



HOSHIZAKI

Service Manual

Steelheart Series
Heated Kitchen Equipment

Models
Heated Holding Cabinet

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⚠ WARNING

Only qualified service technicians should install and service the appliance. To obtain the name and phone number of your local Hoshizaki Certified Service Representative, visit www.hoshizaki.com. No service should be undertaken until the technician has thoroughly read this Service Manual. Failure to service and maintain the appliance in accordance with this manual will adversely affect safety, performance, component life, and warranty coverage. Proper installation is the responsibility of the installer. Product failure or property damage due to improper installation is not covered under warranty.

Hoshizaki provides this manual primarily to assist qualified service technicians in the installation, operation, maintenance, and service of the appliance.

Should the reader have any questions or concerns which have not been satisfactorily addressed, please call, send an e-mail message, or write to the Hoshizaki Technical Support Department for assistance.

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HOSHIZAKI AMERICA, INC.

618 Highway 74 South

Peachtree City, GA 30269

Attn: Hoshizaki Technical Support Department

NOTE: To expedite assistance, all correspondence/communication **MUST** include the following information:

- Model Number _____
- Serial Number _____
- Complete and detailed explanation of the problem.

IMPORTANT

This manual should be read carefully before the appliance is serviced. Read the warnings and guidelines contained in this manual carefully as they provide essential information for the continued safe use and maintenance of the appliance. Retain this manual for any further reference that may be necessary.

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Important Safety Information

Throughout this manual, notices appear to bring your attention to situations which could result in death, serious injury, damage to the appliance, or damage to property.

| | |
|------------------|--|
| ⚠ DANGER | Indicates a hazardous situation that, if not avoided, will result in death or serious injury. |
| ⚠ WARNING | Indicates a hazardous situation that, if not avoided, could result in death or serious injury. |
| NOTICE | Indicates a situation that, if not avoided, could result in damage to the appliance or property. |
| IMPORTANT | Indicates important information about the use and care of the appliance. |

| ⚠ DANGER |
|--|
| <ul style="list-style-type: none">• Follow handling instructions carefully in compliance with U.S. government regulations.• Component parts shall be replaced with like components.• Consult instruction manual/service manual before attempting to install or service this product. All safety precautions must be followed.• Dispose of properly in accordance with federal or local regulations. |

| ⚠ DANGER |
|--|
| <p><u>Risque De Feu Ou D'Explosion</u></p> <p><u>Le Frigorigène Est Inflammable</u></p> <ul style="list-style-type: none">• Suivre attentivement les instructions de manipulation conformément à la réglementation gouvernementale.• Les pièces des composants doivent être remplacées par des pièces et accessoires équivalents.• Consulter le manuel du propriétaire/ guide de réparation avant de tenter une réparation. Toutes les mesures de sécurité doivent être respectées.• Éliminer conformément aux règlements fédéraux ou locaux. |

⚠ WARNING


The appliance should be destined only to the use for which it has been expressly conceived. Any other use should be considered improper and therefore dangerous. The manufacturer cannot be held responsible for injury or damage resulting from improper, incorrect, and unreasonable use. Failure to install, operate, and maintain the appliance in accordance with this manual will adversely affect safety, performance, component life, and warranty coverage.

To reduce the risk of death, electric shock, serious injury, or fire, follow basic precautions including the following:

- Only qualified service technicians should install and service the appliance.
- Allow the appliance to cool prior to servicing.
- Wear appropriate personal protective equipment (PPE) when servicing the appliance.
- The appliance must be installed in accordance with applicable national, state, and local codes and regulations.
- Appliance is heavy. Use care when lifting or positioning. Work in pairs when needed to prevent injury or damage.
- To reduce the risk of electric shock, do not touch the plug with damp hands.
- Unplug the appliance before servicing.
- The appliance requires an independent power supply of proper capacity. See the nameplate for electrical specifications. Failure to use an independent power supply of proper capacity can result in a tripped breaker, blown fuse, damage to existing wiring, or component failure. This could lead to heat generation or fire.


⚠ WARNING, continued

• **115VAC Models: THIS APPLIANCE**

MUST BE GROUNDED: This appliance is equipped with a NEMA 115VAC 5-15 three-prong grounding plug  to reduce the risk of potential shock hazards.

It must be plugged into a properly grounded, independent 3-prong wall outlet. If the outlet is a 2-prong outlet, it is your personal responsibility to have a qualified electrician replace it with a properly grounded, independent 3-prong wall outlet. Do not remove the ground prong from the plug and do not use an adapter plug. Failure to follow these instructions may result in death, electric shock, or fire.

• **208/230VAC Models: THIS APPLIANCE**

MUST BE GROUNDED: This appliance is equipped with a NEMA 208-230 L14-20 four-prong locking, grounding plug  to reduce the risk of potential shock hazards. It must be plugged into a properly grounded, independent 4-prong locking wall outlet. If the outlet is a 3-prong outlet or a 4-prong non-locking outlet, it is your personal responsibility to have a qualified electrician replace it with a properly grounded, independent 4-prong locking wall outlet. Do not remove the ground prong from the plug and do not use an adapter plug. After plugging in, twist the plug clockwise to lock it into place. Failure to follow these instructions may result in death, electric shock, or fire.

