Compartmental Access Refrigerator iBX020-GX
Service and Maintenance Manual

360438/C

Document History

Revision	Date	CO	Supersession	Revision Description
A	15 DEC 2023	26847	n/a	Initial release.
B	15 MAR 2024	27042	B supersedes A	• Parts pages added
C	20 FEB 2025	28681	C supersedes B	• Updated registered trademark symbol on Haemobank. • Updated Access Control door lock part number from 800220-1 to 801000-1.

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Document Updates

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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.

Helmer Scientific
14400 Bergen Boulevard
Noblesville, IN 46060 USA
www.helmerinc.com

Part No. 360438/C

Contents

1 About This Manual

1.1 Intended Audience

This manual is intended for use by end users of the iBX020-GX 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.

1.2 Model Reference

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-GX component is referenced as Compartmental Access Refrigerator.

1.3 Intended Use

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Helmer refrigerators are intended for the storage of blood products and other medical and scientific products.

1.4 Safety Symbols and Precautions

Symbols found in this document

The following symbols are used in this manual to emphasize certain details for the user:

Task Indicates procedures which need to be followed.

Note Provides useful information regarding a procedure or operating technique when using Helmer Scientific products.

NOTICE Advises the user against initiating an action or creating a situation which could result in damage to equipment; person injury is unlikely.

Symbols found on the unit

The following symbols may be found on the refrigerator or refrigerator packaging:


Caution: Risk of damage to equipment or danger to operator


Warning: Crushing of hands / fingers


Caution: Hot surface


Warning: Flammable material


Caution: Shock / electrical hazard


Refer to documentation

1.5 Avoiding Injury

- Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.
- Do not damage the refrigerant circuit.

Review safety instructions before installing, using, or maintaining the equipment.

- Before moving unit, ensure door 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 products are stored at recommended temperatures determined by standards, literature, or good laboratory practices.
- Proceed with caution when adding and removing product from the refrigerator.
- Use manufacturer supplied power cord only.
- Avoid risk of ignition by using only manufacturer supplied components and authorized personnel when servicing the unit.
- Using the equipment in a manner not specified by the manufacturer may impair the protection provided by the equipment.
- Ensure product is stored safely, in accordance with all applicable organizational, regulatory, and legal requirements.
- The refrigerator is not considered to be a storage cabinet for flammable or hazardous materials.
- Use caution when moving a stacked configuration.
- **REQUIRED:** Decontaminate parts prior to sending for service or repair. Contact Helmer or your distributor for decontamination instructions and a Return Authorization Number.

1.6 Model and Input Power

Note

Service information varies depending on the model and power requirements.

Model	Voltage	Frequency	Current Draw
iBX020-GX	100 - 240V	50/60 Hz	2.3 A

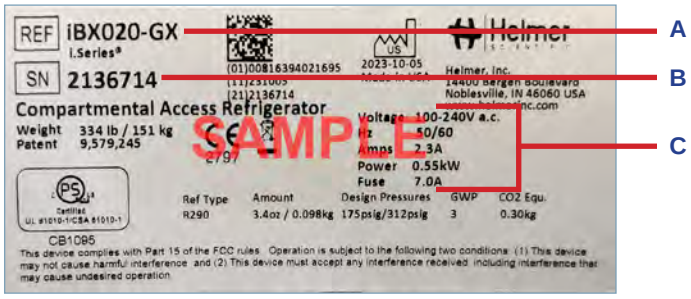
** Amperage values are subject to change. Refer to the product specification label on your unit for current values.*

1.7 Product Labels

This information appears on the product specification label, located on the rear of the refrigerator toward the bottom left corner. The model also appears on a label located in the chamber on the upper side of the right wall.

Note

Information contained in this specification label varies depending on the model and power requirements.



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

Label	Description
A	Model (REF)
B	Serial number
C	Power requirements

2 Installation and Configuration

2.1 Location

Keep all ventilation openings in the enclosure or, in the structure of building-in, clear of obstruction.

NOTICE

- The Compartmental Access Refrigerator must not be placed in ATEX[1] classified zones as per Directive 99/92/EC ('ATEX 137') and Directive 94/9/EC ('ATEX 95')
- The Compartmental Access Refrigerator should not be placed in Group 2 medical rooms (ref CEI 64-8 Standard, part 7).
- The Compartmental Access Refrigerator is classified as IP20 and is not fit for operation outdoors or in environments that are not protected against atmospheric agents.

- Has a grounded outlet meeting the electrical requirements stated on the product specification label.
- Meets specified limits specified for ambient temperature and relative humidity as stated in the Product Specifications section of the Operation manual.
- 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). Must use Wall Mount Kit.
- For undercounter installation, must have a clearance of (w x h) 30.25" x 34.25" (768 x 870 mm).

2.2 Placement and Leveling

NOTICE

- Operating this unit on a GFI/GFCI outlet is not recommended.
- To prevent tipping, ensure the casters are unlocked and the door is closed before moving the refrigerator.
- Do not sit, lean, push or place heavy objects on top surface.
- Do not lean on or push down on an open door or extended drawers.

1. Remove the refrigerator from the shipping carton.
2. Remove and discard the interior packing material.
3. Remove the door bracket. (Refer to instruction attached to the unit)
4. Remove the accessory package from above the refrigerator.
5. Remove all materials from the accessory package and file them in a secure location.
6. Ensure doors are secured and casters are unlocked.
7. Position refrigerator into place and lock casters.
8. Ensure refrigerator is level.
9. Ensure trays are locked in place within the compartments.

2.3 Stacked Units

NOTICE

- For stacked configuration, both units must have leveling feet installed.
- Back brace bars and front stabilizing brackets must be installed (Blue - PN 400821-1; Stainless Steel - PN 400821-2).
- When stacking units, place the heavier unit on the bottom.

Contact Helmer or your distributor for more information regarding the stacking kit and methods to secure both units to the wall and/or floor.

2.4 Connect Ethernet Cable for Kiosk

Connect the Kiosk Ethernet cable to Ethernet port on the back of the unit in the lower left corner.

2.5 Connect AC Power Cord for Compartmental Access Refrigerator

Notes

- 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 - 240V AC at 50/60Hz
- Use only manufacturer supplied power cord.

Insert auto-locking plug into refrigerator power receptacle prior to connecting to grounded outlet.

2.6 Connect Back-Up Power

The i.C³ Monitoring System and Access Control magnetic door lock have a backup battery system, enabling a period of continuous operation if power is lost. The i.C³ 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.

Battery life varies by manufacturer, voltage level remaining. Providing full power is available and no battery-related alarms are active, backup power for the i.C³ Monitoring System is available for up to 24 hours. The Low Battery alarm will activate when battery power is almost depleted.

NOTICE

Before installing or replacing batteries, switch AC power and back-up battery switches OFF. Disconnect refrigerator from AC power.

During a power failure:

- The 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.
- While the Access Control magnetic lock is energized, the backup battery is rapidly depleted. The backup battery power to the door lock will de-energize after approximately five (5) minutes.

Notes

- The backup battery system provides electrical power to the i.C³ monitoring system, Access Control magnetic door lock and compartmental access communication boards. It may also be referred to as the i.C³ Monitoring System / Access Control backup battery.
- The i.C³ 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.C³ Monitoring System and Access Control magnetic door lock will begin running on battery power. The door lock will de-energize after approximately five (5) minutes
- If AC power is lost, the monitoring system will automatically disable some features to prolong back-up battery power. Data collection will continue until back-up battery power is depleted.

2.7 Prepare for Monitoring

The i.C³ 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.C³ monitoring system and Access Control magnetic door lock. Backup power to the Access Control magnetic door lock will last only 5 minutes.

Temperature Probes

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

Notes

- Temperature probes are fragile; handle with care.
- Remote probes may also be introduced through the existing port and immersed in existing probe bottles.

Air probe

Primary monitor probe

Condenser probe

Control probe

Air Probe

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

Primary Monitor Probe

A probe bottle and container of glycerin have been provided with this unit. When using the probe bottle, mix the glycerin with water to create a solution which simulates the product stored in the refrigerator. The product simulation solution temperature reflects the product's temperature during normal operation.

