humidity	15% to 80% non-condensing
Altitude	3,000 meters (10,000 feet)
Electrical Specifications	
Input VAC	100-120/200-240 @ 50/60Hz (auto-ranging) (this UPS is compatible with 127VAC input power)
Input Current	6.75/3.80 Amps
Output VAC (line power)	equal to the Input VAC
Output VAC (on battery)	115V or 230V @ 50/60Hz
Range VA/Watts	650/420 @ 0.65 power factor 760/420 @ 0.55 power factor
Voltage Regulation (while on battery power)	±10% max deviation from rated output voltage with full load (on battery)
Transfer Time	AC failure - ≤ 10msec AC restored - 5 second delay returning to AC to allow phase lock.
Phasing	Phase locked to within 5° of utility AC
Safety Agency Approvals	Agency approvals: UL, CSA, TUV, FI, CB Certificate

Table 2-1. A2941A Specifications (continued)

Description	Specification
Battery Specification	
Type	Maintenance-free, sealed, lead acid.
Nominal open circuit voltage	24VDC
Reserve time	Approximately 15 minutes (at full load)
Input fuse	10A 250V UL Listed time delay (slow-blow). Only replace the fuse with a fuse of the same type and rating.
Battery Recharge time	14 hours
Optimum Battery Life	3.5 to 5.0 years
Physical Specifications	
Dimensions packaged:	Height - 44.8cm (17.6in) Width - 33.0cm (13.0in) Depth - 49.5cm (19.5in) Weight - 27.2kg (60.0lbs)
Dimensions unpackaged:	Height - 34.5cm (13.6in) Width - 22.7cm (9.0in) Depth - 39.5cm (15.5in) Weight - 22.3kg (49.0lbs)
Communication Specifications	
HP UPS Port Connector pin usage	pin 1 - Receive data pin 2 - Transmit data pin 9 - Signal ground
Communication protocol	8 data bits 1 stop bit no parity baud rate is 1200

Unpacking and Inspection

This section contains information for unpacking and inspecting the PowerTrust UPS, taking inventory of shipped goods, filing claims, repacking, and storing the system.

First, check to ensure that the containers ordered are present, as specified in the carrier's Bill of Lading. Sometimes orders are lumped together into one shipment, so you may receive multiple containers.

Inspect the container for evidence of mishandling during transit. If the container is damaged, request that the carrier's agent be present when the container is opened.

In Case of Damage

Be sure to inspect the exterior of the shipping container before the UPS is unpacked, and carefully inspect all equipment as it is removed from the container. If damage is observed, refer to the *Claims Procedures* section later in this chapter.

Physical Inventory

When the shipping container is opened, locate the packing list which contains a list of equipment supplied. Compare the product and option numbers on the packing list with the purchase order to verify that the shipment is correct.

Ensure that all of the equipment on the list has been received. If any of the equipment is damaged or missing, refer to the Claims Procedures section.

Ensure that the model and serial numbers are identical to those specified on the packing list. The model and serial numbers are printed on an information label, located on the back of the UPS. Refer to Figure 2-2.

The A2941A PowerTrust UPS should come with two convenience cords (packed with the UPS). Also, one localized line cord, and one HP RS-232 cable come packed in a supplemental shipping container.

Unpacking Instructions

To unpack the PowerTrust UPS, perform the following steps:

1. Remove the rigid shipping block ① from the top of the shipping container. Refer to Figure 2-3. Check the rigid packing material for signs of damage, which could indicate rough handling during transit.

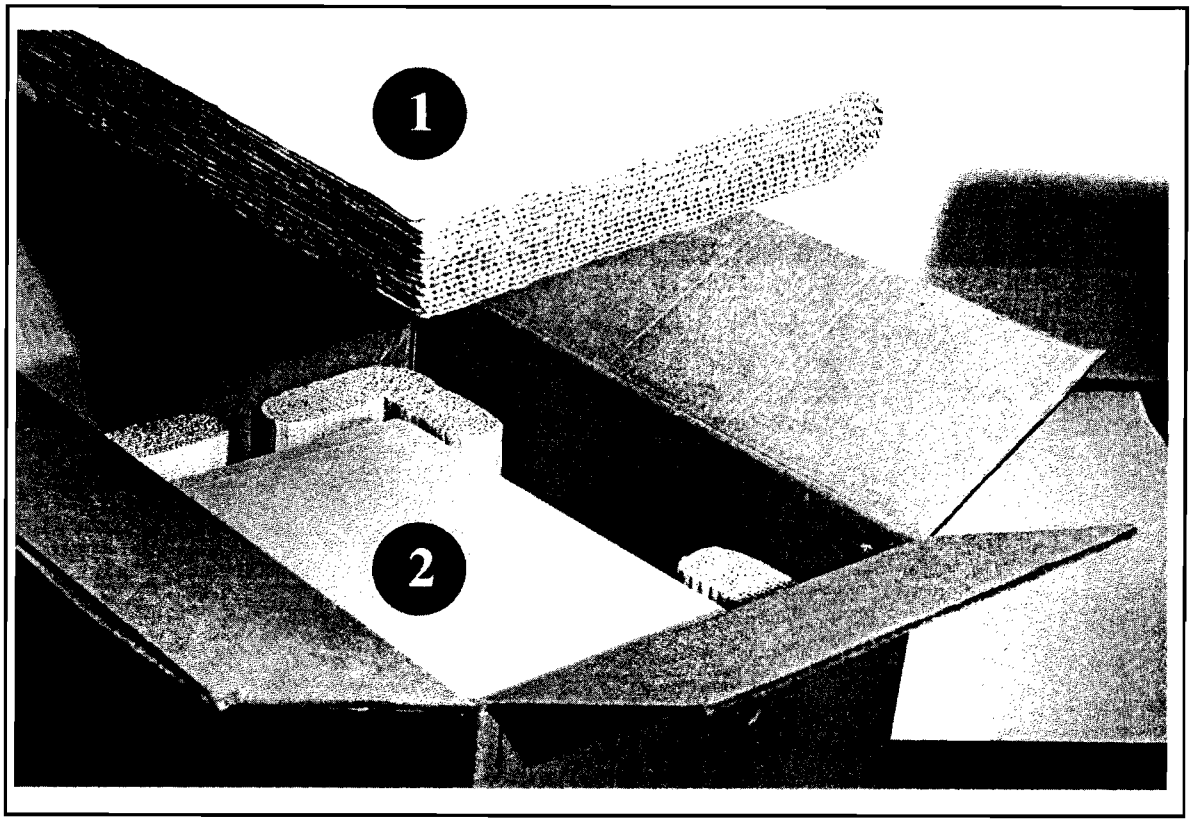

Figure 2-3. Packing Material

2. Remove the two convenience cords located inside the shipping container.
3. Remove the PowerTrust UPS ② from the shipping container. Reach down into the shipping container and get a firm grip on the bottom of the UPS. Lift the UPS straight up.

Caution The PowerTrust UPS weights 22.3 kg (49 lbs), so be careful when lifting or moving the UPS.

4. Remove the shipping bag from the UPS.
5. Inspect each item unpacked for damage. Look for damage such as broken controls and connectors, dented corners, scratches, bent panels, and loose components.
6. Locate the supplemental shipping box with the localized power cord and RS-232 cable.

Claims Procedures

Notify the nearest Hewlett-Packard Sales and Service Office if the shipment is incomplete, damaged, or fails to meet specifications. If damage occurred in transit, notify the carrier as well.

Hewlett-Packard will arrange for replacement or repair without waiting for settlement of claims against the carrier. In the event of damage in transit, retain the packing container and packing materials for inspection.

Repacking

If the PowerTrust UPS must be reshipped, use the original shipping and packing materials, if available. Contact the local Hewlett-Packard Sales and Service Office for repacking information and materials.

Storage Requirements

The PowerTrust UPS can be stored or shipped under the following conditions and environment limits listed:

- The **Output** switch must be in the OFF (O) position.
- If the UPS is stored for extended periods of time, the batteries have to be recharged every 6 months to avoid accelerated aging of the batteries. (Recommended 24 hour recharge time.)
- Storage Temperature limits: -30° to 50°C (-22° to 122°F)
- Recommended Storage temperature: 18° to 28°C (64° to 82°F) For optimum battery life, do not exceed 25°C (77°F) for extended periods of time.
- Temperature rate of change: <20° C/hr. (<36° F/hr.)
- Non-operating humidity: 5% to 80% non-condensing
- Humidity rate of change: <30% RH/hr.

