Compartmental Access Refrigerator - iBX020
Operation Manual

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Document History

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

Notes and Disclaimers

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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

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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

2 Safety Precautions

The operator or user 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.

DANGER	The safety statement that follows this safety alert symbol indicates a hazardous situation which, if not avoided, could result in serious injury or death.
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 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 cabinet for flammable or hazardous materials.
- Use caution when moving a stacked configuration.

3 General Recommendations

3.1 Intended Use

The Compartmental Access Refrigerator is intended for the storage of blood products and other medical and scientific products.

3.2 General Use

Allow refrigerator to come to room temperature before powering on.

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

3.3 Initial Loading

Allow chamber temperature to stabilize at the setpoint before storing product.

4 Specifications

Interior Dimensions (w x h x d)	
Standard/English	24.88” x 18.27” x 25.96”
Metric	632 x 464 x 659
Overall Exterior Dimensions (w x h x d) (includes handle, hinges)	
Standard/English (in)	29.33” x 34.37” x 31.78”
Metric (mm)	744 x 874 x 808
Physical	
Refrigerator Weight	307 lbs (139.26 kg)
Refrigeration System	
Refrigerant	R-134A
Nominal Compressor Capacity	150 Watts
Initial Charge	7.5 oz. (212.62 g)
Operational	
Default Set Point	4 °C (39 °F)
Temperature Control Range	2 °C to 6 °C (36 °F to 43 °F)
Cabinet	
Insulation	High-density, non-CFC foam
Wall Thickness	2” (51 mm)
Door Thickness	1.25” (32 mm)
External Material	Galvannealed steel with bacteria-resistant powder-coated finish
Internal Material	Galvannealed steel with bacteria-resistant powder-coated finish
Trays	20 trays
Tray Capacity	1 blood bag per tray
External Rear Port	1 standard
Electrical	
Input Voltage and Frequency	100-230V (50/60 Hz)
Voltage Tolerance	±10%
Circuit Breakers	7A
Current Draw (without optional accessory attached)	5A (100-230 V, 50/60 Hz)
Current Draw (with optional accessory attached)	7A (100-230 V, 50/60 Hz)
Nominal Power (without optional accessory attached)	0.26 kW
Nominal Power (with optional accessory attached)	0.38 kW

Power Source	Grounded outlet, meeting national electric code (NEC) in the U.S. and local electrical requirements in all locations
Control and Monitoring	
Interface	i.C³ combined monitoring and control interface, 7” color LCD touchscreen
Alarms	High, low, and condenser temperature; door open; AC power failure; low battery; no battery; communication failure
Remote Alarm Interface	Dry contacts (standard)
Remote Alarm Capacity	0.5 A at 30 V (RMS); 1.0 A at 60 V (DC)
Backup Battery	12 V, 7 Ah rechargeable sealed lead acid battery
Environmental	
Operating Standards	► Indoor use only ► Altitude (maximum): 2000 m ► Ambient temperature range: 15 °C to 32 °C ► Relative humidity (maximum for ambient temperature): 80% for temperatures up to 31 °C, decreasing linearly to 50% at 40 °C ► Overvoltage category: II ► Pollution degree: 2 ► Mains supply voltage: ±10% of nominal voltage

► 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 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.

It is strongly recommended that the Compartmental Access Refrigerator be connected to the emergency power system.

NOTE In the event of a power failure, the power failure alarm condition is transmitted through the remote alarm contacts.

4.1 Stacked Units

► For a stacked configuration, both units must have leveling feet installed.
► The back brace bars and front stabilizing brackets must be installed.

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

5 Compliance

5.1 Regulatory Compliance

CE 0086

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).

EC REP

Emergo Europe
Molenstraat 15
2513 BH
The Hague, Netherlands

RoHS COMPLIANT

5.2 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.

5.3 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 61000-3-2:2014
- EN 61000-3-3:2013
- EN 61326-1:2013

5.4 Manufacturer of Record

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.

Section II: Initial Setup

6 Location Requirements

- ► 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 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). Must use Table and Wall Mount Kit.
- ► For undercounter installation, must have a clearance of (w x h) 30.25" x 34.25" (768 x 870 mm).

6.1 Install AC Power Cord

NOTE This unit has a "universal voltage" capability accommodating a range of 100V - 230V (AC) at 50/60Hz.

Insert auto-locking plug into receptacle.

7 Placement

To prevent tipping:
- ► ensure the doors are closed before moving the refrigerator and the casters (if installed) are unlocked.
- ► do not sit, lean, push or place heavy objects on upper door ledge.

Place the refrigerator:

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

8 Temperature Probes

- ► Temperature probes are fragile; handle with care.
- ► Grill must be removed to gain access to the probe and probe bottle.
- ► For accurate product temperature reading, the primary probe must be immersed in a product simulation solution of water and glycerin.

One probe bottle along with a container of glycerin have been provided with this unit. 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.

Prepare the product simulation solution with a 10:1 ratio of water to glycerin. Add approximately 4 oz (120 mL) of the solution to the probe bottle(s). Tightly screw the cap onto the bottle. Place the bottle in the holder and insert the temperature probe(s).

