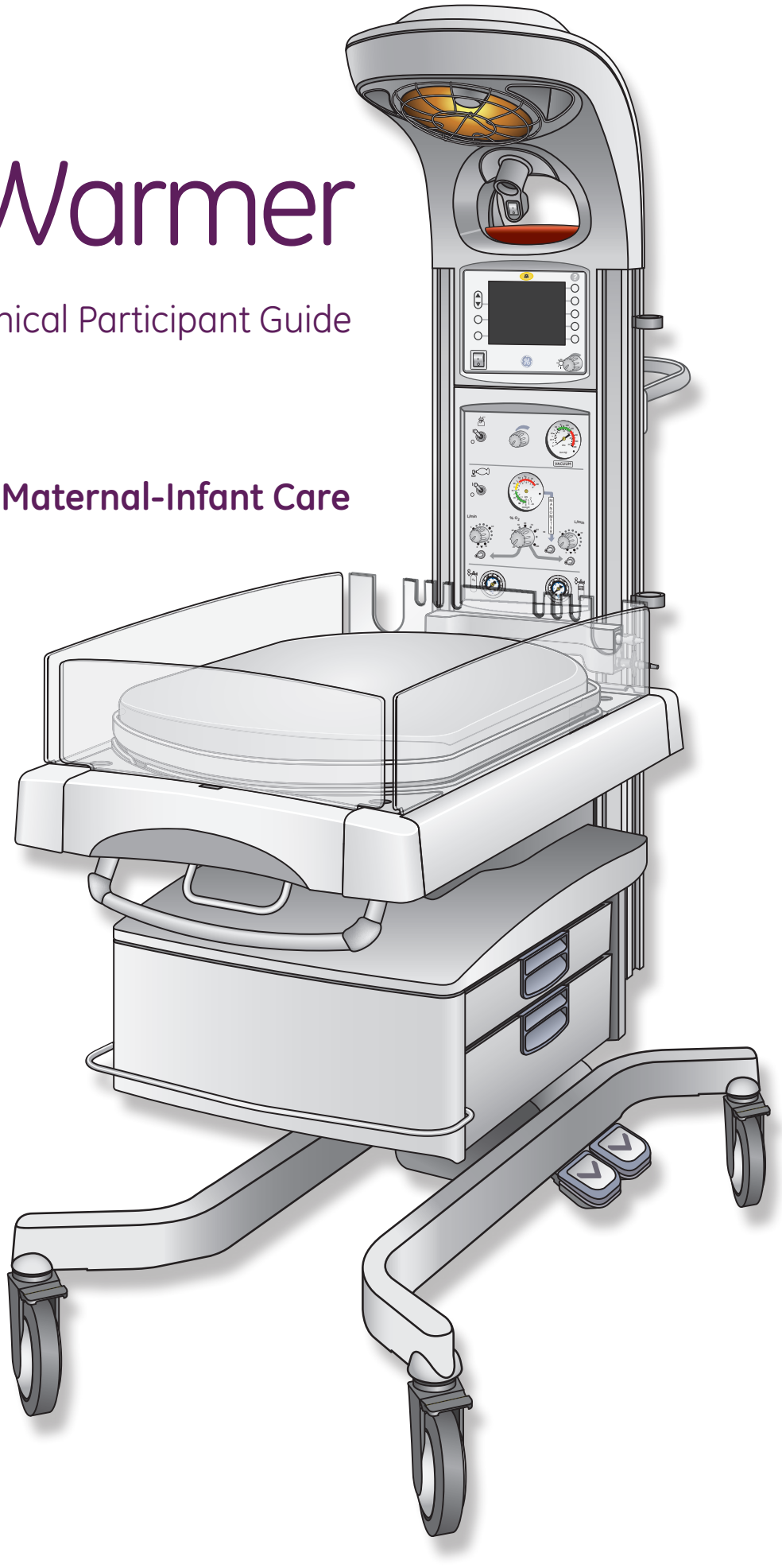
GE Healthcare

# Giraffe* Warmer

## Clinical Participant Guide

**Maternal-Infant Care**



# Giraffe* Warmer

## Clinical Participant Guide

### Maternal-Infant Care

Customer Support Center: **800-345-2700**

**Notice**

The materials contained in this document are intended for educational purposes only. This document does not establish specifications, operating procedures or maintenance methods for any of the devices referenced. Always refer to the official written materials (labeling) provided with the device for specifications, operating procedures and maintenance requirements.

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**Note!** *This participant guide is not intended to replace the User's Reference Manuals that you received with the device. Please refer to the disclaimer notice at the end of this participant guide for more information.*

# Contents

# 1 Welcome




We would like to take a moment to thank you for choosing GE Healthcare for your patient care needs. Our goal is to provide you with the best training available and continue to support you while you use our devices.

## Program Description

This session is designed to give participants an overview of the Giraffe Warmer from a clinical perspective. This will include an overview and description of the features and benefits, a brief description of the clinical use of the device, and demonstrations related to clinical use of the device. Note that some of the items listed in this participant guide are optional items and may not have been purchased for your warmer.

## Program Objective

The objective of the session is to provide hospital clinical staff with an overview of the device so they can clinically understand the use of the device once training is completed for their care area of use within the hospital. This is not a substitute for basic clinical on-site training offered by GE Healthcare.

## Participant Learning Objectives

At the completion of this session, the participant will be able to:

- Provide a description of the device and how it is used clinically
- Identify the components on the front, back and sides of the device
- Describe the features of the heater, lighting and all accessory options on the bed
- Navigate the control panel on the front of the device
- Identify the components on the optional resuscitation unit and describe how it is used clinically
- Identify and discuss the patient admission process specific to care area of use
- Demonstrate weighing procedure using in bed scale, if option is available
- Successfully disassemble and reassemble the bed

# Icons Used in This Manual

**Note!** Represents information which is additive in terms of helping the participant better understand specific tasks, activities and processes.

**Lesson Objective:** Appears at the beginning of each chapter, and includes a list of lesson objectives for the subject matter.

**Activity icon:** A workshop, return demonstration, practice session, exercise, or other activity to practice teaching points.

**Tips and Reminders icon:** Contains helpful and important information.

**More about:** Represents optional or additional features your warmer may have.


**Terms You Should Know:** A list of terms the participant should understand in the chapter.

# Terms You Should Know


**Baby mode:** Heat output controlled by the use of a patient skin temperature probe and selection of Baby mode. Commonly referred to as Servo Control by other manufacturers.

**DISS:** Diameter Index Safety System is a set of internal and external diameters for hose fittings. Each medical gas is "keyed" to provide a safety system designed against attaching a hose to the wrong medical gas.

**ELBW:** Extremely Low Birth Weight

**Grab and Go or Airtote:** Names used to reference e-cylinder air or oxygen tanks that are equipped with a built in regulator, flow meter, and auxillary flow side port to deliver medical gases.

**HFOV:** High Frequency Oscillating Ventilation

**iRes:** Integrated Resuscitation System

**LBW:** Low Birth Weight

**L&D:** Labor and Delivery

**NICU:** Neonatal Intensive Care Unit

**psi:** A measurement of gas pressure that indicates pounds per square inch.

**Radiant Heat:** Heat energy emitting from a warm element that warms a human and objects rather than directly heating the air.

**Resuscitation:** a process to restore breathing**.**

**$SpO_2$:** Oxygen saturation measured by pulse oximetry.

**Thermoregulation:** Temperature control of the neonate. A critical physiological function that is strongly influenced by physical immaturity, extent of illness and environmental factors.

**VLBW:** Very Low Birth Weight

# 2 Giraffe Warmer Overview

## Overview Objectives

**By the end of this chapter the learner should be able to:**

Identify all the main components used on the Giraffe Warmer.



## Device Description

**Patients:**
Neonates or infants cared for on a radiant warmer.

**Needs:**

- Surgical, ECMO
- Ventilated, cooling, or complex care support
- Total patient access
- Developmental care support
- Family involvement
- Thermoregulation

Infant radiant warmers provide infrared heat in a controlled manner to neonates who are unable to thermoregulate based on their own physiology. Infant radiant warmers may be used to facilitate the neonate's transition to the external environment or to provide a controlled open environment.

An optional, integrated $SpO_2$ monitoring feature may be used for continuous noninvasive monitoring of functional oxygen saturation of arterial hemoglobin ($SpO_2$) and pulse rate (measured by an $SpO_2$ sensor).

An optional integrated resuscitation system may be used to provide the basic equipment required for pulmonary resuscitation of infants. Pulmonary resuscitation includes practices necessary to establish a clear airway and provide oxygen or air/oxygen mixtures and/or manual ventilation to the infant.

# Giraffe Warmer Components

## Front View

1. Observation lights
2. Recessed radiant heater
3. Procedure light
4. Alarm light
5. Control Panel
6. Cable management clip
7. iRes resuscitation system (optional)
8. Rear panel
9. Side panel
10. Bed/mattress
11. Scale (optional)
12. Bed level indicator
13. Tilt Mechanism
14. Front handle
15. Locking wheels
16. Bag and mask holder

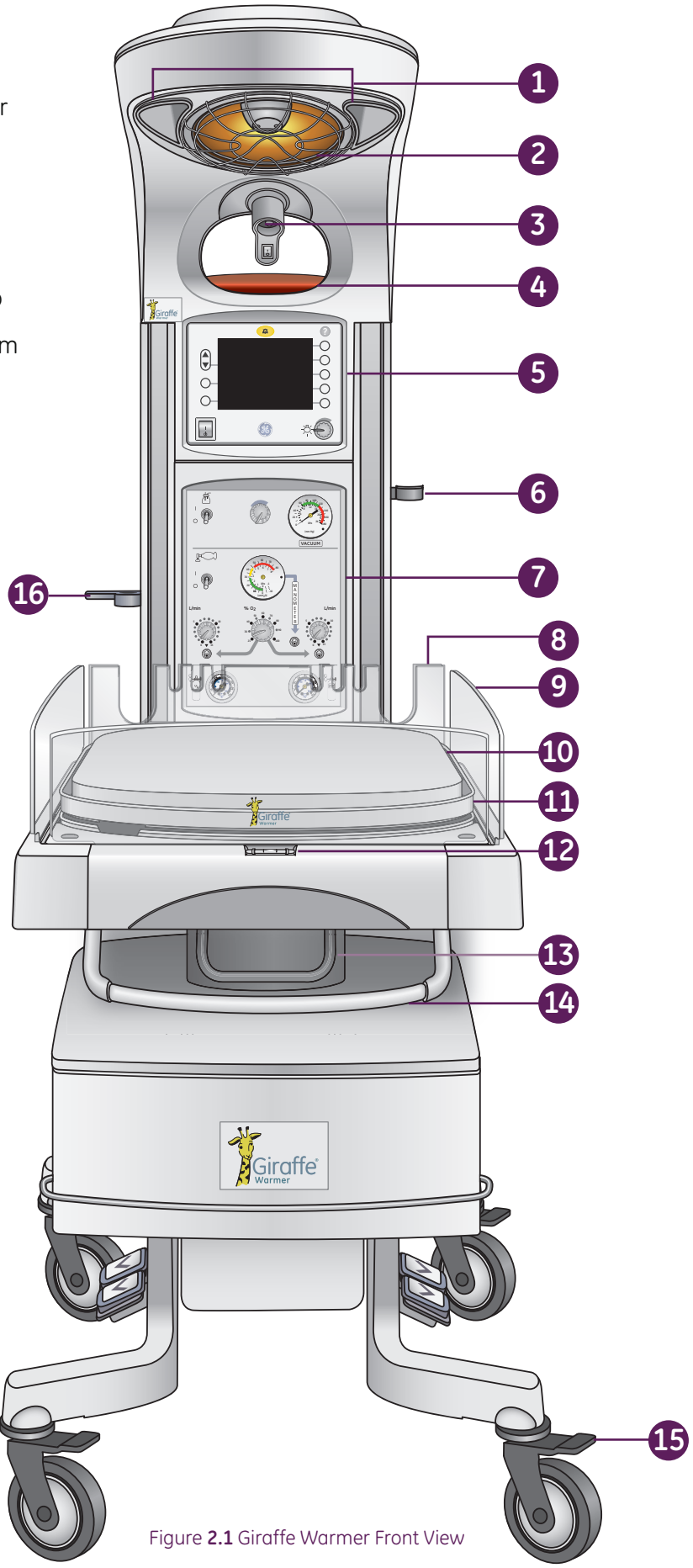



Figure **2.1** Giraffe Warmer Front View

## Right Side View

1. Patient probe panel
2. Skin temperature probe
3. Scale jack
4. Mounting rail
5. Height adjustment pedals for base
6. Storage drawers (option of 1 or 2 drawers)
7. Chest tube hanger
8. Flip-down side panel
9. X-ray tray
10. Baby Susan rotating mattress with optional integrated scale

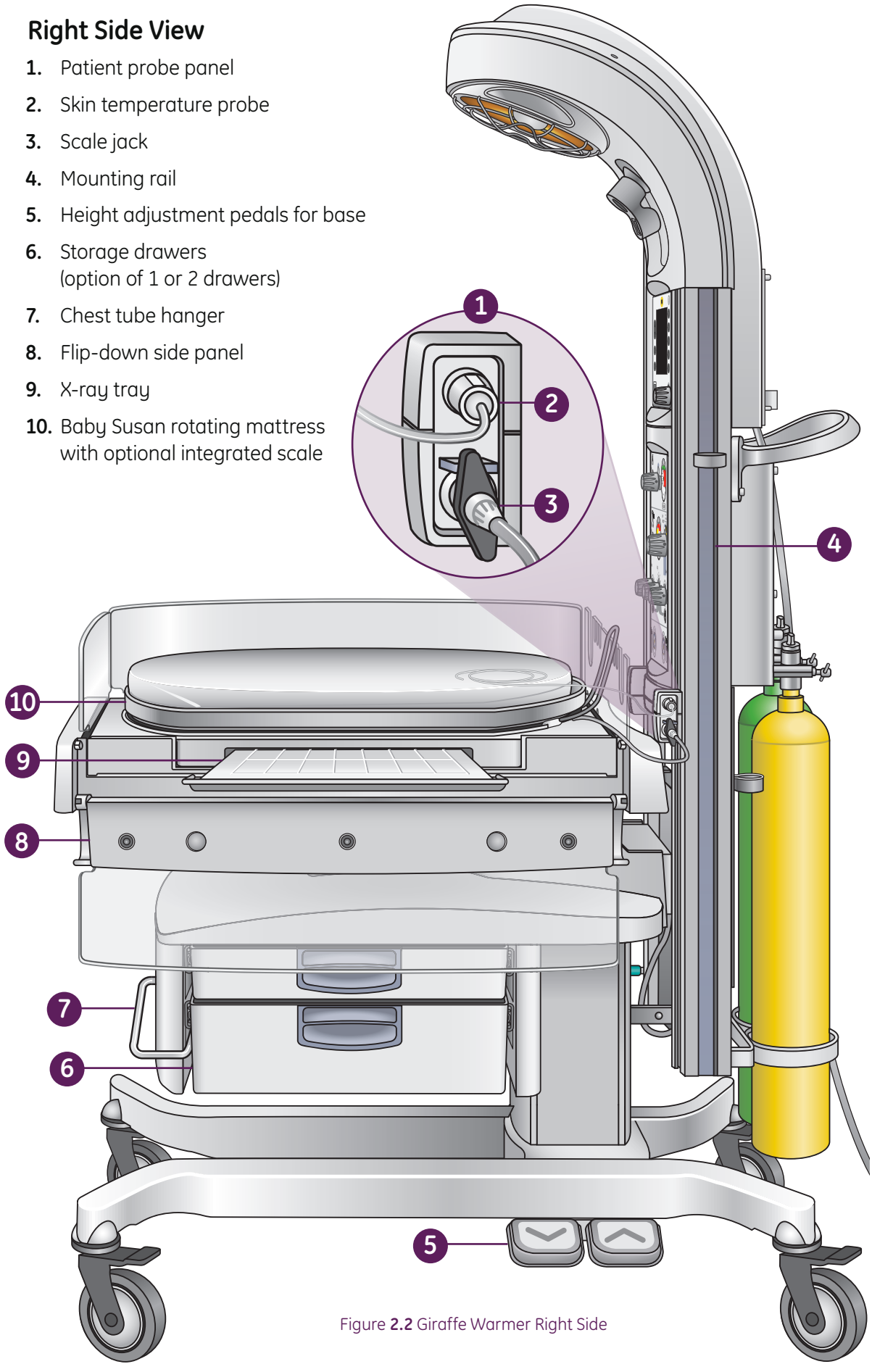



Figure **2.2** Giraffe Warmer Right Side

## Left Side View

1. $SpO_2$ port (optional)
2. Bed level indicator
3. Key Lock for top drawer or single drawer
4. Suction collection canister
5. Cable management clip

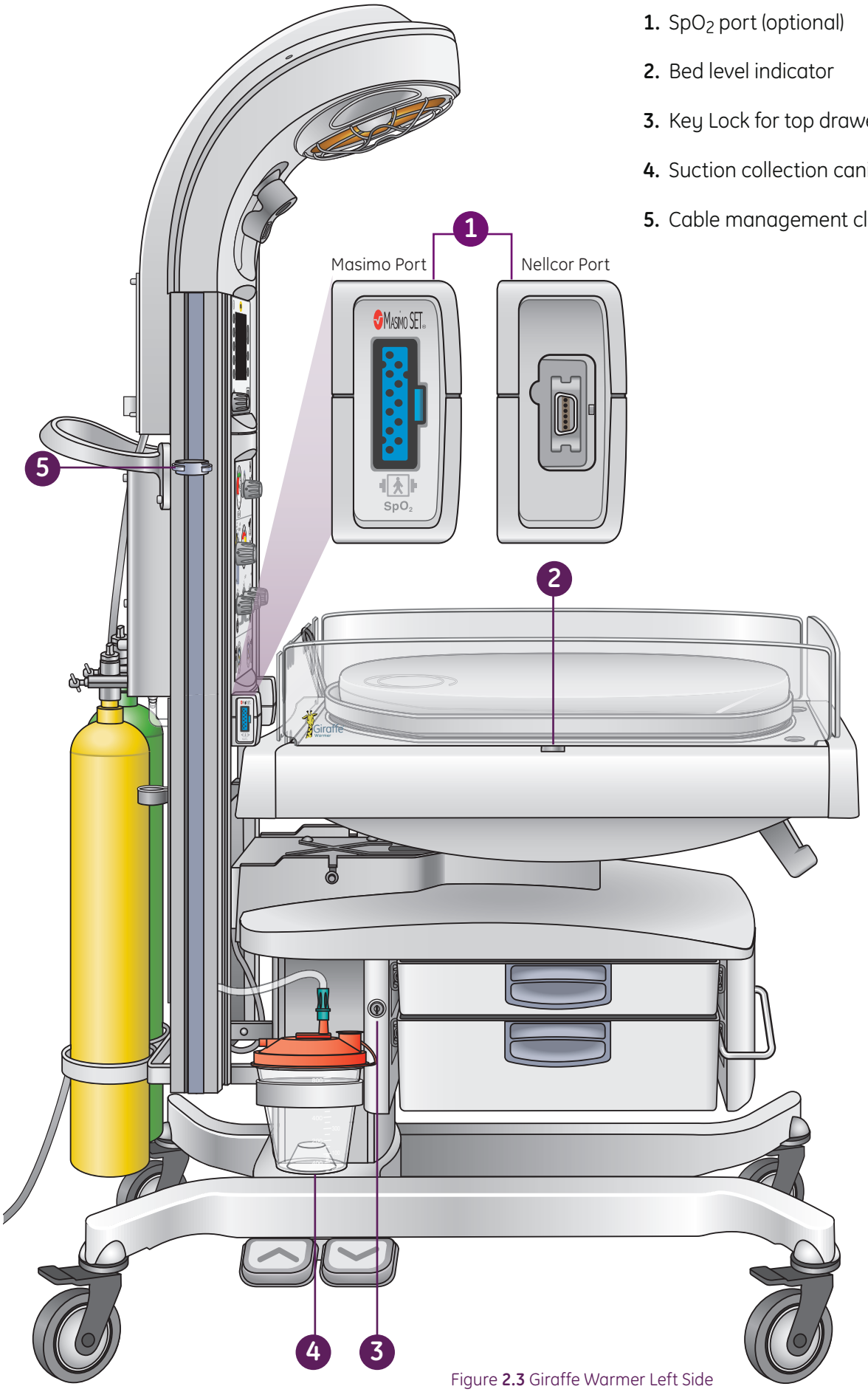



Figure **2.3** Giraffe Warmer Left Side

## Back View

1. Mains circuit breaker
2. Power cord inlet
3. iRes resuscitation system (optional)
4. Hose inlets (with optional resuscitation system)
5. Integrated air and oxygen yoke for non-grab and go eCylinder tanks (with optional resuscitation system)
6. Oxygen cylinder (customer supplied)
7. Giraffe Warmer Serial Number. It is important to have this number ready when calling customer service.
8. Air cylinder (optional)

**Note!** *See **More about Cylinders** on the next page if your warmer is equipped with **Grab and Go cylinders.***

9. Maneuvering handle and cord wrap
10. RS-232 connector

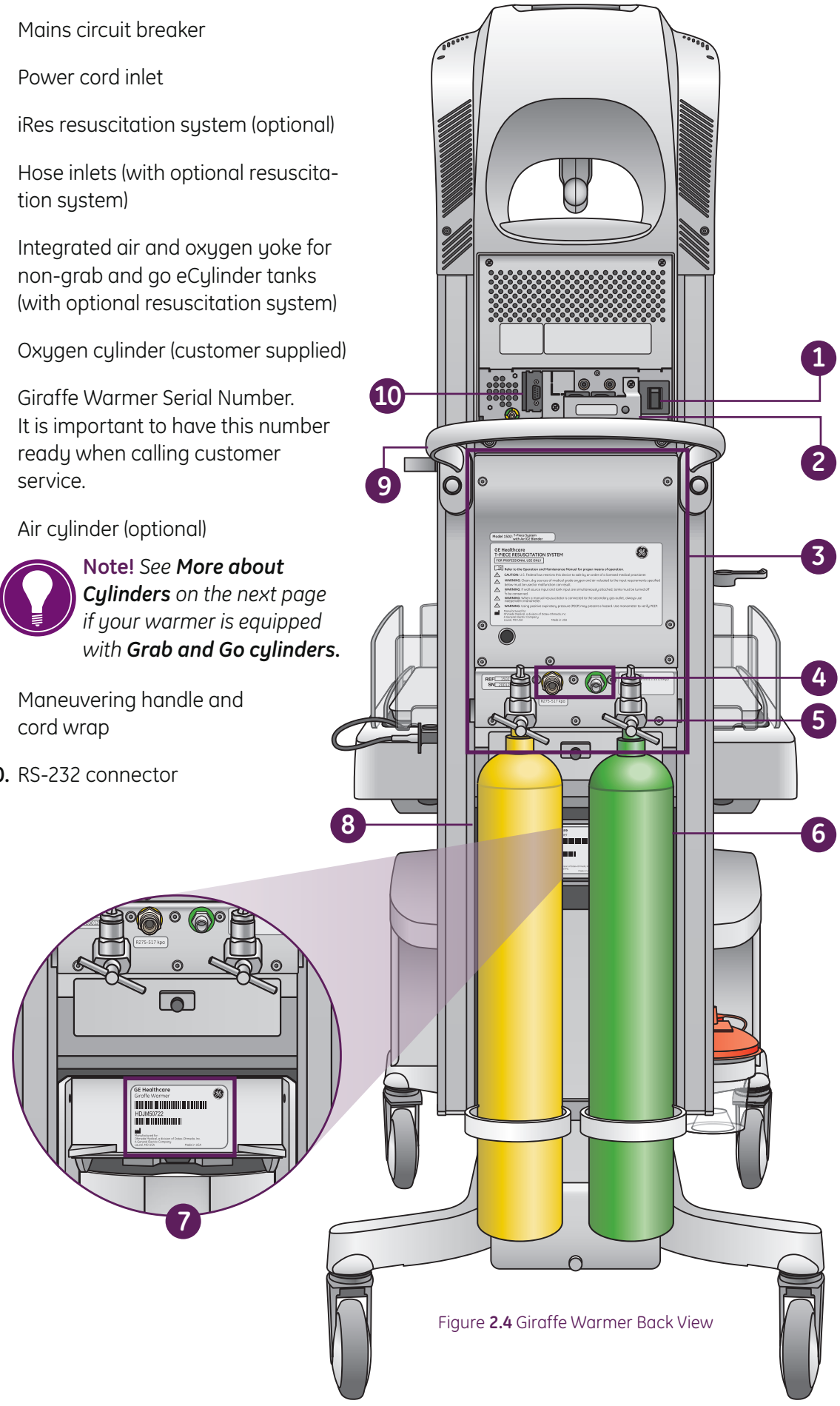



Figure **2.4** Giraffe Warmer Back View

# **More About:** Grab and Go Cylinders

Your Giraffe Warmer may be equipped with Grab and Go Cylinders (customer supplied). The purpose of these cylinders is to provide air and oxygen tank medical gas support.

1. The five foot DISS hose attaches to a 55 psi port on the side of the Grab and Go tank.
2. The opposite end of the DISS hose attaches directly into the back of the iRes.
3. Turn the knob to AUX to turn on medical gas flow via the auxillary hose port. Medical gas will flow toward the iRes resuscitation system.
4. Tank pressure gauges on front of iRes system will register zero while the Grab and Go tanks are in use. Refer to the pressure gauges on each of the Grab and Go tanks for current pressure.
5. The e-cylinder holder mounts to side Mounting Rails.

**Note!** The mounting bracket for the e-cylinders will not easily fit into the back Mounting Rails due to the angle and width of the bracket.

