



## NB Series

NB430, NB440, NB470 & NB480



# NB Series

## Setup and Operation Manual

For NB430, NB440, NB470 & NB480

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## About This Manual

### Symbols and Conventions

Symbols are used in this manual and on the product itself to ensure correct usage, to prevent danger to the user and others and to prevent property damage. The symbols are defined below. It is important that you read these descriptions and fully understand them.



#### Caution

This symbol indicates information that, if ignored, could result in personal injury or harm to the equipment due to incorrect handling.



#### Warning

This symbol indicates information that, if ignored, could result in death, serious physical injury or destruction of property due to incorrect handling.



Indicates important procedures

**Note:** Indicates important related information, reminders and recommendations

*Italics* Used for emphasis, for indicating the first occurrence of a new term and for book titles

1. Numbered list - Used when the order of the items is important
  - Bulleted list - Used when items are of equal importance, but the order is unimportant

## Newcastle Systems Technical Support

You can reach Technical Support by telephone. Dial (781) 935-3450, then select 3 for technical support.

When requesting assistance, please be ready to provide the following information:

- Your name and telephone number
- Product model and serial number
- Brief description of the problem and list of symptoms
- Steps you have already taken to try to resolve the problem

#### If the Product is Damaged

If any portion of the unit is damaged, forward an immediate request to the delivering carrier to perform an inspection of the product and to prepare a damage report. Save the container and all packing materials until the contents are verified.

Also report the damage, along with the model and serial numbers, to Newcastle Systems Customer Service at (781) 935-3450 so that action can be initiated to either repair or replace the damaged items. Do not return any items to Newcastle Systems until you obtain instructions from Customer Service.

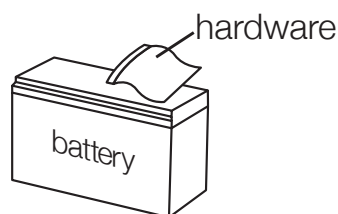
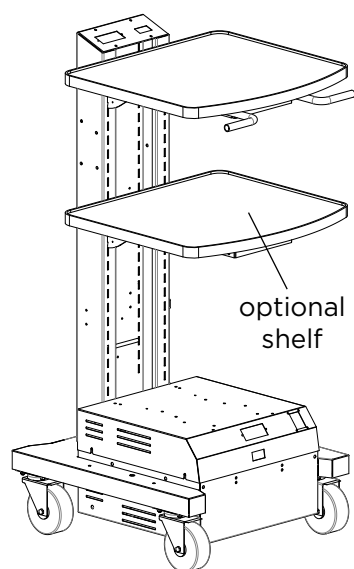
Upon receipt of this information, Newcastle Systems will provide service instructions, or a return authorization number and shipping information.

## The NB Series

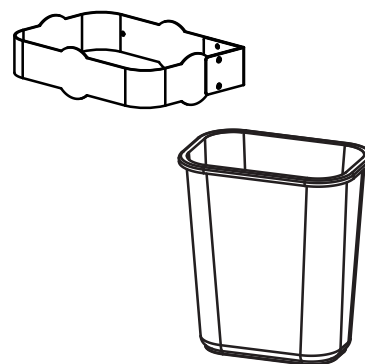
### Standard Contents

Each cart will come with the following standard contents:

- Cart (assembled)
- Battery and hardware
- Trash can holder and green can



One or two batteries,  
depending on model  
purchased.



### Optional Accessories

Any optional accessories that were ordered with the cart will either be installed on the cart or shipped separately in a box with the cart.