Figure 1: Primary probe, probe bottle, and bottle holder.

9 Initial Power-Up

NOTE

- ► The i.C³ monitoring and control system will take approximately three (3) minutes to boot up.
- ► The standard backup battery system provides electrical power to the i.C³ monitoring system, Access Control door lock and compartmental access communication boards. It may also be referred to as the i.C³ monitoring / Access Control backup battery.
- ► When the refrigerator is first powered on, the Calibration screen will be displayed. The Calibration screen is not displayed on subsequent power-on events.

Power-up the refrigerator:

1 Switch the refrigerator AC ON/OFF switch **ON**.
   - ► Switch is located in the front of the unit in the lower right corner. Gently press the door in and release to open.
   - ► The i.C³ monitoring and control system powers on and displays the Language screen.

2 Switch the i.C³ monitoring / Access Control backup battery ON/OFF switch **ON**.
   - ► Switch is located in the front of the unit in the lower right corner. Gently press the door in and release to open.

Figure 4: AC ON/OFF switch (top middle), i.C³ monitoring / Access Control backup battery ON/OFF switch (center right), circuit breakers (bottom).

3 The Start screen is displayed when the i.C³ is powered on. The i.C³ will take approximately three (3) minutes to boot up.

Figure 5: Start screen.

4 If an alarm sounds, temporarily mute the alarm by touching the **Mute** icon.

Figure 6: Mute button.

5 On the Language screen, touch the **Language** icon, then select the preferred language from the drop-down menu.

► If English is the preferred language, touch the **Home** button.

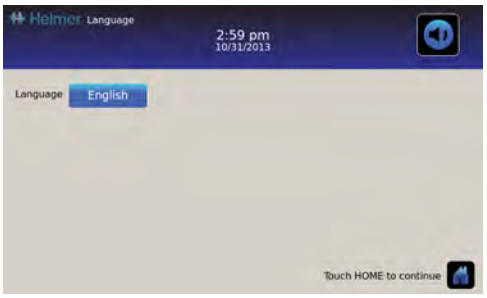

Figure 7: Language screen.

Figure 8: Home screen

NOTE Active alarms are displayed on the Home screen. If an alarm condition other than High Temperature occurs, refer to the service manual for troubleshooting.

Section III: Operation

10 Operation

NOTE
- ► 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.

10.1 Normal Operation

The i.C³ Home screen displays temperature and alarm information, and provides icons for reaching other functions of the i.C³.

After two minutes of inactivity, the screensaver will be displayed. To return to the Home screen, touch the screensaver.

Figure 11: Home screen.

Figure 12: Screensaver.

10.2 Active Alarms

Figure 13: Home screen with no alarms.

Figure 14: Home screen with active alarm.

Alarm	Description
High Temperature	Primary probe reading is above high temperature alarm setpoint
Low Temperature	Primary probe reading is below low temperature alarm setpoint
Low Battery	i.C³ monitoring / Access Control backup battery voltage is low
No Battery	i.C³ monitoring / Access Control backup battery voltage is deficient
Power Failure	Power to unit has been disrupted
Probe Failure	Probe not functioning properly
Door Open	Door is open beyond user-specified duration
Compressor Temperature	Compressor temperature reading is above high temperature alarm setpoint
Communication Failure Messages 1, 2, 3	1 Communication lost between i.C³ display board and control board 2 Configuration file is corrupt or i.C³ is unable to access the configuration file 3 Corrupt database

10.3 Mute and Disable Active Alarms

Audible alarms may be muted by touching the **Mute** button to set delay.

Figure 15: Unmuted.

Figure 16: Muted.

10.4 Change Temperature Setpoint

 > 

- ► Enter the Settings password.
- ► Touch **+** or **–** on spin box to change value.

NOTE

- ► Default Settings password is 1234.
- ► Default setpoint is 4.0 °C.

10.5 Set Alarm Parameters

 >  > Alarm Settings

Control the conditions and timing of alarm condition indicators displayed on the i.C³ Home screen. Touch **+** or **–** on spin box to set each parameter.

11 i.C³® Icon Reference Guide

	Home		Alarm Test		Icon Transfer
	Event Log (icon-indicator)		Mute		Brightness
	Settings		Downloads		Scroll Arrows
	i.C³ Applications (APPS)		Uploads		Access Control
	Back Arrow		Temperature Graph		Contacts
	Alarm Conditions		Information Logs		Battery Power

12 Operation of Compartment Assembly Components

12.1 Compartment Locations

Compartment locations are labeled on the matrix (A-D) from left to right across the top and (1-5) from top to bottom.

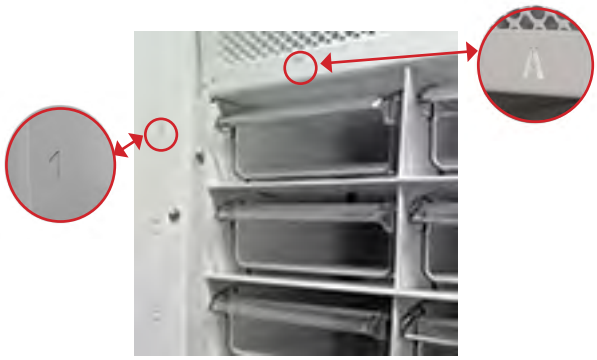

Figure 17: Compartment labels.