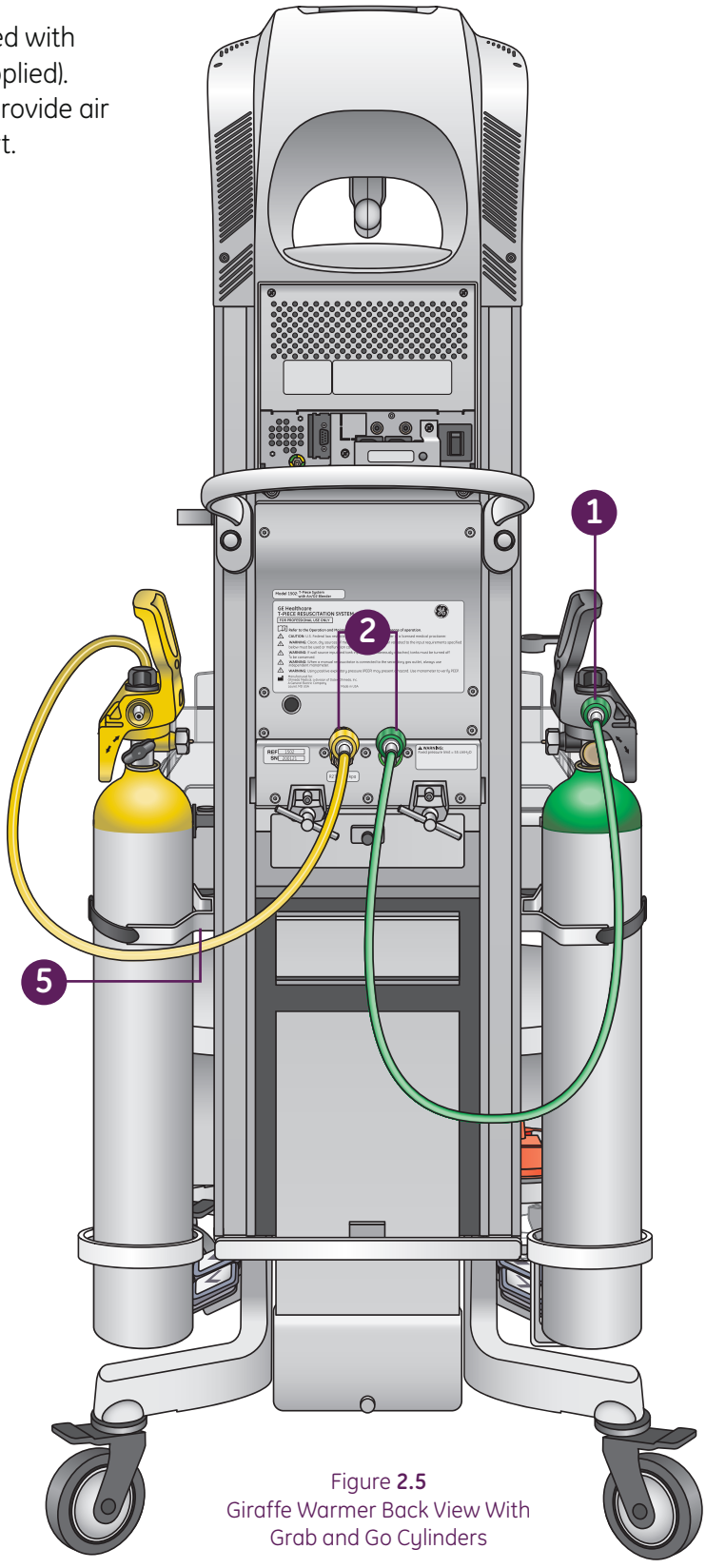



Figure **2.5**
Giraffe Warmer Back View With Grab and Go Cylinders

1. DISS hose attachment.
2. External DISS port screw.
3. Auxillary medical gas flow selection.
4. Grab and Go medical gas pressure gauge.

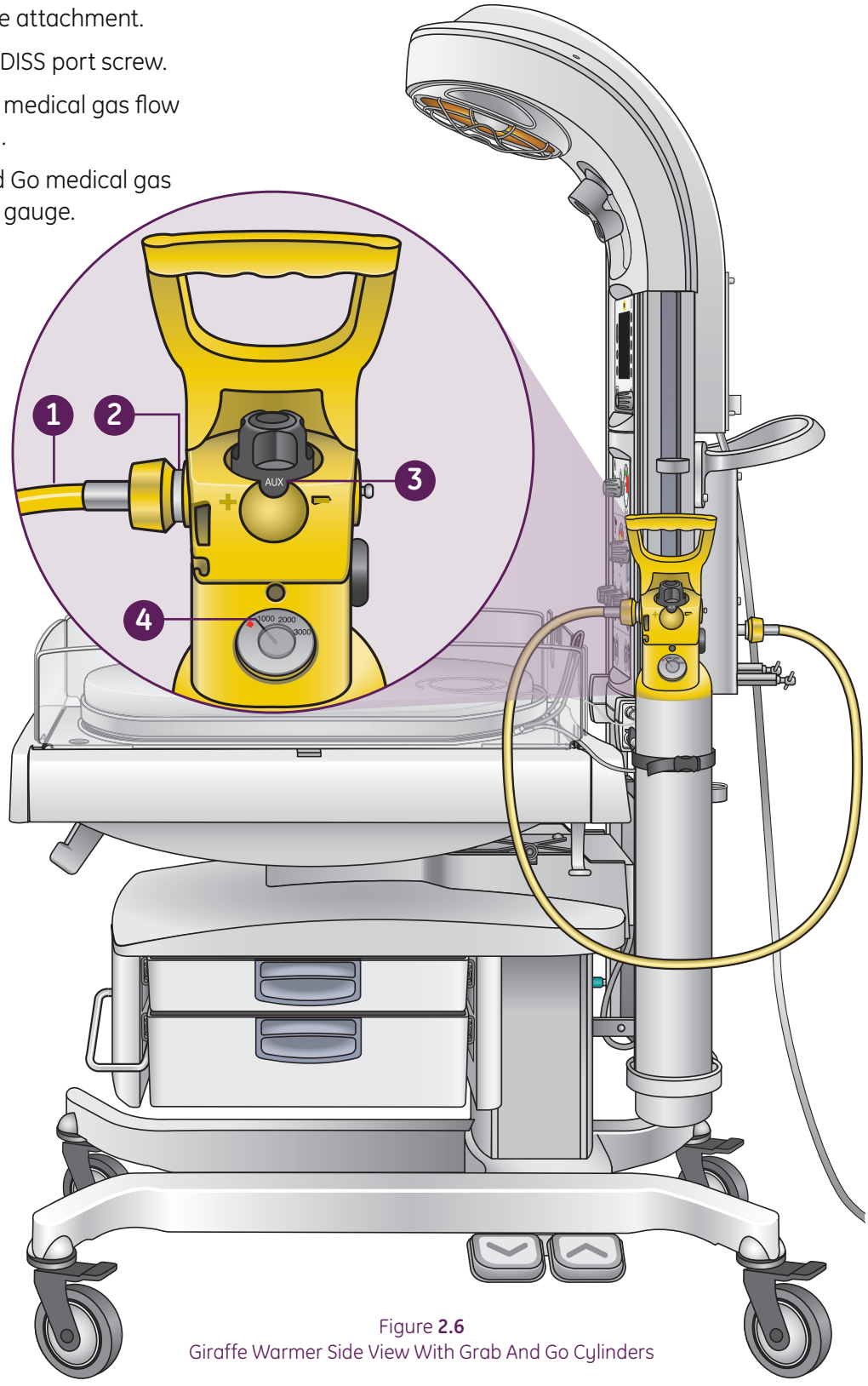



Figure **2.6**
Giraffe Warmer Side View With Grab And Go Cylinders

# 3 Upper Assembly Components

## Radiant Heat Engine

1. In Manual mode, the warmer controls radiant heater output from a heater power percentage setting that you enter using the control panel. In Baby mode, the warmer controls radiant heater output based on temperature readings from a probe attached to the baby's skin (skin probe) and a set temperature (set temp) you enter using the control panel.
2. The reflective dish consists of two parabolic curves that provide even heat distribution over the bed surface while minimizing heat to the Clinician.
3. Focused heat pattern on the mattress.

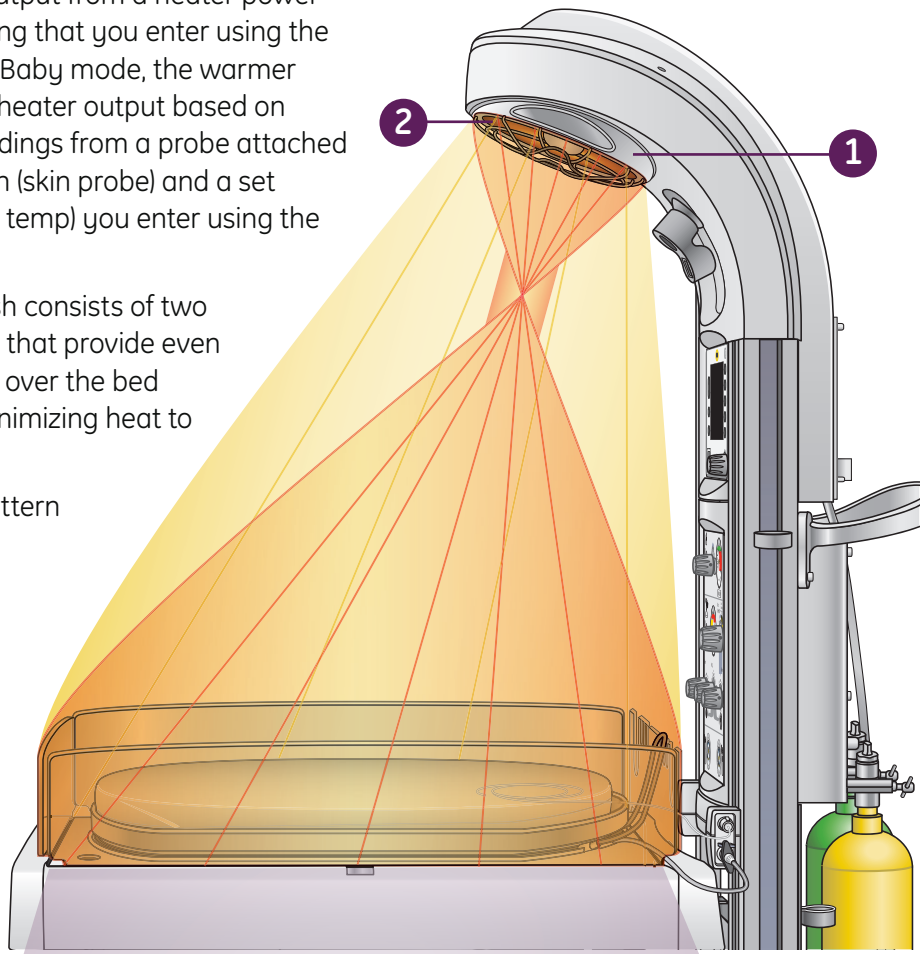



Figure **3.1** Reflective dish

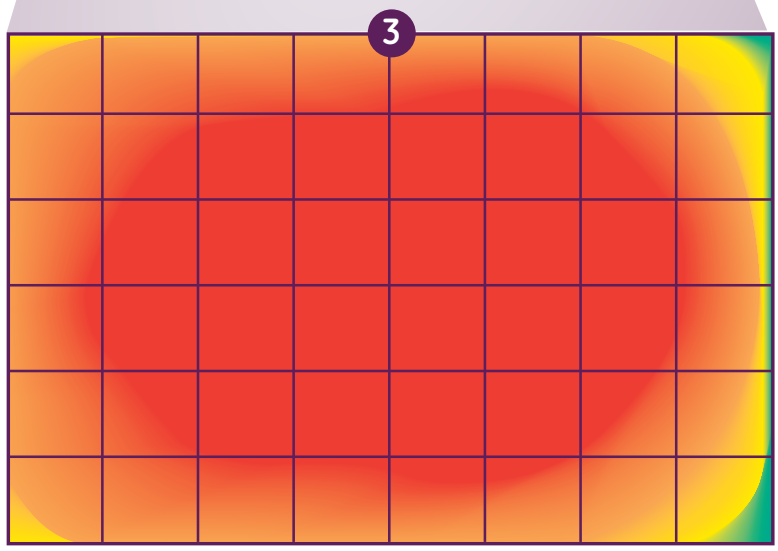



Figure **3.2** Heat pattern

# Lights

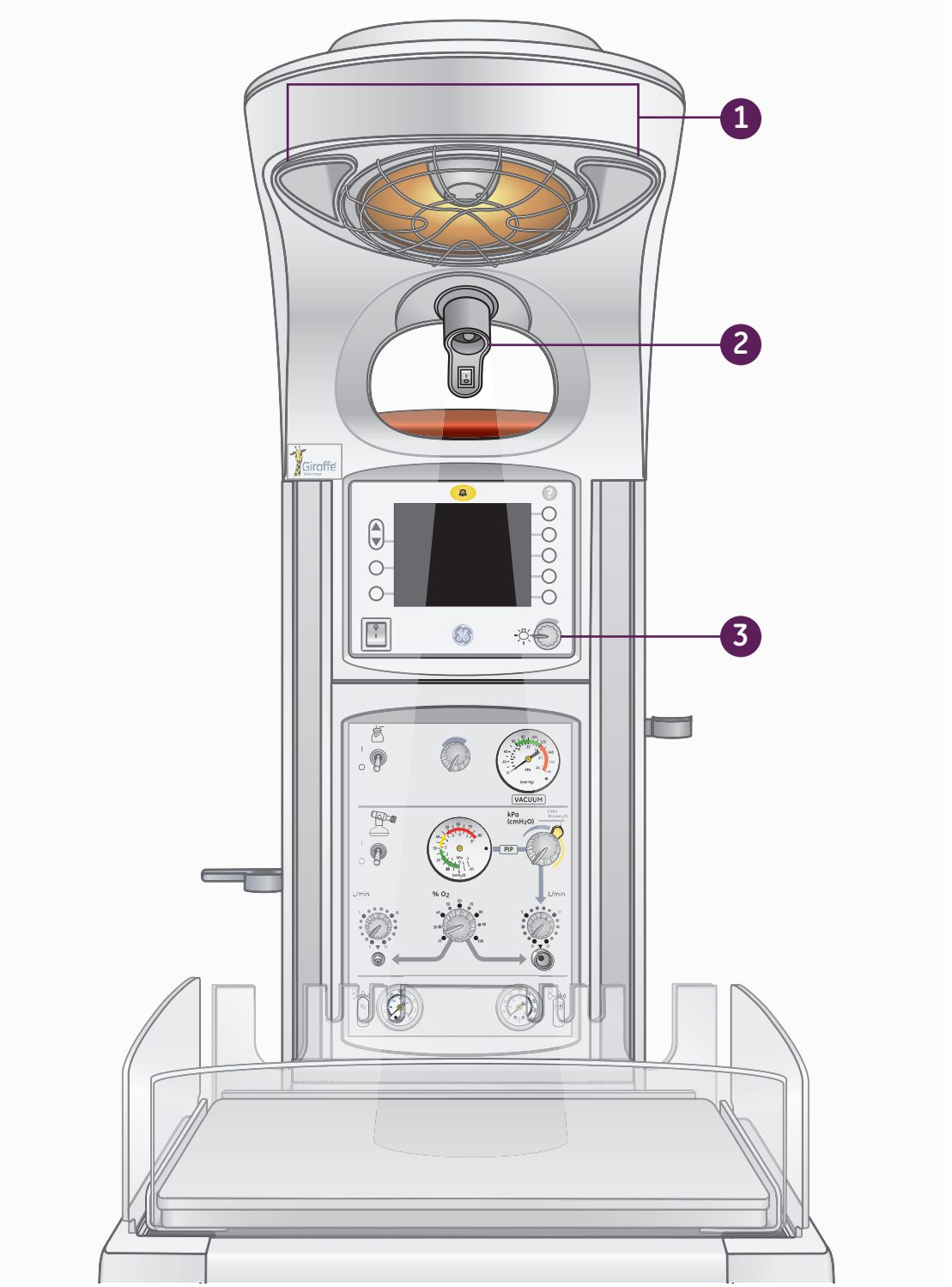



Figure **3.3** Giraffe Warmer Lights

1. **Observation lights:** The standard observation lights are dimmable.
2. **Procedure light:** The procedure light provides a more intense spot light to illuminate a precise area during procedures. The procedure light can be directed at any point on the mattress and is activated using the switch on the light handle.
3. **Dimmer knob:** Turns light on and off, and controls intensity of observation lights.

# Alarm Light and Alarm Silence

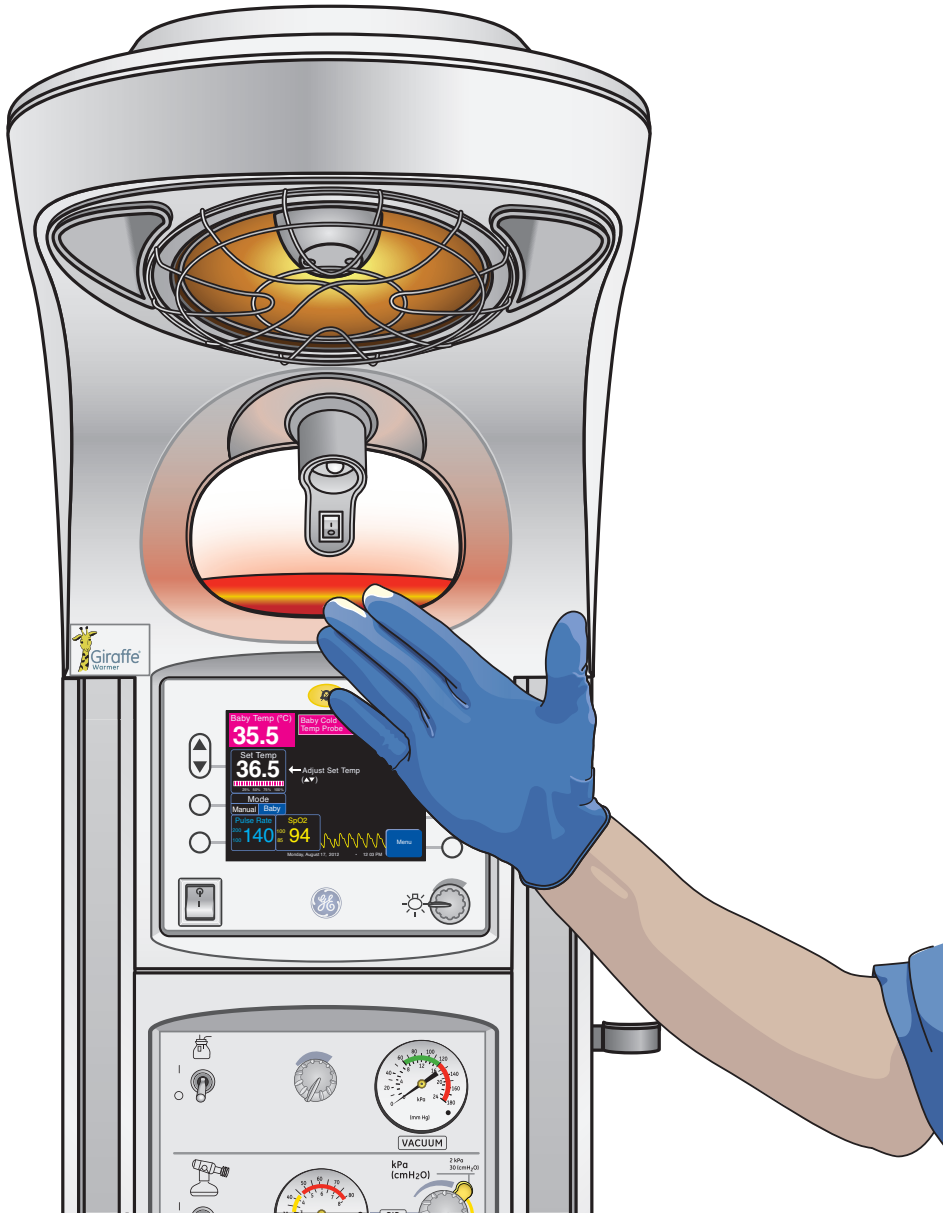



Figure **3.4** Hands Free Alarm Silence

- The two areas in the NICU, Newborn nursery or L&D that tend to have the highest concentration of germs are the scrub sink and the alarm silence button on equipment. To help counteract this issue, the Warmer has a Hands Free Alarm Silence.
- Pass your hand slowly within six inches in front of the alarm light to silence the alarm.
- The alarm light has two infrared emitters and a detector in it to allow for hands-free silencing of alarms.

**Note!** *See page 9.4 for alarm priority table.*

# 4 Resuscitation Unit

## Suction

1. For the integrated system, check that a clean suction canister is properly installed and attached to the tubing in the Mounting rail.
2. Attach desired length of suction tubing to the suction canister patient outlet.

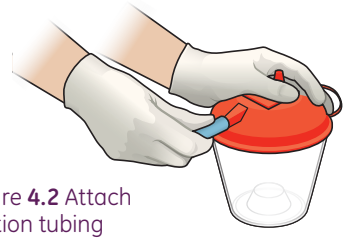


Figure **4.2** Attach suction tubing

3. Turn the suction control switch ***On***.
4. Occlude the connective tubing, and then adjust the suction control knob to a desired pressure between 60 to 120 mmHg.
5. Once you have set the desired vacuum level, attach the suction catheter or meconium aspirator of your choice.
6. Turn the suction control switch off until ready to initiate resuscitation or airway support measures to avoid wasting gas.

**Suction Canister Care:**

- As part of the operator maintenance, it is recommended that the suction tubing between the regulator at the base of the resuscitation box and the canister be replaced every three months.
- Always assure that a clean suction canister and tubing are properly installed and connected prior to each use.
- Attach the desired length of suction tubing to patient port on the suction canister.

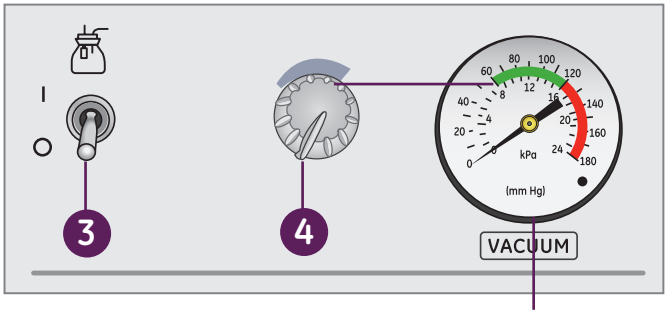



Figure **4.1** Suction Features

Suction Vacuum Gauge

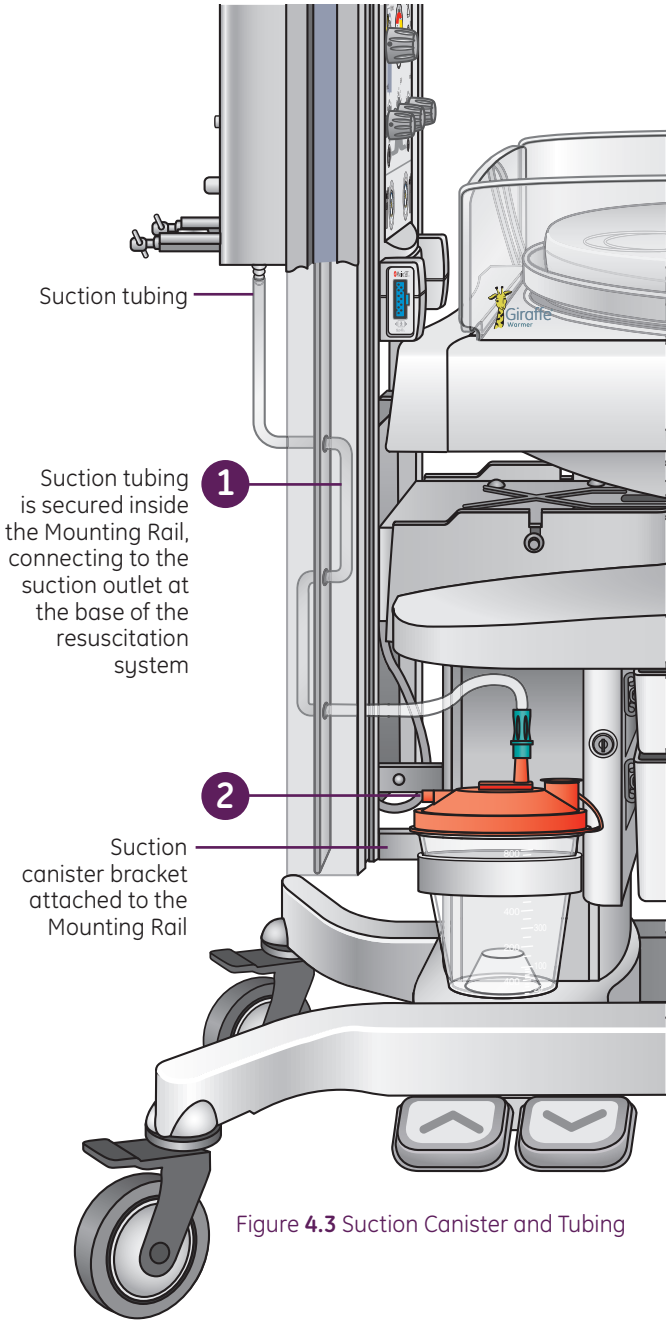



Figure **4.3** Suction Canister and Tubing

# T-piece Overview

There are two options of resuscitation for delivering positive pressure with the resuscitation system. We will begin with the description of the ***T-Piece*** option.

1. **PIP control knob**: A PIP (Peak Inspiratory Pressure) control knob and a flowmeter control medical gas supplied to a dedicated T-piece outlet. Pressures from 0 to 30 $cmH_2O$ (0 to 30 kPa) can be selected without restriction. Pressures up to 45, +/- 5cm $H_20$ can be selected after pushing in the yellow override release and then turning the knob.
2. **The airway pressure manometer:** Allows the Clinician to see pressure throughout the respiratory cycle. The airway pressure manometer displays both PIP and PEEP (Positive End Expiratory Pressure).
3. **The primary flowmeter control:** Located on the right side of the resuscitation system, it is used to adjust the flow delivered to the patient. A second flowmeter control and outlet (on the left) is provided for free flowing oxygen (blow-by) and is designed for resuscitation only. A manual resuscitator may be attached to the secondary flowmeter, but must be used with an independent airway pressure manometer. Both flowmeters allow for adjusted flows of 0-15 lpm.
4. **T-piece gas outlet:** The T-piece circuit is attached to this outlet.
5. **T-piece circuit:** Consists of tubing, a T-piece fitting with a PEEP control knob, and an end cap. A face mask or endotracheal tube is also necessary to use the system. GE Healthcare T-piece circuits are available with or without a face mask.
6. **Air and Oxygen tank gauges:** Present with the blender option only. This applies to both the T-Piece and Bag and Mask resuscitation systems. Gauges register with use of traditional e-cylinder tanks secured into the rear yoke of the resuscitation system.
7. **Oxygen connection tubing:** For free flow oxygen to the secondary outlet.
8. **Secondary gas outlet:** Always a traditional flowmeter adapter.
9 **Blender control knob:** Regulates $FiO_2$ from 21 to 100% from both medical gas outlets. Inlet ports on the back of the device allow attachment to medical gas supplies.
10. **Medical gas switch:** Toggle switch that turns on flow of medical gases to flowmeters and blender.

