DreamStation
Service & Technical Reference Manual

PHILIPS
RESPIRONICS

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CHAPTER 1: INTRODUCTION

CAUTION
U.S. federal law restricts this device to sale by or on the order of a physician.

1.0 CPAP/BiPAP SYSTEM OVERVIEW

DEVICE DESCRIPTION	MODEL NUMBER SERIES*
DreamStation CPAP	yyX200**S**zz
DreamStation CPAP w/ Humidifier and Standard Tube	yyX200**H**zz
DreamStation CPAP w/ Humidifier and Heated Tube	yyX200**T**zz
DreamStation CPAP Pro	yyX400**S**zz
DreamStation CPAP Pro w/ Humidifier and Standard Tube	yyX400**H**zz
DreamStation CPAP Pro w/ Humidifier and Heated Tube	yyX400**T**zz
DreamStation Auto CPAP	yyX500**S**zz
DreamStation Auto CPAP w/ Humidifier and Standard Tube	yyX500**H**zz
DreamStation Auto CPAP w/ Humidifier and Heated Tube	yyX500**T**zz
DreamStation BiPAP Pro	yyX600**S**zz
DreamStation BiPAP Pro w/ Humidifier and Standard Tube	yyX600**H**zz
DreamStation BiPAP Pro w/ Humidifier and Heated Tube	yyX600**T**zz
DreamStation Auto BiPAP	yyX700**S**zz
DreamStation Auto BiPAP w/ Humidifier and Standard Tube	yyX700**H**zz
DreamStation Auto BiPAP w/ Humidifier and Heated Tube	yyX700**T**zz
DreamStation Humidifier	yyXH
DreamStation Humidifier, Core Pack	yyXHCP
*yy and zz are variables that represent regional configurations, i.e. DOM or INTL models. X is fixed and represents the DreamStation platform.	

The DreamStation CPAP is a Continuous Positive Airway Pressure therapy device designed for the treatment of Obstructive Sleep Apnea (OSA). The DreamStation CPAP Pro can also deliver CPAP-check therapy, and the DreamStation Auto CPAP can also deliver CPAP-Check and Auto-CPAP therapy.

The DreamStation BiPAP Pro can be set up as a Bi-level device, which delivers two different positive pressure levels: IPAP (Inspiratory Positive Airway Pressure) and EPAP (Expiratory Positive Airway Pressure). The DreamStation BiPAP Auto can also be set up as an Auto Bi-level device. Both BiPAP systems can also be set up as a CPAP (Continuous Positive Airway Pressure) device.

The devices provide several special features to help make therapy more comfortable. The ramp function allows the user to lower the pressure when they are trying to fall asleep. The air pressure will gradually increase until their prescription pressure is reached. Also, the Flex comfort feature provides the user with pressure relief when they exhale during therapy.

Several accessories are also available for use with the devices.

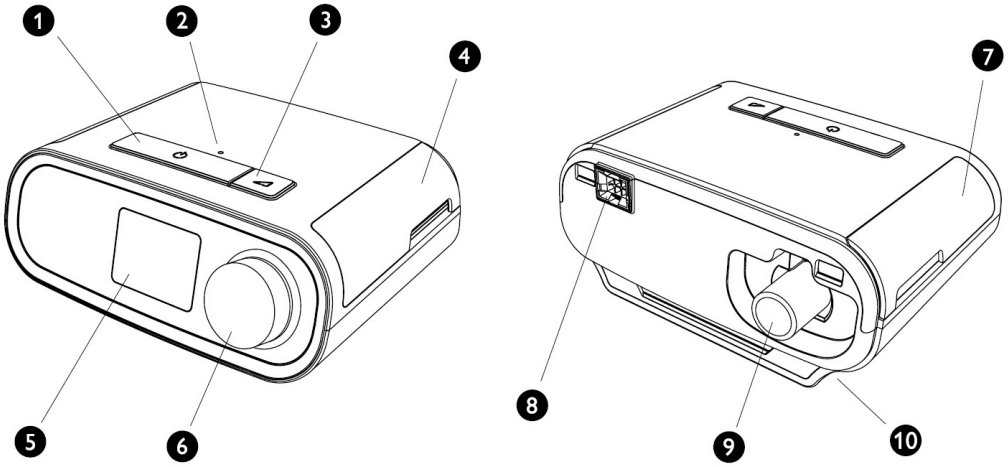

FIGURE 1-1: DEVICE OVERVIEW AS DESCRIBED IN THE BELOW TABLE

#	Device Feature	Description
1	Therapy On/Off Button	Starts and stops the airflow for therapy.
2	Ambient Light Sensor	Detects room light levels and adjusts brightness of LCD Display Screen.
3	Ramp Button	Activates the ramp feature during therapy.
4	Door, SD card & Filter Access	This door lifts open for access to the SD card and filter area.
5	LCD Display Screen	This is the User Interface for the therapy device.
6	Control Dial	Turn the dial to scroll between options on the screen. Press the dial to choose an option.
7	Door, Accessory Access	This door lifts open for access to the (optional) accessories.
8	Humidifier Connector	Humidifier connects to the back of the therapy device. The humidifier pin connector will attach here.
9	Air Outlet Port	Connect the tubing here.
10	Power Inlet	Connect the power cord here.

1.1 HUMIDIFIER SYSTEM OVERVIEW

The DreamStation Heated Humidifier attaches to the therapy device and provides an air outlet port to connect a breathing circuit. The breathing circuit is comprised of patient tubing, a mask, and in some instances a separate exhalation device. The patient tubing can be Respironics heated tubing, 22 mm (non-heated) performance tubing or 15 mm (non-heated) performance tubing.

The DreamStation Heated Humidifier with Heated Tubing is designed to deliver humidification to provide added comfort during therapy. This humidification level is controlled through the output of the heated humidifier as well as the temperature of the optional heated tubing. Use of these two accessories allows for a comfortable level of humidity to be maintained at the mask.

The DreamStation Heated Humidifier is comprised of the following components:

- **Heated Humidifier** - The heated humidifier is the primary source of humidification. Humidification is controlled by adjusting the temperature of the heater plate. The heater plate is then used to heat water found in the water tank. This manual includes instructions that explain how to set up and take care of the heated humidifier. For instructions on how to adjust the heated humidifier settings, refer to the instructions for use that accompanied the therapy device.
- **Water Tank** - The water tank stores the water that will be used by the heated humidifier. This manual includes instructions that cover how to use and take care of the water tank.
- **Heated Tubing** - The heated tubing is an optional accessory that is used, along with the heated humidifier, to control the provided humidification. This is accomplished by controlling the temperature of the air in order to ensure that it does not cool down prior to reaching the mask. This manual includes instructions that cover how to connect and take care of the heated tubing. For instructions on how to adjust the temperature of the heated tubing, refer to the instructions for use that accompanied the therapy device.

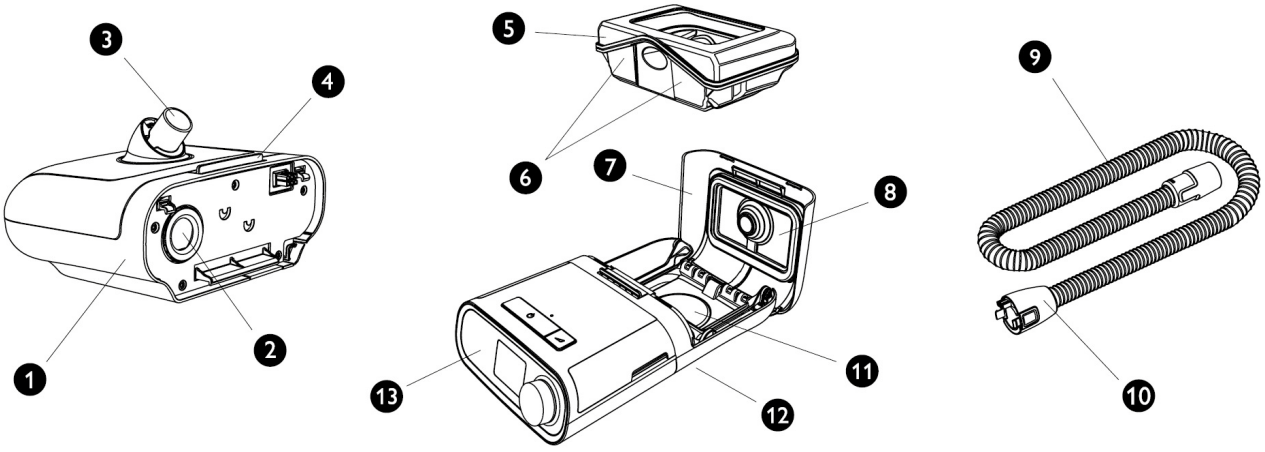

FIGURE 1-2: HUMIDIFIER OVERVIEW AS DESCRIBED IN THE FOLLOWING TABLE

#	Device Feature	Description
1	Humidifier	Connect your therapy device here.
2	Air Inlet Port	Connects to the outlet port on the therapy device.
3	Air Outlet Port	Connect the tubing here.
4	Humidifier Lid Release Latch	Slide this latch to open the humidifier lid.
5	Water Tank	This one piece removable water tank holds the water for humidification.
6	Maximum Fill Lines	The fill lines indicates the maximum water level for safe operation.
7	Humidifier Lid	Open the lid to access the water tank.
8	Humidifier Lid Seal	Seals the water tank to the humidifier lid.
9	Flexible Heated Tubing (optional)	The optional heated tube connects from the humidifier to the patient's mask.
10	Humidifier Connector End	Connect this end of the tubing to the humidifier.
11	Heater Plate	Warms the water in the water tank.
12	Humidifier Release Button	Press this button to remove the humidifier from the therapy device. Refer to the "Disconnecting the Therapy Device" section of this manual to see this button.
13	Therapy Device	The heated humidifier connects to the back of the therapy device.

1.2 SERVICE NOTICE

The service technician should have a good working knowledge and understanding of the principles of operation and repair of electro-mechanical sleep therapy devices. By using the most current version of the service manual (found on my.respironics.com) and the latest testing software, all repairs and testing can be performed. If service training is desired, contact the Philips Respironics service location in your area to schedule training.

1.3 SERVICE TRAINING

Philips Respironics offers service training for the devices. Training includes complete disassembly of the device, troubleshooting sub-assemblies and components, and necessary safety testing. For more information, log onto my.respironics.com, and download the Service Training Schedule brochure from the Service Software and Documentation link.

1.4 PRODUCT SUPPORT STATEMENT

For product support, please contact Philips Respironics Customer Satisfaction.

U.S.A. and Canada	**International**
Phone:1-800-345-6443	**Phone: 1-724-387-4000**
Fax: 1-800-886-0245	**Fax: 1-724-387-5012**

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CHAPTER 2: WARNINGS, CAUTIONS, & NOTES

Warnings, cautions, and notes are used throughout this manual to identify possible safety hazards, conditions that may result in equipment or property damage, and important information that must be considered when performing service and testing procedures on the device.

WARNING

Warnings indicate the possibility of injury to people.

CAUTION

Cautions indicate the possibility of damage to equipment.

NOTE

Notes are used to emphasize a characteristic or important consideration.

Refer to the devices' User and Provider Manuals for warnings, cautions and notes.

TABLE 2-1: USER & PROVIDER MANUALS

DESCRIPTION	PART NUMBER
DreamStation CPAP, User Manual, EN-INTL CE	*1121981*
DreamStation BiPAP, User Manual, EN-INTL CE	*1121982*
DreamStation Humid, User Manual, EN-INTL CE	*1121984*
DreamStation, Provider Guide, EN-INTL CE	*1121983*

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CHAPTER 3: SPECIFICATIONS & CLASSIFICATIONS

Refer to the devices' User and Provider Manuals for specifications and classifications.

TABLE 3-1: USER & PROVIDER MANUALS

DESCRIPTION	PART NUMBER
DreamStation CPAP, User Manual, EN-INTL CE	*1121981*
DreamStation BiPAP, User Manual, EN-INTL CE	*1121982*
DreamStation Humid, User Manual, EN-INTL CE	*1121984*
DreamStation, Provider Guide, EN-INTL CE	*1121983*

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CHAPTER 4: CLEANING AND DISINFECTING

4.0 DEVICE AND HUMIDIFIER

CAUTIONS

Only the cleaning and disinfection procedure listed in this manual are recommended by Respironics. Use of other cleaning and disinfecting processes, not specified by Respironics, may affect the performance of the product. If there are any uncertainties related to the disinfectants you are using, please contact Philips Respironics to see if they are approved for use.

Follow all instructions from the manufacturer of the disinfectant product. Any deviation from these instructions, the manufacturer's instructions, or agents not listed in this guide may impact the performance of the product. Review all applicable instructions for additional warnings and cautions.

WARNING

To avoid electrical shock, always unplug the power cord from the wall outlet before cleaning the device. DO NOT immerse the device in any fluids.

Perform the following steps to clean and disinfect the device and humidifier prior to servicing the devices:

1. Turn the device off and disconnect from the power source before cleaning.
2. Remove and dispose of the blue pollen filter and light-blue disposable ultra-fine filter (if returned with the device).
3. As needed, clean the device and humidifier exterior using a mild liquid dishwashing detergent. Use a mixture of 1 teaspoon (5 milliliters) dishwashing detergent/1 gallon (3.8 liters) of water.
4. Allow the device and humidifier to air dry. Use one of the following to disinfect all exterior surfaces of the device and humidifier, including the filter and accessory access doors.
   - DisCide Ultra Towelettes
   - Cloth with chlorine bleach (8% sodium hypochlorite), 1 to 10 part reduction with water.

6. Pay close attention to all corners and crevices.
7. Open the humidifier lid and disinfect the latch area.
8. Allow the device and humidifier to air dry completely before plugging in the power cord and turning the device on.

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CHAPTER 5: SETUP

This chapter provides an overview of the system setup including introductory information on the User and Provider modes and menus. Please refer to the device's User Manual for further information.

WARNING

- *Inspect the power cord often for any signs of damage. Replace a damaged power cord immediately.*
- *Be sure to route the power cord to the outlet in a way that will prevent the cord from being tripped over or interfered with by chairs or other furniture.*
- *This device is activated when the power cord is connected.*

CAUTION

- *If the device has been exposed to either very hot or very cold temperatures, allow it to adjust to room temperature (approximately two hours) before beginning setup.*
- *Do not use extension cords with this device.*

NOTE

- *Please refer to the Clinical Manual for additional information.*

5.0 SUPPLYING DC POWER TO THE DEVICE

A Philips Respironics DC power cord can be used to operate this device in a stationary recreational vehicle, boat, or motor home. In addition, a Philips Respironics DC battery adapter cable, when used with a DC power cord, allows the device to be operated from a 12 VDC free-standing battery.

CAUTION

- *Always ensure that the DC power cord securely fits into the therapy device prior to use.*
- *When DC power is obtained from a vehicle battery, the device should not be used while the vehicle's engine is running. Damage to the device may occur.*
- *Only use a Philips Respironics DC Power Cord and Battery Adapter Cable. Use of any other system may cause damage to the device.*

5.1 SUPPLYING AC POWER TO THE DEVICE

Complete the following steps to operate the device using AC power:

1. Plug the socket end of the AC power cord (included) into the power supply (also included).
2. Plug the pronged end of the AC power cord into an electrical outlet that is not controlled by a wall switch.

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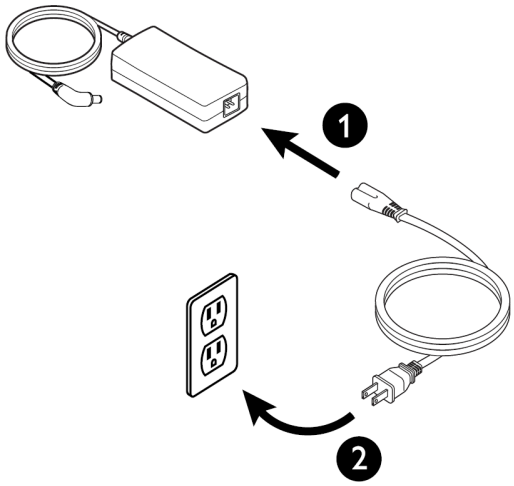


FIGURE 5-1: CONNECTING THE AC POWER CORD AND POWER SUPPLY

3. Plug the power supply cord's connector into the power inlet on the side of the device.

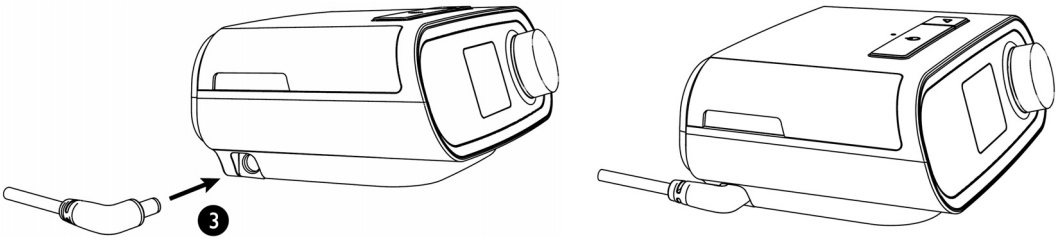


FIGURE 5-2: SUPPLYING POWER TO THE DEVICE

4. Verify that the plug at the side of the device, at the power supply, and at the electrical outlet are fully inserted. This will help to ensure that a secure, reliable electrical connection has been made.

NOTE

If the following Check Power icon appears on the screen, please repeat step 4.

5.2 CONNECTING THE TUBING TO THE PAP DEVICE

To connect the Tubing to the device, complete the following steps:

1. Connect the flexible tubing to the air outlet on the back of the therapy device. Line up the connector (1) at the top of the heated tube to the top of the air outlet port on the back of the device.

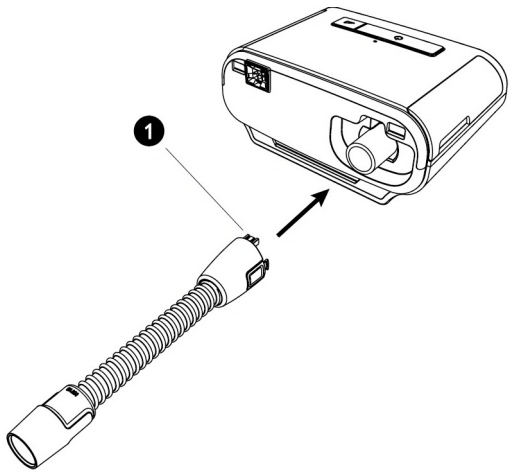


FIGURE 5-3: CONNECTING THE TUBING TO THE PAP DEVICE

2. Press the tubing into place over the air outlet port until the tabs on the side of the tube click into place in the slots on the sides of the outlet port.

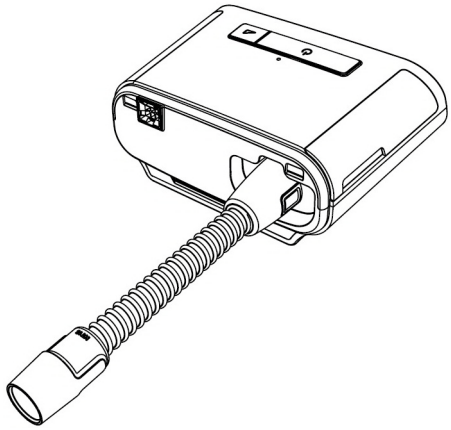


FIGURE 5-4: TUBING CONNECTED TO THE PAP DEVICE

NOTES

If you are using a standard tube (not shown) instead of a heated tube, simply slide the tubing over the air outlet port on the therapy device.

If you are using the optional 12 mm tubing, an adapter is required to connect to the therapy device.

WARNINGS

- *Do not pull or stretch the tubing. This could result in circuit leaks.*
- *Inspect the tubing for damage or wear. Discard and replace the tubing as necessary.*
- *If the device is used by multiple persons (such as rental devices), a low-resistance, main flow bacteria filter should be installed in-line between the device and the circuit tubing to prevent contamination.*

5.3 CONNECTING THE HUMIDIFIER TO THE PAP DEVICE

CAUTION

Do not move the humidifier while the water tank has water in it.

1. Place the therapy device and heated humidifier (with an empty water tank) on a firm, flat surface.
2. Line up the back of the therapy device to the front (top lid release latch side) of the heated humidifier.
3. Make sure the air outlet port on the therapy device lines up with the air inlet port on the humidifier (not shown).
4. Slide the two units together until they snap into place.

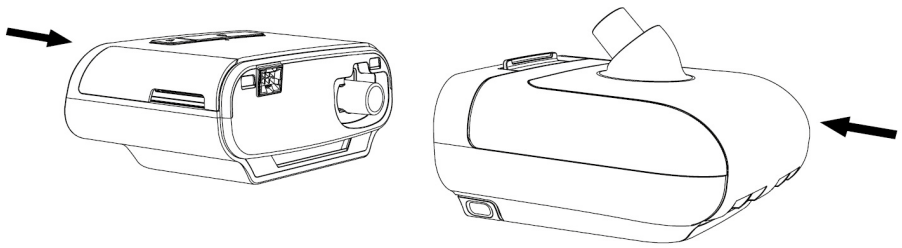


FIGURE 5-5: CONNECTING THE HUMIDIFIER

5. Make sure that the therapy device and the humidifier are completely seated against each other.

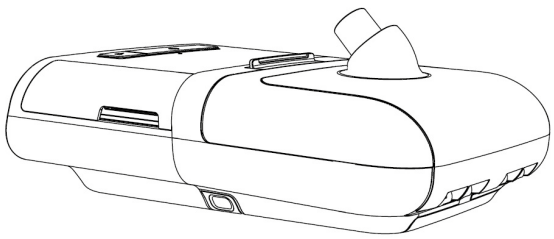


FIGURE 5-6: HUMIDIFIER CONNECTED

5.4 CONNECTING THE TUBING TO THE HUMIDIFIER

1. To attach the heated tube to the heated humidifier, line up the connector (1) at the top of the heated tube to the top of the air outlet port (2) on the humidifier.

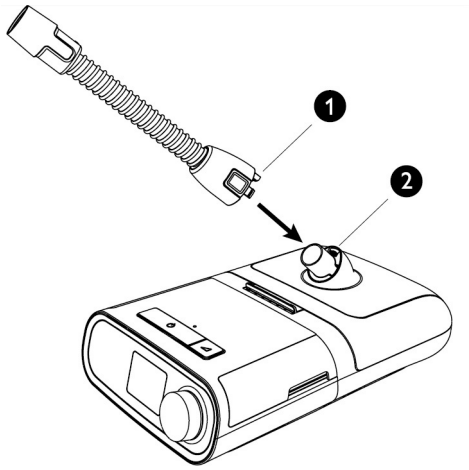


FIGURE 5-7: CONNECTING THE TUBING TO THE HUMIDIFIER

2. Press the tubing into place over the air outlet port until the tabs on the side of the tube click into place in the slots on the sides of the outlet port.

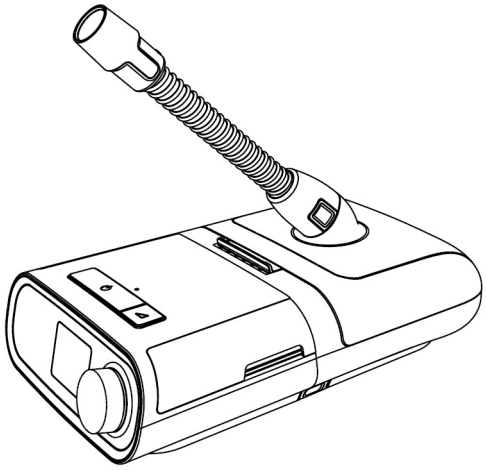


FIGURE 5-8: TUBING CONNECTED TO THE HUMIDIFIER

3. If you are using a standard tube (not shown) instead of a heated tube, simply slide the tubing over the air outlet port on the heated humidifier.

5.5 DISCONNECTING THE TUBING

1. To remove the heated tubing, press in the tabs (1) on the side of the tubing connector and pull the tubing away from the outlet port.

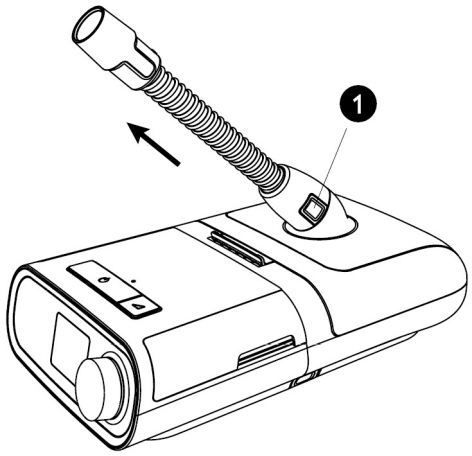


FIGURE 5-9: DISCONNECTING THE TUBING

2. If you are using a standard tube (not shown) instead of a heated tube, simply pull the tubing away from the outlet port.

5.6 DISCONNECTING THE DEVICES

CAUTION

To avoid spilling, do not disconnect the humidifier from the therapy device with water in the tank. Remove the water tank from the humidifier before disconnecting the therapy device.

1. Disconnect power to the therapy device.
2. Pick up the system.
3. Place one hand on the therapy device and the other on the humidifier.
4. Press the humidifier release button (1) and pull apart to separate.

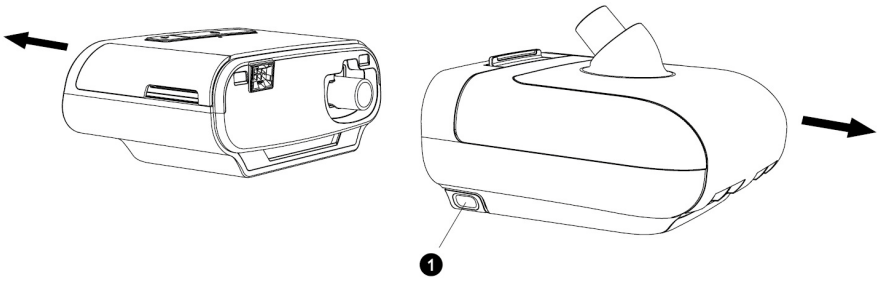


FIGURE 5-10: DISCONNECTING THE DEVICES

5.7 CHECKING THE HUMIDIFIER LID SEAL

Under normal use, the humidifier lid seal should not require any maintenance or replacement. The seal may be cleaned as needed by wiping it with a damp cloth. If necessary, the humidifier lid seal may be removed for further cleaning. Gently peel the seal from the humidifier lid and clean it in a solution of warm water and a mild liquid dish-washing detergent. Rinse with clean water. Wipe completely on both sides. Allow the seal to air dry. Inspect the seal for damage. If the humidifier lid seal show signs of wear or damage, it should be replaced.

To install or reseat your humidifier lid seal, fully open the humidifier lid. Position the seal (1) against the inside of the lid so the seal's center hole aligns with the humidifier outlet port. Confirm that the seal is positioned so the wire channel (2) in the seal is below the humidifier outlet port (3).

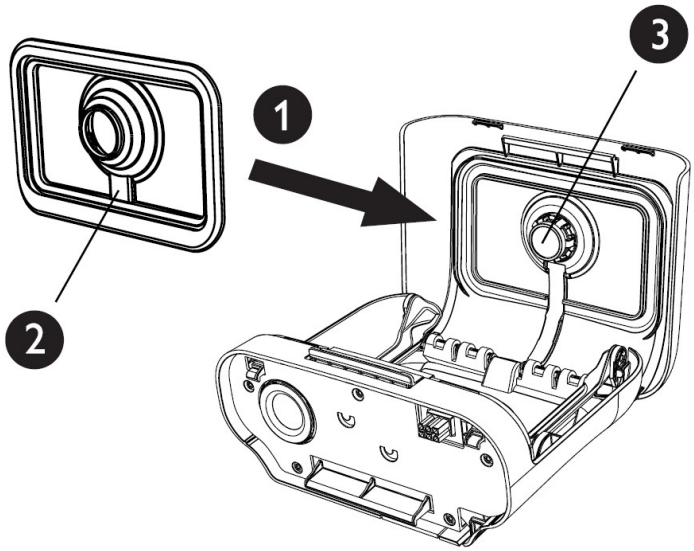


FIGURE 5-11: CHECKING THE HUMIDIFIER LID SEAL

NOTE
The seal only fits properly in one orientation.

With the seal loosely in place, start at the bottom (1) and gently press the edges of the seal into the channel in the lid of the humidifier. Continue sliding your fingers all around the rectangular perimeter of the seal until the outer edge is completely seated. Next, press the seal around the humidifier outlet port (2) until the center of the seal is fully seated. Finally, go back and run your fingers around the rectangular perimeter of the humidifier lid seal once more to confirm it has not become dislodged.

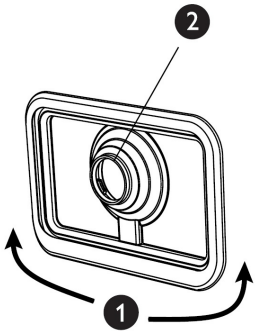


FIGURE 5-12: FLIP LID SEAL

5.8 INSTALLING/REPLACING THE AIR FILTERS

CAUTION

A properly installed, undamaged Philips Respironics blue pollen filter is required for proper operation.

The device uses a reusable blue pollen filter that can be rinsed and a disposable light-blue ultra-fine filter. The reusable blue filter screens out pollens, while the light-blue ultra-fine filter provides more complete filtration of very fine particles.

The reusable blue filter must be in place at all times when the device is operating. The ultra-fine filter is recommended for people who are sensitive to tobacco smoke or other small particles.

The reusable blue filter is supplied with the device. A disposable light-blue ultra-fine filter may also be included. If your filter is not already installed when you receive your device, you must at least install the reusable filter before using the device.

This device has an automatic air filter reminder. Every 30 days, the device will display a message reminding you to check your filters and replace them as directed.

NOTE

This message is a reminder only. The device does not detect the performance of the filters nor does it recognize when a filter has been rinsed or replaced.

1. Lift up on the filter access door and swing open. If replacing, pull out the old filter assembly.

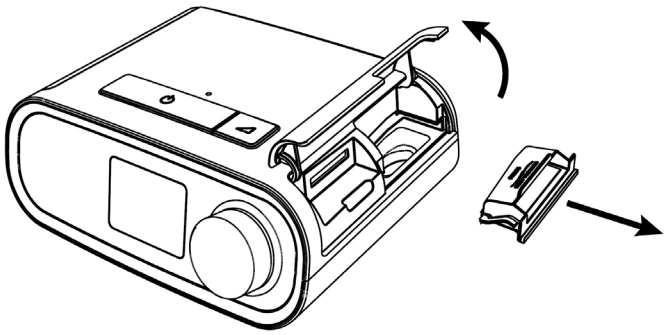


FIGURE 5-13: REMOVING THE FILTER

2. If applicable, place a dry, reusable blue pollen filter (1) on top of a new, optional disposable light-blue ultra-fine filter (2) and firmly snap them together.

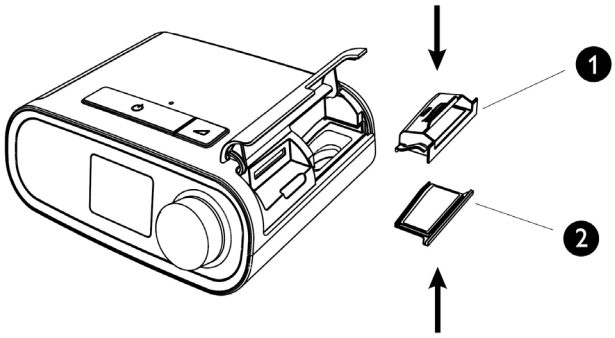


FIGURE 5-14: POLLEN AND ULTRA-FINE FILTERS

3. Place the new filter assembly back in the side of the therapy device. Swing the door closed.

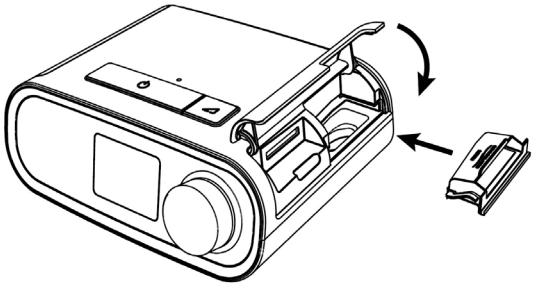


FIGURE 5-15: INSTALLING THE FILTER

5.9 STARTING THE DEVICE

1. Ensure power is supplied to the device. The first screen to display will be the Philips Respironics logo, followed by the device model screen, and then the Home screen.

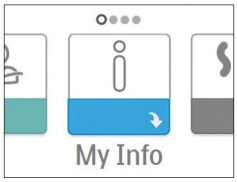


FIGURE 5-16: HOME SCREEN

The first time the device is powered on, a pop-up may prompt you to set the time on the device. The default setting is Greenwich Mean Time, but if prompted you may adjust the time in 30 minute increments to match your local time zone. If you choose to skip this initial time setting, the time can always be adjusted under the “My Setup” menu.

Note: This time setting is not displayed as a clock function on the device. It is only used to align therapy data for Provider’s data reports.

