

# SPRINTPACK™ Li-Ion Power System

## *Operator's Manual*



P/N 18415-001 Rev. D

## Revision History

Revision Level	Revision Date
Rev. A ECO 5007	11/2/07
Rev. B ECO 5217	7/17/08
Rev. C ECO 6139	09/30/09
Rev. D ECO 6308	05/05/10

## *Contact Information*

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## *Notice To Operators*

**Unsafe Operation** - Operating the SprintPack Li-Ion Power System without a complete and thorough understanding of its attributes is unsafe. It is important that this manual be read and understood in its entirety before operating the SprintPack Li-Ion Power System.

**Warnings and Cautions Section** - Read the section on **Warnings and Cautions** carefully before operating the SprintPack Li-Ion Power System.

**Use and Maintenance** - Any questions regarding installing, operating, or maintaining the SprintPack Li-Ion Power System, should be directed to CareFusion.

## Warranty

The SprintPack Li-Ion Power System, a CareFusion product, is warranted to be free of defects in material and workmanship for a period of six months from the date of purchase.

CareFusion will, at its discretion, either repair, replace, or issue credit for products that prove to be defective during the warranty period.

For warranty service or repair, the product must be returned to CareFusion, shipping prepaid by the Buyer.

### LIMITATION OF WARRANTY

Normal maintenance, as specified in the SprintPack Li-Ion Power System Operator's Manual, is not covered under the foregoing warranty.

The foregoing warranty does not apply to defects resulting from:

- 1) Improper or inadequate maintenance of the unit.
- 2) Improper use or misuse of the unit.
- 3) Unauthorized modifications or repair to the unit.
- 4) Use of the unit with unauthorized accessories.
- 5) Operation of the unit outside the specified environment.

### LIMITATION OF LIABILITY

CareFusion shall not be liable for loss of profits, loss of use, consequential damages, or any other claim based on breach of warranty. CareFusion's liability for damages of any kind shall be limited to the purchase price of the defective unit.

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## Chapter 1 - INTRODUCTION

This manual describes how to set up and operate the SprintPack Li-Ion Power System, and contains what you need to know to perform the following:

- Recharge the SprintPack Batteries using approved power sources
- Power an LTV<sup>®</sup> Ventilator using the SprintPack Li-Ion Power System
- Perform simple troubleshooting on the SprintPack Li-Ion Power System

For service tests and major maintenance operations, contact CareFusion.

### Operator's Safety Information

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All Operators are to read and understand the following information about **Warning**, **Caution**, and **Note** statements before operating the LTV<sup>®</sup> SprintPack Li-Ion Power System.

#### **WARNING**

“**Warning**” statements alert the reader to potentially hazardous situations which, if not avoided, could result in death or serious injury.

#### **CAUTION**

“**Caution**” statements alert the user to potentially hazardous situations which, if not avoided, could result in equipment damage.

#### **NOTE**

“**Note**” statements contain additional information to assist in the proper operation of the SprintPack Li-Ion Power System.

## Warnings

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These warnings apply any time you handle or operate the SprintPack Li-Ion Power System.

### **WARNING**

- **LTV® Ventilator power input** - The LTV® Ventilator accepts approved power sources with a voltage rating of 11 – 15 Volts DC (VDC). Do not apply more than 15 VDC to an LTV® Ventilator, as damage to internal components may occur.
- **Read instructions** - Before operating the SprintPack Li-Ion Power System, read all instructions, warnings, cautions, and notes.
- **Risk of electric shock** - To reduce the risk of electrical shock and damage to the SprintPack Li-Ion Power System, do not expose it to snow, rain, or liquid of any kind. Do not operate the SprintPack Li-Ion Power System if any part has been dropped or damaged in any way. Contact CareFusion for service or support.
- **Unauthorized repairs** - Do not disassemble the SprintPack Li-Ion Power System, or any connectors, or use the SprintPack Li-Ion Power System if any piece is damaged. Do not try to repair any part of the SprintPack Li-Ion Power System. Contact CareFusion for service or support.
- **Disconnect before cleaning** - To reduce the risk of electrical shock, always disconnect the SprintPack Li-Ion Power System from the ventilator and/or input power source before cleaning.
- **Alternate power supply** - It is recommended that an alternative means of supplying external power to the ventilator be available at all times.

## Cautions

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These cautions apply any time you handle or operate the SprintPack Li-Ion Power System.