Caution

The PowerTrust UPS should be protected from environmental extremes that can cause condensation within the UPS. When installing the UPS, allow time (calculated at the *Temperature rate of change* listed) for the temperature of the equipment to stabilize to the site environment.

Recharging the Battery

Once the UPS is unpacked its battery should be recharged before the UPS is finally installed, or any equipment is connected. This is necessary because the battery may have lost some of its charge in storage and transit. To recharge the battery, perform the following steps:

1. Be sure the **Output** switch is in the OFF (O) position.
2. Locate the UPS near an appropriate wall outlet. Be sure the UPSs location is well ventilated.

3. Attach the line cord ① to the **Input Receptacle** ②. Refer to Figure 2-4.

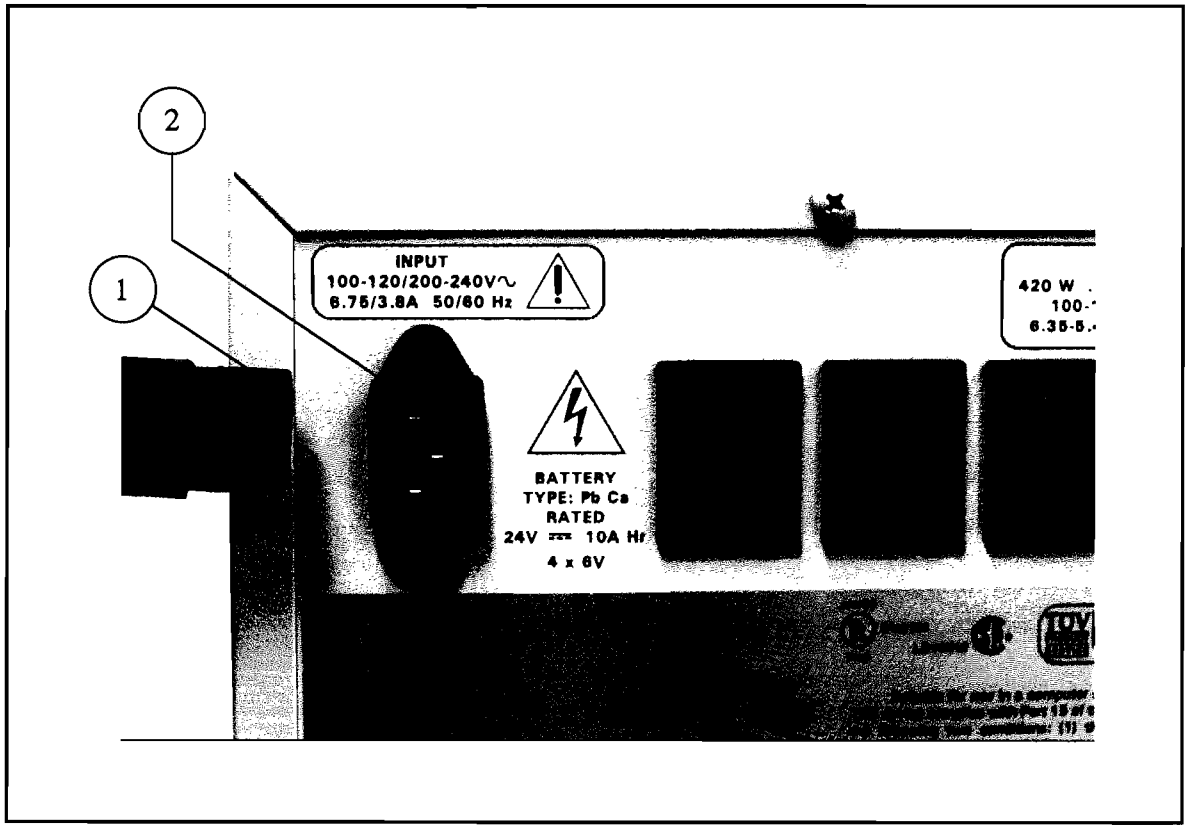

Figure 2-4. Line Cord Connection

4. Plug the other end of the line cord into the wall outlet.
5. Recharge the PowerTrust UPS for at least 14 hours.

Installation Instructions

Once the PowerTrust UPS is fully charged (minimum of 14 hours), it can be installed and connected to the computer equipment. The process of installing a PowerTrust UPS consists of:

- Placing the UPS in close proximity to the connected equipment.
- Sizing the load the UPS will support.
- Performing the actual steps required to connect the UPS to the computer equipment.
- Computer system configuration.
- Verifying the installation by performing the load test procedures.

Sizing the Load

The equipment to be attached to the PowerTrust UPS are rated in Volt Amps (VA). This represents the rated voltage times the rated current (or amperage) used by the equipment. Refer to the documentation of the equipment to find the typical amperage rating. For example:

```
a computer rated at 3.20A times 120V would equal 384VA
a terminal rated at 0.75A times 120V would equal  90VA
```

Note

Refer to the documentation that comes with the specific computer equipment to obtain the amperage rating of that piece of equipment.

In this example, the load would equal 384VA plus 90VA for a total of 474VA. This is well within the range (600VA) of the A2941A PowerTrust UPS. It has been our experience that most equipment is rated at *worst case*, with all expansion slots or bays fully loaded, so the actual load is probably less.

Be sure to perform the *Load Test* section of this chapter once the actual installation is complete, to ensure the 600VA rating of the UPS has not been exceeded.

Caution

AC Input Power Cord Selection

An AC input power cord set was provided with this UPS as ordered, to match the AC wall outlets in your country. However, if this UPS will be used in another country, a different power cord set may be required. Refer to Table 2-5 in the *Replaceable Parts* section for the appropriate cord set.

Installation Procedures

To complete the installation of the UPS, perform the following steps:

1. Locate the UPS close to an appropriate wall outlet and within 2 meters (6.5 feet) of the equipment being serviced by the PowerTrust UPS.
2. Be sure the power switches of the equipment connecting to the UPS are in the OFF position.
3. Be sure the **Output** switch of the UPS is in the OFF (O) position.
4. Attach the line cord to the **Input** receptacle at the back of the UPS (if not done already).
5. Attach the other end of the line cord to the wall outlet.

6. Using the two convenience cords supplied with the UPS, attach the equipment to the PowerTrust UPS at the **Output** receptacles in the rear. Refer to Figure 2-2 item ②.

Caution

DO NOT PLUG LASER PRINTERS OR MOTOR OPERATED EQUIPMENT INTO THE PowerTrust UPS

DO NOT PLUG HIGHLY CAPACITIVE EQUIPMENT INTO THE PowerTrust UPS.

Refer to the **CAUTION** under the *Electrical Safety Considerations* section of this chapter for details.

7. Remove the ESD cover from the UPS port connector, on the back of the UPS. Do not discard the ESD cover, it maybe needed later.

Note

If the UPS port connection is not going to be used, leave the UPS port ESD cover in place.

8. Refer to Figure 2-5. Connect the RS-232 cable to the **UPS Port** ① connector on the back of the UPS. Secure the RS-232 cable to the connector by tightening the small mounting screws on each side of the connector with your fingers or a small blade screwdriver.

Note

This is a specially designed Hewlett-Packard RS-232 cable. Do not use a standard RS-232 cable with this UPS. The use of other RS-232 cables may result in improper operation or may damage the PowerTrust UPS.