2. Press the Therapy button on top of the device to turn on airflow and begin therapy. The current delivered pressure will display on the screen.
3. Make sure that no air is leaking from the system.
4. Press the Therapy button again to turn off therapy.

NOTE

During therapy, if there is a mains interruption (i.e. power loss) the device will return to the Home screen once power is restored. You may resume therapy as needed.

5.10 NAVIGATING THE DEVICE SCREENS

NOTE

The display is not a touch screen. You must use the control dial to navigate the device menu.

The User Interface (UI) on this device allows you to adjust the device settings and view information about your therapy. The UI is comprised of the display screen and the control dial. Rotate the control dial in either direction to scroll through the menu options on the display screen.

To adjust a setting:

1. Rotate the control dial to your desired menu option.
2. Press the control dial to select that setting.
3. Rotate the control dial to change the setting.
4. Press the control dial again to save the change.

.

NOTES

- *The rotate dial icon on any screen indicates to rotate the dial to perform an action. The click dial icon on any screen indicates to press the dial to perform an action.*
- *Pressing the dial when the down arrow appears on any screen will take you to a sub-menu with more menu options. Pressing the dial when the up arrow appears on any sub-menu will return you back to the main menu.*
- *The screens shown throughout this manual are examples for reference only. Actual screens may vary based upon device model and provider settings.*

5.10.1 USER MENU NAVIGATION (THERAPY ON) AND OPTIONAL HUMIDIFICATION SETTINGS

While the device is delivering therapy, you can adjust Tube Temperature or Humidifier Settings. Rotate the control dial to choose either setting. Press and rotate the dial to change the setting.

Note: If you are using the Humidifier without the Heated Tube, simply just rotate the control dial to change the Humidifier setting.

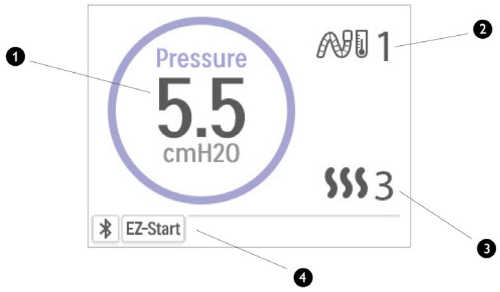


FIGURE 5-17: THERAPY PRESSURE SCREEN

Therapy Pressure Screen

#	Feature	Description
1	Therapy Pressure	Displays the current delivered pressure.
2	Adjustable Tube Temperature Setting	You can change this setting from 0 to 5. Only displays when optional heated tube is connected.
3	Adjustable Humidifier Setting	You can change this setting from 0 to 5. Only displays when humidifier is attached.
4	Enabled Features	Depending on setup, certain enabled therapy features will display here.

Ramp Feature

The device is equipped with an optional ramp feature that can be enabled or disabled. This feature reduces the air pressure when you are trying to fall asleep and then gradually increases (ramps) the pressure until your prescription setting is reached, allowing you to fall asleep more comfortably.

If ramp is enabled on your device, after you turn on the airflow, press the Ramp button on the top of the device. You can use the Ramp button as often as you wish during the night.

When you click the ramp button, the Therapy screen will change to reflect the Ramp pressure, and the green circle will reflect the gradual increase in pressure.

FIGURE 5-18: RAMP PRESSURE SCREEN

The device has two ramp modes. The standard ramp mode increases pressure at a steady rate. Alternately, the SmartRamp mode maintains a constant lower pressure until the device detects that you require more pressure.

5.10.2 USER MENU NAVIGATION (THERAPY OFF)

From the Home screen, you can scroll between the following menus. Only the menus available and enabled on the device will display.

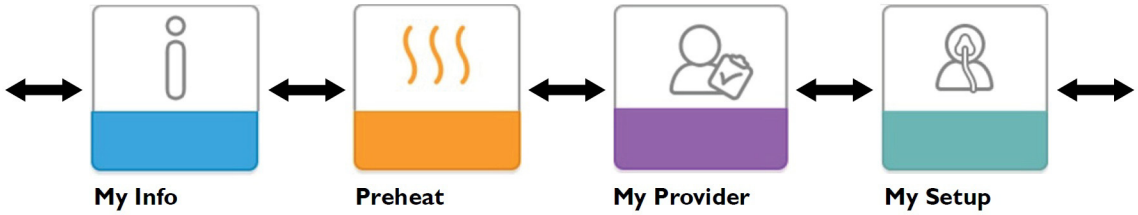


FIGURE 5-19: USER MENU (THERAPY OFF)

- **My Info:** This menu provides summary statistics of your therapy use.
- **Preheat (if available):** This function lets you warm up your humidifier for 30 minutes before starting a therapy session.
- **My Provider:** This menu contains information that the provider may direct the user to read to them so they can better assist them over the phone.
- **My Setup:** This menu contains comfort settings that you can adjust as needed.

My Info:

When you select “My Info”, you will be able to view the following screens. These screens will only display if they are available and enabled on the device. You cannot change settings in the Info menu. These screens are only for reference.

ICON	TEXT	DESCRIPTION
	*Therapy Hours*	*This screen displays the amount of time the user is actually receiving therapy on the device for the most recent 1 day time frame. It also displays the average amount of time the patient is actually receiving therapy over the last 7 days and 30 days.*
AHI	*AHI*	*This screen displays the nightly Apnea/Hypopnea indices (AHI) value for the most recent 1 day time frame. It also displays the average of these individual nightly AHI values over a 7 day and a 30 day time frame. This screen only displays if your home care provider has enabled it. Only available on CPAP Pro and Auto CPAP devices.*

ICON	TEXT	DESCRIPTION
	*Mask Fit*	*Displays the value "100% minus Large Leak". Large Leak is the percentage of time that the mask leak was so high that it is no longer possible for the device to identify respiratory events with statistical accuracy. Displays the value for the most recent 1 day, as well as the values over last 7 days and 30 days. This screen only displays if your home care provider has enabled it. Only available on CPAP Pro and Auto CPAP devices.*
Periodic Breathing	*Periodic Breathing*	*Displays the percentage of time that the user experienced periodic breathing. Displays the value for the most recent 1 day time frame, as well as values for the last 7 days and 30 days. If you observe a large increase in the percent of time in periodic breathing indicated her, contact your home care provider for assistance. This screen only displays if your home care provider has enabled it. Only available on CPAP Pro and Auto CPAP devices.*
90% Pressure	*90% Pressure*	*This screen displays the nightly value of 90% Pressure for the most recent 1 day time frame. It also displays the average of these individual nightly values of 90% Pressure over a 7 day and a 30 day time frame. Available on the Auto model.*
IPAP: 90% Pressure	*IPAP: 90% Pressure*	*Displays the value of 90% inhalation pressure for the most recent 1 day, as well as the average values over the last 7 days and 30 days. Available on the BiPAP Auto model.*
EPAP: 90% Pressure	*EPAP: 90% Pressure*	*Displays the value of 90% exhalation pressure for the most recent 1 day, as well as the average values over the last 7 days and 30 days. Available on the BiPAP Auto model.*

Preheat:

Preheat On Screen

Preheat Off Screen

When using a humidifier, the device can preheat the water tank for up to 30 minutes prior to starting therapy. In order to activate the preheat mode, the blower must be "off" and a humidifier must be attached. When "Preheat" is selected, you will be able to turn the control dial to choose between "on" or "off". Press the control dial again to make your selection. During the 30 minute preheat, you will still be able to use the control dial to select other menu options from the Home screen.

Note: The Preheat menu will only display if it is available on the device.

My Provider:

When you select “My Provider”, you will be able to view the following screens. These screens will only display if they are available and enabled on your device. You cannot change settings in the Provider menu.These screens are only for reference.

ICON	TEXT	DESCRIPTION
	*Device Info*	*This screen displays your therapy device information: serial number, model and software version.*
	*Provider Contact Info*	*This screen will display the contact information for your provider if it has been uploaded to your device.*
	*Phone-In*	*This screen displays the total therapy hours for the device, the total blower hours, the total number of days used when the sessions were greater than 4 hours, and a compliance check number used by your home care provider to validate that the data provided by you is the data taken from this screen.*
	*Compliance*	*This screen displays your start date, the total number of days used when the sessions were greater than 4 hours, and a check code number used by your home care provider.*
VIC90	*VIC 90*	*This Visual Inspection Check screen will display a check code number created from information gathered over the most recent 90 day period. This 15 digit number will display as: xxx.xxxx.xxxx.xxxx. Your home care provider may periodically ask you for this information.*
A-TRIAL	*A-Trial*	*If Auto-Trial mode is available, this screen displays Days: xx/xx (where xx/xx is the number of accumulated trial days / number of selected trial days). Available on the Pro, Auto, BiPAP Pro, and BiPAP Auto models.*
	*Upload*	*Allows user to initiate a modem call when an optional Cellular or Wi-Fi Accessory is installed. Signal strength is indicated at the top right of this screen. After the modem upload has finished, the screen will either display a green checkmark with the text “Completed” to indicate a successful upload, or a red X with the text “Failed” to indicate an unsuccessful upload. If the upload fails, initiate an upload a second time, or contact your home care provider if the issue persists. This screen is locked if modem is off.*

ICON	TEXT	DESCRIPTION
	*Performance Check*	*Your device is equipped with a self-diagnostic tool called "Performance Check." This tool can evaluate your device for certain errors. It also allows you to share key device settings with your home care provider. Use Performance Check when directed to by your home care provider.* *At conclusion of the scan, the screen displays a green checkmark if no issue is detected. If device displays a red "X", please contact your home care provider for assistance.*

My Setup:

When you select "My Setup", you will be able to view the following screens. These screens will only display if they are available and enabled on the device. You can change the settings in the Setup menu.

ICON	TEXT	DESCRIPTION
	*Ramp*	*This displays the ramp starting pressure. You can increase or decrease the ramp starting pressure in 0.5 cm H2O increments.*
	*Ramp Time*	*When you set the Ramp time, the device increases the pressure from the value set on the Ramp screen to the therapy pressure setting over the length of time specified here.*
FLEX	*Flex*	*This allows you to adjust the level of air pressure relief that you feel when you exhale during therapy. Your home care provider can enable or disable this feature. When your provider enables Flex, a level will already be set for you on the device. You can increase or decrease the setting from 1 to 3. The setting of "1" provides a small amount of pressure relief, with higher numbers providing additional relief.* ***Note:** If a lock icon is displayed on this screen, it indicates that your provider has locked this setting and you cannot change it.*
	*Rise Time*	*Rise time is the time it takes for the device to change from EPAP to IPAP. This screen allows you to adjust the rise time so you can find the desired setting.*

ICON	TEXT	DESCRIPTION
	*Humidification*	*This displays the Humidification Mode being used. You can choose between Fixed or Adaptive Humidification. If a heated tube is being used, the device will automatically switch to Heated Tube Humidification Mode. A "lock" symbol will appear next to the mode setting indicating that so long as the heated tube is attached to the device, this mode cannot be changed. However, the heater plate and tube temperature settings can still be adjusted on the device Therapy screen as normal.*
	*Mask Type*	*This setting allows you to adjust the level of air pressure relief based on the specific Philips Respironics mask. Each Philips Respironics mask may have a* ***"System One"*** *resistance control setting. Contact your home care provider if you cannot find this resistance setting for your mask.* ***Note:*** *If a lock icon is displayed on this screen, it indicates that your provider has locked this setting and you cannot change it.*
	*Tube Type*	*This setting allows you to select the correct size diameter tubing that you are using with the device. You can choose either (22) for the Philips Respironics 22 mm tubing, (15) for the Philips Respironics 15 mm tubing, or (12) for the optional Philips Respironics 12 mm tubing. When using Heated Tubing, the device will automatically change this setting to the appropriate tubing type (15H) and you will not be able to change it.* ***Note:*** *Tubing is identified on the cuff with the tubing identifier symbol: "12", "15", or "15H". 22 mm tubing contains no symbol.* ***Note:*** *If a lock icon is displayed on this screen, it indicates that your provider has locked this setting and you cannot change it.*
	*Language*	*This feature allows you to choose which language to display on the interface. You can also turn off (0) text mode which means the device will display the "Icon Mode" on the interface.*
	*Check Mask Fit*	*This feature allows you to check the fit of your mask prior to starting therapy. This is done by measuring the amount of leak.*
	*Modem*	*Allows you to turn modem off temporarily or turn it back on. When modem is turned off, it will automatically turn on again after 3 days. Only displays when modem is installed.*
	*Bluetooth*	*Allows you to turn Bluetooth off and on. Also, it allows you to clear the pairing with a compatible Bluetooth device.*
	*Time*	*Allows you to adjust the time. The default setting is Greenwich Mean Time, but you may adjust the time in 30 minute increments to match your local time zone.* ***Note:*** *This time setting is not displayed as a clock function on the device. It is only used to align your therapy data for your Provider's data reports.*

Check Mask Fit

The optional check mask fit feature can be enabled or disabled by the home care provider. This feature allows you to check the fit of your mask prior to starting therapy. This is done by measuring the amount of leak. Put on your mask assembly. Refer to your mask instructions if needed. Navigate to the Check Mask Fit screen under “My Setup” and press the control dial to initiate the check.

The device will deliver a test pressure while the screen counts down 40 seconds. A green bar indicates good fit, while a red bar indicates improvement is needed. After the test, normal therapy will start and the screen will either display a green checkmark or a red “X”. The green checkmark indicates that the leak found allows for optimal performance of the device. The red “X” indicates that the leak may affect device performance, however, the device will remain functional and deliver therapy.

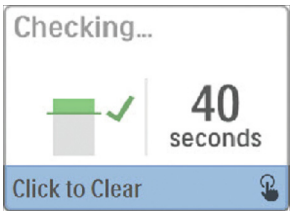


FIGURE 5-20: CHECK MASK FIT SCREEN

Sleep Progress

The device provides summary information about therapy use each time the therapy is turned off. The first screen displays “Three Night Summary.” It shows nightly usage for the last 3 sleep sessions (measured in 24 hour periods, ending at noon each day). The most recent session is displayed in the right hand bar, labeled with the number of hours slept. A green bar indicates that the person slept more than 4 hours, and a yellow bar indicates less than 4 hours of use.

The second screen shows the total number of 4+ hour nights that the person had slept in the last 30 days. It provides a goal of sleeping at least 4 hours per night for 70% of the last 30 nights. Therefore the goal is 21 “good nights” of use. This screen provides a simple way to track progress. The screen will stop displaying when the goal is reached, or after the first 90 days of use has passed, whichever comes first.

Altitude Compensation

This device automatically compensates for altitude up to 7,500 feet. No manual adjustment is necessary.

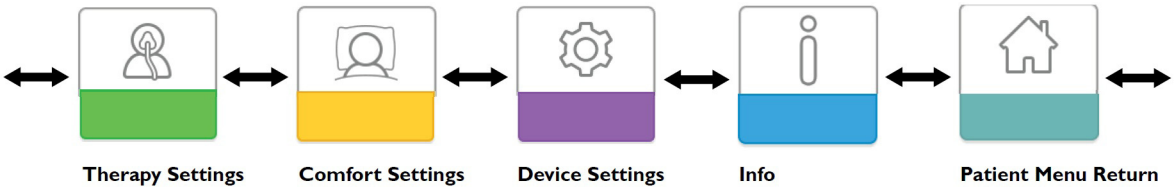
5.10.3 ACCESSING PROVIDER MODE SCREENS

Accessing provider mode unlocks settings that cannot be modified by the user. To access provider mode:

1. Supply power to the device. First, plug the socket end of the AC power cord into the power supply. Then plug the pronged end of the AC power cord into an electrical outlet that is not controlled by a wall switch. Finally, plug the power supply cord's connector into the power inlet on the back of the device.
2. Once the device is powered, press and hold both the control dial and the Ramp button on the device for at least 5 seconds.

Note: There is an optional 4 digit PIN setup option to enter Provider mode for additional security. Once Setup, if the wrong PIN is entered too many times, you will have the option to reset the device or wait 15 minutes and try again.

3. You are now in provider mode. You can choose between the following Provider mode screens.



5.10.4 NAVIGATING THE PROVIDER MODE SCREENS

The following sections will describe the options available from the Provider screens:

Therapy Settings:

Choosing this screen will take you to a sub-menu where you can adjust the device therapy modes and pressure settings. These settings are described here.

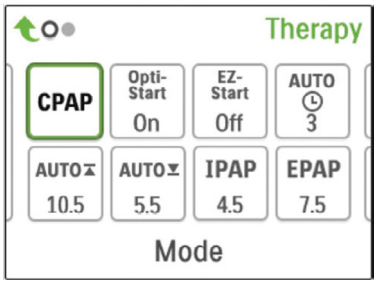


FIGURE 5-21: SAMPLE THERAPY SUB-MENU

Note: Not all settings shown here will display on the device. The display will vary based on therapy device model and device settings.

ICON	TEXT	DESCRIPTION
CPAP **C-Check** **Auto** **Bi-Level** **AutoB**	*Mode*	*This screen displays the therapy mode setting. Depending on the therapy device model, you can select CPAP mode, CPAP-Check (C-Check) mode, Auto-CPAP (Auto) mode, Bi-Level mode, or Auto Bi-Level (AutoB) mode.* ***Note:*** *CPAP-Check mode (C-Check) delivers CPAP therapy while automatically adjusting the pressure level to meet patient needs over the long term. Every 30 hours of therapy use, the therapy device evaluates patient obstructive respiratory disturbance index (ORDI) and increments pressure ± 1 cm H2O if needed. The range of adjustment that can be made over time is limited to ± 3 cm H2O of the CPAPCheck pressure setting, in 1 cm H2O increments.*
Opti-Start	*Opti-Start*	*This feature starts an Auto-CPAP therapy session at a starting pressure that is closer to the previous session's 90% pressure, in order to reduce the likelihood of any residual events at the beginning of a therapy session. You can enable or disable this feature.*
EZ-Start	*EZ-Start*	*This feature reduces the therapy pressure setting for the first few days of operation and gradually increases this setting until the prescription therapy pressure is reached. For fixed CPAP mode, the initial pressure will be reduced to half of the prescription CPAP pressure setting, but no lower than 5 cm H2O. For Auto CPAP mode, EZ-Start reduces the maximum Auto pressure to 1cm H2O above the minimum Auto pressure setting. For either mode, after each day of successful use (the therapy session was greater than 4 hours), the therapy pressure will increase by 1 cm H2O until the prescription pressure is reached. From that point forward, the therapy device would operate in normal CPAP, CPAP-Check, or Auto CPAP mode. If the patient has not reached their prescription pressure after 30 days of EZ-Start, then the therapy pressure will increase by 1 cm H2O per day until the prescription pressure is reached. You can enable or disable EZ-Start only if CPAP, CPAP-Check, or Auto CPAP mode is enabled.*
A-TRIAL	*A-Trial*	*This Auto-Trial feature will enable the device to deliver Auto-CPAP therapy for a selectable number of days of patient use. You can enable or disable this feature.*
	*A-Trial Days*	*This screen allows you to adjust the duration of the Auto-Trial feature in number of days. You can set this from 3 to 30 days. The default is 7 days. This setting only displays if Auto-Trial mode is available and enabled. When you reach the last available Auto-Trial period, the text for this selection will appear in red font.*

ICON	TEXT	DESCRIPTION
AUTO▼	*Auto Min*	*This screen allows you to modify the Auto minimum pressure setting. You can adjust this setting from 4 cm H2O to the Auto maximum pressure setting. This setting only displays if Auto-CPAP mode is enabled or if the Auto-Trial feature is available and enabled.*
AUTO▲	*Auto Max*	*This screen allows you to modify the Auto maximum pressure setting. You can adjust this setting from the Auto minimum pressure setting to 20 cm H2O. This screen only displays if Auto-CPAP mode is enabled or if the Auto-Trial feature is available and enabled.*
cmH_2O	*Pressure*	*This screen allows you to adjust the CPAP pressure, or the CPAP-Check mode starting pressure. If Auto-Trial mode was used, you can choose the 90% pressure setting determined from the Auto-Trial mode, or you can adjust this setting from 4 to 20 cm H2O. If the Auto-Trial mode was not used, this screen allows you to only adjust the pressure setting from 4 to 20 cm H2O.*
IPAP	*IPAP*	*This screen allows you to modify the IPAP setting. The initial default setting is 20 cm H2O. You can adjust the setting from the EPAP setting to 25 cm H2O. This screen only displays if Bi-level mode is enabled.*
EPAP	*EPAP*	*This screen allows you to modify the EPAP setting. The initial default setting is 4 cm H2O. You can adjust the setting from 4 cm H2O to the IPAP setting. This screen only displays if Bi-level mode is enabled.*
IPAP▲	*IPAP Max*	*This screen allows you to modify the Maximum IPAP setting. The setting you specify here will be the maximum level of pressure applied during the inspiratory breath phase. You may adjust the setting from the Minimum EPAP setting to 25 cm H2O. This screen only displays if Auto Bi-level mode is enabled.*
EPAP▼	*EPAP Max*	*This screen allows you to modify the Minimum EPAP setting. The setting specified here will be the minimum level of pressure applied during the expiratory breath phase. You may adjust the setting from 4 cm H2O to the Maximum IPAP setting. This screen only displays if Auto Bi-level mode is enabled.*
PS ▼	*PS Min*	*This screen allows you to modify the Minimum Pressure Support setting. This setting is the minimum difference that is permitted between IPAP and EPAP while Auto Bi-level therapy mode is active. You may adjust the setting from 0 cm H2O to the Maximum Pressure Support setting. This screen only displays if Auto Bi-level mode is enabled.*

ICON	TEXT	DESCRIPTION
PS	*PS Max*	*This screen allows you to modify the Maximum Pressure Support setting. This setting is the maximum difference that is permitted between IPAP and EPAP while Auto Bi-level therapy mode is active. You may adjust the setting from 0 cm H2O to the minimum value of either 8 cm H2O, or the difference between Max IPAP and Min EPAP. This screen only displays if Auto Bi-level mode is enabled.*

Comfort Settings:

Choosing this screen will take you to a sub-menu where you can adjust the humidification and pressure comfort settings. These settings are described here.

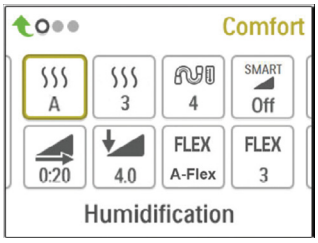
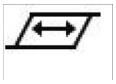


FIGURE 5-22: SAMPLE COMFORT SUB-MENU

Note: Not all settings shown here will display on the device. The display will vary based on therapy device model and device settings.

ICON	TEXT	DESCRIPTION
	Humidification	*This setting allows you to select the Humidification Mode being used. You can choose between Fixed or Adaptive (A) Humidification. If a heated tube is attached to the device, then the device will automatically switch to Heated Tube Humidification Mode.* *Fixed mode applies a constant heat on the humidifier heater plate. Under certain conditions and settings, this mode can allow condensation to occur in the tube.* *Adaptive mode adapts the heater plate temperature to the ambient conditions in the room, and is designed to not allow condensation to occur in the tube.*
	Humidifier	*This setting allows you to choose the desired humidity setting for the humidifier: 0, 1, 2, 3, 4 or 5.*

ICON	TEXT	DESCRIPTION
	*Tube Temperature*	*This setting allows you to choose the desired temperature for the heated tube: 0, 1, 2, 3, 4 or 5.*
	*SmartRamp*	*When SmartRamp mode is enabled, the therapy device's ramp function utilizes an Auto titrating algorithm during the ramp period. It allows patients the ability to stay at lower pressures during the ramp period, to improve their acclimation to therapy.* *SmartRamp mode functions differently, depending on the therapy mode that the device is using.* **In CPAP or CPAP-Check mode, the SmartRamp applies the Auto-CPAP algorithm during the ramp period. The Ramp Start pressure becomes the Auto Minimum pressure during the ramp period. The Auto Maximum pressure during ramp is the CPAP or CPAP-Check pressure.* **In Auto mode, the SmartRamp applies the Auto-CPAP algorithm during the ramp period. The Ramp Start pressure becomes the Auto Minimum pressure during the ramp period. The Auto Maximum pressure during ramp is the Auto Minimum under normal Auto mode.* **In BiPAP or Auto-BiPAP mode, the SmartRamp applies the a modified version of the Auto-BiPAP algorithm during the ramp period. The Ramp Start pressure becomes the EPAP Minimum pressure, and the Pressure Support Minimum pressured is applied.* *The IPAP Maximum pressure during ramp is the EPAP or EPAP Minimum under normal BiPAP or Auto-BiPAP mode.* *The SmartRamp period will terminate in either of two ways:* *1) If SmartRamp pressure reaches the minimum pressure of the therapy mode selected, then SmartRamp ends, and the device continues to deliver therapy under the selected therapy mode, or:* *2) If SmartRamp pressure does not reach the minimum pressure of the therapy mode selected by the end of the Ramp Time, then pressure is increased at a rate of approximately 1 cm H2O per minute. Once the pressure reaches the minimum pressure of the therapy mode selected, then the device will continue to deliver therapy for that mode.* *If SmartRamp mode is not enabled, then the standard, linear pressure ramp mode is active.*

ICON	TEXT	DESCRIPTION
	*Ramp Time*	*When you set the Ramp time, the device increases the therapy pressure from the value set on the Ramp start screen to the therapy pressure setting over the length of time specified here. If the therapy pressure is set to 4 cm H2O (the minimum setting), this screen will not display.* ***Note:*** *Depending on the therapy mode, the therapy pressure setting could be CPAP pressure, CPAP-Check pressure, Auto min pressure, EPAP pressure, or EPAP min pressure.* ***Note:*** *If the Ramp time is set to 0, Ramp start will not display.*
	*Ramp Start*	*This displays the Ramp starting pressure. You can increase or decrease the Ramp starting pressure in 0.5 cm H2O increments. This is only available if Ramp time has been set to >0 and therapy pressure >4 cm H2O.* ***Note:*** *Depending on the therapy mode, the therapy pressure setting could be CPAP pressure, CPAP-Check pressure, Auto min pressure, EPAP pressure, or EPAP min pressure.*
	*Flex*	*This screen displays the comfort mode setting. You can select OFF, C-Flex, or C-Flex+ (if in CPAP or CPAP-Check mode). You can select OFF, C-Flex, or A-Flex (if in Auto-CPAP or Auto-Trial mode).*
	*Flex Setting*	*You can modify the Flex setting (1, 2 or 3) on this screen if you enabled Flex. The setting of "1" provides a small amount of pressure relief, with higher numbers providing additional relief.*
	*Flex Lock*	*This enables you to lock the Flex setting if you do not want the patient to change it.* *This screen is only available if Advanced Menus is set to On.*
	*Rise Time*	*Rise time is the time it takes for the device to change from EPAP to IPAP. This screen allows you to adjust the rise time so you can find the desired setting. This is only available if Flex has been disabled and the device is in Bi-level or Auto Bi-level mode.* *• 0 (off) reduces the Rise Time feature to the lowest setting (off = 150 msec).* *• 1 sets Rise Time to 1 (200 msec).* *• 2 sets Rise Time to 2 (300 msec).* *• 3 sets Rise Time to 3 (400 msec).*
	*Rise Time Lock*	*This enables you to lock the Rise Time setting if you do not want the patient to change it.* *This screen is only available if Advanced Menus is set to On.*

ICON	TEXT	DESCRIPTION
	*Tube Type*	*This setting allows you to select the correct size diameter tubing that you are using with the device. You can choose either (22) for the Philips Respironics 22 mm tubing, (15) for the Philips Respironics 15 mm tubing, or (12) for the optional Philips Respironics 12 mm tubing. When using Heated Tubing, the device will automatically change this setting to the appropriate tubing type (15H).*
	*Tube Type Lock*	*This enables you to lock the Tubing type setting for either the 12 mm, 15 mm, or the 22 mm tubing if you do not want the patient to change it.*
	*Mask Type*	*This setting allows you to select the appropriate Mask Type resistance setting (also known as System One Resistance Control) for your Philips Respironics mask. This feature allows the device to adjust the level of pressure compensation to match your mask. Refer to the packaging of your mask to identify the resistance setting for your mask.* ***Note:*** *It is important to use the appropriate "Mask Type" resistance setting to ensure proper pressure delivery to the patient.*
	*Mask Type Lock*	*This enables you to lock the Mask Type resistance setting if you do not want the patient to change it.* *This screen is only available if Advanced Menus is set to On.*
	*Check Mask Fit*	*You can enable or disable the check mask fit setting. This feature allows the patient to check the fit of their mask prior to starting therapy. This is done by measuring the amount of leak in the patient circuit.*

Device Settings:

Choosing this screen will take you to a sub-menu where you can adjust the way the device displays information. These settings are described here.

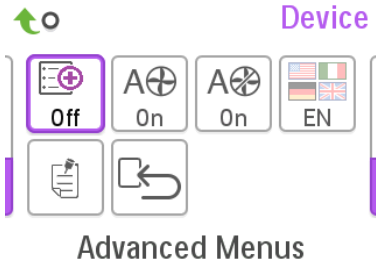


FIGURE 5-23: SAMPLE DEVICE SUB-MENU

Note: Not all settings shown here will display on the device. The display will vary based on therapy device model and device settings.

ICON	TEXT	DESCRIPTION
	*Advanced Menus*	*This feature enables you to turn on or off a set of advanced menu screens. When set to Off, the below listed screens will not display. The device will still collect this data and you can access it with our patient management software.* *Patient menu screens* *My Info menu: AHI, Mask Fit, Periodic Breathing, IPAP 90%, EPAP 90%, 90% Pressure, Three Night Summary, Goal Progress, and DreamMapper screens* *My Provider menu: Phone-In and A-Trial* *My Setup menu: Mask Type, Humidification Type, Flex, Rise Time, and Language* *Preheat menu: Menu does not display* *Provider menu screens* *Info screens: Phone-In, Days>4, IPAP 90%, EPAP 90%, 90% Pressure, Periodic Breathing, and A-Trial* *Comfort settings screens: Flex Lock, Rise Time Lock, Mask Type Lock*
cmH_2O	*Pressure Units*	*If enabled on the device, you will have the option to choose the units of pressure that are displayed. You can choose between "cm H2O" or "hPa".*
	*Automatic On*	*You can enable or disable this feature if you want the device to automatically turn the airflow on whenever the patient applies the interface (mask) to their airway.*

ICON	TEXT	DESCRIPTION
	*Automatic Off*	*You can enable or disable this feature if you want the device to automatically turn the airflow off whenever the patient removes the interface (mask) from their airway.*
	*Language*	*This feature allows you to choose which language to display on the interface. You can choose English or Spanish.*
	*Clear Default Reminders*	*This setting turns off the default patient reminders that are enabled in the therapy device from the factory.* ***Note:*** *This does not turn off additional reminders that you may have activated in Encore. Encore messages must be cleared or modified in Encore.*
	*Reset Data*	*Use the Reset Data function to clear patient data from the therapy device, as well as an SD card and modem (if installed). After you click to execute Reset Data, the device will display a message asking you to confirm the reset. Click again to reset data in the device.* ***Note:*** *Reset Data resets Blower Hours that are visible to the patient, but it does not reset Machine Hours in the Provider Menu.*

Info Screens:

Choosing this screen will take you to a sub-menu where you can view information on patient usage. These info screens are described here.

Note: Not all the screens shown here will display on the device. The display will vary based on therapy device model and device settings.