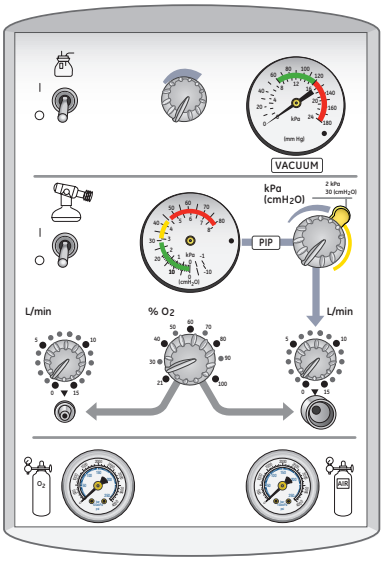



Figure **4.4** T-Piece Without Connections

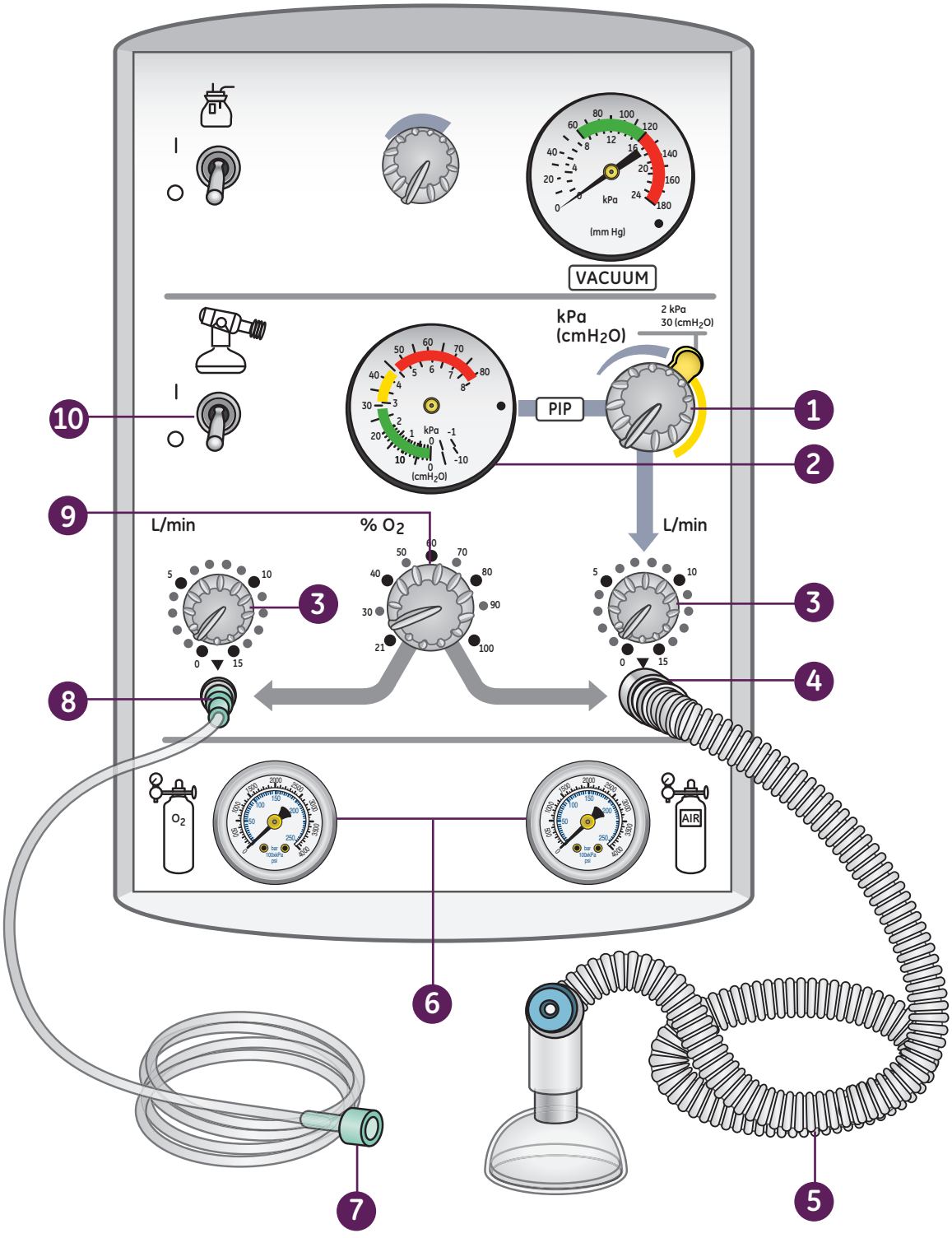



Figure **4.5** T-Piece With Connections

# T-piece Setup

1. If using free flow or bag mask system, connect tubing to the secondary gas outlet.
2. Connect the GE T-piece circuit to the T-piece gas outlet on the front panel.
3. Turn the medical gas switch on the front panel to ***On***.
4. If using free flow or bag mask system, turn the flow meter control knob above the free flow oxygen tubing to a desired flow rate between 5 and 15 L/min. 10 L/min is effective in most cases.
5. Turn the flow meter control knob above the T-piece gas outlet to a desired flow rate between 5 and 15 L/min. 10 L/min is effective in most cases.
6. To check maximum inspiratory pressure:

    **6a**. Occlude the PEEP control knob on the T-piece circuit

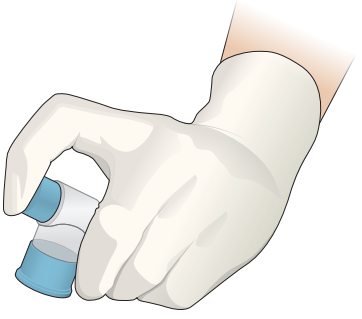


Figure **4.6** Occluding the T-piece

    **6b.** Turn the PIP control knob on the front panel fully clockwise beyond the yellow override release.

    **6c.** Verify that 45 cm of water pressure can be obtained (+/- 10%) on the airway pressure manometer.

7. To adjust the PEEP, remove your finger from the PEEP control knob and rotate the PEEP control knob to set the desired level.

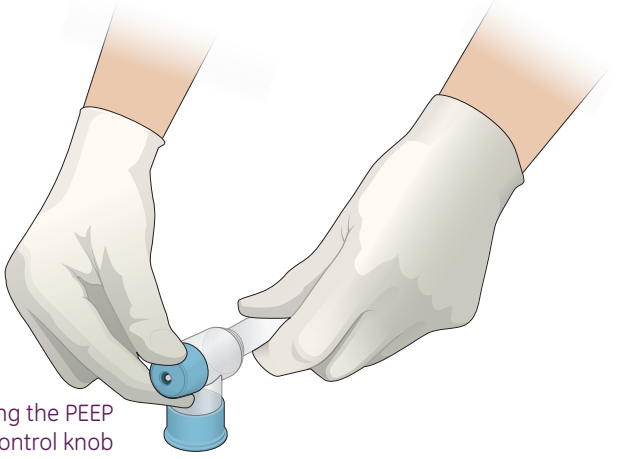


Figure **4.7** Adjusting the PEEP control knob

8. For units with a blender, adjust the blender control knob to set the desired $FiO_2$ from 21% to 100%.
9. Perform a few practice breaths by using your thumb or index finger to occlude the PEEP control knob. Watch as the manometer gauge shows your PIP and PEEP.
10. Remove the blue end cap and attach a neonatal face mask.
11. Turn the medical gas switch ***Off*** until ready to initiate resuscitation or airway support measures.

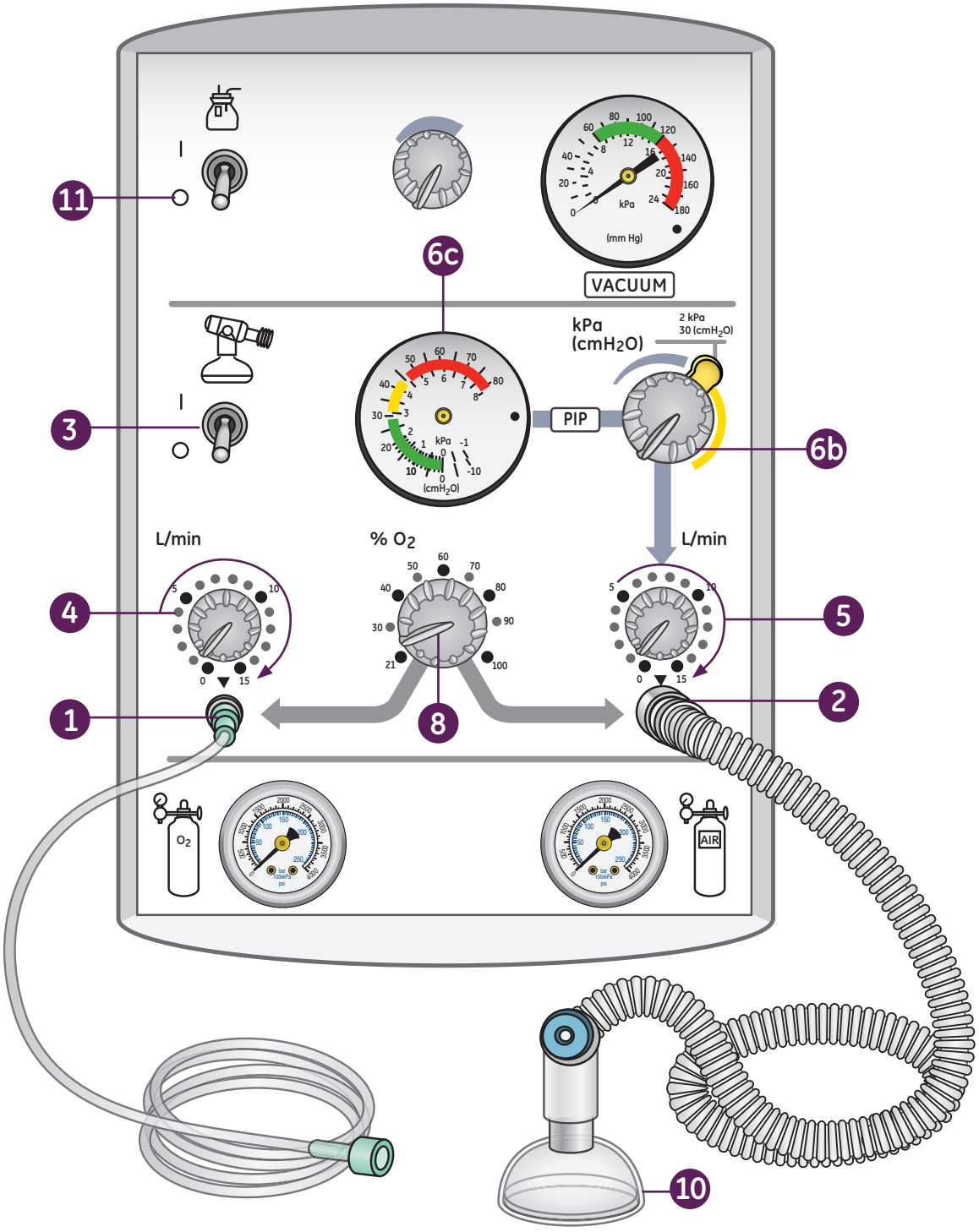



Figure **4.8** T-Piece setup

# Bag and Mask Overview

The second option is ***Bag and Mask***.

1. **The airway pressure manometer:** Allows the Clinician to see pressure throughout the respiratory cycle. The airway pressure manometer displays both PIP and PEEP (Positive End Expiratory Pressure).
2. **The primary flowmeter control:** Located on the right side of the resuscitation system, it is used to adjust the flow delivered to the patient. A second flowmeter control and outlet (on the left) is provided for free flowing oxygen (blow-by). A manual resuscitator may be attached to the secondary flowmeter, but must be used with an independent airway pressure manometer. Both flowmeters allow for adjusted flows of 0-15 lpm.
3. **Medical gas outlet:** The bag and mask circuit is attached to this outlet.

   **Note!** *When using the Bag and Mask outlet, the airway pressure manometer may be built into your bag and mask system. If no manometer is built into your system then attach to the manometer shown in illustration.*
4. **Air and Oxygen tank gauges:** Present with the blender option only. This applies to both the T-Piece and Bag and Mask resuscitation systems. Gauges register with use of traditional e-cylinder tanks secured into the rear yoke of the resuscitation system.
5. **Pressure Tubing:** Connects from the resuscitator to the pressure manometer connector.
6. **Bag and Mask:** Connect neonatal bag and mask system used by your hospital. Check to see if a manometer is included. If not, attach manometer tubing to bag and mask, as well as to the airway pressure manometer on the resuscitation system.
7. **Oxygen connection tubing:** For free flow oxygen to the left medical gas outlet.
8. **Medical gas outlet:** Always a traditional flowmeter adapter.
9. **Blender control knob:** Regulates $FiO_2$ from 21 to 100% from both medical gas outlets. Inlet ports on the back of the device allow attachment to medical gas supplies.
10. **Medical gas switch:** Toggle switch that turns on flow of medical gases to flowmeters and blender.

**Note!** If the resuscitation system does not have the optional blender, then there are no tank pressure gauges on front, and no tank yoke on back of resuscitation unit.

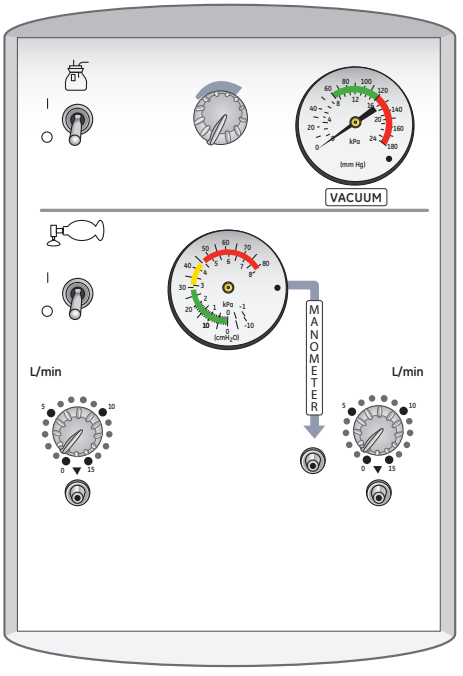



Figure **4.9** Resuscitation Unit Without Blender

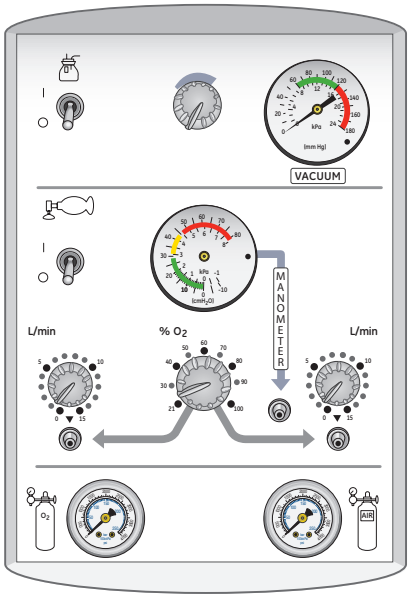



Figure **4.10** Bag And Mask Without Connections

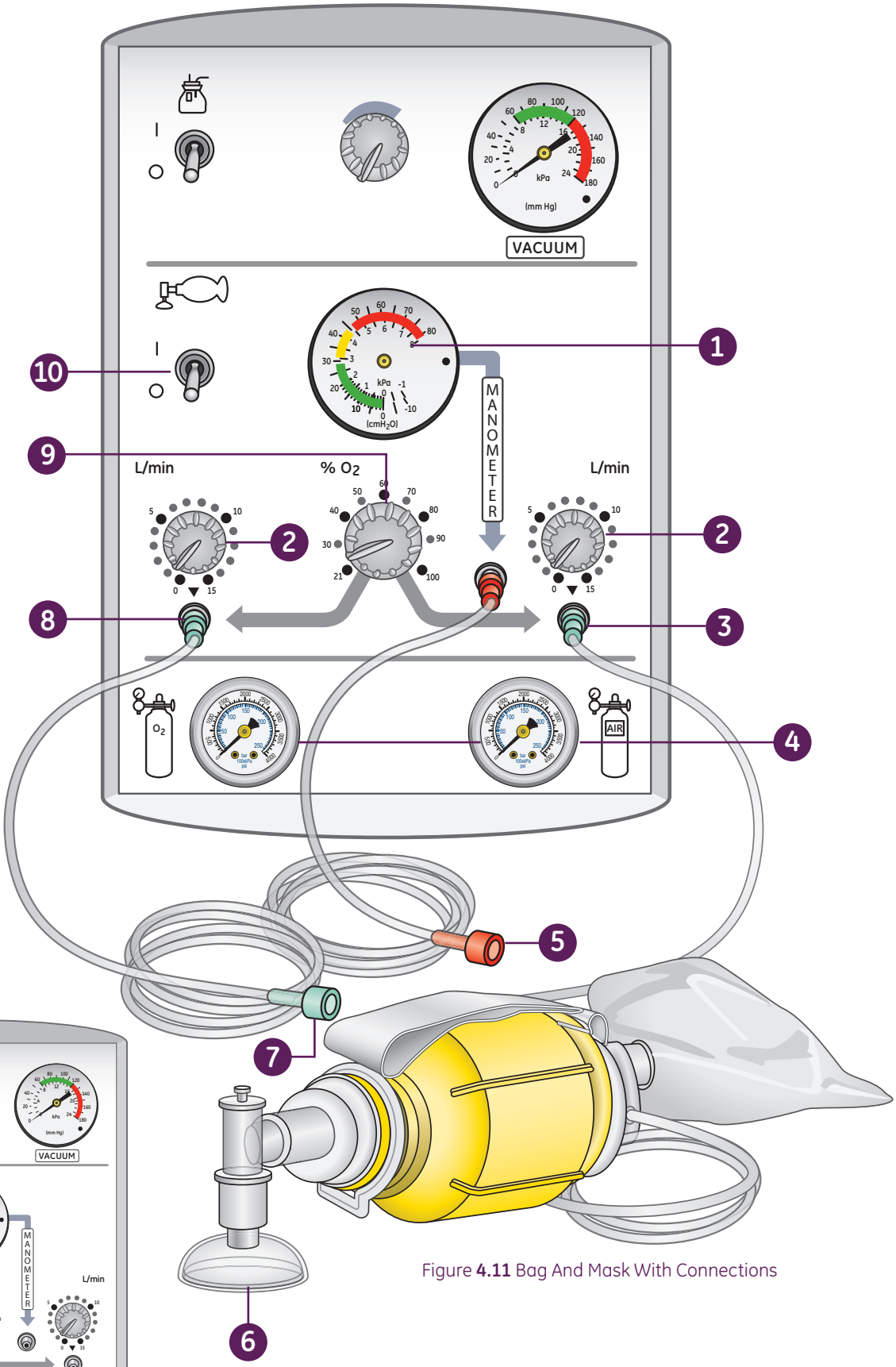



Figure **4.11** Bag And Mask With Connections

# Bag and Mask Setup

1. If using free flow, attach oxygen connecting tubing for free flow oxygen to the left medical gas outlet on the front panel of the resuscitation system.
2. If using free flow, adjust the flow meter control knob above the left medical gas outlet to a desired flow rate between 5 and 15 L/min. 10 L/min is effective in most cases.
3. Connect the pressure tubing from the resuscitator to the pressure manometer connector on the front of the resuscitation system. You may omit this step if you are using a manual resuscitator with an integrated manometer.
4. Use oxygen tubing to connect either a self-inflating or flow-inflating manual resuscitator to the right medical gas outlet on the front panel of the resuscitation system.
5. Adjust the flow meter control knob above the right medical gas outlet to a desired flow rate between 5 and 15 L/min. 10 L/min is effective in most cases.
6. For units with a blender, adjust the blender control knob to set the desired $FiO_2$ from 21% to 100%.
7. Turn on the gas flow using the medical gas switch.

***Note!*** *Follow hospital, regional or national guidelines for setup of your manual resuscitator. Common steps might be to occlude the patient connection port or face mask of the manual resuscitator and set PEEP and PIP on the manual resuscitator. PIP and PEEP may be adjusted by changing the flow rate using the flow meter control knob on the front panel of the resuscitation system. It may also be adjusted using the PEEP valve on the manual resuscitator, depending on the type of resuscitator system that is connected.*

8. Turn the medical gas switch ***Off*** until ready to initiate resuscitation or airway support measures.

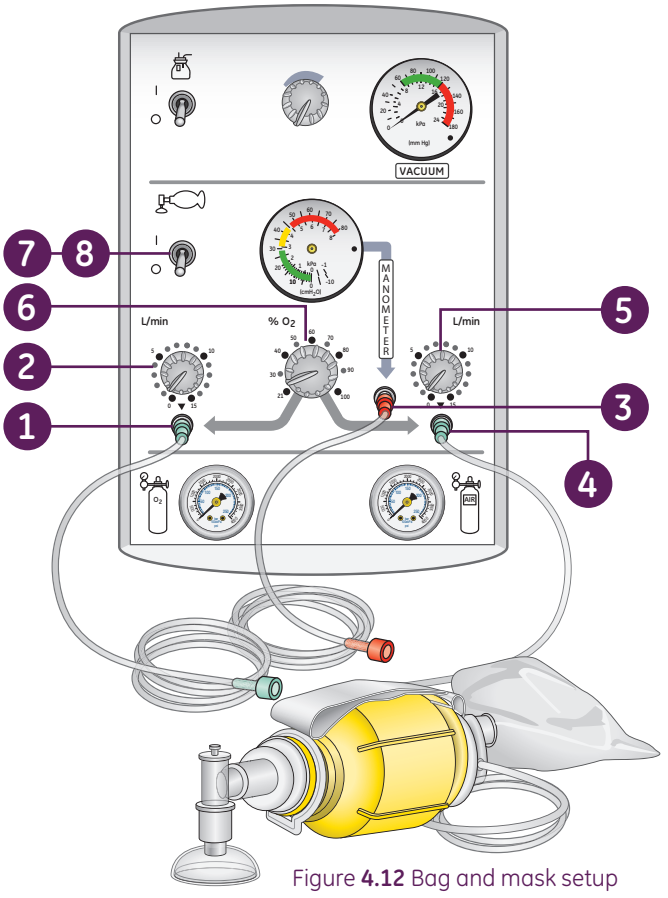
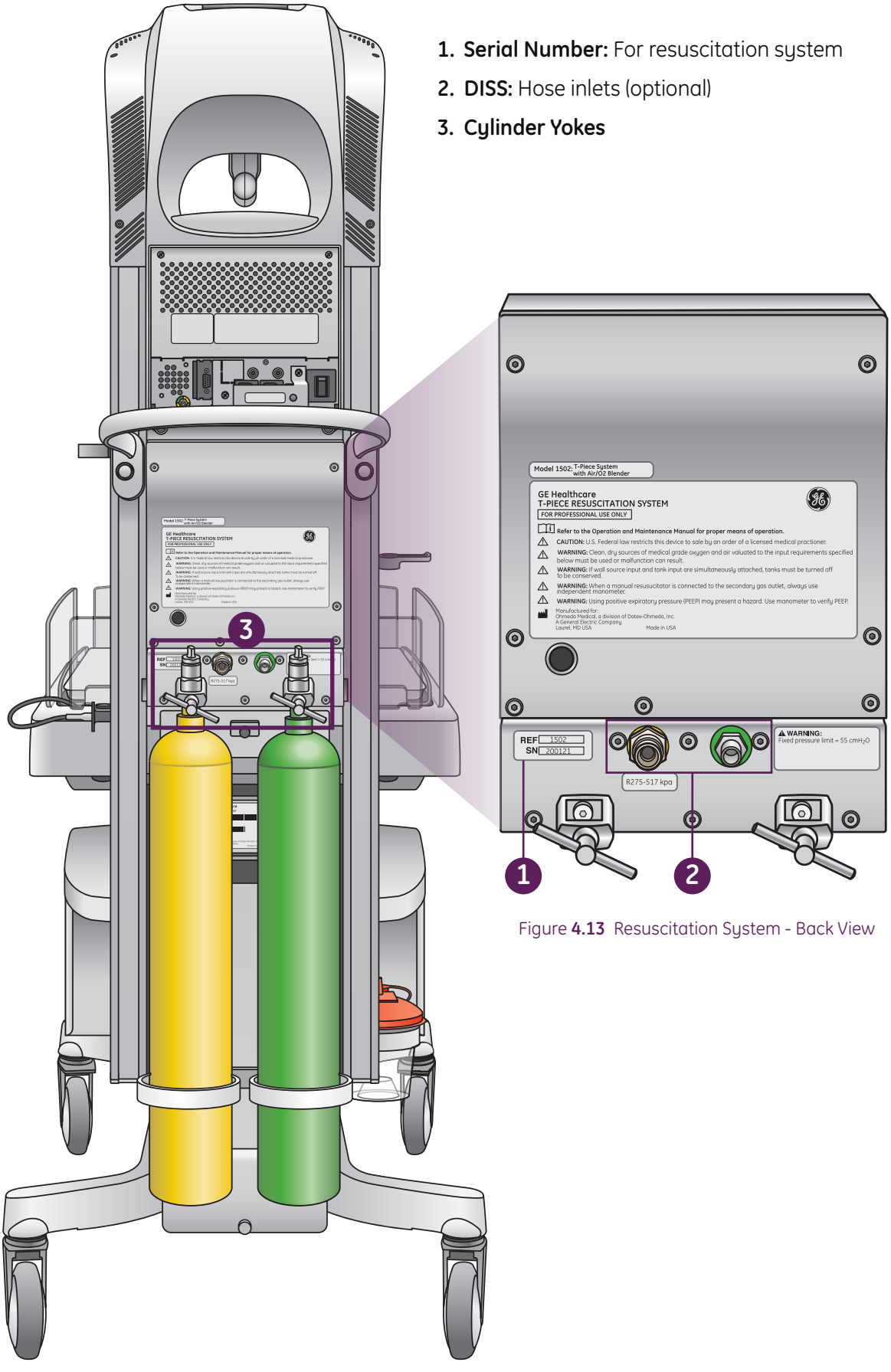



Figure **4.12** Bag and mask setup

# Resuscitation System Back View




1. **Serial Number:** For resuscitation system
2. **DISS:** Hose inlets (optional)
3. **Cylinder Yokes**

Figure **4.13** Resuscitation System - Back View

# Hands-on Activity

1. Demonstrate how to attach T-Piece circuit to primary outlet (on the T-Piece set up).
2. Demonstrate how to attach a Bag and Mask set up to the primary outlet to the primary outlet (on the Bag and Mask set up)..
3. Replacement of suction tubing to the patient.
4. Set suction pressure.
5. Set up PIP and PEEP pressures using the T-Piece circuit.