### CAUTION

- **Unauthorized accessories** - Do not use parts or accessories unless they have been authorized for use with the SprintPack Li-Ion Power System. Using unauthorized parts or accessories may damage the SprintPack Li-Ion Power System and void the warranty.
- **Positioning of equipment** - Do not position the SprintPack Li-Ion System, power source or any cord in a way that it may be tripped over, stepped on, or dislodged from other equipment.
- **Possible damage to the LTV® SprintPack** - Never lift or handle the SprintPack Li-Ion System by its power cords. Damage to the SprintPack Li-Ion Power System could result.
- **Connecting to the ventilator** - When connecting the SprintPack Li-Ion Power System to the ventilator, use only the approved method and connectors specified in this *LTV® SprintPack Operator's Manual*.
- **Cleaning agents** - Do not use cleaning agents that contain phenols, ammonium chloride, chloride compounds, or more than 2% glutaraldehyde. These agents may damage plastic components.
- **Harsh abrasives** - Do not use harsh abrasives when cleaning the SprintPack Li-Ion Power System as they may damage the components. Clean the batteries and Power Manager with a damp, lint free cloth.
- **Immersion in liquids** - Do not immerse the SprintPack Li-Ion Power System in liquid sterilizing agents or liquids of any kind.
- **Safe handling of chemicals** - Check with the manufacturer of all cleaning chemicals to ensure safe handling procedures are followed.

# Symbols

Symbol	Compliance <sup>1</sup>	Title	Application
	ISO 3864 (Prev. IEC 348) Symbol No. B.3.1	Caution (refer to accompanying documents)	Used to direct the user to the instruction manual where it is necessary to follow certain specified instructions where safety is involved.
		Operating Temperature	SprintPack Li-Ion Power System operating temperature. (5° C to 40° C)
	WEEE Directive 2002/96/EC	Waste Container	To identify Waste Electrical and Electronic Equipment (WEEE) that is not to be disposed of as unsorted municipal waste and is to be collected separately.
	No. 417-IEC-5031	Direct Current	Indicates that the equipment is suitable for direct current.

<sup>1</sup> Reference *IEC Medical Electrical Equipment, 2<sup>nd</sup>. Edition 1988*

## Notices

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The SprintPack Li-Ion Power System may emit and receive electromagnetic interference. Avoidance of this exposure is recommended whenever possible.



European Regulatory Requirements per 93/42/EEC Medical Device Directives

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CareFusion's European Representative for vigilance reporting within the European Community is:

**CareFusion Respiratory Systems GMBH**

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97204 Hoechberg, Germany

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Any product malfunctioning issues that fall under Medical Device Directives Essential Requirements should be directed to CareFusion Respiratory Systems GMBH.



The SprintPack Li-Ion Power System is a portable, rechargeable external power source and charger for the CareFusion line of LTV<sup>®</sup> Ventilators. The SprintPack Li-Ion Power System consists of two batteries and one Power Manager.

The SprintPack Li-Ion Power System offers the following features:

- A comprehensive package that provides up to five hours of mobile power for the LTV<sup>®</sup> Ventilator
- Easy set-up, operation, and maintenance
- Two rechargeable 6.6 amp-hr, sealed, no-maintenance SprintPack Batteries
- SprintPack Power Manager for recharging the batteries and providing power to an LTV<sup>®</sup> Ventilator

### Principles of Operation

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The SprintPack Li-Ion Power System accepts approved power sources (see Table 4.1 for list of approved power sources) to recharge the batteries and provide an external power source to an LTV<sup>®</sup> Ventilator.

The SprintPack Li-Ion Power System utilizes a Power Manager to recharge and hold the SprintPack batteries. The Power Manager has an automatic charging control circuit that will recharge the batteries and provide external power to an LTV<sup>®</sup> Ventilator when an approved power source is connected.

The SprintPack Li-Ion Power System may also be used as a portable external power source using the included batteries.

- When the input to the Power Manager is 11 – 29 Volts DC (VDC), power output to an LTV<sup>®</sup> Ventilator will be 15 VDC.
- When the input to the Power Manager is less than 11 VDC, the LTV<sup>®</sup> Ventilator is powered using the SprintPack Batteries inserted in the Power Manager. When two SprintPack Batteries are present, the battery with the lower charge level will be used first. When the first battery becomes depleted, the SprintPack Power Manager automatically switches to the second battery to maintain a constant power output until both batteries are depleted.

## Intended Use

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The SprintPack Li-Ion Power System is a portable, easy to operate, and reusable extended power source for the LTV<sup>®</sup> Ventilator. It is intended to enhance the versatility of the already mobile LTV<sup>®</sup> Ventilator to provide support for the care of individuals who require mechanical ventilation.

The SprintPack Li-Ion Power System and LTV<sup>®</sup> Ventilator are suitable for use in institutional, home care, and transport settings.