12.2 Tray Operation

Trays remain locked at all times unless unlocked by the BloodTrack® system.

Trays will be illuminated and unlocked when specified via the BloodTrack® kiosk.

Under normal operation, trays will lock upon full insertion.

A rubber bumper will impede the tray from full extension and removal.

Trays have been designed to contain leaks.

NOTE Refer to the Service & Maintenance Manual for instructions on tray removal for cleaning or replacement.

12.3 Refrigerator Light

The refrigerator light is controlled by the BloodTrack® kiosk and cannot be turned on or off via the i.C^3 User Interface.

13 Operation During a Power Failure

The Compartmental Access Refrigerator is equipped with a standard backup battery system. This standard system provides electrical power to the i.C³ temperature monitoring system, alarm system, Access Control magnetic door lock, and compartmental access communication boards. Individual trays cannot be unlocked while the refrigerator is running on standard backup battery system power, unless the procedures in Section III, Item 13.2 are performed.

- ► In the event of a power failure, the standard backup battery system does not provide refrigeration of the chamber or stored product.
- ► In order to maintain product integrity, follow facility standard operating procedures for instructions on accessing blood products during a power failure, or for instructions on moving blood products to a refrigerator operating on an emergency power source.
- ► If an emergency power source is not available, the temperature of stored blood products must be checked (according to facility standard operating procedures) to ensure stored blood products have not warmed to an unacceptable temperature during a power failure.
- ► It is strongly recommended that the Compartmental Access Refrigerator be connected to the emergency power system.

If a main electrical power failure is anticipated to last no longer than 20 minutes, the standard backup battery system will provide temperature monitoring and alarm functions, and will allow secure access to the refrigerator. However, it will not allow access to the individual trays or provide power to the refrigeration system.

If a power failure is anticipated to last beyond 20 minutes, and the facility has an emergency power source, refer to Section III, Item 13.1 for instructions on operating the refrigerator after the emergency power source has come online.

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 will provide power to the Access Control lock, alarm system, and communication boards for approximately 20 minutes (the Low Battery alarm will sound when backup battery power for the refrigerator is nearly depleted).
- ► While the Access Control magnetic lock is energized, the backup battery is rapidly depleted.
- ► The Access Control lock will remain locked until battery power is depleted.
- ► The standard backup battery system provides power to the i.C³ monitoring system, refrigerator communication components, and Access Control magnetic lock until battery power is depleted.

During an extended power failure:

- ► Move the refrigerator main electrical power supply to the facility's emergency power system (refer to Section III, Item 14.1).

NOTE

- ► The standard backup battery system will provide backup power for approximately 20 minutes only if the backup battery has been allowed to charge for at least 24 hours since the last interruption.
- ► During a power failure, the backup battery provides power to the monitoring system and the power failure alarm. If the backup battery is not functioning, the power failure alarm will not be activated.
- ► If the backup battery does not provide power to the monitoring system during the power failure alarm test, replace the battery.

13.1 Operating the Refrigerator on an Emergency Power System

Once the emergency power system is online, the Compartmental Access Refrigerator will resume normal operation.

- ► If AC power has failed and the emergency AC power system is started, the refrigerator will restart using emergency AC power.
- ► Do not switch the i.C³ monitoring / Access Control backup battery off if operating on the emergency AC power system.
- ► When AC power is restored and the emergency power system is shut down, the refrigerator will restart using primary AC power.

13.2 Access the Refrigerator and Trays During a Power Failure

The Compartmental Access Refrigerator may be accessed in two ways during an AC power failure. While the refrigerator is operating on backup battery power, the door may be unlocked using the i.C³ monitoring / Access Control system. If the backup battery power is not depleted, switch the i.C³ monitoring / Access Control backup battery ON/OFF switch **OFF** and the AC power ON/OFF switch **OFF**. This will disengage the integrated magnetic lock allowing access to the refrigerator.

If blood products are manually removed from the refrigerator during a power failure, it is the responsibility of the user to follow the facility's standard operating procedures for safe transfusion practices. For further guidance, consult your facility's policies and procedures for ensuring blood availability in an emergency.

NOTE Once the standard backup battery system ON/OFF switch is switched OFF, the contents of the refrigerator will no longer be monitored.

1. Open exterior door.
2. Using the compartment assembly key, unlock the Bypass Release handle.

Figure 20 (left): Bypass Release handle and lock (shown in unlocked position).
Figure 21 (right): Individual tray (shown with blood bag stored in tray).

3. Rotate the Bypass Release handle counterclockwise to a vertical position to release the locking mechanism for all trays.
4. Pull out only the tray(s) containing the blood bag(s) to be removed.
5. Remove the blood bag(s) from the tray.
6. Slide the tray into the compartment location until it stops.
7. Rotate the Bypass Release handle clockwise to a horizontal position to secure the locking mechanism.
8. Using the compartment assembly key, relock the Bypass Release handle.
9. Close the refrigerator door.
10. Switch the i.C³ monitoring / Access Control backup battery ON/OFF switch **ON** and the AC power ON/OFF switch **ON**. (This will ensure the refrigeration system will restart once AC power is restored.)