# 5 Patient Probe Panel

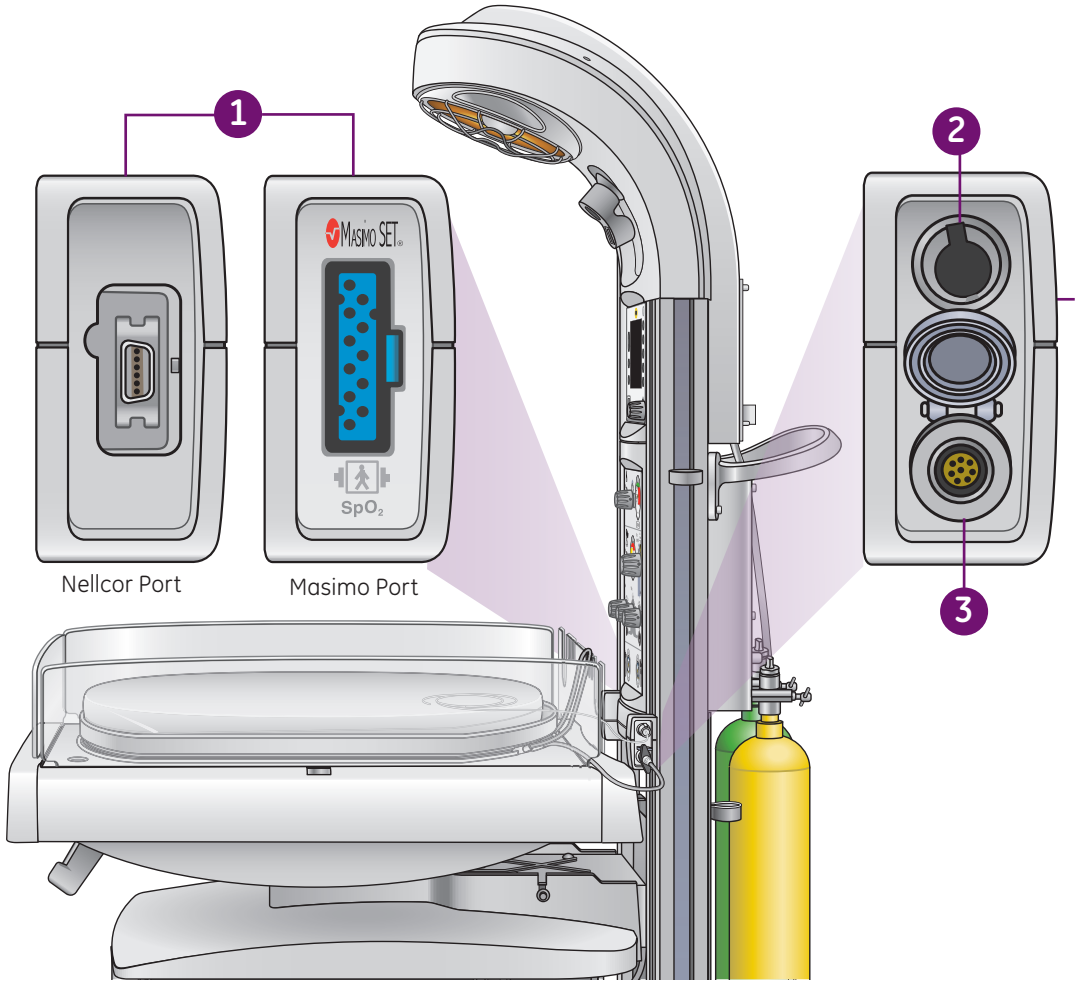



Figure **5.1** Probe Panel Components

1. **$SpO_2$:**
   - $SpO_2$ with Masimo or Nellcor technology is an optional feature.
   - The $SpO_2$ panel is located on the left side of the warmer when facing the warmer.
2. **Patient (Temp) Probe:**
   - The skin temperature probe connects to this port. Only use Ohmeda probes; other manufacturers' probes are not calibrated to GE Healthcare equipment.
   - The Giraffe Warmer skin temperature probe is the same for Giraffe OmniBed, Giraffe Incubator, and Panda iRes Warmer.
   - These probes consist of dual thermistors to help ensure accuracy and patient safety. If the device detects a difference in the two thermistors greater than 0.5°C for over six minutes, a ***Temp Probe Failure*** alarm will be generated and the probe should be replaced.
3. **Scale Jack:**
   - Built-in scale is an optional feature.
   - The scale cable connects to the panel in this port.
   - Cap secures over this port if the scale is not installed within the bed or connected to panel.

# 6 Bed and Scale

## Bed Components Overview

1. Rear and side panels
2. Bed/mattress
3. Baby Susan rotating platform
4. X-ray tray: To use the X-ray tray, a side panel does need to be open in order to slide the tray out.
5. Flip-down side panel
6. Tilt Mechanism
7. Front handle
8. Bed level indicator: One on each side panel, and third on front panel.

**Note!** *The X-ray tray comes standard on Giraffe Warmer.*

Cleaning instructions can be found in section 9 (Resources) and in section 4 of the Operation and Maintenance Manual.

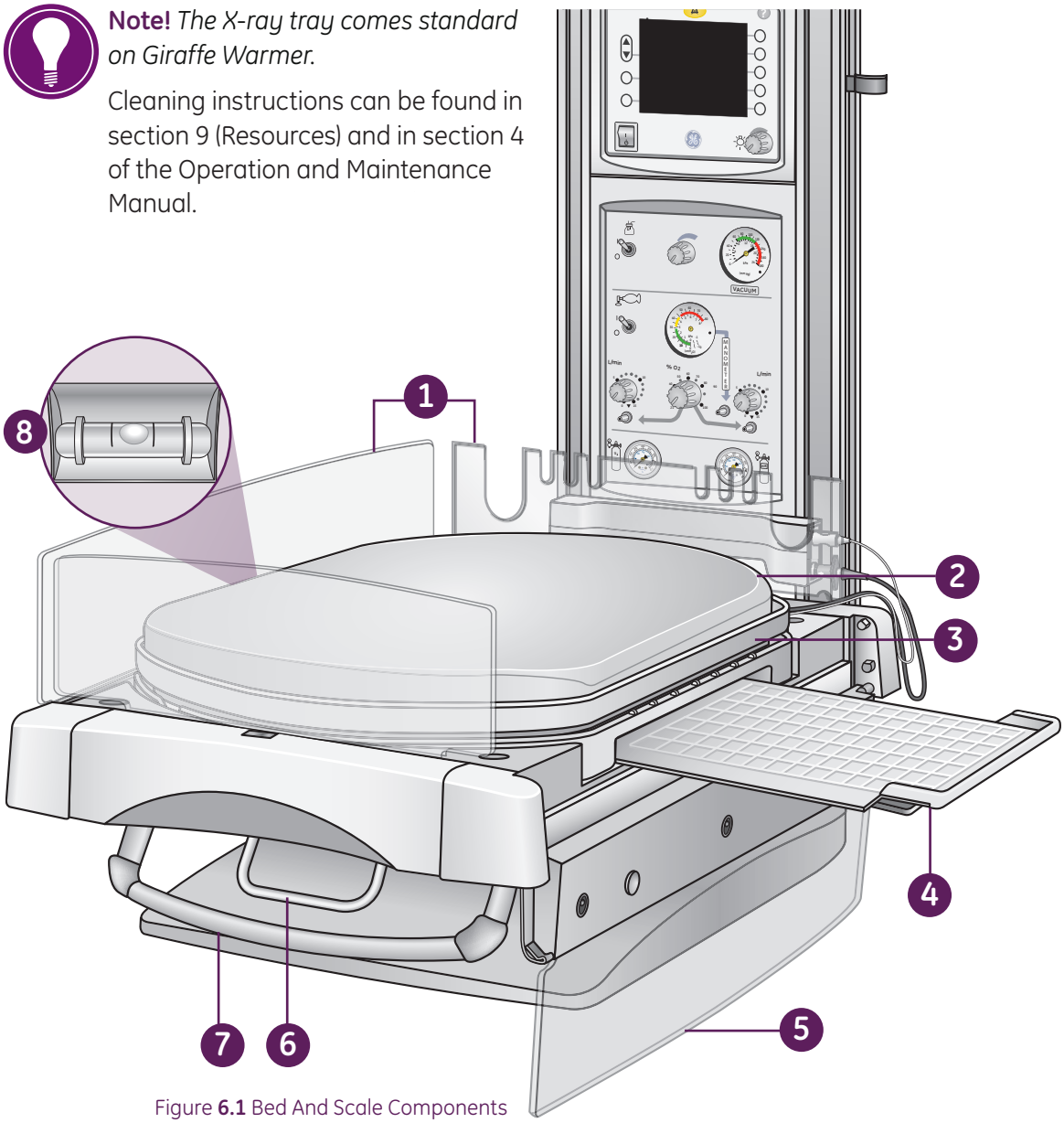



Figure **6.1** Bed And Scale Components

# Bed and Scale Features

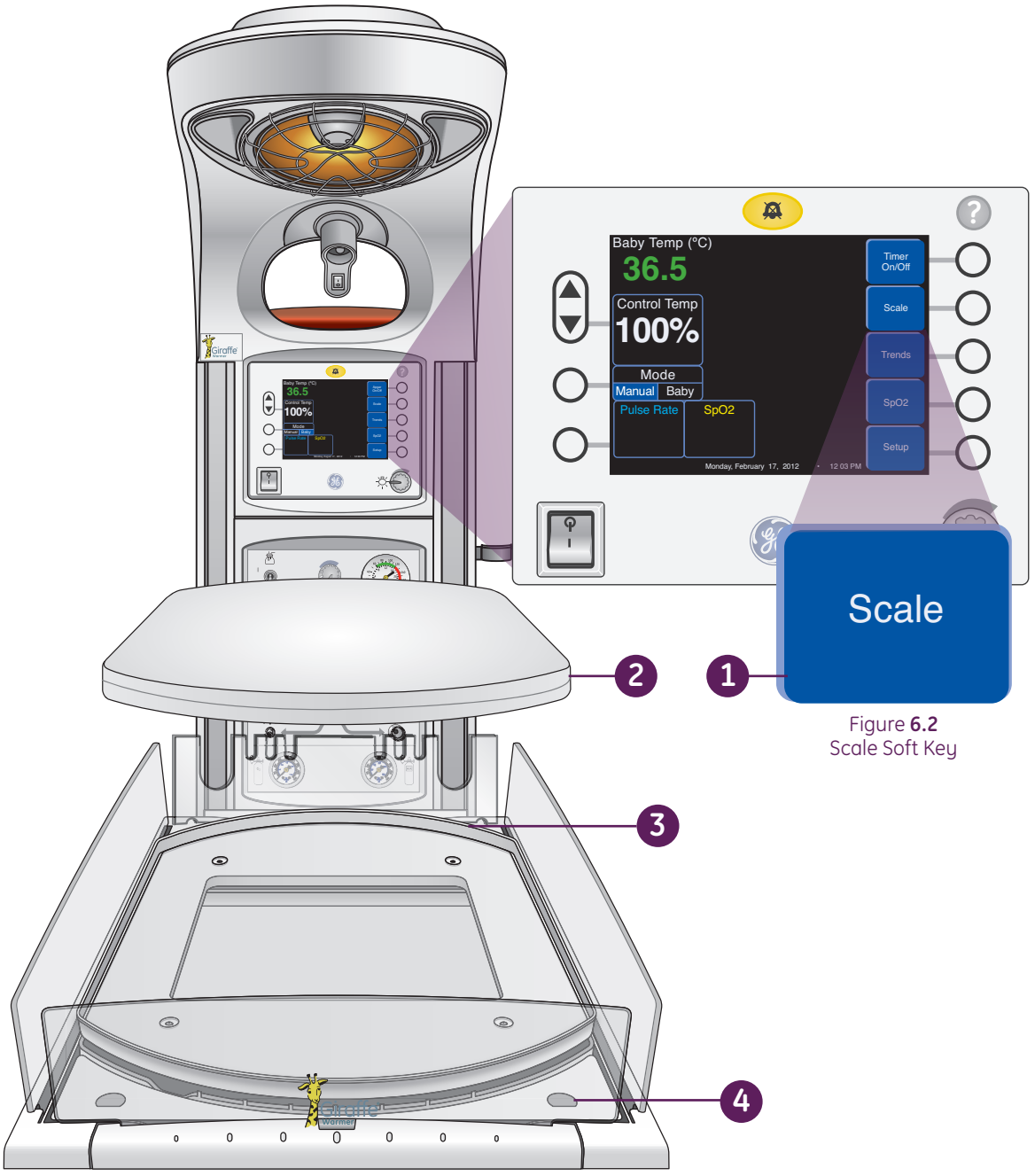



Figure **6.2**
Scale Soft Key

Figure **6.3** Giraffe Warmer Bed And Scale Components

1. **Soft Key:** Used to access scale controls. Available when optional scale is installed.
2. **Mattress:** Has rounded corners and is a pressure-diffusing mattress.
3. **Scale:** The tray has the same rounded shape as the mattress. Built-in scale is an optional feature.
4. **Accessory connection:** (1 of 4) available in each of 4 corners of translation deck. Optional accessories that would go in these are: Tubing management arm, Silo support arm or corner trays.

## Tilt Mechanism

1. The bed may be tilted up to 12 degrees to Trendelenberg or reverse Trendelenberg positioning of the patient.
2. To tilt the bed, grasp both the front handle and Tilt Mechanism in one hand and squeeze.
3. Push down or lift up on the front end of the bed depending on the desired position. Releasing the Tilt Mechanism at any point on the tilt path locks the bed in that position.

## Baby Susan

The Giraffe Warmer includes a Baby Susan which allows the mattress platform to rotate 360 degrees.

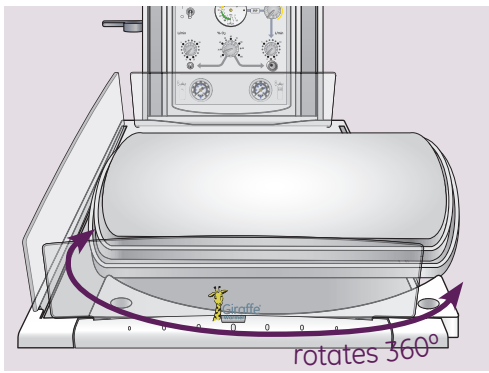



Figure **6.4** Baby Susan




Figure **6.5** Tilt Feature

# Hands-on Activity

1. Remove scale and demonstrate replacing connection of scale into port. Assure pins line up by identifying the red dot on the scale connector and line up with top of scale jack.
2. Drop side panel and demonstrate how x-ray cassette tray pulls out. Replace tray and identify cassette markings on bed platform.
3. Tilt bed to maximum levels.
4. Tilt bed to level position, using a side level as your guide.
5. Demonstrate how optional accessories fit into translation deck.

# 7 Operational Overview

## Control Panel

In this chapter we will discuss the functions of each soft key on the control panel, as well as the second tier soft keys within the home screen. The four keys on the ***left*** of the display screen retain the same functions at all times, and the five keys on the ***right*** of the display screen change their function depending on what task you wish to perform.

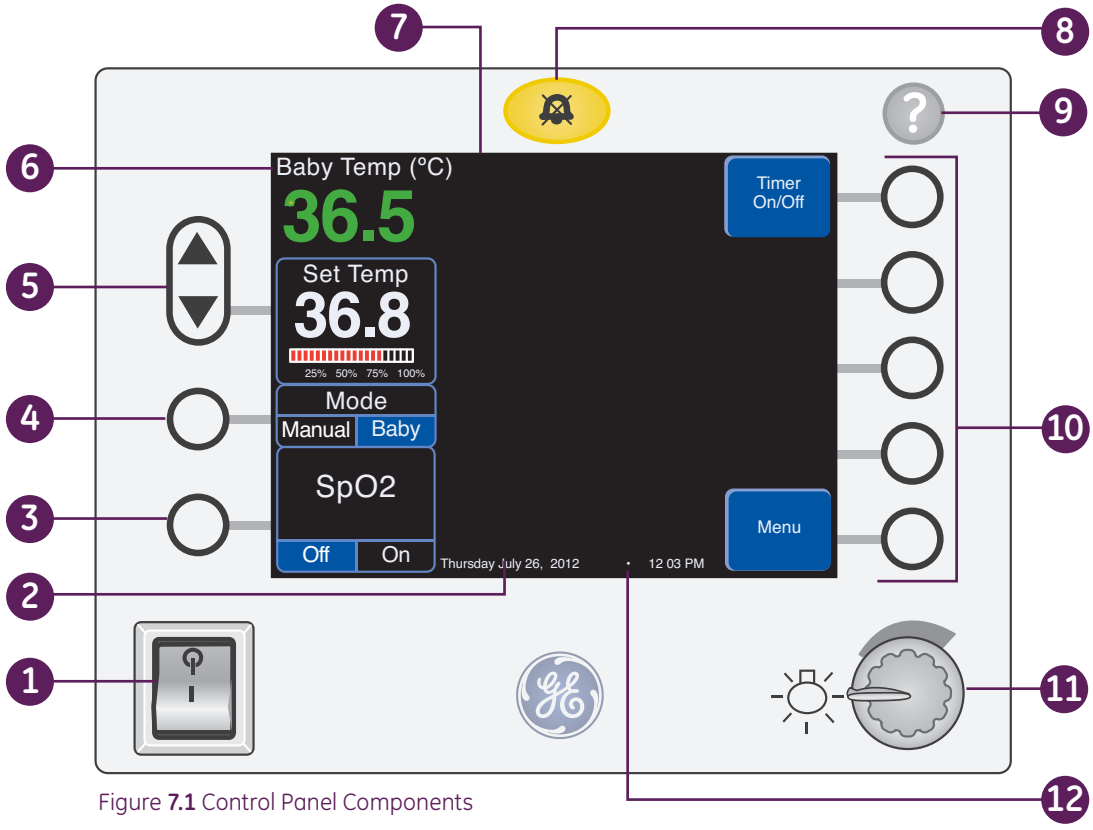



Figure 7.1 Control Panel Components

1. **Power standby switch:** Turns the power to the warmer on and off.
2. **Date and time:** Displayed at the bottom of the screen.
3. **$SpO_2$ On/Off key:** Turns $SpO_2$ monitoring on and off.
4. **Mode key:** Choices are Manual or Baby.
5. **Heater power:** Use the up and down keys to adjust the heater power.
6. **Baby temperature:** Can be shown in Celsius or Fahrenheit degrees: the default setting is ***Celsius*** but this can be changed in the Service mode.
7. **Home screen:** Primary screen consisting of the main parameter windows.
8. **Alarm silence key:** Alarms can be silenced by pushing the yellow key above the display or by a wave of your hand directly in front of the alarm light.
9. **Help key**: Brings up the help screen that explains alarms and functions.
10. **Soft keys:** Control equipment settings and options.
11. **Observation light dimmer knob:** Adjusts the brightness of the observation lights.
12. **Moving arrow**: Indicates the processor is active.

# Timer ON/OFF

The ***Timer ON/OFF*** soft key has the option to become an APGAR timer if the bed is going to be used in a delivery room setting.

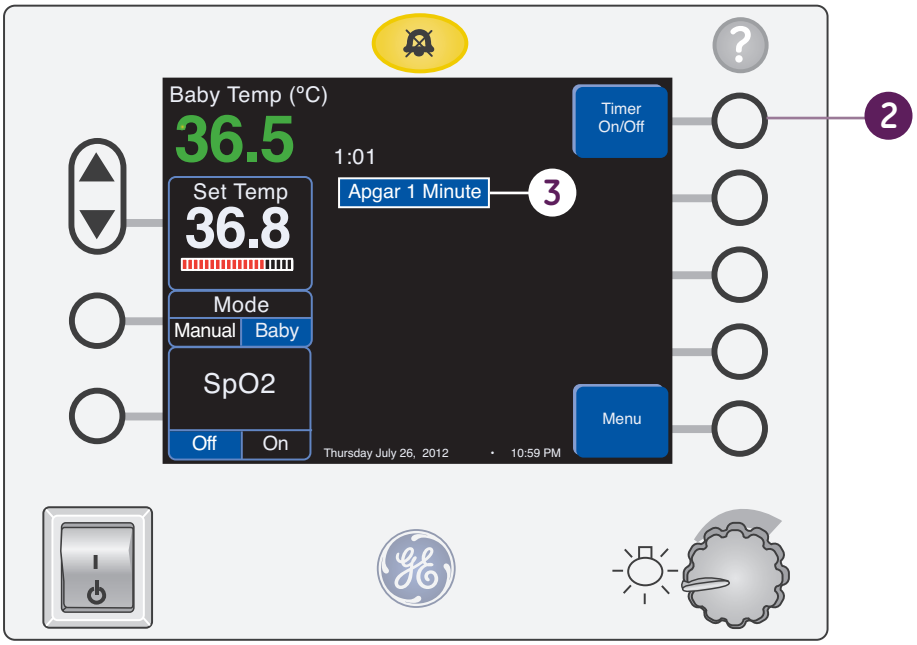



Figure **7.2** Apgar timer

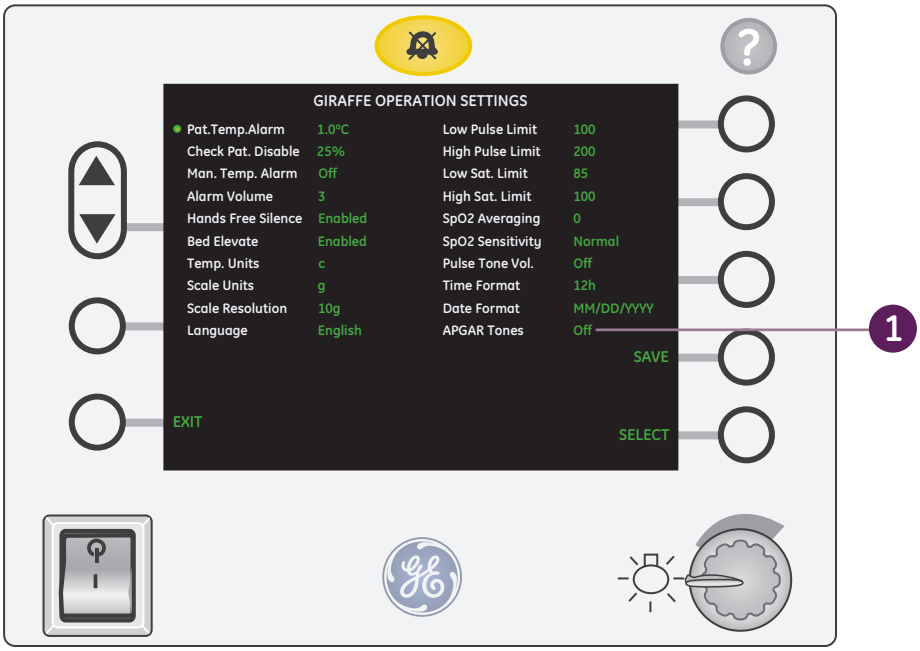



Figure **7.3** APGAR Setting

1. The APGAR Tones setting must be set to ***On*** in Service Mode.
2. Press the ***Timer ON/OFF*** button to begin a count up timer feature. No audible chime is heard with the timer count up option. This timer can be re-configured to adapt to an Apgar timer in the service mode. If this is activated, then the bed will chime as it counts up at 1 minute, 5 minutes and 10 minutes. An audible tone and display reminder will occur at the appropriate times.
3. APGAR score reminder: 1 minute (double chime), 5 minute (double chime), and 10 minute (triple chime).

# Menu Key

In the following sections we will discuss the ***Menu*** soft keys, starting with a brief description of each soft key, and then going into greater detail of the function of each key.

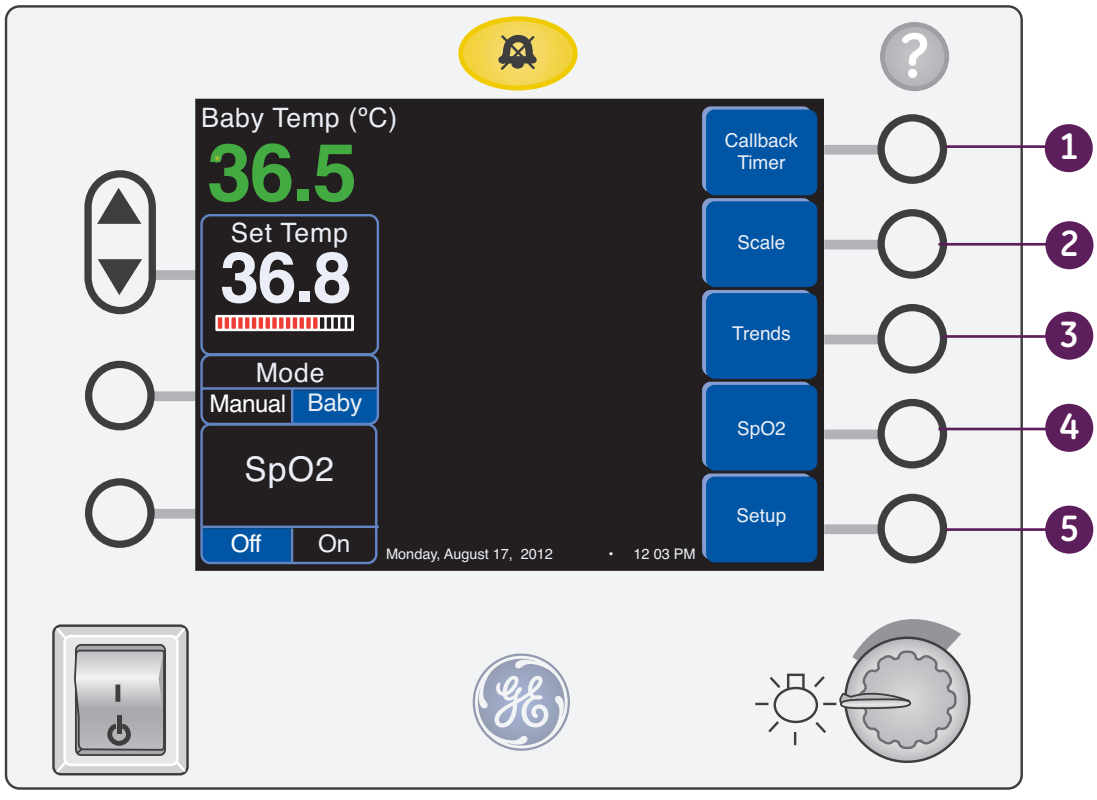



Figure **7.4** Menu Key


Press the **Menu** button on the ***Home*** screen to display the following options:

1. **Callback Timer:** Can be set to alert you to return to the bedside to perform an intervention or task. The setting range is 1 minute to 120 minutes.
2. **Scale key:** Allows the Clinician to initiate the weighing procedure. Push the ***Weigh*** key and follow the on-screen directions carefully to level the bed and weigh the patient.
3. **Trends key:** Displays the trending options. The warmer trends weight, temperature, pulse rate and $SpO_2$ data. The Clinician can view graphs of this data over a selected period of time.
4. **$SpO_2$ Key:** See page 7.10.
5. **Setup Key:** Use to adjust ***Temp Units, Alarm Volume, Pulse Tone Volume, Set the Clock***, enable or disable the ***Elevate*** feature, enable or disable the ***Hands Free Alarm Silence*** feature, ***Patient Temperature Alarm,*** and ***Manual Temperature Alarm.***

# Callback Timer

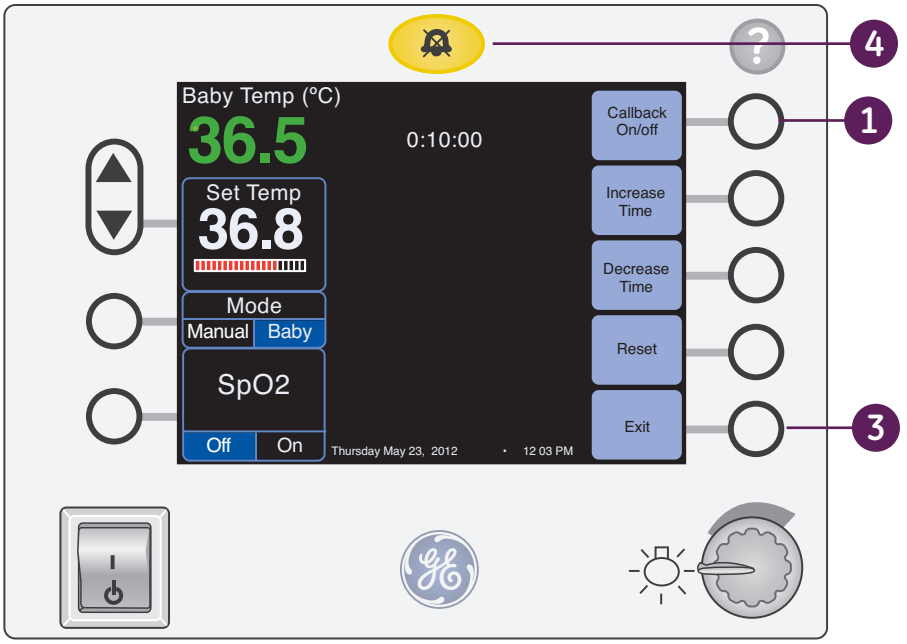



Figure **7.5** Timer ON/OFF Key

A callback timer can be set to alert you when to return to the bedside to perform an intervention.