## Getting Assistance

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If a problem occurs while operating the SprintPack Li-Ion Power System or if you require additional information, contact CareFusion at:

### **CareFusion Respiratory Systems**

22745 Savi Ranch Parkway  
Yorba Linda, California 92887-4645, USA

Phone: 763.398.8500

Customer Care Center: 800.754.1914

Fax: 763.398.8403

Email: [ltvservice@carefusion.com](mailto:ltvservice@carefusion.com)

Website: [www.carefusion.com](http://www.carefusion.com)

## Chapter 3 - SPRINTPACK ACCESSORIES

This section describes the SprintPack Li-Ion Power System Accessories.

Description	Packaged Assembly P/N
SprintPack Operator's Manual	18415-001
SprintPack Battery	19444-001
SprintPack Power Manager	19333-001
Transport Pack for SprintPack (optional accessory)	19102-001
SprintPack LTV <sup>®</sup> Floor Stand Mount (optional accessory)	19096-001

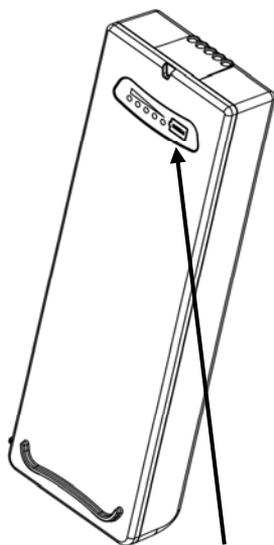
### SprintPack Battery (P/N 19444-001)

An electronic **Charge Status Indicator** located on the battery consists of five LEDs and displays the charge level.

The charge level is displayed for a brief period under the following conditions:

- When the **TEST** button is pressed
- When a battery is initially inserted into the SprintPack Power Manager
- When power is applied to or removed from the Power Manager input

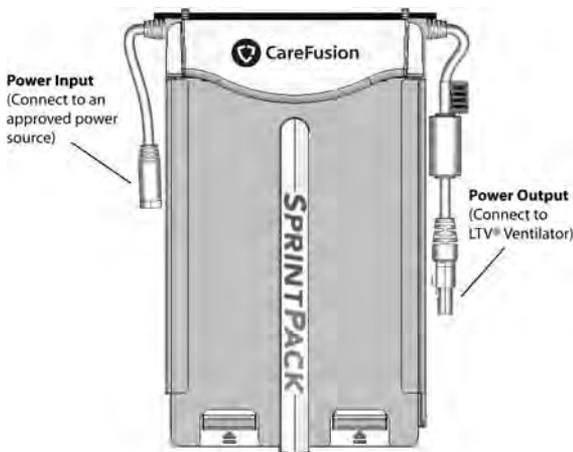
The battery is a Lithium Ion type battery and does not need to be completely discharged prior to recharging.



**Charge Status Indicator**

## SprintPack Power Manager (P/N 19333-001)

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The SprintPack Power Manager holds two batteries.

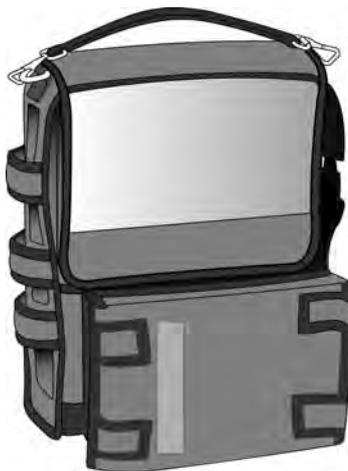
The Power Manager has two pigtail connectors. One is used to connect an input power source and the other is connected to the LTV<sup>®</sup> Ventilator as an external power source.

The SprintPack Power Manager accepts approved power sources at the **Power Input** connector. (See Table 4.1 for list of approved power sources.)