**Note:** Some accessories may be placed in the power cabinet for shipping purposes.

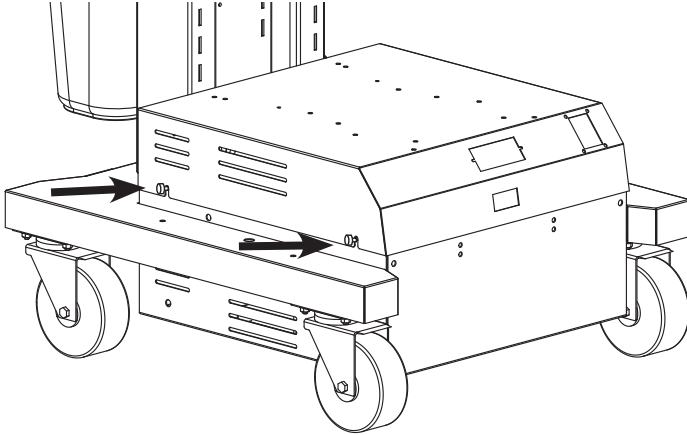
### Tools Required

One 10 mm open end or socket wrench

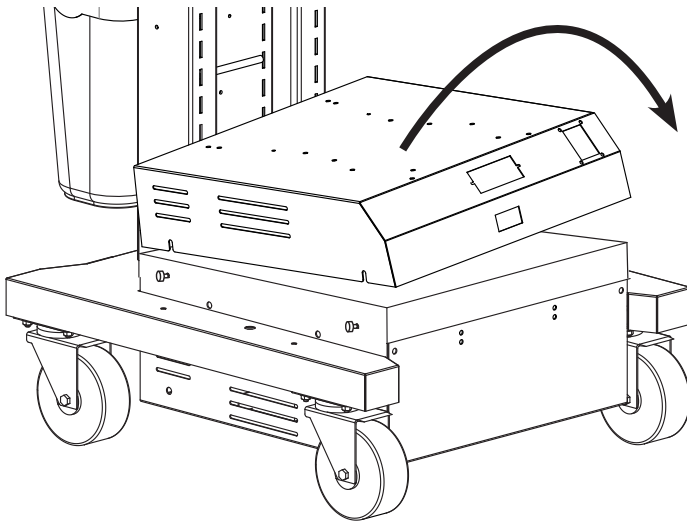


## Setting up the NB Series

1. Open the power box by loosening the (4) thumbscrews.



2. Next, remove the power box cover.

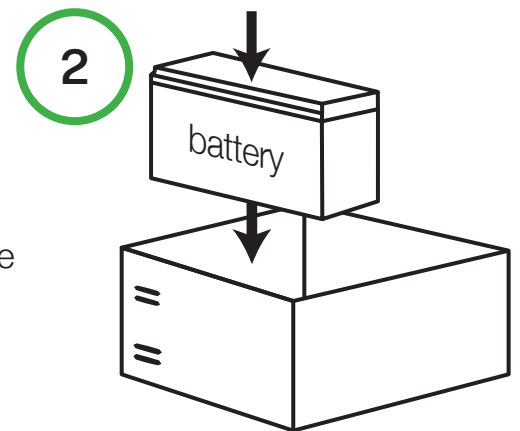
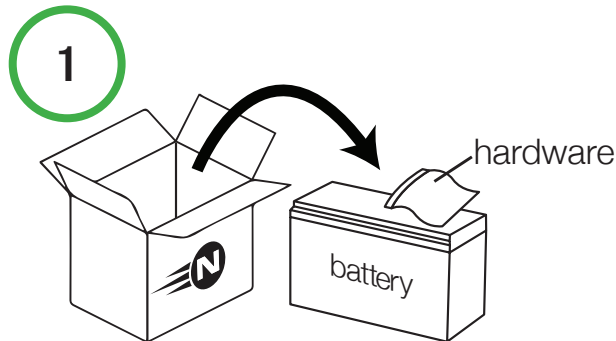
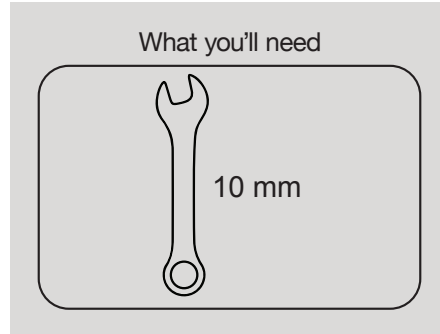
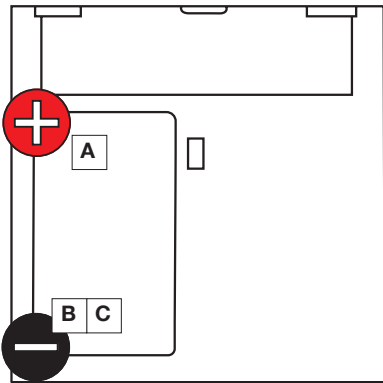