Access the callback timer by pressing the ***Menu*** key and then the ***Callback Timer*** key. Set the timer by pressing the Increase or Decrease arrow keys.

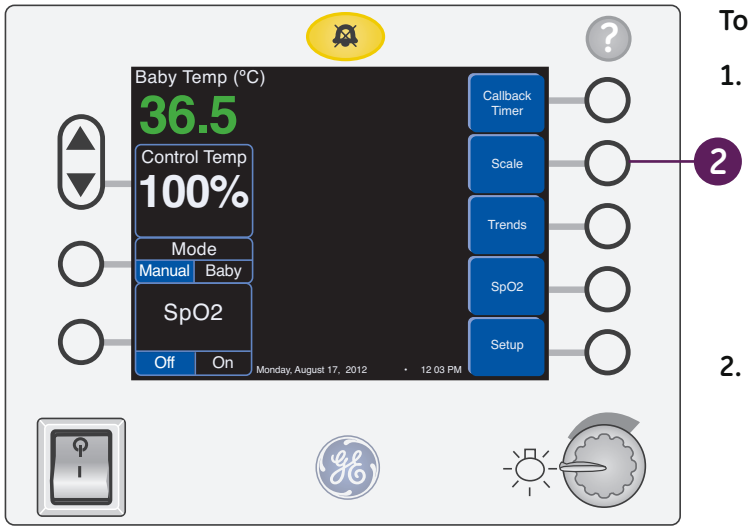
1. Turn on timer by selecting ***Callback ON/OFF***.
2. When the call back timer reaches zero, a ***Callback Complete*** alert activates.
3. Pressing the ***Exit*** key with the timer stopped ends the timer.
4. Silence the callback timer by pressing the ***Alarm Silence*** key, or by using the ***Hands Free Alarm Silence*** feature.

# Scale Key

## Weighing Procedure

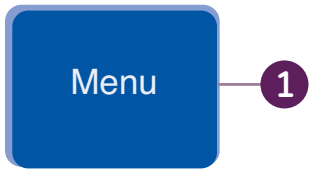
The patient should be in approximately the center of the bed. Other objects should not lean against the bedsides. All leads, IV tubes and ventilator tubes should be secured. Blankets may be tucked under the mattress, but must not be tucked under the weighing platform.

Figure **7.6**
Select scale




**To weigh a patient:**

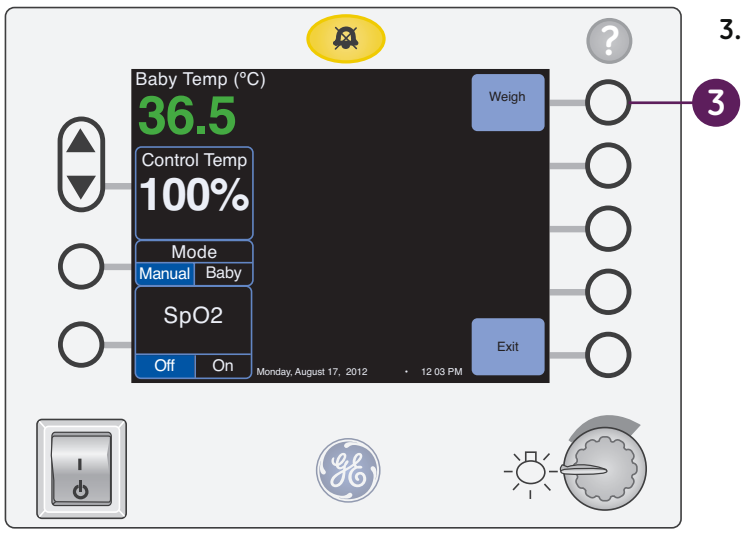
1. Starting from the **Home** screen, press the ***Menu*** key.




2. Select the ***Scale*** key to bring up the ***Scale*** menu.

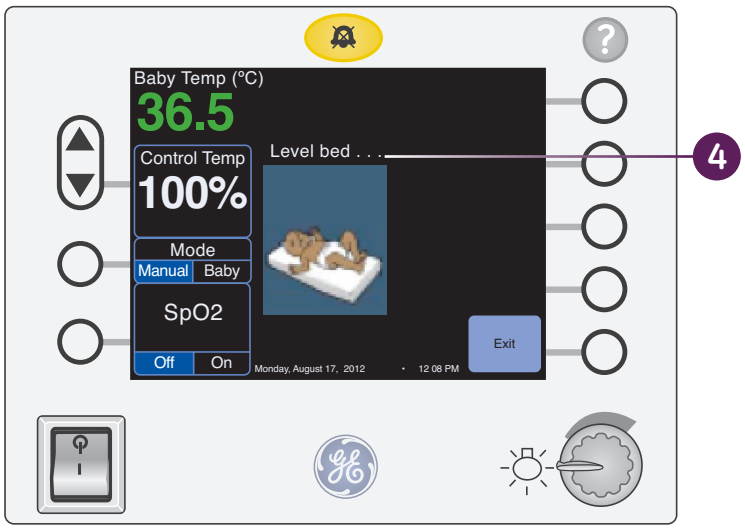
**Note!** *If the scale is not connected, no icon will appear.*

Figure **7.7**
Select Weigh

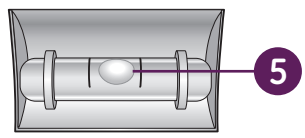



3. Select ***Weigh*** from the menu to initiate weighing.

Figure **7.8**
Level bed

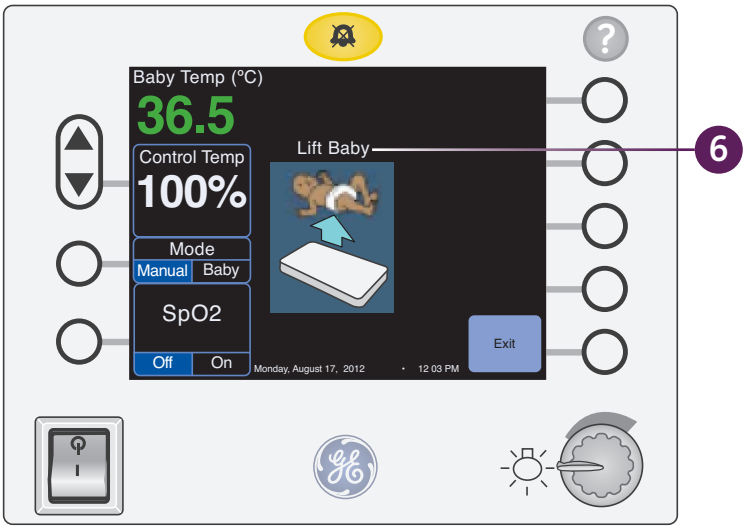



4. You will be prompted to check ***Level bed . . .*** to ensure that the bed is level during the weighing procedure.
5. If the bed is not level, then level the bed by sighting the bubble level on the bed side panel and using the Tilt Mechanism.



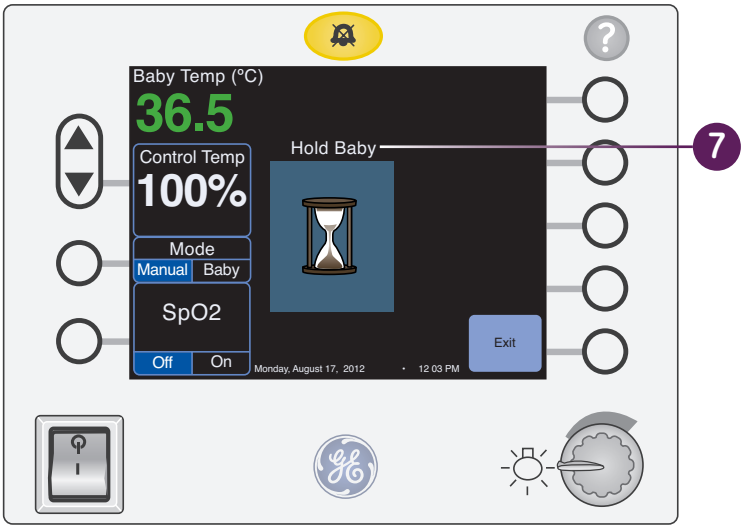

If the bed is level proceed to step 6.

Figure **7.9**
Lift Baby



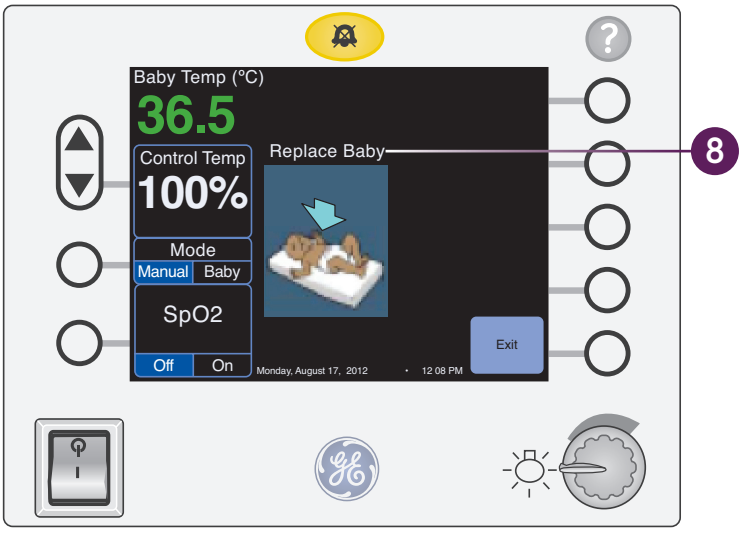

6. To zero the scale, the display will prompt you to lift the patient by showing the ***Lift Baby*** icon while a tone sounds. Lift the patient and any tubing or leads attached to the patient. Make sure that arms, legs, blankets and clothing are clear of the mattress.

Figure **7.10**
Hold Baby




7. Hold the patient while the ***Hold Baby*** icon appears.

Figure **7.11**
Replace Baby




8. A second tone sounds and the ***Replace Baby*** icon appears on the screen. Place the patient back down on the mattress while holding up any leads or tubes attached to the patient.

Figure **7.12**
Weight calculation

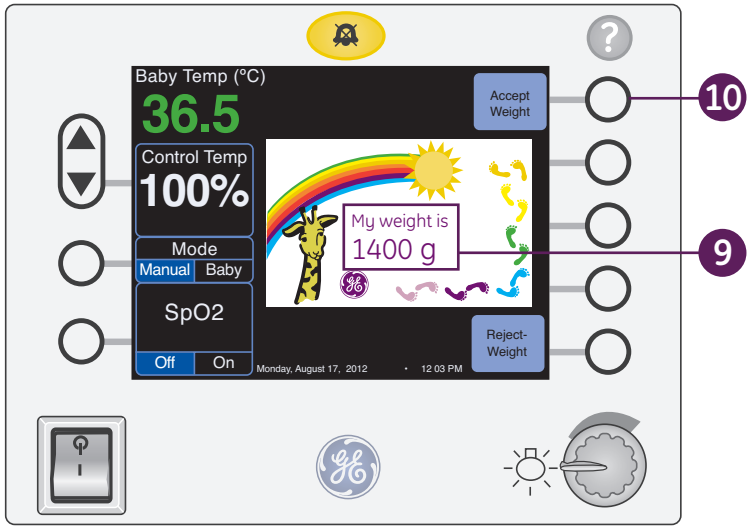



Figure **7.13**
Weigh keys

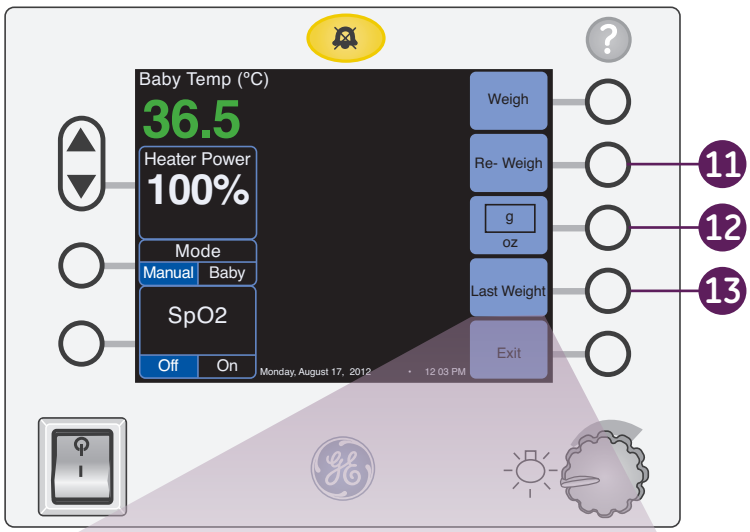
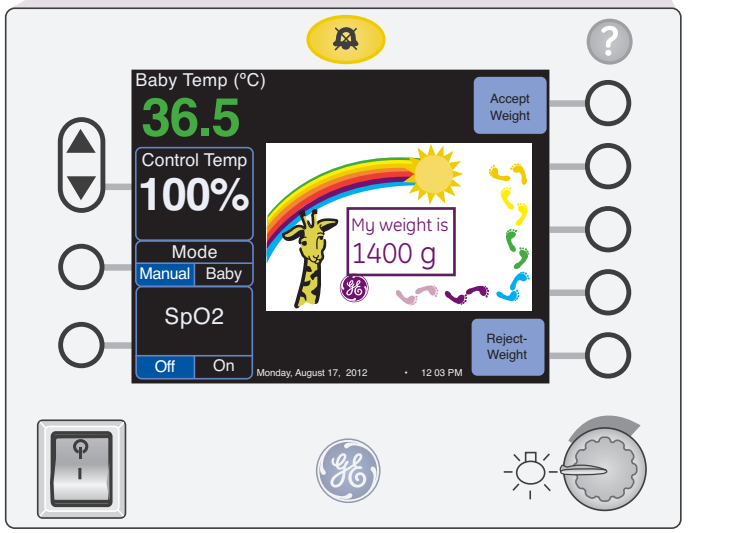



Figure **7.14**
g/oz key




**Note!** *A message in red font will display below the weight if the patient's weight varies by more than 10% of the previous weight*

9. The scale will now calculate the patient's weight which will appear in the display

   **Note!** *The scale weighs any object on the platform replaced with the patient. Without holding up leads and tubes, the weight of the leads will be included with the patient's weight.*

10. Giraffe warmer scales prompt you to either ***Accept*** or ***Reject*** the displayed weight, thus storing the weight in trend. Giraffe warmer will store up to 14 weights.

    - Weight list and trend can be recalled through the Trend option. See page 7.8.
    - Information will be stored in the bed after powered down for up to two hours.
    - Clear patient history prompt is seen if warmer is re-booted within that period of time. Clinician will be able to either recall the previous patient, or clear information for a new patient admission.

11. Push the ***Reweigh*** key within five minutes of the last weighing sequence if the weight is in doubt. The scale will reweigh the patient without your having to lift the patient to zero the scale.

12. Push the ***g/oz.*** key to toggle the weight display between grams and ounces.

13. Selecting ***Last Weight*** will display the most recent weight value.

# Trends

The warmer trends weight, temperature, and $SpO_2$ (optional). Push the ***Menu*** key, then press the ***Trends*** key to display the trending screens.

## Weight Trending

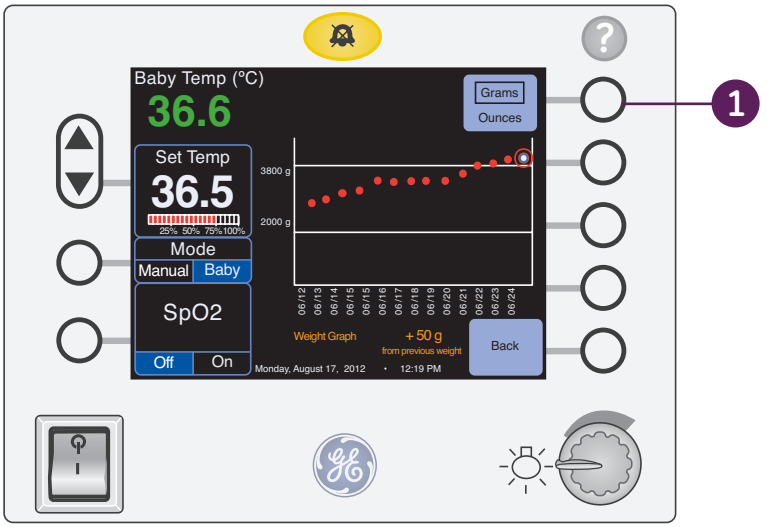



Figure **7.15** Weight Trend with Graph

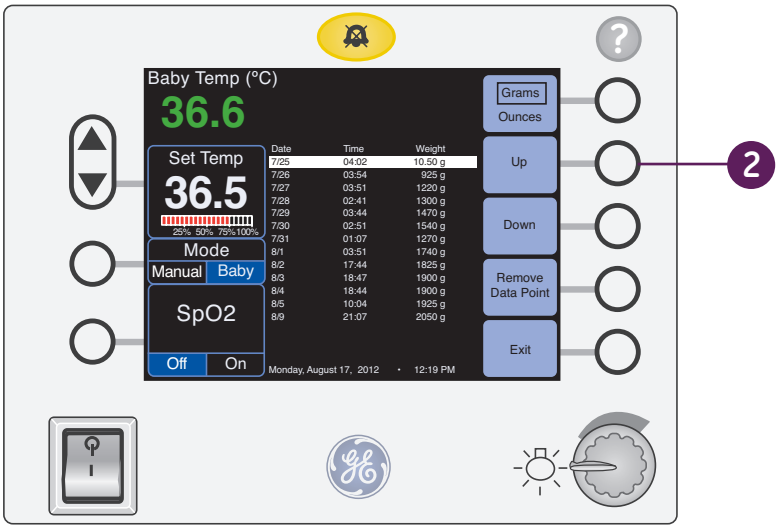



Figure **7.16** Weight Trend with List

1. Press the ***Weight Graph*** key to view a graph of up to 14 weights. Weights are plotted from right to left. The area below the graph also displays the difference between the newest weight and the previous weight. Weights can be plotted in grams or ounces; grams are the default measurement unit.
2. Push the ***Weight List*** key to show a list of previous weights. The ***Up*** and ***Down*** keys allow you to scroll through the list. You can use the ***Remove Data Point*** key to delete a weight from the list and its associated plot point on the weight graph.

## Temperature Trending

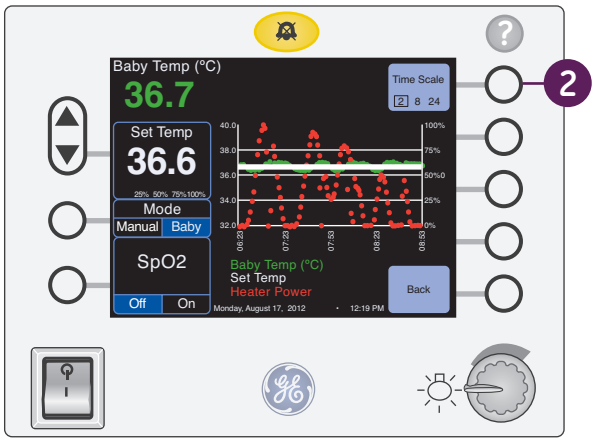



Figure **7.17** Two-Hour Temperature Trend

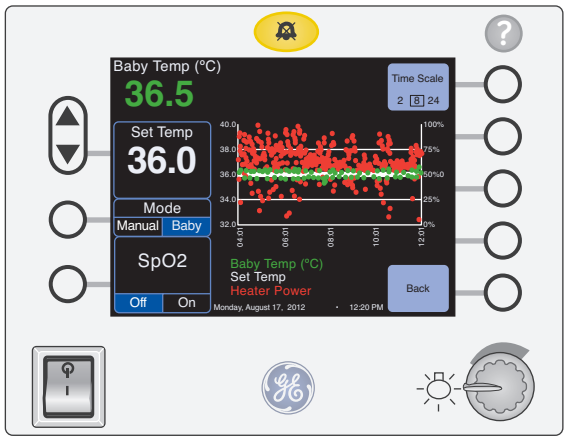



Figure **7.18** Eight-hour Temperature Trend

1. Push the ***Temp*** key to view a graph of set temperatures, patient temperatures and heater output. Manual mode graphs display percentage of heater power and patient temperatures, if a probe is attached to the patient. Baby mode graphs set temperatures, patient temperatures and heater output.
2. Push the ***Time Scale*** key to change the time period shown on the graph from the default 2 hours to 8, or 24 hours.

## $SpO_2$ Trending

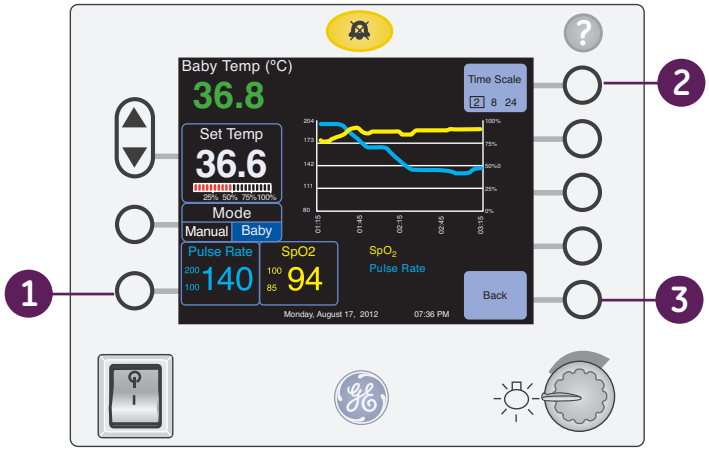



Figure **7.19** $SpO_2$ Trend

1. Push the ***$SpO_2$*** key to view a graph that plots both the patient's blood oxygen saturation percentage and the patient's pulse rate

**Note!** *The $SpO_2$ key only appears on the display if the $SpO_2$ option is installed.*

2. Push the ***Time Scale*** key to change the time period shown on the graph from the default 2 hours, 8 hours or 24 hours.
3. Push the ***Back*** key to return the the ***Trending*** screen and the ***Exit*** key to return to the ***Home*** screen.