## Transport Pack (P/N 19102-001)

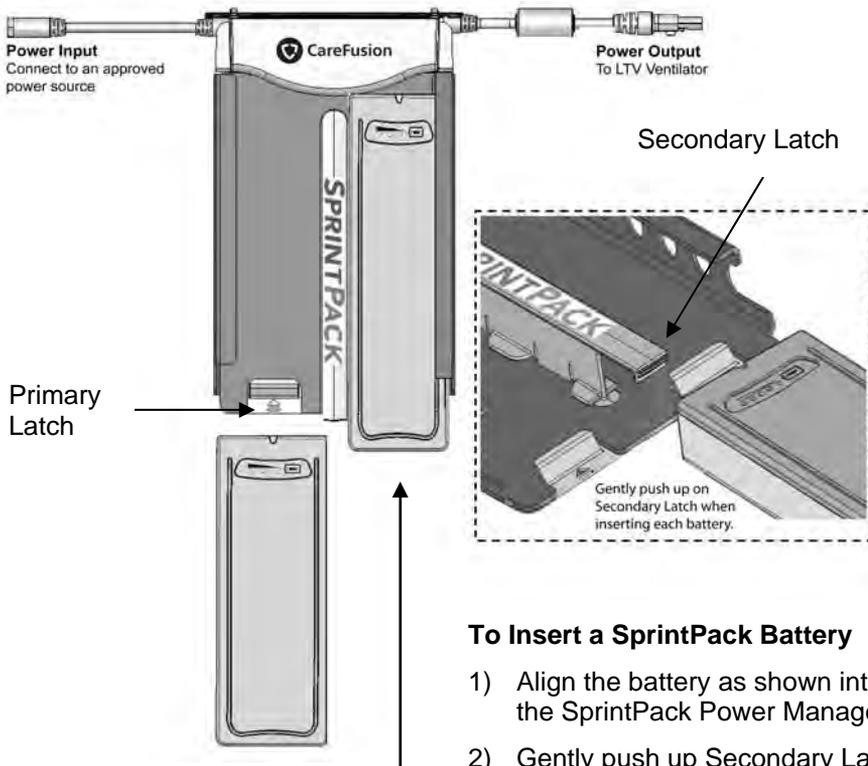
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The Transport Pack accommodates the LTV<sup>®</sup> Ventilator with protective boots attached. It also includes an external pouch for the SprintPack Li-Ion System, a shoulder strap, a hand strap, D-rings, and a bed rail attachment.



This section explains how to insert the batteries into the Power Manager and provides a list of approved power sources to power the SprintPack Li-Ion Power System.

## Inserting / Removing SprintPack Batteries



### To Insert a SprintPack Battery

- 1) Align the battery as shown into the SprintPack Power Manager.
- 2) Gently push up Secondary Latch and slide the battery into the Power Manager. The battery will "click" when it is locked in place.

### To Remove a SprintPack Battery

Simultaneously push down on Primary Latch and gently push up on Secondary Latch, then slide battery out.

## Powering the SprintPack Li-Ion Power System

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Connect an approved power source to the **Power Input** connector on the Power Manager.

**Table 4.1** SprintPack Approved Power Sources

Description	Part Number
AC Power Adapter	11448
External Battery Kit, 9 hr	10800
External Battery Kit, 3 hr	10900
Universal Power Supply (UPS)	14546-001
Automotive Lighter Power Cord <sup>2</sup>	11544
External Battery DC Cord Set <sup>2</sup>	10802

When an approved power source is connected, the SprintPack Batteries will begin to charge (unless 100% charged).

### NOTE

**Charging time** - The charging time for the SprintPack Batteries varies depending on the power capability of the approved input power source used. Utilize the LTV<sup>®</sup> AC power adapter for best charge time results.

### WARNING

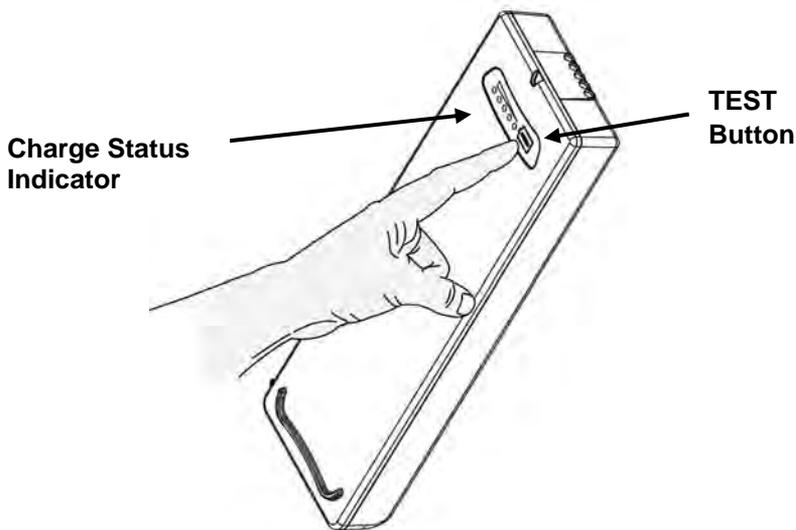
**LTV<sup>®</sup> Ventilator power input** - The LTV<sup>®</sup> Ventilator accepts approved power sources with a voltage rating of 11 – 15 Volts DC (VDC). Do not apply more than 15 VDC to an LTV<sup>®</sup> Ventilator as damage to internal components may occur.

<sup>2</sup> Connected to a DC power source with 11 – 29 Volts DC (VDC).