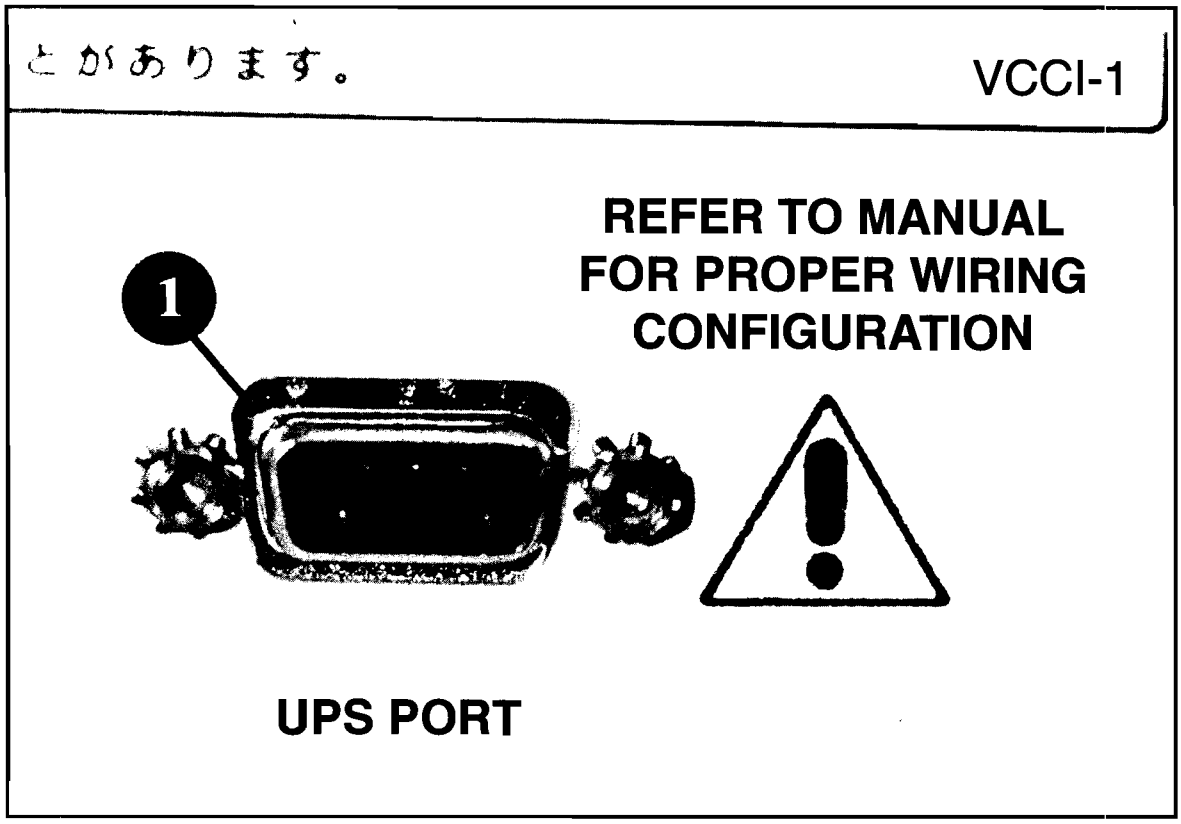

Figure 2-5. UPS port Connector

9. Attach the other end of the RS-232 cable to the appropriate RS-232 connector on the computer equipment as listed:

   For HP 3000 computers, the RS-232 connection is made at the back of the computer at the connector labeled **UPS** (DB25 pin male).

   For HP 9000 computers, the RS-232 connection is made at **Port 1** on the Modem Distribution Panel (MDP). The computer console connects to **Port 0** of the MDP.

   For connection to other equipment, refer to that particular equipment documentation for RS-232 connection instructions.

10. Put the **Output** switch in the ON (|) position.

    After approximately 15 seconds the **Green AC Output** light should be the only indicator on. If any other indicators are on, refer to the Troubleshooting section of this chapter.

Note

The **Output** connectors on the back of the UPS are now supplying normal AC power to the equipment attached.

11. The connected equipment can now be turned on. The equipment should power up in a normal manner.

Configuration Instructions

If the PowerTrust UPS port is connected to a computer system, the computer's configuration must be modified to include the PowerTrust UPS. Refer to the computers *Configuration Manual* or *System Configuration Guide* for specific instructions about that task. If the PowerTrust UPS is not added to the computer's configuration table, the UPS will still function as described, but the error message information in *Appendix A* or *Appendix B* will not be available for display to the computer console.

Verification Procedures

To verify the PowerTrust UPS is working properly, perform the procedures listed in the *Load Testing* section.

Load Testing

Load testing is required to verify that the PowerTrust UPS is correctly installed and the equipment attached does not put the UPS in an overload condition. To perform the load test, complete the following steps:

1. Be sure the **Output** switch is in the ON (|) position, and the connected equipment is ON and operating normally.

Caution

Make certain that the connected equipment is not doing something critical during this test and your software and data are backed up.

2. Press and release the **Alarm Silence/Test** switch.
   a. The UPS should beep once.
   b. The **Battery Power** light should come ON.
   c. The **AC Output** light should stay ON.
   d. The **Attention/Flashing Overload** light should not come on or flash.
   e. The connected equipment should remain in its current operating state.
   f. After a brief period there should be a short beep and the **Battery Power** light should go OFF. This indicates the end of the test.
3. If the conditions in step 2 are met, the equipment attached to the UPS is within the accepted load range of the UPS. This indicates the UPS passes the load test. Make certain that all connected equipment is functioning normally. This also verifies that the UPS transfer time (the very brief time between power loss and battery start-up) does not disturb the connected equipment.
4. If the **Attention/Flashing Overload** light is flashing, the PowerTrust UPS is overloaded. The light will flash once every second and the UPS will also sound the audible alarm. Either obtain a UPS with more capacity or reduce the load on the UPS by removing some of the connected equipment. Refer to *Sizing the Load* section, correct the condition, and re-do the load test.

5. If the UPS shuts OFF the attached equipment (removes power from the **Output** receptacles) and starts a three beep sequence with the **AC Output** and **Battery Power** lights OFF and the **Attention** light flashing, there is an overload shut-down condition. This response is caused by an excessive overload. You need to re-size the attached load (refer to *Sizing the Load* section) and re-do the load test.
6. Repeat these tests a few times under various operating conditions to ensure that the UPS can operate properly under all conditions.

If the load test is successful, your equipment will be protected by the PowerTrust UPS. When different equipment is plugged into the UPS, the load test must be repeated.

Normal Operation

Under normal AC power conditions the PowerTrust UPS should be transparent to the equipment attached to it, providing AC noise filtration and power surge protection. No operator interface is necessary under normal AC power conditions.

Power Failure Operation

The UPS automatically switches to battery operation if AC power fails, or falls beneath or rises above the set transfer points. The definition of these transfer points are detailed in Table 2-2 through Figure 2-7. Table 2-2 goes with Figure 2-6 and Table 2-3 goes with Figure 2-7.

Table 2-2. 100 to 120 Voltage Range (50/60 Hz)

	AC Power	UPS State	Minimum Transfer Voltage	Maximum Transfer Voltage
From To	normal over voltage	on-AC power on-battery	137VAC	140VAC
From To	over voltage normal	on-battery on-AC power	133VAC	136VAC
From To	normal under voltage	on-AC power on-battery	90VAC	92VAC
From To	under voltage normal	on-battery on-AC power	93VAC	96VAC

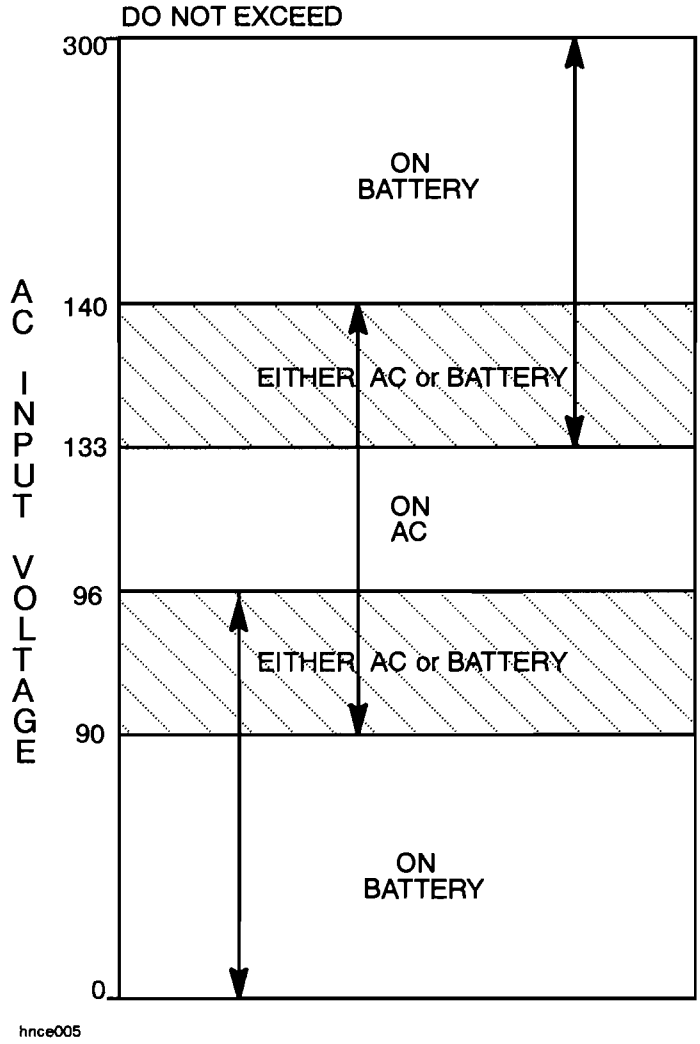

Figure 2-6. 100 to 120 Voltage Range (50/60 Hz)