Once the cover has been removed from the power box, proceed to the appropriate section on battery installation according to the number of batteries your cart has.

- For one battery installation, see [“One Battery Setup for NB430” on page 3.](#)
- For two battery installation, see [“Two Battery Setup for NB440, NB470 & NB480” on page 5.](#)

## One Battery Setup for NB430

### Battery Wire Connections Overview



Hardware

bolts

lock washers

flat washers

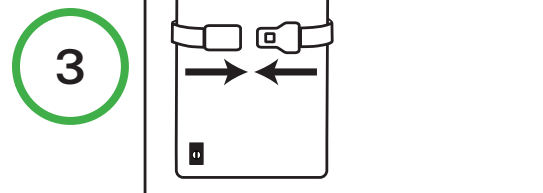
Wire Connections

**A** **B** **C**

red

black

black



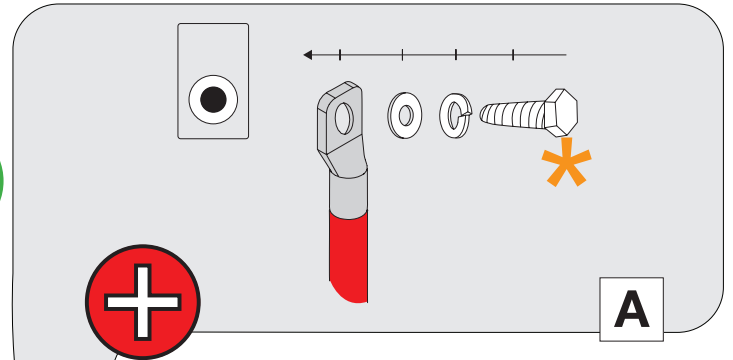


**\* Tighten bolts with 10 mm wrench**  
 Sparking is normal during initial connection.

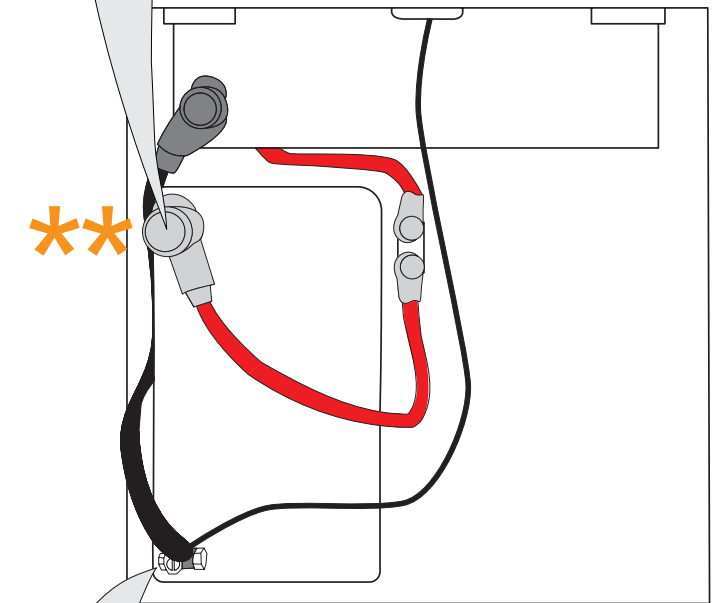
**\*\* Pull rubber boot over tightened terminal**

After performing step 5, proceed to "Testing the Battery Function" on page 7.