## Battery Charge Level

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The LED **Charge Status Indicator** displays the charge level of each battery. The charge level may be checked at any time by pressing the **TEST** button and reading the number of illuminated LEDs. Each LED indicates approximately 20% of the charge level. All five LEDs will illuminate when the Battery has 81 – 100% power capacity. (See Table 4.2 for more information.)

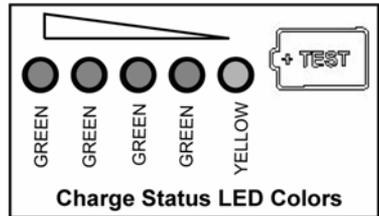


- After a battery is inserted into the Power Manager, wait a minimum of five (5) seconds for the Power Manager to verify an approved power source is present. After this automatic verification, the LED display on each battery will illuminate reflecting the current level of charge. When a battery is being recharged, the LED indicating the current charge level will flash approximately one time per second (1 Hz).
- When a battery is fully charged (100% capacity), all five LEDs will illuminate for a brief period, and then extinguish.
- The 1<sup>st</sup> (yellow) LED will flash approximately two times per second (2 Hz), **without pressing the TEST button**, when the battery has 10% or less capacity while inserted in the SprintPack Power Manager.
- When two SprintPack Batteries are present, the battery with a lower charge level will be used first. When the first battery becomes depleted, the SprintPack Power Manager automatically switches to the second battery to maintain a constant power output until both batteries are depleted.

**Table 4.2** LED Charge Status Indicators

Battery LED Status	Displayed When:	Charge Level (%)
	Test button pressed, battery inserted into Power Manager Recharging	10% or less, Recharge Immediately (LED flashes at 2 Hz) Charge 0 - 20% Complete
	Test button pressed, battery inserted into power manager, power applied or removed at Power Input	11 - 20% Charge Remaining
	Recharging	Charge 21 - 40% Complete
	Test button pressed, battery inserted into power manager, power applied or removed at Power Input	21 - 40% Charge Remaining
	Recharging	Charge 41 - 60% Complete
	Test button pressed, battery inserted into power manager, power applied or removed at Power Input	41 - 60% Charge Remaining
	Recharging	Charge 61 - 80% Complete
	Test button pressed, battery inserted into power manager, power applied or removed at Power Input	61 - 80% Charge Remaining
	Recharging	Charge 81 - 100% Complete
	Test button pressed, battery inserted into Power Manager, power applied or removed at Power Input, Full charge	81 - 100% Charge Remaining

- = ON (FLASHING)
- = ON (STEADY)
- = OFF



## Expected Charge Time

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Battery charge time depends upon the level of discharge and ventilator settings. Generally, one battery should be fully recharged within three hours<sup>3</sup>. Two batteries should be fully recharged within five hours<sup>3</sup>. Charging two SprintPack Batteries simultaneously will result in a quicker charge time.

The charging time for the SprintPack Batteries varies depending on the power capability of the approved power source used.

### NOTE

**Charging time** - The specified charging time for the SprintPack Batteries is one full charge cycle from 0% to 95% capacity.

**Batteries above 80% charge level** - The Power Manager does not charge a battery that is at or above 80% charge level if the battery had not been removed from the Power Manager since the last use. This feature maximizes battery cycle life.

## Expected Number of Lifetime Cycles

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A **Cycle** is a full discharge of a battery followed by a full recharge. The cycle life (number of cycles) of each battery is determined by the depth of discharge each battery continually encounters along with storage or operating environment. A full cycle for each battery is from 95% to 0% capacity (discharge) then recharged from 0% to 95% capacity (recharge).

Each SprintPack Battery has a lifetime of 400 cycles. After a battery has undergone 400 cycles, replace it with CareFusion SprintPack Battery, P/N 19444-001.

<sup>3</sup> Utilize the LTV<sup>®</sup> AC power adapter for best charge time results.

## Expected Battery Duration

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Several factors affect the cycle life of each battery, including temperature, length of storage, ventilator settings, and the amount of discharge during each cycle. Each SprintPack Battery has a normal operating time of two and one half (2.5) hours (five (5) hours using two batteries) from a 100% charge to a full discharge based on nominal ventilator settings (see *LTV<sup>®</sup> Ventilator Operator's Manual* for Nominal Settings information).