Table 2-3. 200 to 240 Voltage Range (50/60 Hz)

	AC Power	UPS State	Minimum Transfer Voltage	Maximum Transfer Voltage
From To	normal over voltage	on-AC power on-battery	258VAC	264VAC
From To	over voltage normal	on-battery on-AC power	251VAC	257VAC
From To	normal under voltage	on-AC power on-battery	180VAC	184VAC
From To	under voltage normal	on-battery on-AC power	187VAC	192VAC

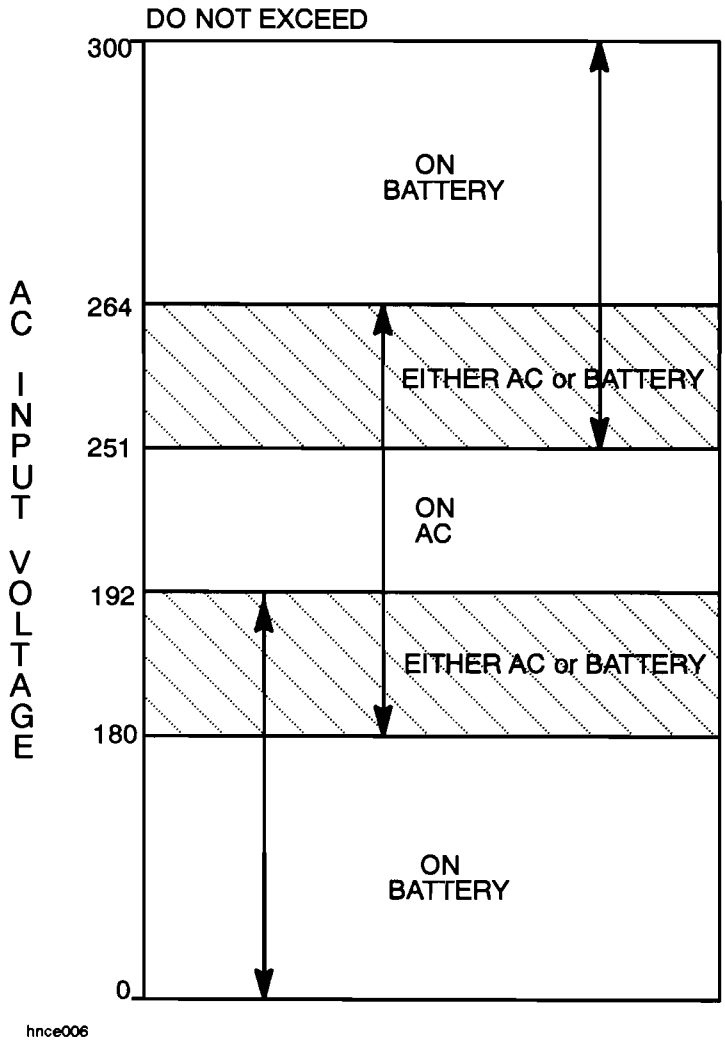

Figure 2-7. 200 to 240 Voltage Range (50/60 Hz)

Note

The shaded areas of Figure 2-6 and Figure 2-7 indicate that the UPS will be supplying either 120V or 230V from the AC wall outlet or UPS battery power.

Extended Power Failure Operation

When utility AC power fails, the UPS supplies battery power for approximately 15 minutes at full load. When the battery level of the UPS comes within approximately two (2) minutes of full battery discharge, the UPS initiates an audible warning. When this happens, you should immediately prepare for a loss of battery power. The two minute warning is three audible beeps, then seven seconds off, then repeat the three beeps. Refer to Figure 2-8 in the *Troubleshooting* section for a front panel description. After a power failure, the battery backup time is reduced until the batteries are fully charged again (approximately 14 hours).

When the AC power is restored, the UPS will automatically recharge its battery. This takes approximately 14 hours. This is a worst case, 0 to 90% recharge figure. Recharge time will usually be considerably less if the batteries are not fully discharged.

Note

It is important that after you have experienced a power failure for which you have shut down your protected equipment, you should SWITCH THE UPS **OUTPUT** SWITCH TO THE OFF (O) POSITION. Doing this will save the battery from undue discharge, which would result in a reduction in battery life and longer recharge times. It is especially important that the UPS not be left in this state (discharged with the **Output** switch in the ON (|) position and no AC power present) for extended periods of time, as this will eventually damage the battery.

Troubleshooting

This section provides some troubleshooting tips for the A2941A PowerTrust UPS. If your problem is not addressed in this section refer to *Appendix A* or *Appendix B* for error messages and possibly, more troubleshooting suggestions.

Problem: No output, **AC Output** light not on.

Cause: **Output** switch is in the OFF (O) position.

Action: Put the **Output** switch in the ON (|) position.

Problem: UPS beeps while **Flashing Overload** light flashes.

Cause: The UPS is slightly overloaded.

Action: Reduce the load to the UPS. Rerun the load test and re-test for normal operation. Note that the UPS is designed for computer type loads only.

Problem: UPS on battery when plugged into a known good AC wall outlet.

Cause: The back panel fuse may be open (bad).

Action: Put the **Output** switch in the OFF (O) position and unplug the line cord from the wall outlet. Replace the fuse with the same type and rating.

Problem: The UPS cycles from AC operation to battery operation, then back to AC operation. This sequence occurs repeatedly with the **Output** switch in the ON (|) position.

Cause: The AC input wiring to the UPS may have a high line impedance. (Make sure the UPS is **NOT** plugged into an extension cord.) This impedance causes a voltage drop as load is placed upon the circuit. This voltage drop is detected by the UPS, whereupon it transfers to battery operation to maintain proper voltage to protect the equipment.

Action: Have the AC line analyzed by the facilities maintenance department or a qualified local electrical contractor to insure minimal line impedance.

At this point there is nothing more that can be done for the A2941A PowerTrust UPS. If interpreting the indicators (refer to Figure 2-8) reveals a more serious problem, notify your Hewlett-Packard Sales or Service representative.

The UPS comes equipped with a sealed, maintenance free, lead-acid battery. It is neither user replaceable nor user serviceable.

Battery lifetime is impossible to predict accurately because of the many variables of load, cycling and ambient temperature involved. Experience has shown that batteries can be expected to last three and a half to five years under normal office conditions.

AC Output Battery Power Attention Audible Alarm: Conditions:	● ○ ○ None Output Enabled AC supplying power No active alarms	● ○ ● 3-Beep Output Enabled AC supplying power Charger Fail Alarm active	
AC Output Battery Power Attention Audible Alarm: Conditions:	● ● ○ 1-Beep Output Enabled Battery supplying power	● ● ○ 3-Beep Output Enabled Battery supplying power Low Battery present	● ● ☀ 3-Beep Output Enabled Battery Supplying power Overload Alarm active
AC Output Battery Power Attention Audible Alarm: Conditions:	○ ○ ● None Output Disabled System Fail	○ ○ ☀ 3-Beep Output Disabled Overload Shutdown	○ ○ ○ None Output Disabled Output On/Off Switch in OFF position or Remote Output Disable
	Legend: ○ OFF ● Solid On ☀ Flashing		

hnceX03

Figure 2-8. Front Panel Light Descriptions

Note

All audible alarms can be silenced by pressing the *Silence Alarm/Test* switch. Any new alarm will re-trigger an audible sequence.

Maintenance and Cleaning

Your HP PowerTrust UPS requires little or no maintenance. There are NO user replaceable components inside the A2941A PowerTrust UPS.

If you would like to clean the UPS, first remove all power to the UPS by putting the **Output** switch in the OFF (O) position and unplugging the UPS line cord from the wall outlet. Also disconnect the convenience cords and RS-232 cable from the UPS. Replace the RS-232 ESD cover to protect the port from possible static damage.

If the UPS is operating in an unusually dusty or dirty area, carefully vacuum any dust from the cooling vents. To clean the external surfaces of the UPS, dampen (do not soak) a cloth with water only, and wipe gently. **Do Not** use cleaning solvents on any surface. Use water only. Allow the UPS to completely dry before returning the UPS to service.