- Do not use an extension cord.
- Do not use an appliance with a damaged power cord. The power cord should not be altered, jerked, bundled, weighed down, pinched, or tangled. Such actions could result in electric shock or fire. To unplug the appliance, be sure to pull the plug, not the cord, and do not jerk the cord.

⚠ WARNING, continued

- The GREEN ground wire in the factory-installed power cord is connected to the appliance. If it becomes necessary to remove or replace the power cord, be sure to connect the power cord's ground wire.
- Do not splash, pour, or spray water directly onto or into the appliance. This might cause short circuit, electric shock, corrosion, or failure.
- Do not make any alterations to the appliance. Alterations could result in electric shock, injury, fire, or damage to the appliance.
- The appliance is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be properly supervised around the appliance.
- Do not climb, stand, or hang on the appliance or doors or allow children or animals to do so. Do not climb into the appliance or allow children or animals to do so. Death or serious injury could occur or the appliance could be damaged.
- Be careful not to pinch fingers when opening and closing the doors or when handling food pans. Be careful when opening and closing the doors when children are in the area.
- Open and close the doors with care. Opening the doors too quickly or forcefully may cause injury or damage to the appliance or surrounding equipment.
- Do not use combustible spray or place volatile or flammable substances in or near the appliance. They might catch fire.
- Do not place any product on the floor of the cabinet. All product must be placed on properly installed shelves.