The probe bottle should contain 4 oz. (120 mL) of product simulation solution at a 10:1 ratio of water to glycerin.

Fill Probe Bottle

1. Remove the probe(s) from the bottle and remove the bottle from the bracket.
2. Remove the cap and fill with 4 oz. (120 mL) of product simulation solution.
3. Install the cap and place the bottle in the bracket.
4. Replace probe(s), immersing at least 2" (50 mm) in solution.

Install Additional Probe Through Rear Port

1. Peel back putty to expose the port.
2. Insert the probe through the port into the chamber
3. Insert the probe into the bottle.
4. Replace putty, ensuring a tight seal.

Condenser Probe

The condenser probe is attached to the condenser discharge line.

Control Probe

The control probe is located within the evaporator housing.

External Monitoring Devices

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

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

Terminals are dry contacts and do not supply voltage. Interface circuit is either normally open or normally closed, depending on terminals used.

Requirements for your alarm system determine which alarm wires must connect to terminals.

NOTICE

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

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

- 100V-240V: 0.5 A at 30V (RMS) or 1.0 A at 60V (DC)

Connect to Remote Alarm Interface

1. Locate the remote alarm terminals in the back of the unit on the lower left side.
2. 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 (as necessary).

3 Controls

The Compartmental Access System is equipped with the i.C³ monitoring and control system. The i.C³ system combines temperature control and monitoring into a single user interface.

Notes

- Please refer to the i.C³® User Guide for Compartmental Access Refrigerators for information regarding network communications for BloodTrack®.
- Refer to i.C³® User Guide for Compartmental Access Refrigerators for complete information on the User Interface.

3.1 Home Screen and HaemoBank® Screensaver

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

- The Home icon 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

Home Screen

HaemoBank® Screensaver

3.2 Home Screen Functions

Note

Refer to the i.C³ User Guide for options available on all i.C³ screens.

- View current interior cabinet 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 home screen applications (touch **i.C³ APPS** for additional applications).
- View information about current alarm events.
- View whether the monitoring system is running on battery power.
- Mute audible alarms.
- View unit ID.
- Shortcut to Event Log.

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

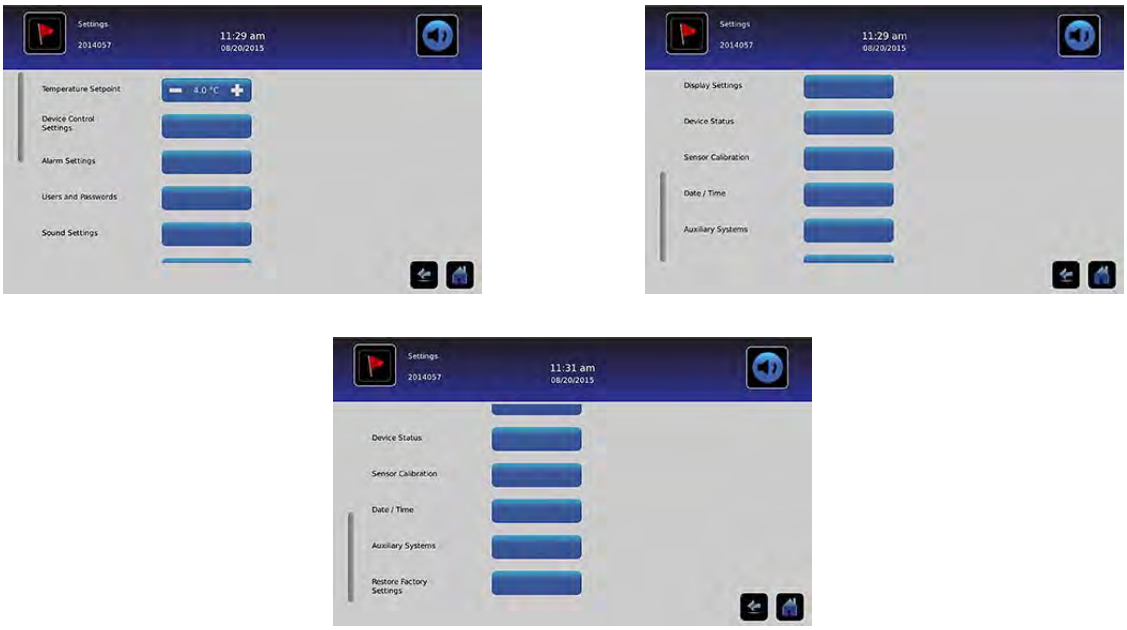
Note

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

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

3.4 Settings

Current settings may be viewed and changed through the i.C³ monitoring and control system. The i.C³ temperature monitor and controller is programmed at the factory. To change a setting first access the Settings screen, then the Setting. Use a touch-drag motion to scroll up or down to select the desired setting.



Settings screens

Notes

- If the Settings screen is password protected, enter the appropriate password. If viewing settings for the first time, enter the factory default password of “1234”.
- Default values for general settings, alarm settings, and display settings are available in the i.C³ User Guide.
- Changing temperature settings affects operation of the refrigerator. Do not change settings unless instructed in product documentation or by Helmer Technical Service.

Temperature Settings

Temperature settings are programmed at the factory. The Temperature Setpoint is the desired temperature of the HaemoBank® for stored product. It can be accessed, viewed and changed through the i.C³ Settings screen by touching the Settings icon and entering the current password. If accessing the i.C³ for the first time, use the factory-originated password (1234).

Notes

- Default chamber temperature setpoint is 4.0 °C.
- Setpoint can be changed from the i.C³ and from the Haemonetics® BloodTrack Courier®.
- Change the temperature setpoint if your organization requires a chamber temperature other than 4.0 °C.

Change Temperature Setpoint

1. Touch **Home**, **i.C³ APPS**, **Settings**.
2. Enter the Settings password.
3. Touch **+** or **–** on the **Temperature Setpoint** spin box to select desired setting.
4. Touch **Home**.

Sensor Calibration

Sensor calibration values are programmed at the factory. Calibration values can be viewed through the i.C³ Sensor Calibration screen.

Sensor Calibration screens

View Sensor Calibration Values

1. Touch **Home**, **i.C³ 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	

Change Sensor Calibration Offset Values

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

Factory Default Settings

Factory settings may be simultaneously returned to factory default values.

Notes

- 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.C³ APPS, Settings, Temperature Graph, Automatic Alarm Test, Information Logs
Temperature Setpoint	4.0 ºC
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	ºC
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 ºC
Primary Probe High Temperature (Time Delay)	0 minutes
Primary Probe Low Temperature (Setpoint)	2.0 ºC
Primary Probe Low Temperature (Time Delay)	0 minutes
Air Probe High Temperature (Setpoint)	11.0 ºC
Air Probe High Temperature (Time Delay)	3 minutes
Air Probe Low Temperature (Setpoint)	-5.0 ºC
Air Probe Low Temperature (Time Delay)	3 minutes
Compressor Temperature (Setpoint)	50.0 ºC
Compressor Temperature (Time Delay)	5 minutes
Power Failure	1 minute
Probe Failure	0 minutes
Door Open (Time)	1 minute

Notes

- 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 Factory Default Settings

1. Touch **Home**, **i.C³ 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 ü, the message screen closes and factory settings are restored. Touch **X**, the message screen closes and factory settings are not restored.
4. Touch **Home**.

View System Information

1. Touch **Home**, **i.C³ 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.C³ IP address, and i.C³ MAC address.
3. Touch **Home**.

4 Maintenance

Maintenance tasks should be completed according to the schedule below. All tasks may be performed by the end user (with the exception of electrical component and wiring terminal inspection).

Notes

- The preventive maintenance schedule provides recommended minimum requirements. Regulations or physical conditions at your organization may require maintenance items be performed more frequently, or only by designated service personnel.
- Before performing maintenance, protect items in HaemoBank® from extended exposure to adverse temperature.
- Allow HaemoBank® temperature to stabilize at setpoint after performing service or after extended door opening.
- For service information or to order replacement parts, contact Haemonetics® Corporation BloodTrack® Customer Support at 877.996.7877.