Further cleaning of the UPS will require disassembly by qualified personnel. Please contact your local Hewlett-Packard Sales or Service person.

Recommended Periodic Testing

Hewlett-Packard recommends periodic testing of the PowerTrust UPS to determine if the UPS is capable of providing the specified functionality. HP recommends performing this test on a once a month basis.

Caution

The periodic testing of the PowerTrust UPS should be performed at a time when the computer equipment connected to it is in a non-critical performance state. Also all software and data should be backed up before performing the periodic test.

Refer to the *Load Testing* section for the procedures involved. Be sure that all active applications are halted and users of the computer system are notified that power testing of the computer equipment is going to be performed.

If problems occur as a result of the PowerTrust UPS test, refer to the *Troubleshooting* section of this chapter for problem solving suggestions.

Note

In 3.5 to 5 years the PowerTrust UPS should be exchanged for a new UPS to maintain the 15 minutes of reserve time.

Replaceable Parts

The parts of the PowerTrust UPS listed here can be replaced if lost or broken.

Table 2-4. A2941A Replaceable Parts List

HP Part No.	Name	Description
2110-0395	10A Fuse	Cooper Ind. MDA-10 time delay (slow-blow) fuse
5061-2575	RS-232 Cable	DB9, 9-pin male/DB9, 9-pin female (2.5 meter)
5061-2569	RS-232 Cable	DB9, 9-pin male/DB25, 25-pin male (2.5 meter)
Refer to Table 2-5	Line Cord	AC line cord
8120-1625	Convenience Cord	Output receptacle power cord
0957-0063	PowerTrust Exchange	An exchange PowerTrust UPS with fresh batteries
1252-2306	Connector Dust Cover	RS-232 DB9, connector cover, pink

Note

Battery life, allowing for the specified backup times, for this UPS is approximately 3.5 to 5 years. After that time the UPS should be replaced. An exchange UPS is available, providing a reconditioned UPS with new batteries. Ordering this part will require return to HP of the old PowerTrust UPS (less cords and cables). Contact your local Hewlett-Packard Sales or Service representative for details.

Table 2-5. A2941A Line Cord Options

Part Number	Country	Male Type
8120-1351	United Kingdom	BS1363
8120-1369	Australia	AS3112
8120-1689	Europe	CEE7/VII
8120-1751	US 120V	5-15P
8120-3996	US 240V	6-15P
8120-2104	Swiss	SEV type 12
8120-2956	Denmark	DHCR
8120-4211	South Africa	SABS
8120-4753	Japan	JIS C 8303

A

HP-UX UPS Monitor Error Messages

Introduction

This appendix lists the messages that may be displayed by the UPS Monitor daemon (`ups_mond`) to indicate PowerTrust status or error conditions. The UPS Monitor daemon monitors the conditions of all PowerTrust units in an HP-UX system, and notifies the system operator via console messages of any PowerTrust alarm conditions and of system powerfails.

Warning

This chapter is intended for qualified service-trained personnel only. Actions to be taken in response to a given error message are intended to be performed only by service-trained personnel.

Note

The term "UPS" (Uninterruptible Power Source) is used in all error messages to refer to the PowerTrust unit. The term "UPS Monitor" refers to the software utility (`ups_mond`) that monitors PowerTrust operation.

Normal Operation Messages

The messages in this section may appear during normal operation.

MESSAGE	`ups_mond: UPS Monitor daemon starting; using configuration file <filename>`
SEVERITY	Information. Startup processing program message.
MEANING	UPS Monitor process creation and activation daemon has successfully begun execution.
CAUSE	*ups_mond* has launched the UPS Monitor process successfully, using the data contained in the PowerTrust configuration file.
ACTION	None.

Normal Operation Messages (Continued):

MESSAGE	`ups_mond: UPS <tty special file name> OK: AC Power back on.`
SEVERITY	Information. A previous critical, error, or warning condition related to AC input power has been corrected.
MEANING	The PowerTrust device configured as <tty special file name> informed the UPS Monitor that its input AC power has returned to normal following a power failure. The PowerTrust unit is now supplying normal power, not battery reserve power.
CAUSE	Corrective action succeeded, and normal power has been restored.
ACTION	None.

MESSAGE	`ups_mond: AC Power to all recognized, system critical UPSs OK! System will not shutdown.`
SEVERITY	Information. A previous critical or warning condition related to AC input power has been corrected.
MEANING	Following an AC power failure affecting one or more critical PowerTrust units on the system, normal AC power has been restored to all critical PowerTrust units before either exhaustion of the battery reserve power, or a graceful shutdown, occurs. The system has recovered from the power failure.
CAUSE	The system has recovered from an AC power failure that was short enough not to exhaust the PowerTrust unit's battery reserve, nor cause a graceful shutdown.
ACTION	None.

Timer Controlled Power On/Off Messages

The following messages relate to the *Timer Controlled Power On/Off* utility.

MESSAGE	`ups_mond: Timer Controlled On/Off information invalid; ignored`
SEVERITY	Error. Request to turn off the system (with a later turn on) is ignored.
MEANING	The *power_onoff* utility sent an invalid turn-on time to *ups_mond*.
CAUSE	Internal error in *power_onoff*.
ACTION	Ensure that the requested turn-on date and time are valid, and within range of the PowerTrust unit's capability.

MESSAGE	`ups_mond: mknod error: <error number> for Timed On/Off fifo file /timed_off; continuing without`
SEVERITY	Error.
MEANING	Could not create fifo (also known as a "pipe") for communication between *power_onoff* and *ups_mond*.
CAUSE	File system problem.
ACTION	Call the Response Center.

MESSAGE	`ups_mond: open error: <error number> for Timed On/Off fifo file /timed_off; continuing without`
SEVERITY	Error.
MEANING	Could not open fifo (also known as a "pipe") for reading request from the *power_onoff* utility.
CAUSE	File system problem.
ACTION	Call the Response Center.

Timer Controlled Power On/Off Messages (Continued):

MESSAGE	`ups_mond: Timer Controlled On value exceeds UPS <tty special file name> maximum. The maximum value of <value> will be used for this UPS.`
SEVERITY	Warning. Turn-on date and time will be earlier than requested.
MEANING	The PowerTrust hardware does not support the requested length of time for delay.
CAUSE	The entered Timer Controller On value was outside the range of the PowerTrust unit's capability.
ACTION	Ensure that the requested turn-on date and time are within the range of the PowerTrust unit's capability.

MESSAGE	`ups_mond: Power Off request active; performing graceful shutdown.`
SEVERITY	Warning.
MEANING	The PowerTrust unit has begun a graceful shutdown of the system.
CAUSE	An entered Timer Controller date and time setting for powering off the PowerTrust unit has been reached, and the PowerTrust unit has begun to gracefully shutdown the system.
ACTION	None.

Exit ups_mond Daemon Messages

The messages in this section precede the exiting of the *ups_mond* daemon. The UPS Monitor will not be running, thus the PowerTrust unit(s) will not be monitored.

MESSAGE	`usage: ups_mond [-f configfile] [-s]`
SEVERITY	Error.
MEANING	Incorrect parameter when invoking *ups_mond*.
CAUSE	An incorrect parameter was used when invoking *ups_mond*.
ACTION	Correct the parameter according to the syntax shown in the **usage** message above. If *ups_mond* was invoked from **/etc/inittab**, edit that file to correct the parameter.

MESSAGE	`ups_mond: cannot exec/etc/ups_mond -f <filename> -e ups_mon child due to <error number>`
SEVERITY	Error.
MEANING	Cannot execute *ups_mond*'s child process.
CAUSE	Specific cause denoted by <error number> in the message.
ACTION	Ensure that *ups_mond* exists in the **/etc** directory, and is executable.

MESSAGE	`ups_mond: permission denied; must be super user`
SEVERITY	Error.
MEANING	Must be super user to execute *ups_mond*.
CAUSE	An attempt was made to start *ups_mond* without super user capability.
ACTION	*ups_mond* is designed to be started from **/etc/inittab** by *init*, which is super user.

MESSAGE	`ups_mond: exiting; unable to lock process in memory: <error number>`
SEVERITY	Error.
MEANING	An attempt to lock failed.
CAUSE	The specific cause is denoted by the <error number> in the message.
ACTION	Call the Response Center.

Exit ups_mond Daemon Messages (Continued):

MESSAGE	`ups_mond: aborted, configfile <filename> open received error: <error number>`
SEVERITY	Error.
MEANING	Could not open the *ups_mond* configuration file.
CAUSE	The specific cause is denoted by the <error number> in the message.
ACTION	Ensure that the configuration file named in the message exists, and is readable.