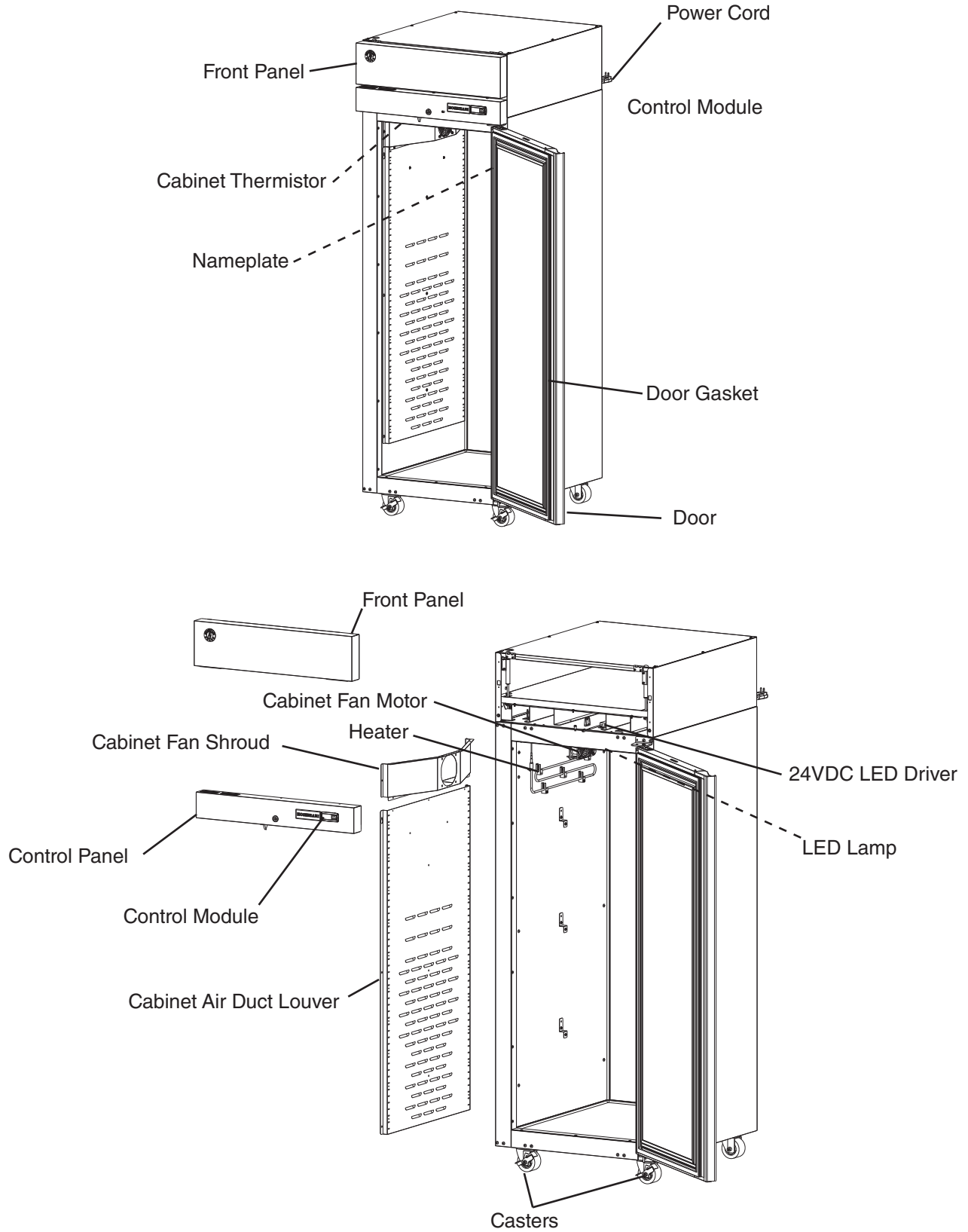
⚠ WARNING, continued

- Do not block air inlets or outlets, otherwise heating performance may be reduced.
- Do not tightly pack the cabinet. Allow some space between items to ensure good air flow. Also allow space between items and interior surfaces.
- Food storage and handling must comply with applicable codes and regulations.
- Do not store items near air outlets. Otherwise, items may scorch and crack or break causing a risk of injury or contamination of other food.
- Keep the area around the appliance clean. Dirt, dust, or insects in the appliance could cause harm to individuals or damage to the equipment.
- Do not throw anything onto the shelves or load any single shelf with more than 120 lb. (54.5 kg) of product. They might fall off and cause injury.
- This appliance is designed for holding heated prepared foods at a safe temperature. Use for any other purposes could cause contamination and deterioration of stored items.

NOTICE

- Protect the floor when moving the appliance to prevent damage to the floor.
- Keep ventilation openings clear of obstruction.
- Care should be used when placing items on top of the appliance. Foreign objects or moisture could enter the appliance and result in electric shock or fire.
- To prevent deformation or cracks, do not spray insecticide onto the plastic parts or let them come into contact with oil.
- To avoid damage to the gasket, use only the door handle when opening and closing.

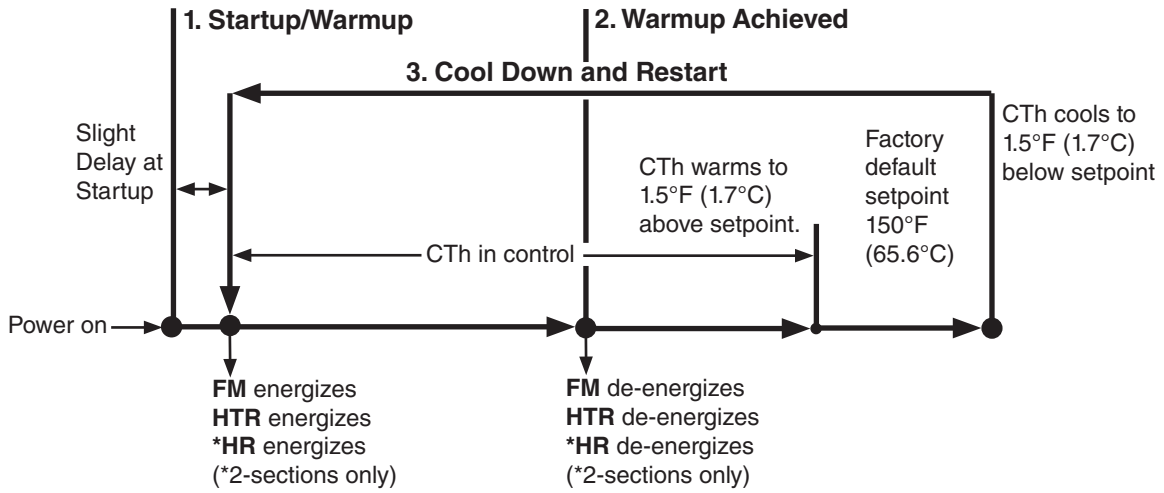
I. Construction



II. Sequence of Operation and Service Diagnosis

A. Sequence of Operation Flow Chart

Heated Holding Cabinet Sequence Flow Chart



Legend:
CTh—cabinet thermistor
FM—fan motor
HTR—heater
HR—heater relay

B. Service Diagnosis

⚠ WARNING

- The appliance should be diagnosed and repaired only by qualified service personnel to reduce the risk of death, electric shock, serious injury, or fire.
- Wear appropriate personal protective equipment (PPE) when servicing the appliance.
- Risk of electric shock. Use extreme caution and exercise safe electrical practices.
- Moving parts (e.g., fan blade) can crush and cut. Keep hands clear.
- Appliance is heavy. Use care when lifting or positioning. Work in pairs when needed to prevent injury or damage.
- Make sure all food zones are clean after the appliance is serviced.

NOTICE

- This appliance is not intended for outdoor use.
- Normal operating ambient temperature:
 - Solid Door Heated Cabinets 45°F to 104°F (7°C to 40°C)
 - Glass Door Heated Cabinets 45°F to 104°F (7°C to 40°C)Operation of the appliance, for extended periods, outside of this normal temperature range may affect appliance performance.
- The appliance must not be located in a corrosive environment.
- Minimum Clearance:

| Models | Side | Top | Rear |
|-----------------------------|-----------|-----------|-----------|
| All Heated Holding Cabinets | 0" (0 cm) | 0" (0 cm) | 0" (0 cm) |
| Pass Thru's | 0" (0 cm) | 0" (0 cm) | N/A |

The diagnostic procedure is a sequence check that allows you to diagnose the electrical system and components. Before proceeding, check for correct installation and proper voltage per nameplate. Always choose a neutral (W) to establish a good neutral connection when checking high voltages. If the display is in alarm, see "III.C. Alarm Safeties."

IMPORTANT

The maximum allowable voltage variation is ± 10 percent of the nameplate rating. 115VAC is used as a reference voltage when checking voltage to components. Voltage may vary depending on power supply.