Task	Frequency				
	3 months	6 months	1 year	2 years	As Needed
Test the high and low temperature alarms.	✓				
Test the power failure alarm (as required by your organization's protocols).	✓				
Test the door open alarm.					✓
Verify the temperature calibration on the monitor and change if necessary.	✓				
Check the backup battery for stand-alone chart recorder (if equipped) after an extended power failure and change if necessary, or change the battery if it has been in service for 1 year.					✓
Inspect solenoids and tighten if necessary (use care not to stress solenoid to IRACS PCB wires)			✓		
Inspect electrical components and wiring terminals for discoloration. Call Haemonetics® Corporation BloodTrack® Customer Support if any discoloration is found.			✓*		
Check the level of the solution in the probe bottle. Refill or replace solution if necessary.		✓			
Inspect the probe bottle and clean or replace if necessary.			✓		
Check the chamber light and replace if necessary.					✓
Clean the condenser grill.	✓				
Clean the door gaskets, interior, and exterior of the refrigerator.					✓
Replace tray bumpers in each compartment location.				✓	
Check the manual bypass lock operation.		✓			
Replace the i.C³ monitoring / Access Control backup battery.				✓	

**Must be performed by designated maintenance/service personnel.*

NOTICE

Clean the condenser grill on a quarterly basis.

Note

Replacement of the tray bumpers requires removal and replacement of the trays.

4.1 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.

Automatic Chamber Temperature Alarm Test

Notes

- 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.C³ 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.C³ 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 Test:

1. Touch **Home**, **i.C³ 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.

Manual Chamber Temperature Alarm Test

Notes

- 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.

Test the Low Alarm

1. Identify the current setting for the low alarm setpoint.
2. Remove primary probe from bottle.
3. Immerse probe in an 8 oz glass filled with a 1/2 water and 1/2 crushed ice mixture.
4. When low temperature alarm sounds, note the temperature on the i.C³ display.

Test the High Alarm

1. Identify setting for high alarm setpoint.
2. Immerse probe in an 8 oz glass of luke warm water.
3. When high temperature alarm sounds, note the temperature on the i.C³ display.
4. Remove probe from warm water.
5. Place primary probe in probe bottle, immersing it at least 2” (50 mm).

Power Failure Alarm Test

1. Touch **Home**, **i.C³ APPS**, **Settings**. Enter the Settings password.
2. Touch **Alarm Settings**.
3. Touch **–** on the Power Failure spin box to change the value to 0.
4. Switch the AC ON/OFF switch **OFF**. Power Failure alarm will activate immediately
5. Switch the AC ON/OFF switch **ON**. Power Failure alarm will clear and audible alarm will cease
6. Touch **Home**, **i.C³ APPS**, **Settings**. Enter the Settings password.
7. Touch **Alarm Settings**.
8. Touch **+** on the Power Failure spin box to change the value to the original setting.
9. Touch **Home**.

Door Open Alarm Test

1. Touch **Home**, **i.C³ APPS**, **Settings**. Enter the Settings password.
2. Touch **Alarm Settings**.
3. Touch **–** on the Door Open (Time) spin box to change the value to 0.
4. Open the door. Door Open alarm will activate immediately
5. Close the door. Door Open alarm will clear and audible alarm will cease
6. Touch **Home**, **i.C³ APPS**, **Settings**. Enter the Settings password.
7. Touch **Alarm Settings**.
8. Touch **+** on the Door Open (Time) spin box to change the value to the original setting.
9. Touch **Home**.

4.2 Upgrade System Firmware

Helmer may occasionally issue updates for the i.C³ firmware. Follow the upgrade instructions included with the firmware update.

4.3 Test and Replace i.C³ Monitoring System / Access Control Backup Battery

On all i.C³ Plus screens, screen brightness will automatically be reduced and **battery icon** will appear when the system is running on battery power. The monitoring system will automatically disable some features to extend battery life.

Test the i.C³ Monitoring System / Access Control backup battery:

1. Switch the AC ON/OFF switch **OFF**. i.C³ screen should continue to display information with reduced brightness and the battery icon will appear on the screen.
2. If the Low Battery alarm activates, or the display is blank, replace the battery
3. Switch the AC ON/OFF switch **ON**.

Replace the i.C³ Monitoring System / Access Control Backup Battery

NOTICE

Replacement battery must meet the following specifications: 12V, 26 Ah, rechargeable, sealed, lead acid. Contact Haemonetics® Corporation BloodTrack® Customer Support for replacement battery.

1. Switch the i.C³ 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 panel.
3. Disconnect the wire connector from the battery.
4. Using a #2 Phillips screwdriver, remove the screws securing the battery strap to the base of the unit, remove the strap and set it aside.
5. Remove the battery from the HaemoBank®.
6. Place the new battery in the base of the unit, in the same orientation as the original battery.
7. Place the strap over the battery.
8. Using a #2 Phillips screwdriver, install the screws to attach the strap to the base of the compartment.
9. Connect the wire connector to the battery, 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
10. Reinstall the base panel and secure with 6 screws using a #2 Phillips screwdriver.
11. Connect AC power cord to the power receptacle. Switch the AC ON/OFF switch **ON**. Switch the i.C³ Monitoring System / Access Control backup battery ON/OFF switch **ON**.

4.4 Check Probe Bottle

Remove the probe bottle from the bracket and inspect for cracks. Replace the bottle if necessary.

Ensure the probe bottle has approximately 4 oz. (120 mL) of product simulation solution (10:1 ratio of water to glycerin). The glycerin is used to create a solution which simulates the product stored in the refrigerator. The product simulation solution temperature reflects the product's temperature during normal operation. Failure to fill the bottle may prevent the chamber temperature from stabilizing at the temperature setpoint. The probe should be immersed at least 2" (50 mm).

Inspect Probe Bottle

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 2.7**

Replace Probe Bottle

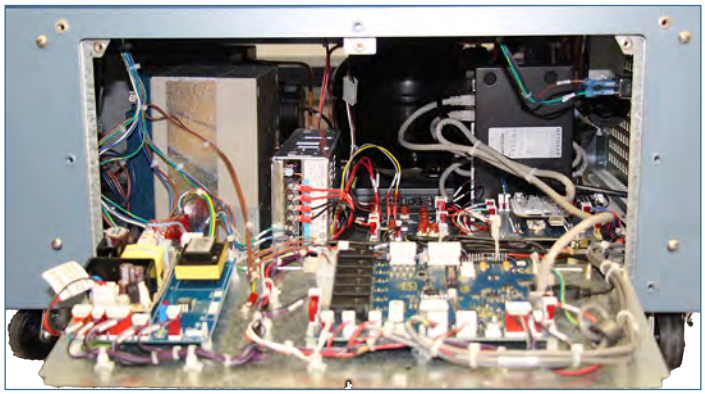
1. Remove probe(s) from bottle.
2. Remove bottle from bracket and discard the bottle and solution.
3. Fill new bottle with 4 oz. (120 mL) of product simulation solution.
4. Cap bottle tightly to minimize evaporation and place bottle in bracket.
5. Replace probe(s), immersing at least 2" (50 mm) in solution.

4.5 Inspect and Secure Electrical Wiring and Terminals

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

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.
4. Slide the cover upward to disengage the 2 screws from the keyhole openings, remove and set aside.
5. Using a #2 Phillips screwdriver, remove the 3 screws securing the electrical panel and rotate the panel outward.
6. Visually inspect the wiring in the electrical box for discoloration. If any discoloration is found, contact Haemonetics® Corporation BloodTrack® Customer Support.



Electrical panel

7. 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.
8. Rotate the electrical panel inward and secure with 3 screws using a #2 Phillips screwdriver.
9. Replace the cover over the electrical panel and secure with screws using a #2 Phillips screwdriver.
10. Reconnect AC power cord to the power receptacle. Switch the AC ON/OFF switch **ON**. Switch the i.C³ Monitoring System / Access Control ON/OFF switch **ON**.

4.6 Bypass System Check and Reset

Notes

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

1. Insert the key into the Bypass Release handle and unlock the 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 the 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.