**When not in use remove the SprintPack Batteries from the Power Manager.** This will prevent unintended discharge.

## Battery Disposal

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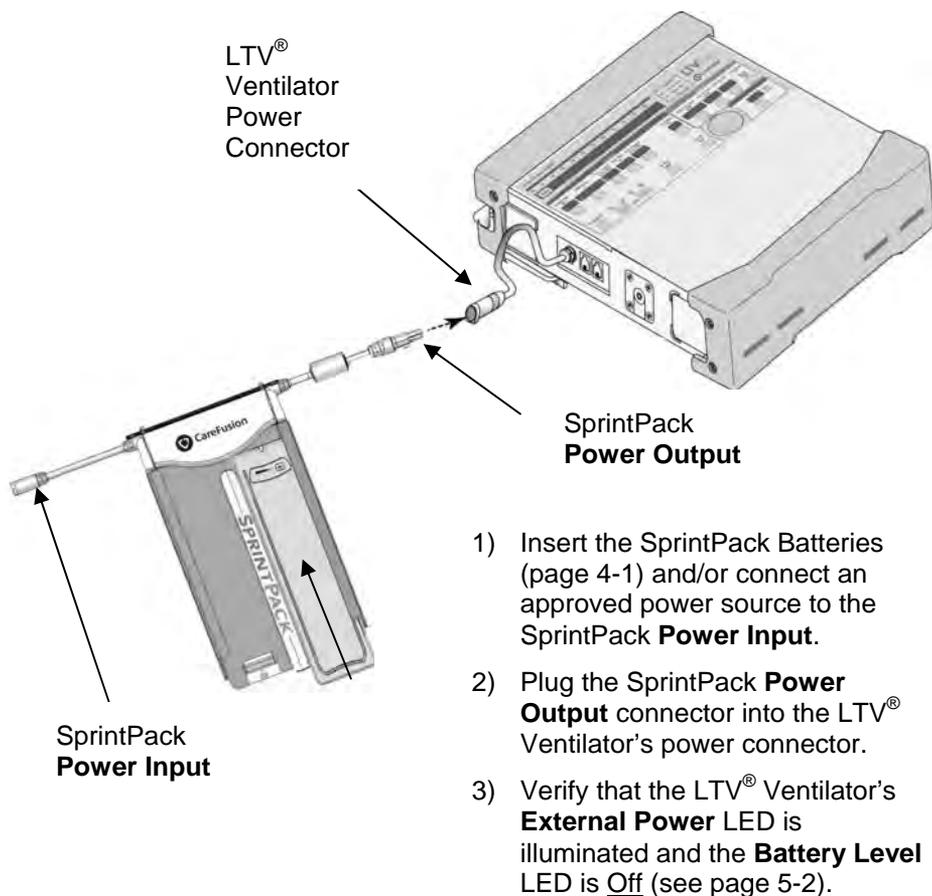
The SprintPack Batteries are Lithium Ion type batteries. Some jurisdictions consider these batteries hazardous materials subject to special disposal regulations. Contact the proper agency for information on permissible methods of disposing of used batteries.

## Chapter 5 - POWERING THE LTV<sup>®</sup> VENTILATOR

This section explains how to power an LTV<sup>®</sup> Ventilator using the SprintPack Li-Ion Power System.

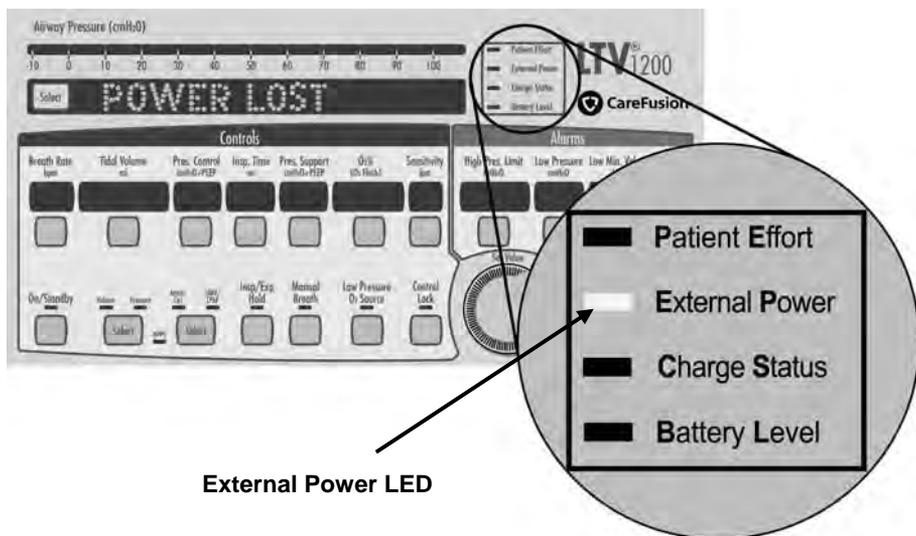
After inserting each SprintPack Battery into the Power Manager and/or connecting an approved input power source to the SprintPack **Power Input**, the SprintPack Li-Ion Power System is ready to act as an external DC power source for the LTV<sup>®</sup> Ventilator.