ICON	TEXT	DESCRIPTION
	*Phone In*	*This screen displays the total therapy hours for the device, the total blower hours, and the total number of days used when the sessions were greater than 4 hours since the device was last reset. This screen also displays a compliance check number you can use to validate that the data provided to you is the data taken from this screen. This screen is only available if Advanced Menus is set to On.*
Days>4	*Days Greater Than 4*	*This screen displays the cumulative number of device therapy sessions that exceeded 4 hours over a 1 day, a 7 day, and a 30 day time frame.This screen is only available if Advanced Menus is set to On.*
	*Therapy Hours*	*The device is capable of recognizing the difference between the time the patient is actually receiving therapy and the time when the blower is simply running. This screen displays the amount of time the patient is actually receiving therapy on the device for the most recent 1 day time frame. It also displays the average amount of time the patient is actually receiving therapy on the device over a 7 day and a 30 day time frame (provided the device has at least 7 or 30 days of data respectively). If the device has only 5 days of data to use for the calculation, the 5 day average value will be seen under the 7 day display.*
	*Device Hours*	*This screen displays the number of hours that the blower has been active over the life of the device.*
	*Mask Fit*	*Displays the value "100 - % Large Leak". % Large Leak is the percentage of time that the mask leak was so high that it is no longer possible for the device to identify respiratory events with statistical accuracy. Displays the value for the most recent 1 day, as well as the values over last 7 days and 30 days.*

ICON	TEXT	DESCRIPTION
AHI	*AHI*	*The device accumulates individual Apnea/Hypopnea indices (AHI) for each session the patient used the device. This screen displays the nightly AHI value for the most recent 1 day time frame. It also displays the average of these individual nightly AHI values over a 7 day and a 30 day time frame (provided the device has at least 7 or 30 days of data respectively). If the device has only 5 days of data to use for the calculation, the 5 day average value will be seen under the 7 day display.*
CSR	*Periodic Breathing*	*During any given night, the device recognizes the percentage of time the patient was experiencing periodic breathing. This screen displays the nightly value of periodic breathing for the most recent 1 day time frame. It also displays the average of these individual nightly values of periodic breathing over a 7 day and a 30 day time frame (provided the device has at least 7 or 30 days of data respectively). If the device has only 5 days of data to use for the calculation, the 5 day average value will be seen under the 7 day display.This screen is only available if Advanced Menus is set to On.*
90%	*90% Pressure*	*During any given night, the device recognizes the 90% Pressure achieved by the Auto Algorithm. 90% Pressure is defined as the pressure at which the device spent 90% of the session time at or below. For example, if the device recognized airflow for 10 hours, and 9 hours were spent at or below 11 cm H2O, and 1 hour was spent above 11 cm H2O, then the 90% Pressure would be 11 cm H2O. This screen displays the nightly value of 90% Pressure for the most recent 1 day time frame. It also displays the average of these individual nightly values of 90% Pressure over a 7 day and a 30 day time frame (provided the device has at least 7 or 30 days of data respectively). If the device has only 5 days of data to use for the calculation, the 5 day average value will be seen under the 7 day display. This screen only displays if the device is in Auto- CPAP or Auto-Trial therapy mode.This screen is only available if Advanced Menus is set to On.*
IPAP 90%	*IPAP: 90% Pressure*	*Displays the value of 90% inhalation pressure for the most recent 1 day, as well as the average values over the last 7 days and 30 days. Available on the Auto BiPAP model.This screen is only available if Advanced Menus is set to On.*
EPAP 90%	*EPAP: 90% Pressure*	*Displays the value of 90% exhalation pressure for the most recent 1 day, as well as the average values over the last 7 days and 30 days. Available on the Auto BiPAP model.This screen is only available if Advanced Menus is set to On.*
A-Trial	*A-Trial*	*If Auto-Trial mode is available and enabled, this screen displays Days: xx/xx (where xx/xx is the number of completed trial days / number of selected trial days).This screen is only available if Advanced Menus is set to On.*

Return to Patient Mode:

Choosing this screen will exit Provider mode and the device will return to the Patient mode. Provider mode will also time out after 5 minutes of inactivity and automatically return to the Patient mode.

5.11 PERFORMANCE CHECK DEVICE SCREENING TOOL

Performance Check troubleshooting tool is a self-diagnostic utility built into the therapy device. It allows you to quickly evaluate a therapy device remotely. If a patient calls indicating that their therapy does not seem to be operating properly, just direct them to click on Performance Check in the patient's My Provider menu. The check operates the blower and screens the device for any operation errors. The screen then displays whether the device passed the check (displays a green check mark) or should be returned for service (displays a red X). If a modem is installed, Performance Check will automatically upload a troubleshooting dashboard to the Encore Anywhere patient management software. This dashboard gives you an overview of key device settings and statistics to help make troubleshooting over the phone easier. If there is not a modem installed in the therapy device, you can direct the patient to read you the five codes off the Performance Check screen over the phone. You can decode these codes in EncoreAnywhere, EncorePro or Encore Basic to populate the troubleshooting dashboard.

5.12 DEMONSTRATION MODE

Demonstration mode allows you to demonstrate different device settings while the blower is on so that the patient can feel the changes in pressure based on the changes to the device settings. To access Demonstration mode, navigate to the Provider menu, then hold down the therapy button for 5 seconds. Then, the blower will start and the device will display the Demonstration menu, which will allow you to choose from the following settings:

- Mode - Options will vary depending on the model of therapy device you are using. Note: A-Trial, Ez-Start, and Opti-Start features are disabled during Demonstration mode.
- Pressure - Options will vary depending on the mode selected.
- Flex Type - Options will vary depending on the model of therapy device you are using.
- Flex Setting - Change the Flex Setting to demonstrate different amounts of pressure relief. Note: Turning Flex "OFF" on a Bi-Level device will enable the rise-time adjustment setting.

Note: Entering the Demonstration menu will disable the 5 minute Provider mode timeout.

While in Demonstration mode, compliance data is not logged, pressing Ramp has no effect, the humidifier will operate with its current settings, which cannot be adjusted during Demonstration mode, and setting adjustments have no effect on the existing prescription settings in the Provider menu. To exit Demonstration mode, press the therapy button. Then, you will be returned to the full Provider menu.

5.13 *BLUETOOTH* WIRELESS TECHNOLOGY

The devices have Bluetooth wireless technology, which is one method by which you can transfer the therapy device's data to DreamMapper. DreamMapper is a mobile and web-based system designed to help obstructive Sleep Apnea (OSA) patients enhance their sleep therapy experience.

5.13.1 PAIRING TO YOUR BLUETOOTH ENABLED MOBILE DEVICE

NOTES

- *You can only pair your therapy device to one mobile device at any given time.*
- *Pairing works best when your therapy device and mobile device are in the same room.*

Follow the steps below to manually pair to your mobile phone or tablet.

1. To pair to your mobile device, first ensure that the Bluetooth setting is turned ON on your mobile device. Refer to your mobile device's instruction manual for more information.
2. If you need to select from a list of available Bluetooth devices, the therapy device will appear as "PR BT XXXX" (XXXX will be the last four digits of the serial number listed on your therapy device).
3. When your therapy device is powered up but the blower is off, initiate pairing from your mobile device.
4. If your mobile device is in range, one of the following two steps will apply:

• Your mobile device has Bluetooth Secure Simple Pairing (SSP)

The following icon will pop-up on your therapy device screen with a 6 digit number and "Pair?":

This number is a six digit passkey generated during SSP. Verify that the six digit SSP passkey is the same on both the mobile device and therapy device. Rotate the Control Dial between "yes" or "no", and then press the Control Dial to choose. If "no" is selected, or the pop-up screen times out after 30 seconds, the device will reject the pair request. If "yes" is selected, the therapy device will acknowledge the six digit SSP passkey. If the mobile device also acknowledges the request, the two will now be paired and ready to connect using DreamMapper.

• Your Bluetooth enabled mobile device does not support Bluetooth SSP

Your mobile device will prompt you to enter a pin code. Enter "1008" on your mobile device. The following icon will pop-up on your therapy device screen with the number "001008" and "Pair?":

Rotate the Control Dial between "yes" or "no", and then press the Control Dial to choose. If "no" is selected, or the pop-up screen times out after 30 seconds, the device will reject the pair request. If "yes" is selected, the therapy device will acknowledge the 001008 passkey. If the mobile device also acknowledges the request, the two will now be paired and ready to connect using DreamMapper.

Note: Do NOT select "yes" on the pop-up screen unless you are currently trying to pair your devices. This will ensure that only your mobile device connects to your therapy device.

5.14 ACCESSORIES

There are several accessories available for the DreamStation system such as a Humidifier, Cellular Modem, Wi-Fi Accessory or a Link Module. When using optional accessories, always follow the instructions enclosed with the accessories.

CAUTION

Pins of connectors should not be touched. Connections should not be made to these connectors unless ESD precautionary procedures are used. Precautionary procedures include methods to prevent build-up of electrostatic charge (e.g., air conditioning, humidification, conductive floor coverings, non-synthetic clothing), discharging one's body to the frame of the equipment or system or to earth or a large metal object, and bonding oneself by means of a wrist strap to the equipment or system or to earth.

5.14.1 HUMIDIFIER WITH OR WITHOUT HEATED TUBING

You can use the heated humidifier and the heated tube with the device. A humidifier may reduce nasal dryness and irritation by adding moisture to the airflow.

WARNING

For safe operation, the humidifier must always be positioned below the breathing circuit connection at the mask. The humidifier must be level for proper operation.

5.14.2 SD CARD

The DreamStation system comes with an SD card inserted in the SD card slot on the side of the device to record information for the home care provider.

UPDATING THE DEVICE FIRMWARE USING THE SD CARD:

The device firmware can be updated using the SD card. The firmware update must be done when the therapy is off.

1. Log on to Philips Respironics my.respironics Online portal (http://my.respironics.com).
2. Insert the SD card to your PC or reader/adapter.
3. Delete any existing ebu files from the root directory of the SD card to be used for this DreamStation firmware update.
4. Download the applicable firmware version from my.respironics.com to the SD card.
5. Insert SD card into DreamStation device.
6. A popup will appear asking, "Would you like to upgrade software?", select "yes".
7. Verify the firmware was updated on the device by viewing the firmware version in the My Provider menu.

5.14.3 LINK MODULE

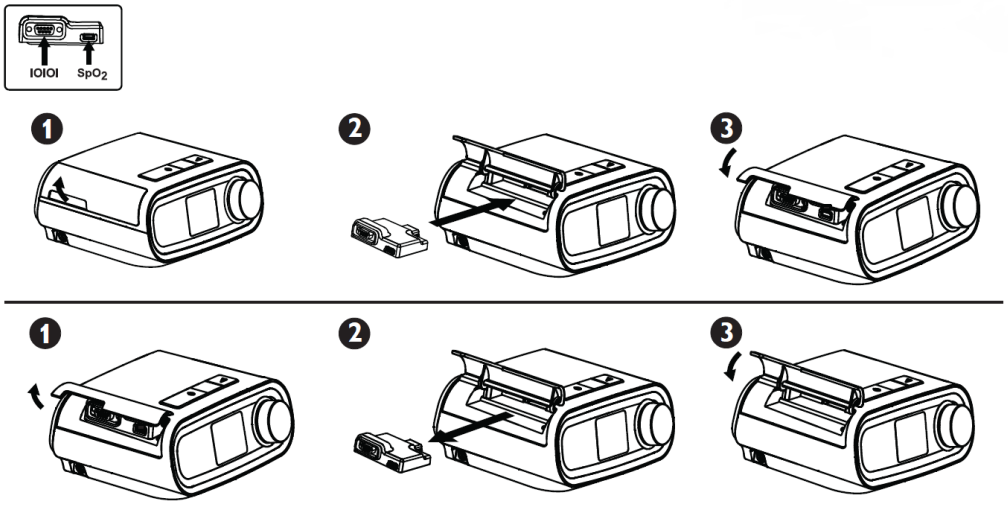
The Link Module is able to receive oximetry data and transfer it to the therapy device for home use or in a laboratory setting. For use in Service or in a laboratory setting, the Link Module also includes an RS-232 (or "DB9") port to allow remote control of the DreamStation Sleep Therapy Device by a personal computer.

NOTES

- *Please refer below for Link Module installation and removal instructions.*
- *There are no SpO2 alarms available.*
- *Oximetry data is not displayed.*

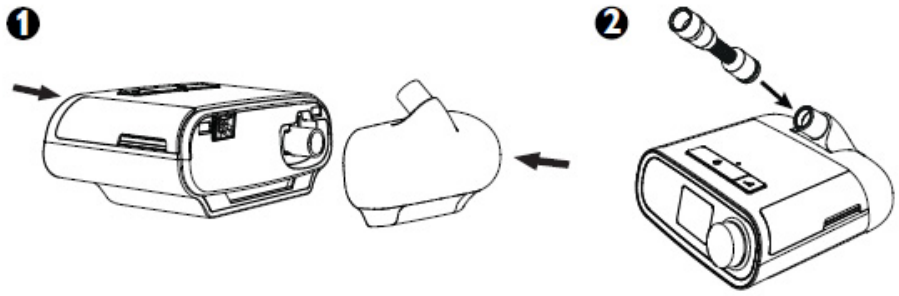
CONNECTING/DISCONNECTING THE LINK MODULE

Refer to the illustrations below to connect/disconnect the Link Module to the device.



5.14.4 FLOW GENERATOR COVER

The Flow Generator Cover accessory is intended to direct flow outlet toward the user, allowing the tube to reach farther. The Flow Generator Cover also provides a finished appearance when using the flow generator without a humidifier.



NOTES

- *The Flow Generator Cover is only for use with firmware version V1.1.0 or later.*
- *The Flow Generator Cover will be included with the base unit in the markets and configurations that abstain from use of the humidifier.*
- *Initially the Flow Generator Cover will be assembled with the base unit in limited market configurations.*

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CHAPTER 6: TROUBLESHOOTING AND ERROR CODES

6.0 INTRODUCTION

This section provides an overview of device troubleshooting, along with corrective actions to take based on the outcome. You will also find bench checkout procedures, along with tables that include error codes and descriptions. In addition, you will find troubleshooting guidance based on issues unrelated to error codes.

6.1 BENCH CHECKOUT

6.1.1 PAP DEVICE:

If the PAP device was returned with a Humidifier, perform these steps with and without the Humidifier if necessary.

1. Visually inspect the outside of the device for physical damage and broken/missing parts.
2. Verify all components are aligned/seated properly, and not damaged.
3. Apply power to the device and verify the buttons are functioning properly and are properly back-lit, and the LCD is working.
4. If the device was returned with a power cord and power supply, verify that they function properly with/without the device.
5. Turn on the device and verify proper operation of the unit.
6. Verify the device pressure by using a manometer.
7. Listen to the device for noisy operation or loose components.
8. Refer to section 6.3 to retrieve the device Error Log, and refer to the chart for troubleshooting guidance based on the Error.
9. Check all other components for physical damage.
10. Perform repairs to the device as necessary.

6.1.2 HUMIDIFIER:

If the Humidifier was returned with a PAP device, perform these steps with the returned PAP device.

1. Visually inspect the outside of the device for physical damage and broken/missing parts.
2. Verify all seals and all other components are aligned/seated properly, and not damaged.
3. Connect the Humidifier to the PAP device and apply power.
4. If the device was returned with a power cord and power supply, verify that they function properly with/without the device.
5. Turn on the PAP device and adjust heater plate setting using the UI Knob to any setting but 0, and let the device run for at least 15 seconds.
6. If a Heated Tube was returned, connect the Tube to the Humidifier, adjust the Heated Tube setting using the UI Knob to any setting but 0, and verify the Tube is warming.
7. Verify the pressure at the Humidifier ISO Port by using a manometer.
8. Verify that the heater plate is heating.
9. Check all other components for physical damage.
10. Perform any repairs as necessary.

6.2 VERIFYING PRESSURE

WARNING

- *If the device fails to perform within the stated specifications, have the system serviced by a qualified Philips Respironics-approved service facility.*

- You will need the following equipment to verify the pressure:
- Philips Respironics Pressure Calibration Kit

  Kit Includes:
  - Philips Respironics Whisper Swivel II (1)
  - Philips Respironics O2 Enrichment Final Assembly (2)
  - Closed end cap (3)
- Philips Respironics flexible tubing (4)
- Pressure tubing (5)
- Philips Respironics Digital Manometer (6) or equivalent

  Minimum Specifications:

  0 - 25 cm H2O (or better)

  ±0.3 cm H2O accuracy

  ±0.1 cm H2O resolution
- Blue pollen filter (not shown)

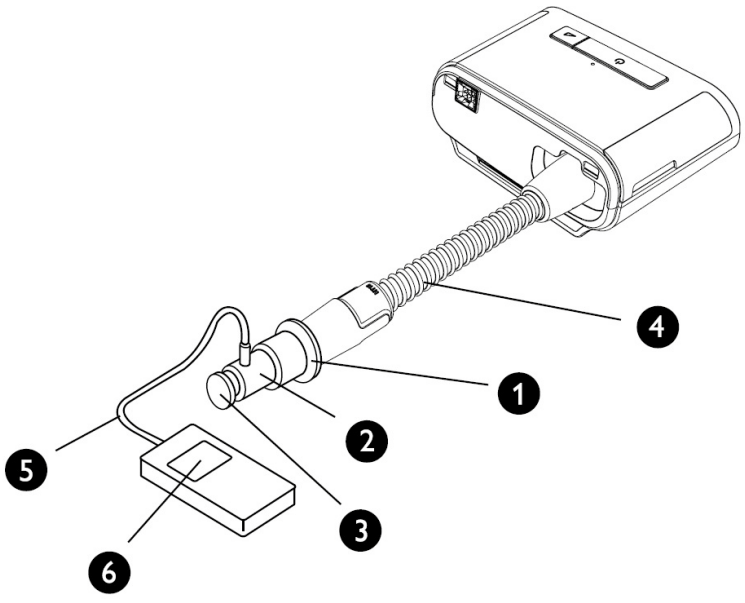


FIGURE 6-1: PRESSURE VERIFICATION

To verify the pressure, complete the following steps:

1. Install the blue pollen filter into the device.
2. With the device unplugged, connect the system as illustrated in the diagram.
3. Turn the manometer on. If it does not display a reading of zero, adjust the manometer to calibrate it. If the manometer has variable settings for devices, set it to cm H2O.
4. Supply power to the device then place the device in provider mode.
5. Set the therapy parameters according to the patient specific data.
6. Set the device to the specific pressure value for the patient.
7. Verify that the pressure setting matches the pressure displayed on the manometer. If the pressure setting does not match the measured value for the device, contact Philips Respironics or an authorized service center to have the device serviced.
8. Set up the remaining parameters and exit provider mode. The unit is ready for patient use.

6.3 SERVICE CENTER TOOLS SUITE

The Service Center Tools Suite will provide you the necessary tools to view the device's error/event log, along with additional functions necessary to service the device. To download the software you must log onto my.respironics.com. If you do not have an account, click on the "Sign Up" link to register for an account.

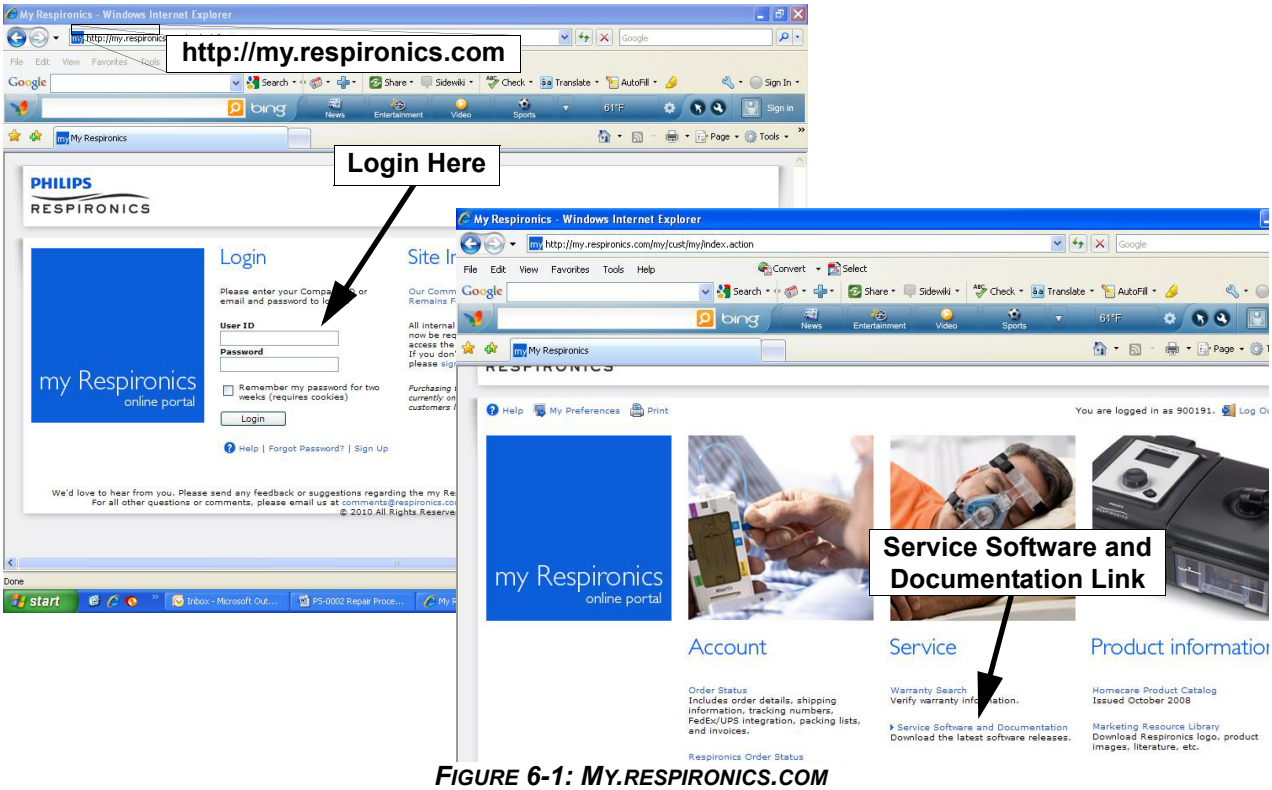


FIGURE 6-1: MY.RESPIRONICS.COM

6.3.1 SERVICE CENTER TOOLS SUITE INSTALLATION AND DEVICE CONNECTION PROCESS

1. Once you have opened the Service and Software Documentation page, click on the *Utility Tools* link on the left side or drop down menu of the page.
2. Click on the *Download* button adjacent to the Service Center Tools Suite (v3.6 or greater).

FIGURE 6-2: SERVICE CENTER TOOLS SUITE SOFTWARE

3. Save the Service Center Tools Installer to your PC (default directory is recommended).
4. To use the Service Center Tools suite, launch the Service Center Tools Suite software.

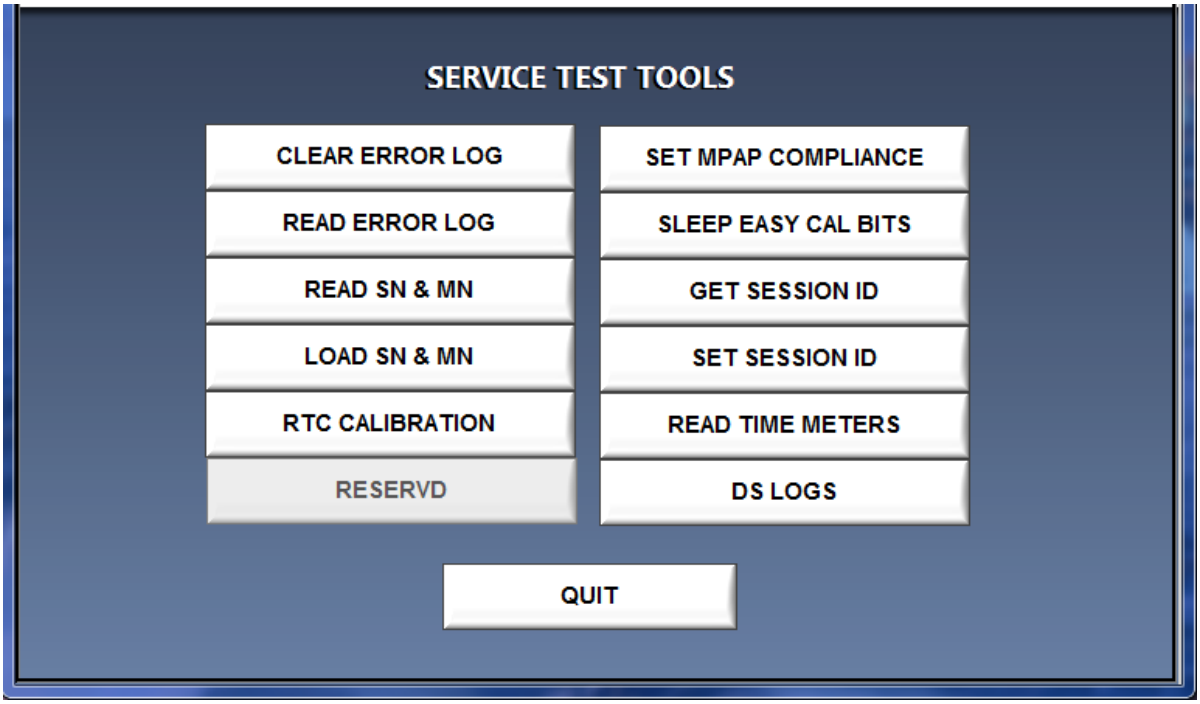


FIGURE 6-3: SERVICE CENTER TOOLS SUITE LAUNCHED

5. Connect power to the device.
6. Connect the Link Module (PN 1120293) between the Device and PC COM port 1 using the DB-9 Serial Cable. Refer to section **5.14.3** on connecting the Link Module to the device.
7. Select a function to execute. Refer to the table below for functions that are available for DreamStation devices:

TABLE 6-1: AVAILABLE FUNCTIONS FOR DREAMSTATION DEVICES

Read SN & MN	*This function allows you to read the serial and model numbers of the device.*
RTC Calibration	*This function allows you to set and verify the real time clock on the device.*
Get Session ID	*This function allows you to retrieve the session ID on the device. The session ID is a unique number that interfaces with Encore.*
Set Session ID	*This function allows you to set the session ID on the device. This should only be executed when the Therapy PCA is replaced on a device.*
Read Time Meters	*This function allows you to read the therapy and blower hours on the device.*
DS Logs (DreamStation Logs)	*This function allows you the retrieve certain data from the device, including device error codes (if any are logged). Within this function, you can also choose to clear the error log, device log, therapy hours and blower hours. You can also reset the provider PIN code and load the serial number (SN) and model number (MN) to the device. This function will also prompt you if the returned power cord and power supply are functional, with the options of "Yes", "No", or "Not Returned". See Figure 6-4 below for an example of data retrieved from the device.*

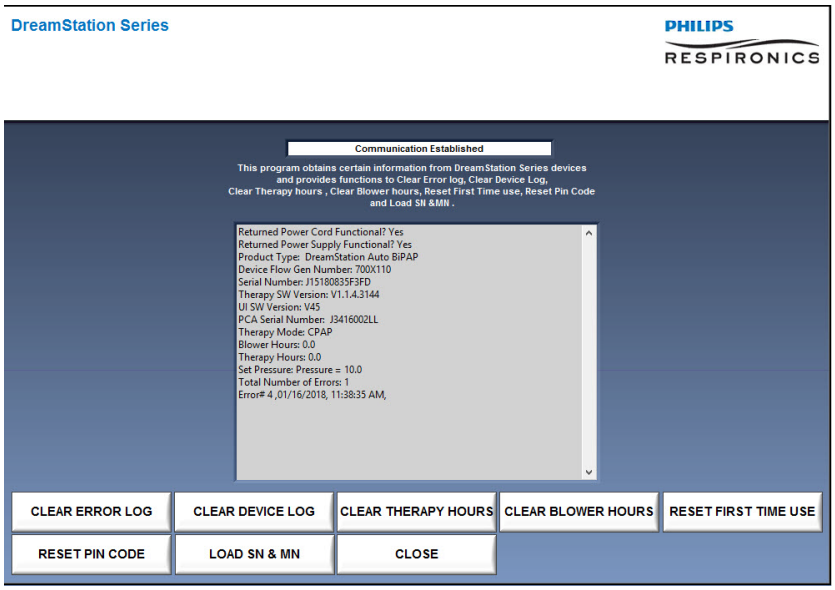


FIGURE 6-4: DS LOGS EXECUTED (EXAMPLE ONLY)

6.3.2 CLEARING THE ERROR AND DEVICE LOGS

- There should be no errors on the device after repairs are made. If there are any errors logged on the device that do not affect device functionality, the error(s) must be cleared. Refer to section 6.4 for a list of error codes, descriptions and corrective actions.
- The device log cannot be read, however the device log should be cleared on the device as part of routine servicing.

6.3.3 CLEARING THERAPY HOURS AND BLOWER HOURS

- If the PCA is NOT replaced during device servicing, the therapy hours should only be cleared if the device is going to a different patient. Otherwise, the therapy hours should remain on the device.
- If the PCA is NOT replaced during device servicing, the blower hours should be cleared only if the Blower is replaced. Otherwise, the blower hours should remain on the device.

6.3.4 RESETTING THE PIN CODE

- To access the Provider Menu, a PIN code may be set on devices with firmware v1.1.2 or greater. If access to the Provider Menu is necessary, use the Reset PIN Code function to reset the PIN code if it was not provided at the time of service.

6.3.5 LOADING THE SERIAL NUMBER AND MODEL NUMBER

- When replacing a PCA that requires a firmware or software update via SD card, the PCA will require the serial number and model number load using the Load SN & MN function. Load the serial number and model number prior to attempting the firmware or software update.

6.3.6 SETTING THE SESSION ID

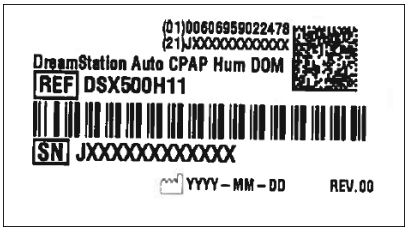
NOTE

The Session ID should be set on the device when the Therapy PCA is replaced. If the Therapy PCA is not replaced on the device, the Session ID should not be set.

1. Connect the device to your PC and launch the Service Center Tools Suite.
2. Select *QPAP SET SESSIONS ID*, then click on the *EXECUTE TOOL* button.
3. Enter the date manufactured of the PAP device in the DATE MANUFACTURED box, then select the SET SESSION ID button.

NOTE

The Manufactured Date is located on the device's serial/model number label in format YYYY-MM-DD. When entering the date into the software application, do not include the dashes (-).



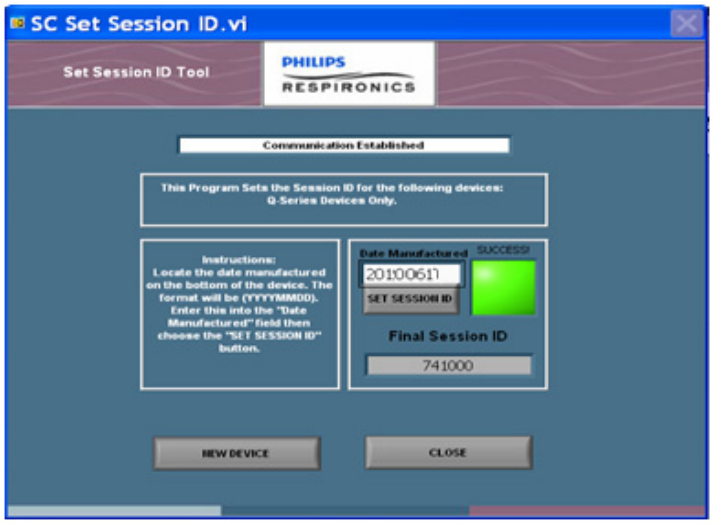


FIGURE 6-5: SESSION ID WITH EXAMPLE DATE

4. The following screen should appear indicating the Session ID has been set.

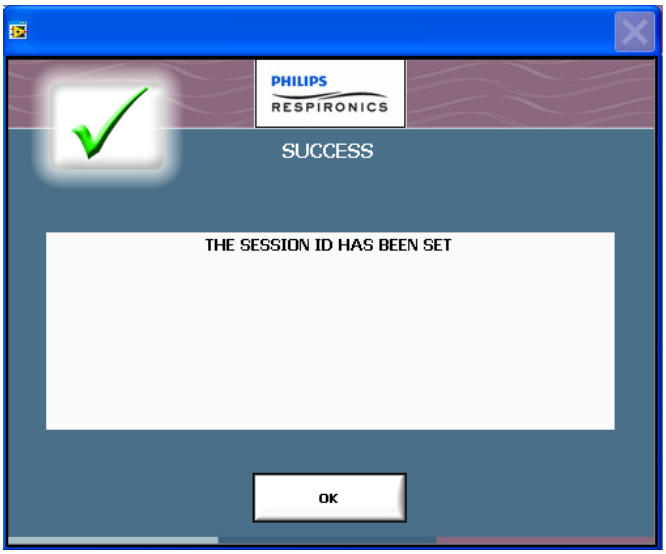


FIGURE 6-6: SESSION ID SET

5. Select the OK button.
6. Select the New Device button if you are setting sessions on multiple devices, otherwise, select the Close button to exit the tool.

6.4 DEVICE ERROR CODES

The following table lists the error level and descriptions for the DreamStation devices.

ERROR LEVEL	DESCRIPTION
STOP	*The error information is recorded in NVRAM and the unit is placed into Safe State. The only functionality available to the user is serial communication, turning off the audible alarm via a key press and removing power.*
REBOOT	*The error information is recorded in NVRAM and the unit is rebooted. The fifth occurrence of a REBOOT level error within a 24 hour period (while power is maintained), will be promoted by the system to a STOP level error.*
ABORT	*The error information is recorded in NVRAM.The fifth occurrence of a ABORT level error within a 24 hour period (while power is maintained), will be promoted by the system to a STOP level error. This error is similar to a Reboot-Level Error with the exception that the system is unable to handle the error prior to the reset, e.g. watchdog timeout.*
CONTINUE	*The error information is recorded in NVRAM and the unit continues to operate without noticeable alteration.*

The following table should be used to aid in troubleshooting device error codes for the DreamStation devices.

