



---

## Compartmental Access Refrigerator - iBX020 Service & Maintenance Manual



---

HELMER SCIENTIFIC  
14400 Bergen Boulevard  
Noblesville, IN 46060 USA



PH +1.317.773.9073  
FAX +1.317.773.9082  
USA and Canada 800.743.5637



## Document History

Revision	Date	CO	Supersession	Revision Description
A	20 NOV 2015*	11330	n/a	Initial release.
B	16 NOV 2022*	16980	B supersedes A	Updated image and caption in Model and Input Power section. Updated CE mark on cover and Compliance section.

\* Date submitted for Change Order review. Actual release date may vary.

## Notes and Disclaimers

### Confidential / Proprietary Notices

Use of any portion(s) of this document to copy, translate, disassemble or decompile, or create or attempt to create by reverse engineering or otherwise the information from Helmer Scientific products is expressly prohibited.

### Disclaimer

This manual is intended as a guide to provide the operator with necessary instructions on the proper use and maintenance of certain Helmer Scientific products.

Any failure to follow the instructions as described could result in impaired product function, injury to the operator or others, or void applicable product warranties. Helmer Scientific accepts no responsibility for liability resulting from improper use or maintenance of its products.

The screenshots and component images appearing in this guide are provided for illustrative purposes only, and may vary slightly from the actual software screens and/or product components.

### Document Updates

The document is furnished for information use only, is subject to change without notice and should not be construed as a commitment by Helmer Scientific. Helmer Scientific assumes no responsibility or liability for any errors or inaccuracies that may appear in the informational content contained in this material. For the purpose of clarity, Helmer Scientific considers only the most recent revision of this document to be valid.

# Contents

<b>Notes and Disclaimers</b> .....	<b>i</b>
<b>Section I: General Information</b> .....	<b>5</b>
<b>1 About this Manual</b> .....	<b>5</b>
1.1 Intended Audience .....	5
1.2 Model References .....	5
1.3 Copyright and Trademark .....	5
<b>2 Safety</b> .....	<b>5</b>
2.1 Safety Definitions .....	5
2.2 Product Labels .....	6
2.3 Avoiding Injury .....	6
<b>3 Compliance</b> .....	<b>7</b>
3.1 Regulatory Compliance .....	7
3.2 WEEE Compliance .....	7
3.3 Electromagnetic Compliance .....	7
3.4 Manufacturer .....	7
<b>4 Model and Input Power</b> .....	<b>8</b>
<b>Section II: Installation &amp; Configuration</b> .....	<b>9</b>
<b>5 Location Requirements</b> .....	<b>9</b>
<b>6 Install Components</b> .....	<b>9</b>
6.1 Packing List .....	9
6.2 Place Compartmental Access Refrigerator .....	9
6.3 Connect External Monitoring Devices .....	9
6.4 Connect AC Power Cord and Ethernet Cable for Kiosk .....	10
6.5 Connect AC Power Cord for Compartmental Access Refrigerator .....	10
6.6 Connect Backup Power .....	11
<b>7 Prepare For Monitoring</b> .....	<b>12</b>
7.1 Temperature Probes .....	12
7.1.1 Air Probe .....	12
7.1.2 Primary Probe .....	12
7.1.3 Condenser Probe .....	12
7.1.4 Control Probe .....	12
7.1.5 Install Additional Probe Through Rear Chamber Access Panel .....	13
7.2 Stand-Alone Chart Recorder (Optional) .....	13

<b>8</b>	<b>i.C<sup>3</sup>® Control System</b>	<b>13</b>
8.1	Home Screen and HaemoBank™ Screensaver	13
8.1.1	Home Screen Functions	14
8.2	Alarm Reference	14
8.3	Settings	15
8.3.1	Temperature Settings	15
8.4	Sensor Calibration	16
8.4.1	View Sensor Calibration Values	16
8.4.2	Change Sensor Calibration Offset Values	16
8.5	Factory Default Settings	17
8.6	Restore Factory Default Settings	18
8.7	View System Information	18
<b>Section III: Maintenance &amp; Service</b>		<b>19</b>
<b>9</b>	<b>Maintenance</b>	<b>19</b>
9.1	Alarm Tests	19
9.1.1	Automatic Chamber Temperature Alarm Test	19
9.1.2	Manual Chamber Alarm Test	20
9.1.3	Power Failure Alarm Test	21
9.1.4	Door Open Alarm Test	21
9.2	Upgrade System Firmware	21
9.3	Test and Replace i.C <sup>3</sup> Monitoring System / Access Control Backup Battery	21
9.3.1	Replace the i.C <sup>3</sup> Monitoring System / Access Control Backup Battery	22
9.4	Check Probe Bottle	22
9.5	Inspect and Secure Electrical Wiring and Terminals	23
9.6	Clean the Compartmental Access Refrigerator	24
9.6.1	Compartmental Access Refrigerator Condenser Grill	24
9.6.2	Compartmental Access Refrigerator Exterior	24
9.6.4	Compartmental Access Refrigerator Interior	24
9.6.5	Door and Panel Gaskets	25
9.6.6	Clean the Tray Assembly	25
9.6.7	Clean Probe Bottle and Refill Solution	25
9.6.8	i.C <sup>3</sup> ® Touchscreen	25
9.7	Bypass System Check and Reset	26
<b>10</b>	<b>Service</b>	<b>26</b>
10.1	Refrigerant Charge	26
10.2	Replace Chamber LED Lamp Strip	26
10.3	Maintaining Tray Assembly	27
10.3.1	Remove and Install a Tray and Cover	27
10.3.2	Replace Tray Bumpers	28

**Section IV: Troubleshooting . . . . . 29**

**11 Troubleshooting . . . . . 29**

- 11.1 Compartment Access Circuit Boards and Sensors Diagnostic References . . . . . 29
  - 11.1.1 IRACS Horizontal Circuit Board LED Indicators . . . . . 29
  - 11.1.2 Check Circuit Board Status . . . . . 29
  - 11.1.3 Check Proximity Sensor Status . . . . . 30
  - 11.1.4 Check Solenoid Status . . . . . 30
  - 11.1.5 Check Voltage Conversion Status . . . . . 31
  - 11.1.6 IRACS Addresses . . . . . 31
  - 11.1.7 Power Distribution and Steering (PDAS) Circuit Status . . . . . 32
- 11.2 Initiate Diagnostic Mode . . . . . 33
- 11.3 Network Communications Reference Guide . . . . . 34
  - 11.3.1 BloodTrack® Interface . . . . . 34
- 11.4 General Operation Problems . . . . . 35
- 11.5 Chamber Temperature Problems . . . . . 35
- 11.6 i.C<sup>3</sup> Alarm Activation Problems . . . . . 38
- 11.7 Testing Problems . . . . . 39
- 11.8 Condensation Problems . . . . . 40
- 11.9 Access Control Lock Problems . . . . . 40
- 11.10 Compartment Assembly Problems . . . . . 41

**Section V: Parts & Schematics . . . . . 42**

**12 Parts . . . . . 42**

- 12.1 Front . . . . . 43
- 12.2 Front Interior . . . . . 44
- 12.3 Control System and Display . . . . . 45
- 12.5 Compartmental Access Components . . . . . 46
- 12.6 Rear Exterior . . . . . 47
- 12.7 Rear Interior . . . . . 48
- 12.8 Refrigeration Components . . . . . 49
- 12.9 Unit Cooler . . . . . 49

**13 Compartmental Access Refrigerator Schematics . . . . . 50**

## Section I: General Information

### 1 About this Manual

#### 1.1 Intended Audience

This manual is intended for use by end users of the iBX020 Compartmental Access Refrigerator. For information on how to use the BloodTrack Courier® software which runs on the BloodTrack® Kiosk and provides blood product management to the HaemoBank™, please refer to the BloodTrack Courier® User Guide (part number 113463-IE).

#### 1.2 Model References

The Compartmental Access Refrigerator becomes a HaemoBank™ after the refrigerator is attached to a kiosk running the BloodTrack Courier® software. References are used throughout this manual to denote the individual components of the HaemoBank™. The iBX020 component is referenced as Compartmental Access Refrigerator.

#### 1.3 Copyright and Trademark

Helmer®, i.Series®, i.C<sup>3</sup>®, and Rel.i™ are registered trademarks or trademarks of Helmer, Inc. in the United States of America. Copyright © 2022 Helmer, Inc. BloodTrack®, HaemoBank™ and BloodTrack Courier® are trademarks of Haemonetics Corporation in the United States and /or other countries. All other trademarks and registered trademarks are the property of their respective owners.

Helmer, Inc., doing business as (DBA) Helmer Scientific and Helmer.

### 2 Safety

The operator or technician performing maintenance or service on Helmer Scientific products must (a) inspect the product for abnormal wear and damage, (b) choose a repair procedure which will not endanger his/her safety, the safety of others, the product, or the safe operation of the product, and (c) fully inspect and test the product to ensure the maintenance or service has been performed properly.

#### 2.1 Safety Definitions

The following general safety alerts appear with all safety statements within this manual. Read and abide by the safety statement that accompanies the safety alert symbol.



**WARNING**

The safety statement that follows this safety alert symbol indicates a hazardous situation which, if not avoided, could result in serious injury.



**CAUTION**

The safety statement that follows this safety alert symbol indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



**NOTICE**

The safety statement that follows this safety alert symbol indicates a situation which, if not avoided, could result in damage to the product or stored inventory.

## 2.2 Product Labels



Caution: Risk of damage to equipment or danger to operator



Caution: Unlock all casters



Caution: Hot surface



Earth / ground terminal



Caution: Shock/electrical hazard



Protective earth / ground terminal



Consult instructions for use

## 2.3 Avoiding Injury

- ▶ Review safety instructions before installing, using, or maintaining the equipment.
- ▶ Before moving unit, ensure door(s) is closed and casters (if installed) are unlocked and free of debris.
- ▶ Before moving unit, disconnect the AC power cord and secure the cord.
- ▶ Never physically restrict any moving component.
- ▶ Avoid removing electrical service panels and access panels unless so instructed.
- ▶ Keep hands away from pinch points when closing the door.
- ▶ Avoid sharp edges when working inside the electrical compartment and refrigeration compartment.
- ▶ Avoid staring into the tray illumination LEDs for extended periods of time as eye injury may occur.
- ▶ Ensure grill panel is installed above compartment assembly to prevent biological materials from being improperly stored.
- ▶ Ensure biological materials are stored at recommended temperatures determined by standards, literature, or good laboratory practices.
- ▶ Proceed with caution when adding and removing samples from the refrigerator.
- ▶ Use manufacturer supplied power cord only.
- ▶ Using the equipment in a manner not specified by Helmer Scientific may impair the protection provided by the equipment.
- ▶ Decontaminate parts prior to sending for service or repair. Contact Haemonetics® Corporation BloodTrack® Customer Support (877.996.7877) or your distributor for decontamination instructions and a Return Authorization Number.
- ▶ Ensure biological materials are stored safely, in accordance with all applicable organizational, regulatory, and legal requirements.
- ▶ The refrigerator is not considered to be a storage compartment for flammable or hazardous materials.
- ▶ Use caution when moving a stacked configuration.

### 3 Compliance

#### 3.1 Regulatory Compliance

Pollution degree: 2 (for use in USA and Canada only)

This product is certified to applicable UL and CSA standards by a NRTL.

This device complies with the requirements of directive 93/42/EEC concerning Medical Devices, as amended by 2007/47/EC.

Sound level is less than 70 dB(A).



Emergo Europe  
Prinsessegracht 20  
2514 AP The Hague  
The Netherlands



#### 3.2 WEEE Compliance

The WEEE (waste electrical and electronic equipment) symbol (right) indicates compliance with European Union Directive WEEE 2012/19/EU and applicable provisions. The directive sets requirements for the labeling and disposal of certain products in affected countries.

When disposing of this product in countries affected by this directive:

- ▶ Do not dispose of this product as unsorted municipal waste
- ▶ Collect this product separately
- ▶ Use the collection and return systems available locally



For more information on the return, recovery, or recycling of this product, contact your local distributor

#### 3.3 Electromagnetic Compliance

This device is suitable for use in a specific electromagnetic environment. The end user of this device is responsible for ensuring the device is used in compliance with the following European Union directives and standards regarding EMC (electromagnetic compliance):

**EMC Directive 2004/108/EC**

- |                     |                     |
|---------------------|---------------------|
| ▶ EN 55011:2015     | ▶ EN 61000-3-3:2013 |
| ▶ EN 61000-3-2:2014 | ▶ EN 61326-1:2013   |

#### 3.4 Manufacturer

Helmer Scientific is the manufacturer as defined in 93/42/MDD of the iBX020 and for which the CE mark on the cover of this manual applies.

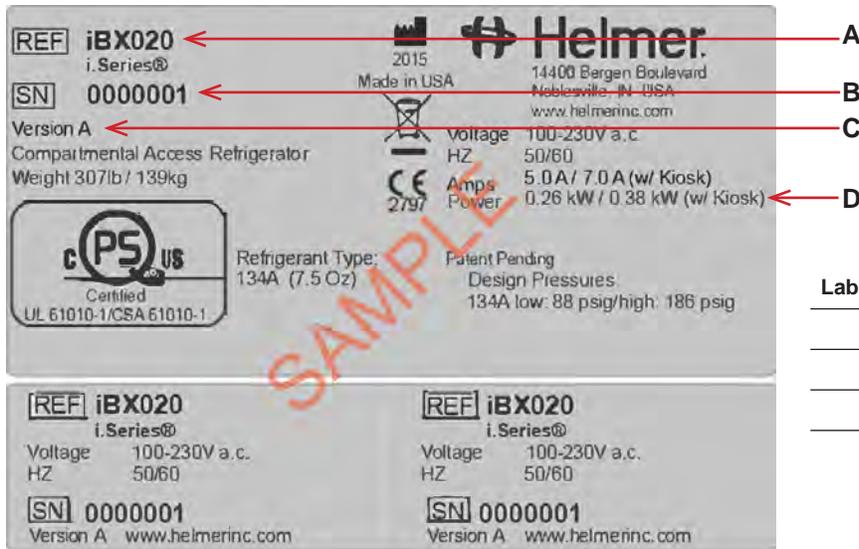
Haemonetics Corporation is the manufacturer as defined in 93/42/MDD of the BloodTrack Courier® software and maintains sole responsibility for placing the HaemoBank™ in its final configuration on the market.



**4 Model and Input Power**

Model	Voltage	Frequency	Power	Current Draw
iBX020	100 - 230V	50 Hz/60 Hz	0.26 kW	5 A 7 A (w/ Kiosk)

The iBX020 information is displayed on the product specification label located on the left side of the Compartmental Access Refrigerator toward the lower rear of the unit. The model information is also displayed on a label in the chamber on the upper right side wall.



Label	Description
A	Model (REF)
B	Serial number
C	Version
D	Power Requirements

**Sample Product Specification Label**

(For illustration only: regulatory information and other content shown here may differ from that on the equipment label)

## Section II: Installation & Configuration

### 5 Location Requirements

- ▶ Has a grounded outlet meeting the electrical requirements stated on the product specification label.
- ▶ Meets the limits specified for ambient temperature (15 °C to 32 °C) and relative humidity (80% for temperatures up to 31 °C, decreasing linearly to 50% at 40 °C).
- ▶ Is clear of direct sunlight, high temperature sources, heating vents, and air conditioning vents.
- ▶ For counter top installation, must have a minimum 30" (763 mm) depth and ability to safely support a minimum 550 pounds (249 kg).
- ▶ For undercounter installation, must have a clearance of (w x h) 30.25" x 34.25" (768 x 870 mm).