### Connecting the SprintPack to an LTV<sup>®</sup> Ventilator



## External Power and the LTV<sup>®</sup> Ventilator

When the SprintPack Li-Ion Power System is connected to the LTV<sup>®</sup> Ventilator, the proper LED indicators will appear on the ventilator's front panel. The SprintPack Li-Ion System is now powering the LTV<sup>®</sup> Ventilator.



**External Power LED**

- The front panel of the LTV<sup>®</sup> Ventilator provides an LED indication of power source and power status. With the external power source properly connected, the LTV<sup>®</sup> Ventilator's **External Power** LED will illuminate Green, indicating the ventilator is receiving power from a source other than its internal battery.
- As the external power source discharges, the terminal voltage will drop. The LTV<sup>®</sup> Ventilator will announce a **POWER LOW** alarm when the external power source (SprintPack output) voltage is less than 11.0V. The **External Power** LED will then illuminate Amber. This alarm occurs with approximately 5 – 25 minutes of LTV<sup>®</sup> Ventilator run time remaining on the SprintPack Li-Ion Power System.
- When the external power source (SprintPack output) is less than 9.5V, the LTV<sup>®</sup> Ventilator will automatically switch to the internal battery. The **POWER LOST** message will be displayed, the **External Power** LED will be Off, and the **Battery Level** LED will illuminate.

## NOTE

- The time between the LTV<sup>®</sup> Ventilator's **POWER LOW** Alarm and the **POWER LOST** Alarm is approximately 5 – 25 minutes. The ventilator automatically reverts to its internal battery when the SprintPack Li-Ion Power System is exhausted.
- The **Battery Level** LED will be off when operating from an external power source. This is because the **Battery Level** LED refers to the LTV<sup>®</sup> Ventilator's internal battery.
- The **Charge Status** LED on the LTV<sup>®</sup> Ventilator front panel refers to the internal battery, not the external power source.
- Refer to your *LTV<sup>®</sup> Ventilator Operator's Manual* for additional information including other **Charge Status** and **External Power** LED indications and alarms.
- The operator should keep a log of battery cycle life and recharge times in order to maintain an awareness of battery strength.
- **Batteries above 80% charge level** - The Power Manager does not charge a battery that is at or above 80% charge level if the battery had not been removed from the Power Manager since the last use. Remove and reinsert battery in the Power Manager to enable charging of a battery above 80% charge level.
- **When not in use, remove the batteries from the SprintPack Power Manager.** This will allow the batteries to hold their charge for the next time they are put to use.

## Battery Run Time

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One fully charged SprintPack Battery provides approximately two and one half (2.5) hours of run-time. Two fully charged SprintPack Batteries provide approximately five (5) hours of run time under nominal ventilator settings (see *LTV<sup>®</sup> Ventilator Operator's Manual* for Nominal Settings information).

The Power Manager remains an LTV<sup>®</sup> external power source if the batteries are not inserted, or they are removed from the Power Manager while an approved input power source is connected.



When disconnecting a power source from the SprintPack Power Manager or LTV<sup>®</sup> Ventilator, always depress the locking tab on the power pigtail connectors.

# Troubleshooting

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This section describes troubleshooting for the SprintPack Li-Ion System. The troubleshooting tables are organized by symptom. Contact CareFusion for information about symptoms that are not listed here.

Symptoms	Possible Causes	What To Do
The LTV <sup>®</sup> Ventilator <b>EXTERNAL POWER</b> LED is not illuminated.	External power cords loose.	Disconnect and reconnect the cords from both the Power Manager and the ventilator connectors. Verify that all connectors are free of debris and securely locked into their proper outlet.
	SprintPack Batteries are depleted.	Check the Charge Status Indicator on each battery to verify charge level.  Recharge the batteries using an approved power source (see Table 4.1).
	SprintPack Li-Ion System needs to be reset.	Remove power source, wait a minimum of 10 seconds, and reconnect power source to reset the SprintPack Li-Ion Power System.
All five LEDs are blinking on the SprintPack Battery.	System error (possible causes include operating temperature out of range, temperature mismatch between Power Manager and battery, or no valid power sources).	Allow the battery to return within operating temperature (see page 8-1) or connect a valid power source and wait a minimum of 10 seconds.
SprintPack Battery is not charging.	Operating temperature out of range.	Allow the battery and/or Power Manager to return to operating temperature specified on page 8-1.