4.7 Clean the Compartmental Access Refrigerator

Condenser Grill

NOTICE

Disconnect refrigerator from AC power when cleaning.

If the Compartmental Access Refrigerator is located in an environment where it is exposed to excessive lint or dust, the condenser grill may require cleaning more frequently than stated in preventive maintenance schedule.

Clean the condenser grill using a soft brush and vacuum cleaner.

Cabinet Exterior

Clean glass surfaces with a soft cotton cloth and glass cleaner. Clean exterior surfaces with a soft cotton cloth and non-abrasive liquid cleaner.

Cabinet Interior

Note

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

Use a soft cotton cloth. Clean painted surfaces with mild detergent. Clean stainless steel surfaces with general-purpose laboratory cleaner suitable for stainless steel.

Door and Panel Gaskets

Note

Avoid getting water in the Access Control magnetic lock.

Clean with a soft cloth and mild soap and water solution.

Tray Assembly

Clean trays and covers with a mild detergent and soft cotton cloth.

Probe Bottles

Clean and Refill Probe Bottles

1. Remove all probes from the bottle.
2. Remove the bottle from the bracket and empty any remaining solution
3. Clean the bottle with a 1:9 ratio of bleach to water solution or a company approved cleaner/disinfectant.
4. Refill the bottle with 4 oz. (120 mL) of product simulation solution (10:1 ratio of water to glycerin).
5. Cap bottle tightly to minimize evaporation.
6. Place the bottle in bracket.
7. Replace probes, immersing at least 2” (50 mm).

i.C³® Touchscreen

Clean touchscreen with a soft, dry cotton cloth.

5 Service

5.1 Refrigerant Charge

Risk of fire or explosion. Flammable refrigerant used. To be repaired only by trained service personnel. DO NOT puncture refrigerant tubing

NOTICE

- Review all safety instructions prior to recharging refrigerant.
- Maintenance should only be performed by trained refrigeration technicians familiar with hydrocarbon refrigerants

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
iBX020-GX	100 - 240 V, 50/60 Hz	R290	3.4 oz. (98g +/- 1g)

5.2 Replace Chamber LED Lamp Strip

NOTICE

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

Note

Contact Haemonetics® Corporation BloodTrack® Customer Support for replacement LED lamp strip.

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**.

5.3 Maintaining Tray Assembly

Note

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

Remove and Install a Tray and Cover

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

Notes

- The tray must be partially installed in the compartment location before the cover can be installed.
- Refer to the BloodTrack Courier® User Guide for details on returning the HaemoBank® refrigerator to normal use.

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.
   - ♦ 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.

Insert tray cover

Posts oriented upward; tabs engaged in slots

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.

Replace Tray Bumpers

Notes

- 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.

1. Remove the tray from the compartment location.
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 and discard.
4. Insert the post on the new rubber tray bumper through the wide end of the keyhole in the bottom of the compartment location and the bumper to the narrow end of the keyhole to secure.
5. Grip the tray bumper and pull upward to ensure it is installed securely.
6. Reinstall the tray in the compartment location.

6 Troubleshooting

NOTICE

Review all safety instructions prior to troubleshooting. Refer to Section 1.

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.

6.1 Compartment Access Circuit Boards and Sensors Diagnostic References

IRACS Horizontal Circuit Board LED Indicators

NOTICE

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.

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.

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.

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.

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.

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.

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.

6.2 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.

6.3 Network Communications Reference Guide

BloodTrack® Interface

The i.C³ user interface is in 1 of 3 states at all times. Please refer to the table below for BloodTrack® access levels for each i.C³ state.

i.C³ Communication State	i.C³ Screens	BloodTrack® to i.C³ 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

1. Tier 1 - i.C³ accepts requests to activate ethernet communication which can impose date and time changes on the i.C³, as the BloodTrack® system keeps the master date and time.
2. Tier 2 - i.C³ 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
3. Tier 3 - i.C³ accepts requests for status information only (Example: current refrigerator temperature). No changes can be made.

6.4 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. **NOTE:** Take care when applying grease.
	Hinge cam is faulty	• Confirm 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.C³ 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	• Check the i.C³ Event Log Detail screen for the specific probe failure. Touch i.C³ APPS, Information Logs, Event Logs. Touch the individual event to view the probe failure code. • Check the probe wire connection to the control board and secure the connection if necessary. • 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.
User setting changes revert back to previous settings.	BloodTrack® may overwrite various user settings	• No action. Expected condition when BloodTrack® attached.
Circuit breakers periodically tripping.	Kiosk/printer (if attached) drawing too much power	• Plug kiosk/printer into a wall outlet. • Contact Haemonetics® Corporation BloodTrack® Customer Support.

6.5 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	• Confirm the primary probe is reading correctly. • Contact Haemonetics® Corporation BloodTrack® Customer Support if the probe is reading incorrectly.
	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	• Check the probe wire connection to the control board and secure the connection if necessary. • Check the continuity of the probe wiring. Replace the probe if necessary. • At the CP board, place jumper across J13 pin associated with primary probe. Display should read 4C +/-2C. • 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. • Contact Haemonetics® Corporation BloodTrack® Customer Support.
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.

Problem	Possible Cause	Action
The compressor runs continuously.	Compartmental Access Refrigerator setpoint is set too low	• Confirm the setpoint is set within the operating range and change it if necessary.
	Temperature control probe inaccuracy	• Verify control offset value is displaying between -3 to +3. • Value displayed for the control probe is close to display temperature. • Confirm the probe is providing resistance in the range of 98 Ω to 110 Ω. Replace the probe if necessary. • Contact Haemonetics® Corporation BloodTrack® Customer Support.
	Compressor controller is not functioning properly	• Contact Haemonetics® Corporation BloodTrack® Customer Support.
	No air flow across condenser	• Clean condenser. • Verify condenser fan motor is operating.
	Improper air flow across evaporator	• Verify evaporator fan motor is operating.
	i.C³ control board is faulty	• Confirm the control indicates the compressor should be running. Touch i.C³ APPS, Settings (enter the Settings password), Device Status. • If the compressor should be running, no further action is needed. • If the compressor should not be running, check the control board compressor relay for SSR1. If the relay is closed, replace the control board.
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.
	Ambient air temperature around the Compartmental Access Refrigerator is too warm	• Confirm the Compartmental Access Refrigerator is placed appropriately.
	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.
	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. • 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	• Replace the compressor. • Contact Haemonetics® Corporation BloodTrack® Customer Support.
	Compressor or refrigeration system is not functioning properly	• Contact Haemonetics® Corporation BloodTrack® Customer Support.
	A component is faulty or internal connections are loose	• Contact Haemonetics® Corporation BloodTrack® Customer Support.
Compressor does not run, the D21 LED on the i.C³ control board is lit	Faulty inverter	• Contact Haemonetics® Corporation BloodTrack® Customer Support.

6.6 i.C³ 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	• Verify audible alarms are not muted. Touch the Mute button repeatedly until the Mute timer indicates no time delay. • Check alarm volume level and tone selection. Touch i.C3 settings (enter password) / sound settings.
	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.
The Compartmental Access Refrigerator meets an alarm condition, but the appropriate alarm is not active.	Alarm setpoint was changed	• Check the current setpoints for the alarms. Change the setpoints if necessary. • NOTE: BloodTrack® may automatically change setpoints.
	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.
	High temperature alarm setpoint is set too low	• Check the setpoint. Change the setpoint if necessary. • NOTE: BloodTrack® may automatically change setpoints.
	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	• Confirm hinges are free of dirt or debris. Clean if necessary. • Confirm the hinge cams are not damaged. Replace the cams if necessary.
	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.

Problem	Possible Cause	Action
The Condenser alarm is active.	Condenser alarm setpoint is too low	• Confirm the alarm setpoint is at the appropriate value. • NOTE: BloodTrack® may automatically change setpoints.
	Compressor is overheating due to a lack of air flow	• Check the condenser grill and clean if necessary. • Confirm the Compartmental Access Refrigerator is correctly located.
	Condenser fan motor is faulty	• Replace the condenser fan motor.
	Connections for the condenser temperature probe are loose.	• Test the probe connections. Secure the connections at CP board if necessary.
	Condenser temperature probe is faulty	• Test the probe. Replace the probe if necessary. • Confirm the probe is providing resistance in the range of 78 Ω to 120 Ω.
	A component is faulty or internal connections are loose	• Contact Haemonetics® Corporation BloodTrack® Customer Support.
The Low/No Battery alarm is activating sporadically.	Battery voltage level on the rechargeable backup battery for the monitoring system is low	• Ensure battery has had 72 hours to recharge after an extended use. • Replace the backup battery for the monitoring system.