### 6 Install Components



To prevent tipping:

- ▶ ensure doors are closed before moving the refrigerator and casters (if installed) are unlocked.
- ▶ do not sit, lean, push or place heavy objects on upper door ledge.
- ▶ do not use open door as leverage to assist in standing.

#### 6.1 Packing List

Included on skid with refrigerator:

- Spare parts kit (optional)
- Chart recorder (optional; box will include chart recorder paper)
- Wall mount kit (optional)
- Stacking kit (optional)

#### 6.2 Place Compartmental Access Refrigerator

**NOTE** Pliers may be useful when unlocking and locking casters if installed on the Compartmental Access Refrigerator.

- 1 Remove the Compartmental Access Refrigerator from the shipping carton.
- 2 Remove and discard the interior packing material.
- 3 Remove the accessory package from above the Compartmental Access Refrigerator.
- 4 Remove all materials from the accessory package and file them in a secure location.
- 5 Ensure doors are closed and casters (if installed) are unlocked
- 6 Position refrigerator in place and lock casters (if installed).
- 7 Ensure refrigerator is level.
- 8 Ensure trays are locked in place inside compartments.

#### 6.3 Connect External Monitoring Devices



- ▶ The interface on the remote alarm monitoring system is intended for connection to the end user's central alarm system(s) using normally-open or normally-closed dry contacts.
- ▶ If an external power supply exceeding 30 V (RMS) or 60 V (DC) is connected to the remote alarm monitoring system's circuit, the remote alarm will not function properly; may be damaged; or may result in injury to the user.

#### Required tools:

- ▶ #2 Phillips screwdriver
- ▶ Cable tie

The remote alarm interface is a relay switch with three terminals:

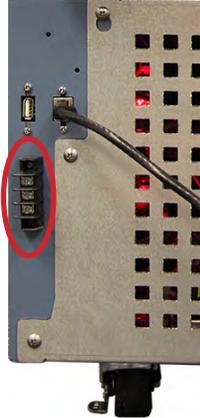
- ▶ Common (COM)
- ▶ Normally Open (NO)
- ▶ Normally Closed (NC)

The terminals on the remote alarm interface have the following maximum load capacity:

- ▶ 0.5 A at 30 V (RMS); 1.0 A at 60 V (DC)

**Connect to the alarm interface:**

- 1 Locate the remote alarm terminals in the back of the unit on the lower left side.
- 2 Using a #2 Phillips screwdriver, connect remote alarm wires to appropriate terminals, according to requirements for your alarm system.
- 3 Use a cable tie to relieve strain on alarm wires (if necessary).



Remote alarm terminals (circled)

**6.4 Connect AC Power Cord and Ethernet Cable for Kiosk**

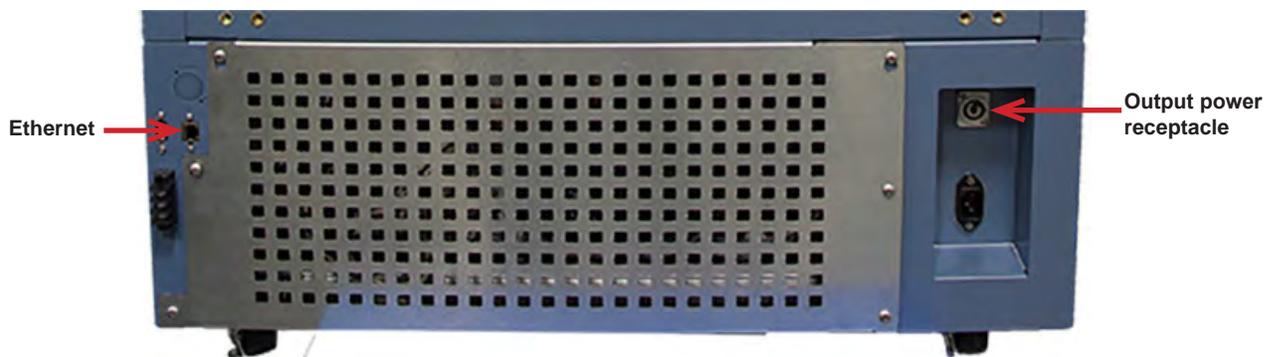


The amperage sum of the kiosk and printer connected to the iBX020 AC output power receptacle cannot exceed 2 Amps. If the sum is greater than 2 Amps, the printer must be connected to an alternate power source.



When using 100V system, the amperage draw of the kiosk and printer connected to the iBX020 AC output power receptacle cannot exceed 1.25 Amps.

- 1 Confirm the Compartmental Access Refrigerator is at room temperature.
- 2 Connect the Kiosk power cord to the grey receptacle on the back of the unit in the lower right corner (optional).
- 3 Connect the Kiosk Ethernet cable to Ethernet port on the back of the unit in the lower left corner.



AC output power receptacle

**6.5 Connect AC Power Cord for Compartmental Access Refrigerator**

- NOTE**
- ▶ The detachable AC power cord for the refrigerator is shipped in the accessory box included above the Compartmental Access Refrigerator.
  - ▶ The Compartmental Access Refrigerator has a "universal voltage" capability accommodating a range of 100V - 230Vac at 50/60Hz.

- 1 Insert the auto-locking AC power cord into the receptacle on the back of the unit in the lower right corner.
- 2 Connect the AC power cord to a grounded outlet meeting the electrical requirements stated in **Section I, Item 4**.

**6.6 Connect Backup Power**

**NOTE** ▶ The standard backup battery system provides electrical power to the i.C<sup>3</sup> monitoring system, Access Control magnetic door lock and compartmental access communication boards. It may also be referred to as the i.C<sup>3</sup> Monitoring System / Access Control backup battery.

The i.C<sup>3</sup> Monitoring System and Access Control magnetic door lock have a standard backup battery system, enabling a period of continuous operation if power is lost. The i.C<sup>3</sup> Monitoring System / Access Control backup battery ON/OFF switch is located behind the access panel in the lower right front of the Compartmental Access Refrigerator.



*i.C<sup>3</sup> Monitoring System / Access Control backup battery ON/OFF switch (circled)*

The i.C<sup>3</sup> Monitoring System / Access Control backup battery is switched **OFF** for shipping. Switch the backup battery ON/OFF switch **ON** to provide backup power to the i.C<sup>3</sup> monitoring system and Access Control magnetic door lock.

**NOTE** The i.C<sup>3</sup> Monitoring System and Access Control magnetic door lock will start on battery power alone. If the Compartmental Access Refrigerator is not connected to AC power and the battery is switched on, the i.C<sup>3</sup> Monitoring System and Access Control magnetic door lock will begin running on battery power.

Battery life varies by manufacturer as well as voltage level remaining. If full battery power is available and no battery-related alarms are active, backup power for the i.C<sup>3</sup> Monitoring System and Access Control magnetic door lock is available for up to 20 minutes.

The Low Battery alarm will activate when battery power is almost depleted.



**During a power failure:**

- ▶ The standard backup battery system does not provide continued refrigeration of the chamber. The chamber temperature may rise above the established limits necessary to maintain integrity of stored product.
- ▶ The standard backup battery system provides power to the monitoring system and Access Control magnetic lock until battery power is depleted.
- ▶ The standard backup battery system is rapidly depleted by the Access Control magnetic lock.

**NOTE** If AC power is lost, the monitoring system will automatically disable some features to prolong battery power. Data collection will continue until battery power is depleted.

## 7 Prepare For Monitoring

### 7.1 Temperature Probes



Temperature probes are fragile; handle with care.

**NOTE** Remote probes may also be introduced through the back panel.

Four types of temperature probes are included on the Compartmental Access Refrigerator, air probe, primary probe, condenser probe and control probe.



*Air probe*



*Primary probe (with probe bottle and bottle holder)*



*Condenser probe*



*Control probe*

#### 7.1.1 Air Probe

The air probe is located along the back right side of the unit.

#### 7.1.2 Primary Probe

The primary probe is located behind the grill in the top right side of the chamber. To access the probe, the grill must be removed.

**For each probe bottle, use:**

- ▶ Approximately 4 oz. (120 mL) of product simulation solution (10:1 ratio of water to glycerin)

**Fill Temperature Probe Bottle**

- 1 Remove all probes from bottle and remove bottle from bracket.
- 2 Remove cap and fill with approximately 4 oz. (120 mL) of product simulation solution.
- 3 Secure cap on bottle and place in bracket.
- 4 Replace probes, immersing at least 2" (50 mm) in solution.

#### 7.1.3 Condenser Probe

The condenser probe is attached to the condenser discharge line.

#### 7.1.4 Control Probe

The control probe is located within the evaporator housing.

### 7.1.5 Install Additional Probe Through Rear Chamber Access Panel

**NOTE** Access to the back of the unit is necessary to install an additional probe. Ensure enough space is available to remove the rear chamber panel.

- 1 Using a #2 Phillips screwdriver, remove the 6 screws securing the rear chamber access panel to the unit.
- 2 Using a #2 Phillips screwdriver, remove the 2 screws securing the grill above the compartment assembly.
- 3 Peel back putty on the interior and exterior sides of the access panel to expose port, and set aside.
- 4 Insert probe through port into chamber.
- 5 Insert probe into bottle.
- 7 Replace grill and secure with 2 screws using a #2 Phillips screwdriver.
- 8 Replace putty around the port on the interior and exterior of the access panel ensuring a tight seal.
- 9 Replace rear chamber access panel and secure with 6 screws using a #2 Phillips screwdriver.

### 7.2 Stand-Alone Chart Recorder (Optional)

If installed, refer to the Temperature Chart Recorder Operation and Service Manual included on your Compartmental Access System CD.

The chart recorder has a non-rechargeable backup battery system enabling a period of continuous operation if power is lost. Battery life varies by manufacturer as well as voltage level remaining. If full battery power is available, backup power for the temperature chart recorder is available for up to 14 hours.

**NOTE** If chart recorder has operated on battery power, the battery should be replaced to ensure the backup source has proper charge.

Place the chart recorder probe through port in rear chamber access panel and in bottle with primary probe prior to use.

## 8 i.C<sup>3</sup>® Control System

The Compartmental Access System is equipped with the i.C<sup>3</sup> monitoring and control system. The i.C<sup>3</sup> system combines temperature control and monitoring into a single user interface.

- NOTE**
- ▶ Please refer to the i.C<sup>3</sup> User Guide for Compartmental Access Refrigerators for information regarding network communications for BloodTrack®.
  - ▶ Refer to i.C<sup>3</sup> User Guide for Compartmental Access Refrigerators for complete information on the User Interface.

### 8.1 Home Screen and HaemoBank™ Screensaver

The Home screen is the default screen and is displayed when:

- ▶ The **Home** button is touched from any other screen
- ▶ There is no interaction for two minutes on any screen other than those used to enter a password
- ▶ The HaemoBank™ screensaver is automatically displayed after two minutes of inactivity on the Home Screen



HaemoBank™ screensaver



Home screen.

### 8.1.1 Home Screen Functions

- ▶ View current interior cabinet and air temperature readings
- ▶ View minimum and maximum chamber temperature (recorded at the upper chamber probe) since the last power-on event, or since the last reset
- ▶ View the current system time and date
- ▶ Access any of the five preset applications (touch **i.C<sup>3</sup> APPS** for additional applications)
- ▶ View information about current alarm events
- ▶ View whether the monitoring system is running on battery power
- ▶ Mute audible alarms
- ▶ Shortcut to Event log
- ▶ View Unit ID

### 8.2 Alarm Reference

If an alarm condition is met, an alarm activates. Some alarms are visual only; others are visual and audible. Some alarms are sent through the remote alarm interface.

---

**NOTE** During initial pull-down, high temperature alarm may activate while refrigerator reaches operating temperature.

---

The table indicates if an alarm is audible (A), visual (V), or sent through the remote alarm interface (R).

Alarm	Alarm Type
High Temperature	A, V, R
Low Temperature	A, V, R
Air Temperature	A, V, R
Compressor Temperature	A, V, R
Door Open (Time)	A, V, R
Power Failure	A, V, R
Low Battery	V
No Battery	A, V, R
Probe Failure	A, V, R
Communication Failure	A, V, R

**8.3 Settings**

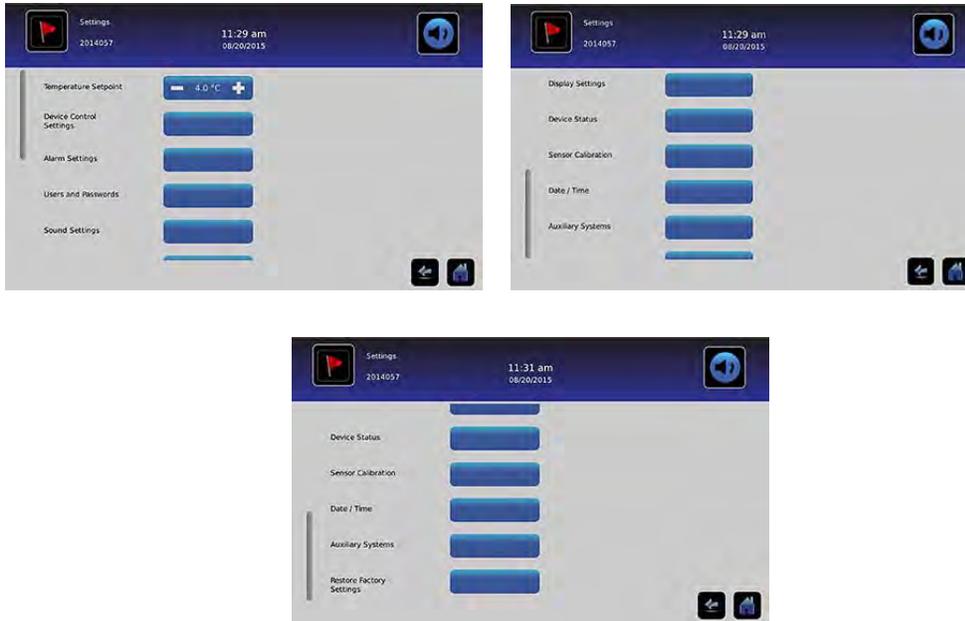
Current settings may be viewed and changed through the i.C<sup>3</sup> monitoring and control system. The i.C<sup>3</sup> temperature monitor and controller is programmed at the factory.



Changing temperature settings affects operation of the HaemoBank™. Do not change settings unless instructed in product documentation or by Haemonetics® Corporation BloodTrack® Customer Support.

**NOTE**

- ▶ If the Settings screen is password protected or if viewing settings for the first time, enter factory default password of "1234".
- ▶ Default values for general settings, alarm settings, and display settings are available in Appendix B of the i.C<sup>3</sup> User Guide.



*Settings screens*

To change a setting first access the Settings screen, then the Setting.

**8.3.1 Temperature Settings**

Temperature settings are programmed at the factory. The Temperature Setpoint can be accessed, viewed and changed through the i.C<sup>3</sup> Settings screen by touching the Settings icon and entering the current password. If accessing the i.C<sup>3</sup> for the first time, use the factory-originated password (1234).