MESSAGE	`ups_mond: aborted, configfile <filename> fseek error: <error number>`
SEVERITY	Error.
MEANING	*ups_mond* could not "seek" through the configuration file due to the cause denoted by the <error number> in the messages.
CAUSE	File system problem.
ACTION	Call the Response Center.

MESSAGE	`ups_mond: terminated by signal <decimal value>`
SEVERITY	Information.
MEANING	The signal received by *ups_mond* caused termination.
CAUSE	The signal denoted by <decimal value> in the message was received. The most common cause is a **kill** of the *ups_mond* process.
ACTION	None, if done on purpose.

MESSAGE	`ups_mond: aborted, malloc error: <error number>`
SEVERITY	Information.
MEANING	A memory allocation error caused termination.
CAUSE	The memory allocation error denoted by <error number> in the message caused the *ups_mond* process to terminate.
ACTION	Call the Response Center.

shutdown(1M) Messages

The messages in this section may precede an */etc/shutdown(1M)* attempt, depending on the particular PowerTrust configuration in the system.

MESSAGE	`ups_mond: UPS <tty special file name> AC POWER FAILURE - running on UPS battery`
SEVERITY	Warning. AC power failure. The PowerTrust unit is supplying battery reserve power for up to a maximum of 15 minutes, after which critical PowerTrust units will cause a graceful shutdown of the system.
MEANING	The PowerTrust device configured as <tty special filename> informed the UPS Monitor that its AC input power has failed. The PowerTrust unit is now supplying reserve power from its internal battery. Depending on the battery's state of charge, there are from 0 to 15 minutes of full-load reserve power available before the AC output from the PowerTrust unit shuts off.
CAUSE	AC source power failure, detected by a PowerTrust unit.
ACTION	Locate the AC power source for the PowerTrust unit reporting the power failure, and try to restore power before the PowerTrust battery becomes exhausted. If this is an isolated, brief power transient failure, no action is needed; the system will recover automatically when AC power returns to normal.

MESSAGE	`If power is not returned within previously configured time period, your system will automatically go to graceful shutdown.`
SEVERITY	Warning. Critical (not MSG-ONLY) PowerTrust units have lost AC power.
MEANING	One or more critical PowerTrust units are supplying reserve power from their internal batteries. If power has not been restored (after the delay specified in the configuration file), a graceful shutdown of the system will occur.
CAUSE	Loss of AC power to one or more critical PowerTrust units.
ACTION	Restore AC power source for PowerTrust units reporting power failure. Otherwise, allow shutdown of system to occur.

reboot(2) Messages

The messages in this section may precede a *reboot(2)*, depending on the particular PowerTrust configuration in the system.

MESSAGE	`ups_mond: UPS <tty special file name> battery low`
SEVERITY	Critical. The system is operating on insufficient reserve power.
MEANING	The PowerTrust device configured as <tty special file name> informed the UPS Monitor that while it was operating on its internal battery to supply reserve power, the battery drained down to a state of low charge. The PowerTrust unit has only about two minutes of battery power remaining, after which the PowerTrust output power will fail. If the specified PowerTrust unit is a critical PowerTrust unit, then the system will reboot.
CAUSE	The PowerTrust unit detected a loss of AC power, and switched over to its internal battery reserve power to supply power to the system. The battery then drained down to the point at which a "low charge" condition was detected, or the battery had already been depleted by a previous AC power failure, and had not had enough time to recharge.
ACTION	Locate the AC power loss problem, and restore that power to the system before the battery becomes exhausted.

MESSAGE	`ups_mond: UPS <tty special file name> no output - either switch setting wrong on UPS or bad UPS`
SEVERITY	Critical. No power output from the PowerTrust device configured as <tty special file name>.
MEANING	No output voltage from PowerTrust unit. If the specified PowerTrust unit is a critical PowerTrust unit, then the system will reboot.
CAUSE	The cause may be one of the following: 1. The **Output** switch setting on the PowerTrust unit is incorrect, 2. The PowerTrust unit has been turned off programatically. 3. The PowerTrust unit is faulty.
ACTION	Toggle the **Output** switch on the suspect PowerTrust unit. If the output voltage is not restored by toggling the switch, replace the PowerTrust unit.

reboot(2) Messages (Continued):

MESSAGE	`ups_mond: UPS <tty special file name> failed - requires repair`
SEVERITY	Critical. PowerTrust hardware has failed, and PowerTrust output power has been lost. Some system component(s) now without power.
MEANING	The PowerTrust device configured as <tty special file name> is faulty. If the specified PowerTrust unit is a critical PowerTrust unit, then the system will reboot.
CAUSE	The PowerTrust unit is faulty.
ACTION	Replace the faulty PowerTrust unit.

MESSAGE	`ups_mond: UPS <tty special file name> current overload; UPS turned itself off - either UPS bad or too many devices connected`
SEVERITY	Critical. PowerTrust hardware has failed, and PowerTrust output power has been lost. Some system component(s) now without power.
MEANING	The PowerTrust device configured as <tty special file name> informed the UPS Monitor that it detected an excessive demand for output power from its AC power outlet (greater than 100% of allowable output power), and has consequently shut off its output.
CAUSE	Improper system installation has put too much load on the PowerTrust unit, or a hardware malfunction in the system equipment being powered by the PowerTrust unit has increased the power demand to the point of overload. If the specified PowerTrust unit is a critical PowerTrust unit, then the system will reboot.
ACTION	Correct the improper system hardware installation, or repair the faulty system hardware that is overloading the PowerTrust unit.

MESSAGE	`ups_mond: UPS <tty special file name> ambient temperature too high; UPS turned itself off - reduce heat in area`
SEVERITY	Critical. PowerTrust hardware has failed, and PowerTrust output power has been lost. Some system component(s) now without power.
MEANING	The PowerTrust device configured as <tty special file name> informed the UPS Monitor that it detected an excessive ambient temperature that makes further operation of the PowerTrust unit inadvisable, and has consequently shut off its output. If the specified PowerTrust unit is a critical PowerTrust unit, then the system will reboot.
CAUSE	The computer room became so hot that the operating temperature limit of the PowerTrust unit was exceeded.
ACTION	Reduce the temperature in the computer room.

reboot(2) Messages (Continued):

MESSAGE	`ups_mond: UPS <tty special file name> output voltage too high; UPS turned itself off - requires repair`
SEVERITY	Critical. PowerTrust hardware has failed, and PowerTrust output power has been lost. Some system component(s) now without power.
MEANING	The PowerTrust device configured as <tty special file name> informed the UPS Monitor that its output voltage is too high, making further operation of the PowerTrust unit inadvisable, and has consequently shut off its output. If the specified PowerTrust unit is a critical PowerTrust unit, then the system will reboot.
CAUSE	The PowerTrust unit is faulty.
ACTION	Replace the faulty PowerTrust unit.

MESSAGE	`ups_mond: UPS <tty special file name> output voltage too low; UPS turned itself off - requires repair`
SEVERITY	Critical. PowerTrust hardware has failed, and PowerTrust output power has been lost. Some system component(s) now without power.
MEANING	The PowerTrust device configured as <tty special file name> informed the UPS Monitor that its output voltage is too low for correct system operation, and has consequently shut off its output. If the specified PowerTrust unit is a critical PowerTrust unit, then the system will reboot.
CAUSE	The PowerTrust unit is faulty.
ACTION	Replace the faulty PowerTrust unit.

reboot(2) Messages (Continued):

MESSAGE	`ups_mond: cannot reboot due to <error number> returned by exec().`
SEVERITY	Error.
MEANING	A reboot system call failed.
CAUSE	The specific cause is denoted by the <error number> in the message.
ACTION	Call the Response Center.

MESSAGE	`ups_mond: cannot exec shutdown due to <error number> returned by exec().`
SEVERITY	Error.
MEANING	Cannot execute *shutdown* process.
CAUSE	The specific cause is denoted by the <error number> in the message.
ACTION	Ensure that *shutdown* exists in the /etc directory, and that it is executable.

Note

All of the **reboot(2)** messages will be followed by:

`ups_mond: reboot -halt invoked due to UPS error cited in previous syslog message.`

B

MPE/iX UPS Monitor Error Messages

Introduction

This appendix lists the messages that are generated by the UPS Monitor to report PowerTrust hardware status conditions that may require corrective action. The UPS Monitor subsystem monitors the conditions of all PowerTrust units on an MPE/iX system, and notifies the system operator via console messages of any PowerTrust alarm conditions and of system powerfails.