Section IV: Maintenance

14 Maintenance Schedule

Maintenance tasks should be completed according to the following schedule. All tasks may be performed by the end user (with the exception of electrical component and wiring terminal inspection). Refer to the Service & Maintenance manual for information on performing the various tasks unless otherwise noted.

NOTE These are recommended minimum requirements. Regulations for your organization or physical conditions at your organization may require maintenance items be performed more frequently, or only by designated personnel.

Task	Frequency				
	3 months	6 months	1 year	2 years	As Needed
Test the high and low temperature alarms.	✓				
Test the power failure alarm.	✓				
Test the door 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.*

Clean the condenser grill on a quarterly basis.

NOTE Replacement of the tray bumpers requires removal and replacement of the trays. Refer to the service manual for instructions on removal of trays.

Section V: Components

15 Front Components

15.1 Front Exterior

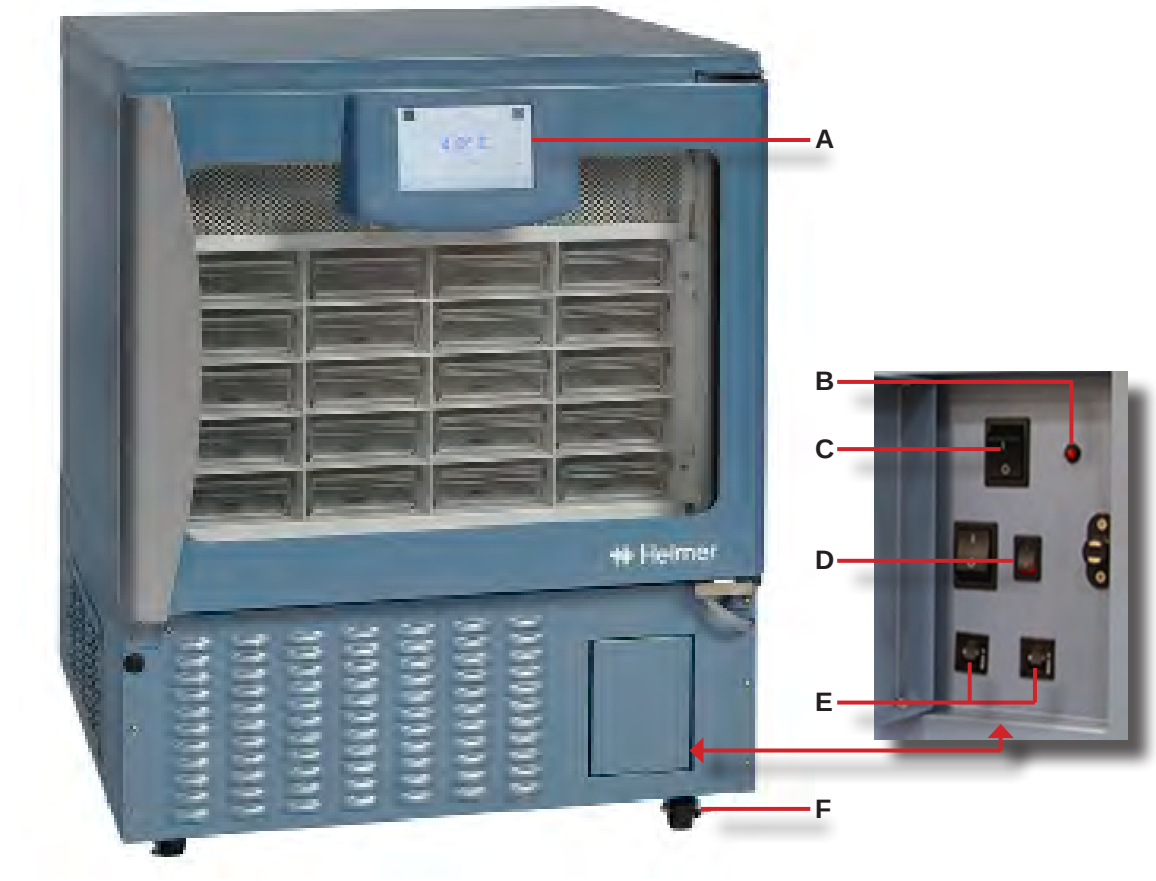

Figure 23: Front exterior features.