6.7 Testing Problems

Problem	Possible Cause	Action
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	• Confirm the alarm setpoints are set at the appropriate values. • Test the temperature alarms manually.
	Connections for the primary probe are loose	• Test the probe connections. Secure the connections if necessary.
	Primary probe is faulty	• Confirm the probe is reading correctly. Calibrate the probe if necessary. • Confirm the probe is providing resistance in the range of 98 Ω to 110 Ω. Replace the probe if necessary.
	Control board is faulty	• Replace parts with those included in the control board kit, or replace the monitor/control board.

6.8 Condensation Problems

Problem	Possible Cause	Action
There is excessive water in the chamber.	Humid air is entering the chamber	• Confirm the Compartmental Access Refrigerator is level, and the door is aligned, closing tightly, and sealing correctly. Correct issues as necessary. • Ensure cabinet penetrations are sealed.
	Connection between the unit cooler and the drain tube is loose	• Confirm the connection is secure. Tighten the connection if necessary.
	Drain line is plugged	• Confirm the drain tube is free of debris. Remove debris if necessary. • Replace drain tube if necessary.
	Humid air is entering the chamber	• Confirm the Compartmental Access Refrigerator is level, and the door is aligned, closing tightly, and sealing correctly. Correct issues as necessary. • Verify rear panel is sealing correctly. Correct issues as necessary. • Ensure cabinet penetrations are sealed.

Problem	Possible Cause	Action
There is excessive humidity on the door or glass.	Humid air is entering the chamber	• Confirm the Compartmental Access Refrigerator is level, and the doors are aligned, closing tightly, and sealing correctly. Correct issues as necessary.
	Heated glass door is not functioning properly	• Check for 24Vdc voltage between PDB J16 and J17. • Check DC amperage for door glass (1.25 - 1.42 Amps, 24V DC).
	Relative humidity around the Compartmental Access Refrigerator is above 80%	• Confirm the Compartmental Access Refrigerator is placed properly.
Water leaks from the bottom of the Compartmental Access Refrigerator.	Humid air is entering the chamber	• Confirm the Compartmental Access Refrigerator is level, and the door is aligned, closing tightly, and sealing correctly.
	Relative humidity around the Compartmental Access Refrigerator is above 80%	• Confirm the Compartmental Access Refrigerator is placed properly.
	Excessive water is found in the evaporation tray	• Confirm the Compartmental Access Refrigerator is level, and the door is aligned, closing tightly, and sealing correctly. Correct issues as necessary. • Contact Haemonetics® Corporation BloodTrack® Customer Support to correct issues as necessary.

6.9 Access Control Lock Problems

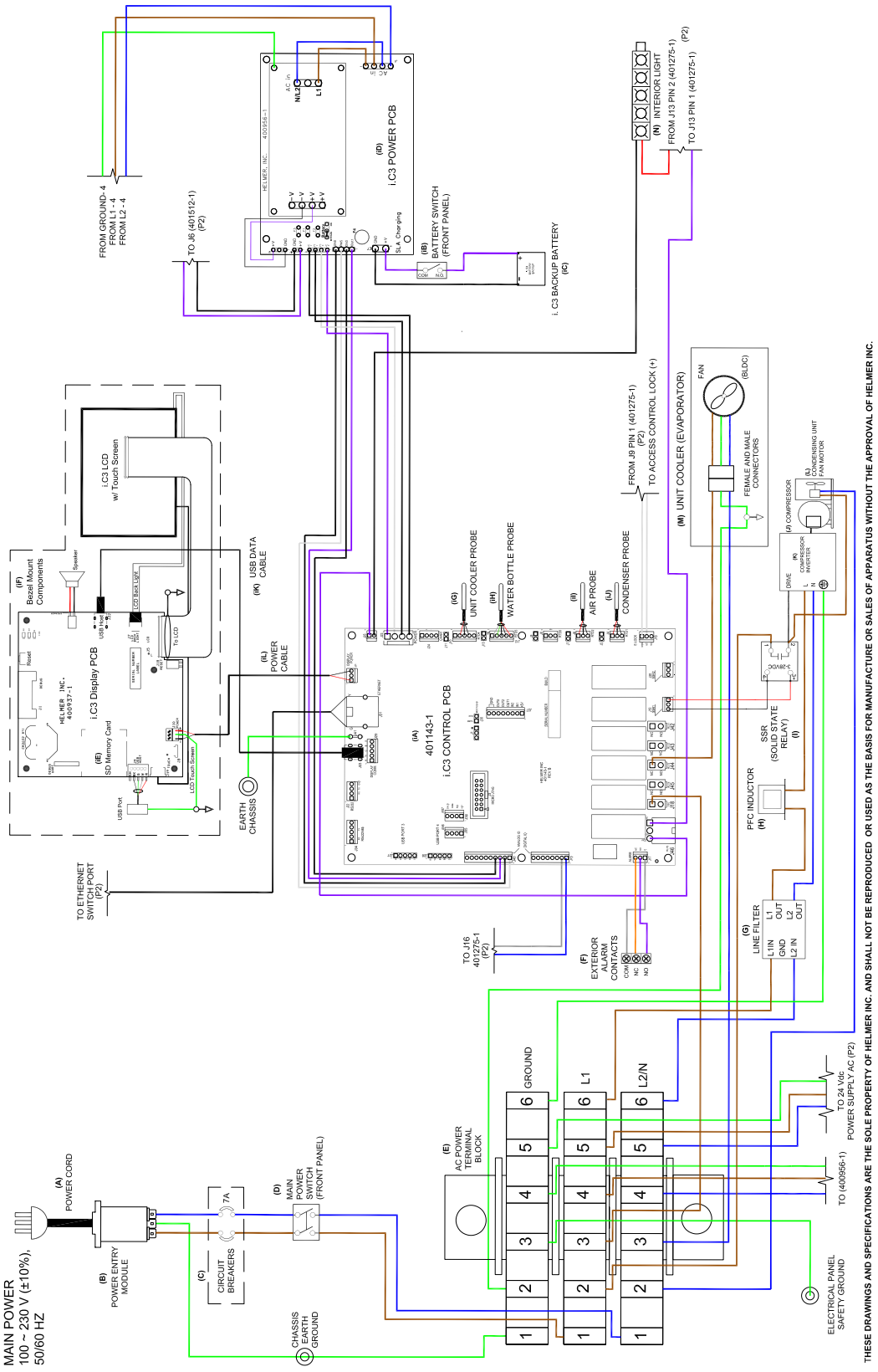
Problem	Possible Cause	Action
Exterior door does not unlock when barcode is scanned.	Compartmental Control PCB assembly is unresponsive	• Switch the AC power switch and the backup battery switch **OFF** and then **ON** again to reboot. • Contact Haemonetics® Corporation BloodTrack® Customer Support.
	Barcode scanner does not work or is not functioning properly	• Contact Haemonetics® Corporation BloodTrack® Customer Support.
	BloodTrack® interface is unresponsive	• Check that ethernet cable is connected between kiosk and iBX020-GX. • Contact Haemonetics® Corporation BloodTrack® Customer Support.
Exterior door does not re-lock after door is closed.	BloodTrack® has not commanded door to lock	• Ensure no trays are illuminated.
	Compartmental Control PCB assembly is unresponsive	• Verify LED9 on Compartmental Control PCB assembly is off. • Switch the AC power switch and the backup battery switch **OFF** and then **ON** again to reboot. • Contact Haemonetics® Corporation BloodTrack® Customer Support.
	i.C³ CP board is not functioning correctly	• Verify voltage at J16 PIN2. Replace board if no voltage present. • Contact Haemonetics® Corporation BloodTrack® Customer Support.
	Magnetic lock is defective	• Contact Haemonetics® Corporation BloodTrack® Customer Support.