1. Factory Default Settings:

- a) Temperature Setpoint: 150°F (65.6°C)
- b) Temperature Display Scale: °F.

For further details, see "II.C. Control Module Check" or "III. Controls and Adjustments."

- 1) Unplug the appliance from the electrical outlet. **WARNING! To reduce the risk of electric shock, do not touch the plug with damp hands.**
- 2) Remove the control panel.
- 3) Plug the appliance back into the electrical outlet.

- 4) **Warmup**— After a slight delay, CM display energizes. FM, HTR, and HR (2-section) energize. Cabinet temperature begins to increase. If the cabinet temperature is not displayed on the control module, press and hold the "U" button on the control module for 2 seconds. See Fig. 1.

Note: Icons flash when components are called for during a timed lockout or the door is open. Once the timer terminates or the door is closed, the icons go solid and components energizes.

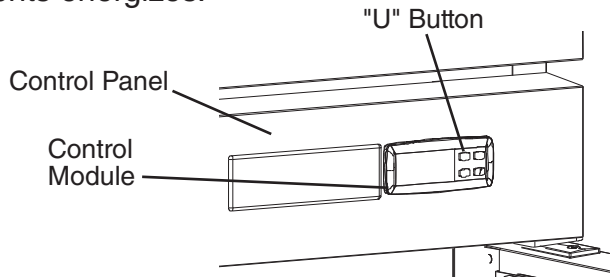


Fig. 1

- 5) **CM Diagnosis**— Cabinet temperature appears on the display. If not, make sure the CM is not in "stand-by" mode by pressing the "U" button. Next, check for 115VAC at CM 7 (BK) to CM 8 (W). If 115VAC is not present, check power cord connections and the breaker/fuse. Confirm wiring connections are secure for both CM 7 (BK) and CM 8 (W). If 115VAC is present and the display is off, replace the CM.

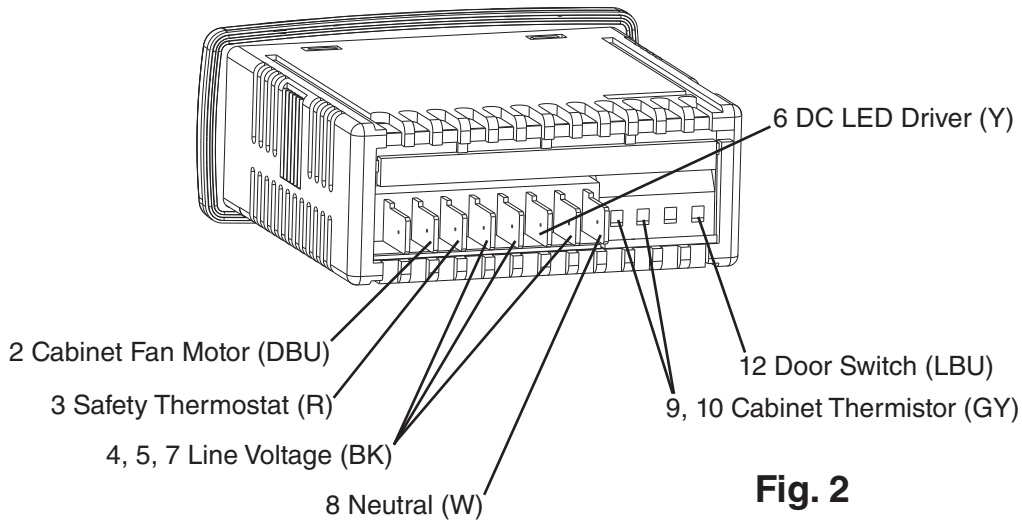


Fig. 2

- 6) **1-Section HTR Diagnosis**— HTR energizes at startup. If the cabinet temperature does not start to increase, check for 115VAC at CM 3 red (R) to CM 8 white (W). If 115VAC is not present, confirm cabinet temperature is 1.5°F below setpoint. If cabinet temperature is at least 1.5°F below setpoint, replace CM. If 115VAC is present at CM 3 red (R), check for 115VAC at the safety thermostat red (R) wire to black (BK) wire. If 115VAC is present, safety thermostat is open. The safety thermostat is an automatic reset safety. Allow the safety thermostat to cool, then recheck for 115VAC across the safety thermostat. If 115VAC is still present, replace the safety thermostat. If 115VAC is not present across the safety thermostat, check amp draw of the HTR. If an amp reading is not present, check the continuity of HTR. If defective, replace HTR.

Note: HTR energizes and de-energizes with CabFM.