**8.3.1.1 Temperature Setpoint**

**NOTE**

- ▶ Default chamber temperature setpoint is 4.0 °C.
- ▶ Setpoint can be changed from the i.C<sup>3</sup> and from the Haemonetics® BloodTrack Courier®.

The temperature setpoint is the desired temperature of the HaemoBank™ for stored product.

**Change the temperature setpoint if:**

- ▶ Your organization requires a chamber temperature other than 4.0 °C

**Perform the following:**

- 1 Touch **Home, i.C<sup>3</sup> APPS, Settings.**
- 2 Enter the Settings password.
- 3 Touch **+** or **-** on the **Temperature Setpoint** spin box to select desired setting.
- 4 Touch **Home.**

## 8.4 Sensor Calibration

Sensor calibration values are programmed at the factory. Calibration values can be viewed through the i.C<sup>3</sup> Sensor Calibration screen.



Sensor Calibration screens

### 8.4.1 View Sensor Calibration Values

- 1 Touch **Home**, **i.C<sup>3</sup> APPS**, **Settings**.
- 2 Enter the Settings password.
- 3 Touch **Sensor Calibration**.
  - ▶ Sensor offset values and their current temperature readings are displayed
- 4 Touch **Home**.

Setting	Initial Factory Value
Primary probe	Varies (set at the factory to match a NIST traceable independent thermometer)
Air probe	
Control probe	
Compressor probe	
Spare probe	

### 8.4.2 Change Sensor Calibration Offset Values

**NOTE** ▶ Contact Haemonetics® Corporation BloodTrack® Customer Support for instructions regarding changing sensor calibration offset values.

## 8.5 Factory Default Settings

Factory settings may be simultaneously returned to factory default values.

- NOTE**
- ▶ The Factory Default Settings may not be the same as the settings that were factory-calibrated before the Compartmental Access Refrigerator was shipped.
  - ▶ If Factory Default Settings are restored, all calibration values and User PINs will be lost.

General Settings	Restored Value
Home Screen Application Icons	i.C <sup>3</sup> APPS, Settings, Temperature Graph, Automatic Alarm Test, Information Logs
Temperature Setpoint	4.0 °C
Password (for Settings screen)	1234
Password Protection (for Settings screen)	On
Sounds	On
Alarm Volume	9
Alarm Tone	2
Unit ID	No default value
Date Format	MM/DD/YY
Day	Not affected (maintained in real-time clock)
Month	
Year	
Time Format	12-hour
Minute	Not affected (maintained in real-time clock)
Hour	
AM/PM	
Language	English
Temperature Units	°C
Temperature Graph Screensaver	Off
Alternate Screensaver	On
Min/Max Temperature Display	On
Air Temperature Display	On
Air Temperature Alarm	On
Display Brightness	High (3 symbols)
Temperature Calibration Settings	Values entered at the factory
Access Control Touchpad	On

Alarm Settings	Restored Value
Primary Probe High Temperature (Setpoint)	5.5 °C
Primary Probe High Temperature (Time Delay)	0 minutes
Primary Probe Low Temperature (Setpoint)	2.0 °C
Primary Probe Low Temperature (Time Delay)	0 minutes
Air Probe High Temperature (Setpoint)	11.0 °C
Air Probe High Temperature (Time Delay)	3 minutes
Air Probe Low Temperature (Setpoint)	-5.0 °C
Air Probe Low Temperature (Time Delay)	3 minutes
Compressor Temperature (Setpoint)	50.0 °C
Compressor Temperature (Time Delay)	5 minutes
Power Failure	1 minute
Probe Failure	0 minutes
Door Open (Time)	1 minute

## 8.6 Restore Factory Default Settings



- ▶ If Factory Default Settings are restored, all calibration values and User PINs will be lost.
- ▶ Contact Haemonetics® Corporation BloodTrack® Customer Support prior to restoring Factory Default Settings.

### Restore settings:

- 1 Touch **Home**, **i.C<sup>3</sup> APPS**, **Settings**.
- 2 Enter the Settings password.
- 3 Touch **Restore Factory Settings**.
  - ▶ The “Are you sure you want to restore factory settings?” message is displayed
    - ▶ Touch **✓**. The message screen closes and factory settings are restored
    - ▶ Touch **X**. The message screen closes and factory settings are not restored
- 4 Touch **Home**.

## 8.7 View System Information

- 1 Touch **Home**, **i.C<sup>3</sup> APPS**, **Contacts**.
  - ▶ The Contacts screen is displayed
- 2 Touch **More Info**.
  - ▶ The Versions screen is displayed, including software configuration, software revision numbers, hardware serial numbers, i.C<sup>3</sup> IP address, and i.C<sup>3</sup> MAC address
- 3 Touch **Home**.

## Section III: Maintenance & Service



Review all safety instructions prior to performing maintenance. Refer to **Section I, Item 2**.



- ▶ Before performing maintenance, protect items in HaemoBank™ from extended exposure to adverse temperature.
- ▶ Allow HaemoBank™ to stabilize at setpoint after performing service or after the door has remained open for an extended period of time.

**NOTE**

- ▶ Refer to the Compartmental Access Refrigerator Operation Manual for the preventive maintenance schedule.
- ▶ For service information or to order replacement parts, contact Haemonetics® Corporation BloodTrack® Customer Support at 877.996.7877.

## 9 Maintenance

### 9.1 Alarm Tests

Test alarms to ensure they are working correctly. The HaemoBank™ has alarms for chamber temperature, door open (time), probe failure, and power failure.

#### 9.1.1 Automatic Chamber Temperature Alarm Test

**NOTE**

- ▶ If the Settings screen is password protected or if viewing settings for the first time, enter factory default password of “1234”.
- ▶ Test can be aborted by touching **Cancel Test**.
- ▶ Test is only applicable to the upper chamber probe.
- ▶ Test takes less than five minutes.
- ▶ If the temperature alarm test does not automatically complete within 10 minutes, the “Test Stopped” and “Test failed because it took too long and shut off for safety” messages are displayed.



Temperature Alarm Test screen

When performing an automatic temperature alarm test, the Peltier device heats or cools the temperature probe until the high or low alarm setpoint is reached. An event is added to the Event Log to indicate a temperature alarm was activated. The Alarm Test icon is displayed on the Temperature Graph to indicate the temperature alarm was caused by testing.

#### Test the high alarm:

- 1 Identify current setting for high alarm setpoint.
- 2 Touch **Home, i.C<sup>3</sup> APPS, Temperature Alarm Test**.
- 3 Touch **High Alarm Test**.
  - ▶ The “Peltier Test Probe Warming” message is displayed
  - ▶ When displayed temperature reaches the alarm setpoint, the temperature reading turns red
  - ▶ When completed, the “High Alarm Test Passed!” message is displayed
- 4 Touch **Home**.

**Test the low alarm:**

- 1 Identify current setting for low alarm setpoint.
- 2 Touch **Home, i.C<sup>3</sup> APPS, Temperature Alarm Test.**
- 3 Touch **Low Alarm Test.**
  - ▶ The “Peltier Test Probe Cooling” message is displayed
  - ▶ When displayed temperature reaches the alarm setpoint, the temperature reading turns red
  - ▶ When completed, the “Low Alarm Test Passed!” message is displayed
- 4 Touch **Home.**

**Cancel the test:**

- 1 Touch **Home, i.C<sup>3</sup> APPS, Temperature Alarm Test.**
- 2 Touch **Cancel Test.**
  - ▶ The “Test Cancelled” message is displayed

---

**NOTE** When cancelling an automatic test, the message indicating the test is in progress clears immediately. If an alarm setpoint was reached before the test was cancelled, the alarm activates and clears, and the Alarm Test icon is displayed on the Temperature Graph to indicate the temperature alarm was caused by testing as described earlier.

---

### 9.1.2 Manual Chamber Alarm Test



- ▶ Perform the low alarm test before the high alarm test to control the temperature more closely and complete the testing more quickly.
  - ▶ Before testing alarms, protect items in HaemoBank™ from extended exposure to adverse temperature.
  - ▶ Grill must be removed to gain access to the probe and probe bottle.
  - ▶ Temperature probes are fragile; handle with care.
- 

**Obtain:**

- ▶ (1) glass filled with 1/2 crushed ice and 1/2 water
- ▶ (1) 8 oz. (250 mL) glass of luke warm water

**Test the low alarm:**

- 1 Identify setting for low alarm setpoint.
- 2 Remove primary probe from bottle.
- 3 Immerse probe in glass filled with water and crushed ice mixture.
- 4 When low temperature alarm sounds, note the temperature on the i.C<sup>3</sup> display.

**Test the high alarm:**

- 1 Identify setting for high alarm setpoint.
- 2 Immerse probe in glass of luke warm water.
- 3 When high temperature alarm sounds, note the temperature on the i.C<sup>3</sup> display.
- 4 Remove probe from warm water.
- 5 Place primary probe in probe bottle, immersing it at least 2” (50 mm).

### 9.1.3 Power Failure Alarm Test

- 1 Change the Power Failure delay setting to 0 minutes.
  - a Touch **Home, i.C<sup>3</sup> APPS, Settings.**
  - b Enter the Settings password.
  - c Touch **Alarm Settings.**
  - d Touch – on the Power Failure spin box to change the value to 0.
- 2 Switch the AC ON/OFF switch **OFF**.
  - ▶ Power Failure alarm will activate immediately
- 3 Switch the AC ON/OFF switch **ON**.
  - ▶ Power Failure alarm will clear and audible alarm will cease
- 4 Change the Power Failure time delay to the original setting.
  - a Touch **Home, i.C<sup>3</sup> APPS, Settings.**
  - b Enter the Settings password.
  - c Touch **Alarm Settings.**
  - d Touch + on the Power Failure spin box to change the value to the original setting.
- 5 Touch **Home.**

### 9.1.4 Door Open Alarm Test

- 1 Change the Door Open (Time) delay setting to 0 minutes.
  - a Touch **Home, i.C<sup>3</sup> APPS, Settings.**
  - b Enter the Settings password.
  - c Touch **Alarm Settings.**
  - d Touch – on the Door Open (Time) spin box to change the value to 0.
- 2 Open the door.
  - ▶ Door Open alarm will activate immediately
- 3 Close the door.
  - ▶ Door Open alarm will clear and audible alarm will cease
- 4 Change the Door Open (Time) setting to the original setting.
  - a Touch **Home, i.C<sup>3</sup> APPS, Settings.**
  - b Enter the Settings password.
  - c Touch **Alarm Settings.**
  - d Touch + on the Door Open (Time) spin box to change the value to the original setting.
- 5 Touch **Home.**

## 9.2 Upgrade System Firmware

Helmer may occasionally issue updates for the i.C<sup>3</sup> firmware. Follow the upgrade instructions included with the firmware update.

## 9.3 Test and Replace i.C<sup>3</sup> Monitoring System / Access Control Backup Battery

### Test the i.C<sup>3</sup> Monitoring System / Access Control backup battery:

- 1 Switch the AC ON/OFF switch **OFF**.
  - ▶ i.C<sup>3</sup> screen should continue to display information with reduced brightness
  - ▶ The battery icon will appear on the screen
  - ▶ If the Low Battery alarm activates, or the display is blank, replace the battery
- 2 Switch the AC ON/OFF switch **ON**.

### 9.3.1 Replace the i.C<sup>3</sup> Monitoring System / Access Control Backup Battery



Replacement battery must meet the following specifications: 12V, 7Ah, rechargeable, sealed, lead acid. Contact Haemonetics® Corporation BloodTrack® Customer Support for replacement battery. Service Kit Part number 800251-1.

#### Required tools:

- ▶ #2 Phillips screwdriver

#### Replace the battery:

- 1 Switch the i.C<sup>3</sup> Monitoring System / Access Control backup battery ON/OFF switch **OFF**. Switch the AC ON/OFF switch **OFF**. Disconnect the AC power cord from the power receptacle.
- 2 Using a #2 Phillips screwdriver, remove 6 screws securing the front base cover.
- 3 Disconnect the power wires from the battery terminals.
- 4 Using a #2 Phillips screwdriver, remove the screws securing the battery strap to the base of the unit.
- 5 Remove the strap and set it aside.
- 6 Remove the battery from the HaemoBank™.
- 7 Place the new battery in the base of the unit, in the same orientation as the original battery.
- 8 Place the strap over the battery.
- 9 Using a #2 Phillips screwdriver, install the screws to attach the strap to the base of the compartment.
- 10 Connect the power wires to the battery terminals, ensuring the wires are connected to the correct terminals:
  - ▶ Red (+) wire connected to the red (+) battery terminal
  - ▶ Black (-) wire connected to the black (-) battery terminal
- 11 Reinstall the base cover and secure with 6 screws using a #2 Phillips screwdriver.
- 10 Connect AC power cord to the power receptacle. Switch the AC ON/OFF switch **ON**. Switch the i.C<sup>3</sup> Monitoring System / Access Control backup battery ON/OFF switch **ON**.

### 9.4 Check Probe Bottle

#### Check solution:

- 1 Visually inspect the contents of the primary probe bottle.
  - ▶ Probe(s) should be immersed at least 2" (50 mm) in solution
  - ▶ If solution is low, clean and refill the probe bottle

#### Inspect and Replace Probe Bottle

**NOTE** ▶ A kit that includes a probe bottle and glycerin is available from Haemonetics® Corporation BloodTrack® Customer Support. Order Service Kit Part number 400922-1.



- ▶ Grill must be removed to gain access to the probe and probe bottle.
- ▶ Temperature probes are fragile; handle with care.

#### Required supplies:

- ▶ 4 oz. probe bottle
- ▶ 4 oz. (120 mL) of product simulation solution per bottle
  - ▶ 10:1 ratio of water to glycerin

#### Inspect probe bottle:

- 1 Visually inspect the probe bottle for cleanliness, discoloration, and damage.
  - ▶ If probe bottle is damaged, replace the probe bottle and solution
  - ▶ If probe bottle is dirty, clean the bottle and refill the solution as outlined in **Section III, Item 9.6.7**

#### Replace probe bottle:

- 1 Remove probe(s) from bottle.
- 2 Remove bottle from bracket.
- 3 Discard the bottle and solution.
- 4 Fill new bottle with 4 oz. (120 mL) of product simulation solution.
- 5 Cap bottle tightly to minimize evaporation.
- 6 Place bottle in bracket.
- 7 Replace probe(s), immersing at least 2" (50 mm) in solution.

**9.5 Inspect and Secure Electrical Wiring and Terminals**



Disconnect HaemoBank™ from AC power when inspecting and securing wiring terminals.

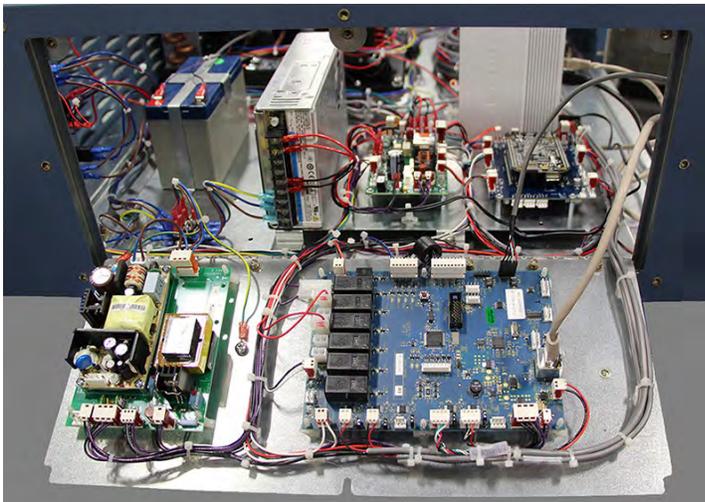
**NOTE** Accessing rear and/or side panels for servicing may require moving the unit. Take care when moving units equipped with leveling legs as they may cause damage to the floor.