CODE	ERROR NAME	ERROR LEVEL	FAILED COMPONENT	ACTIONS
E-0	*ERR_NONE*	*STOP*	*N/A*	*N/A*
E-3	*ERR_INT_RAM*	*REBOOT*	*CPU*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*
E-4	*ERR_NULL_PTR*	*REBOOT*	*CPU*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*
E-6	*ERR_STATE_MACHINE*	*REBOOT*	*CPU*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*
E-7	*ERR_SOFTWARE*	*REBOOT*	*CPU*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*
E-8	*ERR_CRC_FAILED*	*STOP*	*CPU*	*Replace PCA and retest*
E-10	*ERR_WDOG_TEST_RAM*	*REBOOT*	*CPU*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*
E-11	*ERR_WDOG_TEST*	*REBOOT*	*CPU*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*

CODE	ERROR NAME	ERROR LEVEL	FAILED COMPONENT	ACTIONS
E-15	ERR_CYCLE_HANDLER_OVERRUN	REBOOT	CPU	1. If error was NOT Last Stop Error, clear error log and test. 2. If error was Last Stop Error, replace PCA and test.
E-19	ERR_WDOG_TIMEOUT	ABORT	CPU	1. If error was NOT Last Stop Error, clear error log and test. 2. If error was Last Stop Error, replace PCA and test.
E-20	ERR_MOTOR_SPINUP_FLUX_LOW	REBOOT	1. Motor connection 2. Blower Box 3. PCA	1. Reseat motor connector, clear error log and test. 2. If error still occurs, replace blower and retest. 3. If 2nd retest fails, replace PCA.
E-21	ERR_MOTOR_VBUS_HIGH	STOP	PCA	Replace PCA and retest
E-22	ERR_MOTOR_FLUX_MAGNITUDE	REBOOT	1. Motor connection 2. Blower Box 3. PCA	1. Reseat motor connector, clear error log and test. 2. If error still occurs, replace blower and retest. 3. If 2nd retest fails, replace PCA.
E-23	ERR_MOTOR_OVERSPEED	REBOOT	PCA	1. If error was NOT Last Stop Error, clear error log and test. 2. If error was Last Stop Error, replace PCA and test.
E-24	ERR_MOTOR_SPEED_REVERSE	REBOOT	PCA	1. If error was NOT Last Stop Error, clear error log and test. 2. If error was Last Stop Error, replace PCA and test.

CODE	ERROR NAME	ERROR LEVEL	FAILED COMPONENT	ACTIONS
E-27	*ERR_MOTOR_RL_NOCONVERGE*	*STOP*	*1. Motor connection* *2. Blower Box* *3. PCA*	*1. Reseat motor connector, clear error log and test.* *2. If error still occurs, replace blower and retest.* *3. If 2nd retest fails, replace PCA.*
E-28	*ERR_NEGATIVE_QUADRATURE_VOLTAGE_VECTOR*	*REBOOT*	*1. Motor connection* *2. Blower Box* *3. PCA*	*1. Reseat motor connector, clear error log and test.* *2. If error still occurs, replace blower and retest.* *3. If 2nd retest fails, replace PCA.*
E-29	*ERR_VBUS_GAIN_ZERO*	*REBOOT*	*PCA*	*1. If E9 was not recorded, clear error log and test.* *2. If E9 was recorded, replace PCA and test.*
E-30	*ERR_MOTOR_SPINUP_FLUX_HIGH*	*REBOOT*	*1. Motor connection* *2. Blower Box* *3. PCA*	*1. Reseat motor connector, clear error log and test.* *2. If error still occurs, replace blower and retest.* *3. If 2nd retest fails, replace PCA.*
E-34	*ERR_MOTOR_TYPE_UNKNOWN*	*STOP*	*PCA*	*1. Replace PCA and retest.*
E-35	*ERR_MOTOR_BLOCKED_INLET*	*CONTINUE*	*1. Air Path* *2. PCA* *3. Blower Box*	*1. Clear air path including filter and test.* *2. If test fails, replace PCA and retest.* *3. If retest fails, replace blower box and retest.*
E-36	*ERR_MOTOR_BLOCKED_OUTLET*	*CONTINUE*	*1. Air Path* *2. PCA* *3. Blower Box*	*1. Clear air path including filter and test.* *2. If test fails, replace PCA and retest.* *3. If retest fails, replace blower box and retest.*
E-40	*ERR_NVRAM*	*STOP*	*PCA*	*1. Replace PCA and test.*

CODE	ERROR NAME	ERROR LEVEL	FAILED COMPONENT	ACTIONS
E-41	ERR_STORAGE_UNIT_RAM	REBOOT	PCA	1. If error was NOT Last Stop Error, clear error log and test. 2. If error was Last Stop Error, replace PCA and test.
E-48	ERR_NVRAM_MAX_RETRIES_EXCEEDED	REBOOT	PCA	1. If error was NOT Last Stop Error, clear error log and test. 2. If error was Last Stop Error, replace PCA and test.
E-50	ERR_DAILY_VALUES_CORRUPT	CONTINUE	N/A	1. Clear error log and test.
E-51	ERR_CORRUPT_COMPLIANCE_LOG	CONTINUE	N/A	1. Clear error log and test.
E-53	ERR_COMP_LOG_SEM_TIMEOUT	CONTINUE	PCA	1. If there are multiple E53s in the error log, replace PCA and test. 2. Otherwise: a. Clear error log and test.
E-55	ERR_THERAPY_QUEUE_FULL	CONTINUE	N/A	1. Clear error log and test.
E-56	ERR_COMPLOG_PACKET_STATUS	REBOOT	N/A	1. If error was NOT Last Stop Error, clear error log and test. 2. If error was Last Stop Error, replace PCA and test.
E-71	ERR_PSENS_STATUS_BITS_ERROR	REBOOT	PCA	1. If error was NOT Last Stop Error, clear error log and test. 2. If error was Last Stop Error, replace PCA and test.
E-72	ERR_PSENS_UNABLE_TO_OBTAIN_BUS	REBOOT	PCA	1. If error was NOT Last Stop Error, clear error log and test. 2. If error was Last Stop Error, replace PCA and test.
E-73	ERR_SENSOR_PRESS_OFFSET_STOP	STOP	PCA	1. Replace PCA and test.

CODE	ERROR NAME	ERROR LEVEL	FAILED COMPONENT	ACTIONS
E-74	*ERR_PSENS_NO_CALLBACK*	*REBOOT*	*PCA*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*
E-82	*ERR_FLOW_SENSOR_OFFSET*	*CONTINUE*	*PCA*	*1. Clear error log and test.* *2. If the test fails or the error reoccurs, replace the PCA and retest.*
E-83	*ERR_FSENS_UNABLE_TO_OBTAIN_BUS*	*REBOOT*	*PCA*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*
E-84	*ERR_FLOW_SENSOR_STOP*	*STOP*	*PCA*	*1. Replace PCA and test.*
E-85	*ERR_FLOW_SENSOR_OCCLUDED*	*CONTINUE*	*PCA*	*1.Clear error log and test.* *2. If the test fails or the error reoccurs, replace the PCA and retest.*
E-87	*ERR_FLOW_SENSOR_BUS*	*CONTINUE*	*PCA*	*1. Clear error log and test.* *2. If the test fails or the error reoccurs, replace the PCA and retest.*
E-93	*ERR_RTC_VALUE*	*CONTINUE*	*N/A*	*1. Clear error log, set the RTC and test.* *2. If the test fails or the error reoccurs, replace the PCA and retest.*
E-94	*ERR_RTC_STOPPED*	*CONTINUE*	*PCA*	*1. Replace PCA and test.*
E-100	*ERR_HUMID_NO_HEAT*	*CONTINUE*	*Heater Plate*	*1. Clear error log and test.* *2. Test humidifier separately.*
E-101	*ERR_HUMID_MAX_TEMP*	*CONTINUE*	*Heater Plate*	*1. Clear error log and test.* *2. Test humidifier separately.*
E-105	*ERR_HUMID_AMBIENT_COMM*	*CONTINUE*	*PCA*	*1. Clear error log and test.* *2. If the test fails or the error reoccurs, replace the PCA and retest.*

CODE	ERROR NAME	ERROR LEVEL	FAILED COMPONENT	ACTIONS
E-106	ERR_HEATED_TUBE_MAX_TEMP	CONTINUE	Heated Tube	1. Clear error log and test. 2. Test humidifier separately.
E-107	ERR_HEATEDTUBE_DISCONNECT	CONTINUE	N/A	1. Clear error log and test.
E-108	ERR_HUMIDIFIER_DISCONNECT	CONTINUE	N/A	1. Clear error log and test.
E-130	ERR_TASK_WDOG_TIMEOUT	REBOOT	PCA	1. If error was NOT Last Stop Error, clear error log and test. 2. If error was Last Stop Error, replace PCA and test.
E-131	ERR_WIN_WDOG_TIMEOUT	ABORT	PCA	1. If error was NOT Last Stop Error, clear error log and test. 2. If error was Last Stop Error, replace PCA and test.
E-132	ERR_WIN_WDOG_TEST	REBOOT	PCA	1. If error was NOT Last Stop Error, clear error log and test. 2. If error was Last Stop Error, replace PCA and test.
E-133	ERR_WIN_WDOG_TEST_RAM	REBOOT	PCA	1. If error was NOT Last Stop Error, clear error log and test. 2. If error was Last Stop Error, replace PCA and test.
E-150	ERR_CPU_NMI	ABORT	PCA	1. Replace PCA and test.
E-151	ERR_CPU_HARD_FAULT	ABORT	PCA	1. Replace PCA and test.
E-152	ERR_CPU_MEM_MANAGE_FAULT	ABORT	PCA	1. Replace PCA and test.
E-153	ERR_CPU_BUS_FAULT	ABORT	PCA	1. Replace PCA and test.
E-154	ERR_CPU_USAGE_FAULT	ABORT	PCA	1. Replace PCA and test.
E-155	ERR_CPU_UNHANDLED_EXCEPTION	ABORT	PCA	1. Replace PCA and test.

CODE	ERROR NAME	ERROR LEVEL	FAILED COMPONENT	ACTIONS
E-170	*ERR_BT_RESET_TX*	*CONTINUE*	*PCA*	*1. Replace PCA and test.*
E-171	*ERR_BT_RESET_RX*	*CONTINUE*	*PCA*	*1. Replace PCA and test.*
E-172	*ERR_BT_STACK_ERROR*	*CONTINUE*	*PCA*	*1. Replace PCA and test.*
E-173	*ERR_BT_STACK_MASK_DATA_WR_FAIL*	*CONTINUE*	*PCA*	*1. Replace PCA and test.*
E-174	*ERR_BT_RADIO_EN_DEN_TX*	*CONTINUE*	*PCA*	*1. Replace PCA and test.*
E-175	*ERR_BT_RADIO_EN_DEN_RX*	*CONTINUE*	*PCA*	*1. Replace PCA and test.*
E-176	*ERR_BT_RADIO_BIST_FAIL*	*CONTINUE*	*PCA*	*1. Replace PCA and test.*
E-180	*ERR_NVRAM_REMINDER_LOG*	*CONTINUE*	*N/A*	*1. Clear error log and test.*
E-181	*ERR_NVRAM_MUTEX_NOT_AVAILABLE*	*REBOOT*	*PCA*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*
E-182	*ERR_NVRAM_WRITE_FAILED*	*REBOOT*	*PCA*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*
E-183	*ERR_NVRAM_WRITE_SU_FAILED*	*REBOOT*	*PCA*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*
E-190	*ERR_LCD_ID_ERROR*	*REBOOT*	*1. UI Panel* *2. PCA*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace UI Panel and test.* *3. If retest fails after UI Panel replacement, replace PCA and retest.*

CODE	ERROR NAME	ERROR LEVEL	FAILED COMPONENT	ACTIONS
E-191	*ERR_ALS_BIST*	*CONTINUE*	*PCA*	*1. Clear error log and test.* *2. If the retest fails or the error reoccurs, replace the PCA and retest.*
E-192	*ERR_USB_DEVICE_LOST*	*REBOOT*	*Accessory Module*	*1. Remove and reinsert the accessory module.* *2. If error continues, replace accessory module if pulse oximetry is required.*
E-193	*ERR_USB_HOST_NO_DEVICE*	*CONTINUE*	*Accessory Module*	*1. Remove and reinsert the accessory module.* *2. If error continues, replace accessory module if pulse oximetry is required.*
E-200	*ERR_RTOS_ABORT_ERROR*	*STOP*	*PCA*	*1. Replace PCA and test.*
E-201	*ERR_RTOS_TIMEOUT*	*REBOOT*	*PCA*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*
E-202	*ERR_RTOS_ONE_SHOT_TASK_NOT_STOPPED*	*REBOOT*	*PCA*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*
E-210	*ERR_PERF_CHECK_MSG_TO*	*STOP*	*PCA*	*1. Replace PCA and test.*
E-211	*ERR_PERF_CHECK_POST_FAIL*	*STOP*	*PCA*	*1. Replace PCA and test.*
E-220	*ERR_MOTOR_ID_TIMEOUT*	*REBOOT*	*PCA*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*
E-221	*ERR_MOTOR_SHUNT_SAFETY_TIMEOUT*	*REBOOT*	*PCA*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*

CODE	ERROR NAME	ERROR LEVEL	FAILED COMPONENT	ACTIONS
E-222	*ERR_MOTOR_DIV_ZERO*	*CONTINUE*	*N/A*	*1 Clear error log and retest.*
E-230	*ERR_HUMID_PLATE_CYCLE_OVERRUN*	*REBOOT*	*PCA*	*1. Clear error log and test.* *2. Test humidifier separately.*
E-231	*ERR_HUMID_PLATE_NO_MEASUREMENT*	*REBOOT*	*1. Heater Plate* *2. PCA*	*1. Clear error log and test.* *2. Test humidifier separately.*
E-240	*ERR_PACKET_CREATION*	*CONTINUE*	*N/A*	*1. Clear error log and test.*
E-241	*ERR_INVALID_COMPLIANCE_SIZE*	*CONTINUE*	*N/A*	*1. Clear error log and retest.*
E-250	*ERR_BAROMETRIC_COMM*	*CONTINUE*	*PCA*	*1. Clear error log and test.* *2. If the test fails or the error reoccurs, replace the PCA and retest.*
E-260	*ERR_CIRCUIT_COMP_MODEL_DIV_ZERO_1*	*CONTINUE*	*N/A*	*1. Clear error log and test.*
E-261	*ERR_CIRCUIT_COMP_MODEL_DIV_ZERO_2*	*CONTINUE*	*N/A*	*1. Clear error log and test.*
E-262	*ERR_CIRCUIT_COMP_DRIFT_DIV_ZERO*	*CONTINUE*	*N/A*	*1. Clear error log and test.*
E-270	*ERR_SDC_UPG_FAILED*	*CONTINUE*	*N/A*	*1. Clear error log and test.*
32767	*ERR_INVALID*	*REBOOT*	*PCA*	*1. If error was NOT Last Stop Error, clear error log and test.* *2. If error was Last Stop Error, replace PCA and test.*

6.5 FAILURE MODE TROUBLESHOOTING

The following table can be used as a guide to aid in troubleshooting the device based on the potential problem. All issues may not be presented here.

PROBLEM/FAILURE MODE	POSSIBLE CAUSE	STEPS TO TAKE
Power Supply Related Error	• *Incorrect Power Supply* • *Power Cord not pushed in the whole way*	• *If returned, check to see if the power supply is correct.* • *Make sure power cord is pushed in the whole way.*

PROBLEM/FAILURE MODE	POSSIBLE CAUSE	STEPS TO TAKE
No Power	• *All connections not made.* • *Power Supply not functioning* • *PCA Failure* • *Damaged PCA components* • *Intermittent Connection* • *DC Power Cable not pressed down/installed the whole way*	• *Check all connections.* • *Check Power Supply.* • *Check for damaged components on PCA.* • *Check DC Power Cable installation.* • *Replace any failed components.*
Airflow Does Not Turn On	• *Blower connections not made.* • *Faulty Blower* • *Faulty PCA*	• *Verify all connections are made.* • *Replace Blower or PCA (whichever is faulty).*
General Noise	• *Humidifier Seals are damaged or not seated* • *Humidifier Back Panel not secure* • *Enclosures not secure* • *Blower Box is cracked* • *Blower Isolators not seated* • *Blower is contaminated* • *Blower noisy in general* • *Something fell inside Blower Box* • *Too much Blower wire slack outside of the Blower Box (pulled too tight - causing vibration)*	• *Make sure all Seals are seated.* • *Make sure PCA is aligned on seals.* • *Make sure enclosures are secure.* • *Check for any component damage.* • *Check for loose components.* • *Check Blower wire length outside of Blower Box (should measure approx. 9.5 inches).* • *Replace any failed/damaged component.*

PROBLEM/FAILURE MODE	POSSIBLE CAUSE	STEPS TO TAKE
Whistling Noise from Humidifier	• *Humidifier Seals are damaged or not seated* • *Humidifier Back Panel not seated* • *Wire guard loose* • *Tank is cracked* • *Dry Box not seated* • *Flip Lid latch damaged or not latching well* • *PAP and Humidifier not fully connected*	• *Make sure all Seals and components are seated.* • *Check for any component damage.* • *Replace damaged components.*
Whistling Noise from PAP Device	• *PAP and Humidifier not fully connected* • *PAP Enclosure separated.* • *Blower noisy*	• *Check all connections.* • *Replace blower if noisy.*
Airflow is Warm	• *The air filters may be dirty* • *The device may be operating in direct sunlight or near a heater* • *Heater Plate or Heated Tube settings are high*	• *Make sure there is no debris in the filters.* • *Make sure the device is properly ventilated.* • *Keep the device away from direct sunlight and heating equipment.* • *Check and record Heater Plate and Heated Tube settings.*
Unit Shuts Off	• *Auto Off feature is enabled and high leak exists for a duration that triggers Auto Off* • *System Issue* • *Power Supply faulty*	• *Examine Auto Off setting in provider mode.* • *Check Power Supply.* • *Check all connections.* • *Run device for extended period of time is necessary.* • *Replace any failed component.*
Dial Does Not Work	• *The UI ribbon cable is damaged or not seated.*	• *Check Encoder ribbon cable.* • *Remove and reinsert Encoder ribbon cable.* • *Replace UI Panel if problem still occurs.*

PROBLEM/FAILURE MODE	POSSIBLE CAUSE	STEPS TO TAKE
Therapy Button Does Not Work	• *Damage to PCA* • *Damage to mechanical buttons* • *Therapy Button damaged* • *Contamination* • *User perception*	• *Check for physical damage or enclosure separation.* • *Replace damaged component(s).*
Ramp Does Not Work	• *Mechanical button failure* • *Ramp feature not enabled* • *Ramp pressure set the same as prescribed pressure*	• *Check for physical damage or enclosure separation.* • *Ensure ramp feature is enabled.* • *Ensure ramp pressure is set lower than prescribed pressure.*
The Display is Erratic	• *The device has been dropped or mishandled* • *The device is in an area with high Electromagnetic Interference (EMI) emissions.* • *Problem with UI ribbon cables and connections.*	• *Unplug the device and reapply power.* • *Relocate the device to an area with lower EMI emissions (cellular phones, computers TVs, etc.).* • *Check UI connections.* • *Replace UI Panel if faulty.*
Back Light Does Not Work	• *Faulty PCA* • *Ambient light sensor is blocked.*	• *Replace PCA if ambient light sensor is faulty.* • *Verify nothing is blocking the ambient light sensor.*
Back Light Dims Too Quickly	• *User perception* • *Ambient light sensor not functioning*	• *Verify ambient light sensor is functioning by covering the sensor hole on the Top Enclosure.* • *Replace PCA if ambient light sensor does not function.*
Back Light Does Not Dim	• *Ambient light sensor not functioning*	• *Verify ambient light sensor is functioning by covering the sensor hole on the Top Enclosure.* • *Replace PCA if ambient light sensor does not function.*

PROBLEM/FAILURE MODE	POSSIBLE CAUSE	STEPS TO TAKE
Can't Change Humidity Settings	• *User perception - can only change setting when therapy is active. You cannot change the settings in the device menus* • *Dial does not function*	• *Activate therapy and verify the settings change.* • *Verify the dial functions.* • *Replace any damaged UI panel if dial does not function.*
Heated Tube Not Warming	• *Tube setting is 0* • *Not enough time elapsed to warm tube* • *Connection not fully made* • *Physical problem with tube* • *Electrical issue with PAP* • *Electrical issue with Humidifier* • *80W Power Supply not being used* • *User perception*	• *Ensure tube setting is anything but 0 and verify the Tube is warming.* • *Ensure you use an 80W Power Supply when testing.* • *Allow enough time for tube to warm.* • *Ensure connection is fully made.* • *Check for physical damage.* • *Replace damaged/failed component(s).*
Heater Plate not Warming	• *Heater plate setting is 0* • *Not enough time elapsed to warm heater plate* • *Connection not fully made* • *Electrical Issue with Humidifier* • *Electrical Issue with PAP* • *User perception*	• *Ensure heater plate setting is anything but 0 and verify the heater plate is warming.* • *Allow enough time for plate to warm.* • *Ensure connection is fully made between PAP and Humidifier.* • *Check for open circuit.* • *Check for physical damage.* • *Replace damaged/failed components.*
Tank Runs Out of Water	• *Settings are at max for an unsuitable environment* • *User has high mask leak* • *Tank is leaking*	• *Examine Humidifier settings.* • *Check for damage to the Tank.*
Humidifier Lid Won't Latch/Open	• *Latch is damaged* • *Enclosure is damaged*	• *Check for component damage.* • *Replace any damaged components.*

PROBLEM/FAILURE MODE	POSSIBLE CAUSE	STEPS TO TAKE
Doesn't Make a Call	• *Interface between PAP and Modem not functioning*	• *Verify the PAP recognizes the Modem in the My Provider menu.* • *Attempt to make a call and verify it was successful.*
SD Card Error	• *SD Card corrupted* • *Problem with PCA*	• *Eject and reinsert the SD Card.* • *If error still occurs, check to see if you get an error with a test SD Card that works properly.* • *Clear any errors on the PCA.* • *If error is not duplicated, replace SD Card.* • *If same error occurs with a properly working SD Card and after PCA errors are cleared, replace the PCA.*
Can't Read SD Card Data	• *A previous version of Encore is being used* • *SD Card corrupted*	• *Ensure Encore is up-to-date.* • *Use Encore or similar software to verify SD Card data can be read.*

6.6 DEVICE ALERTS

Device alerts are pop-ups that show up on the UI screen. There are 5 types of alerts described here:

- **Status:** These alerts are just the pop-up screen.
- **Notification:** These alerts consist of the pop-up screen in addition to a blinking Power LED on top of the device.
- **Alert 1:** These alerts consist of the pop-up screen, a blinking Power LED and an audible beep when displayed. This alert will not occur during therapy.
- **Alert 2:** These alerts consist of the pop-up screen, a blinking Power LED and an audible beep when displayed. This alert can occur during therapy.
- **Safe State:** These alerts consist of the pop-up screen, a blinking Power LED and a repeating audible beep. Note: Status alerts automatically time out after 30 seconds and their pop up screens disappear. All other alerts must be acknowledged to clear.

Alert Summary Table: The following table summarizes the alerts.

ALERT	ICON	TYPE	DESCRIPTION	POSSIBLE CAUSE	ACTION
Data Activity: Do not remove SD card.		Status	SD card read/write underway.	n/a	No action needed.
Change Accepted		Status	Confirms acceptance of prescription change or device upgrade.	n/a	No action needed.
EZ-Start Pressure Incremented to xx.x		Status	Displays when EZ-Start mode is enabled and device is increasing therapy pressure setting for the next session.	n/a	No action needed.

ALERT	ICON	TYPE	DESCRIPTION	POSSIBLE CAUSE	ACTION
Oximetry: Good Connection (icon only)	SpO_2 ✓	Status	Displays on the therapy screen when the blower is on and 3 seconds of good connection is detected. Appears at the beginning of therapy.This screen will not display again if the finger probe is removed and reapplied unless therapy is stopped and restarted.	n/a	No action needed.
Pair?: 123456 Yes/No		Status	Prompts to accept or decline pairing to a Bluetooth compatible device. This device can be identified by the digits displayed.	n/a	Rotate control dial to accept pairing (Yes), or decline (No), then press control dial to confirm selection.
SD Card Removed.		Notification or Alert 2	Indicates SD card has been removed from therapy device and not reinserted before the start of the current therapy session.	SD card was not reinserted into device.	Reinsert SD card, or click to clear alert.
Oximetry: Good Study (icon only)	SpO_2 ✓	Notification	Notifies that user has a achieved at least 4 hours of therapy and oximetry use. Appears at the end of therapy.	n/a	Press Control Dial to acknowledge and clear the message.

ALERT	ICON	TYPE	DESCRIPTION	POSSIBLE CAUSE	ACTION
SD Card Error: Remove and Reinsert		Notification	SD card error detected.	Device cannot read the SD card. A problem may exist with the SD card or it was ejected during a writing activity, or it was inserted incorrectly.	Remove SD card and reinsert. If alert continues to occur, replace with another card.
SD Card Full.		Notification	SD card is full.	SD card is full.	Remove SD card and replace with a new card.
Patient Message (Refer to section)		Notification	Message from your Provider.	n/a	Press Control Dial to acknowledge and clear the message.
Change Rejected		Alert 1	A prescription or settings change was rejected.	Change missing or incorrect.	n/a
Humidification Error. Contact support if the problem persists.		Status	Humidifier error (only when humidifier is present).	Humidifier heater plate error or humidifier not properly connected to therapy device.	Turn off device and disconnect from power. Detach the humidifier, visually check that electrical contacts are clear, then reconnect humidifier and power cord. If alert continues, troubleshoot for possible failure.

ALERT	ICON	TYPE	DESCRIPTION	POSSIBLE CAUSE	ACTION
Heated Tube Error. Contact support if the problem persists		Status	Heated tube error (only when heated tube is present).	Heated tube may be overheated or damaged.	Turn off device. Detach heated tube from humidifier, make sure that tube is not covered or obstructed, and then reattach to humidifier. If alert continues, troubleshoot for possible failure.
The attached power supply does not support humidification.		Alert 2	Indicates that the attached power supply is not capable of supporting humidification or heated tube.	Incorrect power supply.	Switch to a Philips Respironics DreamStation power supply that is capable of supporting humidification. Or operate therapy device without humidifier.
Service Required		Safe State	Indicates an error which enters device into “Safe State.” This allows power to remain on but airflow is disabled.	Device error.	Press Control Dial to silence alert. Disconnect device from power. Reattach power cord to restore power. If the alert continues to occur, retrieve possible error codes and troubleshoot for possible failure.

ALERT	ICON	TYPE	DESCRIPTION	POSSIBLE CAUSE	ACTION
Check Power		Notification	Indicates an incompatible power supply is attached.	Incompatible power supply, or power cord is not fully inserted into device's power inlet.	Confirm power cord is full inserted into device's power inlet. Confirm a compatible Philips Respironics power supply is attached. Switch to compatible power supply if needed.
Low Voltage		Notification	Low voltage.	Incompatible power supply is attached.	Confirm a compatible Philips Respironics power supply is attached. Switch to compatible power supply if needed. If battery is being used, ensure battery is adequately charged.
Automatic Off		Status	Displayed when therapy ends due to automatic off function.	The mask has been removed.	n/a
Inlet blocked. Check filter.		Notification	Blocked airway	Blockage at device inlet.	Check device air inlet is not obstructed. Check air filter(s) are installed properly and there is no debris in the filter(s); replace if needed.

ALERT	ICON	TYPE	DESCRIPTION	POSSIBLE CAUSE	ACTION
Low Leak: Check Mask and Tube		Notification	Blocked airway	Blockage at tube or mask.	n/a
Check Mask Fit	n/a	Status	Displayed when Check Mask Fit function is enabled from Patient Menu.	n/a	This alert can be cleared by pressing the Control Dial. Otherwise it will time out after 60 seconds.
Loading Language and Rebooting		Status	Displayed when a new language is selected from the menu.	n/a	No action needed. Times out when complete.
Busy		Status	Displayed when the device is temporarily inaccessible due to data communication.	n/a	No action needed.
"Sleep Progress"	n/a	Status	Displays last 3 nights hourly use on first screen, and nights of use on second screen.	n/a	Press Control Dial to acknowledge and clear each screen. Otherwise message times out after 30 seconds.

CHAPTER 7: REPAIR & REPLACEMENT

This Chapter illustrates the names and locations of the replaceable components in the DreamStation devices. Prior to executing the repair and replacement procedures, the troubleshooting procedures must first be executed. Refer to Chapter 6 for troubleshooting procedures.

In addition, if repair or replacement procedures are performed, the device must be tested to verify its proper operation. Refer to Chapter 9 for testing procedures.

WARNING

To prevent electrical shock, disconnect the electrical supply before attempting to make any repairs to these devices.

CAUTION

Components used in this device are subject to damage from static electricity. Repairs made to this device must be performed only in an anti-static, Electro-Static Discharge (ESD) protected environment.

CAUTION

Do not attempt to power on the PCA/device without all connections being made. Otherwise, false errors or failure detections could occur. The device must be fully assembled in order to properly assess any functionality.

7.0 REPLACEMENT PART (RP) KITS

DESCRIPTION	RP KIT NUMBER
Accessory Module Flip Door	*1115485*
SD Cover Flip Door	*1115542*
Upper Enclosure (Includes Keypad)	*1115486*
UI Panel Assembly	*1115538*
Control Dial	*1133830*
PCA, CPAP	*1121520*
PCA, CPAP Pro	*1121522*
PCA, Auto CPAP	*1121523*
PCA, BiPAP Pro	*1121525*
PCA, Auto BiPAP	*1121526*
PCA, CPAP, Korea	*1136883*
PCA, CPAP Pro, Korea	*1136884*
PCA, Auto CPAP, Korea	*1136885*
PCA, BiPAP Pro, Korea	*1136886*
PCA, Auto BiPAP, Korea	*1136887*
PCA, CPAP, China	*1136898*
PCA, CPAP Pro, China	*1136899*
PCA, Auto CPAP, China	*1136900*
PCA, BiPAP Pro, China	*1136901*
PCA, Auto BiPAP, China	*1136902*
Pressure Sensor Seal	*1121527*
Flow Sensor Seal	*1115484*
Blower Upper Cap	*1115481*
Blower Box Assembly	*1121548*
Blower Assembly, SK	*1121550*
Blower Isolators, SK	*1121552*
Blower Assembly, Moog	*1121549*
Blower Isolators, Moog	*1121551*
Blower Outlet Seal	*1121553*
DC Power Cable	*1121554*
DC Jack Color Insert	*1121555*

DESCRIPTION	RP KIT NUMBER
Rear Panel	*1115543*
Rear Panel O-Ring	*1121559*
Bottom Enclosure	*1130435*
Warning Label, DOM	*1121556*
Warning Label, INTL and Latin America	*1121557*
Warning Label, Canada	*1125963*
Warning Label, Australia	*1131680*
Warning Label, Japan	*1127612*
Power Supply, 80W	*1118499*
Travel Power Supply, DOM, 65W	*1120136*
Travel Power Supply, EU, 65W	*1127194*
Travel Power Supply, CN, 65W	*1127195*
Travel Power Supply, JP, 65W	*1127196*
Travel Power Supply, AU, 65W	*1127197*
Travel Power Supply, GB, 65W	*1127238*
Power Cord	*1038928*
Standard Tubing, 15mm	*PR15*
Micro-Flexible Tubing, 12mm	*PR12*
Flow Generator Cover	*1128163*
Torx Driver Kit (T8, T10, T15)	*1040889*

7.1 REPLACEMENT INSTRUCTIONS

Prior to executing repair and replacement procedures, device troubleshooting must be performed. Refer to Chapter 6 for troubleshooting procedures.

7.1.1 REPLACING THE ACCESSORY MODULE AND SD FLIP DOORS

Kit	*Included in Kit*	*Tools Required*
Accessory Module Flip Door	• Accessory Module Flip Door	• *None*
SD Cover Flip Door	• Accessory Cover Flip Door	

FIGURE 7-1: FLIP DOOR REPLACEMENT

TO REMOVE THE FLIP DOORS:

1. Squeeze the Flip Door standoffs inward and pull the cover away from the device.
2. Repeat on other side.

TO INSTALL THE FLIP DOORS:

1. Place the Flip Door standoffs back into the holes on the device.
2. Repeat on other side.
3. Verify the Doors are fully seated.

NOTE: The cutout on the Flip Doors should be towards the back of the device.