Warning

This chapter is intended for qualified service-trained personnel only. Actions to be taken in response to a given error message are intended to be performed only by service-trained personnel.

Note

The term "UPS" (Uninterruptible Power Source) is used in all error messages to refer to the PowerTrust unit. The term "UPS Monitor" refers to the software that monitors PowerTrust operation.

Power Status Messages

The following messages are displayed on the system console to report PowerTrust power status conditions.

MESSAGE	`UPS LDEV <nnn> reports loss of AC input power. (UPSERR 0033)`
CAUSE	The specified PowerTrust unit reported that it detected an input power failure; there has been an AC power failure somewhere in the power path leading into the unit. The PowerTrust unit has switched to its internal battery pack to supply reserve power.
ACTION	If the power failure is brief (not long enough to exhaust the PowerTrust battery), no action is needed. Otherwise, determine what is causing the power loss and restore the power before the PowerTrust battery becomes exhausted.

Power Status Messages (Continued):

MESSAGE	`UPS LDEV <nnn> reports AC input power "Bypass Mode". (UPSWRN 0035)`
CAUSE	The specified PowerTrust unit has been placed into its "AC Power Bypass Mode" of operation. This should only occur when the PowerTrust unit is being serviced, and the unit is intended to be put into "Bypass Mode". If this message occurs during normal system operation, there is probably a hardware problem in the PowerTrust unit.
ACTION	No action is needed if this message occurs during servicing of the PowerTrust unit. If this message occurs during normal system operation, replace the faulty PowerTrust unit.
MESSAGE	`UPS LDEV <nnn> reports AC input power restored. (UPSWRN 0036)`
CAUSE	The specified PowerTrust unit had lost its AC input power in the past, and now the AC input power has been restored. If the PowerTrust unit is operating correctly, it will now switch from battery operation back to normal AC power operation.
ACTION	No action is needed. The system automatically returns to normal operation when all PowerTrust units (there may be one or several units in a system) detect that normal AC input power is present following a power loss at any PowerTrust unit.
MESSAGE	`UPS LDEV <nnn> reports "Low Battery Charge" condition. (UPSWRN 0037)`
CAUSE	The specified PowerTrust unit had lost its AC input power some time ago and has been supplying reserve power from its battery. AC input power has not been restored yet, causing the battery to be drained down to a "low charge" power level.
ACTION	Locate and correct the cause of the AC power failure. If AC power is not restored within the next two minutes, the PowerTrust battery will be exhausted, and output AC power from the PowerTrust unit will fail, causing power loss to the computer equipment.
MESSAGE	`UPS LDEV <nnn> reports AC output power turned off. (UPSERR 0041)`
CAUSE	The specified PowerTrust unit has turned off its AC output power. Someone may have mistakenly turned off the PowerTrust unit's power switch, or the PowerTrust unit may have malfunctioned. Whatever equipment was receiving power from the PowerTrust unit has now lost power.
ACTION	Investigate and correct the problem at the PowerTrust unit. Turn on all power control switches on the PowerTrust unit. If the computer (SPU) lost power, you will have to reboot the system after restoring the PowerTrust unit power.

Alarm Status Messages

The following messages are displayed on the system monitor to report PowerTrust alarm status conditions.

MESSAGE	`UPS LDEV <nnn> reports UPS "System Fail" condition. (UPSERR 0192)`
CAUSE	The specified PowerTrust unit reported a PowerTrust "System Failure" condition. This is a hardware malfunction condition within the PowerTrust unit.
ACTION	Replace the faulty PowerTrust unit.
MESSAGE	`UPS LDEV <nnn> reports UPS "Inverter Fail" condition. (UPSERR 0193)`
CAUSE	The specified PowerTrust unit reported an "Inverter Fail" condition. This is a hardware malfunction condition within the PowerTrust unit. The DC-to-AC power inverter within the PowerTrust unit has malfunctioned.
ACTION	Replace the faulty PowerTrust unit.
MESSAGE	`UPS LDEV <nnn> reports UPS "Battery Not Present" condition. (UPSERR 0194)`
CAUSE	The specified PowerTrust unit reported a "Battery Not Present" condition. This is a hardware malfunction condition within the PowerTrust unit. The PowerTrust unit hardware logic perceives that the PowerTrust battery pack is not connected.
ACTION	Replace the faulty PowerTrust unit.
MESSAGE	`UPS LDEV <nnn> reports UPS "Charger Fault" condition. (UPSERR 0195)`
CAUSE	The specified PowerTrust unit reported a "Charger Fault" condition. This is a hardware malfunction condition within the PowerTrust unit. The PowerTrust unit's internal battery charger circuitry has malfunctioned.
ACTION	Replace the faulty PowerTrust unit.

Alarm Status Messages (Continued):

MESSAGE	`UPS LDEV <nnn> reports UPS "Overload Shutdown" condition. (UPSERR 0196)`
CAUSE	The specified PowerTrust unit reported an "Overload Shutdown" condition. Too much power was being drawn from the PowerTrust unit AC output by the computer equipment being powered from this PowerTrust unit. An improper system installation has put too much load on the PowerTrust unit, or the computer equipment being powered may be malfunctioning.
ACTION	1. Reduce the load on the PowerTrust unit by powering off some non-critical system component. 2. Check for an improper system hardware installation. Correct the system installation to reduce the loading on the PowerTrust unit. 3. If the system installation is not the problem, find and replace the faulty system hardware component that is overloading the PowerTrust unit.
MESSAGE	`UPS LDEV <nnn> reports UPS "High Ambient Temperature Shutdown" condition. (UPSERR 0197)`
CAUSE	The specified PowerTrust unit reported a "High Ambient Temperature Shutdown" condition. The temperature of the PowerTrust unit hardware became too high to permit safe operation, and the PowerTrust unit turned itself off to prevent equipment damage. The computer room temperature is too high, or there may be a hardware malfunction in the PowerTrust unit.
ACTION	If the computer room has become too warm, take steps to cool the room. If room temperature is not the problem, then replace the faulty PowerTrust unit.
MESSAGE	`UPS LDEV <nnn> reports UPS "Overload" condition. (UPSERR 0198)`
CAUSE	The specified PowerTrust unit reported an "Overload" condition. The equipment being powered by the PowerTrust unit is drawing too much power from the PowerTrust unit AC output. If the excessive power draw continues, the PowerTrust unit may reach an "Overload Shutdown" condition.
ACTION	1. Reduce the load on the PowerTrust unit by powering off some non-critical system component. 2. Check for an improper system hardware installation. Correct the system installation to reduce the loading on the PowerTrust unit. 3. If the system installation is not the problem, find and replace the faulty system hardware component that is overloading the PowerTrust unit.

Alarm Status Messages (Continued):

MESSAGE	`UPS LDEV <nnn> reports UPS "High Ambient Temperature" condition. (UPSERR 0199)`
CAUSE	The specified PowerTrust unit reported a "High Ambient Temperature" condition. The PowerTrust unit has detected an abnormally high temperature in the PowerTrust unit hardware. If the temperature rises further, the PowerTrust unit may reach a "High Ambient Temperature Shutdown" condition. The computer room temperature is too high, or there may be a hardware malfunction in the PowerTrust unit.
ACTION	If the computer room has become too warm, take steps to cool the room. If room temperature is not the problem, then replace the faulty PowerTrust unit.

MESSAGE	`UPS LDEV <nnn> reports UPS "Battery Test Fail" condition. (UPSERR 0200)`
CAUSE	The specified PowerTrust unit reported a "Battery Test Fail" condition. This is a hardware malfunction within the PowerTrust unit hardware. The PowerTrust unit logic perceives that the PowerTrust unit battery is not working properly.
ACTION	Replace the faulty PowerTrust unit.

MESSAGE	`UPS LDEV <nnn> reports UPS "High Battery Voltage" condition. (UPSERR 0201)`
CAUSE	The specified PowerTrust unit reported a "High Battery Voltage" condition. This is a hardware malfunction within the PowerTrust unit hardware. The PowerTrust unit logic perceives that the PowerTrust unit battery is not working properly.
ACTION	Replace the faulty PowerTrust unit.