Symptoms	Possible Causes	What To Do
<b>Continued...</b> SprintPack Battery is not charging.	Battery was not discharged below 80% (4 lit LEDs), and was not removed from the Power Manager after the last use.	Remove battery from Power Manager and then reinsert.
	Battery charge levels are more than 40% apart.	Battery with lower charge level will charge until it is within 40% of the second battery. Once the batteries are within 40% of each other both batteries will charge simultaneously.
	SprintPack Li-Ion Power System error.	Remove power source, wait a minimum of 10 seconds, and reconnect power source to reset the SprintPack Li-Ion Power System.
SprintPack Battery <b>Charge Status Indicator</b> LEDs do not light up.	SprintPack Batteries are depleted.	Recharge the batteries using an approved power source (see Table 4.1).
	SprintPack Li-Ion System needs to be reset.	Remove power source, wait a minimum of 10 seconds, and reconnect power source to reset the SprintPack Li-Ion Power System.
SprintPack Battery not lasting 2.5 hours.	Battery status indicator and charge level are out of calibration.	Fully discharge and recharge the battery.



## Chapter 6 - CLEANING

This section explains how to clean the SprintPack Li-Ion Power System.

### Power Manager, Batteries and Cords

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The Power Manager, Batteries, and cords should be kept clean and free of dust and debris. Occasionally they should be wiped clean using a damp, lint free cloth.

### **WARNING**

**Risk of Electric Shock** - To reduce the risk of electrical shock and damage to the SprintPack Li-Ion Power System, do not expose it to snow, rain, or liquid of any kind. Do not operate any part of the SprintPack Li-Ion Power System if it has been dropped or damaged in any way. Contact CareFusion immediately for service or support.

### **CAUTION**

**Cleaning agents** - Do not use cleaning agents that contain phenols, ammonium chloride, chloride compounds, or more than 2% glutaraldehyde. These agents may damage plastic components.

**Immersion in liquids** - Do not allow any cleaning solution to enter inside the SprintPack Power Manager and/or the SprintPack Batteries as this could cause internal damage.



## Chapter 7 - STORAGE AND MAINTENANCE

This section explains how to store and maintain the SprintPack Li-Ion Power System.

### Recommended Maintenance

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The following items should be routinely checked for integrity and changed when necessary:

- The SprintPack batteries are maintenance free and only require recharging. After 400 cycles per battery, replace the SprintPack Battery with CareFusion P/N 19444-001.
- For the servicing of all other items, such as a worn cord connector or damaged wire contact CareFusion.
- The SprintPack Li-Ion Power System is a solid-state device that requires no ongoing service under normal operating conditions.

### **WARNING**

**Risk of electrical shock.** Do not attempt any servicing of the SprintPack Li-Ion Power System.

### Storage and Transport

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Storage and transport of the SprintPack Li-Ion Power System and batteries affects their cycle life.

- **When not in use, remove the SprintPack Batteries from the SprintPack Power Manager.** If necessary, they may remain housed in the Power Manager with the connection points disengaged. This will allow the batteries to hold their charge for the next time they are put to use. The SprintPack Batteries should be stored with a charge level of 30 – 50% (2 – 3 lit LEDs) to optimize shelf life.
- Self-discharge of each battery depends upon storage temperature. A lower temperature decreases this discharge and allows the batteries to be stored for longer periods.



## Chapter 8 - SPRINTPACK SPECIFICATIONS

This section describes the technical specifications for the SprintPack Li-Ion Power System.

### Specifications

SprintPack Input Voltage:	11 – 29 Volts DC (VDC)
Battery Chemistry:	Lithium Ion
Battery Voltage:	Nominal Voltage 14.4 VDC
Nominal Battery Current:	6.6 Ah (6600 mAh)
Number of battery life cycles (Each battery):	400 full cycles @ room temperature, 21° C (70° F)
Operating Temperature <sup>4</sup> and Humidity:	5° to 40° C (41° to 104° F), 15% to 95% relative, non-condensing
Storage/Transport Temperature and Humidity:	-20° to 50° C (-4° to 122° F), 10% to 95% relative, non-condensing
Shock and Vibration:	MIL-STD-810F, IEC 68-2-27
Water Ingress:	IEC 601-1 Clause 44.3
EMC Compatibility:	IEC 60601-1-2 Emissions, Immunity and ESD
RF Emissions:	RTCA DO-160D Section 21.4 Radiated RF Interference MIL-STD 461D RE101
ESD Protection:	ASTM F1246-91 4.14.3.1

<sup>4</sup> Specified Operating Temperature is with two (2) batteries inserted into SprintPack Power Manager (10° to 40° C with one (1) battery inserted).

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