7.1.2 REPLACING THE SD CARD

TO REMOVE THE SD CARD:

1. Press the SD Card in to release.
2. Pull the SD Card out of the device.

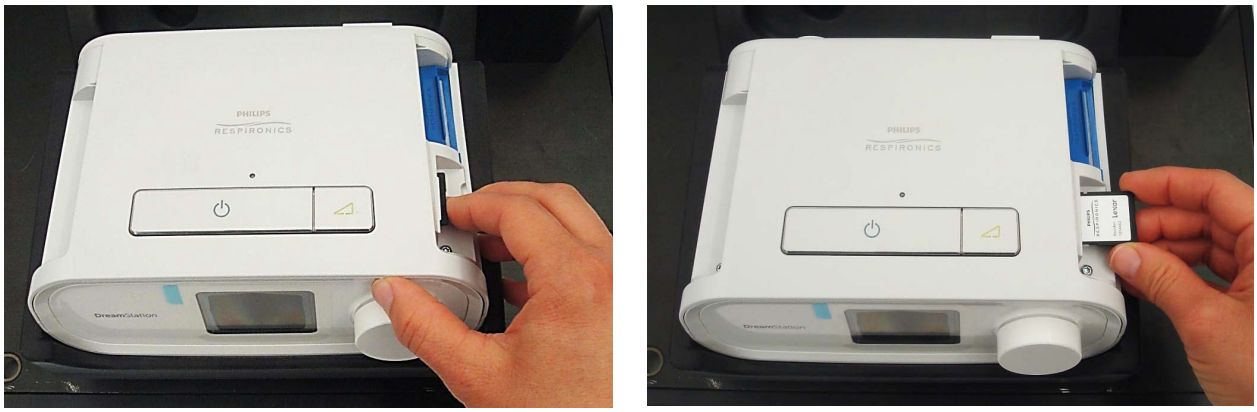


FIGURE 7-2: SD CARD REPLACEMENT

TO INSTALL THE SD CARD:

1. Slide the SD Card into the slot until it locks into place.

7.1.3 REPLACING THE UPPER ENCLOSURE/KEYPAD:

Kit	*Included in Kit*	*Tools Required*
Upper Enclosure Assembly	• *Upper Enclosure* • *Keypad* • *# 4 x 1/2" screws (qty 2)*	• *Torx Screwdriver (T10 is recommended)*

TO REMOVE THE UPPER ENCLOSURE/KEYPAD:

1. Remove the Flip Doors (refer to previous section).
2. Remove the two # 4 x 1/2" screws that secure the Upper Enclosure to the Bottom Enclosure using a T-10 Torx driver (refer to Figure 7-3).
3. Pull the Upper Enclosure off the device.

.

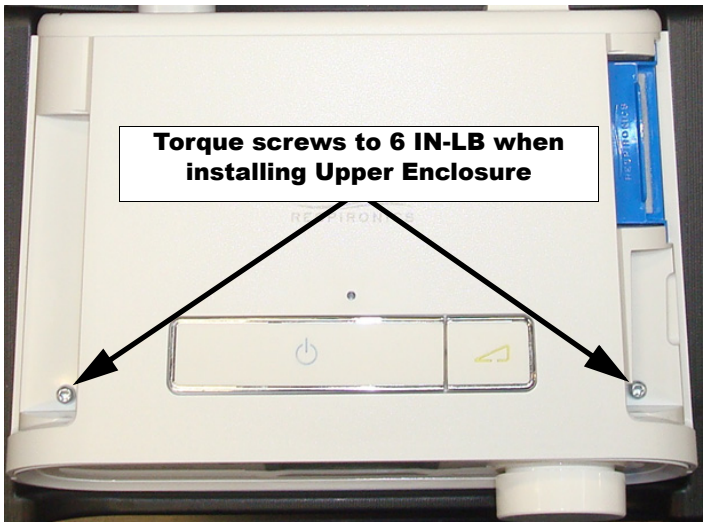


FIGURE 7-3: UPPER ENCLOSURE WITH KEYPAD INSTALLED

TO INSTALL THE UPPER ENCLOSURE/KEYPAD:

1. Align and snap the Upper Enclosure into place (refer to Figure 7-4).
2. Secure the Upper Enclosure to the Bottom Enclosure using the two # 4 x 1/2” (torque to 6 IN-LB).
3. Install the Keypad on the Upper Enclosure as shown in Figure 7-3 above, and verify it is fully seated.
4. Assemble the remainder of the device as instructed in the previous section.

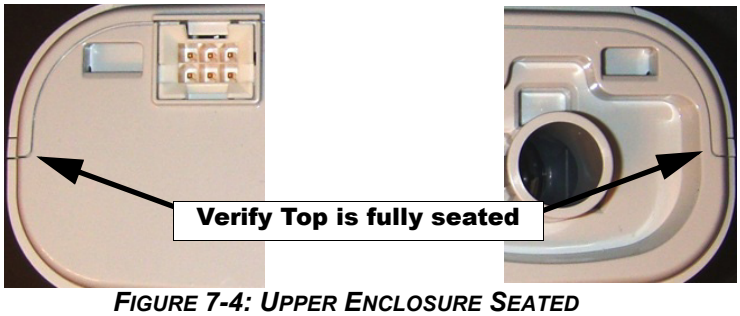


FIGURE 7-4: UPPER ENCLOSURE SEATED

7.1.4 REPLACING THE CONTROL DIAL

Kit	*Included in Kit*	*Tools Required*
Control Dial	• *Control Dial*	• *None*

TO REMOVE THE CONTROL DIAL:

1. Pull the Control Dial straight away from the device.

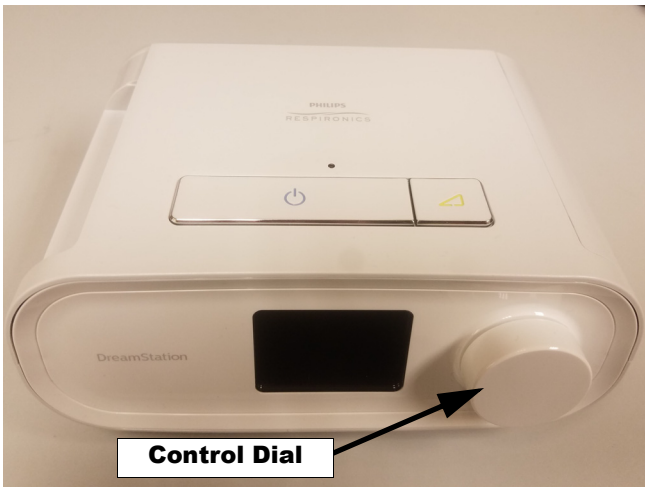


FIGURE 7-5: CONTROL DIAL

TO INSTALL THE CONTROL DIAL:

1. Place the Control Dial on the silver encoder and push in on the Control Dial.
2. Verify the Control Dial is seated on the encoder by pressing it again.

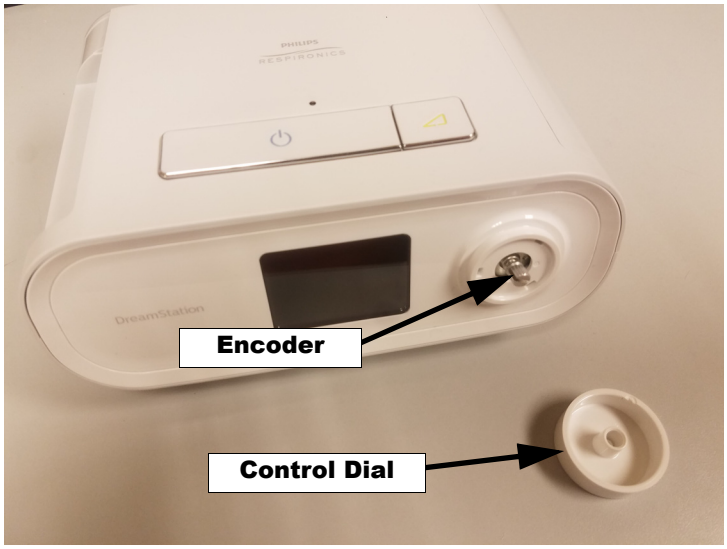


FIGURE 7-6: CONTROL DIAL INSTALLATION

7.1.5 REPLACING THE UI PANEL

Kit	Included in Kit	Tools Required
UI Panel Assembly	• *UI Panel*	• *Torx Screwdriver (T10 is recommended)*

TO REMOVE THE UI PANEL:

1. Remove all components as instructed in the previous sections.
2. Lift the UI Panel away from the device.
3. Detach the UI Panel ribbon from the PCA by lifting up on the connector latch and pulling the ribbon away from the connector.

FIGURE 7-7: UI PANEL

TO INSTALL THE UI PANEL:

1. Align the UI Panel ribbon into the connector latch on the PCA.
2. Snap down the connector latch to hold the ribbon in place.
3. Verify the UI connection is properly seated (refer the Figure below).

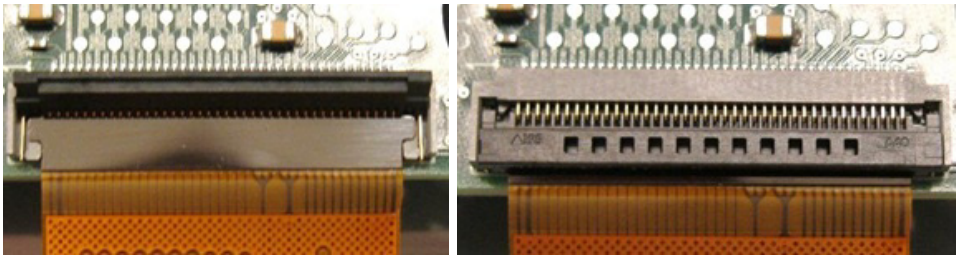


FIGURE 7-8: UI PANEL CLASP

4. Seat the UI Panel into Bottom Enclosure grooves.
5. Assemble the remainder of the device as instructed in the previous sections.

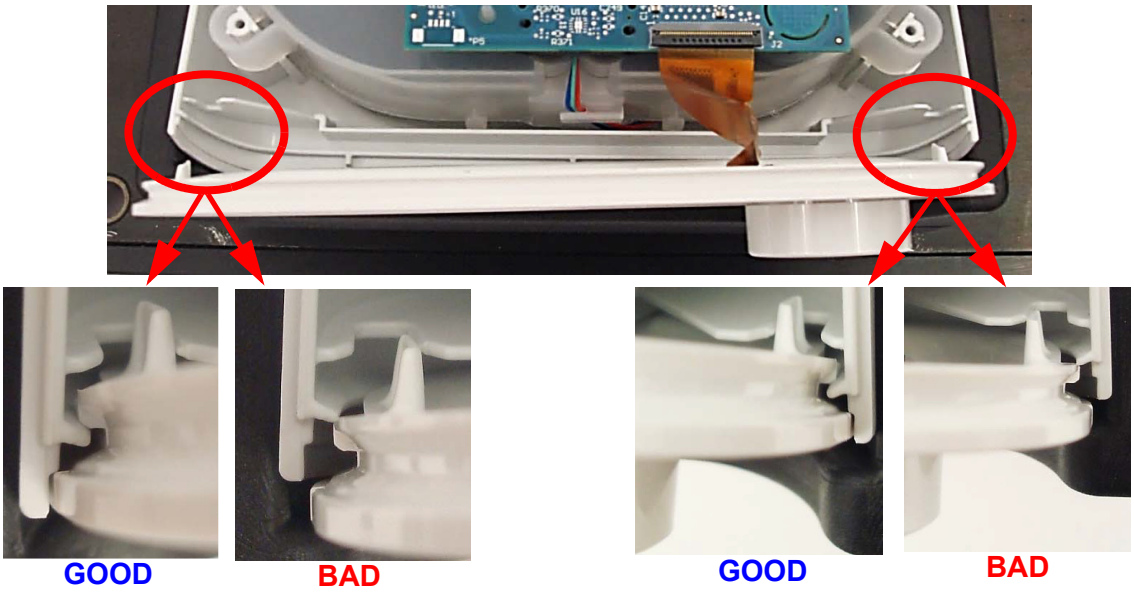


FIGURE 7-9: UI PANEL ALIGNMENT

7.1.6 REPLACING THE PCA

Kit	*Included in Kit*	*Tools Required*
PCA	• *PCA* • *# 4 x 1/2” screws (qty 2)*	• *Torx Screwdriver (T10 is recommended)*

TO REMOVE THE PCA:

1. Remove all components as instructed in the previous sections.
2. Remove the two # 4 x 1/2” screws that secure the PCA to the Blower Cap using a T-10 Torx driver.
3. Lift the PCA up away from the device.
4. Disconnect the DC Connector and Blower Connector from the PCA.

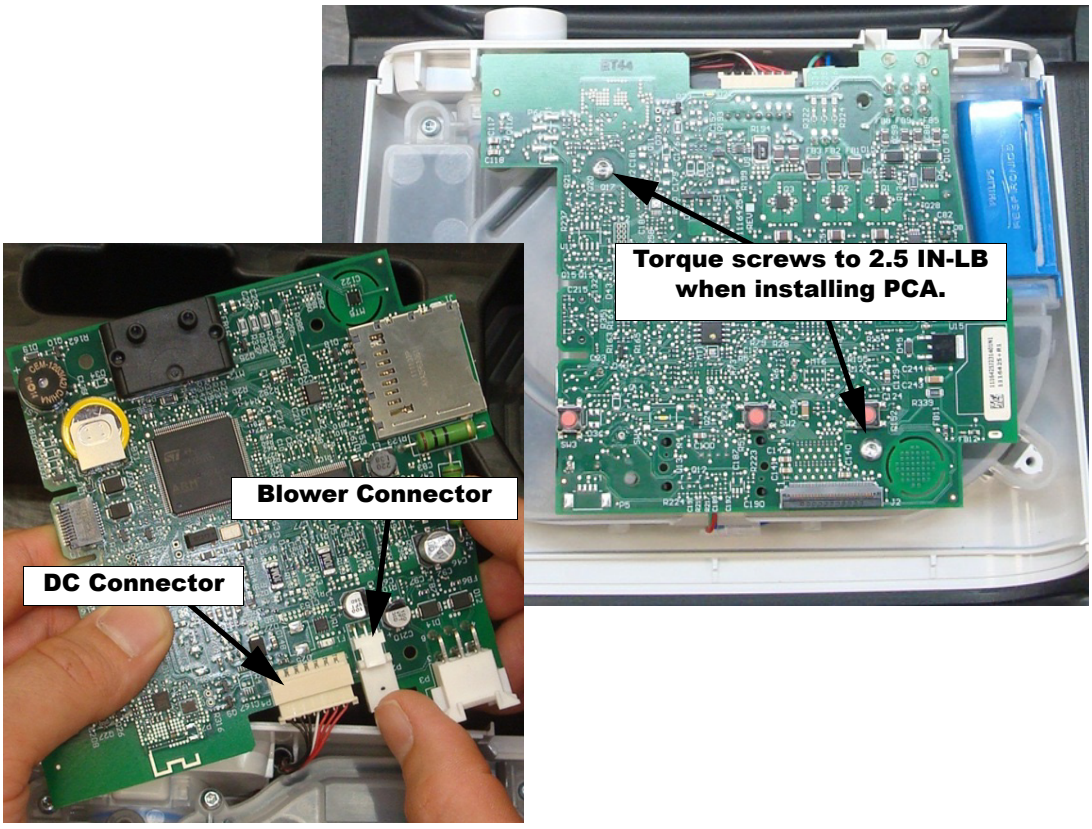


FIGURE 7-10: PCA

TO INSTALL THE PCA:

1. Connect the DC and Blower Connectors to the PCA Connectors.
2. Seat the PCA onto the Blower Cap standoff and screw bosses, ensuring to position the Humidifier Connector located on the PCA into the groove of the Rear Panel (refer to Figure 7-9), and positioning the Flow and Pressure Sensors into the Seals (refer to Figure 7-10).
3. Secure the PCA with the two # 4 x 1/2" screws (torque to 2.5 IN-LB).
4. Assemble the remainder of the device as instructed in the previous sections.

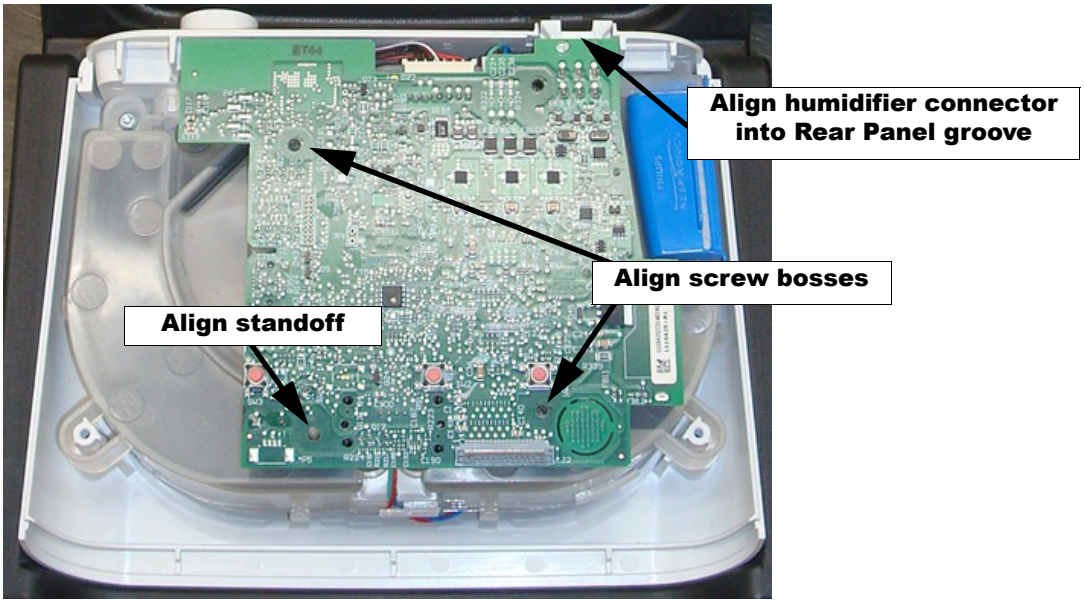


FIGURE 7-11: PCA INSTALLATION

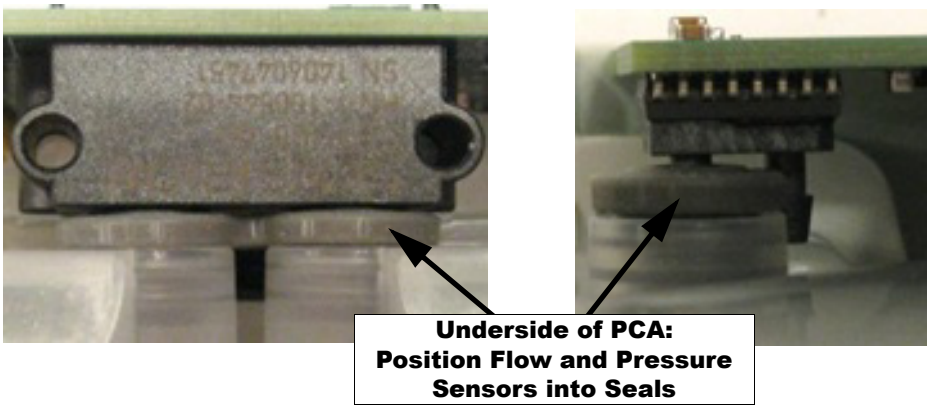


FIGURE 7-12: FLOW AND PRESSURE SENSOR ALIGNMENT

CAUTION

The PCA's Flow and Pressure Sensors must be in proper alignment with the Seals. Otherwise, the device will not operate properly.

7.1.7 REPLACING THE FLOW AND PRESSURE SENSOR SEALS

Kit	*Included in Kit*	*Tools Required*
Flower Sensor Seal	• *Flower Sensor Seal*	• *Torx Screwdriver (T10 is recommended)*
Pressure Sensor Seal	• *Pressure Sensor Sea*	

TO REMOVE THE SEALS:

1. Remove all components as instructed in the previous sections.
2. Lift the Seals away from the Blower Box Assembly.

NOTE: The Pressure Sensor Seal may remain attached to the Pressure Sensor on the PCA. Remove it from the PCA if this is the case.

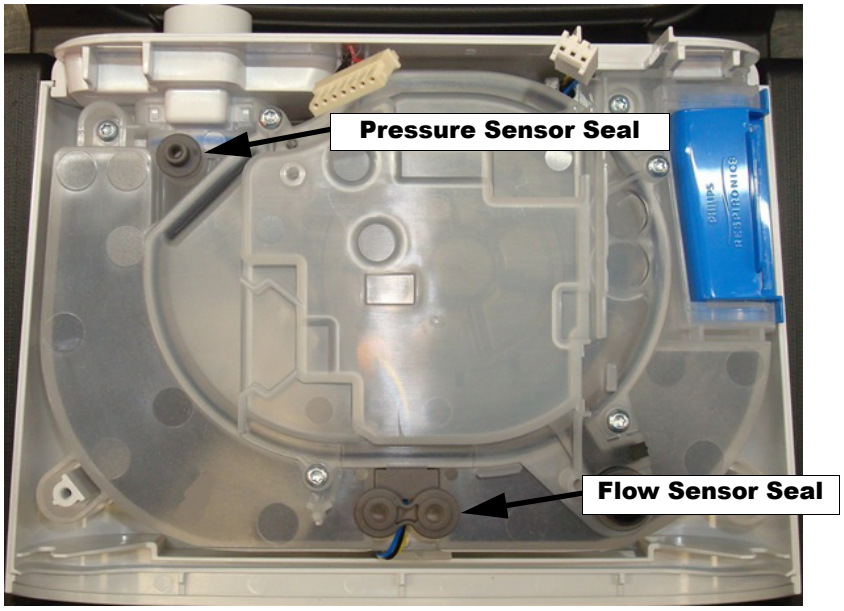


FIGURE 7-13: FLOW AND PRESSURE SENSOR SEALS

TO INSTALL THE SEALS:

1. Align the Seals into the Blower Box Assembly grooves. Ensure the seals are flush against the Blower Box Assembly.
2. Assemble the remainder of the device as instructed in the previous sections.

7.1.8 REPLACING THE BLOWER UPPER CAP

Kit	*Included in Kit*	*Tools Required*
Blower Upper Cap	• *Blower Upper Cap* • # 4 x 1/2” screws (qty 4)	• *Torx Screwdriver (T10 is recommended)* • Flathead Screwdriver

TO REMOVE THE BLOWER UPPER CAP:

1. Remove all components as instructed in the previous sections
2. Remove the four # 4 x 1/2” screws holding the Blower Cap to the Blower Box Assembly.
3. Using a small flathead screwdriver, carefully pry the Blower Cap off of the Blower Box Assembly around the Blower Cap chimney as to not damage the Blower Cap seal.

CAUTION

Damage can occur to the seal on the underside of the Blower Upper Cap if prying in the wrong spots. Be sure to pry the Cap off only at the Chimney (refer to the Figure below).

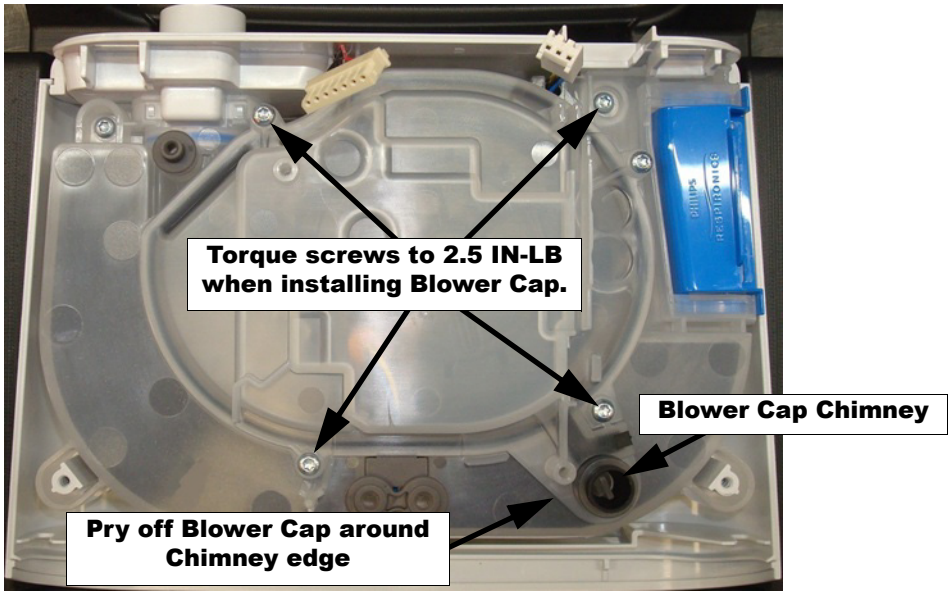


FIGURE 7-14: BLOWER UPPER CAP REMOVAL

TO INSTALL THE BLOWER UPPER CAP:

1. Align the Blower Cap with the screw holes on the Blower Box Assembly, verifying the Blower Cap is fully seated.
2. Secure the Blower Cap to the Blower Box Assembly using the four # 4 x 1/2” screws (torque to 2.5 IN-LB).
3. Assemble the remainder of the device as instructed in the previous sections.

CAUTION
Ensure the Blower Cap is seated properly (refer to the Figures below).

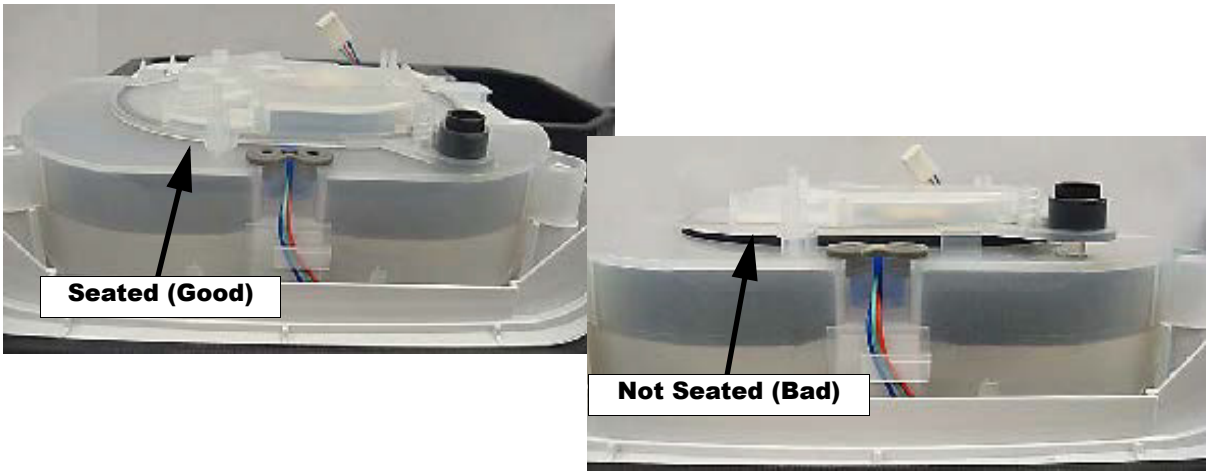
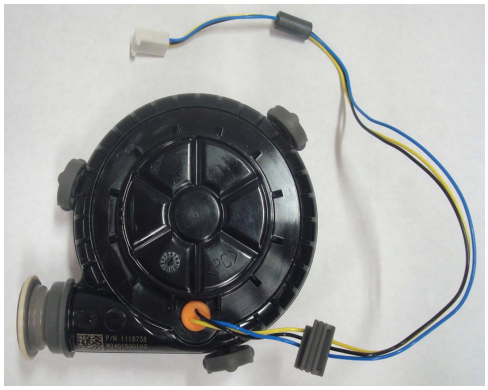


FIGURE 7-15: BLOWER UPPER CAP ALIGNMENT

7.1.9 REPLACING THE BLOWER, BLOWER BOX ASSEMBLY, AND REAR PANEL

Kit	*Included in Kit*	*Tools Required*
Blower Assembly, SK *or* *Blower Assembly, Moog*	• *Blower*	• *Torx Screwdriver (T10 is recommended)*
Blower Box Assembly	• *Blower Box Assembly*	
Rear Panel Assembly	• *Rear Panel* • *Rear Panel O-Ring*	

BLOWER, SK



BLOWER, MOOG

FIGURE 7-16: SK AND MOOG BLOWER IDENTIFICATION

TO REMOVE THE BLOWER, BLOWER BOX ASSEMBLY AND REAR PANEL:

1. Remove all components as instructed in the previous sections.
2. Remove the two # 4 x 1/2” screws holding the Blower Box Assembly to the Bottom Enclosure.

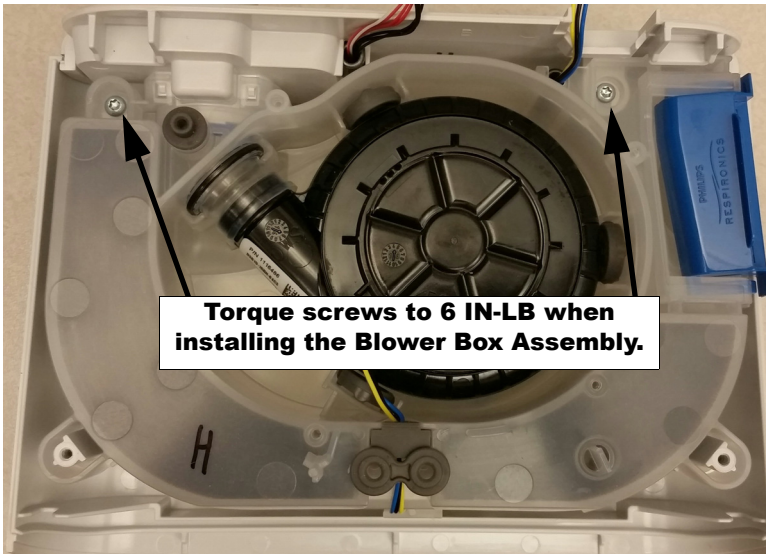


FIGURE 7-17: BLOWER BOX REMOVAL

3. Lift the back end of the Blower Box Assembly slightly out of the Bottom Enclosure and carefully pull the Rear Panel from the Blower Box Assembly by pulling it out of the grooves.
4. Remove the DC Connector ferrite from the Rear Panel (refer to the Figure below).
5. Lift the Blower Box Assembly out of the Bottom Enclosure.

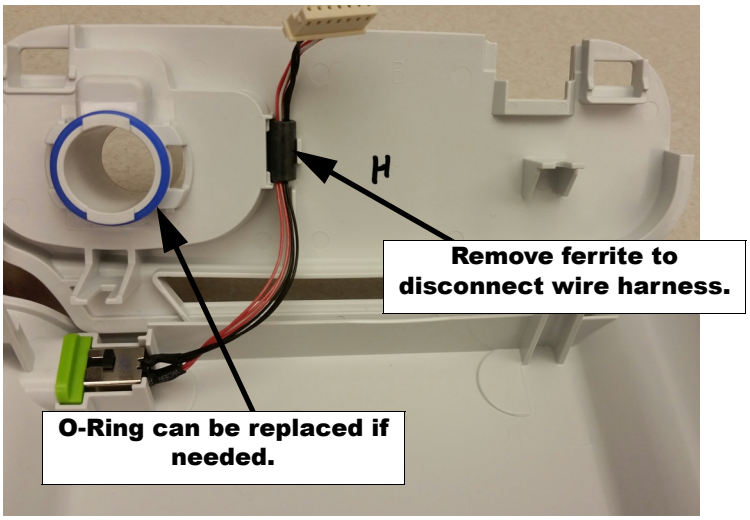


FIGURE 7-18: REAR PANEL FERRITE

6. Remove the Blower wire ferrite from the Blower Box Assembly by pushing the ferrite straight down.
7. Unwrap the wire around the Blower Box Assembly.

8. Pull the wire grommet out of the Blower Box Assembly groove.

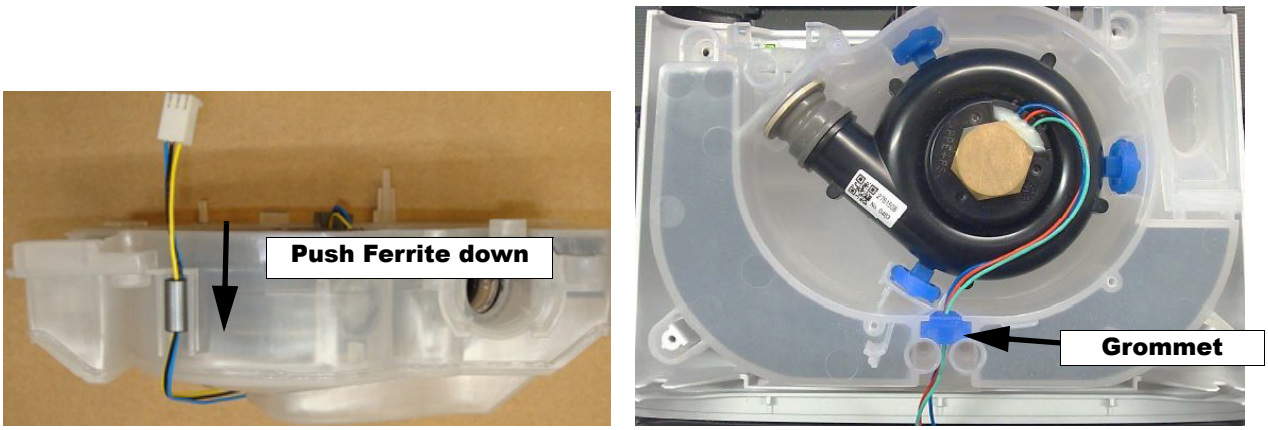


FIGURE 7-19: BLOWER BOX FERRITE AND BLOWER WIRE GROMMET

9. Carefully lift the Blower straight out of the Blower Box Assembly.
10. Lift the Blower Assembly out of the Blower Box.

TO INSTALL THE BLOWER, BLOWER BOX ASSEMBLY AND REAR PANEL:

1. Position the Blower inside the Blower Box Assembly so that the Blower Outlet Seal and Blower Isolators are aligned in their grooves (refer to the Figure below).