**Required tools:**

- ▶ #2 Phillips screwdriver

**Inspect components and secure terminals:**

- 1 Switch the i.C3 Monitoring System / Access Control ON/OFF switch **OFF**. Switch the AC ON/OFF switch **OFF**. Disconnect the AC power cord from the power receptacle.
- 2 Locate the cover to the electrical panel on the lower left side of the unit.
- 3 Using a #2 Phillips screwdriver, loosen the 2 screws in the top corners of the cover and remove the remaining 6 screws securing the cover to the unit.
- 3 Slide the cover upward to disengage the 2 screws from the keyhole openings, remove and set aside.
- 4 Using a #2 Phillips screwdriver, remove the 3 screws securing the electrical panel and rotate the panel outward.
- 5 Visually inspect the wiring in the electrical box for discoloration.
  - ▶ If any discoloration is found, contact Haemonetics® Corporation BloodTrack® Customer Support



*Electrical panel*

- 6 Gently pull on all wires which are terminated with a connector.
  - ▶ If any wires are loose in the terminal connector, replace the connector.
  - ▶ If any terminal connectors are loose in the terminal strip, reseat them.
- 7 Rotate the electrical panel inward and secure with 3 screws using a #2 Phillips screwdriver.
- 8 Replace the cover over the electrical panel and secure with screws using a #2 Phillips screwdriver.
- 9 Reconnect AC power cord to the power receptacle. Switch the AC ON/OFF switch **ON**. Switch the i.C<sup>3</sup> Monitoring System / Access Control ON/OFF switch **ON**.

## 9.6 Clean the Compartmental Access Refrigerator

### 9.6.1 Compartmental Access Refrigerator Condenser Grill



In environments where the Compartmental Access Refrigerator is exposed to excessive lint or dust, condenser grill may require cleaning more frequently than stated in preventive maintenance schedule.



Switch the AC ON/OFF switch **OFF** when cleaning the condenser grill.

#### Required tools:

- ▶ Vacuum cleaner with soft brush attachment

#### Clean the condenser grill:

- 1 Switch the AC ON/OFF switch **OFF**. Switch the i.C3 Monitoring System / Access Control ON/OFF switch **OFF**. Disconnect the AC power cord from the power receptacle.
- 2 Using #2 Phillips screwdriver, remove the 6 screws securing the front panel to the unit.
- 3 Carefully remove the panel and place in front of the unit making sure not to disconnect any internal wiring attached to the panel.
- 3 Clean the condenser grill using a vacuum cleaner with soft brush attachment.
- 4 Align the holes in the front panel with the holes in the base of the unit and secure with 6 screws using a #2 Phillips screwdriver.
- 5 Reconnect power cord to AC power. Switch the i.C<sup>3</sup> Monitoring System / Access Control backup battery ON/OFF switch **ON**. Switch the AC ON/OFF switch **ON**.

### 9.6.2 Compartmental Access Refrigerator Exterior

#### Required supplies:

- ▶ Soft cotton cloth (2)
- ▶ Glass cleaning solution
- ▶ Non-abrasive liquid cleaner

#### Clean the door glass:

- 1 Apply glass cleaner to the exterior surfaces of the glass door.
- 2 Using a cotton cloth, wipe the door dry.

#### Clean the exterior surfaces:

- 1 Apply non-abrasive liquid cleaner to the exterior surfaces.
- 2 Using a cotton cloth, wipe the exterior surfaces dry.

### 9.6.4 Compartmental Access Refrigerator Interior

**NOTE** Avoid cleaning electrical components such as the IRACS and VIB boards.

#### Required supplies:

- ▶ Soft cotton cloth (2)
- ▶ Mild detergent solution
- ▶ General-purpose laboratory cleaning solution, suitable for stainless steel

#### Clean painted interior surfaces:

- 1 Apply mild detergent solution to the painted interior surfaces.
- 2 Using a cotton cloth, wipe the interior surfaces dry.

#### Clean stainless steel interior surfaces:

- 1 Apply general-purpose laboratory cleaner to the stainless steel interior surfaces.
- 2 Using a cotton cloth, wipe the interior surfaces dry.

### 9.6.5 Door and Panel Gaskets

**NOTE** Avoid getting water in the Access Control magnetic lock.

**Required tools:**

- ▶ Soft cotton cloth (2)
- ▶ Mild soap and water solution

**Clean the door gaskets:**

- 1 Using a soft cotton cloth, apply soap and water solution to the door gaskets and gasket crevices.
- 2 Using a second clean and dry cotton cloth, wipe the door gaskets clean.

### 9.6.6 Clean the Tray Assembly

**NOTE** ▶ Refer to **Section III, Item 10.3.1**, for instructions on removing the tray from the compartment assembly.

**Required supplies:**

- ▶ Soft cotton cloth
- ▶ Mild detergent solution

**Clean trays and covers:**

- 1 Apply mild detergent solution to the tray and cover.
- 2 Using a cotton cloth, wipe the tray and cover dry.

### 9.6.7 Clean Probe Bottle and Refill Solution



- ▶ Grill must be removed to gain access to the probe and probe bottle.
- ▶ Temperature probes are fragile; handle with care.

**Required supplies:**

- ▶ Fresh water-bleach solution
  - 1:10 ratio of bleach to water
  - Bleach is 5% solution of commercial sodium hypochlorite (NaOCl) (Equivalent oxidizing cleaner/disinfectant approved by your organization may be substituted)
- ▶ 4 oz. (120 mL) of product simulation solution per bottle
  - 10:1 ratio of water to glycerin

**Clean and refill bottle:**

- 1 Remove probe(s) from bottle.
- 2 Remove bottle from bracket.
- 3 Clean bottle with water-bleach solution.
- 4 Rinse bottle thoroughly with tap water.
- 5 Fill bottle with 4 oz. (120 mL) of product simulation solution.
- 6 Cap bottle tightly to minimize evaporation.
- 7 Place bottle in bracket.
- 8 Replace probe(s), immersing at least 2" (50 mm).

### 9.6.8 i.C<sup>3</sup>® Touchscreen



The i.C<sup>3</sup> touchscreen is sensitive to excessive pressure when touched. Use light pressure when cleaning the touchscreen.

**Required tools:**

- ▶ Soft cotton cloth

**Clean the screen:**

- 1 Using a soft cotton cloth, wipe the screen clean.

9.7 Bypass System Check and Reset



- ▶ Please refer to the BloodTrack Courier® User Guide for details on preparing the HaemoBank™ refrigerator for service. This will include instruction on how to open the main door.
- ▶ If trays are not latching or releasing properly, rotate the Bypass Release handle between the locked and unlocked position. If this does not release or correct the problem, an inspection of the latching mechanism will be required and must be done from the rear of the unit. Contact Haemonetics® Corporation BloodTrack® Customer Support for further assistance.

- 1 Insert key into Bypass Release handle and unlock handle.
- 2 Rotate the Bypass Release handle 90 degrees, unlatching the compartments.
- 3 Verify all trays are unlatched by pulling the trays approximately half way out of the compartment. Leave trays in this position.
- 4 If all trays are unlatched, secure the Bypass Release handle by rotating 90 degrees back to the locked position.
- 5 Push each tray back into position and ensure they cannot be pulled back out.
- 6 Listen for the lock to engage.
- 7 From the BloodTrack® interface perform a bypass reset. Confirm return to normal operation and ensure the Bypass Alarm has cleared.



Refer to the BloodTrack Courier® User Guide for details on returning the HaemoBank™ refrigerator to normal use.

10 Service

10.1 Refrigerant Charge



Use only non-CFC R-134A refrigerant.

Full initial refrigerant charge varies by model and power requirements, which can be found on the product specification label.

Model	Power Requirements	Refrigerant	Initial Charge	Design Pressures
iBX020	100 - 230 V, 50/60 Hz	R-134A	7.5 oz. (212.62 g)	low 88 psig high 186 psig

10.2 Replace Chamber LED Lamp Strip



Switch the AC ON/OFF switch **OFF** when replacing the lamp strip.

**NOTE** Contact Haemonetics® Corporation BloodTrack® Customer Support for replacement LED lamp strip. Order Service Kit Part number 800228-1.

**Required tools:**

- ▶ #2 Phillips screwdriver

**Replace the lamp strip:**

- 1 Switch the AC ON/OFF switch **OFF**.
- 2 Using a # 2 Phillips screwdriver, detach lamp strip from chamber.
- 3 Unsnap the defective lamp strip and disconnect wires.
- 4 Connect new lamp strip to the wires.
- 5 Reattach lamp strip to chamber.
- 6 Switch the AC ON/OFF switch **ON**.

**10.3 Maintaining Tray Assembly**

**10.3.1 Remove and Install a Tray and Cover**



Please refer to the BloodTrack Courier® User Guide for details on preparing the HaemoBank™ refrigerator for service.

**Remove a tray:**

- 1 Open the exterior door, unlock, and rotate the Bypass Release handle counterclockwise 90 degrees.
- 2 Pull the tray out until it stops.



*Tray fully extended*

- 3 With one hand on each side of the tray, near the cover (at the rear of the tray), gently spread the top edges of the tray outward.
- 4 While holding the top edges of the tray outward, use your thumbs to press the forward edge of the tray cover upward.
  - ▶ The tabs on the outer edges of the tray cover will disengage from the corresponding slots on the top edges the tray
  - ▶ The front of the tray cover will lift from the tray
- 5 Lift the tray cover upward.
  - ▶ The rear of the tray cover will lift from the tray
- 6 Remove the tray cover from the tray.
- 7 While keeping the tray level, lift the tray upward in the compartment location.
- 8 Pull the tray out of the compartment location.

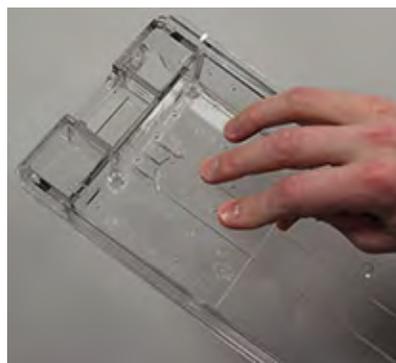
**Install a tray:**

**NOTE** The tray must be partially installed in the compartment location before the cover can be installed.

- 1 While keeping the tray level, slide the tray partially into the compartment location until the groove on the bottom of the tray crosses the tray bumper.
- 2 Set the tray down in the compartment location.
- 3 Insert the tray cover into the compartment location, on top of the tray.



*Insert tray cover*



*Posts oriented upward; tabs engaged in slots*

- ▶ The posts on the tray cover must be oriented upward
- ▶ The tabs on the rear of the tray cover should engage the corresponding slots on the back of the tray

- 4 Lower the front edge of the tray cover.
- 5 With one hand on each side of the tray, near the cover, gently spread the top edges of the tray outward.
- 6 While holding the top edges of the tray outward, use your thumbs to press the forward edge of the tray cover downward.
  - ▶ The tabs on the outer edges of the tray cover will engage the corresponding slots on the top edges of the tray



*Tab on outer edge engaged with slot*

- 7 Push the tray completely into the compartment location until it locks.
- 8 Close the exterior door.



Refer to the BloodTrack Courier® User Guide for details on returning the HaemoBank™ refrigerator to normal use.

### 10.3.2 Replace Tray Bumpers

- NOTE**
- ▶ Only use tray bumpers supplied with the Compartmental Access Refrigerator. The use of non-Compartmental Access Refrigerator tray bumpers may allow the tray to be removed without following the proper protocols of the BloodTrack® system.
  - ▶ Contact Haemonetics® Corporation BloodTrack® Customer support for replacement bumpers. Part number 800267-1.

#### Remove a tray bumper:

- 1 Remove the tray from the compartment location. (**Refer to Section III, Item 10.3.1**).
- 2 Slide the rubber tray bumper toward the side of the Compartmental Access Refrigerator.
- 3 Lift the tray bumper upward to disengage it from the keyhole in the bottom of the compartment location.
- 4 Discard the tray bumper.

#### Install a tray bumper:

- 1 Insert the post on the new rubber tray bumper through the wide end of the keyhole in the bottom of the compartment location.
- 2 Slide the tray bumper to the narrow end of the keyhole.
- 3 Grip the tray bumper and pull it upward to ensure it is installed correctly.
  - ▶ The tray bumper should not be able to be removed
  - ▶ If the tray bumper can be removed by pulling it upward, ensure it is toward the small hole of the keyhole
- 4 Reinstall the tray in the compartment location.

## Section IV: Troubleshooting

### 11 Troubleshooting



Rear access panel must remain attached while unit is in operation to protect the integrity of stored product.



Review all safety instructions prior to troubleshooting. Refer to **Section I, Item 2**.

**NOTE**

- ▶ Accessing rear and/or side panels for servicing may require moving the unit. Take care when moving units equipped with leveling legs as they may cause damage to the floor.
- ▶ For service information or to order replacement parts, contact Haemonetics® Corporation BloodTrack® Customer Support at 877.996.7877.

#### 11.1 Compartment Access Circuit Boards and Sensors Diagnostic References

##### 11.1.1 IRACS Horizontal Circuit Board LED Indicators



The IRACS horizontal circuit board is sensitive to static electricity and can be damaged by electrostatic discharge. Use proper ESD precautions when handling the board.

**NOTE**

If the IRACS horizontal circuit board must be replaced, contact Haemonetics® Corporation BloodTrack® Customer Support for replacement parts. Part number 800262-1.

The IRACS horizontal circuit board includes several labeled LEDs which indicate the status of the circuit board, the status of the multiple voltages used on the circuit board, and the status of the diagnostic functions available on the circuit board.

##### 11.1.2 Check Circuit Board Status

The “heart beat” (HRTBT) LED indicates the operational status of the circuit board.

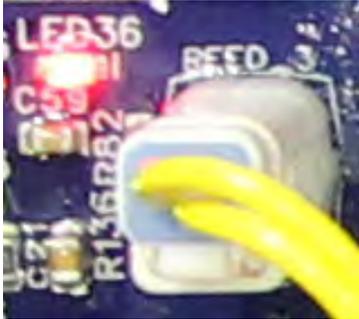


*HRTBT LED illuminated*

- ▶ Single flash of “HRTBT” LED indicates board is functioning normally.
- ▶ Double flash of “HRTBT” LED indicates board is not functioning normally, because the board recognizes its row address as being outside of a valid, pre-determined range of addresses.

### 11.1.3 Check Proximity Sensor Status

The “reed switch” LED indicates the status of the tray proximity sensor. Each proximity sensor connector includes a status LED (labeled “REED\_1”, “REED\_2”, “REED\_3”, or “REED\_4”).