# $SpO_2$ Key

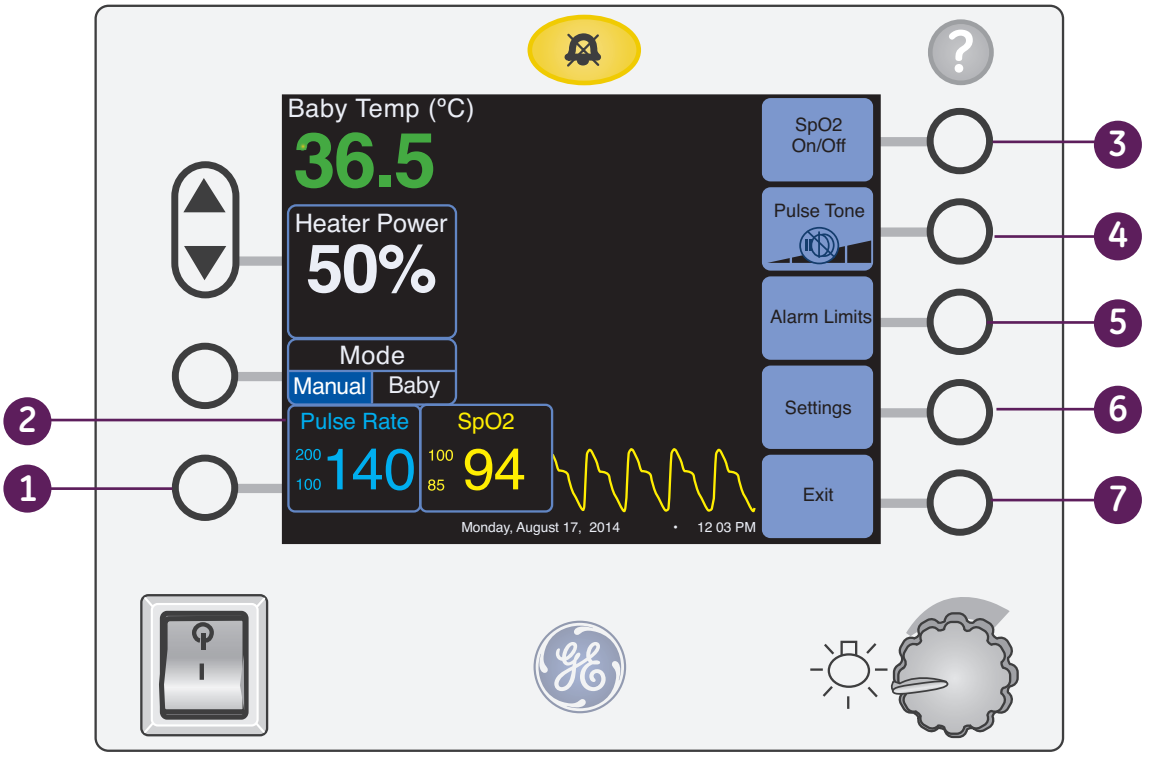



Figure **7.20** $SpO_2$

1. **$SpO_2$ ON/OFF Key:** Plug probe into the $SpO_2$ cable and turn on by pressing key. When turned on the Pulse rate and $SpO_2$ will be displayed in side by side boxes at base of screen.
2. **Pulse Rate Parameter Box:** This is the pulse rate as detected by the $SpO_2$ probe. To its right is the signal waveform. These are the three indications of data accuracy on the screen: the signal strength indicator (stars), the quality of the $SpO_2$ waveform, and the stability of the $SpO_2$ value.
3. **$SpO_2$ On/Off Key:** Pressing this key will stop or restart the SpO2 monitor.
4. **Pulse Tone key:** Allows the Clinician to choose from four pulse tone volume levels or to turn it off.
5. **Alarm Limits Key:** Accesses the screen for setting alarm limits related to $SpO_2$.
6. **Settings Key:** Adjusts the Masimo technology averaging time and sensitivity, or Nellcor Sat Seconds for $SpO_2$ monitoring.
7. **Exit Key:** Press to return to the Home screen.

**Note!** *$SpO_2$ trends can be viewed in the **Trends** chapter.*

# Setup Key

Push the ***Menu*** key on the ***Home*** screen to access the warmer ***Setup*** key.

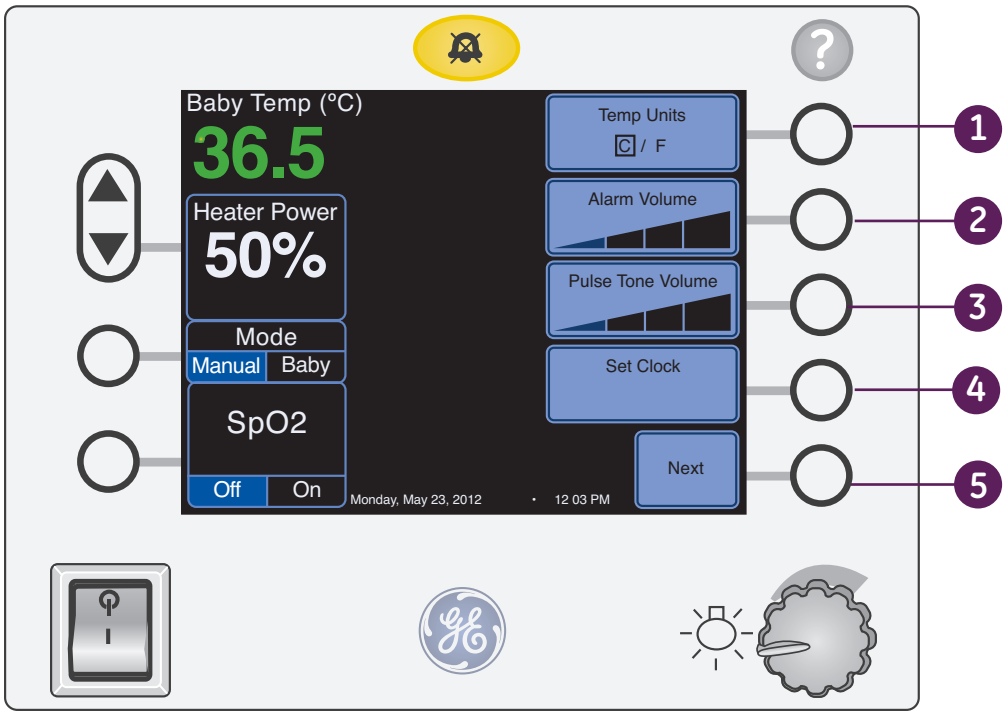



Figure **7.21** Setup Menu

1. **Temp Units:** to change from the default Celsius (C) to Fahrenheit (F) degrees.
2. **Alarm Volume:** Choose from four volume levels.
3. **$SpO_2$ Pulse Tone Volume:** Choose from four tone volume levels and a tone off setting. The default is ***Off***.
4. **Set Clock:** Push the Set Clock key to set the clock. You can adjust the clock for time zone and seasonal variations.
5. **Next:** Access a second tier setup menu.

## Setup Menu Second Tier

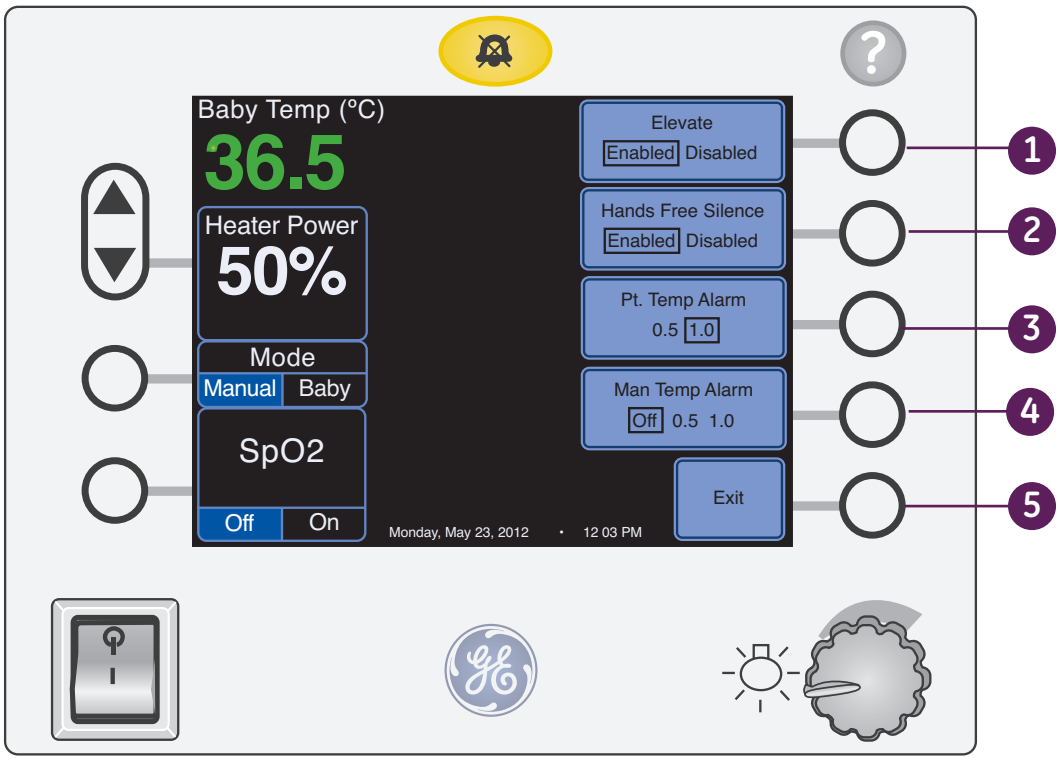



Figure **7.22** Setup Menu - Second Tier

1. **Elevate:** Enables and disables the bed elevating feature.
2. **Hands Free Silence:** Enables and disables the Hands Free Alarm Silence feature.
3. **Pt Temp Alarm (Patient Temperature Alarm):** Choose between two settings in the warmer's Baby mode.
    - **0.5:** Activates an alarm when the difference between the set temperature and the patient's skin temperature is greater than 0.5°C
    - **1.0:** Is the default setting. Activates an alarm when the difference between the set temperature and the patient's skin temperature is greater than 1.0°C
4. **Man Temp Alarm (Manual Temperature Alarm):** Use this when you wish to manage the patient's temperature in the Manual Mode, but want to be notified when the patient's temperature drops below or rises above a threshold setting.

    To use the Manual Temp Alarm:

    **A.** Secure the temperature probe on the patient's skin

    **B.** Press Man Temp Alarm key.

    **C.** Choose one of three settings:
    - **Off:** Is the default setting that deactivates the alarm
    - **0.5:** Activates an alarm when the difference between the set temperature and the patient's skin temperature is greater than 0.5°C
    - **1.0:** Activates an alarm when the difference between the set temperature and the patient's skin temperature is greater than 1.0°C
5. **Exit:** Returns to the Home screen.

# Help Key

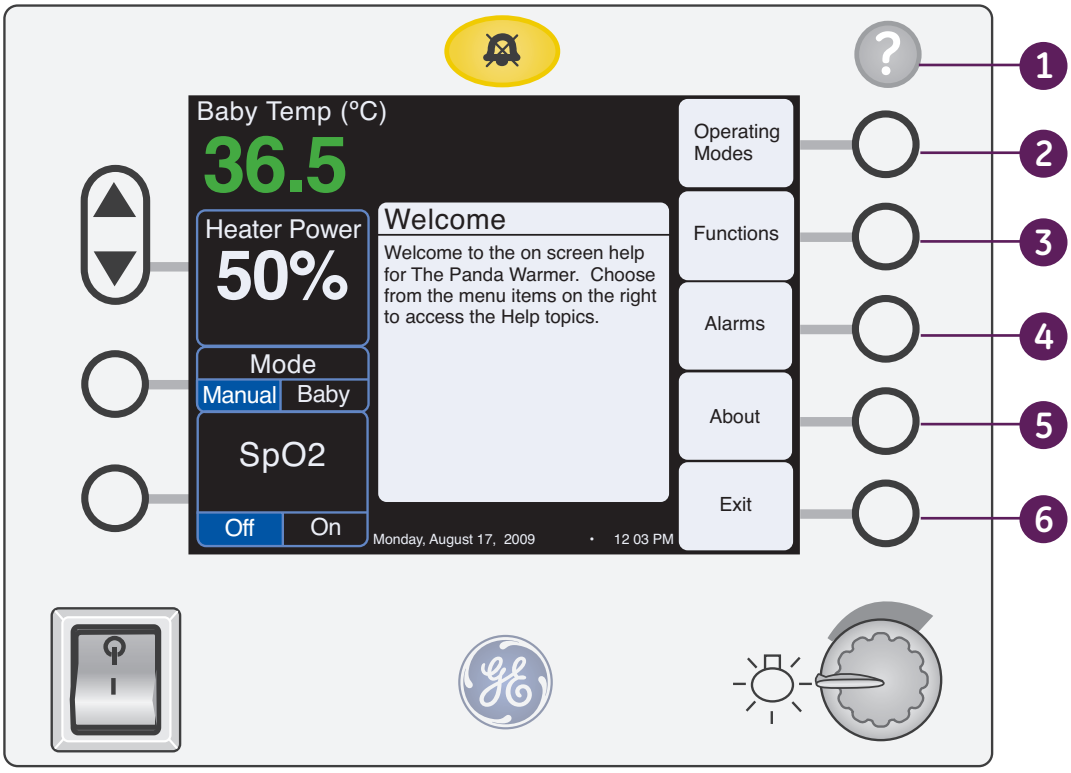



Figure **7.23** Help screen

1. **Help key:** Press this key to access the ***Help*** screen that provides information about alarms and functions.
2. **Operating Modes key:** Brings up information on warmer modes such as Baby mode, etc.
3. **Functions key:** Brings up information on warmer features such as APGAR, etc.
4. **Alarms key:** When an alarm sounds, pushing the ***Help*** key automatically displays information about that alarm.
5. **About key:** Shows the current software revision.
6. **Exit key:** Returns the Clinician to the ***Home*** screen.

# Alarms

There are two types of alarms:

1. **Low Priority Alarms:** Are indicated by a blinking red alarm light, a red message on the central alarm area of the display and an intermittent audio tone.
2. **High Priority Alarms:** Have the same blinking red alarm light and red alarm message. The difference is that the audio tone for high priority alarms is continuous.

## Silencing the Alarm

There are two methods for silencing alarms:

1. **Yellow alarm Key:** Located at the top of the control panel. When you silence an alarm, the text message gets smaller and moves to the top of the screen and the red alarm light goes from blinking to solid. When the alarms have been silenced, the audio tone is temporarily turned off, but the warmer remains in alarm status until the alarm condition clears. When the silence period expires, the audio tone will resume, but the silence period varies with the alarm (see the alarm priorities table on page 9.4).

   If there are multiple alarms, the text messages alternate every two seconds.

2. **Hands Free Alarm Silence:** As described earlier, this motion sensor is located in the alarm light panel. Silence the alarm by gently waving your hand approximately two to six inches in front of the sensor.

   Silencing an alarm with the Hands Free Alarm Silence works exactly the same as pressing the alarm silence button for all alarms. Using the Hands Free Alarm Silence will allow you to silence alarms without touching a panel surface.

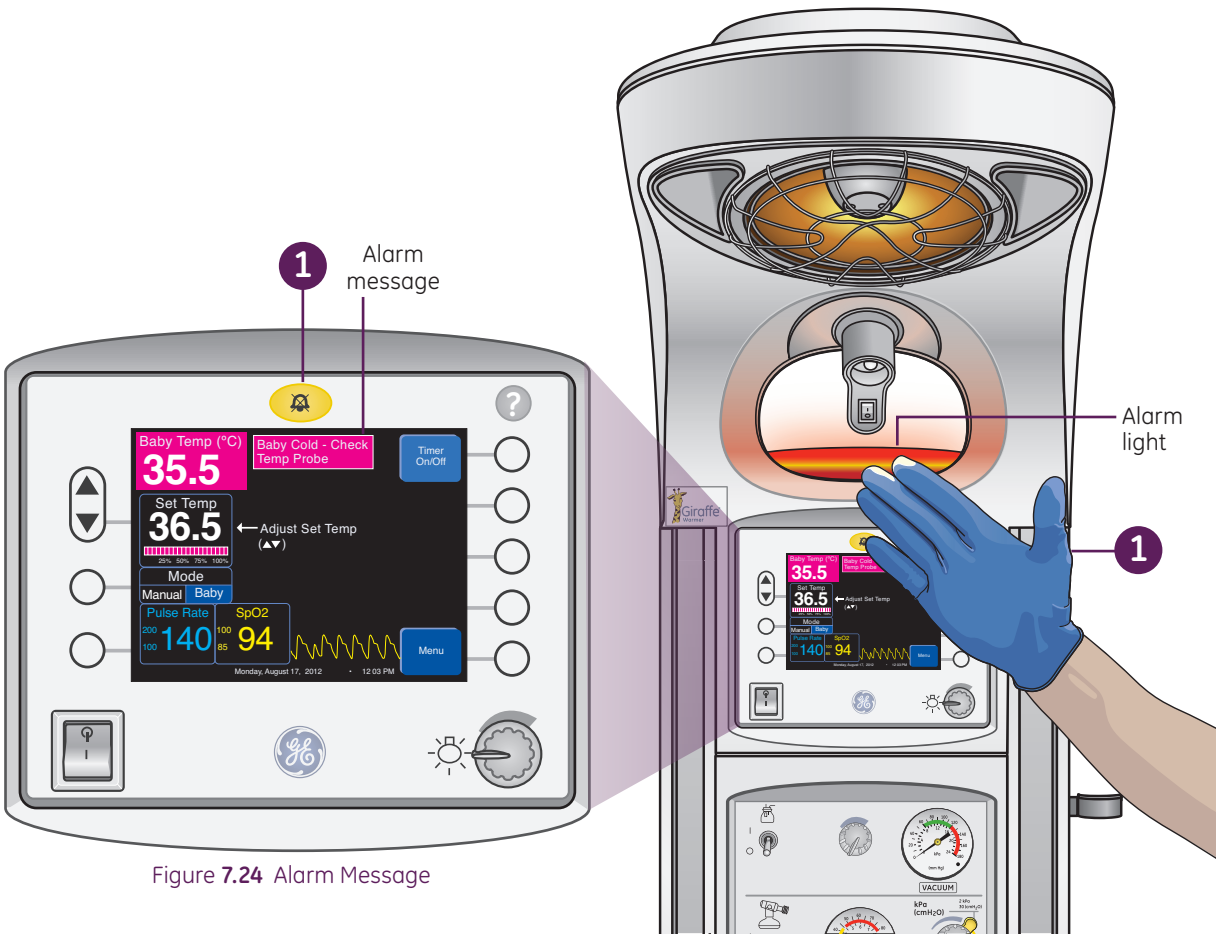



Figure **7.24** Alarm Message

## Temperature Regulation Alarms

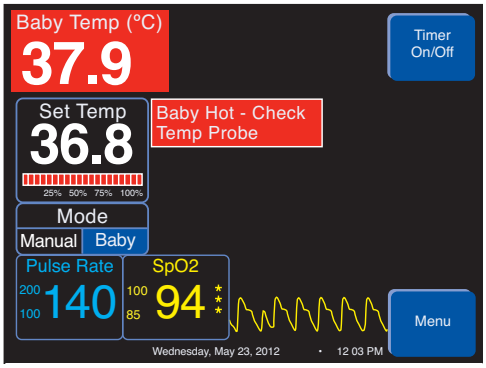



Figure **7.25** Baby Hot Alarm Message

**Baby Hot Check Temp Probe - Baby Mode:** Alarm activates when the patient's skin temperature is greater than 1.0° C above the Set Temperature. Silencing the alarm suspends the low priority audio alarm for twelve minutes. When the patient's temperature is greater than 2.0° C above the Set Temperature a high priority alarm activates. Silencing the alarm suspends the high priority audio alarm for five minutes.

The low priority alarm setting can be narrowed to 0.5° C by selecting the ***Setup*** key and then selecting the ***PT Temp Alarm*** key.

**Baby Hot Check Temp Probe-Manual Mode:** The alarm can be activated in the Manual Mode using the ***Setup*** and ***Man Temp Alarm*** keys.

**Action:** Monitor the baby carefully and check the attachment of the probe on the baby's skin.

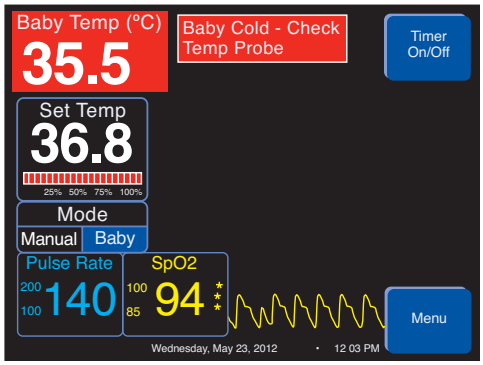



Figure **7.26** Baby Cold Alarm Message

**Baby Cold Check Temp Probe - Baby Mode:** Alarm activates when the patient's skin temperature is greater than 1.0° C below the Set Temperature. Silencing the alarm suspends the low priority audio alarm for twelve minutes. When the patient's temperature is greater than 2.0° C below the Set Temperature a high priority alarm activates. Silencing the alarm suspends the high priority alarm for five minutes.

The low priority alarm setting can be narrowed to 0.5° C by selecting the ***Setup*** key and then selecting the ***Pt Temp Alarm*** key.

**Baby Cold Check Temp Probe - Manual Mode:** Alarm activated in the manual mode by selecting the ***Setup*** key and then ***Man Temp alarm*** key.

**Action:** Monitor the patient carefully and check the attachment of the probe on the patient's skin.

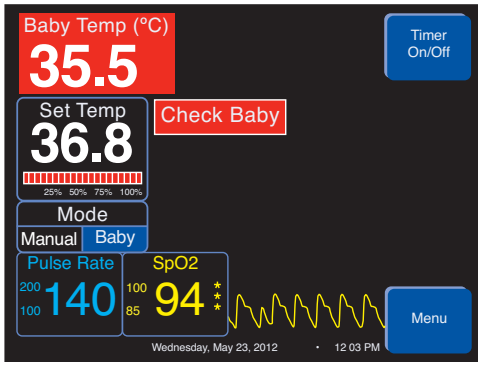



Figure **7.27** Check Baby Alarm Message

**Check Baby - Baby Mode:** The low priority ***Check Baby*** alarm activates, and an intermittent tone sounds after the radiant heater has been running at 100% power for more than twelve minutes.

**Check Baby - Manual Mode:** The low priority ***Check Baby*** alarm activates, and an intermittent tone sounds, after the warmer has been operating at greater than 25% heater power for more than twelve minutes

**Action:** Check the attachment of the Skin Temperature Probe to the patient and monitor the patient's temperature closely.

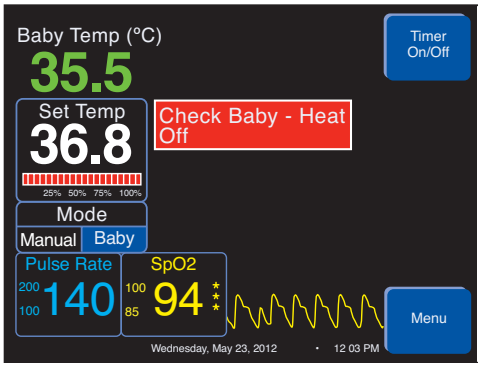



Figure **7.28** Heat Off Alarm Message

**Check Baby Heat Off - Baby Mode:** A continuous tone sounds after the radiant heater has been running at 100% power for more than fifteen minutes, and the ***Check Baby*** alarm has gone unanswered for three minutes. The radiant heater then shuts off automatically and the high priority ***Check Baby-heat Off*** alarm activates.

**Check Baby Heat Off - Manual Mode:** A continuous tone sounds after the warmer has been operating at greater than 25% heater power for more than fifteen minutes and the ***Check Baby*** alarm has gone unanswered for three minutes. The radiant heater then shuts off automatically and the high priority ***Check Baby-Heat Off*** alarm activates.

**Action:** Silence the alarm and check the attachment of the Skin Temperature Probe to the patient and monitor the patient's temperature closely.

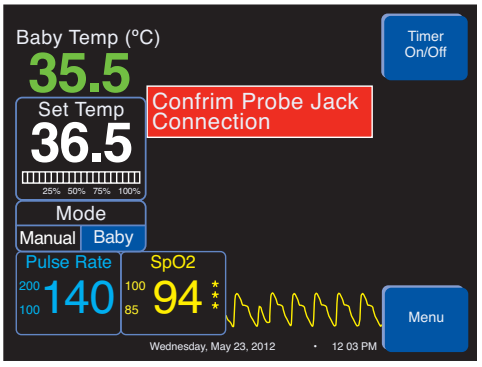



Figure **7.29**
Confirm Probe Jack Connection
Alarm Message

**Confirm Probe Jack Connection - Baby Mode:** Activates when the Skin Temperature Probe jack is unplugged.

**Confirm Probe Jack Connection - Manual Mode:** Activates when there is no probe in the jack in the Manual Mode, if the ***Man Temp Alarm*** has been set.

**Action:** Check that the Skin Temperature Probe is fully inserted into the Skin Temperature Probe jack. If this does not cancel the alarm, check if the ***Man Temp Alarm*** has been set. If the alarm is still not cancelled, then replace the temperature probe.

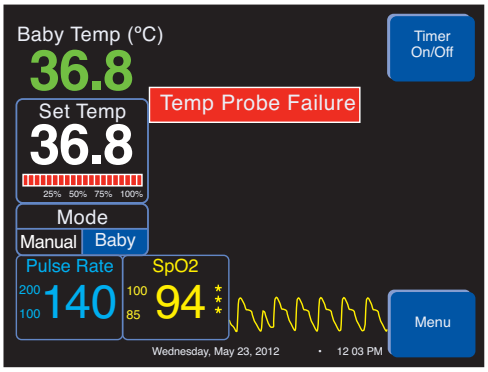



Figure **7.30** Temp Probe Failure Alarm Message

**Temp Probe Failure:** Activates when the difference in the two thermistors in the Skin Temperature Probe is greater than 0.5° C for over six minutes.

**Action:** Replace probe.

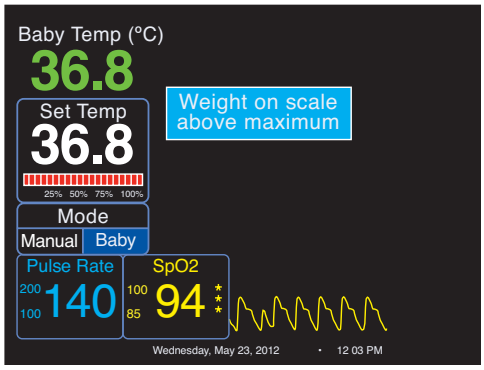



Figure **7.31** Maximum Weight Message

**Scale Notification - Weight on scale above maximum:** This indicates that the weight on the scale is above 8 kilograms (17.6 lbs)

**Action:** Check for other object on the scale.

## System Failure

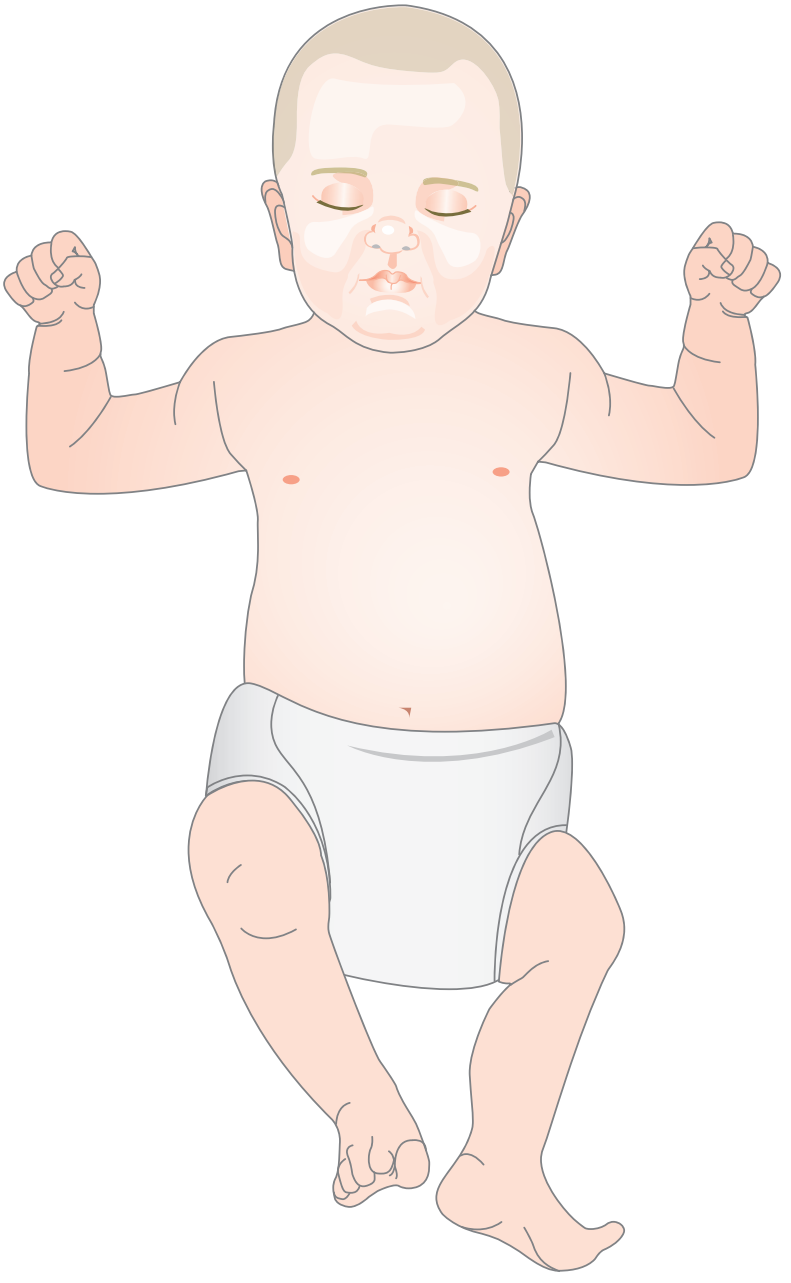
**⚠ WARNING!**

Do not use the warmer if the system failure alarm is activated. Remove the device from service and refer to authorized service personnel for repair.