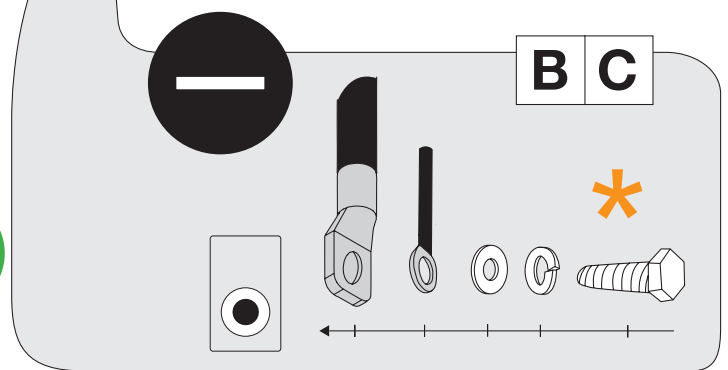
**4**



**\*\***



**5**



**Hardware**

**bolts**

**lock washers**

**flat washers**

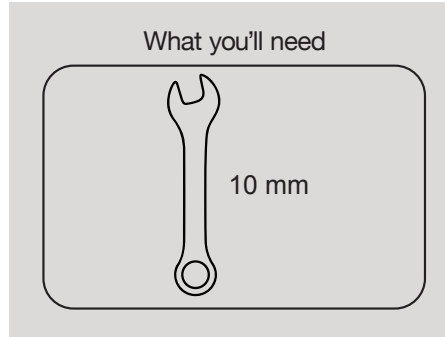
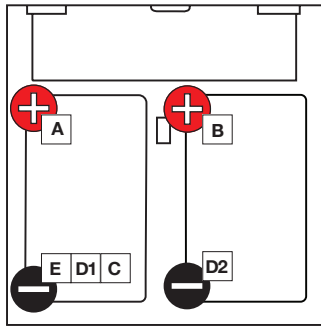
**Wire Connections**

**A** **B** **C**

**red** **black** **black**

## Two Battery Setup for NB440, NB470 & NB480

### Battery Wire Connections Overview



**Hardware**

bolts  
lock washers  
flat washers

**Wire Connections**

**A B C**

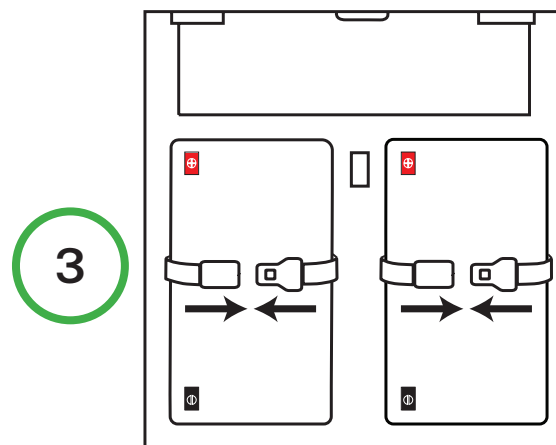
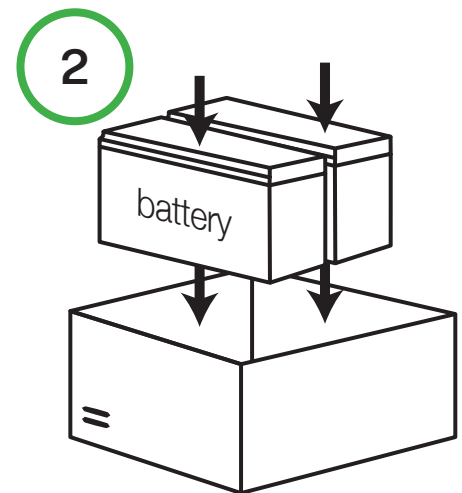
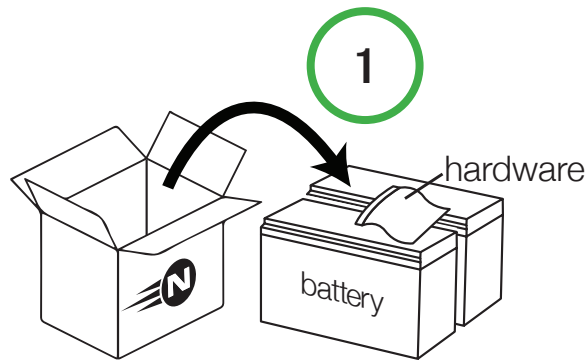
red red black