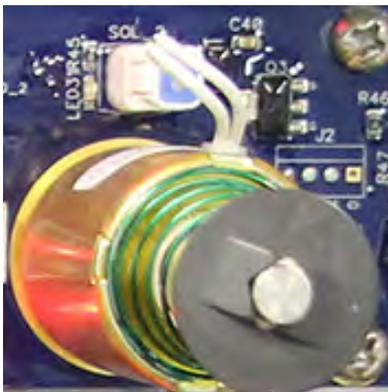


*REED\_3 with LED illuminated*

- ▶ If the “REED\_1”, “REED\_2”, “REED\_3”, or “REED\_4” LED is on, the proximity sensor status LED is indicating that a tray is detected in the compartment location.
- ▶ If the “REED\_1”, “REED\_2”, “REED\_3”, or “REED\_4” LED is off, the proximity sensor status LED is indicating that a tray is not installed (or is partially removed) in the compartment location.

### 11.1.4 Check Solenoid Status

The circuit board includes multiple LEDs to indicate whether the individual solenoids are energized or not energized. An LED (labeled “LED32”, “LED31”, “LED30”, or “LED29”) above each solenoid indicates the status of the solenoid.



*LED31*

- ▶ If the “LED32”, “LED31”, “LED30”, or “LED29” LED is on, the solenoid circuit is energized and the tray is unlocked.
- ▶ If the “LED32”, “LED31”, “LED30”, or “LED29” LED is off, the solenoid circuit is not energized and the tray is locked.

### 11.1.5 Check Voltage Conversion Status

The circuit board includes multiple LEDs to indicate whether the board is receiving and converting voltages to support multiple components on the board.



LED1, LED2 and LED3 illuminated

- ▶ If the “LED1” LED is on, then the board is receiving 24 V power.
- ▶ If the “LED2” LED is on, then the board is converting 24 V power to 5 V.
- ▶ If the “LED3” LED is on, then the board is converting 5 V power to 3.3 V.

### 11.1.6 IRACS Addresses

Row	LED43	LED39	LED40	LED41	LED42
1	0	0	0	0	1
2	0	0	0	1	0
3	0	0	0	1	1
4	0	0	1	0	0
5	0	0	1	0	1

1=ON  
0=OFF



LED43, 39, 40, 41 and 42 shown  
LED41 illuminated

Each IRACS board has a unique address, shown in binary format via LED 39, 40, 41, 42, and 43. The table represents vertically from top to bottom the order in which the LEDs should be illuminated. 1 means the LED should be illuminated, 0 means the LED should be off.

---

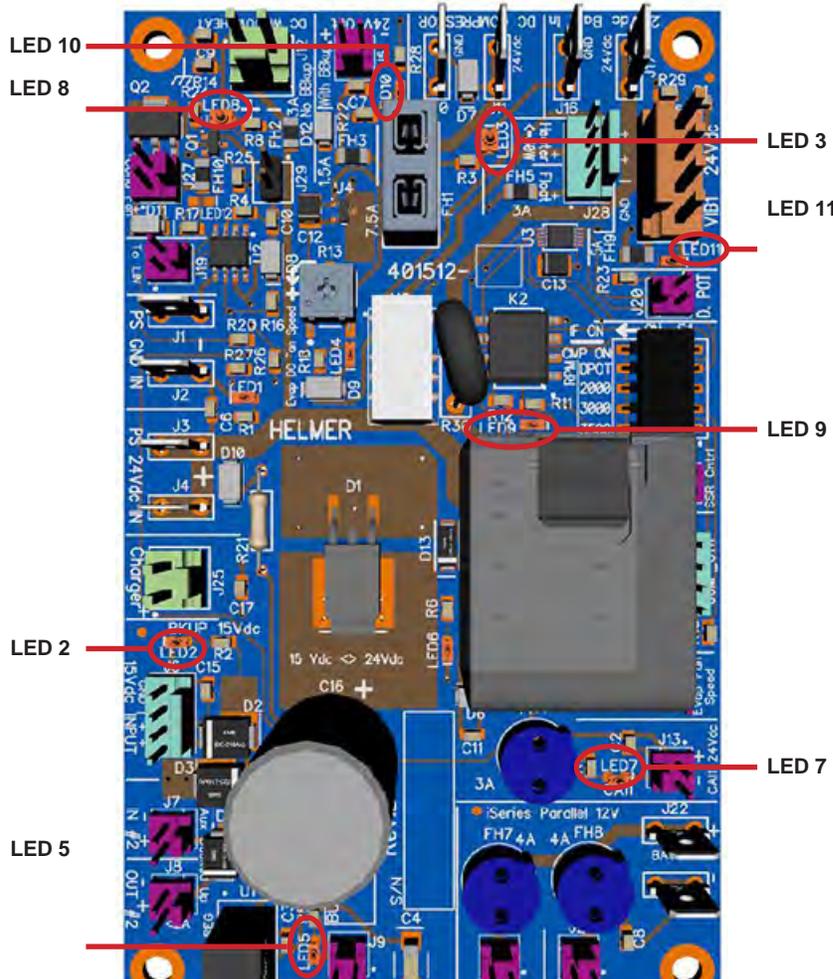
**NOTE** No two IRACS boards should have the same order of LEDs illuminated.

---

### 11.1.7 Power Distribution and Steering (PDAS) Circuit Status

The PDAS board includes multiple LEDs to indicate power and/or functional status as defined below:

- ▶ If the “LED2” is on, the i.Series® backup power for the Compartmental Control PCB and router is present.
- ▶ If the “LED3” is on, the compressor power is present and fuse FH1 is good.
- ▶ If the “LED5” is on, the router power is present and fuse FH6 is good.
- ▶ If the “LED7” is on, the Compartmental Control PCB power is present and fuse FH4 is good.
- ▶ If the “LED8” is on, heated glass power is present and fuse FH2 is good.
- ▶ If the “LED9” is on, the Refrigeration Control PCB is calling for the compressor to be on.
- ▶ If the “LED10” is on, the evaporator fan power is present and fuse FH3 is good.
- ▶ If the “LED11” is on, the VIB power is present and fuse FH9 is good.



Power Distribution and Steering board

## 11.2 Initiate Diagnostic Mode

The circuit board includes buttons which initiate a diagnostic mode. While diagnostic mode is initiated, the functions for each compartment location can be tested. When the circuit board is in diagnostic mode, the board will not recognize inputs from the BloodTrack® touchscreen/computer.

- 1 Press the “DIAG MODE” button to initiate diagnostic mode.
  - ▶ The “DIAG MODE” LED33 will turn on (the “DIAG MODE” LED33 is located below the “HRTBT” LED).



DIAG MODE button



DIAG MODE LED

- 2 Press the “1-STEP” button to select Position 1.
  - ▶ Position 1 corresponds to the compartment location in column “A”, when viewed from the front of the Compartmental Access Refrigerator™.
  - ▶ With Position 1 selected, the solenoid powers on, and the red and blue LEDs turn on briefly.
  - ▶ If the optical sensor for Position 1 is interrupted, the red LED will turn off for the duration the sensor is interrupted.
- 3 Wait until the red and blue LEDs turn off, then press the “1-STEP” button again to select Position 2.
  - ▶ Position 2 corresponds to the compartment location in column “B”, when viewed from the front of the Compartmental Access Refrigerator™.
  - ▶ With Position 2 selected, the solenoid powers on, and the red and blue LEDs turn on briefly.
  - ▶ If the optical sensor for Position 2 is interrupted, the red LED will turn off for the duration that the sensor is interrupted.
- 4 Wait until the red and blue LEDs turn off, then press the “1-STEP” button again to select Position 3.
  - ▶ Position 3 corresponds to the compartment location in column “C”, when viewed from the front of the Compartmental Access Refrigerator™.
  - ▶ With Position 3 selected, the solenoid powers on, and the red and blue LEDs turn on briefly.
  - ▶ If the optical sensor for Position 3 is interrupted, the red LED will turn off for the duration that the sensor is interrupted.
- 5 Wait until the red and blue LEDs turn off, then press the “1-STEP” button again to select Position 4.
  - ▶ Position 4 corresponds to the compartment location in column “D”, when viewed from the front of the Compartmental Access Refrigerator™.
  - ▶ With Position 4 selected, the solenoid powers on, and the red and blue LEDs turn on briefly.
  - ▶ If the optical sensor for Position 4 is interrupted, the red LED will turn off for the duration that the sensor is interrupted.
- 6 After Position 4 check ends, IRACS will exit from diagnostic mode and return the circuit board to normal operation.

**NOTE** With diagnostic mode initiated, if 30 seconds elapse without any actions (button presses), the circuit board will automatically exit diagnostic mode and return to normal operation.

### 11.3 Network Communications Reference Guide

#### 11.3.1 BloodTrack® Interface

The i.C<sup>3</sup> user interface is in 1 of 3 states at all times. Please refer to the table below for BloodTrack® access levels for each i.C<sup>3</sup> state.

i.C <sup>3</sup> Communication State	i.C <sup>3</sup> Screens	BloodTrack® to i.C <sup>3</sup> Network Access Level
Receiving commands/Receiving status requests	Home screen Haemonetics screensaver Temperature graph screensaver Apps Screen Access Control Screen Download Screen	Tier 1; Tier 2; Tier 3
Receiving status requests only	All other operating screens	Tier 3
Will not receive commands or status requests	Initial startup Firmware updates	No access

- a** Tier 1 - i.C<sup>3</sup> accepts requests to activate ethernet communication which can impose date and time changes on the i.C<sup>3</sup>, as the BloodTrack® system keeps the master date and time.
- b** Tier 2 - i.C<sup>3</sup> accepts requests to change parameters. These include:
  - Product temperature setpoint
  - Product high alarm setpoint
  - Product low alarm setpoint
  - Air high alarm setpoint
  - Air low alarm setpoint
- c** Tier 3 - i.C<sup>3</sup> accepts requests for status information only (Example: current refrigerator temperature). No changes can be made.

### 11.4 General Operation Problems

Problem	Possible Cause	Action
The front access door does not open easily.	Debris in the hinges	▶ Confirm the hinges are free of debris. Clean the hinges if necessary.
	Door hinges are not lubricated	▶ Using general-purpose grease, lubricate the pivots in the hinges. <b>NOTE:</b> Take care when applying grease.
	Hinge cam is faulty	▶ Confirm the hinge cam is not damaged. Replace the cam if necessary.
The monitor display is difficult to read.	Screen brightness is set too low	▶ Change the screen brightness. Touch i.C <sup>3</sup> APPS, Brightness. Touch the icon corresponding to the desired brightness setting.
The monitoring system is not responding.	Digital electronics are locked because of an interruption in power	▶ Reset the monitoring system by first turning battery power off, then AC power OFF and back ON.
“Probe Failure” alarm is displayed on the monitor.	One or more of the temperature probes has failed, or probe wiring is an open circuit	<ul style="list-style-type: none"> <li>▶ Check the i.C<sup>3</sup> Event Log Detail screen for the specific probe failure. Touch i.C<sup>3</sup> APPS, Information Logs, Event Logs. Touch the individual event to view the probe failure code.</li> <li>▶ Check the probe wire connection to the control board and secure the connection if necessary.</li> <li>▶ Confirm the probe is providing resistance in the range of 86 Ω to 110 Ω. Replace the probe if resistance is outside of specified range.</li> </ul>
User setting changes revert back to previous settings.	BloodTrack <sup>®</sup> may overwrite various user settings	▶ No action. Expected condition when BloodTrack <sup>®</sup> attached.
Circuit breakers periodically tripping.	Kiosk/printer (if attached) drawing too much power	<ul style="list-style-type: none"> <li>▶ Plug kiosk/printer into a wall outlet.</li> <li>▶ Contact Haemonetics<sup>®</sup> Corporation BloodTrack<sup>®</sup> Customer Support.</li> </ul>

### 11.5 Chamber Temperature Problems

Problem	Possible Cause	Action
The chamber temperature displayed is higher or lower than the actual temperature.	Probe bottle is empty, or the amount of solution is too low	▶ Check the level of product simulation solution in the bottle. Refill the bottle if necessary.
	Primary probe is not calibrated	<ul style="list-style-type: none"> <li>▶ Confirm the primary probe is reading correctly.</li> <li>▶ Contact Haemonetics<sup>®</sup> Corporation BloodTrack<sup>®</sup> Customer Support if the probe is reading incorrectly.</li> </ul>
	Digital electronics are locked because of an interruption in power	▶ Reset the monitoring system by first turning Compartmental Access Refrigerator battery power OFF, then AC power OFF and then both back ON.
	Connections for the primary probe are loose	<ul style="list-style-type: none"> <li>▶ Check the probe wire connection to the control board and secure the connection if necessary.</li> <li>▶ Check the continuity of the probe wiring. Replace the probe if necessary.</li> <li>▶ At the CP board, place jumper across J13 pin associated with primary probe. Display should read 4C +/-2C.</li> <li>▶ Confirm the probe is providing resistance in the range of 86 Ω to 110 Ω. Replace the probe if resistance is outside of specified range.</li> <li>▶ Contact Haemonetics<sup>®</sup> Corporation BloodTrack<sup>®</sup> Customer Support.</li> </ul>
The chamber temperature meets an alarm condition, but the appropriate temperature alarm is not active.	Temperature alarm setpoint was changed.	▶ Check the current setpoints for the temperature alarms. Change the setpoints if necessary (refer to <b>Section II, Item 8.3.1</b> ).

Problem	Possible Cause	Action
The compressor runs continuously.	Compartmental Access Refrigerator setpoint is set too low	<ul style="list-style-type: none"> <li>▶ Confirm the setpoint is set within the operating range and change it if necessary (refer to <b>Section II, Item 8.3.1</b>).</li> </ul>
	Temperature control probe inaccuracy	<ul style="list-style-type: none"> <li>▶ Verify control offset value is displaying between -3 to +3.</li> <li>▶ Value displayed for the control probe is close to display temperature.</li> <li>▶ Confirm the probe is providing resistance in the range of 98 <math>\Omega</math> to 110 <math>\Omega</math>. Replace the probe if necessary.</li> <li>▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.</li> </ul>
	Compressor controller is not functioning properly	<ul style="list-style-type: none"> <li>▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.</li> </ul>
	No air flow across condenser	<ul style="list-style-type: none"> <li>▶ Clean condenser.</li> <li>▶ Verify condenser fan motor is operating.</li> </ul>
	Improper air flow across evaporator	<ul style="list-style-type: none"> <li>▶ Verify evaporator fan motor is operating.</li> </ul>
	i.C <sup>3</sup> control board is faulty	<ul style="list-style-type: none"> <li>▶ Confirm the control indicates the compressor should be running. Touch i.C<sup>3</sup> APPS, Settings (enter the Settings password), Device Status.</li> <li>▶ If the compressor should be running, no further action is needed.</li> <li>▶ If the compressor should not be running, check the control board compressor relay for SSR1. If the relay is closed, replace the control board.</li> </ul>

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>																				
The chamber temperature does not stabilize at the Compartmental Access Refrigerator setpoint.	Primary probe bottle is not at proper solution level	▶ Refill bottle if necessary (refer to <b>Section II, Item 7.1.2</b> ).																				
	Ambient air temperature around the Compartmental Access Refrigerator is too warm	▶ Confirm the Compartmental Access Refrigerator is placed appropriately (refer to the <b>Section II, Item 5</b> for location requirements).																				
	Air circulation at the top of the chamber is not adequate	▶ Ensure guard panel is installed between unit cooler and compartment assembly.																				
	Condenser grill is dirty	▶ Check the condenser grill. Clean the grill if necessary (refer to <b>Section III, Item 9.6.1</b> ).																				
	Condenser fan is not running	▶ Check the condenser fan wiring connection. Secure the connection if necessary. ▶ If the wiring connection is secure, replace the fan motor.																				
	Unit cooler fan is not running	▶ Check for voltage to the fan when door switch is closed at CP board J44 NO pin. ▶ Check that PDAS LED10 is lit. ▶ If voltage is present when switch is closed, replace the fan motor. ▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.																				
	Refrigerant level is too low	▶ Check the refrigeration lines for leaks and repair them if necessary. Check the refrigerant level. Recharge the refrigerant if necessary.																				
	Compressor motor has seized	▶ Check LED for failure code ▶ Replace the compressor. ▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.																				
	Compressor or refrigeration system is not functioning properly	▶ Check compressor controller diagnostic LED for error: <table border="1" data-bbox="820 961 1430 1276"> <thead> <tr> <th>LED indication (# of flashes)</th> <th>Error Description</th> <th>Action</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>No error (check power supply)</td> <td></td> </tr> <tr> <td>1</td> <td>Voltage failure</td> <td>Check power supply for 24 Vdc</td> </tr> <tr> <td>2</td> <td>Fan relay failure</td> <td></td> </tr> <tr> <td>3</td> <td>Motor failure</td> <td></td> </tr> <tr> <td>4</td> <td>Speed failure</td> <td></td> </tr> <tr> <td>5</td> <td>Thermal failure</td> <td>Check fan and clean grill</td> </tr> </tbody> </table>	LED indication (# of flashes)	Error Description	Action	0	No error (check power supply)		1	Voltage failure	Check power supply for 24 Vdc	2	Fan relay failure		3	Motor failure		4	Speed failure		5	Thermal failure
LED indication (# of flashes)	Error Description	Action																				
0	No error (check power supply)																					
1	Voltage failure	Check power supply for 24 Vdc																				
2	Fan relay failure																					
3	Motor failure																					
4	Speed failure																					
5	Thermal failure	Check fan and clean grill																				
A component is faulty or internal connections are loose	▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.																					