Label	Description
A	i.C³ user interface
B	Compressor troubleshooting LED
C	AC On/Off Switch
D	i.C³ monitoring / Access Control backup battery ON/OFF switch
E	Circuit breakers
F	Caster (swivel with brake)

15.2 Front Chamber

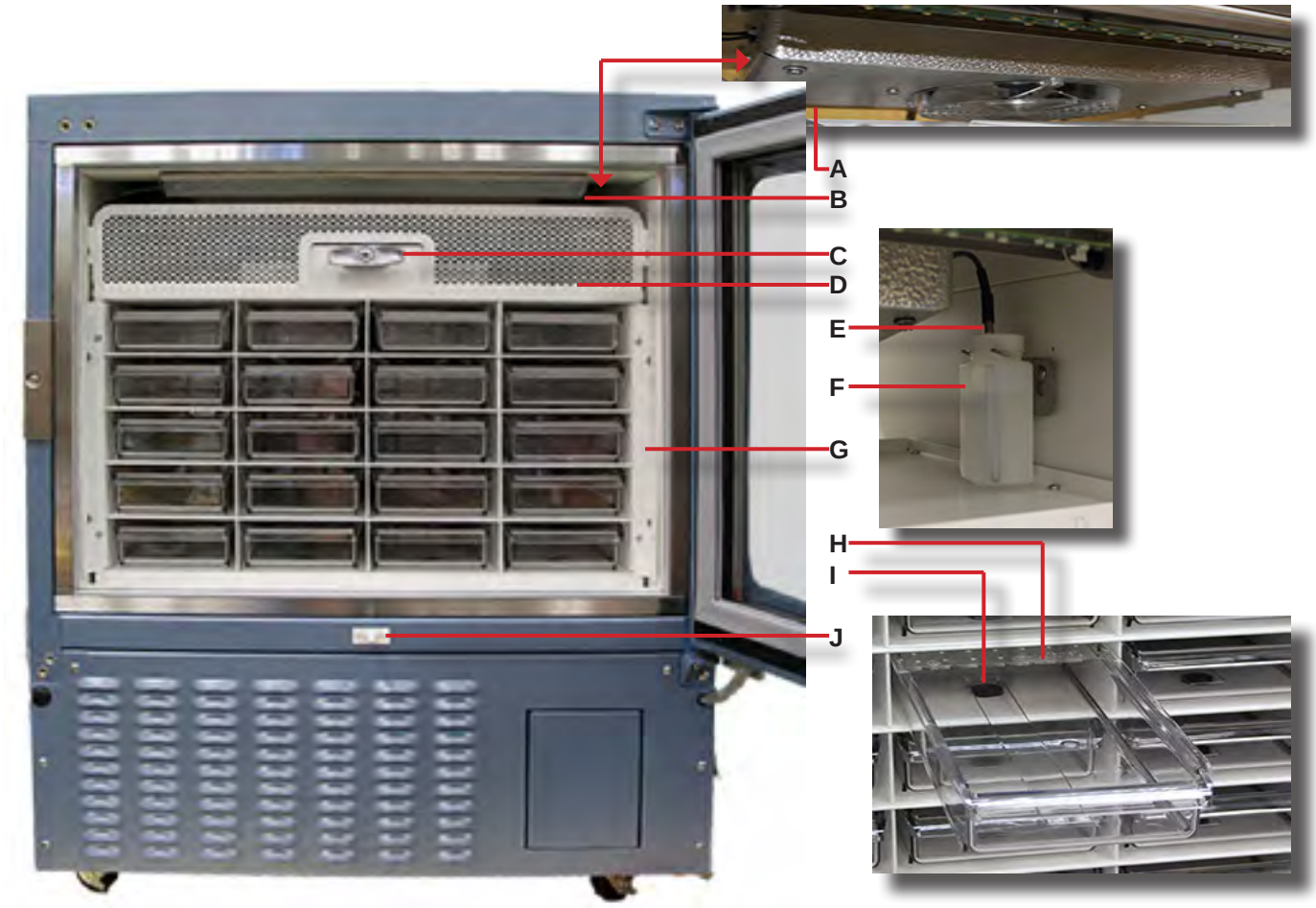

Figure 24: Front chamber features.

Label	Description
A	Unit cooler with fan guard (behind grill)
B	Chamber light
C	Bypass Release handle and lock
D	Grill
E	Primary probe (behind grill)
F	Probe bottle (behind grill)
G	Compartment assembly
H	Tray (20)
I	Tray bumper (20)
J	Door switch
K NOT SHOWN	Access Control door lock (inside door frame/handle)

16 Rear Components

16.1 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

Figure 25: Rear exterior features.

Label	Description
A	Removable rear panel
B	iBX020 RJ45 Ethernet port for connection to BloodTrack® kiosk
C	iBX020 iC³ USB
D	Remote alarm contacts
E	iBX020 power entry / line filter
F	AC output power cord receptacle (optional use with BloodTrack® kiosk; non-fused; must limit)