MESSAGE	`UPS LDEV <nnn> reports UPS "Low Battery Voltage" condition. (UPSERR 0202)`
CAUSE	The specified PowerTrust unit reported a "Low Battery Voltage" condition. This is a hardware malfunction within the PowerTrust unit hardware. The PowerTrust unit logic perceives that the PowerTrust unit battery is not working properly.
ACTION	Replace the faulty PowerTrust unit.

Alarm Status Messages (Continued):

MESSAGE	`UPS LDEV <nnn> reports UPS "High Output Voltage Shutdown" condition. (UPSERR 0203)`
CAUSE	The specified PowerTrust unit reported a "High Output Voltage Shutdown" condition. This is a hardware malfunction within the PowerTrust unit hardware or possibly in the equipment being powered from the PowerTrust unit. The PowerTrust unit has shut itself off.
ACTION	1. Check the equipment being powered. 2. If the equipment being poweredis not the problem, replace the faulty PowerTrust unit.
MESSAGE	`UPS LDEV <nnn> reports UPS "Low Output Voltage Shutdown" condition. (UPSERR 0204)`
CAUSE	The specified PowerTrust unit reported a "Low Output Voltage Shutdown" condition. This is a hardware malfunction within the PowerTrust unit hardware or possibly in the equipment being powered from the PowerTrust unit. The PowerTrust unit has shut itself off.
ACTION	1. Check the equipment being powered. 2. If the equipment being poweredis not the problem, replace the faulty PowerTrust unit.
MESSAGE	`UPS Monitor UPS error: Lost communications with UPS LDEV <nnn>. That UPS is no longer being monitored. (UPSERR 0512)`
CAUSE	The UPS Monitor had been monitoring the specified PowerTrust unit LDEV successfully, then for some reason lost I/O communications with that PowerTrust unit. The I/O interface cable or I/O interface hardware may have failed, or the PowerTrust unit itself may have failed.
ACTION	1. Check the specified PowerTrust unit's I/O interface cable and I/O interface connection at the computer. 2. Check the PowerTrust unit hardware for power connections and front panel indicators.
MESSAGE	`UPS Monitor UPS error: Unable to start monitoring on UPS Ldev <nnn> due to File System error in finding or opening the device. (UPSWRN 0587)`
CAUSE	This is a software-detected error condition that indicates an error in the UPS Monitor software or in some other system software, or a system memory error.
ACTION	Call the Response Center.

Alarm Status Cleared Messages

The following messages are displayed on the system monitor to report that an alarm status condition has been cleared, and the PowerTrust (UPS) has returned to normal operation.

MESSAGE	`UPS LDEV <nnn> reports UPS "System Fail" condition cleared. (UPSWRN 0128)`
CAUSE	Some time ago, the specified PowerTrust unit had reported a "System Failure" condition. Now, the "System Failure" condition within the PowerTrust unit device has been corrected, and the PowerTrust unit is reporting that it has returned to normal operation.
ACTION	No action is needed. This message merely confirms that a previously reported problem has been corrected.

MESSAGE	`UPS LDEV <nnn> reports UPS "Inverter Fail" condition cleared. (UPSWRN 0129)`
CAUSE	Some time ago, the specified PowerTrust unit had reported a "Inverter Failure" condition. Now, the "Inverter Failure" condition within the PowerTrust unit has been corrected, and the PowerTrust unit is reporting a return to normal operation.
ACTION	No action is needed. This message merely confirms that a previously reported problem has been corrected.

MESSAGE	`UPS LDEV <nnn> reports UPS "Battery Not Present" condition cleared. (UPSWRN 0130)`
CAUSE	Some time ago, the specified PowerTrust unit had reported a "Battery Not Present" condition. Now, the "Battery Not Present" condition within the PowerTrust unit has been corrected, and the PowerTrust unit is reporting that it has returned to normal operation.
ACTION	No action is needed. This message merely confirms that a previously reported problem has been corrected.

Alarm Status Cleared Messages (Continued):

MESSAGE	`UPS LDEV <nnn> reports UPS "Charger Fault" condition cleared. (UPSWRN 0131)`
CAUSE	Some time ago, the specified PowerTrust unit had reported a "Charger Fault" condition. Now, the "Charger Fault" condition within the PowerTrust unit has been corrected, and the PowerTrust unit is reporting that it has returned to normal operation.
ACTION	No action is needed. This message merely confirms that a previously reported problem has been corrected.
MESSAGE	`UPS LDEV <nnn> reports UPS "Overload Shutdown" condition cleared. (UPSWRN 0132)`
CAUSE	Some time ago, the specified PowerTrust unit had reported an "Overload Shutdown" condition. Now, the "Overload Shutdown" condition within the PowerTrust unit has been corrected, and the PowerTrust unit is reporting a return to normal operation.
ACTION	No action is needed. This message merely confirms that a previously reported problem has been corrected.
MESSAGE	`UPS LDEV <nnn> reports UPS "High Ambient Temperature Shutdown" condition cleared. (UPSWRN 0133)`
CAUSE	Some time ago, the specified PowerTrust unit had reported a "UPS High Ambient Temperature Shutdown" condition. Now, the "High Ambient Temperature Shutdown" condition has been corrected, and the PowerTrust unit is reporting a return to normal operation.
ACTION	No action is needed. This message merely confirms that a previously reported problem has been corrected.
MESSAGE	`UPS LDEV <nnn> reports UPS "Overload" condition cleared. (UPSWRN 0134)`
CAUSE	Some time ago, the specified PowerTrust unit had reported a "Overload" condition. Now, the PowerTrust unit "Overload" condition has been corrected, and the PowerTrust unit is reporting that it has returned to normal operation.
ACTION	No action is needed. This message merely confirms that a previously reported problem has been corrected.

Alarm Status Cleared Messages (Continued):

MESSAGE	`UPS LDEV <nnn> reports UPS "High Ambient Temperature" condition cleared. (UPSWRN 0135)`
CAUSE	Some time ago, the specified PowerTrust unit had reported a "High Ambient Temperature" condition. Now, the "High Ambient Temperature" condition has been corrected, and the PowerTrust unit is reporting that it has returned to normal operation.
ACTION	No action is needed. This message merely confirms that a previously reported problem has been corrected.

MESSAGE	`UPS LDEV <nnn> reports UPS "Battery Test Fail" condition cleared. (UPSWRN 0136)`
CAUSE	Some time ago, the specified PowerTrust unit had reported a "Battery Test Fail" condition. Now, the "Battery Test Fail" condition within the PowerTrust unit has been corrected, and the PowerTrust unit is reporting a return to normal operation.
ACTION	No action is needed. This message merely confirms that a previously reported problem has been corrected.

MESSAGE	`UPS LDEV <nnn> reports UPS "High Battery Voltage" condition cleared. (UPSWRN 0137)`
CAUSE	Some time ago, the specified PowerTrust unit had reported a "High Battery Voltage" condition. Now, the "High Battery Voltage" condition in the PowerTrust unit has been corrected, and the PowerTrust unit is reporting a return to normal operation.
ACTION	No action is needed. This message merely confirms that a previously reported problem has been corrected.

MESSAGE	`UPS LDEV <nnn> reports UPS "Low Battery Voltage" condition cleared. (UPSWRN 0138)`
CAUSE	Some time ago, the specified PowerTrust unit had reported a "Low Battery Voltage" condition. Now, the "Low Battery Voltage" condition in the PowerTrust unit has been corrected, and the PowerTrust unit is reporting a return to normal operation.
ACTION	No action is needed. This message merely confirms that a previously reported problem has been corrected.

Alarm Status Cleared Messages (Continued):

MESSAGE	`UPS LDEV <nnn> reports UPS "High Output Voltage Shutdown" condition cleared. (UPSWRN 0139)`
CAUSE	Some time ago, the specified PowerTrust unit had reported a "High Output Voltage Shutdown" condition. Now, the "High Output Voltage Shutdown" condition has been cleared, and the PowerTrust unit is reporting a return to normal operation.
ACTION	No action is needed. This message merely confirms that a previously reported problem has been corrected.

MESSAGE	`UPS LDEV <nnn> reports UPS "Low Output Voltage Shutdown" condition cleared. (UPSWRN 0140)`
CAUSE	Some time ago, the specified PowerTrust unit had reported a "Low Output Voltage Shutdown" condition. Now, the "Low Output Voltage Shutdown" condition has been corrected, and the PowerTrust unit is reporting a return to normal operation.
ACTION	No action is needed. This message merely confirms that a previously reported problem has been corrected.

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Systems Technology Division

HP Model A2941A
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Edition 3 Manual Part Number 5961-8383 January 1994

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