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
Compressor does not run, the D21 LED on the i.C <sup>3</sup> control board is lit, and no compressor diagnostic LEDs are lit	PDAS solid state relay faulty	▶ With power active, move PDAS S1 top switch (CMP ON) to the left and check if CMP starts. If yes, replace the PDAS (401512-1). If not, return top switch to the right. ▶ With power active, verify LED3 on PDAS near fuse FH1 is illuminated, if not replace fuse FH1. ▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.

11.6 i.C<sup>3</sup> Alarm Activation Problems

Problem	Possible Cause	Action
The Compartmental Access Refrigerator is in an alarm condition, but alarms are not audible.	Audible alarms have been muted	<ul style="list-style-type: none"> <li>▶ Verify audible alarms are not muted. Touch the Mute button repeatedly until the Mute timer indicates no time delay.</li> <li>▶ Check alarm volume level and tone selection. Touch i.C<sup>3</sup> settings (enter password) / sound settings.</li> </ul>
	Temperature monitor/control board is faulty	▶ Replace parts with those included in the control board kit, or replace the monitor/control board.
	A component is faulty or internal connections are loose	▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.
A user change to an alarm setting reverts to an earlier setting	BloodTrack® can overwrite various user settings	▶ No action required. Expected condition when BloodTrack® attached.
The chamber temperature meets an alarm condition, but the appropriate temperature alarm is not active.	Temperature alarm setpoint was changed	▶ Check the current setpoints for the temperature alarms. Change the setpoints if necessary (refer to <b>Section II, Item 8.3.1</b> ).
The Compartmental Access Refrigerator meets an alarm condition, but the appropriate alarm is not active.	Alarm setpoint was changed	<ul style="list-style-type: none"> <li>▶ Check the current setpoints for the alarms. Change the setpoints if necessary (refer to <b>Section II, Item 8.3.1</b>).</li> <li><b>NOTE:</b> BloodTrack® may automatically change setpoints.</li> </ul>
	A component is faulty or internal connections are loose	▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.
The High Temperature alarm activates when the door is opened, then clears shortly after the door is closed.	Probe bottle is empty	▶ Check level of product simulation solution in the bottles. Refill bottle if necessary (refer to <b>Section II, Item 7.1.2</b> ).
	High temperature alarm setpoint is set too low	<ul style="list-style-type: none"> <li>▶ Check the setpoint. Change the setpoint if necessary (refer to <b>Section II, Item 8.3.1</b>).</li> <li><b>NOTE:</b> BloodTrack® may automatically change setpoints.</li> </ul>
	Connections for the primary probe are loose	▶ Test the probe connections. Secure the connections if necessary.
	Primary probe is faulty	▶ Test the probe. Replace the probe if necessary.
	Unit cooler fan continues to run while the door is open	▶ Test the door switch and unit cooler fan connections. Secure the connections if necessary. Replace the door switch or fan motor if necessary.
	A component is faulty or internal connections are loose	▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.
The Compartmental Access Refrigerator is connected to power, but the AC Power Failure alarm is active.	Circuit breaker is tripped or faulty	▶ Reset or replace the circuit breaker.
	AC power ON/OFF switch is OFF	▶ Turn the AC power ON/OFF switch to the ON position.
	AC power ON/OFF switch is faulty	▶ Replace the AC power ON/OFF switch.
	Power cord is faulty	▶ Confirm the power cord is connected securely. Secure the power cord if necessary. Replace power cord if necessary.
	Outlet connection is faulty	▶ Verify power at the outlet. Repair the original outlet or connect to a different outlet if necessary.
	A component is faulty or internal connections are loose	▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.
The Door Open alarm is activating sporadically.	Door is not closed completely	<ul style="list-style-type: none"> <li>▶ Confirm hinges are free of dirt or debris. Clean if necessary.</li> <li>▶ Confirm the hinge cams are not damaged. Replace the cams if necessary.</li> </ul>
	Connections for the door switch are faulty	▶ Test the switch connections. Secure the connections if necessary.
	Door switch is faulty	▶ Replace the door switch.
	Compartmental Control PCB assembly is faulty	▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
The Condenser alarm is active.	Condenser alarm setpoint is too low	<ul style="list-style-type: none"> <li>▶ Confirm the alarm setpoint is at the appropriate value (refer to <b>Section II, Item 8.3</b>).</li> </ul> <b>NOTE:</b> BloodTrack® may automatically change setpoints.
	Compressor is overheating due to a lack of air flow	<ul style="list-style-type: none"> <li>▶ Check the condenser grill and clean if necessary (refer to <b>Section III, Item 9.6.1</b>).</li> <li>▶ Confirm the Compartmental Access Refrigerator is correctly located (refer to <b>Section II, Item 5</b> for location requirements).</li> </ul>
	Condenser fan motor is faulty	<ul style="list-style-type: none"> <li>▶ Replace the condenser fan motor.</li> </ul>
	Connections for the condenser temperature probe are loose.	<ul style="list-style-type: none"> <li>▶ Test the probe connections. Secure the connections at CP board if necessary.</li> </ul>
	Condenser temperature probe is faulty	<ul style="list-style-type: none"> <li>▶ Test the probe. Replace the probe if necessary.</li> <li>▶ Confirm the probe is providing resistance in the range of 78 Ω to 120 Ω.</li> </ul>
	A component is faulty or internal connections are loose	<ul style="list-style-type: none"> <li>▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.</li> </ul>
The Low/No Battery alarm is activating sporadically.	Battery voltage level on the rechargeable backup battery for the monitoring system is low	<ul style="list-style-type: none"> <li>▶ Ensure battery has had 24 hours to recharge after an extended use.</li> <li>▶ Replace the backup battery for the monitoring system.</li> </ul>

## 11.7 Testing Problems

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
The automatic temperature tests do not work.	High Alarm setpoint is set significantly higher than the default value, or the Low Alarm setpoint is set significantly lower than the default value	<ul style="list-style-type: none"> <li>▶ Confirm the alarm setpoints are set at the appropriate values.</li> <li>▶ Test the temperature alarms manually.</li> </ul>
	Connections for the primary probe are loose	<ul style="list-style-type: none"> <li>▶ Test the probe connections. Secure the connections if necessary.</li> </ul>
	Primary probe is faulty	<ul style="list-style-type: none"> <li>▶ Confirm the probe is reading correctly. Calibrate the probe if necessary.</li> <li>▶ Confirm the probe is providing resistance in the range of 98 Ω to 110 Ω. Replace the probe if necessary.</li> </ul>
	Control board is faulty	<ul style="list-style-type: none"> <li>▶ Replace parts with those included in the control board kit, or replace the monitor/control board.</li> </ul>

## 11.8 Condensation Problems

Problem	Possible Cause	Action
There is excessive water in the chamber.	Humid air is entering the chamber	<ul style="list-style-type: none"> <li>▶ Confirm the Compartmental Access Refrigerator is level, and the door is aligned, closing tightly, and sealing correctly. Correct issues as necessary.</li> <li>▶ Ensure cabinet penetrations are sealed.</li> </ul>
	Connection between the unit cooler and the drain tube is loose	<ul style="list-style-type: none"> <li>▶ Confirm the connection is secure. Tighten the connection if necessary.</li> </ul>
	Drain line is plugged	<ul style="list-style-type: none"> <li>▶ Confirm the drain tube is free of debris. Remove debris if necessary.</li> <li>▶ Replace drain tube if necessary.</li> </ul>
	Humid air is entering the chamber	<ul style="list-style-type: none"> <li>▶ Confirm the Compartmental Access Refrigerator is level, and the door is aligned, closing tightly, and sealing correctly. Correct issues as necessary.</li> <li>▶ Verify rear panel is sealing correctly. Correct issues as necessary.</li> <li>▶ Ensure cabinet penetrations are sealed.</li> </ul>
There is excessive humidity on the door or glass.	Humid air is entering the chamber	<ul style="list-style-type: none"> <li>▶ Confirm the Compartmental Access Refrigerator is level, and the doors are aligned, closing tightly, and sealing correctly. Correct issues as necessary.</li> </ul>
	Heated glass door is not functioning properly	<ul style="list-style-type: none"> <li>▶ Check for 24Vdc voltage at PDAS J12.</li> <li>▶ Check DC amperage for door glass (1.25 - 1.42 Amps, 24V DC).</li> </ul>
	Relative humidity around the Compartmental Access Refrigerator is above 80%	<ul style="list-style-type: none"> <li>▶ Confirm the Compartmental Access Refrigerator is placed properly. Refer to <b>Section II, Item 5</b>.</li> </ul>
Water leaks from the bottom of the Compartmental Access Refrigerator.	Humid air is entering the chamber	<ul style="list-style-type: none"> <li>▶ Confirm the Compartmental Access Refrigerator is level, and the door is aligned, closing tightly, and sealing correctly.</li> </ul>
	Relative humidity around the Compartmental Access Refrigerator is above 80%	<ul style="list-style-type: none"> <li>▶ Confirm the Compartmental Access Refrigerator is placed properly. Refer to <b>Section II, Item 5</b>.</li> </ul>
	Excessive water is found in the evaporation tray	<ul style="list-style-type: none"> <li>▶ See action steps listed previously in <b>Section IV, Item 11.8</b>.</li> <li>▶ Contact Haemonetics® Corporation BloodTrack® Customer Support to correct issues as necessary.</li> </ul>

## 11.9 Access Control Lock Problems

Problem	Possible Cause	Action
Exterior door does not unlock when barcode is scanned.	Compartmental Control PCB assembly is unresponsive	<ul style="list-style-type: none"> <li>▶ Switch the AC power switch and the backup battery switch <b>OFF</b> and then <b>ON</b> again to reboot.</li> <li>▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.</li> </ul>
	Barcode scanner does not work or is not functioning properly	<ul style="list-style-type: none"> <li>▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.</li> </ul>
	BloodTrack® interface is unresponsive	<ul style="list-style-type: none"> <li>▶ Check that ethernet cable is connected between kiosk and iBX020.</li> <li>▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.</li> </ul>
Exterior door does not re-lock after door is closed.	BloodTrack® has not commanded door to lock	<ul style="list-style-type: none"> <li>▶ Ensure no trays are illuminated.</li> </ul>
	Compartmental Control PCB assembly is unresponsive	<ul style="list-style-type: none"> <li>▶ Verify LED9 on Compartmental Control PCB assembly is off.</li> <li>▶ Switch the AC power switch and the backup battery switch <b>OFF</b> and then <b>ON</b> again to reboot.</li> <li>▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.</li> </ul>
	i.C <sup>3</sup> CP board is not functioning correctly	<ul style="list-style-type: none"> <li>▶ Verify voltage at J16 PIN2. Replace board if no voltage present.</li> <li>▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.</li> </ul>
	Magnetic lock is defective	<ul style="list-style-type: none"> <li>▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.</li> </ul>

## 11.10 Compartment Assembly Problems

Problem	Possible Cause	Action
Tray does not unlock when barcode is scanned.	Barcode scanner does not work or is not functioning properly	▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.
	Compartmental Control PCB assembly is unresponsive	▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.
	BloodTrack® interface is unresponsive	▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.
	IRACS board is not functioning properly	▶ Verify refrigerator 24V DC power supply output is at 24V DC ( $\pm 1V$ DC). ▶ Verify solenoid LED is on when tray is illuminated.
	Solenoid is faulty	▶ Ensure LED above the solenoid is illuminated to verify solenoid is receiving power. ▶ Ensure solenoid is not loose. Tighten if necessary.
	Latch mechanism is faulty	▶ Replace latch mechanism.
Tray does not re-lock when closed.	Obstruction in the compartment	▶ Remove obstruction.
	Latch mechanism is faulty	▶ Replace latch mechanism.
	Solenoid is faulty	▶ Inspect return spring on solenoid. ▶ Perform IRAC manual diagnostic to ensure solenoid is not sticking after actuation. ▶ Replace solenoid if necessary.
Bypass Release handle and lock do not release.	Lock is engaged	▶ Ensure correct key has been inserted and is in the unlock position.
	Bypass Release handle is broken	▶ Replace handle.
LED indicator lamp does not illuminate to indicate which tray is unlocked.	IRACS board is not functioning properly	▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.
Multiple LED indicator lamps illuminate to indicate multiple trays are unlocked.	IRACS board is not functioning properly	▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.
Unlocked trays can be completely removed.	Tray bumper is not installed	▶ Install the tray bumper.
	Non-factory tray bumper is installed	▶ Install a factory-supplied tray bumper.
No compartment unlocks.	VIB is not set correctly or is faulty	▶ Check that each row shows a unique address from 1 to 5 (Refer to <b>Section IV, Item 11.1.6</b> ) ▶ Check and set rotary switch on the VIB then cycle refrigerator AC and battery power. VIB rotary switch is to be set to position 0. ▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.
	IRACS is faulty	▶ Contact Haemonetics® Corporation BloodTrack® Customer Support.

## Section V: Parts & Schematics

### 12 Parts

**NOTE**

- ▶ Removing and replacing parts may only be performed by designated service technicians.
- ▶ Replacement parts that are included in a service kit are designated with an "800-level" part number (800XXX-X).
- ▶ Individual replacement parts are designated with part numbers other than "800-level" part numbers.
- ▶ Service kits and replacement parts are available from Haemonetics® Corporation BloodTrack® Customer Support at 877.996.7877.