CAUTION

- The SK and Moog Blowers are not interchangeable. Ensure to replace SK with SK, and Moog with Moog.
- The Blower with the Isolators attached should be rested inside the Blower Box. Do not press down on the Blower after installation.

NOTE

The SK Isolator design was updated. This update is an enhancement to the device, and is intended to prevent the isolators from loosening from or falling off of the blower mounts.

Upon receipt of a device built with the SK Blower Assembly:

- If the Blower Isolators are the updated design, no action is required.
- If the Blower Isolators are the previous design, and are found to be off of the mounts, replace the Blower Isolators with the updated design.

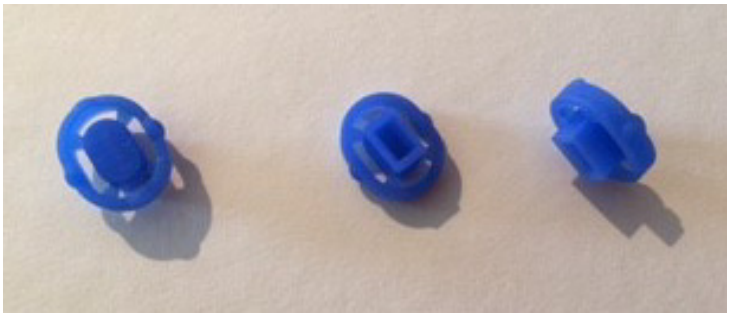


FIGURE 7-20: SK ISOLATORS - UPDATED DESIGN

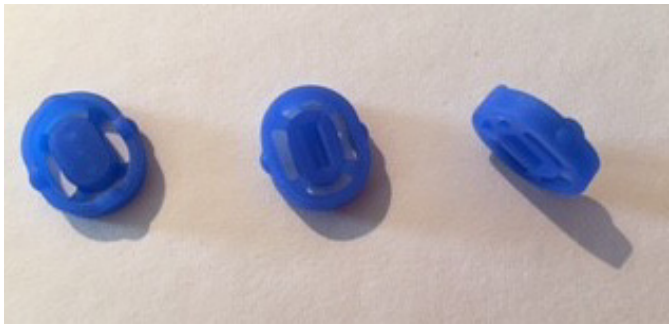


FIGURE 7-21: SK ISOLATORS - PREVIOUS DESIGN

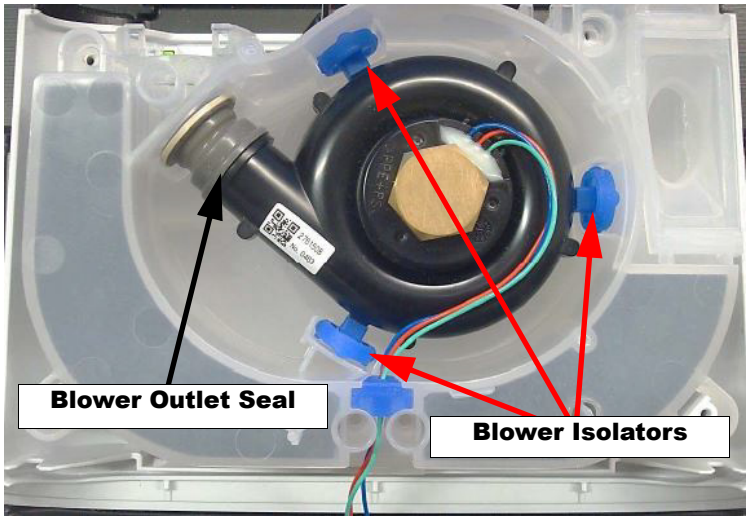


FIGURE 7-22: SEATING OF BLOWER

2. Insert Grommet into slot.
3. Set Blower wire length to approximately 9.5 in from the outside of the Blower Box Assembly.

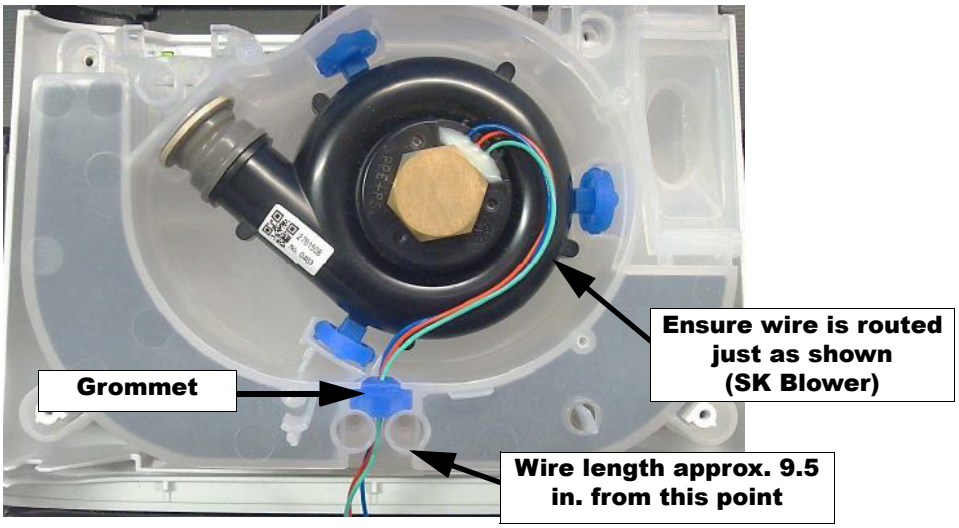


FIGURE 7-23: GROMMET INSERTION/WIRE ROUTING, SK BLOWER

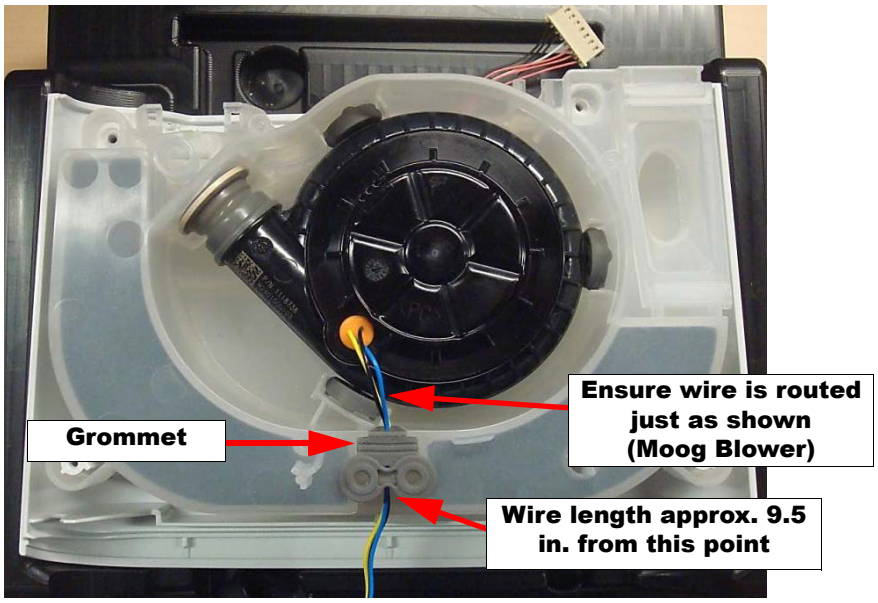


FIGURE 7-24: GROMMET INSERTION/WIRE ROUTING, MOOG BLOWER

4. Verify the Blower Outlet Seal is properly seated.

FIGURE 7-25: BLOWER OUTLET SEAL ALIGNMENT

5. Route the Blower wires as shown below.

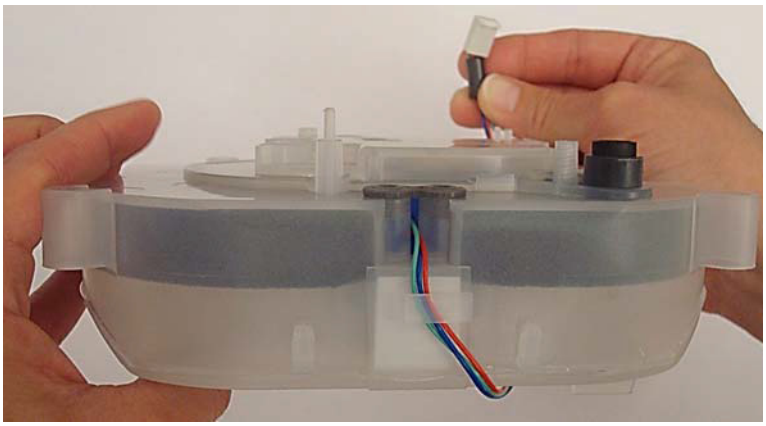


FIGURE 7-26: BLOWER WIRE ROUTING

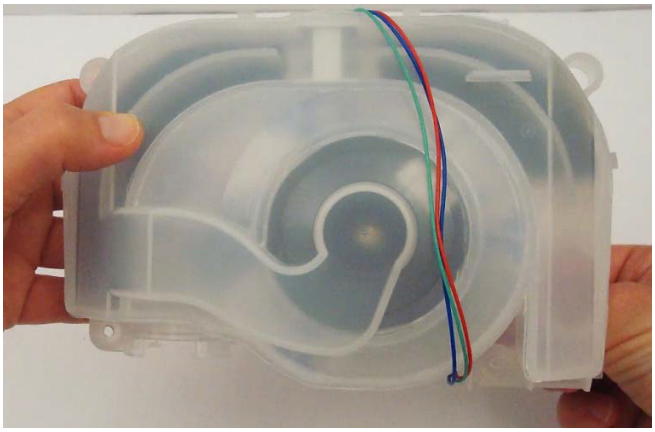


FIGURE 7-27: BLOWER WIRE ROUTING - BLOWER BOX UNDERSIDE

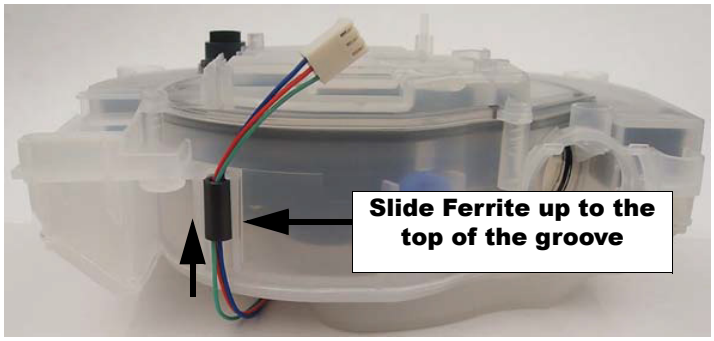


FIGURE 7-28: BLOWER WIRE ROUTING - FERRITE INSERTION

6. Snap DC Cable ferrite into groove on Rear Panel.

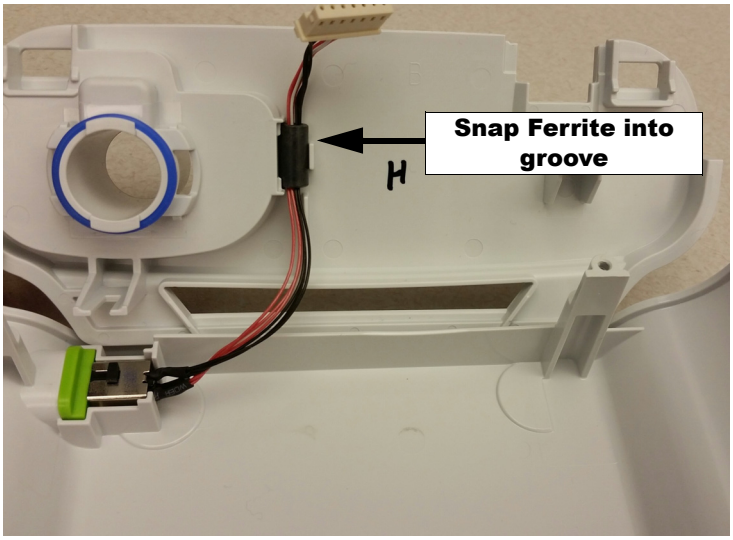


FIGURE 7-29: FERRITE ON REAR PANEL

7. Attach Rear Panel onto Blower Box Assembly.

NOTE: Ensure O-Ring is properly seated.

FIGURE 7-30: REAR PANEL SEATING

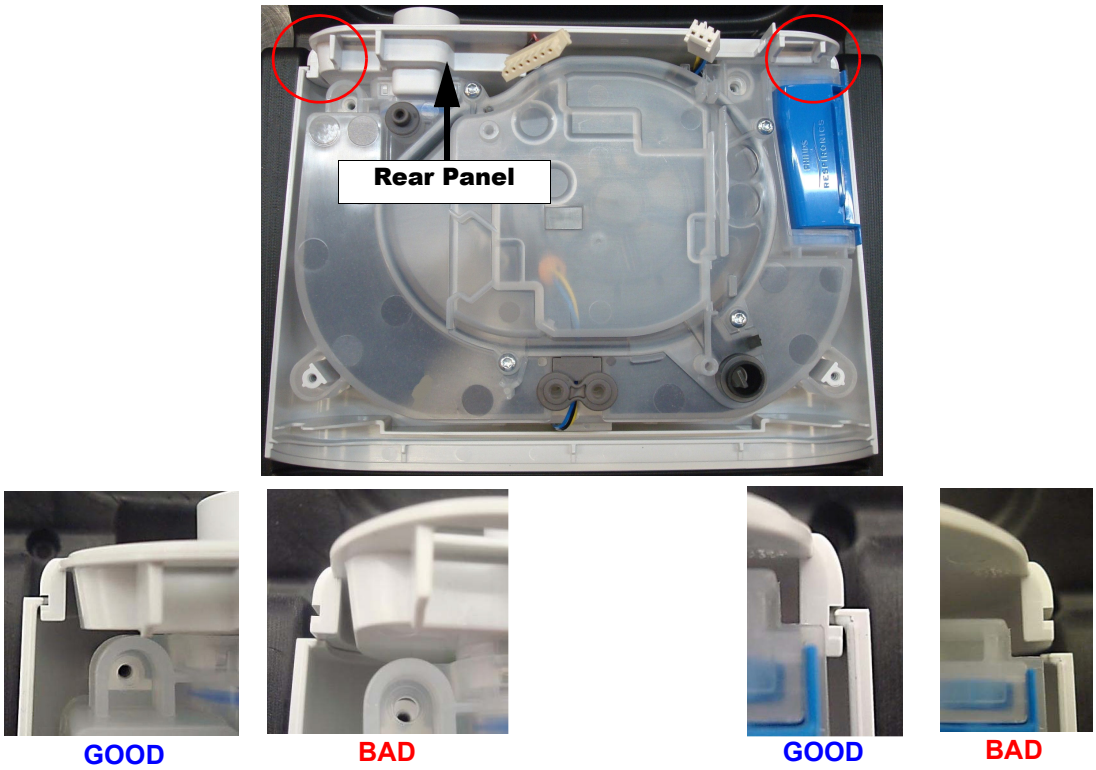


FIGURE 7-31: REAR PANEL ALIGNMENT

8. Place the Blower Box Assembly with the Rear Panel attached into the Bottom Enclosure.

9. Secure the Blower Box Assembly with the two # 4 x 1/2” screws (torque to 6 IN-LB).
10. Assemble the remainder of the device as instructed in the previous sections.

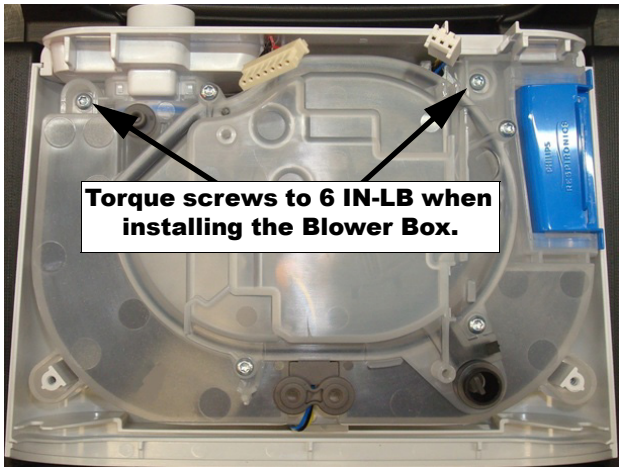


FIGURE 7-32: BLOWER BOX

7.1.10 REPLACING THE BLOWER OUTLET SEAL AND BLOWER ISOLATORS

Kit	*Included in Kit*	*Tools Required*
Blower Outlet Seal	• *Blower Outlet Seal*	• *Torx Screwdriver (T10 is recommended)*
Blower Isolators, SK or Blower Isolators, Moog	• *Blower Isolators*	

TO REMOVE THE BLOWER OUTLET SEAL AND BLOWER ISOLATORS:

1. Remove all components as instructed in the previous sections.
2. Pull the Blower Outlet Seal and Blower Isolators off of the Blower.

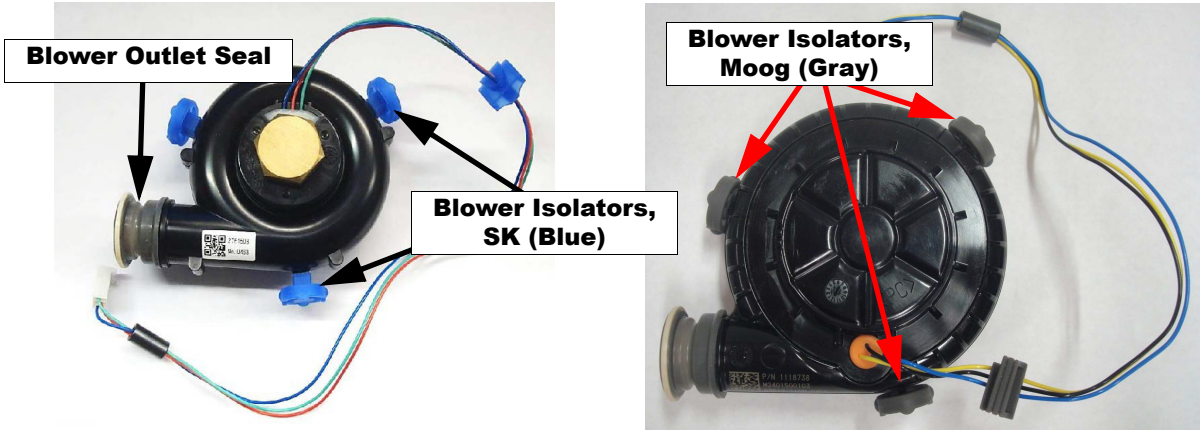
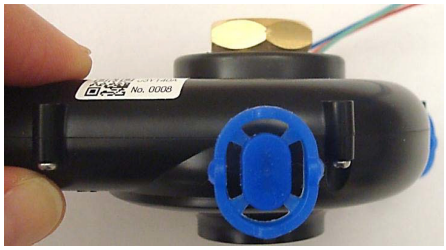


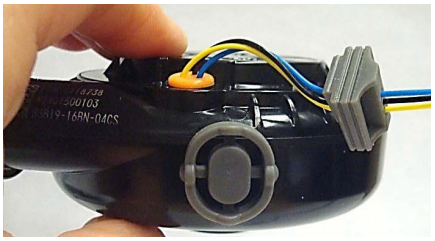
FIGURE 7-33: BLOWER OUTLET SEAL/BLOWER ISOLATORS

TO INSTALL THE BLOWER OUTLET SEAL AND BLOWER ISOLATORS:

1. Position the Blower Outlet Seal and Blower Isolators on the Blower and verify they are fully seated.
2. Assemble the remainder of the device as instructed in the previous sections.



ISOLATORS, SK - GOOD



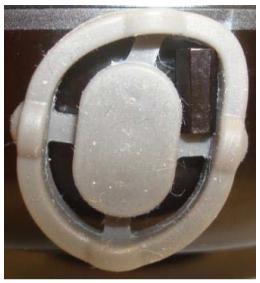
ISOLATORS, MOOG - GOOD

FIGURE 7-34: ISOLATOR ALIGNMENT

CAUTION

The Isolators are prone to falling off the Blower. Ensure they are fully seated and stay fully seated during installation and throughout the remainder of the repair process.

ISOLATORS, SK - BAD



ISOLATORS, MOOG - BAD

FIGURE 7-35: ISOLATORS SEATED ON BLOWER (BAD)

ISOLATORS, MOOG - BAD

FIGURE 7-36: ISOLATOR/BLOWER INSTALLED IN DEVICE (BAD)

NOTE

The SK Isolator design was updated. This update is an enhancement to the device, and is intended to prevent the isolators from loosening from or falling off of the blower mounts.

Upon receipt of a device built with the SK Blower Assembly:

- If the Blower Isolators are the updated design, no action is required.
- If the Blower Isolators are the previous design, and are found to be off of the mounts, replace the Blower Isolators with the updated design.

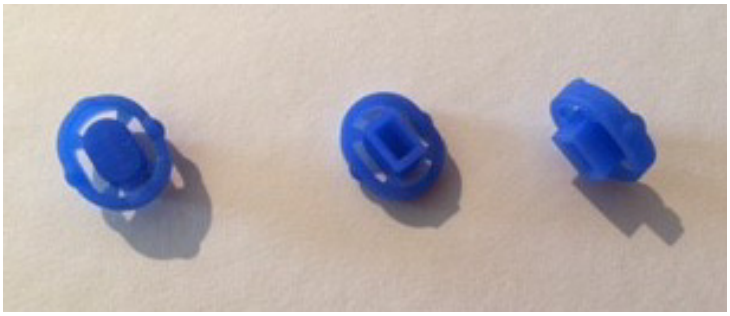


FIGURE 7-37: SK ISOLATORS - UPDATED DESIGN

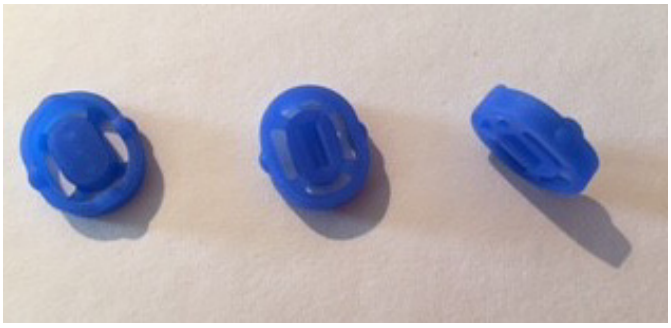


FIGURE 7-38: SK ISOLATORS - PREVIOUS DESIGN

7.1.11 REPLACING THE DC POWER CABLE AND DC JACK COLOR INSERT

Kit	Included in Kit	Tools Required
DC Power Cable	• DC Power Cable	• Torx Screwdriver (T10 is recommended).
DC Jack Color Insert	• DC Jack Color Insert	

TO REMOVE THE DC POWER CABLE AND DC JACK COLOR INSERT:

1. Remove all components as instructed in the previous sections.

Note: It is not required to remove the Blower Upper Cap, Blower or Blower Isolators – these can be left assembled and lifted from the Bottom Enclosure as one assembly.

2. Turn the Bottom Enclosure Over.
3. Push downward on the DC Jack Color Insert.

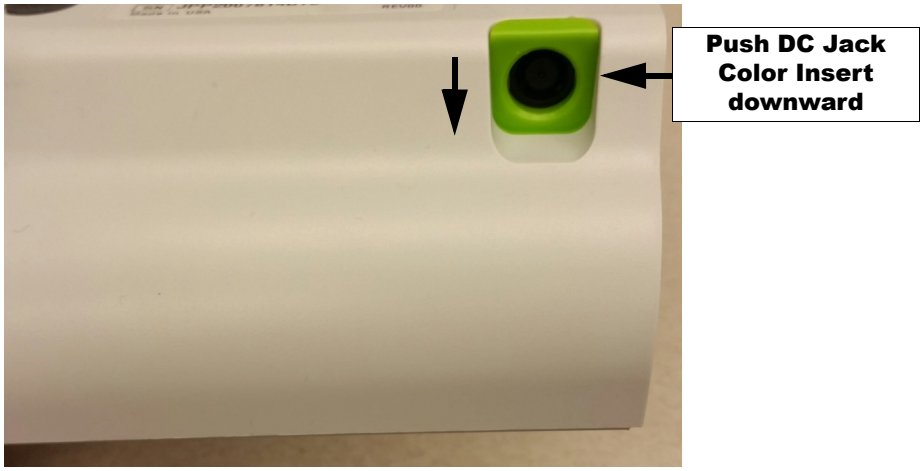


FIGURE 7-39: BOTTOM ENCLOSURE FLIPPED TO REMOVE COLOR INSERT/DC CABLE

TO INSTALL THE DC POWER CABLE AND DC JACK COLOR INSERT:

1. Align the DC Jack Color Insert and DC Cable into the grooves as shown in the Figure below.
2. Assemble the remainder of the device as instructed in the previous sections.

FIGURE 7-40: DC CABLE AND COLOR JACK INSERT

7.1.12 REPLACING THE BOTTOM ENCLOSURE

Kit	*Included in Kit*	*Tools Required*
Bottom Enclosure	• *Bottom Enclosure*	• *Torx Screwdriver (T10 is recommended).*
Warning Label	• *Warning Label*	

TO REMOVE THE BOTTOM ENCLOSURE:

1. Remove all components as instructed in the previous sections (it is not required to remove the Blower Upper Cap, Blower or Blower Isolators – these can be left assembled and lifted from the Bottom Enclosure as one assembly if they do not require replacement).

TO INSTALL THE BOTTOM ENCLOSURE:

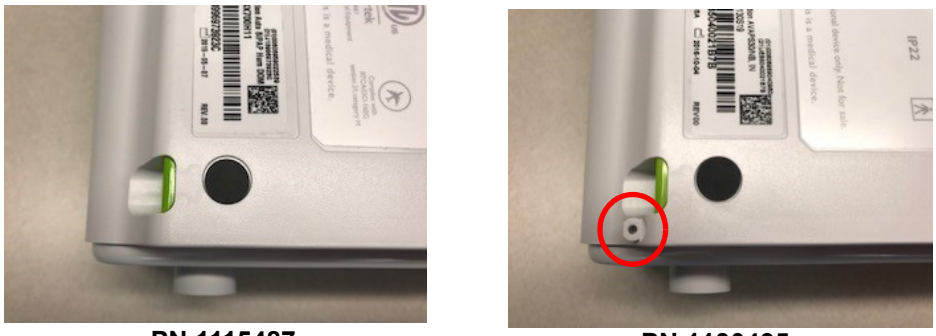
1. Place a new warning label and Serial/Model Number label on the bottom of the Bottom Enclosure (refer to the figure below for label placement and refer to **Section 7.2** for Serial/Model Number label creation).
2. Assemble the remainder of the device as instructed in the previous sections.

FIGURE 7-41: WARNING LABEL AND SERIAL/MODEL NUMBER LABEL PLACEMENT

NOTE

Bottom Enclosure part number 1115487 has been replaced with part number 1130435. Once stock of part number 1115487 has been depleted, switch to part number 1130435.

See below figure for Bottom Enclosure differences.



PN 1115487 PN 1130435

FIGURE 7-42: BOTTOM ENCLOSURE UPDATE

7.2 CREATING THE SERIAL/MODEL NUMBER LABEL

In the case that the Bottom Enclosure of the PAP device or Bottom Cover of the Humidifier is replaced during service, or if there is damage to the labels, all information on the serial/model number labels is required to be duplicated in order to maintain proper traceability. Refer below for details on reprinting the labels.

NOTE
The new label MUST include the same Model Number, Serial Number and UDI number as those of which are on the original label.

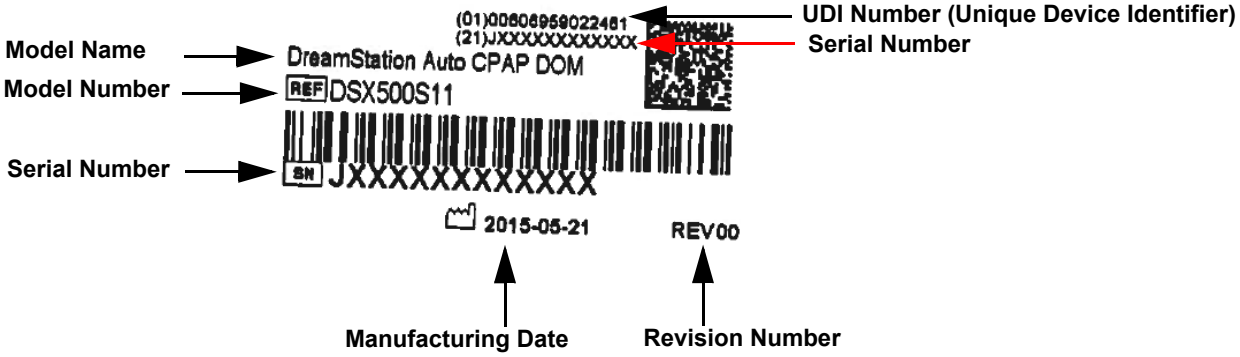


FIGURE 7-43: EXAMPLE LABEL

7.2.1 EQUIPMENT (PRINTER)

Recommended Equipment:

Zebra GX430T or similar

Printer Specifications:

- Label printer
- Monochrome
- Direct thermal/thermal transfer
- Roll (4.25 in)
- 300 dpi
- up to 240.9 inch/min
- USB
- LAN
- serial

7.2.2 SOFTWARE

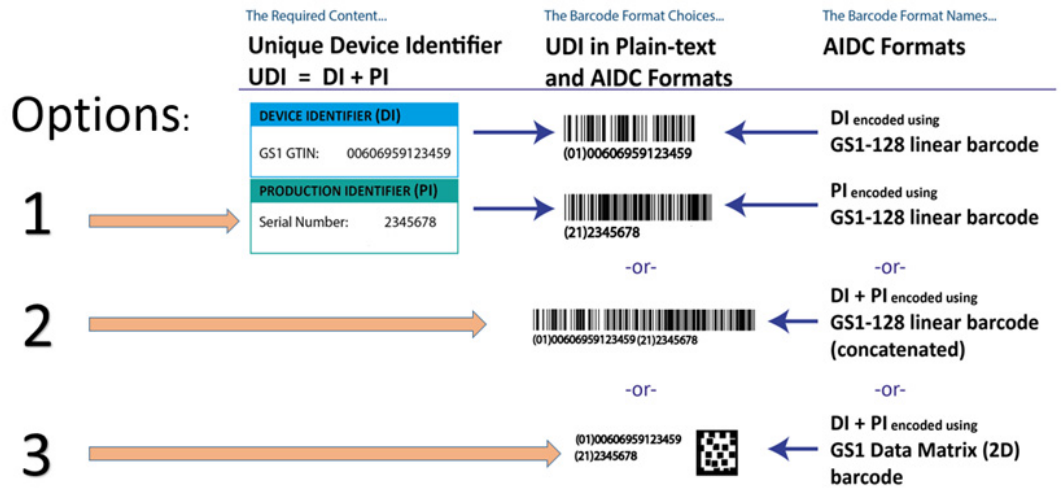
Recommended Software:

Loftware Software and Print Key (Fees Apply)

- For a full detailed list of Loftware supported printers and fees, please refer to http://www.loftware.com/support/tech_printers.cfm
- For software support, visit their website at www.loftware.com

7.2.3 LABEL PRINTING OPTIONS

There are three different options available for reprinting the serial number label. One of these three options must be used. If option 3 cannot be duplicated to match the original label, options 1 and 2 may be used in its place.



7.3 PREVENTIVE MAINTENANCE

There is no preventive maintenance required for the device. The device does not require routine service.

CHAPTER 8: HUMIDIFIER REPAIR AND REPLACEMENT

This Chapter illustrates the names and locations of the replaceable components in the DreamStation Humidifiers. Prior to executing these procedures, troubleshooting procedures must first be executed (refer to Chapter 6 for troubleshooting procedures. If repair or replacement procedures are performed, the device must be tested to verify its proper operation. Refer to Chapter 9 for Testing Procedures.

WARNING

To prevent electrical shock, disconnect the Humidifier from the PAP device before attempting to make any repairs.

CAUTION

Components used in this device are subject to damage from static electricity. Repairs made to this device must be performed only in an anti-static, Electro-Static Discharge (ESD) protected environment.

8.0 HUMIDIFIER REPLACEMENT PART (RP) KITS

DESCRIPTION	RP KIT NUMBER
Dry Box Assembly	*1120668*
Dry Box Inlet Seal	*1120613*
Flip Lid/Bottom Assembly	*1120873 (order in quantities of 5)*
Flip Lid Seal	*1120617*
Flip Lid Latch	*1121569*
Back Panel	*1120614*
Lifting Tray	*1121570*
Bottom Cover	*1120616*
Heat Shield	*1122522*
Heater Plate O-Ring	*1120669*
Wire Guard	*1120615*
ISO Port	*1126545*
ISO Port Cover	*1126543*
Water Tank Assembly	*1122520*
Warning Label, DOM	*1121567*
Warning Label, INTL (also for Canada)	*1121568*
Warning Label, Japan	*1127613*
Heated Tubing, 15mm	*HT15*
Heated Tubing, 15mm, China	*CNHT15*

8.1 REPLACEMENT INSTRUCTIONS

Prior to executing repair and replacement procedures, device troubleshooting must be performed. Refer to Chapter 5 for troubleshooting procedures.