- 7) **2-Section HR and HTR Diagnosis**– CM energizes HR at startup, then HR energizes the HTRs. If the cabinet temperature does not start to increase, check for 115VAC at CM 3 orange (O) to CM 8 white (W). If 115VAC is not present, confirm cabinet temperature is 1.5°F below setpoint. If cabinet temperature is at least 1.5°F below setpoint, replace CM. If 115VAC is present at CM 3 (O), check for 115VAC at HR terminal 0 orange (O) wire to HR terminal 1 white (W) wire. If 115VAC is not present, check all wiring connections. If 115VAC is present, check for 115VAC at HR terminal 2 (R) to neutral (W) and terminal 6 (BK) to neutral (W). If 115VAC is not present on either terminal, check all wiring connections. If 115VAC is present at HR terminals 2 (R) and 6 (BK), check for 115VAC at HR terminal 4 (O) and terminal 8 (O) to neutral (W). If 115VAC is not present, replace HR. If 115VAC is present, check amp draw of HTR. If an amp reading is not present, check the continuity of HTR. If defective, replace HTR. Note: HTR energizes and de-energizes with CabFM's.
- 8) **CabFM(s) Diagnosis**– Confirm that the CabFM(s) energize. If not, confirm CTh is 1.5°F below setpoint, doors are closed, and DS engaged. If CTh is at 150°F (65.6°C) or above, wait for CTh to cool down. Once CTh cools down, check if CabFM is energized. If not, check for 5VDC at CM 9 (LBU) to CM 12 (LBU). If 5VDC is present, check DS continuity. If DS is engaged and contacts are open, replace DS. If DS is engaged and contacts are closed, check for 115VAC at CM 2 (DBU) to neutral white (W). If 115VAC is not present, replace CM. If 115VAC is present, check CabFM blades for binding and CabFM continuity.
- 9) **CTh Diagnosis**– See "II.D. Thermistor Check".
- 10) **Solid Door Cabinet Light Diagnosis:** LED(s) energize when the doors open. Open the door(s) (upper on HS), confirm LED(s) energizes. If not, with door(s) open, check for 5VDC at CM 9 gray (GY) to CM 12 light blue (LBU). If 5VDC is not present at CM 12 light blue (LBU) to CM 9 gray (GY), confirm 115VAC power supply to CM at terminals 7 black (BK) to 8 white (W). If 115VAC is present, and LED(s) are off, check DS continuity. If DS is disengaged (open) and contacts are closed, replace DS. If DS is disengaged (open) and contacts are open, check for 115VAC from CM 6 yellow (Y) to a neutral (W). If 115VAC is not present, replace CM. If 115VAC is present at CM 6 yellow (Y) to a neutral (W) and LED(s) are not on, check for 24VDC at DCD black (BK) wire to DCD red (R) wire. If 24VDC is not present, check continuity of DCD driver. If open, replace DCD driver. If 24VDC is present and LED(s) are not on, check wiring harness and wiring connections from DCD to LED(s). If connections are good and LED(s) are not on, replace LED(s).

11) **Glass Door Cabinet Light Diagnosis:** LED(s) are activated from control module light switch. Glass door models feature lights that are controlled by the Standby/Light control button located on the CM. Press the standby/light button quickly to turn the light on or off. If LED(s) fail to turn on, check for 115VAC from CM 6 yellow (Y) to a neutral (W). If 115VAC is not present at CM 6 yellow (Y) to a neutral (W), replace CM. If 115VAC is present at CM 6 yellow (Y) to a neutral (W) and LED(s) are not on, check for 24VDC at DCD black (BK) wire to DCD red (R) wire. If 24VDC is not present, check continuity of DCD driver. If open, replace DCD driver. If 24VDC is present and LED(s) are not on, check wiring harness and wiring connections from DCD to LED(s). If connections are good and LED(s) are not on, replace LED(s).

Legend: **CabFM**—cabinet fan motor; **CM**—control module; **CTh**—cabinet thermistor;
DCD—direct current driver; **DS**—door switch; **HTR**—cabinet heater;
HR—heater relay

C. Control Module Check

1. Control Module Display

Before replacing a CM that does not show a visible defect and that you suspect is bad, conduct the following check procedure. This procedure will help you verify your diagnosis. Always choose a neutral (W) to establish a good neutral connection when checking high voltages. Also, confirm there is a good power supply and neutral connection to CM: 115VAC at CM 4, 5, or 7 (BK) to CM 8 (W).

Alarm Reset: To silence the alarm, press and release the up button with power on.
For alarm information, see "III.D. Alarm Safeties."

2. Startup/Warmup

- 1) Make sure CM display is not in "stand-by" mode by pressing the "U" button.
- 2) Check all wiring connections. Confirm the CTh and DS are properly connected.
- 3) Check for 115VAC at CM 4, 5, or 7 (BK) to CM 8 (W).
If 115VAC is not present, check power supply and wire connections.
- 4) Check that cabinet temperature is displayed. If not, replace CM.
- 5) Check that CabFM and HTR have energized. If not, check CTh status. See "II.D. Thermistor Check." If CTh ohm reading is in proper range, check for 115VAC at CM 4, 5, or 7 (BK) to neutral (W). If 115VAC is not present, replace CM.
- 6) Next, confirm doors are closed and DS engaged.

Legend: **CabFM**—cabinet fan motor; **CM**—control module; **CTh**—cabinet thermistor;
DS—door switch; **HTR**—heater

D. Thermistor Check

The cabinet thermistor is used for cabinet temperature control. Thermistor resistance varies depending on temperature. The control module monitors the thermistors to control system operation. No adjustment is required.

To check thermistor resistance, follow the steps below.