16.2 Rear Chamber

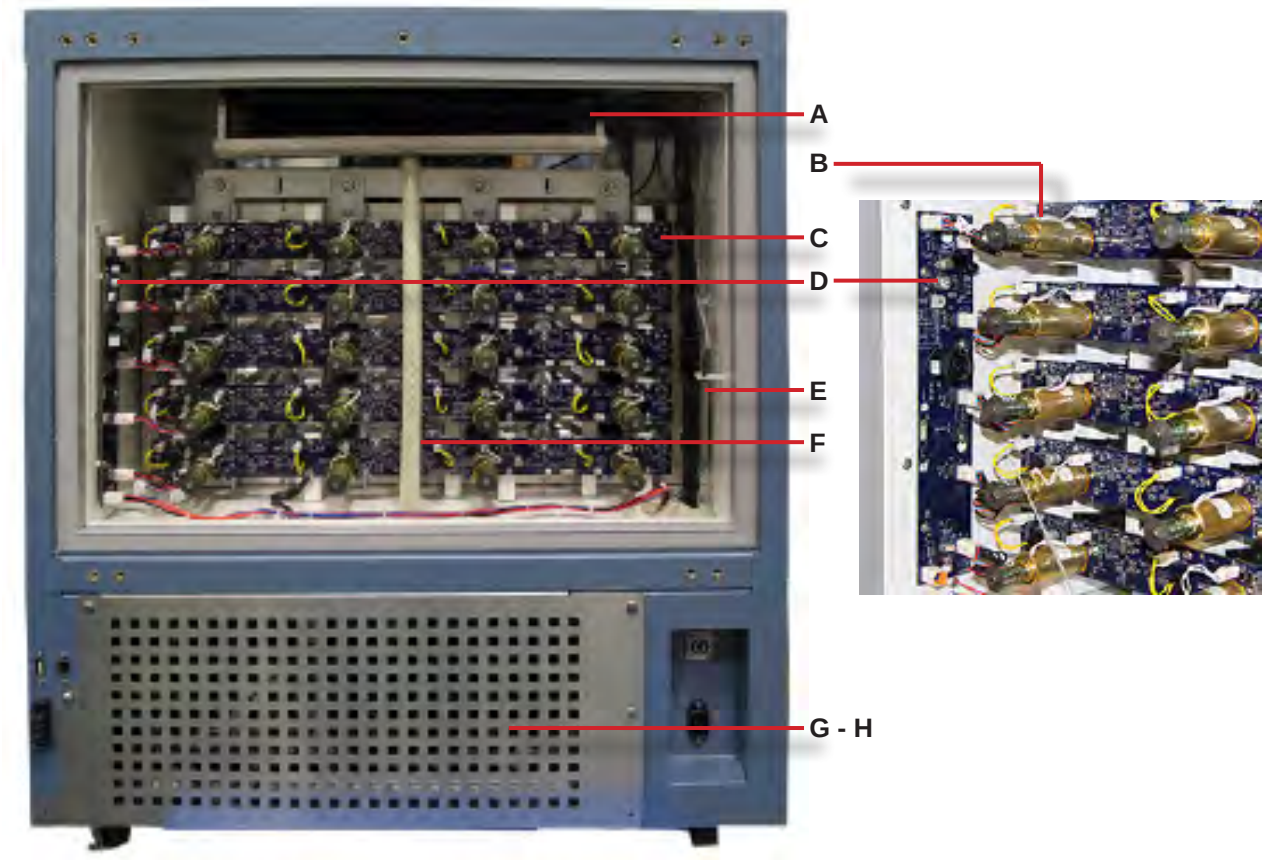

Figure 26: Rear chamber features.

Label	Description
A	Unit cooler with fan guard
B	Tray lock solenoid (20)
C	IRACS horizontal board (5)
D	VIB board
E	Air Probe
F	Condensate drain line
G NOT SHOWN	Condensate evaporator tray (located in bottom of the unit behind access panel)
H NOT SHOWN	Condensate evaporator tray fan (located in bottom of the unit behind access panel)