If an electrical failure is detected, the system failure automatically shuts off the heater and triggers a two tone audio alarm that can not be silenced unless the warmer is turned off.

# Hands-on Activity

1. Demonstrate how to weigh a patient.
2. Obtain an admission or initial weight if bed has scale option.
3. Using the illustration below, place temperature probe in the correct position. See ***Recommended Steps*** Section for temp probe placement tips.



# 8 Admitting a New Patient

## Warmup Mode

**Note!** *Upon boot up, if the Giraffe warmer has been used within the past two hours you will first be prompted to* ***clear patient history*** *with* ***Yes*** *or* ***No*** *options. Selecting* ***Yes*** *will send the bed directly into Warming phase. Selecting* ***No*** *will save the last patient settings.*

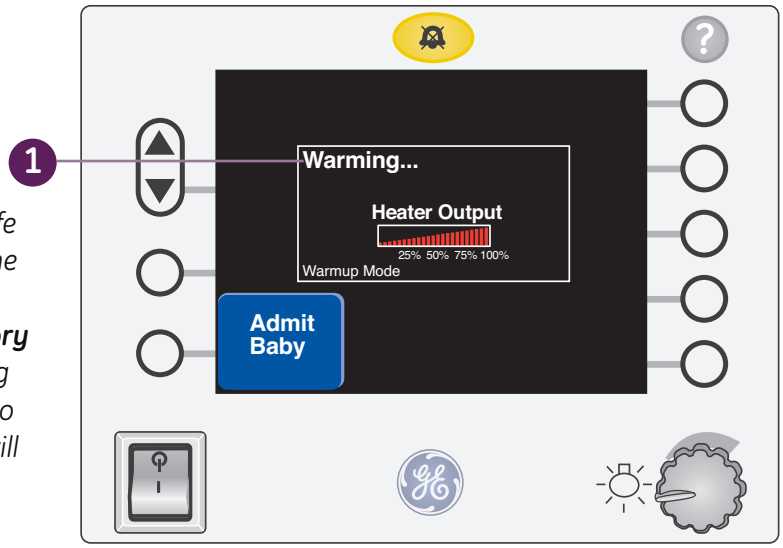



Figure **8.1** Warming Screen

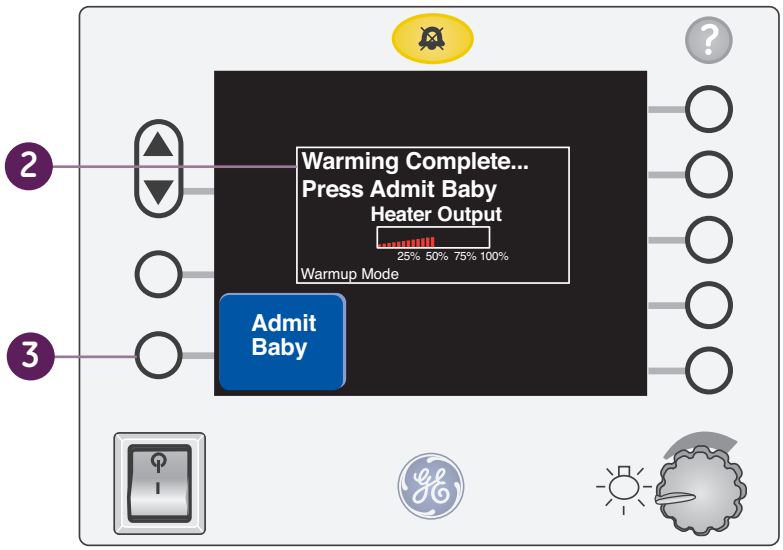



Figure **8.2** Warming Complete Screen

1. The Giraffe Warmer automatically starts in Warmup Mode. During Warmup Mode ***Check Baby*** alarms are deactivated.

   If you do not press the ***Admit Baby*** key during the first minutes after start up, the display will show ***Warming...*** and the radiant heater will automatically run at 100% power.

2. After seven minutes, the display indicates ***Warming Complete,*** and the default heater power setting drops to 50%.
3. The display continues to flash ***Admit Baby*** until you press the ***Admit Baby*** key and start normal operation.
4. Once the ***Admit Baby*** key is pressed, the bed is in normal operation and the alarms are activated.

**Note!** *Alarms are not activated until the* ***Admit Baby*** *soft key has been pressed.*

# Admitting a Baby

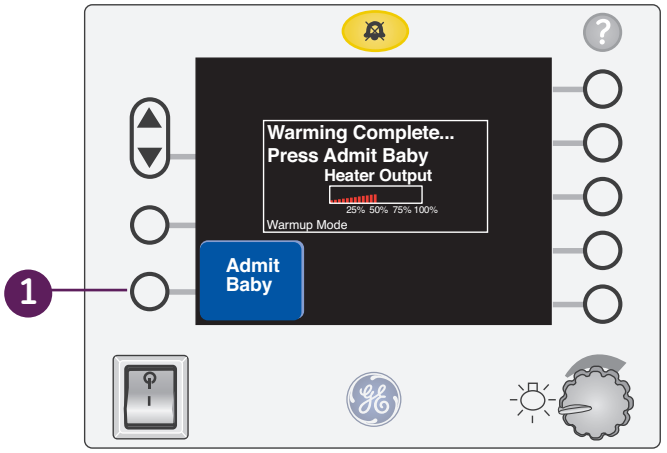



Figure **8.3** Admit Baby Key

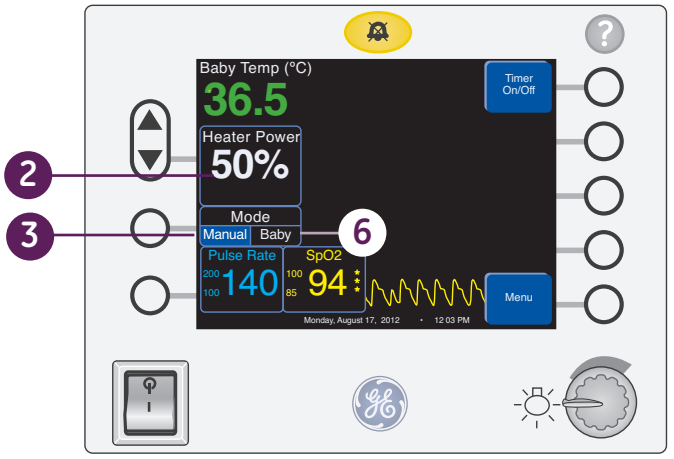



Figure **8.4** Home Screen

1. Press the ***Admit Baby*** key.
2. The screen will flash the default heater power setting (***50%***).
3. Confirm ***Manual Mode*** and select the desired heat output setting by pressing the up or down arrow.

**Note!** *A **Check Baby** alarm will occur after the warmer has been operating at greater than 25% heater power for more than twelve minutes.*

4. Place the skin temperature probe on the temperature probe patch cover, making sure that the wider profile is in surface contact with the adhesive and that a portion of the thermistor wire will also be covered by the probe patch cover.
5. Place the probe/probe patch assembly on selected location on the patient's body, considering the axilla as a possible site for probe placement.
6. If ***Baby Mode*** is desired, place probe on Patient first then plug into probe jack. The temperature readout will display on screen. Allow readout on display to stabilize. Prior to selection of ***Baby Mode*** check the patient independent axillary temperature for correlation with Skin Temperature Probe reading. Adjust heater power accordingly, based on patient's temperature before switching to ***Baby Mode***. See Recommended Steps Section for further explanation of this process. Select ***Baby Mode*** and set desired skin temperature by pressing up or down arrows (default setting display is ***36.5 C / 97.7 F***).

**Note!** *Refer to the Temperature Monitoring Guidance Card.*

# Hands-on Activity

Demonstrate how to admit a baby.

**Labor and Delivery:** Demonstrate set up and admission of patient from delivery.

**Newborn Nursery:** Demonstrate the setup and admission of a nursery admission.

**NICU:** Demonstrate the set up and admission of a critical newborn infant.

# 9 Resources

## Use of the Giraffe Warmer Recommended Steps

**Set-up:**

1. Make sure the bed is set-up with normal admission materials (linens, nest, blankets, BP cuff, and tape measure) ***EXCEPT the Giraffe Warmer skin temperature probe***. Leave the temperature probe on a bed shelf/drawer ready for access when it is time to actually attach to the patient. ***Rationale:*** If the temperature probe is warmed on the bed, it can actually reach temperatures up to 105 + ºF under radiant heat.
2. Turn bed on.
3. Allow bed to progress through ***Warmup Mode*** to ***Warmup Complete***.

   **Note!** *If patient arrives before warmup complete, it is okay to place the patient on the bed so long as you press* ***Admit Baby*** *soft key.*

4. Place patient on bed.
5. Press ***Admit Baby*** soft key. Use the arrow up and down keys to confirm or select a heater power setting.
6. Place the skin temperature probe on the temperature probe patch cover, making sure that the wider profile is in surface contact with the adhesive and that a portion of the thermistor wire will also be covered by the probe patch cover.
7. Place the probe/probe patch assembly on selected location on the patient's body, considering the axilla as a possible site for probe placement.
8. Don't immediately go to ***Baby Mode***, allow the temperature thermistor time to equilibrate with the warmer. Note: Confirm that you have complete contact once equilibration is achieved by lightly pressing on the probe/probe patch assembly. A deviation in temperature by more than a few tenths of a degree may suggest incomplete contact/lack of full equilibrium.
9. While still in ***Manual Mode***, check the patient's axillary temperature with an independent thermometer. Remember to take axillary temperature on the side closest to the probe location.

   **Note!** *Independent thermometer and skin thermistor should be < 0.5 ºC (1 º F) different when measurement taken at same site.*

10. Adjust heater power while still in ***Manual Mode*** as needed***. This is a critical step because the heater power becomes the initial trigger power for the Baby Mode algorithm:***

    ***a.*** If patient's temperature is normal, consider adjusting heater power to between 25 and 50%.

    ***b.*** If patient's temperature is low, consider increasing heater power to > 50% depending upon how low temperature measurement is.

    ***c.*** If patient's temperature is high, consider adjusting heater power to 0 to 25%, depending on how high temperature measurement is.

    **Note!** *When heater power is set 0 to 25% while in* ***Baby Mode****, the* ***Check Baby*** *alarm is disabled. Make sure you are in constant attendance at the patient's bedside while in Manual Mode.*

11. Select ***Baby Mode***.

12. In addition to using the independent temperature data from step 9 to adjust initial heater power, use the data again to adjust the initial ***Baby Set Temp***:
    - ***a.*** If patient's temperature is ***normal***, consider accepting Set Temp at 36.5 ºC (97.7 ºF).
    - ***b.*** If patient's temperature is ***low,*** consider setting the Set Temp within 0.5 ºC above initial reading and gradually increasing Set Temp to 37 ºC (98.6 º F).
    - ***c.*** If patient's temperature is ***high***, consider decreasing Set Temp to 36 ºC (96.8 ºF).
13. Special considerations/procedures: Always monitor patient's temperature during line placement or x-ray, however, the following need special attention:
    - ***a. Bathing:*** Consider bathing in ***Manual Mode*** only
        - **i.** Shift from ***Baby Mode*** to ***Manual Mode***.
        - **ii.** Consider increasing heater power slightly during bath.
        - **iii.** Remove probe from patient and bathe.
        - **iv.** Reattach probe to patient and allow time for probe to equilibrate.
        - **v.** Once probe has equilibrated, adjust heater power up or down as necessary.
        - **vi.** Return to ***Baby Mode***.
    - ***b. Parent visitation/Kangaroo Care (KC)***
        - **i.** If you would like to monitor the baby's temperature during KC, press ***Menu > Setup > Next > Man Temp Alarm*** soft keys in sequence. Remove from ***Off*** by selecting 0.5 or 1.0. This means you have set alarm compliance limit at either 0.5 ºC (0.9 ºF) or 1.0 ºC (1.8 ºF). If you select 1.0 ºC and you were using a ***Set Temp*** of 36.5 ºC (97.7 ºF) in ***Baby Mode***, this means that you will be notified when patient's skin temperature is 1.0 degree higher or lower than the 36.5 when in ***Manual Mode*** during holding.
            1. Now move the bed control from ***Baby Mode*** to ***Manual Mode***.
            2. Transfer patient to parent's arms.
            3. When holding complete:
                - **a.** Move patient back to bed.
                - **b.** Take patient's temperature by independent means.
                - **c.** Cancel ***Manual Temp alarm***.
            4. Return to ***Baby Mode***.
        - **ii.** If you do not want to monitor baby's temperature during KC,
            1. Transfer patient to parent's arms.
            2. Consider reducing heater power to 0 to 25% range until following message is visible near heater power bar: ***Check Baby Alarm Disabled***. This means you won't have nuisance alarms during holding.
            3. When holding complete:
                - **a.** Move patient back to bed.
                - **b.** Take patient's temperature by independent means.
                - **c.** Adjust heater power as necessary prior to moving from ***Manual*** to ***Baby Mode***.

# Temperature Monitoring Guidance Card

This two sided hanging card describing how to monitor temperature is attached to the back handle. Please refer to this card for Temperature guidance.

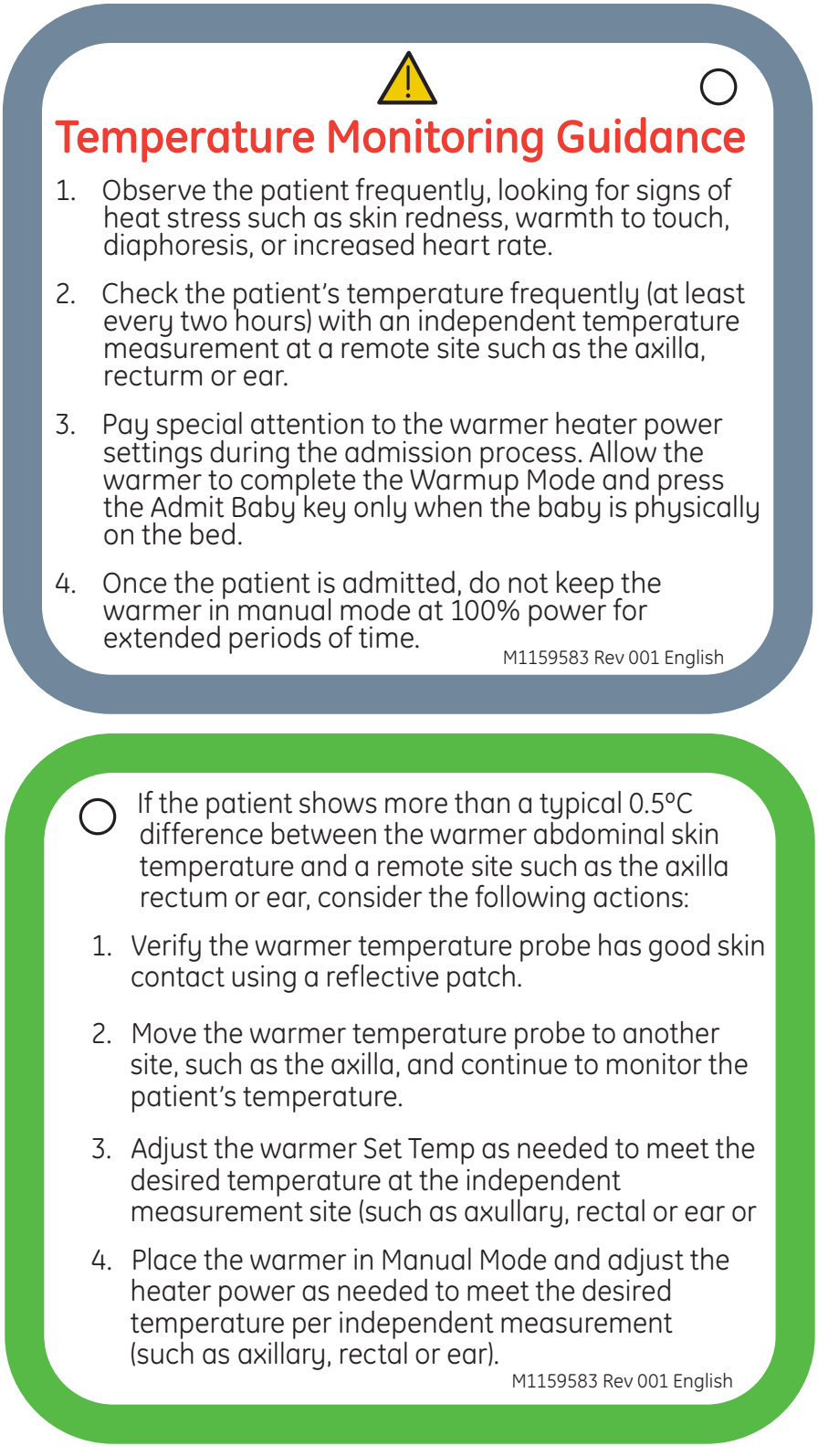



Figure **9.1** Temperature Monitoring Guidance Card

**Note!**
- *The Fahrenheit conversion for 0.5 ºC is 0.9 ºF.*
- *Baby Mode temperature alarm options are 0.5 ºC (0.9 ºF) or 1.0 ºC (1.8 ºF).*

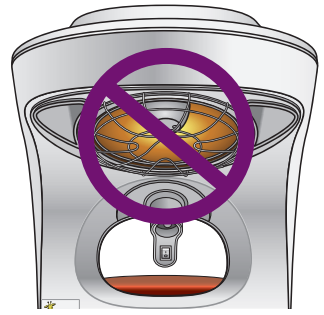
# Alarm Priorities

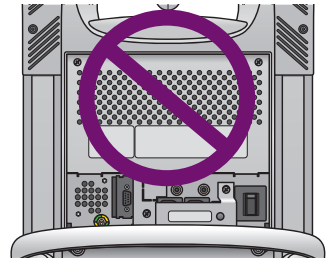
| Priority | Alarm Subject | Activation Criteria | Message Displayed | Silence Time | Sound: 1= High 2=Low 3= info. | Indication Light | Special Requirements |
|---|---|---|---|---|---|---|---|
| **1** | $SpO_2$ lost communications | $SpO_2$ board has not communicated with the main processor for at least 2 seconds | Oximetry System Failure | See notes | 1 | Primary | |
| **2** | Pulse rate | PR < 100 (floats with user adjustable limits | Low Pulse Rate | 3 min. | 1 | Primary | |
| **3** | Oxygen saturation | $SpO_2$ <85 (floats with user adjustable limits) | Low SpO2 | 3 min. | 1 | Primary | |
| **4** | Check baby | Radiant % power @ 100% for >15 min and alarm not silenced | Check Baby - Heat Off | 15 min | 1 | Primary | Operational in Baby mode |
| **5** | Check baby | Radiant heater % above "Check Baby Alarm Disabled" limit for >15 min and alarm not silenced | Check Baby - Heat Off | 15 min | 1 | Primary | Operational in Baby mode |
| **6** | Baby temperature | >2.0° from Control Temp | Baby Hot- Check Temp Probe | 5 min | 1 | Primary | Operational in Baby mode |
| **7** | Baby temperature | <2.0° from Control Temp | Baby Cold Check Temp Probe | 5 min | 1 | Primary | Operational in Baby mode |
| **8** | Check baby | Radiant % power @ 100% for > 12 min | Check Baby | 12 min | 2 | | Operational in Baby mode |
| **9** | Check baby | Radiant Heater % above "Check Baby Alarm Disabled" limit for > 12 min | Check Baby | 12 min | 2 | | Operational in Baby mode |
| **10** | Temperature probe failure | Two Thermistors in a probed differ by 0.5° C or more. | Temp. Probe Failure | 2 min | 2 to 1 (after 30 secs. | | Operational in Baby mode or Manual Mode when Manual Temperature alarm set |
| **11** | Disconnected temperature probe | No longer getting a reading from the temperature probe | Confirm Probe Jack Connection | 2 min | 2 to 1 (after 30 secs. | Primary | Operational in Baby mode or Manual Mode when Manual Temperature alarm set |
| **12** | Baby temperature | > 1.0°C (>0.5°C) from control temp | Baby Hot - Check Temp Probe | 12 min | 2 | Primary | Operational in Baby mode |
| **13** | Baby temperature | < 1.0°C (<0.5°C) from control temp | Baby Cold - Check Temp Probe | 12 min | 2 | Primary | Operational in Baby mode |
| **14** | No $SpO_2$ probe connected | Masimo board indicates no board connected | No $SpO_2$ Board | 3 min | 2 to 1 (after 30 secs. | Primary | Only available if $SpO_2$ is running |

| Priority | Alarm Subject | Activation Criteria | Message Displayed | Silence Time | Sound: 1= High 2=Low 3= info. | Indication Light | Special Requirements |
|---|---|---|---|---|---|---|---|
| **15** | Defective $SpO_2$ probe | Masimo board indicates defective probe | Check $SpO_2$ | 3 min | 2 to 1 (after 30 secs. | Primary | Only available if $SpO_2$ is running |
| **16** | $SpO_2$ interference detected | Masimo board indicates interference detected | Check $SpO_2$ | 3 min | 2 to 1 (after 30 secs. | Primary | Only available if $SpO_2$ is running |
| **17** | $SpO_2$ probe off baby | Probe off baby is indicated from the Masimo board | SpO2 Probe Off Baby | 3 min | 2 to 1 (after 30 secs. | Primary | Only available if $SpO_2$ is running |
| **18** | Too much ambient light | Masimo board indicates too much ambient light | Check $SpO_2$ | 3 min | 2 to 1 (after 30 secs. | Primary | Only available if $SpO_2$ is running |
| **19** | Unrecognized $SpO_2$ probe | Unrecognized probe indicated from Masimo board | Unrecognized SpO2 Probe | 3 min | 2 to 1 (after 10 secs) | Primary | Only available if $SpO_2$ is running |
| **20** | Pulse rate | PR >200 (floats with user adjustable limits) | High Pulse Rate | 3 min | 1 | Primary | |
| **21** | Oxygen saturation | SpO2 >100 (floats with user adjustable limits) | High $SpO_2$ | 3 min | 1 | Primary | |
| **22** | Callback timer complete | Current callback timer has reached target time | Callback Timer Complete | see notes | 2 | Primary | |
| **$SpO_2$ Alerts** | | | | | | | |
| **1** | Low perfusion | Masimo board indicates low perfusion | Low Perfusion | No silence | No audio | none | Only active during alert condition |
| **2** | Low signal IQ | Masimo board indicates low signal IQ | Low Signal IQ | No silence alert | No audio | none | Only active during alert condition |

# Cleaning the Warmer

## ⚠ WARNING!





- Do not clean the radiant heating element inside the protective grid.
- Disconnect the power cord before cleaning the warmer.
- Electronic devices in the microprocessor controller are susceptible to damage from discharges of static electricity. These devices are adequately protected, but can be damaged if the unit is disassembled beyond that recommended for cleaning and maintenance.
- The heater, lamps and surrounding areas are hot.
- Do not spray cleaning solution into the vents on the back of the heater housing; this can damage electronics inside the unit.

Figure **9.2**
Do not clean these components

### Cleaning Instructions

After each patient use, follow your hospital's infection control procedures for surface disinfection.

Wipe down the surfaces of the warmer with a soft cloth dampened with a disinfectant detergent solution. Always follow the cleaning solutions manufacturer's direction for use. Wipe all surfaces with a soft cloth to remove any residue.

**To Clean the Warmer:**

1. Lower or raise the base depending on the desired bed height to ergonomically comfortable cleaning position.
2. Turn bed off at standby power switch.
3. Unplug from the power outlet.
4. Move the bed to cleaning room/area.
5. If the bed was previously on, allow it to cool for at least 30 minutes.
6. Obtain approved cleaning/disinfectant solution.
7. Remove all ancillary equipment (e.g. patient temperature probe, shelves, etc.).
8. Empty drawer module.
9. Remove all 4 bedside panels.
10. Unplug scale if installed.
11. Remove the clear mattress and plexiglass plate from the bed.
12. Remove the scale.
13. Remove the x-ray tray.

14. Wipe down component parts of the bed and chassis base with recommended cleaning solution per hospital infection control policy. Rinse and allow to dry.
15. Lift the translating mattress deck and separate the Baby Susan from the deck.
16. Reinstall chemically disinfected components parts in reverse order from breakdown steps.
17. Chemically disinfect and allow control panels to dry.
18. Chemically disinfect and allow Mounting Rails to dry.
19. Chemically disinfect and allow drawer module to dry.
20. Chemically disinfect elevating base and legs.
21. Re-plug scale into probe jack panel, if not already done. Be sure the red dot on the probe aligns with the mark on the sheath.
22. Reattach all clean ancillary equipment (eg. patient temperature probe, shelves, etc.).
23. Plug bed into power outlet.
24. Turn bed on at standby power switch.
25. Prepare bed for next admission.