**D1 D2**

black

**E**

black



**\* Tighten bolts with 10 mm wrench**  
 Sparking is normal during initial connection.

**\*\* Pull rubber boot over tightened terminal**

**Hardware**

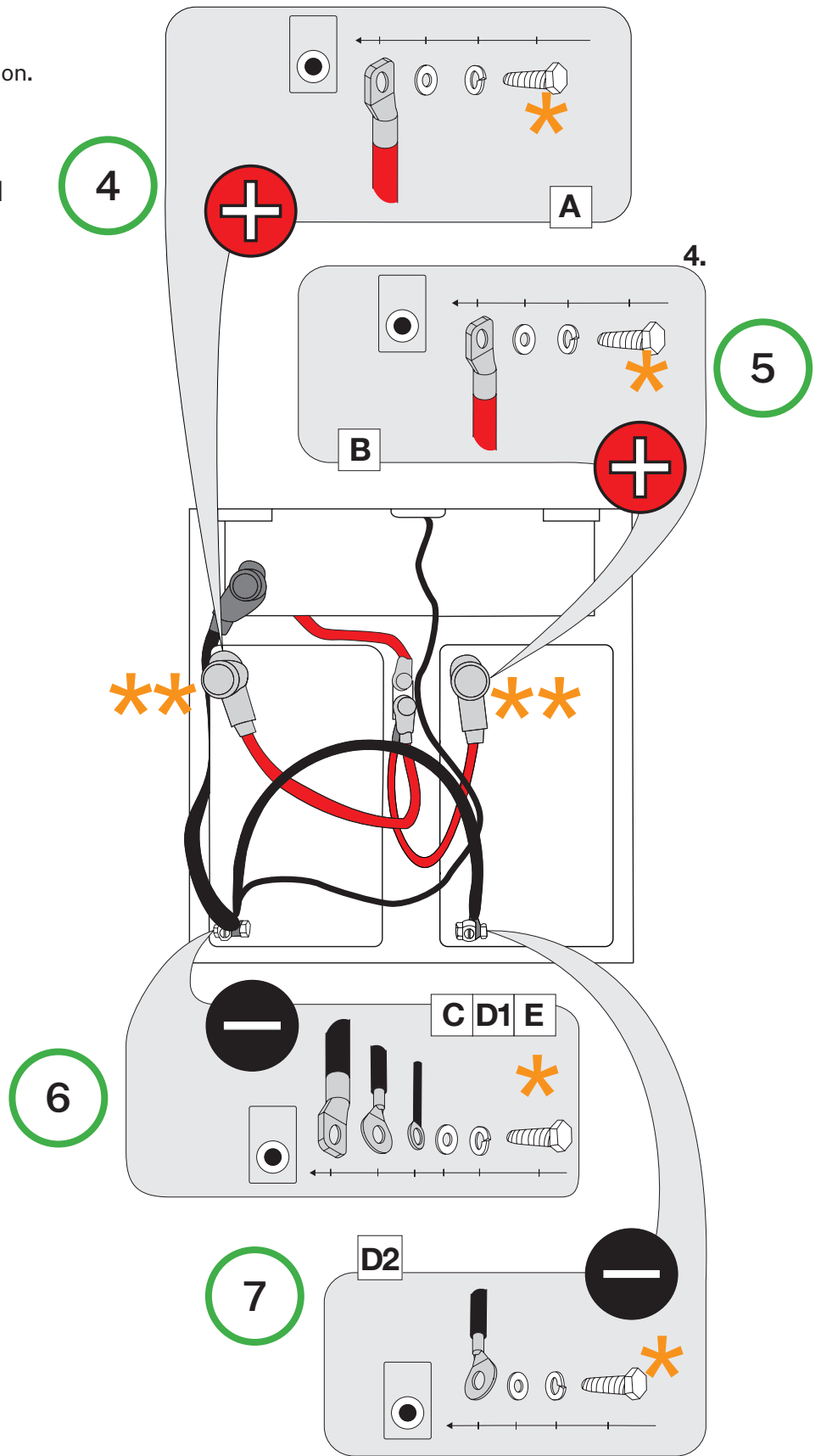
bolts  
lock washers  
flat washers

**Wire Connections**

**A B C**  
 red red black

**D1 D2**  
 black black