- 1) Unplug the appliance.
- 2) Remove the control panel and cabinet fan shroud (the right fan shroud on 2-sections).
- 3) Remove the thermistor in question, then immerse the thermistor sensor portion in a glass containing ice and water for 2 to 3 min.
- 4) Disconnect the thermistor connector from the control module.
- 5) Check the resistance between the wires at the thermistor connector. Normal reading is within 16.0 to 16.7 k Ω . If outside the normal reading, replace the thermistor.
- 6) Reconnect and replace the thermistor in its correct position.
- 7) Replace the cabinet fan shroud and control panel in their correct positions.
- 8) Plug the appliance back in.

E. Diagnostic Table

Control module icons inform you of energized components and if the appliance is in alarm. Note: Icons flash when components are called for during a timed lockout or the door is open. Once the timer terminates or the door is closed, the icons go solid and components energize. See "III. Control Module Adjustments, Operation, and Alarms".

Not Warming

| Not Warming - Possible Cause | |
|---|--|
| 1. Power Supply | a) Unplugged, off, blown fuse, tripped or defective circuit breaker. |
| | b) Loose connection. |
| | c) Not within specifications. |
| 2. Cord and Plug | a) Loose connection. |
| | b) Defective. |
| 3. Wiring | a) Loose connection. |
| | b) Faulty. |
| 4. Control Module See "III.C. Alarm Safeties" and "II.C. Control Module Check." | a) In alarm. |
| | b) Defective. |
| 5. Door Switch | a) Not engaged. |
| | b) Defective. |
| 6. Cabinet Fan Motor | a) Defective. |
| 7. Safety Thermostat Switch | a) Defective. |
| 8. Cabinet Thermistor "II.D. Thermistor Check." | a) Out of position or disconnected. |
| | b) Defective. |





III. Control Module Adjustments, Operation, and Alarms

A. Control Module

All models are pretested and factory set. When plugged into an electrical power supply, there is a slight delay, then the current cabinet temperature is displayed. From the display module, the cabinet setpoint and temperature display scale can be changed.

| NOTICE | |
|--|--|
| <ul style="list-style-type: none"> • The control module is fragile, handle very carefully. • Do not change wiring and connections. Never misconnect terminals. • Do not short out power supply to test for voltage. | |

1. Display Icons

| Control Module Icons | |
|---|---|
| Icon | Meaning |
|  | Heater(s) Heater(s) energized. Heater(s) de-energize when the door is open or when setpoint temperature is achieved. |
|  | Fan Motor(s) Fan motor(s) energized. Fan motor(s) de-energize when the door(s) are open. |
|  | Alarm Appliance is in alarm. See "II.G. Alarm Safeties" for details. |
|  | LED Light (glass door models) Glass door cabinet LED light. The cabinet LED light is controlled by the "P" service button. |

2. Control Module Connections

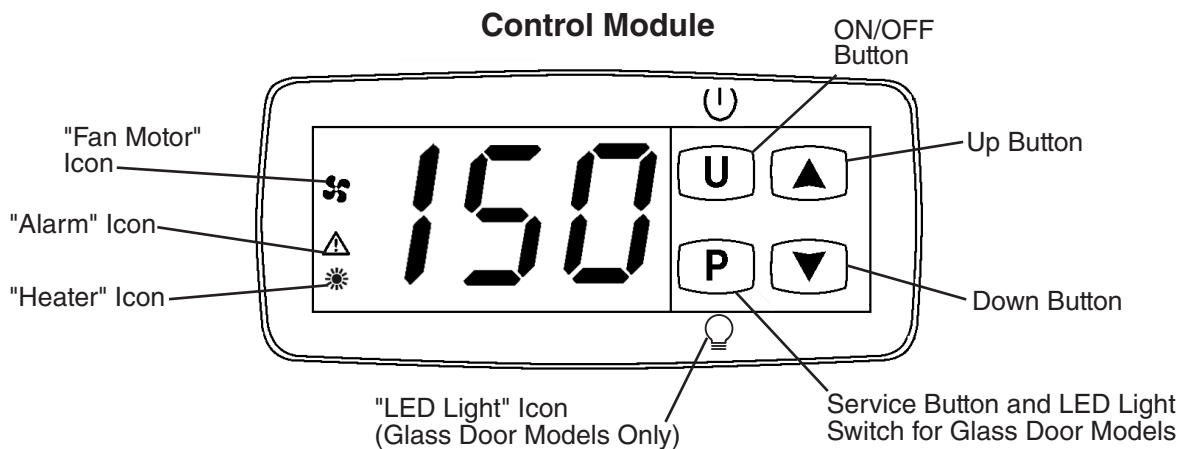
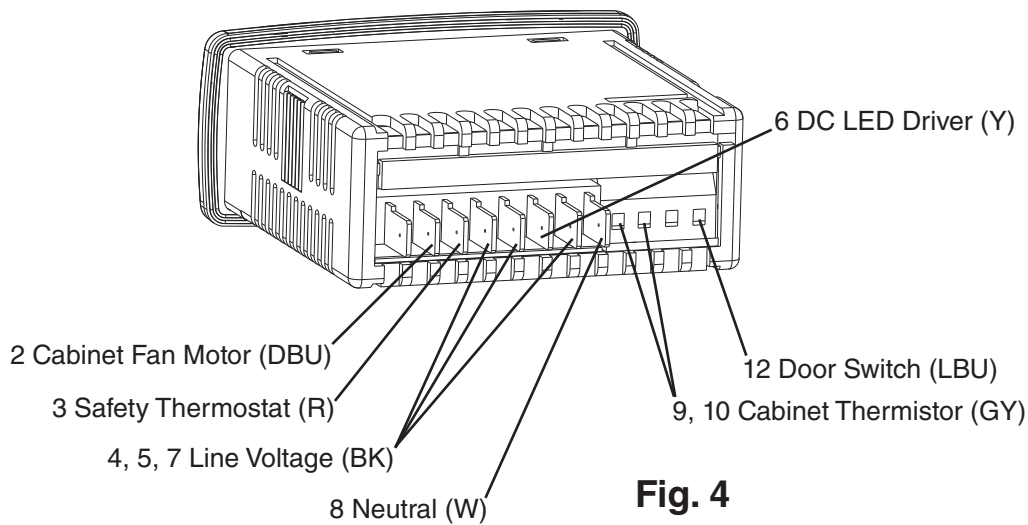