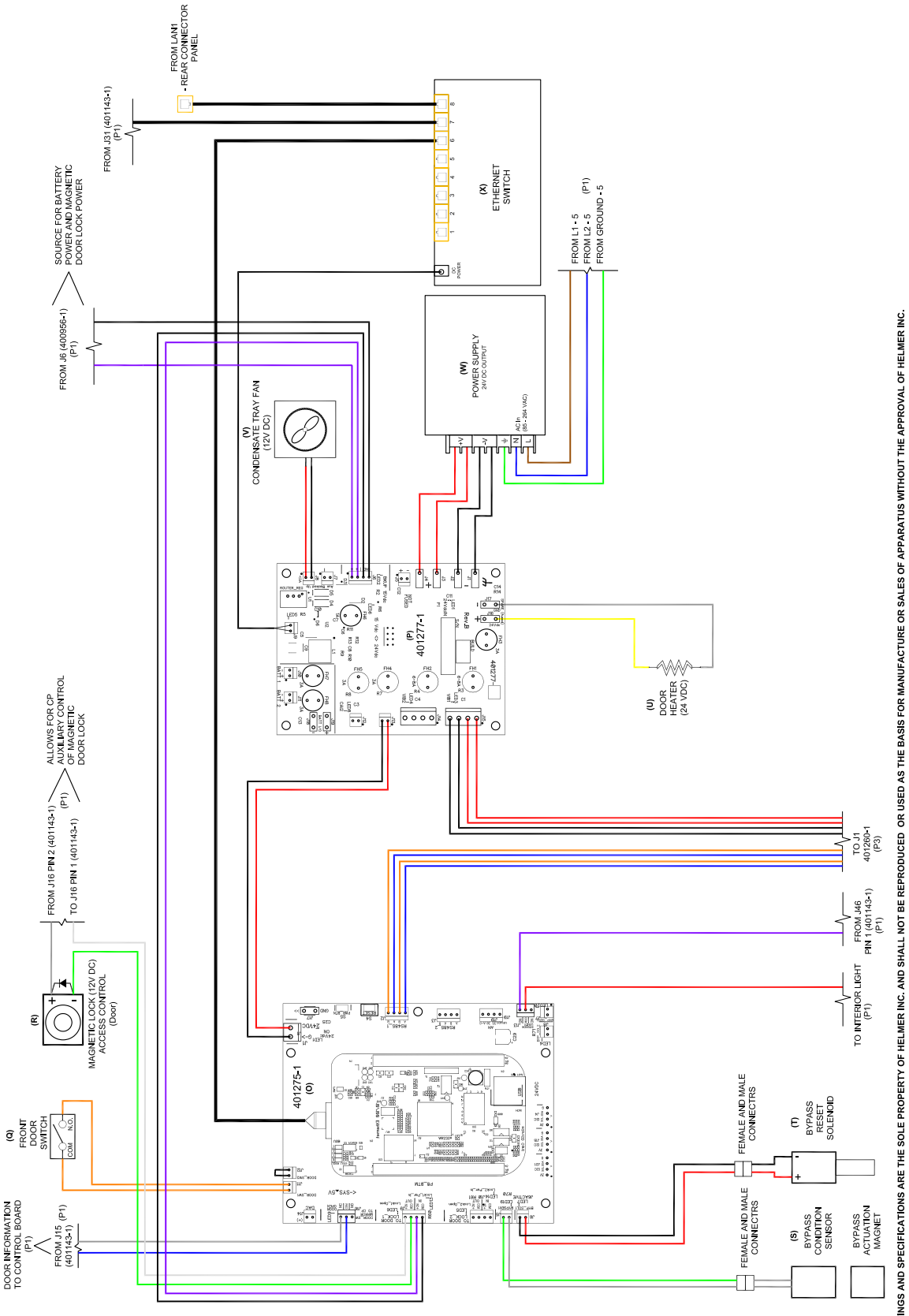
6.10 Compartment Assembly Problems

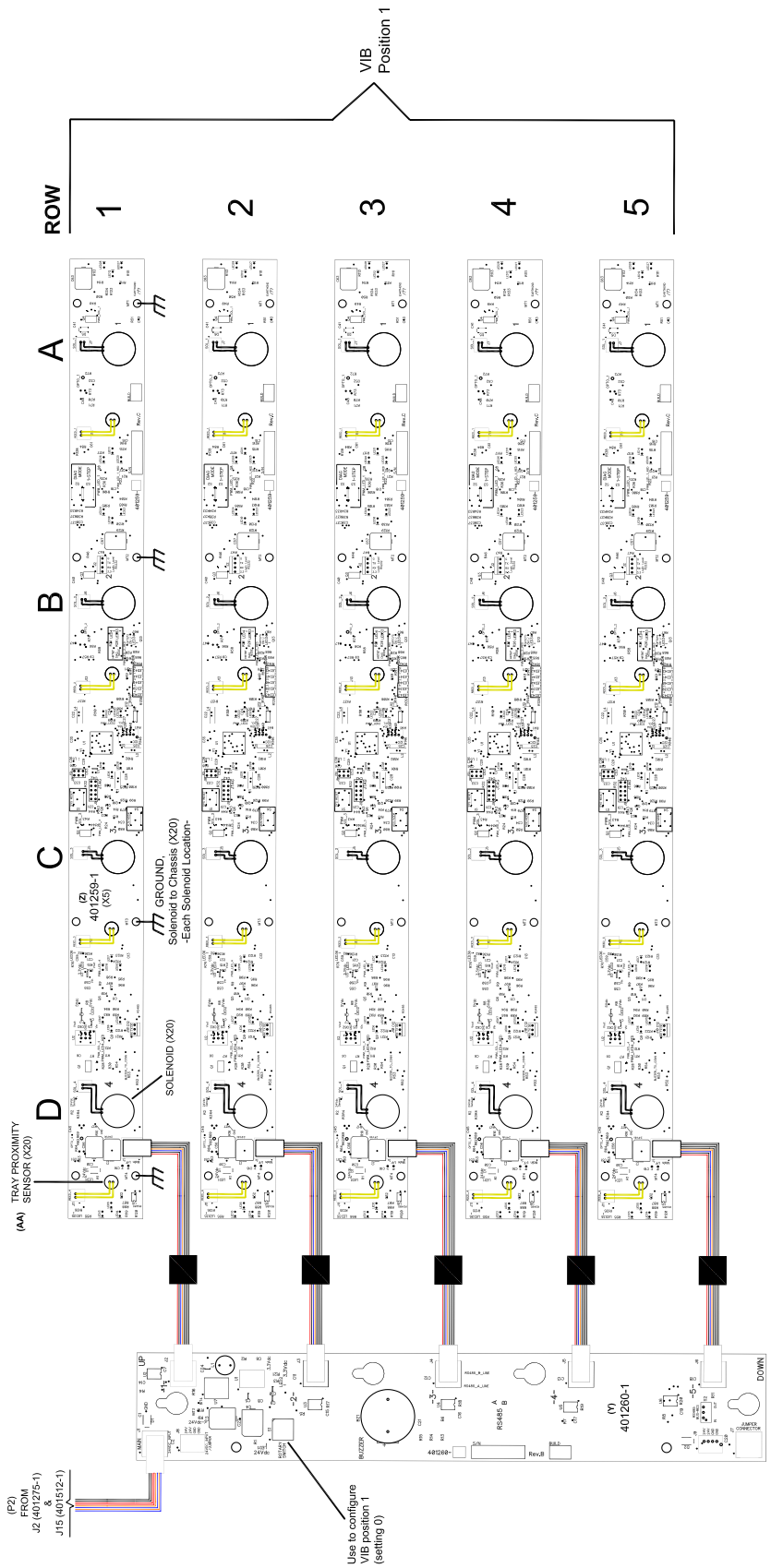
Problem	Possible Cause	Action
Tray does not unlock when barcode is scanned.	Barcode scanner does not work or is not functioning properly	• Contact Haemonetics® Corporation BloodTrack® Customer Support.
	Compartmental Control PCB assembly is unresponsive	• Contact Haemonetics® Corporation BloodTrack® 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 (±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.