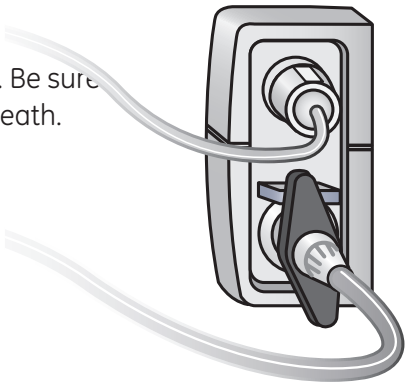


Figure **9.3** Correct probe alignment



## Cleaning Solutions

**Cleaners that may be used safely:**

| Generic Formulation | Maximum Concentration |
|---|---|
| Sodium Hypochlorite (bleach) | 0.5% Aqueous Solution |
| Glutaraldeyde | 2% |
| Hydrogen Peroxide | 6% |
| Iodophor Solution | 0.27% |

***Do not*** use the following cleaners; they will damage the parts you are cleaning and are not recommended:

- Isopropyl Alcohol (in concentrations greater than 15%
- Quaternary Ammonium (such as Virex)
- Solvents (such as acetone)

# Giraffe Warmer Reusable Skin Temperature Probe Cleaning Guidelines

**Please adhere to these recommended guidelines when cleaning the Giraffe Warmer reusable temperature probes**

The O&M Manuals for Giraffe Warmer beds indicate the following for **Cleaning and Disinfecting Individual Components** such as the Patient Reusable Probe:

### Cautions:

- Avoid placing excessive strain on the probe lead. When cleaning, be careful not to pull on or bend the lead at the probe tip. Always remove the probe from the incubator by grasping the plug at the panel. Do not pull on the probe lead.
- Do not apply cold sterilization or cleaning solutions to the probe connector.
- Do not autoclave or gas sterilize the skin temperature probe.
- Do not immerse the probe in liquid cleaner.

Determine if the patient probe is disposable or reusable:

- Reusable probes use a separate, heat reflecting patch, are gray and have a round metal disk at the patient end.
- Disposable probes come with a smaller heat reflecting patch already attached, are white and have no metal disk at the patient end.

**Note!** *Disposable skin temperature probes cannot be cleaned.*

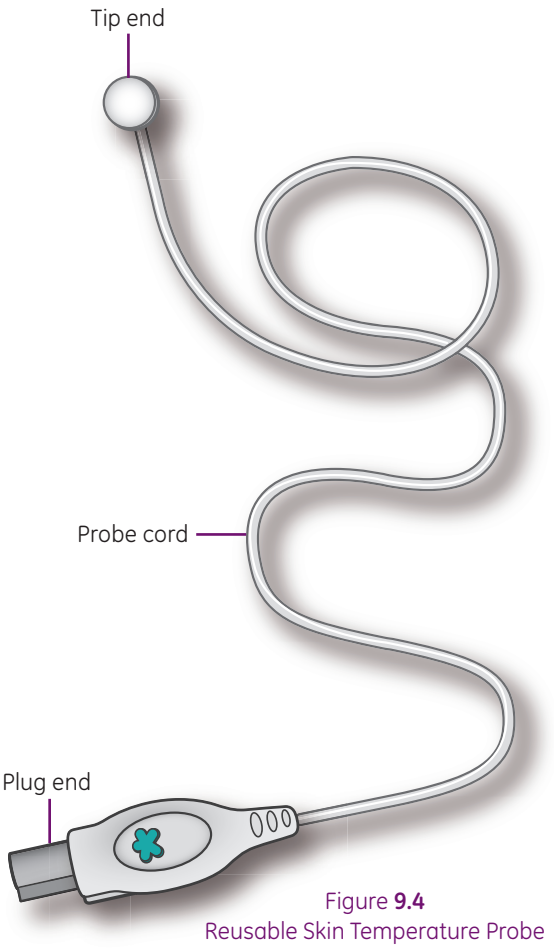



Figure **9.4**
Reusable Skin Temperature Probe

## Reusable Skin Temperature Probe Cleaning Solutions

The following lists some cleaning solutions that may be used safely on the reusable probe:

- Generic Formulation Maximum Concentration Level Sodium Hypochlorite (bleach) 0.5% Aqueous Solution
- Glutaraldehyde 2%
- Hydrogen Peroxide 6%
- Iodophor Solution 0.27%
- CaviCide® 100% spray

### Cautions:

Use of cleaning/disinfecting solutions containing chemicals not listed above (i.e. alcohol, acetone, etc.), or chemicals in greater concentrations than those listed above, may damage the probe.

## Cleaning the Reusable Skin Temperature Probe

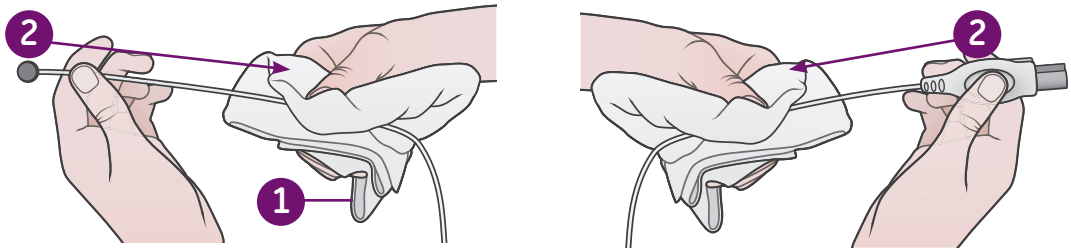



Figure **9.5** **Correct** Cleaning Skin Temperature Probe Method

1. Use a soft, damp cloth containing disinfecting agent safe for use on probe materials.
2. Start the cleaning procedure at each end of the probe (plug or tip) and clean the probe by moving the cloth toward the middle of the probe cord.
3. Always be sure to wipe dry all cleaning agents after cleaning.

**Important!** ***Do not*** start at the middle of the cord and move the cloth toward the plug or tip end of the probe, see photos below. This method of cleaning may stress the connection between the cord and the tip/plug due to an abrupt stop when reaching the tip/plug.

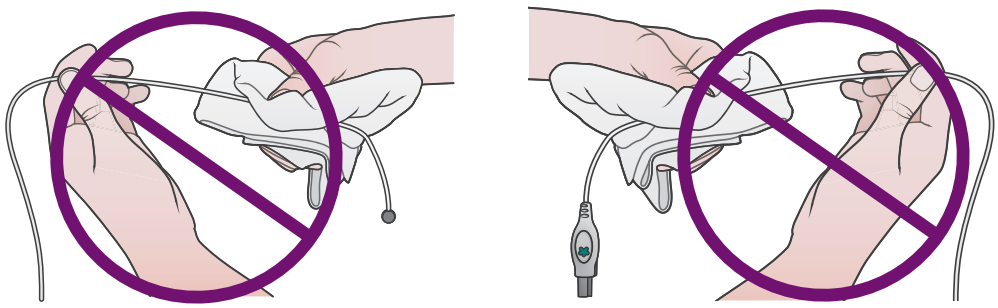


Figure **9.6** **Incorrect** Skin Temperature Probe Cleaning Method

## Storing the Reusable Skin Temperature Probe

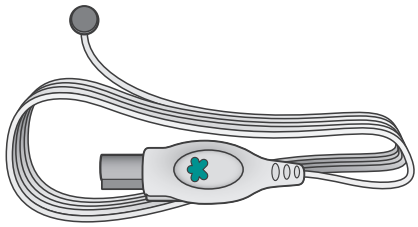


Figure **9.7** **Correct** Skin Temperature Probe Storage

Store the probe in a loose, unstressed condition.

**Important!** ***Do not*** tightly wind the probe cord; this may result in considerable stress in the probe components.

***Do not*** sharply bend the cord at either the tip end or the plug end as this could result in a broken electrical connection or an intermittent electrical connection.

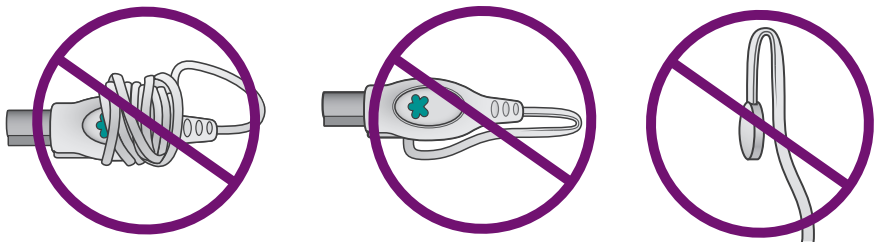


Figure **9.8** **Incorrect** Skin Temperature Probe Storage

# Warmer Maintenance Schedule

The unit should be maintained in accordance with the preventative maintenance procedures detailed in the Service Manual. Service maintenance must be performed by a authorized service personnel. The checkout must be performed after installing the Giraffe Warmer.

| Operator Maintenance | |
|---|---|
| **After Each Patient Use** | • Clean the resuscitation system and disinfect as required<br>• Clean re-usable suction canister or replace single use canister<br>• Replace suction tubing between canister and the patient<br>• Clean the warmer between each patient, or more frequently as required<br>• Inspect suction tubing that is routed through the Mounting Rail. Replace the tubing as described in the cleaning instruction in the resuscitation system operator manual as required |

This schedule lists the minimum frequencies. Always follow hospital and local regulations for required frequencies.

| Service Maintenance | |
|---|---|
| **Annually** | • Perform the electrical safety checks as described in the service manual<br>• Calibrate the scale as described in the service manual<br>• Perform the resuscitation system service checkout as described in the Resuscitation Systems service manual |
| **Every Two Years** | • Replace the lithium-ion battery as described in the service manual<br>**Note!** *The lithium-ion battery is used to sound the power failure alarm and to power memory circuits during a power failure.*<br>• Perform the complete blender maintenance as described in the Resuscitation Systems Service Manual |

This schedule lists the minimum frequencies. Always follow hospital and local regulations for required frequencies.

# Troubleshooting Guide

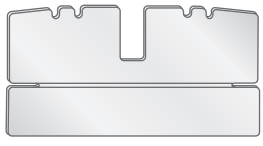
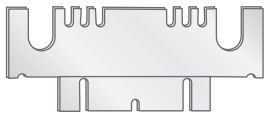
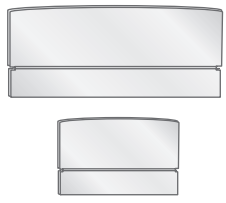
| Problem | Solution |
|---|---|
| **Skin Temperature Probe** | |
| How do I know the probe has good skin contact? | **Disposable Probe:** Probe tip is positioned with a wide flat side in full contact with intact skin. Reflective probe cover completely covers probe tip and secures probe flat against skin surface.<br><br>**Reusable Probe:** Silver disc side is positioned in full contact with intact skin. Reflective probe cover completely covers white probe surface and secures probe flat against skin surface. |
| Is the Skin Temperature Probe reading accurately? | Assure temperature probe skin contact. Check an independent auxiliary value prior to selection of Baby mode. Refer to Temperature Monitoring Guidance Card. This information is in the resource section of this manual, and the card should be attached to rear handle of the bed. Understand manufacturer use of the independent thermometer and mode(s) of operation. |
| Is there an alarm option to monitor skin temperature using the probe when the bed is in Manual Mode? If so, when would this be used? | **Yes:** there is a manual temperature alarm option available.<br>It does require that a skin temperature probe is attached to the patient at all times and plugged into the probe jack panel. To use this alarm feature:<br>**1.** Press the ***Menu*** soft key.<br>**2.** Select the ***Set up*** soft key.<br>**3.** Select the ***Man. Temp Alarm*** key.<br>**4.** Choose from three settings in ***manual*** mode.<br>• Off<br>• 0.5 ºC<br>• 1.0 ºC<br><br>This alarm feature is for use when the bed is in ***manual mode*** only, and low or high priority alarms trigger from the current Baby mode selected set temperature.<br><br>Use this feature to monitor the patient skin temperature from the temperature probe when the bed is placed in a manual mode. Such as, skin to skin or family holding patient off bed, while sitting next to bed. Refer also to ***Giraffe Warmer Recommended Steps*** in resource section of this manual. |
| **Scale** | |
| The scale option is missing from the soft key selection. How can I use the scale? | **1.** Check to make sure that the scale is sitting in the bed.<br>**2.** Find the scale cable with connector.<br>**3.** Identify the red dot on the scale connector and assure that this faces up towards the ceiling.<br>**4.** Lift the cap over the scale jack and push scale connector tightly into the jack site. As the connector comes into contact, the scale option should become visible under the menu selection as the second option underneath the Callback timer soft key.<br>**5.** The scale is now ready for use. |

| Problem | Solution |
|---|---|
| What is important about consistency in weighing infants? | **Prior to weighing an infant:**<br>**1.** Check to make sure that linens are not bulky and lifting mattress out of scale. Un-tuck linens if bulky and roll onto or place on top of the mattress during weighing.<br>**2.** Assure that linens do not hang over, or push up against the edges of the side panels. Again roll them onto the bed mattress surface prior to weighing.<br>**3.** Use the bubble levels on the two side panels to identify that the bed surface is level prior to weighing.<br>**4.** Make sure the tubes, cables or lines attached to the patient are either suspended above the mattress or held during the weighing process to keep them from adding to the infant weight. The tubing management arm if available is a good way to suspend tubes, cables and lines off the bed.<br>**5.** Pull up the stored weight list prior to weighing to see most current weights stored in bed.<br>**6.** Place any items such as extra blanket rolls, developmental aides, stethoscope or anything that may be hanging over the scale platform onto the bed surface prior to weighing.<br>**7.** Press ***Weigh*** and follow steps as prompted on screen.<br>**8.** Use ***Reweigh*** option when available to double check weight right after weighing. Do not push Reweigh if you have adjusted anything or removed any item from the bed surface after obtaining the weight. Reweigh is based on the zero obtained when the patient was first lifted off the bed during the weighing sequence. |
| **X-Rays** | |
| How do I know if the baby is in the center of the bed? | **1.** On the outer side edges of the Baby Susan are visible notches. These notches line up with the x-ray cassette tray.<br>**2.** Center patient using these notches to identify desired anatomical film view. If patient is too far up in bed, the x-ray camera will bump into the heater, and the patient will not be visible within the x-ray cassette opening.<br>**3.** Move patient into center as needed again using the notches as a line up. Lift as needed the corners of the mattress to see where the x-ray film is positioned beneath the mattress in the tray as a final check prior to obtaining the film. |

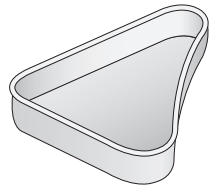
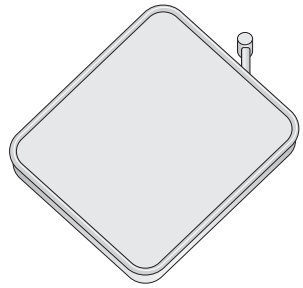
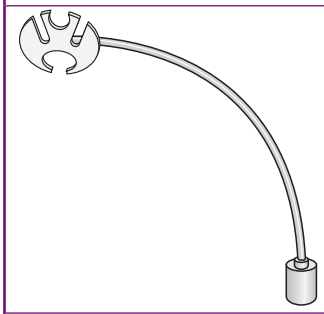
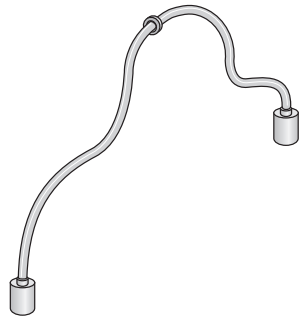
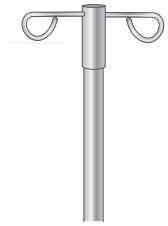
| Problem | Solution |
|---|---|
| **Resuscitation** | |
| **Suction:** There isn't vacuum pressure when the switch is turned on. | **Troubleshoot the system:**<br>**1.** Is there a wall or tank medical gas source of oxygen available and turned on?<br>**2.** Assure that the pressure tubing is connected on the base of the resuscitation box at the connector port for suction. Also double check that this tubing is attached tightly to the canister top.<br>**3.** Make sure the suction canister lid is tightly attached to the canister, and that all auxiliary caps or ports are closed.<br>**4.** Assure that the patient connector tubing is attached to the canister.<br>**5.** Adjust pressure using the control knob next to the pressure gauge on the resuscitation unit.<br>**6.** Turn off the switch and turn back on if needed once adjustments are made.<br>**7.** If no flow continues refer to operation manual for resuscitation, and or consult authorized service personnel for additional support and service. |
| **Oxygen and Air:** There isn't flow coming out of the flowmeters, and the toggle switch is turned on. | **Troubleshoot the system:**<br>**1.** Are the hose(s) on the back of the unit plugged into a working wall medical gas source(s)?<br>**2.** If using air and oxygen tanks on bed, assure they are mounted without an audible air leak, turned on and identify the available medical gas pressure using the gauges located on the front base of the resuscitation unit. If using Grab and Go tanks, these should be attached by a DISS connector port from tank to the back of the bed with no audible air leak. Refer to the gauge on the tank for available pressure in this type of tank. Gauges on resuscitation unit will not register with these tanks.<br>**3.** Turn on flow to desired range using flowmeters on front of the resuscitation unit.<br>**4.** Assure that oxygen tubing or T-Piece circuit is correctly attached to the flowmeter of choice.<br>**5.** If you do hear a leak from tanks mounted into the resuscitation unit, turn off the air and oxygen as well as suction on the resuscitation unit. Bleed the medical gases from the unit and re-seat the tanks assuring that there is a seal in place at the connector site on the back of the unit. Consult with respiratory therapy for any questions with this process. |

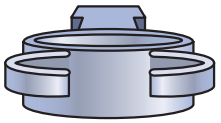
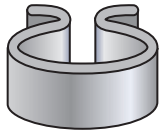
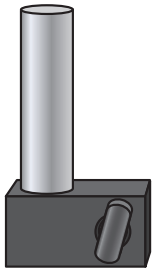
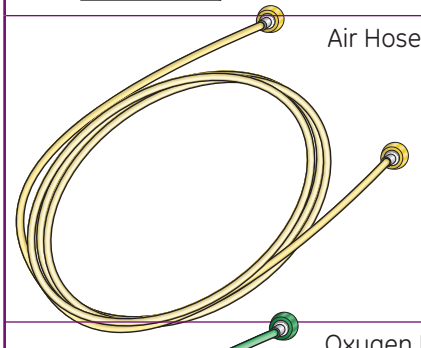
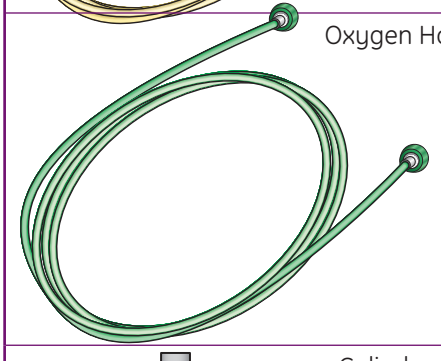
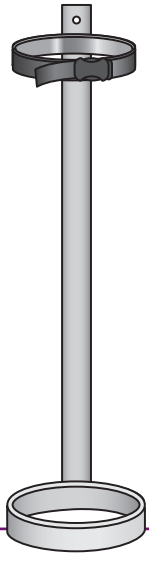
For GE Healthcare Clinical or Technical Support 24/7: Call **1-800-345-2700.**
Listen for and select prompt to receive either clinical support or technical support.

# Options

| Part | Quantity/Size | Part Number |
|---|---|---|
| Disposable patient probe | (box of 10) | 6600-0873-700 |
| Disposable patient probe | (box of 50) | 6600-0874-700 |
| Reusable patient probe | N/A | 6600-0875-770 |
| Heat reflecting patch | (box of 50) | 0203-1980-300 |
| T-piece, disposable | (10 pack) | M1091335 |
| T-piece, disposable with mask size 0 | (10 pack) | M1091316 |
| T-piece, disposable with mask size 1 | (10 pack) | M1091365 |
| Suction canister-800 cc | (box of 100) | M1154789 |
| Care Masimo® LNOP SpO2 cable, | 4 ft (1.2 m) | 2017002-002 |
| Care Masimo LNOP SpO2 cable, | 8 ft (2.4 m) | 2017002-003 |
| Care Masimo LNOP SpO2 cable, | 12 ft (3.6 m) | 2017002-001 |
| Masimo SpO2-sensor LNOP-Neo-L Type Adh | (box of 20) | 2017089-001 |
| Masimo SpO2-sensor LNOP-NeoPT-L Type | (box of 20) | 2017090-001 |
| Masimo SpO2-sensor Multisite LNOP/Yi-resuable | | 2010463-001 |
| Masimo LNCS-10 GE cable, | 10 ft (3 m) | 2027263-002 |
| Masimo LNCS neonatal adhesive sensor | box of 20) | 2051069-001 |
| Masimo LNCS neonatal PT adhesive sensor | (box of 20) | 2051070-001 |
| Masimo LNCS infant adhesive sensor | (box of 20) | 2051068-001 |
| Masimo LNCS infant adhesive tape | (box of 100) | 2051071-001 |
| Masimo LNCS neonatal adhesive tape | (box of 100) | 2051073-001 |
| Masimo LNCS neonatal PT adhesive tape | (box of 100) | 2051074-001 |
|  Tubing management Wall | South wall | M1092337 |
|  Tubing management Wall | North Wall | 6600-2146-500 |
|  HFOV side walls | (2) east/west | M1092332 |
|  Higher side wall kit | (2) east/west and (1) south | M1179223 |

*continued on next page*

| Part | Quantity/Size | Part Number |
|---|---|---|
|  Corner Tray | South/east and North/west<br><br>South/west North/east | SE & NW 6600-1793-500<br><br>SW & NE 6600-1794-500 |
| Rear Shelf  | Not applicable | M1150618 |
|  Swivel Shelf | 12" x 12" | 90° - 6600-0865-700<br>360° - 6600-0513-801 |
|  Tubing Management Arm | Not applicable | 6600-0837-800 |
|  Silo support | Not applicable | 6600-0824-800 |
|  IV Pole<br>IV Pole Dual Hook<br>IV Pole Rotating and Adjustable | 12"<br>24" | 0217-5378-800<br>6600-0491-801<br>6600-0851-800 |
| Pressure Diffusing Mattress | Not applicable | 6600-0689-800 |
| Pressure Diffusing Mattress Cover Sheet | Not applicable | 6600-0688-800 |

| Part | Quantity/Size | Part Number |
|---|---|---|
|  Resuscitation bag and mask holder | One | 6600-2150-500 |
|  Retaining clips | Pack of 6 | 6600-0055-851 |
|  Utility Post | 3.5 in x 1 in) | 0217-5374-800 |
|  Air Hose | Air DSF HIT 5 FT | 6700-0458-801 |
|  Oxygen Hose | O2 DSF HIT 5 FT | 6700-0458-802 |
|  eCylinder easy load Holder | One part | 6600-0836-800 |

# **Appendix** Giraffe Warmer Skills Overview

Clinician's Name: _____ Date: _____

Clinician's Functional Role: _____

Hospital/Facility: _____

City: _____ State: _____

Trainer: _____

Place a check in the Discussed and Demonstrated columns if you have performed these tasks, and add any comments if necessary.

| Subject | Discussed | Demonstrated | Comments |
|---|---|---|---|
| **Hardware** | | | |
| **Power**<br>Mains power<br>Auxiliary power/front panel ***ON/OFF*** | | | |
| **Thermoregulation**<br>Recessed heater head<br>Hour glass heat profile<br>Discuss Temperature Monitoring<br>Guidance (Card attached to Warmer) | | | |
| **Control Panel**<br>Soft keys (left)—thermal/mode/$SpO_2$<br>Soft keys (right)—operational tasks<br>Soft key ?—Help | | | |
| **Safety/Ancillary Hardware**<br>Alarm control mechanisms<br>Hands free<br>Alarm silence soft key<br>Side panels (remove/replace)<br>Wheel brakes<br>Tilt Mechanism<br>Transport handle/cord wrap<br>Elevating base pedals<br>Mounting Rails/equipment mounts<br>X-ray tray<br>Drawer package<br>Operators Manual/Inservice CD | | | |

***continued on next page***

| Subject | Discussed | Demonstrated | Comments |
|---|---|---|---|
| **Home Screen** | | | |
| **Help ?** | | | |
| **Timer** | | | |
| **Procedures/Operating Modes** | | | |
| Warmup mode | | | |
| Manual mode | | | |
| Baby mode | | | |
| **Scale (optional)** | | | |
| **Trends** | | | |
| **Alarm parameters and messages** | | | |
| **$SpO_2$ (optional)** | | | |
| Set-up | | | |
| Probe jack insertion | | | |
| Oxygen saturation display | | | |
| Heart rate display | | | |
| Pulse tones | | | |
| Alarm parameters and messages | | | |
| **Other** | | | |
| Time | | | |
| Date | | | |
| Processor arrow | | | |
| **Demonstrate** | | | |
| Pre-use checkout | | | |
| Warmup/preheat | | | |
| Admission | | | |
| Timer use | | | |
| Elapsed | | | |
| Callback (set-up and use) | | | |
| Scale (obtain weights, use of trend) | | | |
| SpO2 use (optional) | | | |
| Trends | | | |
| Options: Temperatures, Heater | | | |
| Power, optional $SpO_2$ / HR | | | |
| Time Scale (2hr, 8hr, 24hr) | | | |
| Translation Deck | | | |
| Baby Susan | | | |

| Subject | Discussed | Demonstrated | Comments |
|---|---|---|---|
| Options and Ancillary features, all applicable to configuration such as:<br>12 x 12 shelves<br>Chest tube hanger<br>Tubing Management Arm<br>Corner Tray(s)<br>Silo Support Arm<br>HFOV Side Panel | | | |
| **Infection Control**<br>Recommended cleaning agents<br>Cleaning Instructions<br>Cleaning frequency | | | |
| **Resuscitation Module (as applicable)**<br>Connect medical gas source(s) to bed (wall or<br>tanks per configuration)<br>Confirm presence of clean suction canister<br>Verify suction functional to desired level<br>Attach suction catheter<br>Attach free flow oxygen tubing<br>Attach appropriate airway circuit (Tpiece, self-inflating bag, or flow inflating bag)<br>Set PIP/PEEP according to guidelines<br>Adjust system $FiO_2$ | | | |
| **Comments:** | | | |

Notice: The materials contained in this document are intended for educational purposes only. This document does not establish specifications, operating procedures or maintenance methods for any of the devices referenced. Always refer to the original Operator User Manual and Service Manuals provided with the device for specifications, operating procedures and maintenance requirements.

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