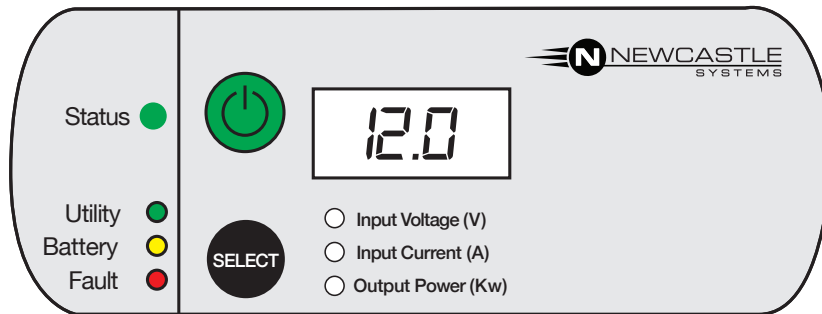
**E**  
 black



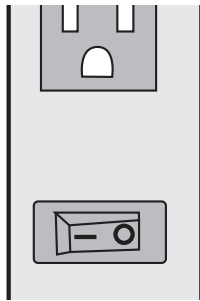
## Testing the Battery Function

Make sure all fittings are tight and that the battery is strapped down in the cabinet. Test the unit before replacing the power box cover.

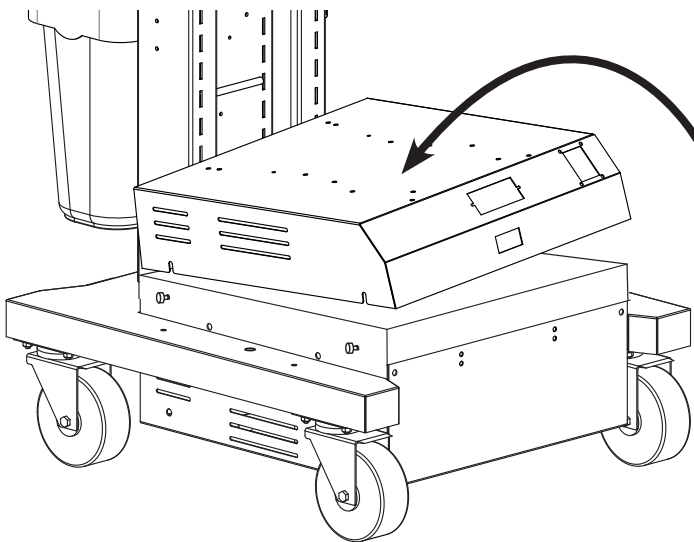
1. Turn the unit on by pressing the green power button.