Fig. 3

B. Temperature



1. Temperature Display

The cabinet temperature is displayed on the control module. See Fig. 5.

The display is in °F. To convert from °F to °C, see “III.C.3. Changing the Temperature Display Scale (°F or °C).”

2. Adjusting the Temperature Setpoint

The temperature setpoint is the value for the cabinet temperature. The temperature differential for the heater(s) to turn on or off is $\pm 1.5^{\circ}\text{F}$ ($\pm 0.8^{\circ}\text{C}$) of the temperature setpoint. For example, the temperature setpoint of 150°F (65.5°C), the heater(s) come on at 148.5°F (64.7°C) and the heater(s) go off at 151.5°F (66.3°C). If necessary, adjust the temperature setpoint as follows:

- 1) To change the temperature setpoint, press and release the "P" button or the up or down button. The current temperature setpoint appears. Press the up or down button until the desired value is displayed. After a few seconds, the display returns to the current cabinet temperature and the temperature setpoint is saved.
 - Heated Holding Cabinet temperature setpoint is adjustable between 80°F and 180°F (26.6°C and 82.2°C). **The factory default is 150°F (65°C).**

3. Changing the Temperature Display Scale (°F or °C)

There are 4 temperature display settings from which to choose.
 The factory temperature display default is F0 for °F whole number.
 For a whole number temperature display scale value, select F0 or C0.
 For a temperature display scale value to one decimal point, select F1 or C1.

| Display Setting | Temperature Display Example |
|----------------------|-----------------------------|
| F0 - Factory Default | 150°F |
| C0 | 65°C |
| F1 | 150.0°F |
| C1 | 65.0°C |

To change the temperature display setting, follow the steps below.

- 1) Press the “U” and “P” buttons together for 5 seconds. I.uP is displayed.
- 2) Press the “P” button. The current display setting (F0, F1, C0, or C1) and I.uP start flashing.
- 3) Press the up or down button until the desired temperature display setting appears.
- 4) Press the “P” button to save the selection. I.uP is displayed. To return to normal display mode, press and hold the “U” button for 5 sec. Display returns to normal display mode. If no other button is pressed after pressing the “P” button, 25 sec. later, display returns to normal display mode.

Note: If no selection is saved within 30 seconds, the display returns to normal mode and the temperature display setting remains unchanged.

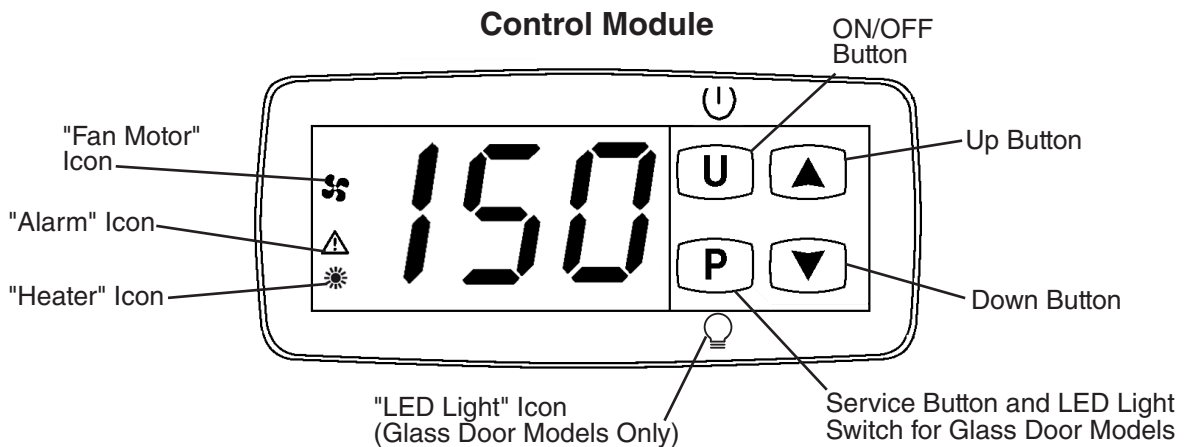


Fig. 5

C. Alarm Safeties

Alarm signals are designed to protect the appliance and food product. These alarms give information or warnings in the event the appliance is operating out of acceptable parameters. Should one of the alarms occur, follow the instructions in the table below to address the alarm. The alarm code and alarm icon flash with audible alarm.