17 Internal Components

17.1 Refrigerator Components

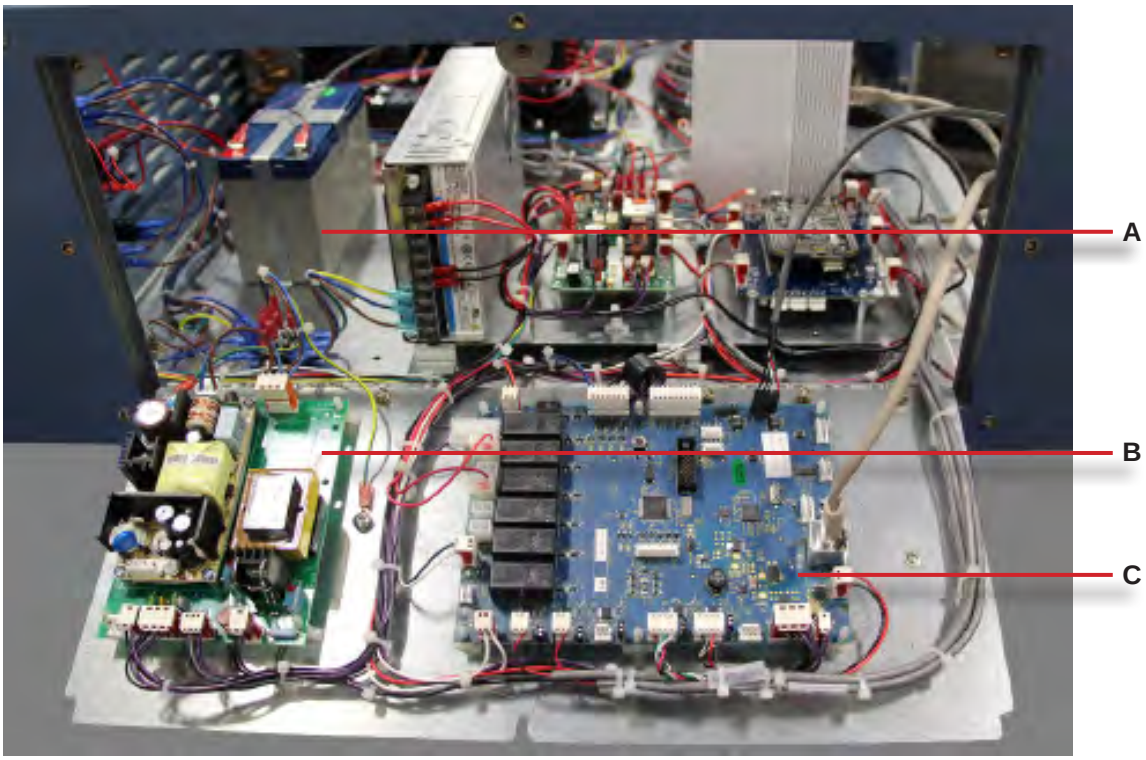

Figure 27: Refrigeration components (Refrigerator).

Label	Description
A	i.C³ monitoring / Access Control backup battery
B	i.C³ Power PCB
C	i.C³ Control PCB

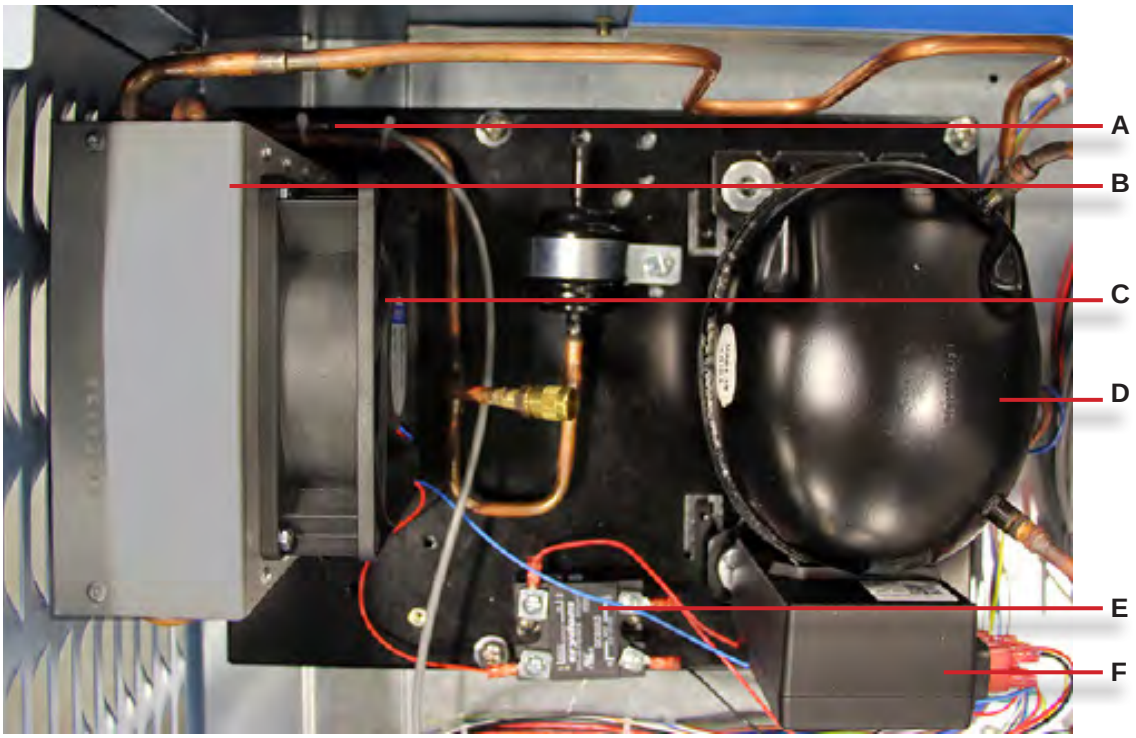

Figure 28: Refrigeration components (Refrigerator).

Label	Description
A	Condenser temperature probe
B	Condensing unit 24 Vdc
C	Condenser fan motor 24 Vdc
D	DC Compressor
E	Fan solid state relay
F	Compressor control