2. Turn the power strip on. The light should turn red.



3. Place the power box cover on and tighten the thumb screws..



## Tips for Proper Cart Operation

- Charge your battery before using it to ensure it is fully charged. Simply plug the charger cord (located on the side of the unit) into a standard wall outlet.
- Monitor the battery status meter on the cart.



Battery Light Meter Indicators

Voltage	11.2	11.4	11.5	11.7	11.8	12.0	12.1	12.3	12.4	12.6
Light #	1	2	3	4	5	6	7	8	9	10
Color	Red Blinks	Red Blinks	Yellow	Yellow	Yellow	Green	Green	Green	Green	Green

- Batteries should not be discharged below 11.5 volts because this will shorten the life of the battery.
- Batteries *should not* be stored in a discharged state. They should be charged as soon as possible after each use (otherwise it can void the warranty). If a battery is left in a discharged state for a period of time, it may no longer take a charge.
- Avoid exposing battery to heat, service life is shortened at ambient temperatures above 85F.
- When powering equipment on the cart, it's okay to have the charger plugged in if necessary. In this case, the AC power will pass through the charger and power your equipment directly.
- When the cart is not in use, the system charger can be plugged into a wall outlet to ensure the battery remains in its optimal state. Turn the unit to the OFF position.

## Troubleshooting Tips

Is your cart displaying an error code? Here's what those mean:

ERROR	CONDITION	MODE	SUGGESTED ACTION
E01	Low battery voltage shut-down, depends on settings	Inverting	<ul style="list-style-type: none"> <li>• Check battery status meter and recharge if necessary</li> <li>• Check that cables are connected properly</li> <li>• Make sure that cables are secured tightly</li> </ul>
E02	High battery voltage shut-down, greater than 15.5v	Inverting	<ul style="list-style-type: none"> <li>• Check for external charging sources, such as an over voltage alternator - disconnect if necessary</li> </ul>
E03	AC output overload shut-down	Inverting	<ul style="list-style-type: none"> <li>• Reduce the amount of loads connected</li> <li>• Check the appliances for high-surge ratings and disconnect if necessary</li> </ul>
E04	Over temperature shut-down	Inverting	<ul style="list-style-type: none"> <li>• Reduce the amount of loads connected</li> <li>• Check for proper ventilation</li> <li>• Check for ambient temperature and move to a cooler location when possible</li> </ul>

## Frequently Asked Questions

QUESTION	ANSWER
<p>What does ABS/BUL or FUL mean?</p>	<ul style="list-style-type: none"> <li>• These are normal codes you should see every charging cycle  <b>BUL</b> = Bulk mode  <b>ABS</b> = Absorption mode  <b>FUL</b> = Full</li> </ul>
<p>What are my inverter/charger settings?</p>	<ul style="list-style-type: none"> <li>• While plugged in and charging, press the “select” button to view your current settings</li> <li>• <b>Recommended settings:</b>  <b>NB430/440:</b> IN1, 20A, AL1, SDL  <b>NB470:</b> IN1, 40A, AL1, SDL  <b>NB480:</b> IN1, 35A, AL1, Ag</li> </ul>
<p>Why is my unit not charging?</p>	<ul style="list-style-type: none"> <li>• Loose connections. Ensure that all wiring is correct and tight</li> <li>• Check that charger is not set to a low setting</li> <li>• Batteries may be old and depleted</li> </ul>
<p>Where do the LED battery meters plug in?</p>	<p><b>Red #1</b> - fuse to slot 1 (top right)  <b>Black</b> - battery to slot 2 (top left)  <b>Red #2</b> - slot 1 to slot 4 (bottom right)</p>
<p>How old are my batteries?</p>	<ul style="list-style-type: none"> <li>• Located on the top center of your battery there is a date code</li> <li>• It is a five digit code followed by one or two letters</li> <li>• The first two digits are the month and the last digit is the year (ex: <b>11243</b> would indicate the batteries are from November 2013)</li> </ul>

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# OWNER'S MANUAL



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