8.1.1 REPLACING THE WATER TANK ASSEMBLY

Kit	*Included in Kit*	*Tools Required*
Tank Assembly	• *Tank Assembly*	• *None*

TO REMOVE THE WATER CHAMBER ASSEMBLY:

1. Pull back on the latch located on the Bottom Assembly and lift up the Flip Lid.
2. Pull the Water Tank Assembly out of the Humidifier.

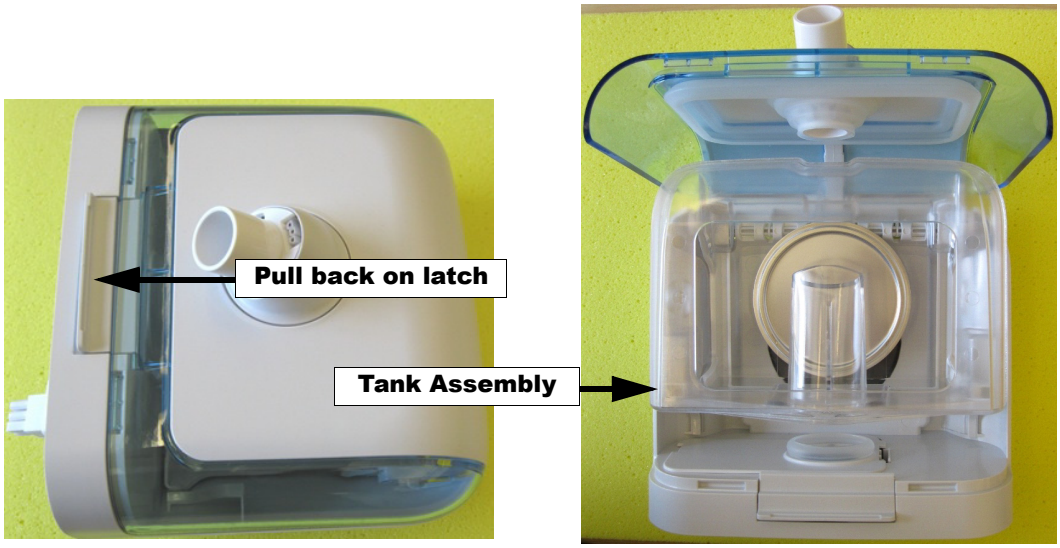


FIGURE 8-1: WATER CHAMBER ASSEMBLY

TO INSTALL THE WATER TANK ASSEMBLY:

1. Position the Water Tank back into the Humidifier as shown in Figure 8-1.
2. Close the Flip Lid and verify it latches into place.

8.1.2 REPLACING THE FLIP LID AND DRY BOX INLET SEALS

Kit	*Included in Kit*	*Tools Required*
Flip Lid Seal	• *Flip Lid Seal*	• *None*
Dry Box Seal	• *Dry Box Seal*	

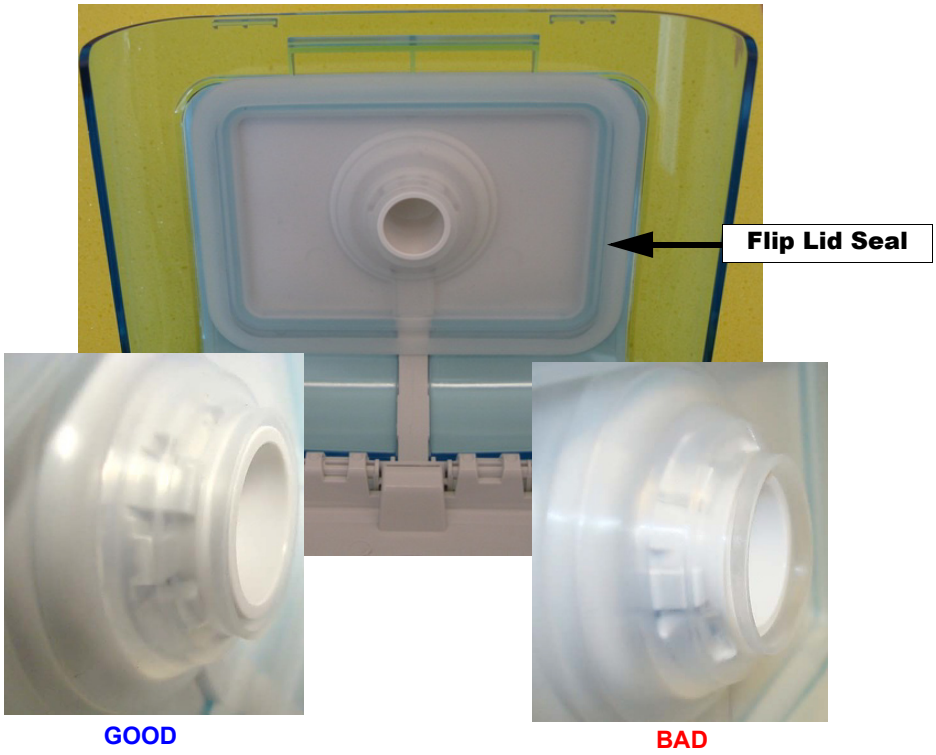


FIGURE 8-2: FLIP LID SEAL

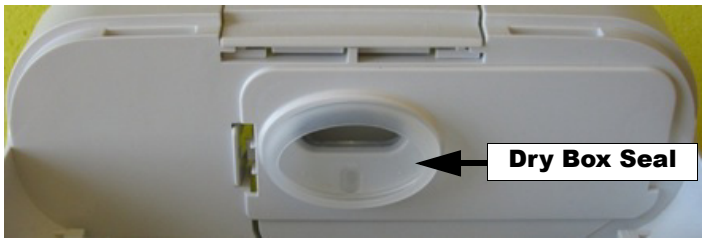


FIGURE 8-3: DRY BOX SEAL

TO REMOVE THE SEALS:

1. Remove the Water Tank as instructed in the previous section (not required for Flip Lid Seal replacement only).
2. Pull the Flip Lid Seal off of the Flip Lid and pull the Dry box Inlet Seal from the Dry Box Assembly.

TO INSTALL THE SEALS:

1. Press the Seals into the place as shown in Figures 8-2 and 8-3.
2. Press the Tank Top Seal onto the Patient Outlet Swivel Clip.

Note: The Seal only aligns one way. Be sure to press the Seal the whole way around to ensure it is seated properly.

8.1.3 REPLACING THE DRY BOX ASSEMBLY

Kit	*Included in Kit*	*Tools Required*
Dry Box Assembly	• *Dry Box Assembly*	• *None*

TO REMOVE THE DRY BOX ASSEMBLY:

1. Remove the Water Tank and Dry Box Seal (refer to previous corresponding sections).
2. Pull back on the Dry Box Latch and pull the Dry Box out of the Bottom Assembly.

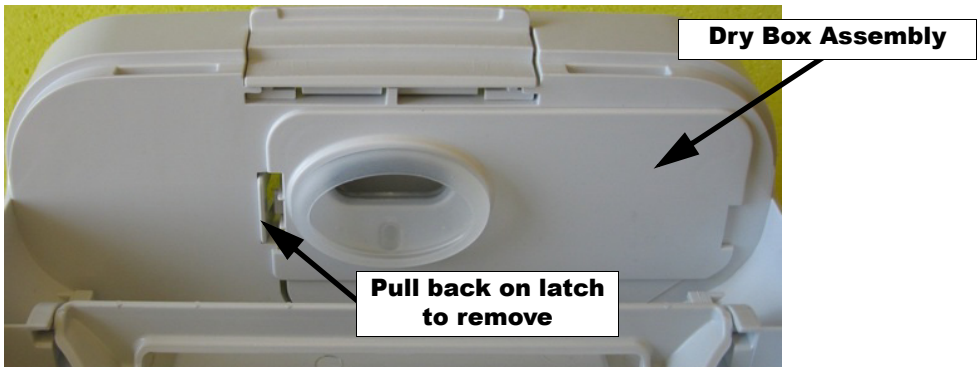


FIGURE 8-4: DRY BOX ASSEMBLY

TO INSTALL THE DRY BOX ASSEMBLY:

1. Position the Dry Box into the Bottom Assembly.
2. Snap the Dry Box into place and verify it is fully seated.
3. Assemble the remainder of the device as instructed in the previous sections.

8.1.4 REPLACING THE WIRE GUARD

Kit	*Included in Kit*	*Tools Required*
Wire Guard	• *Wire Guard*	• *Flathead Screwdriver*

TO REMOVE THE WIRE GUARD:

1. Remove the Water Tank and Flip Lid Seal (refer to previous corresponding sections).
2. Push the bottom of the Wire Guard down and inward toward the Flip Lid while prying upward with a small flathead screwdriver.
3. Pull the Wire Guard away from the Flip Lid.

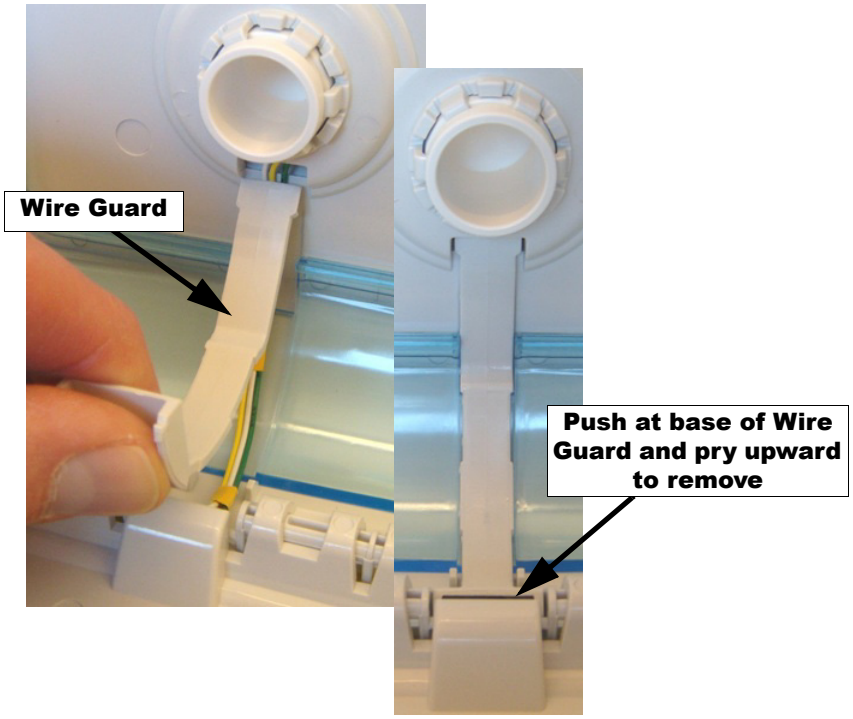


FIGURE 8-5: WIRE GUARD

TO INSTALL THE WIRE GUARD:

1. Position the top of the Wire Guard into the Flip Lid groove and then position the bottom of the Wire Guard into place, but do not fully seat Wire Guard.

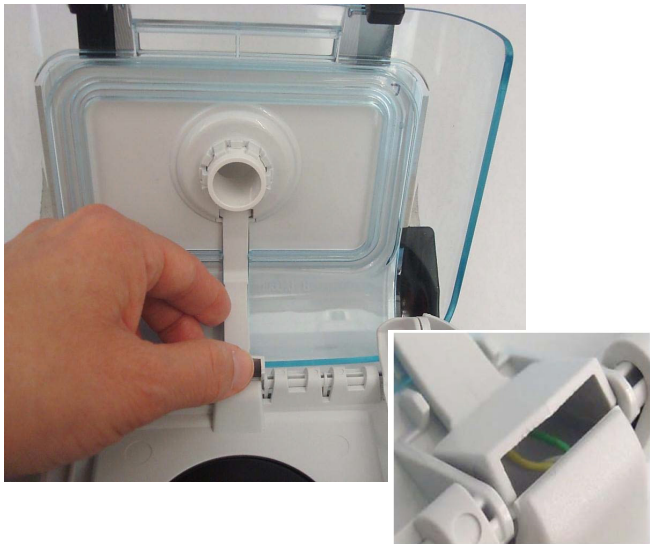


FIGURE 8-6: WIRE GUARD INSTALLATION

2. Verify wires are properly seated by wiping your finger across Wire Gard in location shown in the illustration below. If Wire Guard is not flush with the Flip Lid surface, remove Wire Guard, re-seat wires, and reinstall Wire Guard. Repeat process if necessary.

FIGURE 8-7: VERIFY WIRES SEATED

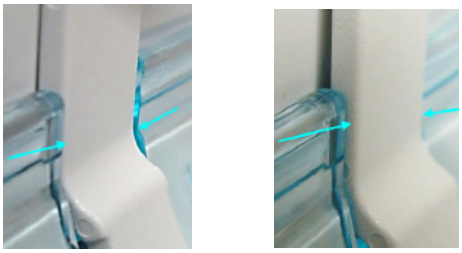


FIGURE 8-8: WIRE GUARD FLUSH WITH SURFACE

3. Complete installation of the Wire Guard.
4. Assemble the remainder of the device as instructed in the previous sections.

NOTE: Ensure the wires are not pinched when installing the Wire Guard, and verify it is fully seated/secure (refer to illustrations below).

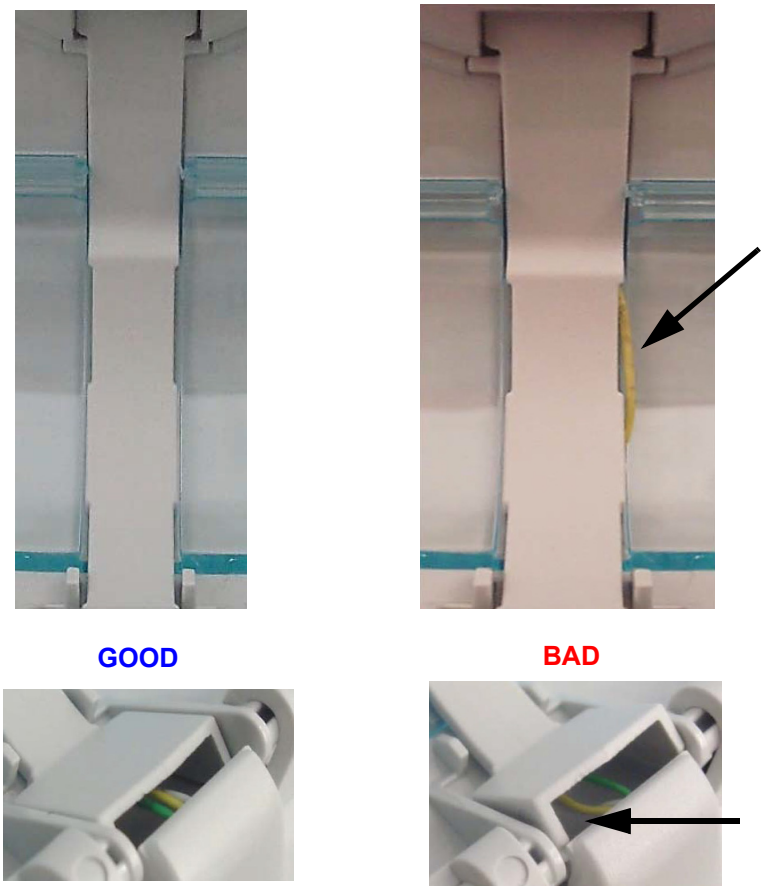


FIGURE 8-9: WIRE GUARD ALIGNMENT

8.1.5 REPLACING THE BACK PANEL ASSEMBLY

Kit	*Included in Kit*	*Tools Required*
Back Panel Assembly	• *Back Panel Assembly* • *# 4 x 1/2" screws (qty 5)*	• *Torx Screwdriver (T10 is recommended)*

TO REMOVE THE BACK PANEL ASSEMBLY:

1. Remove the Water Chamber Assembly (refer to previous corresponding section).
2. Pull the Back Panel away from the Humidifier while lifting up on the top to release the Back Panel tab from the latch area.

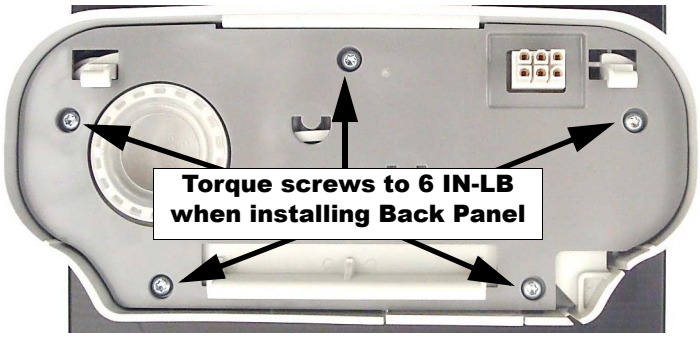


FIGURE 8-10: BACK PANEL ASSEMBLY

TO INSTALL THE BACK PANEL ASSEMBLY:

1. Align the Back Panel onto the Bottom Assembly.
2. Secure the Back Panel with the four # 4 x 1/2" screws (torque to 6 IN-LB).
3. Verify the Back Panel is fully seated/secure.

8.1.6 REPLACING THE FLIP LID LATCH

Kit	*Included in Kit*	*Tools Required*
Flip Lid Latch	• *Flip Lid Latch*	• *Torx Screwdriver (T10 is recommended)*

TO REMOVE THE FLIP LID LATCH:

1. Remove the Back Panel Assembly and open the Flip Lid (refer to previous corresponding section).
2. Push up on the 2 Latch tabs and pull the Latch out of the Humidifier Assembly.

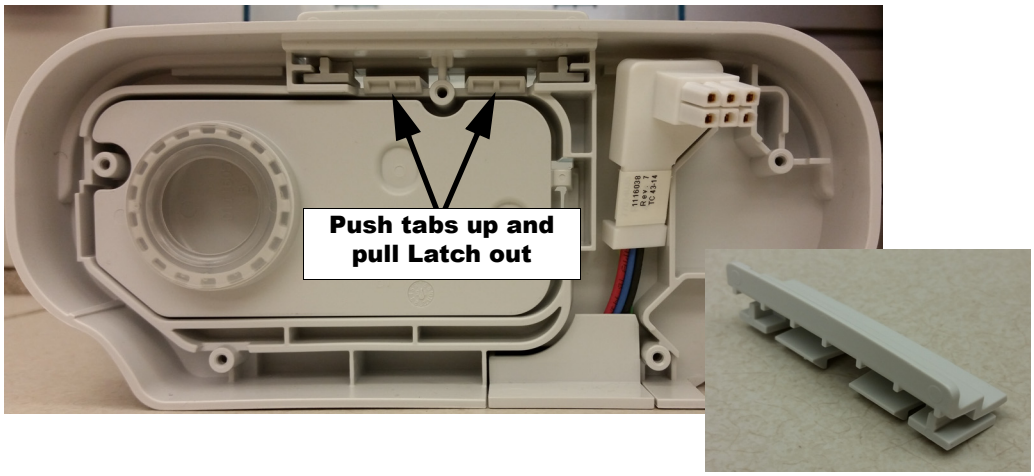


FIGURE 8-11: FLIP LID LATCH

TO INSTALL THE FLIP LID LATCH:

1. Align the Latch into the Bottom Assembly grooves.
2. Push up on the Latch tabs while pushing the Latch until it clicks into place.
3. Verify the Flip Lid latches into place.

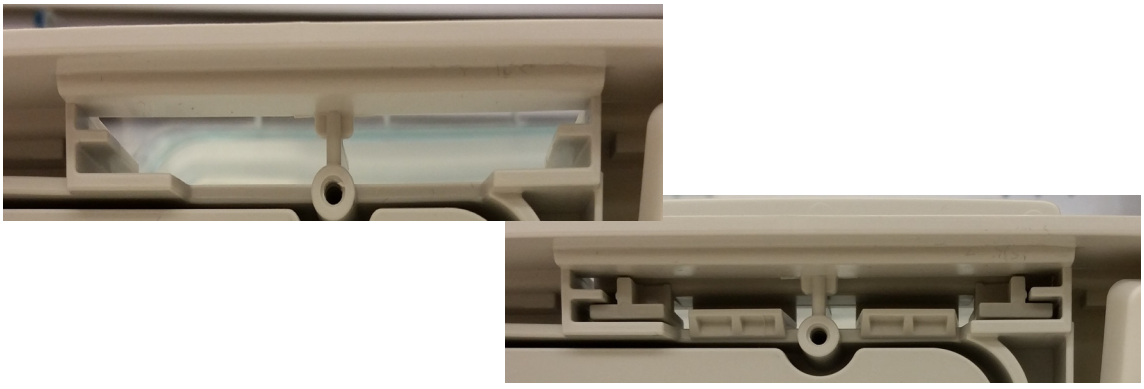


FIGURE 8-12: LATCH ALIGNED

8.1.7 REPLACING THE LIFTING TRAY

Kit	Included in Kit	Tools Required
Lifting Tray	• Lifting Tray	• None

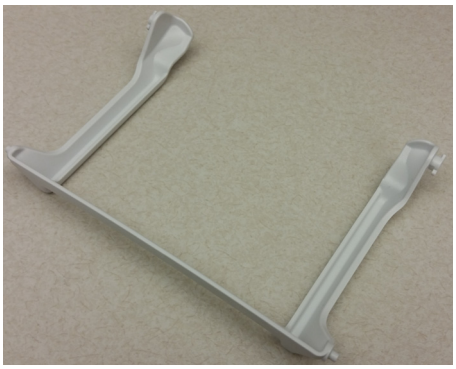


FIGURE 8-13: LIFTING TRAY

TO REMOVE THE LIFTING TRAY:

1. Push out one side of the Lifting Tray out of the groove, and then repeat on the other side.

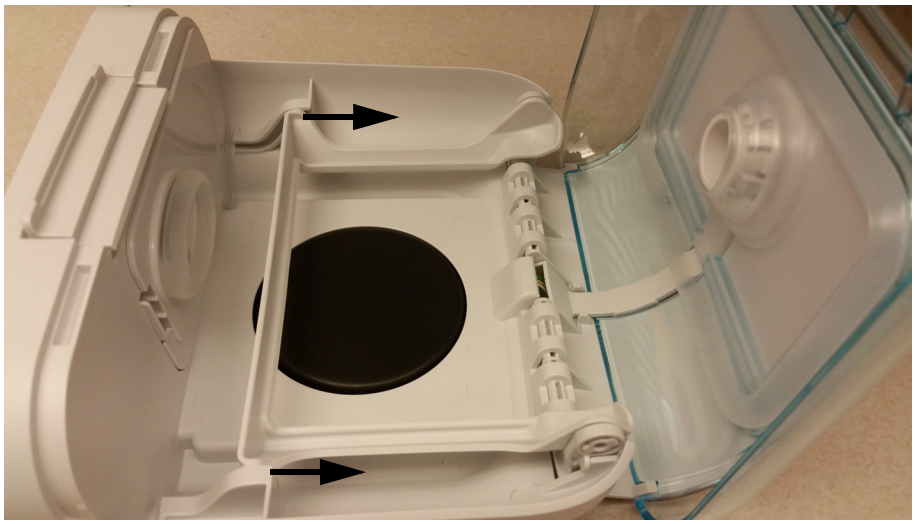


FIGURE 8-14: LIFTING TRAY REMOVAL

2. Lift up the Lifting Tray and push one side inward out of the groove, and then repeat on the other side.

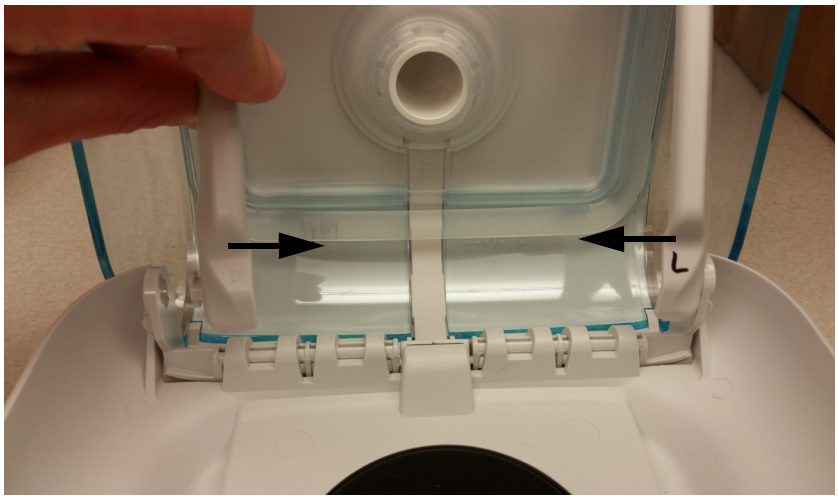


FIGURE 8-15: LIFTING TRAY REMOVAL

TO INSTALL THE LIFTING TRAY:

1. Place one end of the Lifting Tray back into the cut-out groove, and then repeat on other side.

NOTE: The Tray will only fit one way into the groove. Refer to illustration below.

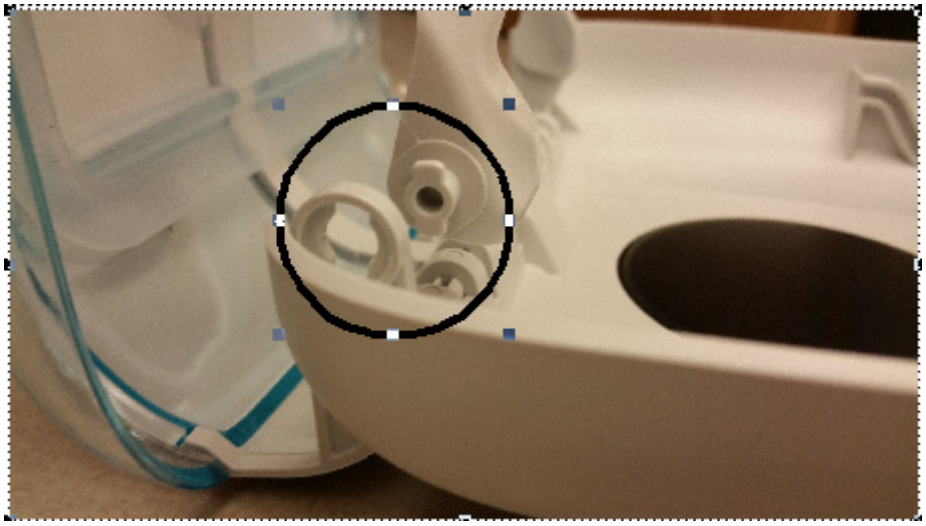


FIGURE 8-16: LIFTING TRAY INSTALLATION

2. Once both ends of the Lifting Tray are placed into the cut-out holes, turn the Tray downward.
3. Pull back one of the other ends of the Lifting Tray and align into the groove (refer to illustration below.).
4. Repeat on other side.

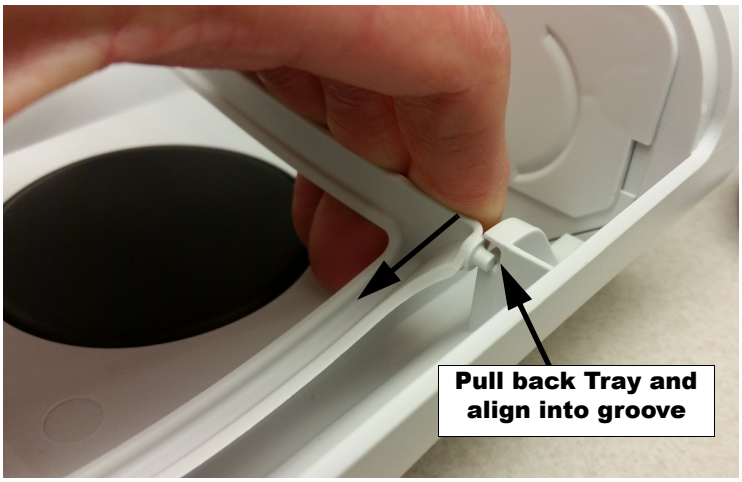


FIGURE 8-17: LIFTING TRAY INSTALLATION

FIGURE 8-18: LIFTING TRAY INSTALLED

8.1.8 REPLACING THE BOTTOM COVER

Kit	*Included in Kit*	*Tools Required*
Bottom Cover	• *Bottom Cover* • *# 6 x 1/4" screws (qty 4)*	• *Torx Screwdriver (T15 is recommended)*

TO REMOVE THE BOTTOM COVER:

1. Turn the Humidifier over.
2. Remove the four # 6 x 1/4" screws securing the Bottom Cover to the Bottom Assembly.
3. Lift the Bottom Cover from the Humidifier.

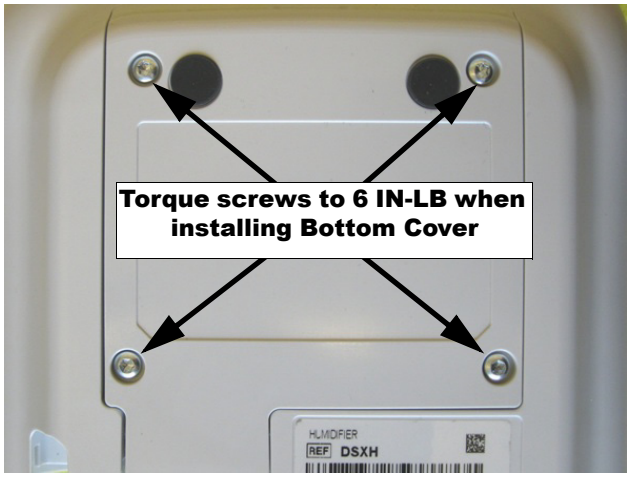


FIGURE 8-19: BOTTOM COVER

TO INSTALL THE BOTTOM COVER:

1. Align the Bottom Cover onto the Bottom Assembly.
2. Secure the Bottom Cover with the four # 6 x 1/4" screws (torque to 6 IN-LB).

NOTE: Ensure the wires are routed as shown below before installing the Bottom Cover. Also ensure the wires aren't pinched when installing the Bottom Cover.

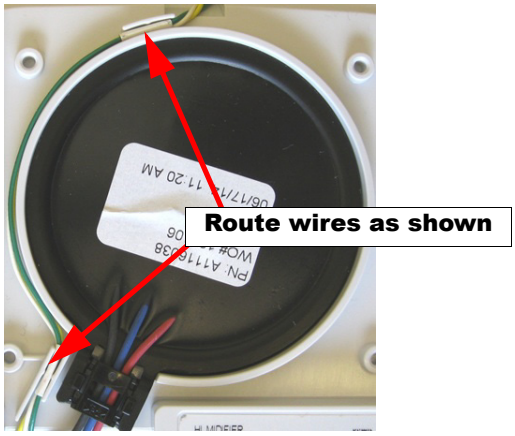


FIGURE 8-20: WIRE ROUTING

8.1.9 REPLACING THE HEAT SHIELD

Included in Kit	*Included in Kit*	*Tools Required*
Heat Shield	• *Heat Shield*	• *Torx Screwdriver (T15 is recommended)*

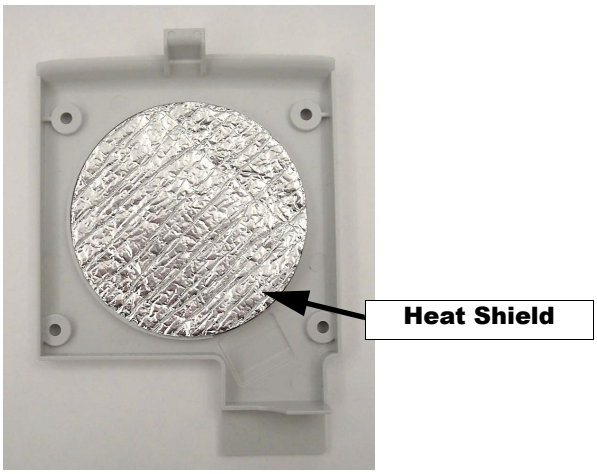


FIGURE 8-21: HEAT SHIELD

TO REMOVE THE HEAT SHIELD:

1. Remove the Bottom Cover as instructed in the previous section.
2. Remove the Heat Shield from the Bottom Cover.

TO INSTALL THE HEAT SHIELD:

1. Place the Heat Shield on the Bottom Cover as shown in the Figure above.
2. Install the Bottom Cover as instructed in the previous section.

8.1.10 REPLACING THE HEATER PLATE O-RING

Included in Kit	*Included in Kit*	*Tools Required*
Heater Plate O-Ring	• *Heater Plate O-Ring*	• *Torx Screwdriver (T15 is recommended)*

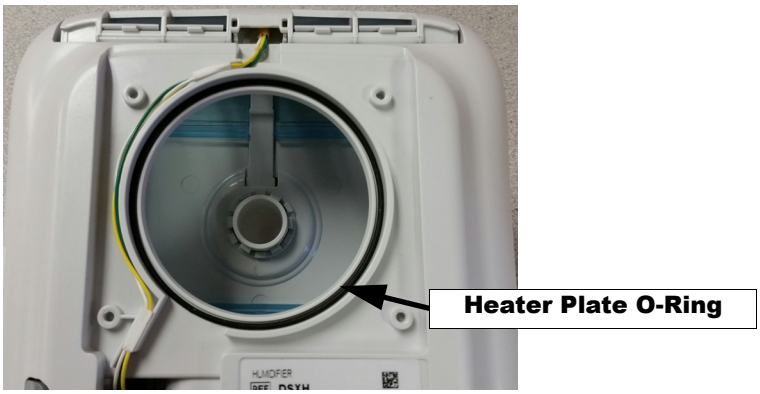


FIGURE 8-22: HEATER PLATE O-RING

TO REMOVE THE HEATER PLATE O-RING:

1. Remove the Bottom Cover as instructed in section **8.1.8**.
2. Lift up the Heater Plate.
3. Pull the O-Ring from the Bottom Assembly.