Problem	Possible Cause	Action
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. • 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.

7 Schematics







8 Parts

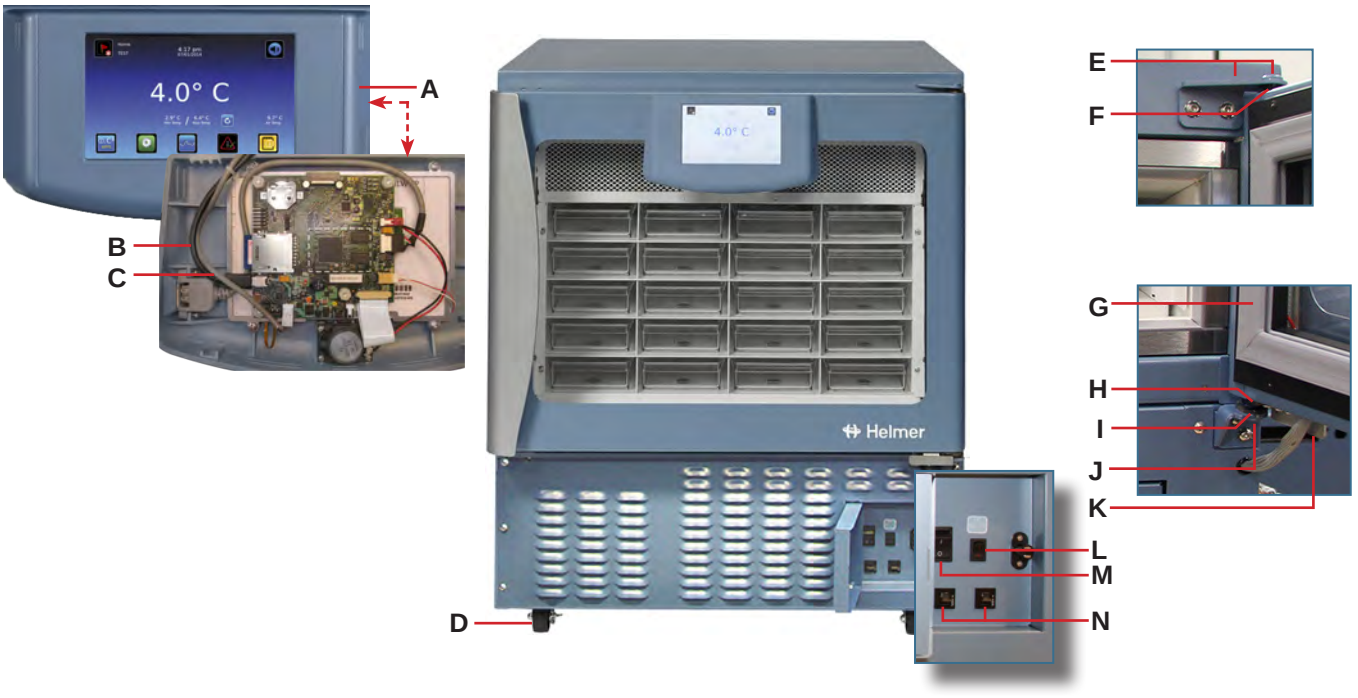
8.1 Front

Notes

- 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.

NOTICE

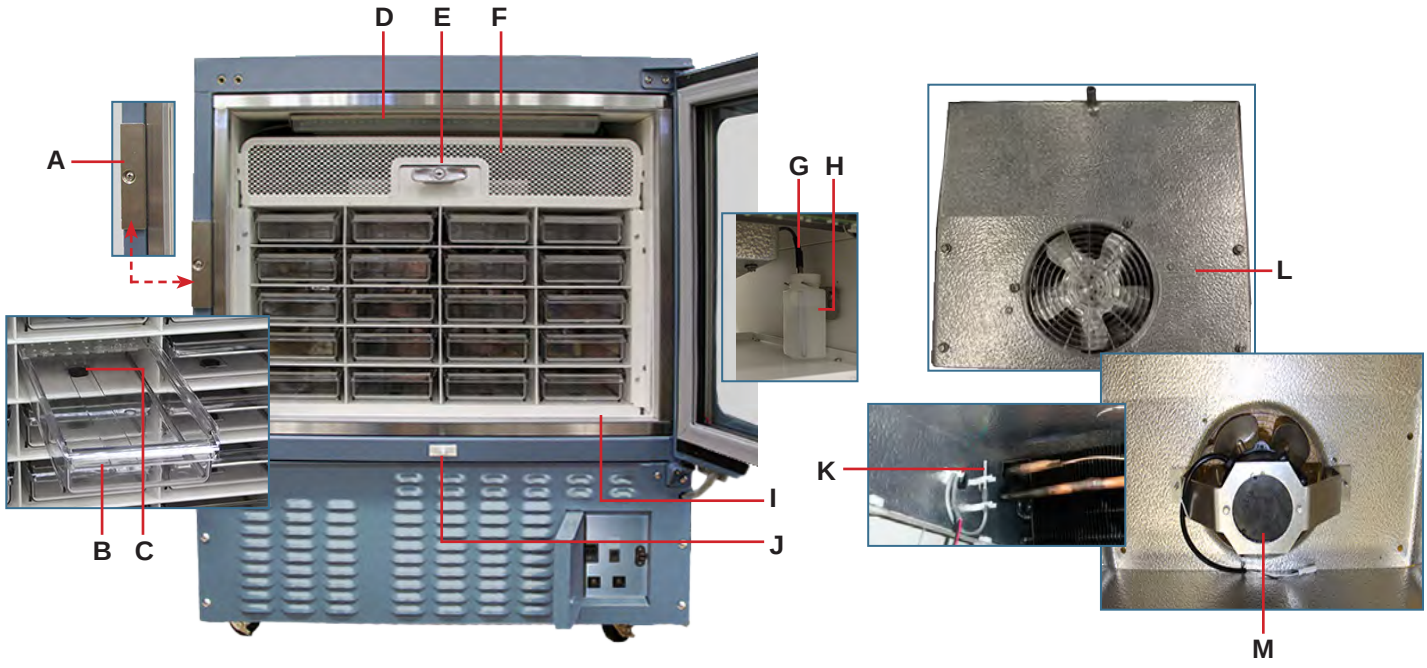
- Review all safety instructions prior to troubleshooting.
- Maintenance should only be performed by designated service technicians.
- The i.C³ display assembly is sensitive to static electricity and can be damaged by electrostatic discharge. Use proper ESD precautions when handling the display assembly.
- Although the touchscreen and display board may be replaced independently of the i.C³ display assembly, Helmer recommends replacing the complete assembly.
- The i.C³ control board is sensitive to static electricity and can be damaged by electrostatic discharge. Use proper ESD precautions when handling the board.
- Before replacing parts, protect items in the Compartmental Access Refrigerator from extended exposure to adverse temperatures
- Allow the Compartmental Access Refrigerator to stabilize at the temperature setpoint after replacing parts or after extended door opening.