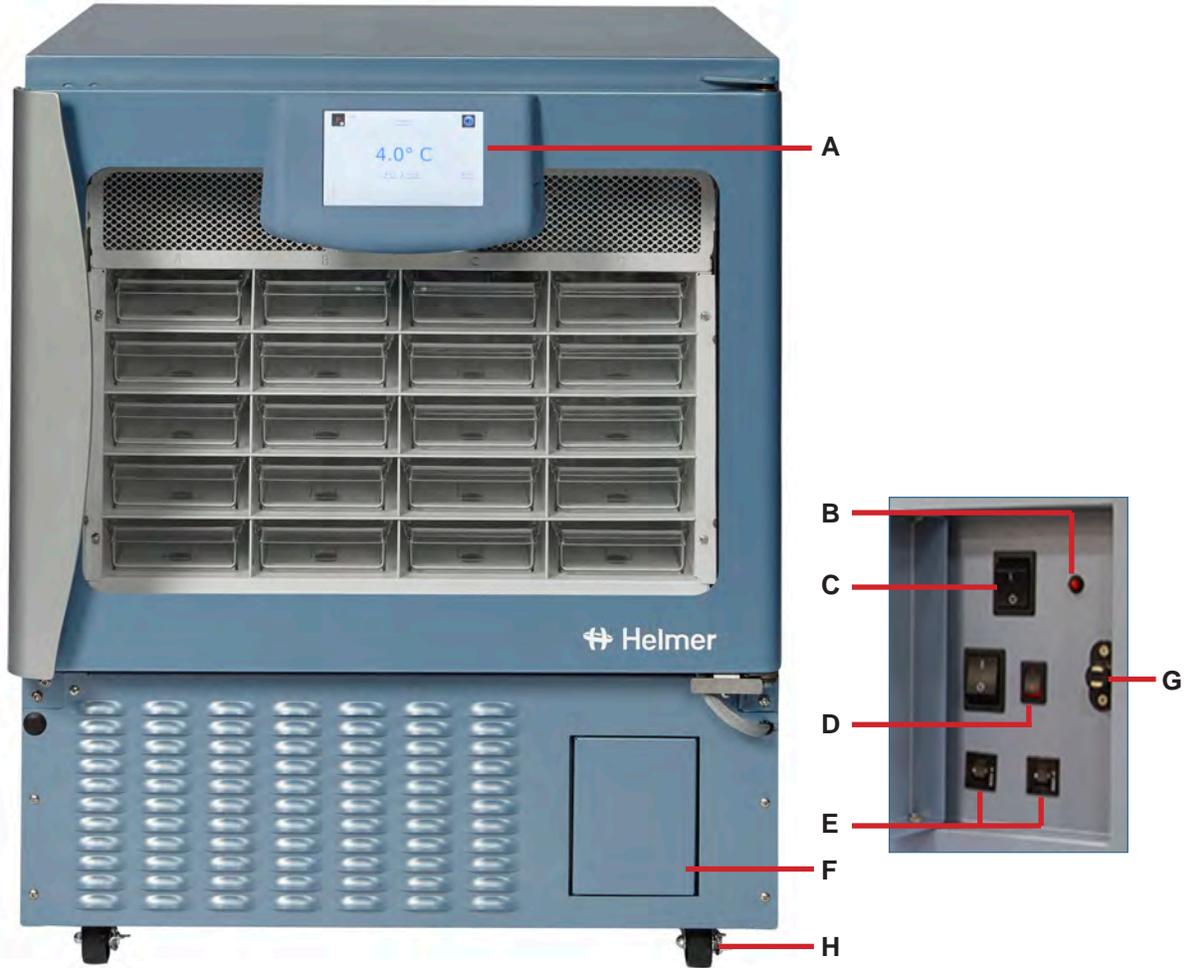


- ▶ Review all safety instructions prior to troubleshooting. Refer to **Section I, Item 2**.
- ▶ Maintenance should only be performed by designated service technicians.



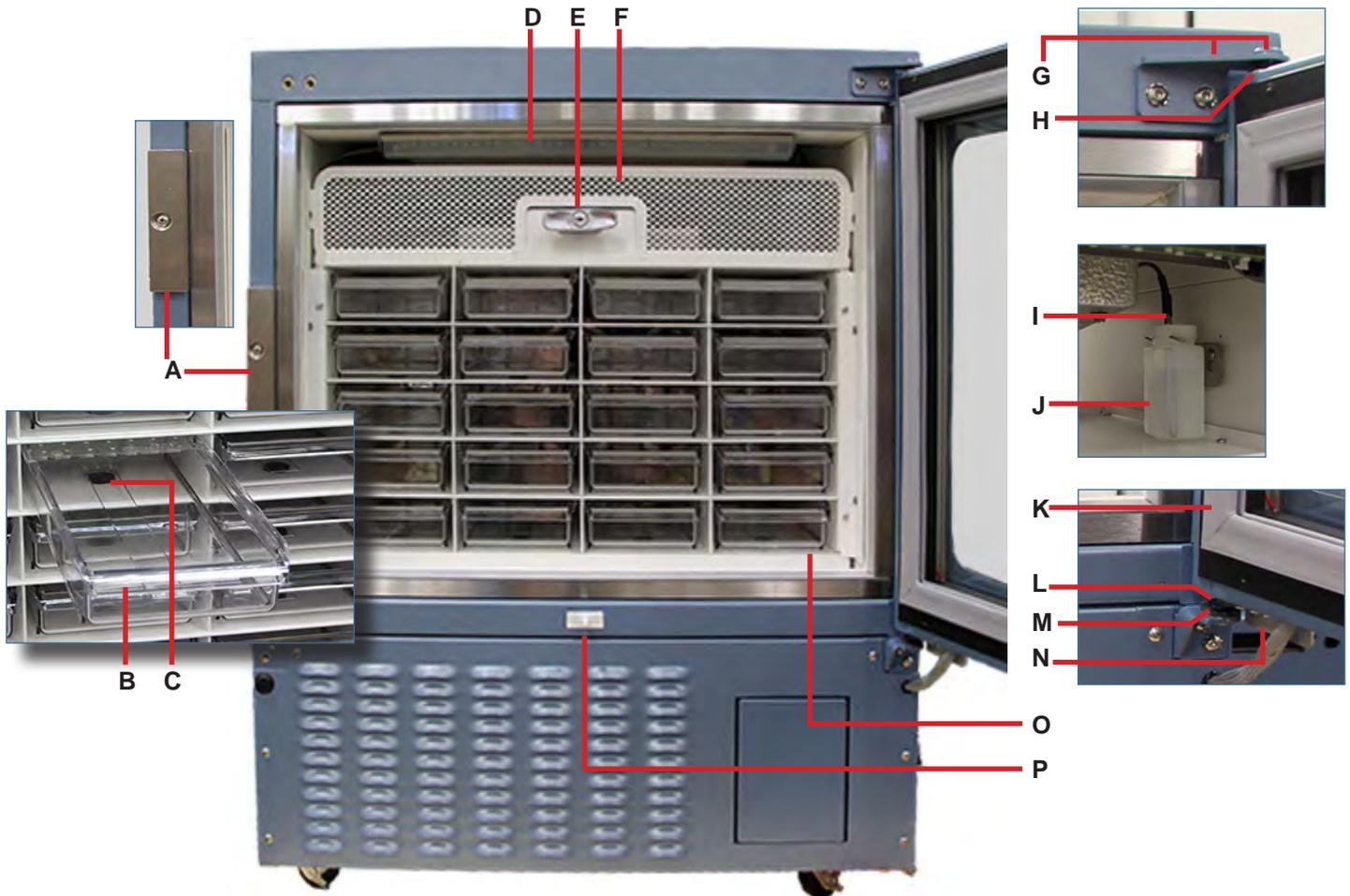
- ▶ Before replacing parts, protect items in the Compartmental Access Refrigerator from extended exposure to adverse temperature.
- ▶ Allow the Compartmental Access Refrigerator to stabilize at temperature setpoint after replacing parts or after extended door opening.

12.1 Front



Label	Description	Part Number / Service Kit Number
A	i.C <sup>3</sup> user interface	Refer to <b>Section V, Item 12.3</b> for part numbers.
B	Compressor troubleshooting LED	800315-1
C	AC ON/OFF switch	800214-1
D	i.C <sup>3</sup> monitoring / Access Control backup battery ON/OFF switch	800259-1
E	Circuit breakers	800305-1
F	Switch panel access door	Call for part number
G	Access door magnetic latch	Call for part number
H	Caster (swivel with brake)	800303-1

12.2 Front Interior



Label	Description	Part Number / Service Kit Number
A	Access Control door lock (inside door frame/handle)	800220-1
B	Tray	800266-1
C	Tray bumper (quantity 4)	800267-1
D	Chamber light (includes circuit board and cover)	800228-1
E	Bypass Release handle and lock	220642
F	Grill	Call for part number
G	Hinge assembly (includes upper and lower)	400377-1
H	Upper hinge bearing	Call for part number
I	Primary probe (located behind grill)	800309-1
J	Probe bottle and glycerin kit (located behind grill)	800308-1
K	Door gasket	800302-1
L	Lower hinge cam (quantity 2)	320742-1
M	Lower hinge bearing	Call for part number
N	Door stop	320763-1
O	Compartment assembly	Call for part number.
P	Door switch	800246-1

**NOTE** The front door is available in left-hinged or right hinged configuration and is not field reversible.

12.3 Control System and Display



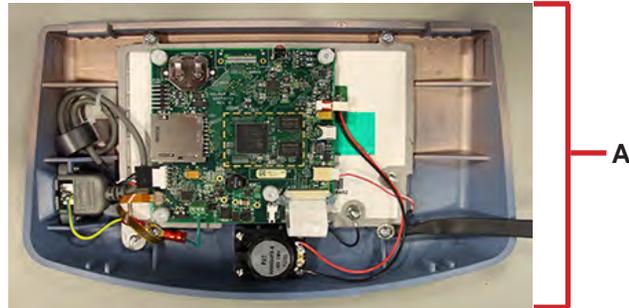
- ▶ The i.C<sup>3</sup> display assembly is sensitive to static electricity and can be damaged by electrostatic discharge. Use proper ESD precautions when handling the display assembly.
- ▶ Although the touchscreen and display board may be replaced independently of the i.C<sup>3</sup> display assembly, Helmer recommends replacing the complete assembly.
- ▶ The i.C<sup>3</sup> control board is sensitive to static electricity and can be damaged by electrostatic discharge. Use proper ESD precautions when handling the board.



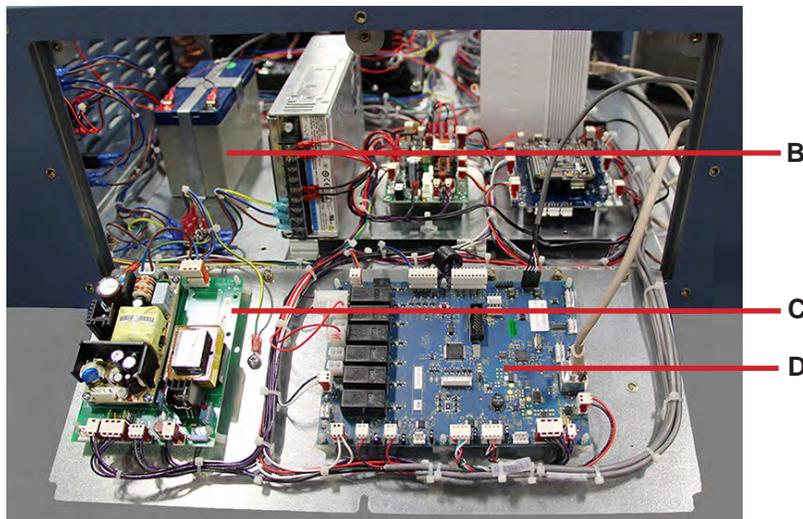
Switch the Compartmental Access Refrigerator AC ON/OFF switch **OFF** and disconnect the AC power cord from AC power before opening the electrical box.



Front view, LCD touchscreen



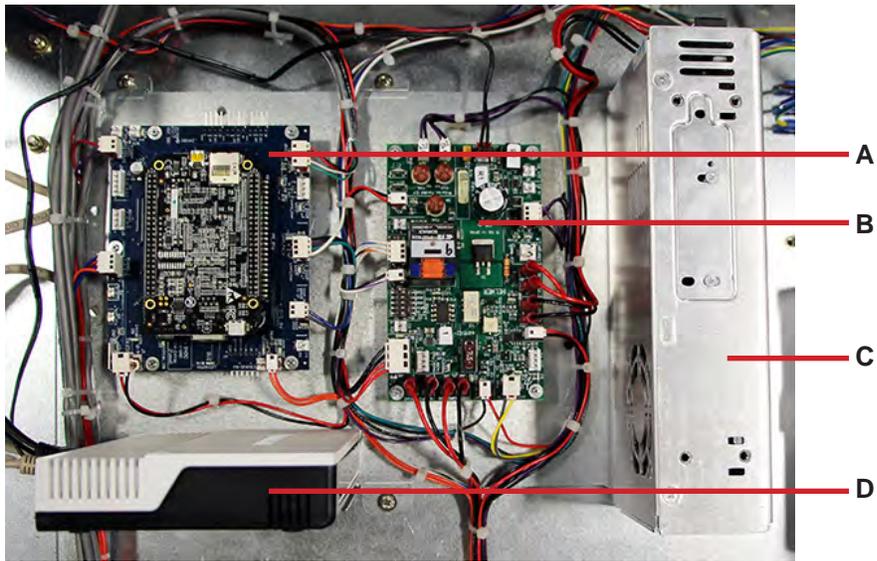
Rear view of display, showing display board



Components located on drop-down panel

Label	Description	Part Number / Service Kit Number
Not Shown	Interface communication cable	800253-1
Not Shown	Power cable	800253-1
A	Display assembly (includes touchscreen, display board, interface cable, speaker)	800254-1
B	i.C <sup>3</sup> monitoring / Access Control backup battery	800251-1
C	i.C <sup>3</sup> Power PCB	800255-1
D	i.C <sup>3</sup> Control PCB	800252-1

12.5 Compartmental Access Components



Label	Description	Part Number / Service Kit Number
A	Compartmental control PCB assembly	800222-1
B	Power Distribution and Steering board (PDAS)	800311-1
C	24V DC power supply	800310-1
D	Router with RJ45-Ethernet ports	800260-1

12.6 Rear Exterior



The amperage sum of the kiosk and printer connected to the iBX020 AC output power receptacle cannot exceed 2 Amps. If the sum is greater than 2 Amps, the printer must be connected to an alternate power source.