TO INSTALL THE HEATER PLATE O-RING:

1. Place the O-Ring into the groove on the Bottom Assembly as shown in the Figure above.
2. Place the Heater Plate back into position.
3. Install the Bottom Cover as instructed in **section 8.1.8**.

NOTE: Ensure the Heater Plate is seated properly and the wires are routed as shown in the Figure below before installing the Bottom Cover. Also ensure the wires aren't pinched when installing the Bottom Cover.

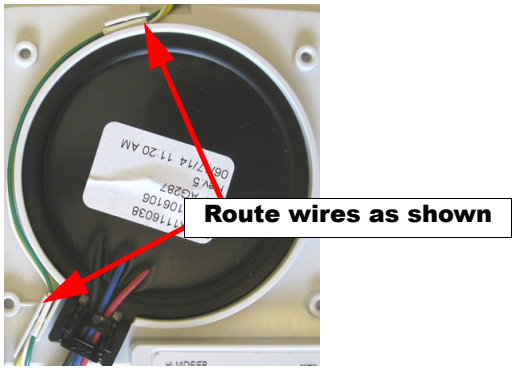


FIGURE 8-23: HEATER PLATE INSTALLED

8.1.11 REPLACING THE BOTTOM/FLIP LID ASSEMBLY

Included in Kit	Included in Kit	Tools Required
Bottom/Flip Lid Assembly	• Bottom/Flip Lid Assembly • Dry Box • Heater Plate • Heater Plate O-Ring • Heat Shield • Bottom Cover • Back Panel • # 6 x 1/4" screws (qty 4)	• Torx Screwdriver (T10 and T15 is recommended)
ISO Port	• ISO Port	• None
ISO Port Cover	• ISO Port Cover	• None
Warning Label, DOM Warning Label, INTL	• Warning Label	• None

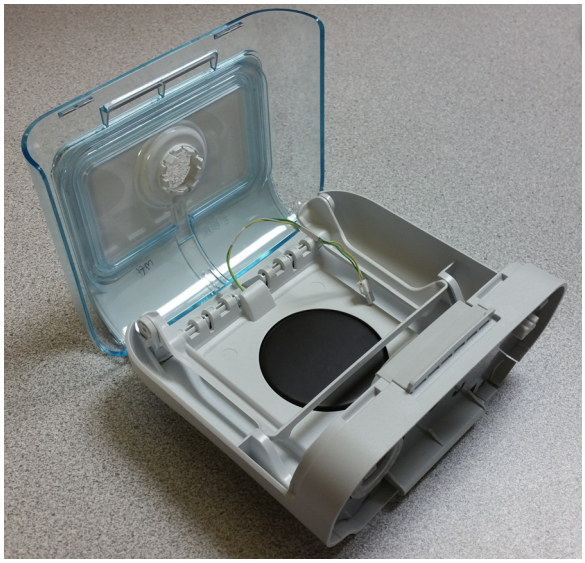


FIGURE 8-24: BOTTOM/FLIP LID ASSEMBLY

NOTE

If the Heater Plate is faulty, this assembly is required to be replaced. It will be come pre-assembled.

REMOVING/INSTALLING THE BOTTOM/FLIP LID ASSEMBLY:

1. Remove the Tank Assembly, Flip Lid Seal, Dry Box Seal, and the Back Panel Assembly (refer to previous corresponding sections).
2. Install Back Panel Assembly, Flip Lid Seal, Dry Box Seal and Tank Assembly onto the new Bottom/Flip Lid Assembly as instructed in the previous sections.
3. Place a new warning label and Serial/Model number label on the bottom of the Humidifier (refer to **Section 7.2** for creating the Serial/Model number label.

FIGURE 8-25: WARNING LABEL AND SERIAL/MODEL NUMBER LABEL PLACEMENT

4. Route the heated tube wire harness through the Flip Lid opening as shown below.

FIGURE 8-26: HEATED TUBE WIRE HARNESS ROUTED THROUGH FLIP LID

5. Install ISO Port Cover over heated tube wire harness.

FIGURE 8-27: ISO PORT COVER

6. Install heated tube wire connector into ISO Port, and verify it is connected the whole way as shown below.

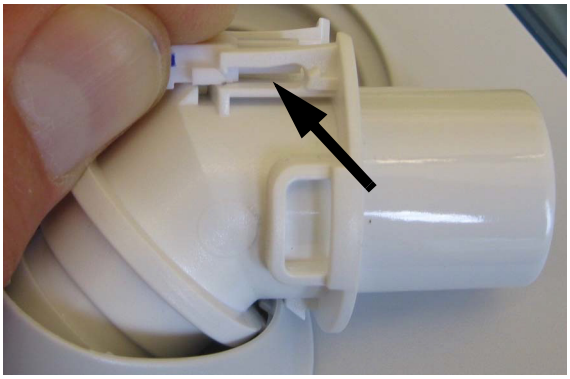


FIGURE 8-28: CONNECTING THE WIRE HARNESS

7. Install the ISO Port into the top opening of ISO Port Cover and snap into place.

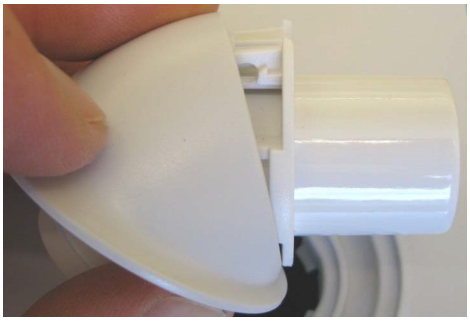


FIGURE 8-29: ISO PORT INSTALLATION

8. Verify the ISO Port is installed properly and flush with the ISO Port Cover.

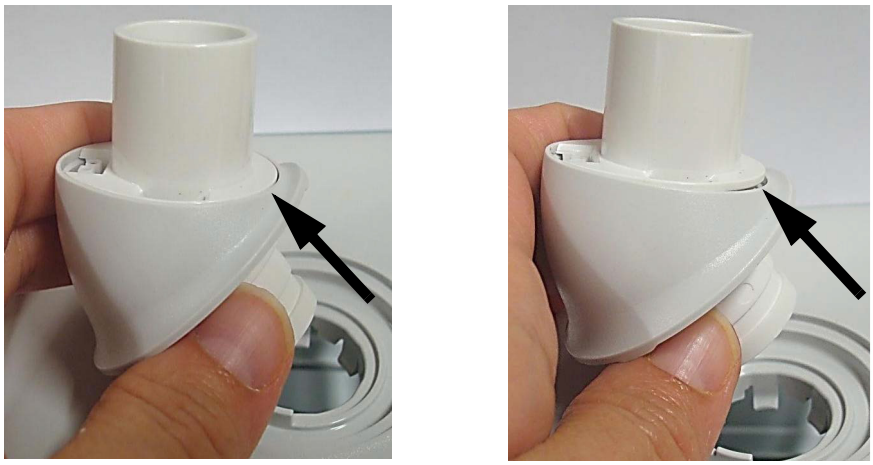


FIGURE 8-30: ISO PORT INSTALLATION VERIFICATION

9. Verify correct orientation of ISO Port assembly as shown below (port facing toward front of unit) and fully install ISO Port assembly into Flip Lid.

FIGURE 8-31: ISO PORT ASSEMBLY INSTALLATION

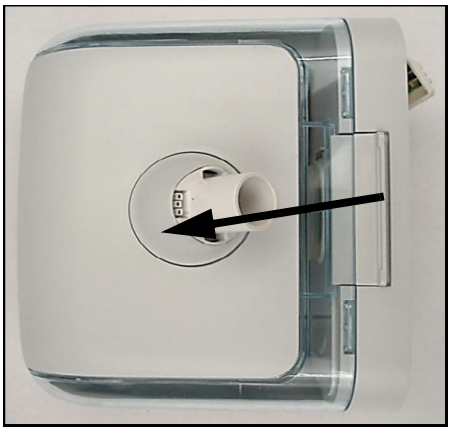


FIGURE 8-32: ISO PORT AND COVER INSTALLED

10. Open the Flip Lid and ensure there are no pinched wires.

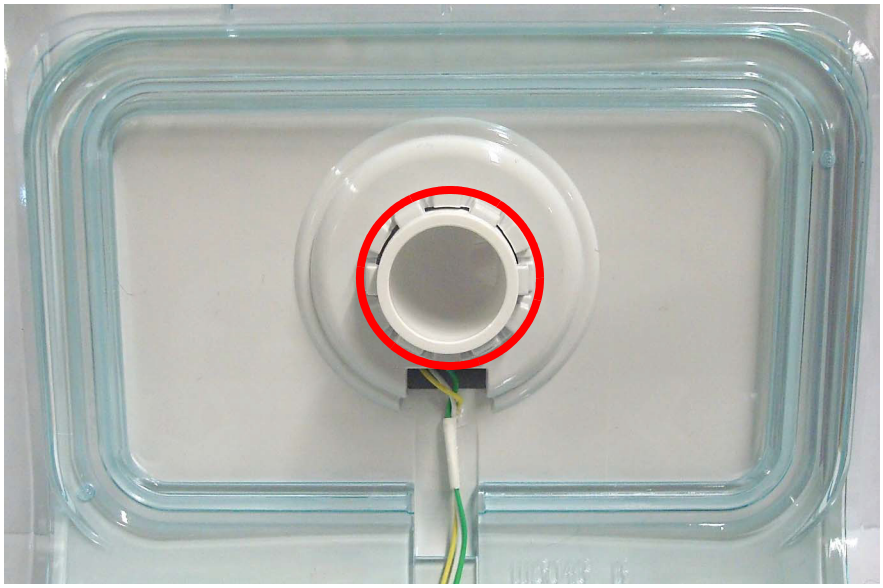


FIGURE 8-33: VERIFY NO PINCHED WIRES

11. Route the wires flat as shown, and ensure they are in the middle within the grooves.

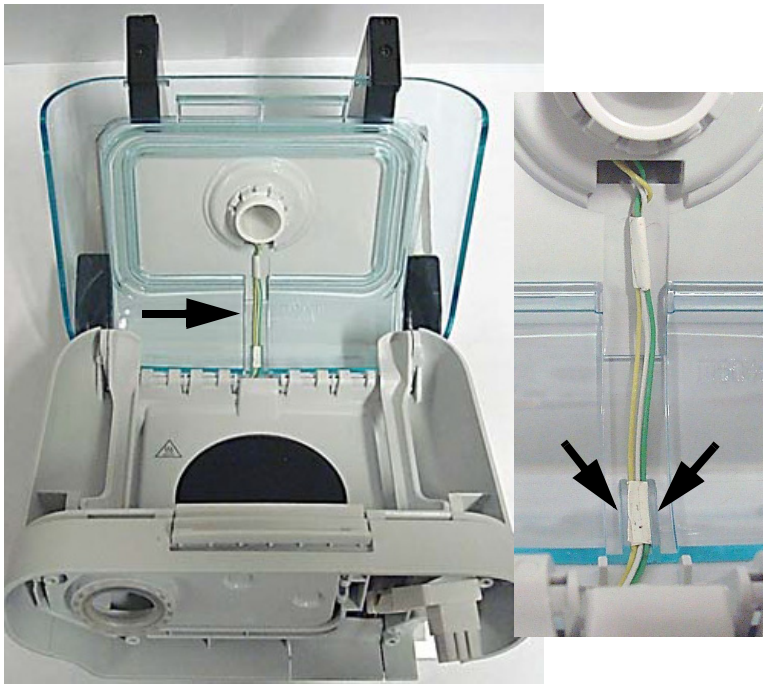


FIGURE 8-34: WIRE ROUTING

12. Install the Wire Guard as indicated in **Section 8.1.4**.

CHAPTER 9: TESTING AND CALIBRATION

Final testing of a device is a mandatory requirement after any repairs are made to the device, or if the device enclosure has been opened for any reason.

NOTE

Testing must occur in a lab equipment environment only.

9.1 REQUIRED EQUIPMENT

Hardware:

- DreamStation Power Supply, 80W, (PN 1118499), Qty 1 ea.
- DreamStation Serial Accessory Module (PN 1123881 or PN 1126240 (includes serial and micro-USB cables listed below)), Qty 1 ea.
- Serial RS232 Cable DB9F-DB9M, 6 ft (PN 1037268), Qty 1 ea.
- USB Cable, Type A to Micro B (PN 1104765), Qty. 1 ea.
- Hose 22mm-18 in. (PN 1008198), Qty 1 ea.
- 15mm Heated Tube (PN HT15), Qty 1 ea.
- German Leak Device (ISO Port) (PN 1127131), Qty 1 ea.
- Pollen Filter (PN 1122446), Qty 1 ea.
- SD Card (PN 1063859 - 10 pk), Qty 1 ea.
- Printer (network or local connection)
- PC with the following minimum requirements:
  - Windows 7 or Windows 10 32/64 Bit Operating System, Professional (Enterprise can be used for Philips network users only)
  - 3.20 GHz Processor
  - 100 GB Free hard drive space
  - 8 GB RAM
  - 1 serial port
  - Minimum 4 USB port
  - Keyboard, mouse and 17 inch monitor
  - Supports 220 VAC +/- 10% and 50 Hz +/- 1Hz, or 120 VAC +/- 10% and 60 Hz +/- 1Hz power

Software (download and install from my.respironics.com):

- NI LabVIEW 2014 Support Package (located under the *Utility Tools* category)
- DreamStation Family Drivers, Version 1.0 or higher (located under the *Utility Tools* category)
- DreamStation Field Service Application (FSA), Version 1.0 or higher (located under the *DreamStation Service Tools and Documents* category)

9.2 TESTING PREREQUISITES

Prior to testing any DreamStation device, the following must be ensured:

1. The device error log must be cleared.
2. The device real time clock must be accurate.
3. The DreamStation base unit and Humidifier must both be at room temperature. Refer to Section 9.3 for testing environmental specifications.
4. The firmware version on the device must align with the version of firmware that the FSA is designed to support. Refer to Section 5.14.2 to upgrade the device firmware.

Refer to Chapter 6 on using the Service Center Tools software to clear the device error log and to reset the real time clock.

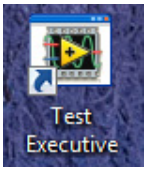
9.3 TESTING ENVIRONMENT SPECIFICATIONS

The DreamStation devices must be tested within the following temperature specifications:

41 º F to 95 º F (+5 º C to 35º C)

9.4 FINAL TESTING PROCEDURE

1. Download the *NI LabVIEW 2014 Support Package* from my.respironics.com, and install the software by accepting all license agreements and default installation locations.
2. Download the *DreamStation Family Drivers* from my.respironics.com, and unzip the files to your PC.
3. Follow the installation instructions within the zip file to install the drivers.
4. Download the *DreamStation Field Service Application (FSA)* from my.respironics.com, and install the software by accepting all license agreements and default installation locations. The following icon will be created on your desktop:



5. Launch the *Test Executive* from your desktop by double-clicking on the icon.

6. A window will popup asking for a user name and password. These are not required, select OK to proceed.
7. Select the “Open” file button.

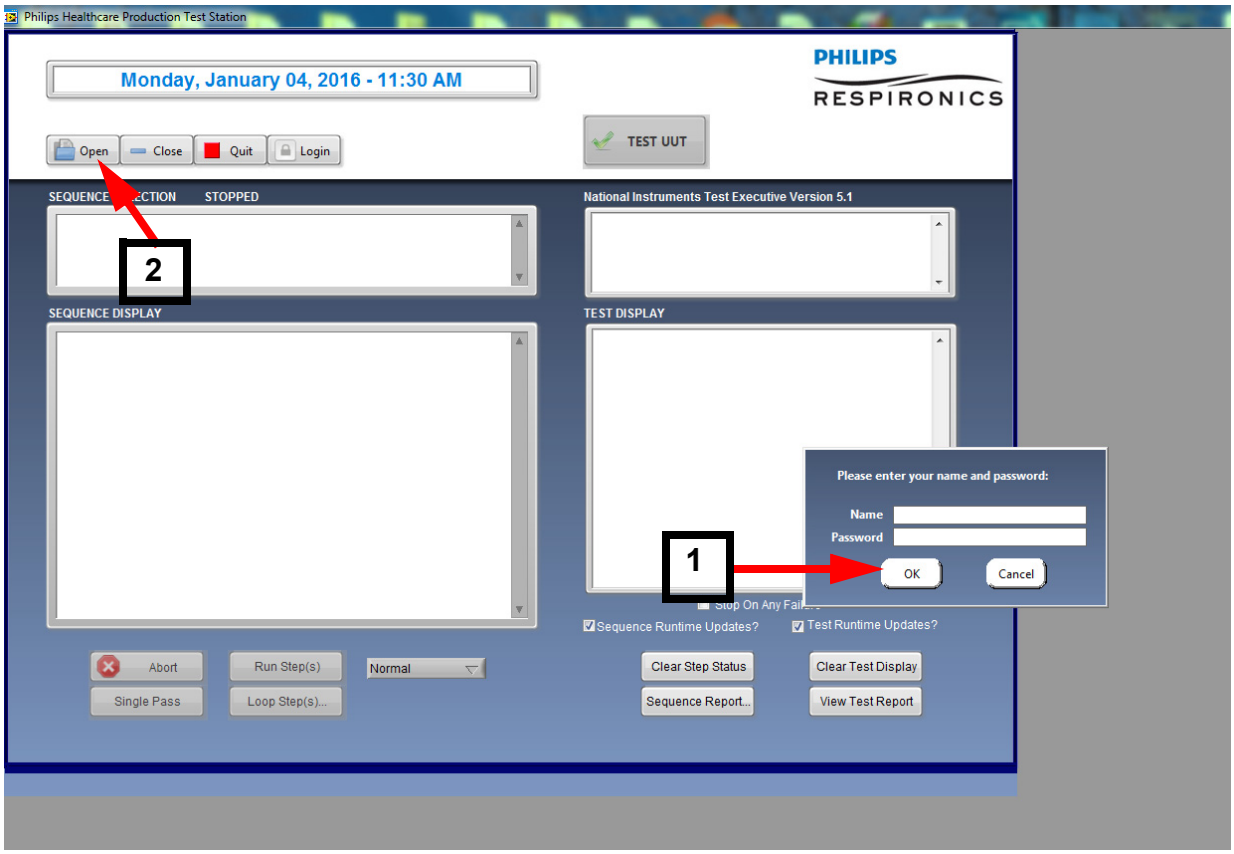


FIGURE 9-1: TEST EXECUTIVE LAUNCHED

8. Select the *DreamStation Service Test.seq* file, then select OK to load it into the test executive.

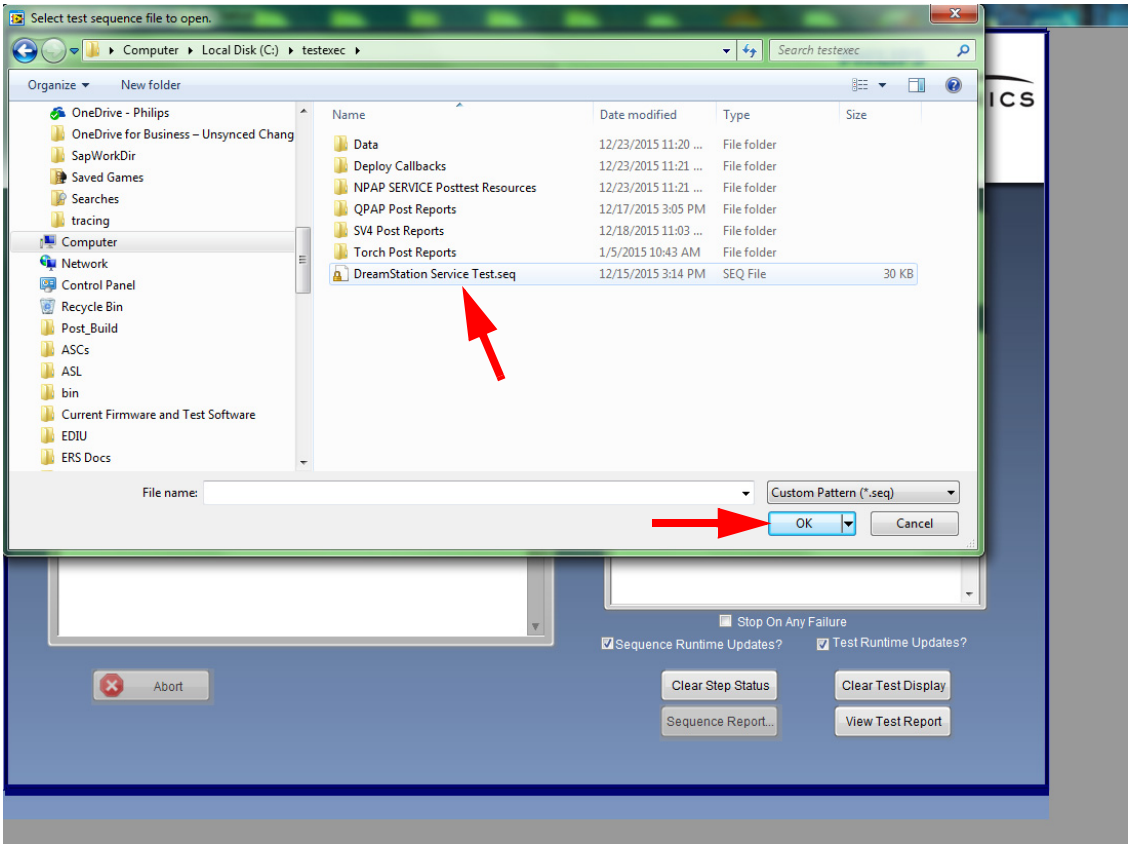
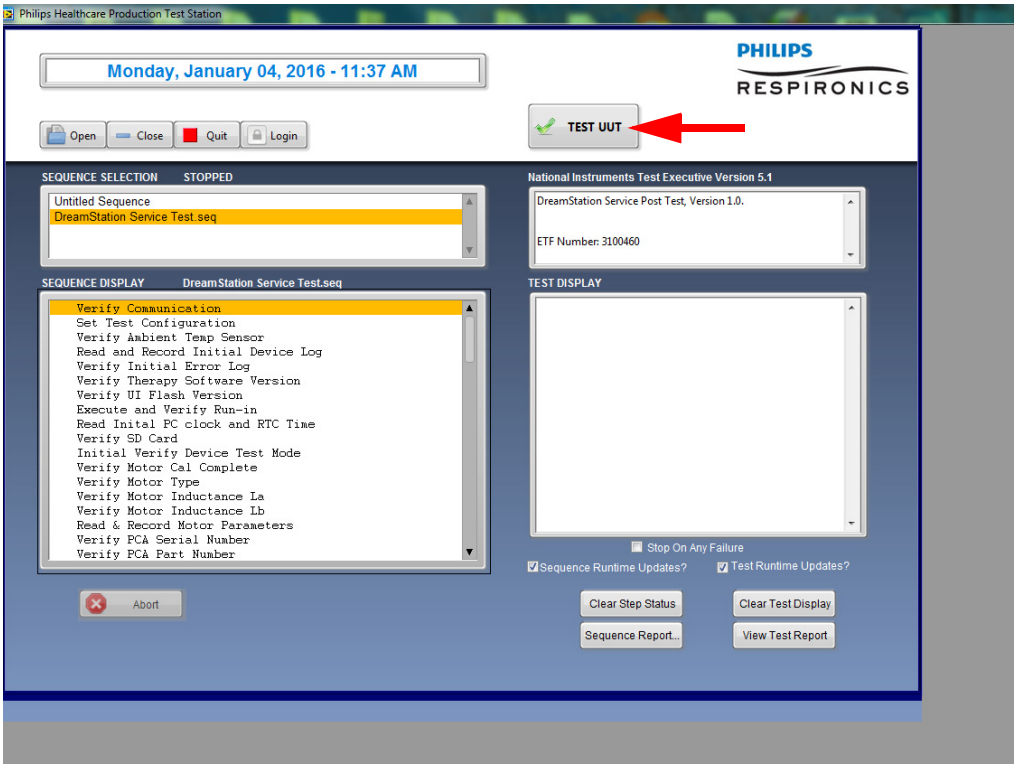


FIGURE 9-2: LOADING THE SEQUENCE FILE

9. You will see the test files loaded into the software.
10. Connect the Serial Communication Cable to COM 1 of your PC.

11. Select “Test UUT”



12. Follow the prompts and enter in the device identification information (serial/model number, etc).
13. Follow the next prompt by connecting all hardware items listed and as shown below, and then select OK. The Serial-USB Cable must be connected to COM 1. The Micro-USB Cable can be connected to any other USB COM port.

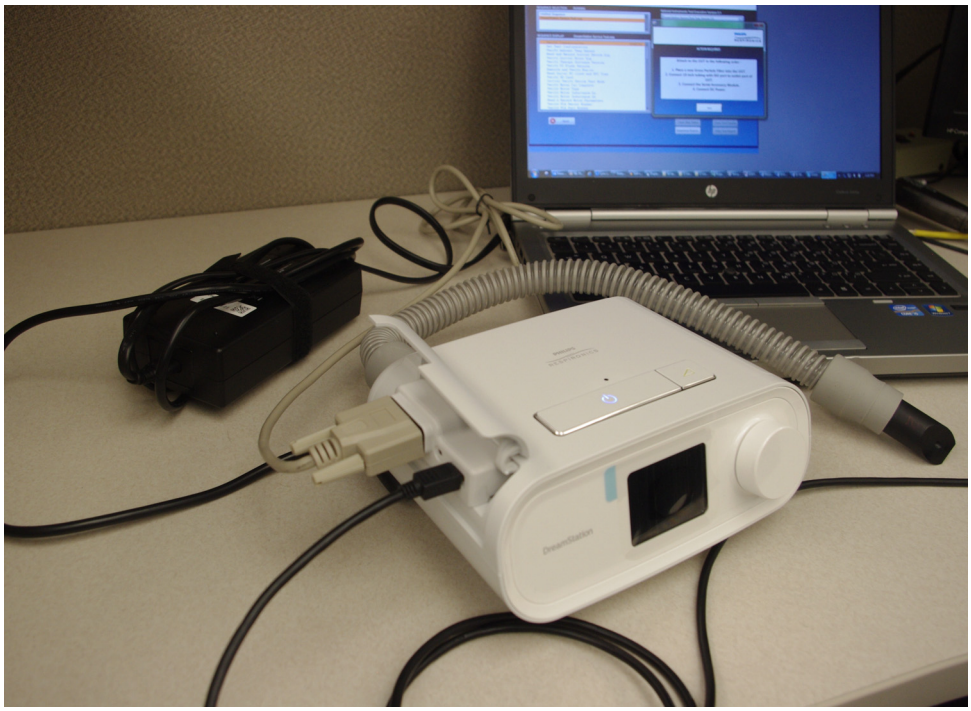


FIGURE 9-3: DEVICE SETUP

14. Continue to follow all prompts.
15. Once the pressure and flow testing is complete, the following prompt will be displayed.

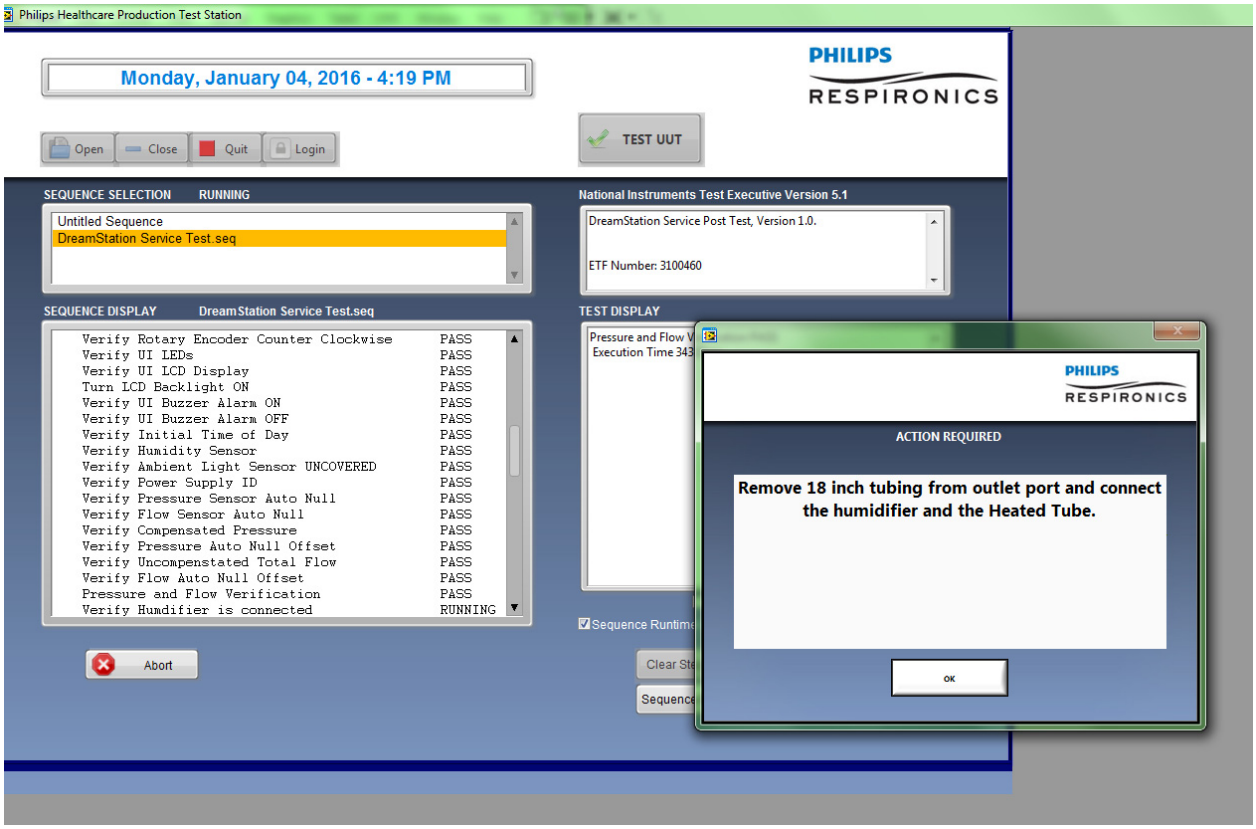
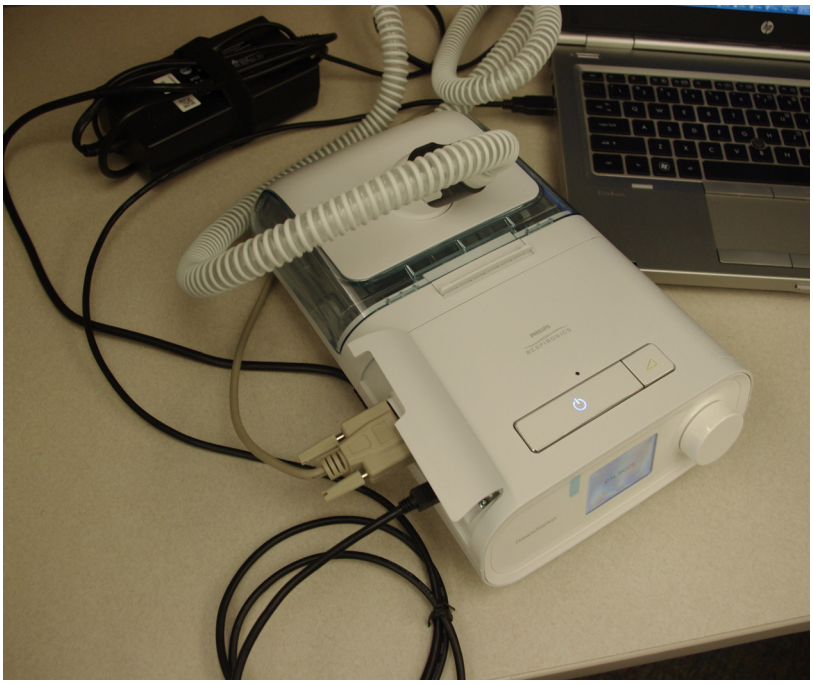


FIGURE 9-4: CONNECT HUMIDIFIER

16. Connect the Humidifier and Heated Tube as shown below, then selects OK.



17. Continue to follow all prompts until the test is complete.
18. If the test fails, evaluate for possible causes and make any necessary adjustments or repairs, and then retest the device.
19. Print and keep a copy of the test report for your records.

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Respironics Inc.
1001 Murry Ridge Lane
Murrysville, PA 15668 USA

Respironics Deutschland GmbH & Co. KG
Gewerbestrasse 17
82211 Herrsching, Germany
EC REP

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