Label	Description	Part #
A	Display assembly (includes touchscreen, display board, interface cable, speaker)	800254-1
B	Power cable	800253-1
C	Interface communication cable	800253-1
D	Caster *(swivel with brake)*	800303-1
E	Upper Hinge assembly	402775-1-067
F	Upper hinge bearing	-
G	Door gasket	800302-1

Label	Description	Part #
H	Lower hinge cam *(quantity 2)*	320742-1
I	Lower hinge bearing	-
J	Lower hinge assembly	801142-1
K	Door Stop	320763-1
L	Backup battery switch *(i.C³ Monitoring and Access Control)*	800259-1
M	Power switch	800214-1
N	Circuit breakers	800305-1

8.2 Front Interior

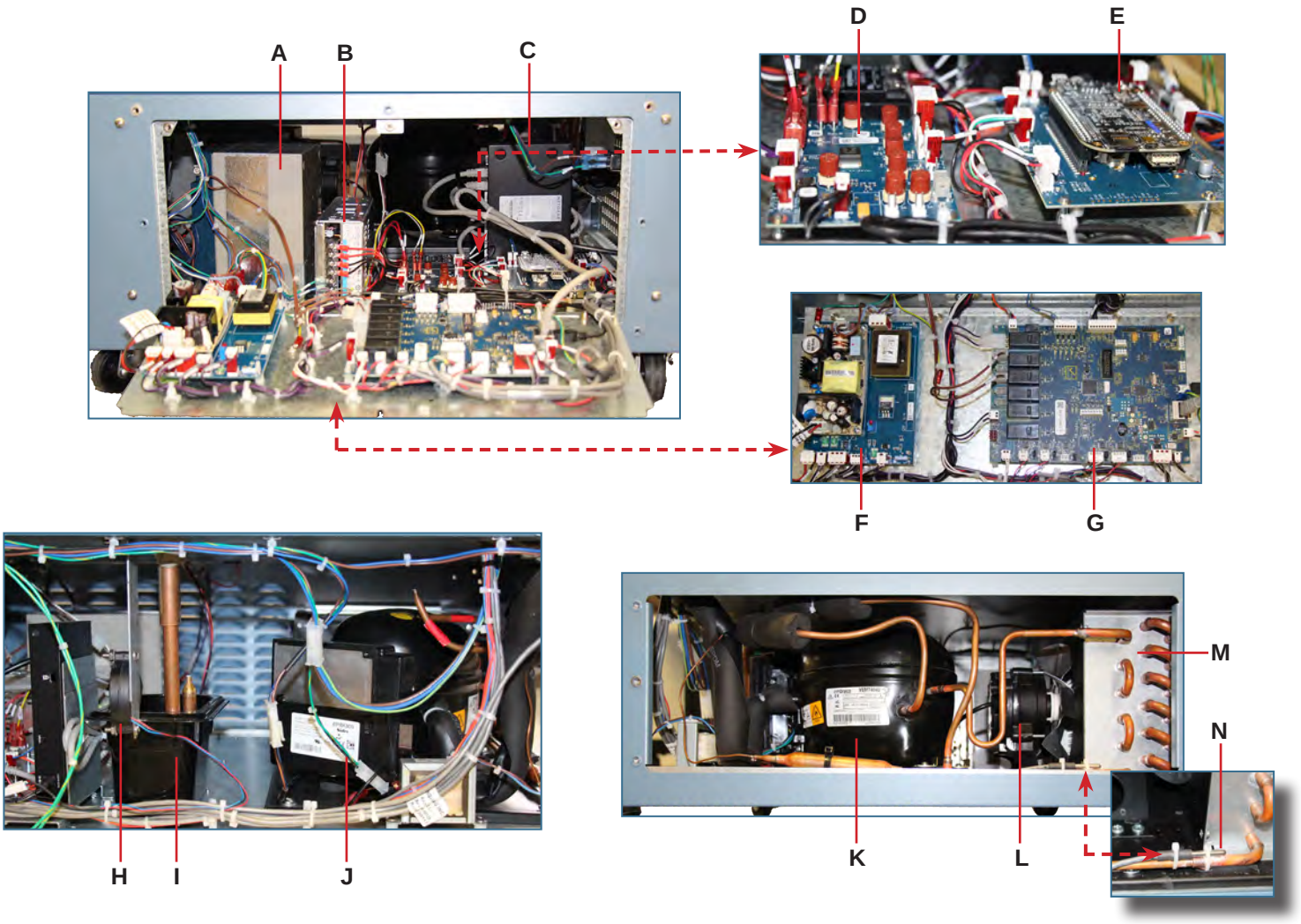


Label	Description	Part #
A	Access Control door lock	801000-1
B	Tray	800266-1
C	Tray bumper *(quantity 4)*	800267-1
D	Chamber light *(includes circuit board and cover)*	800228-1
E	Bypass Release handle and lock	220642
F	Grill	-
G	Primary monitor probe *(located behind grill)*	800309-1

Label	Description	Part #
H	Probe bottle and glycerin kit	800308-1
I	Compartment assembly	-
J	Door switch	800246-1
K	Control probe	800243-1
L	Unit cooler assembly	801218-1
M	Unit cooler fan and fan motor	800995-1

8.3 Electrical and Refrigeration Components

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



Label	Description	Part #
A	i.C³ monitoring / Access Control backup battery	801223-1
B	24V 320W power supply	800310-1
C	Ethernet switch	801222-1
D	Power Distribution Board	800257-1
E	Compartmental control PCB assembly	800222-1
F	i.C³ Power PCB	800255-1
G	i.C³ Control PCB	800252-1

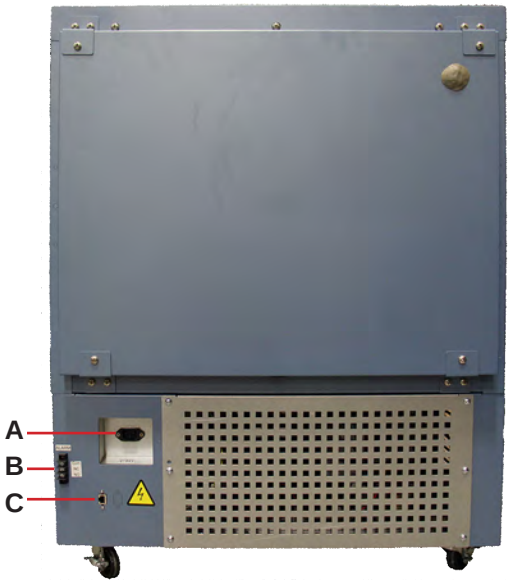
Label	Description	Part #
H	Condensate evaporator fan	800307-1
I	Condensate evaporator drain pan	-
J	Compressor inverter	801227-1
K	Compressor	801219-1
L	Condenser fan motor *(115/230V)*	801228-1
M	Condensing unit	801219-1
N	Condenser temperature probe	800238-1

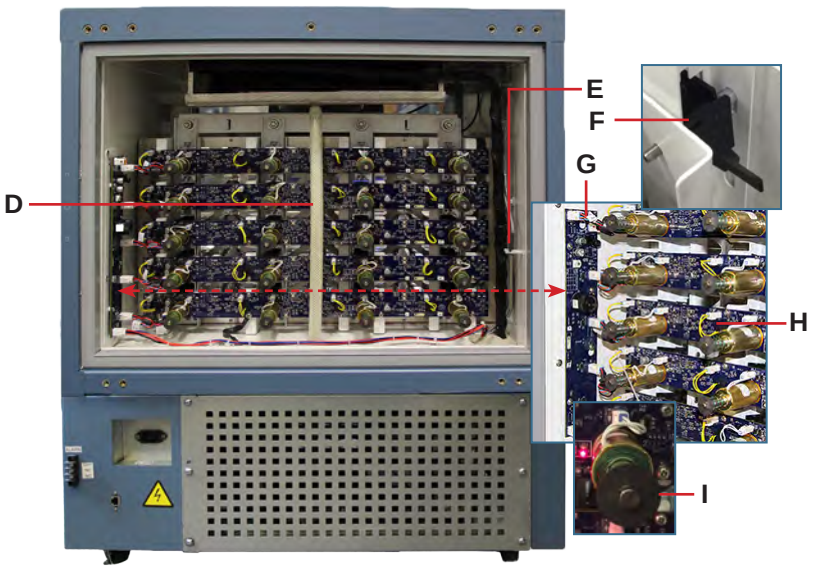
8.4 Rear

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

Notice

The amperage sum of the kiosk and printer connected to the iBX020-GX 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.





Label	Description	Part #
A	Power entry / line filter	-
B	Remote alarm contacts	-
C	RJ45 Ethernet port	-
D	Condensate drain line	801221-1
E	Air probe	800221-1

Label	Description	Part #
F	Tray latch mechanism	800268-1
G	VIB board	800263-1
H	IRACS horizontal board with solenoids	800262-1
I	Tray lock solenoid	800261-1

END OF MANUAL

Helmer Scientific
14400 Bergen Boulevard, Noblesville, IN 46060 USA