17.2 Compartment Assembly Components

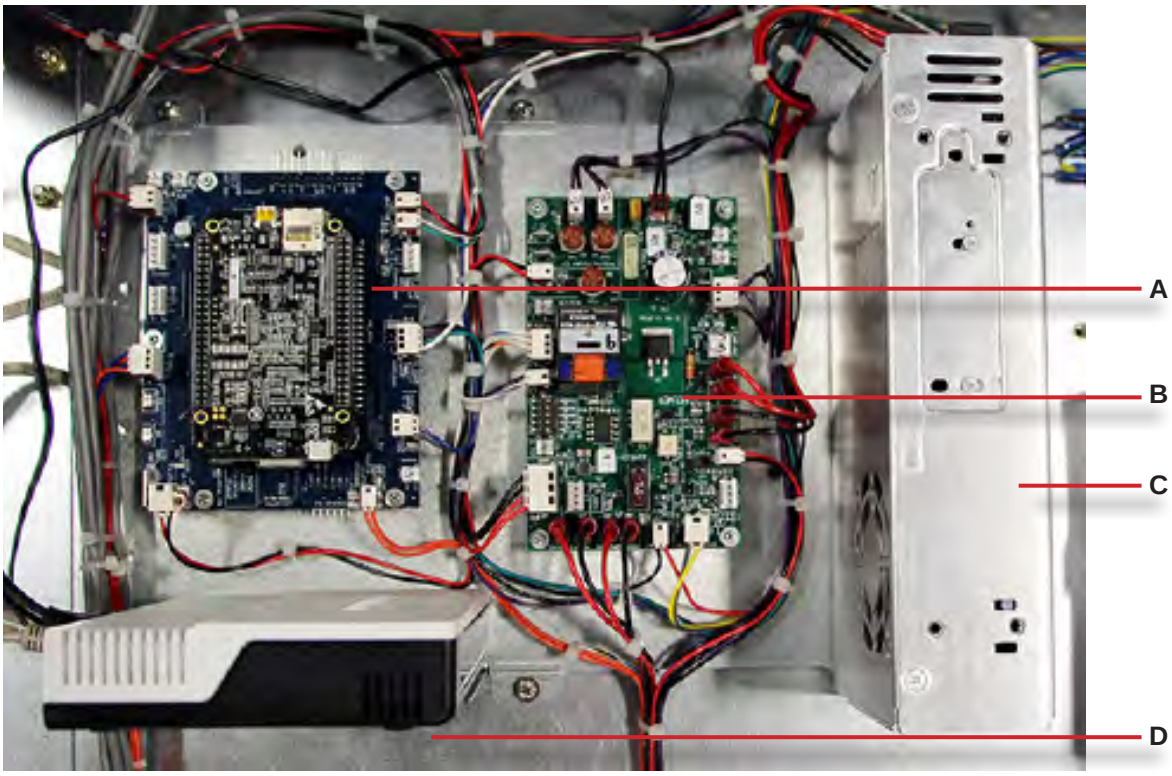

Figure 29: Compartment assembly components.

Label	Description
A	Compartment control PCB assembly
B	Power Distribution and Steering board (PDAS)
C	24 Vdc power supply
D	Router with RJ45-Ethernet ports

Appendix A: Stand-Alone Chart Recorder (Optional)

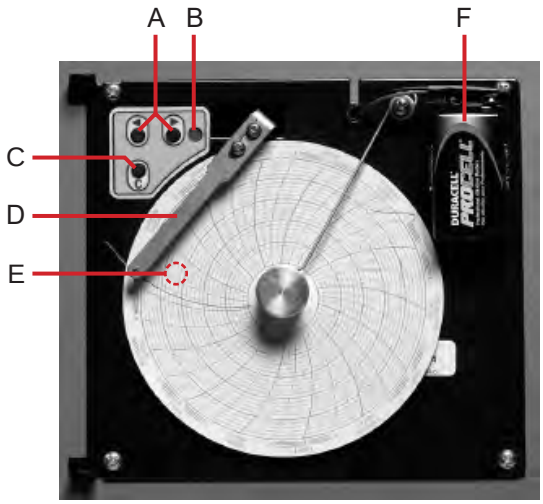

Figure 2: Chart recorder with paper and battery installed.

Label	Description	Function
A	Left and Right Arrow buttons	Adjust settings and stylus position
B	LED	Indicates status of chart recorder in operating mode, or selected temperature range in paper change mode
C	Chart change button	Adjust position of stylus when changing chart paper, or run a test pattern
D	Stylus	Mark temperature line on paper
E	Reset button	Restart chart recorder
F	Backup battery	Provides power during AC power failure. Connect prior to use.

Install backup battery

1 Remove the chart recorder backup battery from the accessory box.
2 Install and connect the battery.

Install and change chart paper

1 Press and hold **C** button. When stylus begins to move left, release button. The LED flashes to indicate current temperature range.
2 When stylus stops moving, remove chart knob then move knob up and away from chart paper.
3 Place new chart paper on chart recorder.
4 Gently lift stylus and rotate paper so current time line corresponds to time line groove.

Figure 3: Chart recorder stylus and time line groove.

5 Hold chart paper and reinstall chart knob.

NOTE For accurate temperature reading, ensure that current time is aligned with time line groove when chart knob is tightened.

6 Confirm the temperature range is set to the correct value.
7 Press and hold **C** button. When the stylus begins to move right, release the button.
8 Confirm the stylus is marking the temperature correctly.

Install chart recorder probe

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 back panel of 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 chart recorder probe through port into chamber.
5. Insert probe into bottle.
6. Replace grill and secure with 2 screws using a #2 Phillips screwdriver.
7. Replace putty around the port on the interior and exterior of the access panel ensuring a tight seal.
8. Replace back panel and secure with 2 screws using a #2 Phillips screwdriver.

END OF MANUAL

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