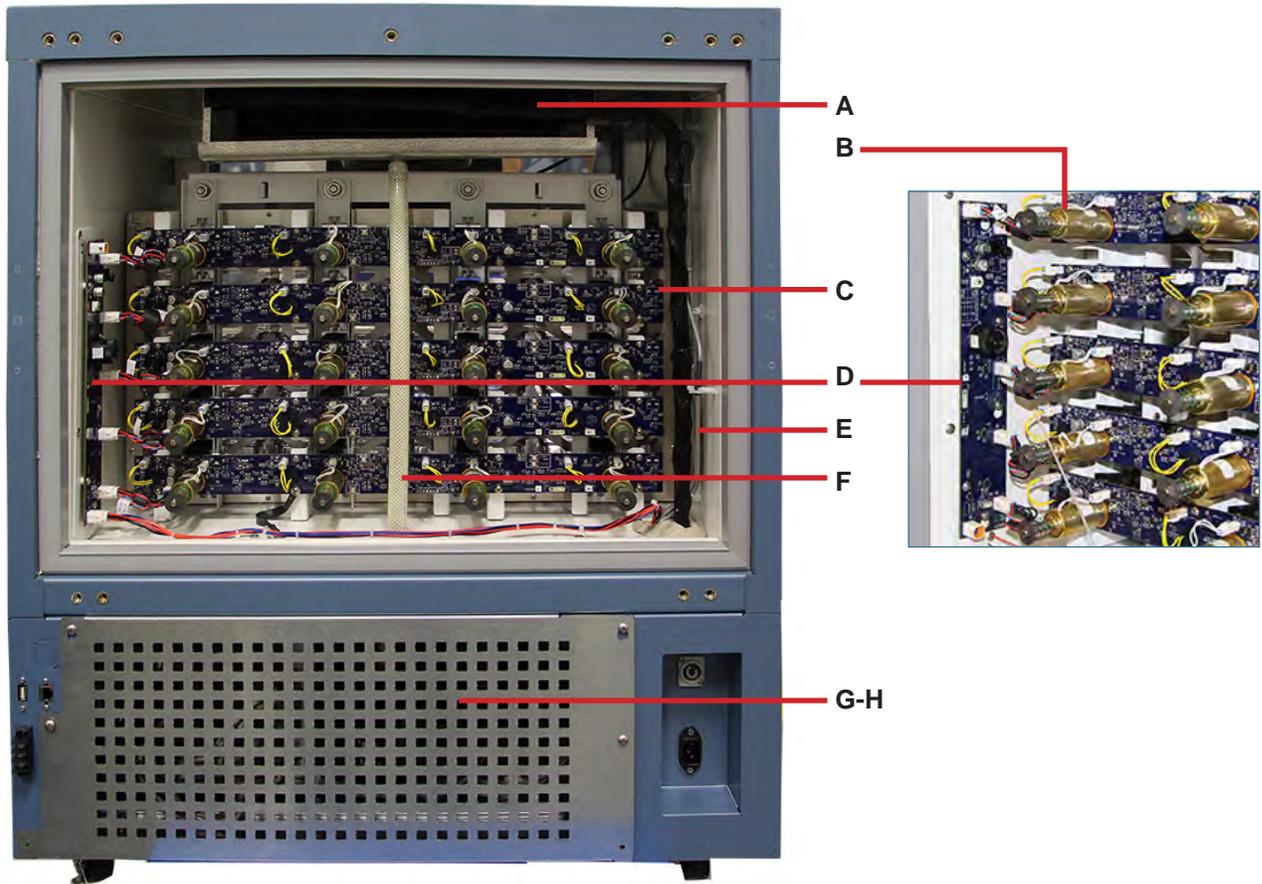


When using 100V system, the amperage draw of the kiosk and printer connected to the iBX020 AC output power receptacle cannot exceed 1.25 Amps.



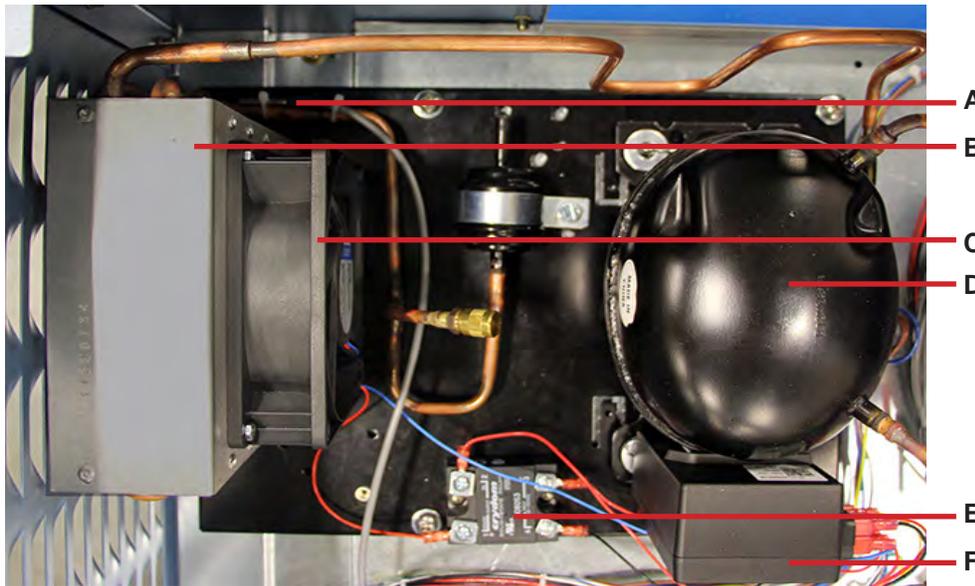
Label	Description	Part Number / Service Kit Number
A	Removable rear panel	Call for part number
B	iBX020 iC <sup>3</sup> USB	Call for part number
C	iBX020 RJ45 Ethernet port for connection to BloodTrack® kiosk	Call for part number
D	Remote alarm contacts	Call for part number
E	AC output power cord receptacle (optional use with BloodTrack® kiosk; non-fused; must limit)	Call for part number
F	iBX020 power entry / line filter	Call for part number

12.7 Rear Interior



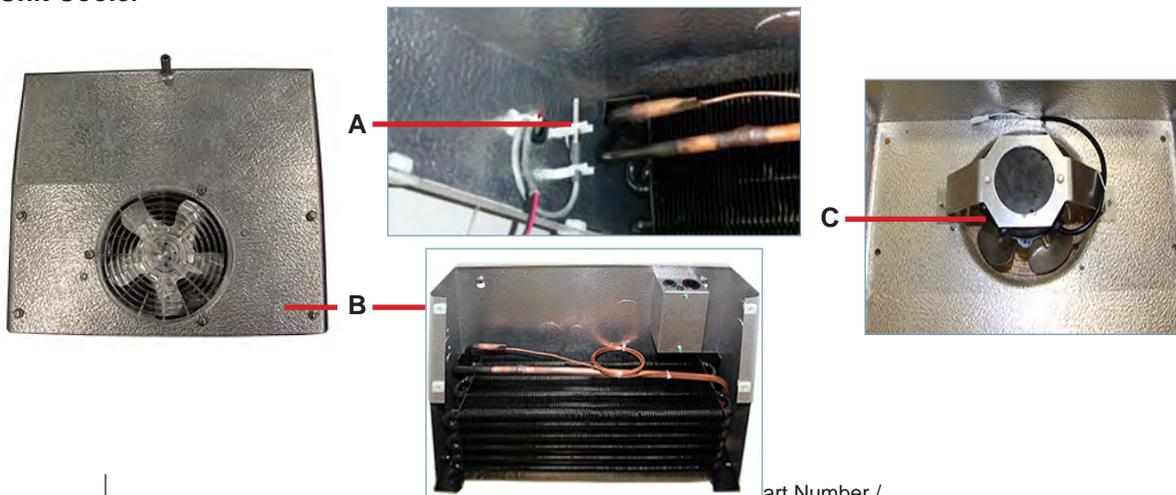
Label	Description	Part Number / Service Kit Number
A	Unit cooler with fan guard	800301-1
B	Tray lock solenoid	800261-1
C	IRACS horizontal board with solenoids	800262-1
D	VIB board	Call for part number
E	Air probe	800221-1
F	Condensate drain line	800306-1
G NOT SHOWN	Condensate evaporator pan (located in bottom behind access panel)	Call for part number
H NOT SHOWN	Condensate evaporation fan (located in bottom behind access panel)	800307-1
I NOT SHOWN	Tray latch mechanism (not shown)	800268-1

**12.8 Refrigeration Components**



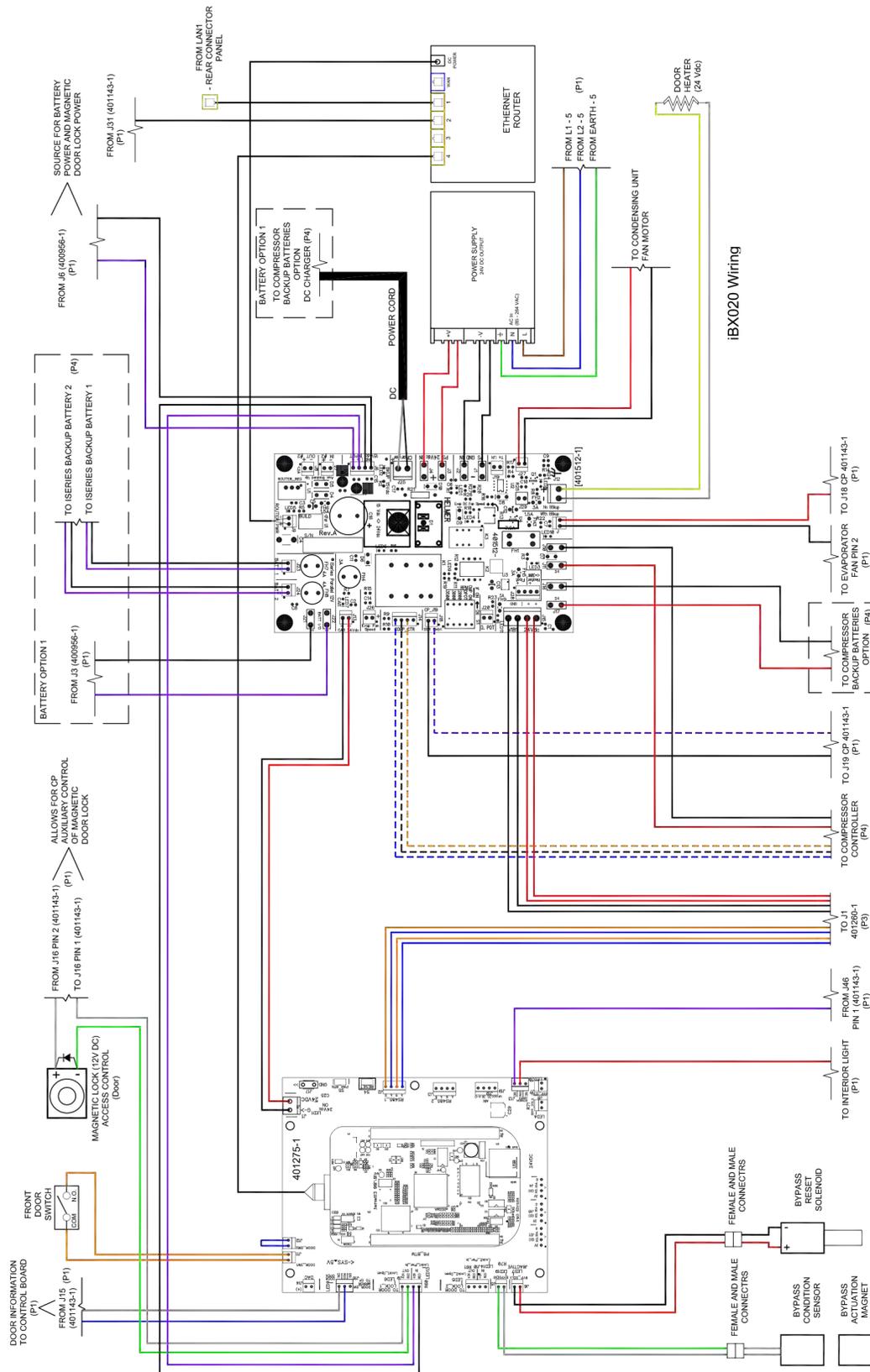
Label	Description	Part Number / Service Kit Number
A	Condenser temperature probe	800238-1
B	Condensing Unit	800296-1
C	Condenser fan motor 24 Vdc	800297-1
D	DC Compressor	800296-1
E	Fan solid state relay	Call for part number
F	Compressor control	800298-1

**12.9 Unit Cooler**

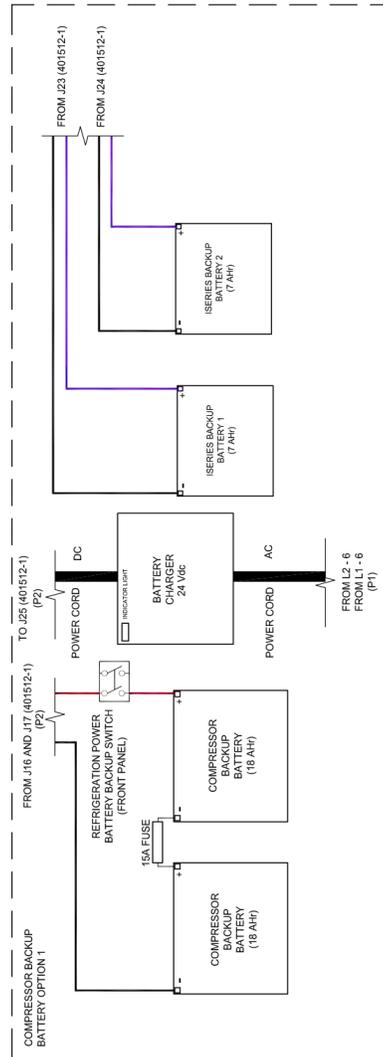
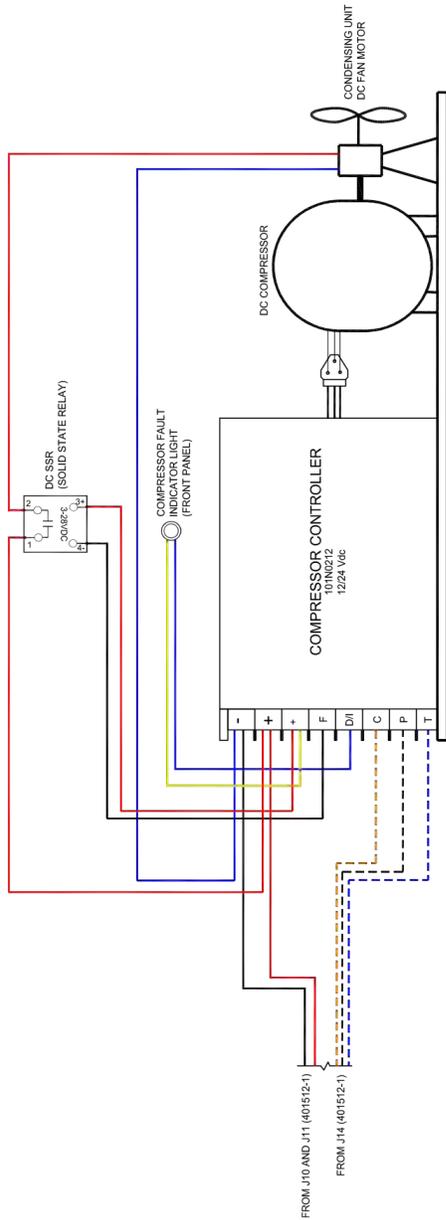


Label	Description	Part Number / Service Kit Number
A	Control probe	800243-1
B	Unit cooler assembly	800301-1
C	Unit cooler fan motor and fan	800300-1









iBX020 Compressor Backup  
Power Configuration / Option

END OF MANUAL

HELMER SCIENTIFIC  
14400 Bergen Boulevard  
Noblesville, IN 46060 USA

PH +1.317.773.9073  
FAX +1.317.773.9082  
[www.helmerinc.com](http://www.helmerinc.com)