| Alarm Signals | | |
|---------------|---|--|
| Alarm Code | Problem | Corrective Action/Reset Details |
| oP | Door Switch Alarm: Door has remained open for more than 2 minutes. Door Is Open or The Door Switch has failed. | If obvious corrections such as closing doors does not correct the alarm, call a qualified service technician. Beeps continuously after 2 min. To silence the alarm, press and release any button. |
| (-)E1 | Cabinet Thermistor Malfunction Alarm Cabinet thermistor has failed. | Call a qualified service technician. Beeps continuously. To silence the alarm, press and release the up button. Appliance cycles 1 min. on, 10 min. off. -E1 - Cabinet thermistor out of place or open. E1 - Cabinet thermistor shorted. |
| Hi | High Temperature Alarm Cabinet temperature has remained above 225°F (107.2°C) for more than 2 minutes. | If obvious corrections do not bring temperature back in range, call a qualified service technician. Beeps continuously. To silence the alarm and clear "Hi" from the display, press and release any button. The alarm icon stays on. Automatically resets when temperature returns to normal. |
| Lo | Low Temperature Alarm Cabinet temperature has remained below 80°F (26.6°C) for more than 2 minutes. | If obvious corrections do not bring the temperature back in range, call a qualified service technician. Beeps continuously. To silence the alarm and clear "Lo" from the display, press and release any button. The alarm icon stays on. Automatically resets when temperature returns to normal. |
| U.HU | High Voltage Alarm (140VAC±5% or more) | Call a qualified service technician. |
| U.LU | Low Voltage Alarm (100VAC±5% or less) | Beeps until voltage is in range. The heater(s) de-energize if voltage protection operates. The voltage safeties automatically reset when voltage is corrected. |

D. Heating Performance

Be sure the appliance is properly installed and located for optimum heating performance. If heating performance is not at its optimum level, check the following items:

- Activity of the Doors: Door(s) opened too often or doors left open.
- Cabinet too tightly packed or cabinet air inlet/outlet blocked. Allow some space between items to ensure good air flow.
- Cold or uncooked foods inside. Remove the foods. Replace them back in the appliance after they have been warmed or cooked.
- Ambient temperature out of range.
- Temperature setpoint too low. Adjust to a higher temperature setpoint.
- When lower humidity is desired. Open the humidity vent located in the top panel inside the cabinet.

E. Safety Devices and Light Control

1. Safety Thermostat Switch

If the temperature exceeds Hoshizaki specifications, the safety thermostat switch activates and de-energizes the heater until the temperature returns below the switch activation point.

2. LED Light Control

- a) Glass door models feature interior LED lights that are controlled by the "P" button located on the control module. Press and release the "P" button to turn the interior LED lights on or off.
- b) Solid door models feature LED interior lights that are controlled by the door switch. Opening and closing the doors will turn the interior LED lights on and off.

F. Food Storage

⚠ WARNING

- This appliance is designed for storage of pre-cooked food. Employ sanitary methods.
- Hot foods should not be placed in a cold (room temperature) appliance.
- Holding food at temperatures of less than 140°F (60°C) may be dangerous. Temperatures under 140°F (60°C) promote the growth of harmful bacteria and toxins in some foods.
- Do not block the cabinet air inlet or outlet, otherwise heating performance may be reduced.
- Do not tightly pack the cabinet. Allow some space between items to ensure good air flow. Also allow space between items and interior surfaces.
- Do not place any product on the floor of the cabinet. All product must be placed on properly installed shelves.
- Do not put cool or uncooked foods in the cabinet. Cook them first, or they will lower the cabinet temperature and could deteriorate other foods in the cabinet or overload the appliance.
- All foods should be wrapped in heat resistant wrap or stored in sealed containers. Otherwise foods may dry up, pass their smells onto other foods, result in poor appliance performance, or increase the likelihood of cross-contamination.
- Do not store items near the air outlet. They might dry out and crack or break causing a risk of injury or contamination of other food.
- This appliance is designed for storage of pre-cooked food. Employ sanitary methods.
- Hot foods should not be placed in a cold (room temperature) appliance.
- Holding food at temperatures of less than 140°F (60°C) may be dangerous. Temperatures under 140°F (60°C) promote the growth of harmful bacteria and toxins in some foods.
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- Do not put cool or uncooked foods in the cabinet. Cook them first, or they will lower the cabinet temperature and could deteriorate other foods in the cabinet or overload the appliance.
- All foods should be wrapped in heat resistant wrap or stored in sealed containers. Otherwise foods may dry up, pass their smells onto other foods, result in poor appliance performance, or increase the likelihood of cross-contamination.
- Do not store items near the air outlet. They might dry out and crack or break causing a risk of injury or contamination of other food.

IV. Component Service Information

NOTICE

Before Servicing: Allow the appliance to cool.

| Component | Notes |
|--------------------|--|
| Cabinet Thermistor | After working with or around the cabinet thermistor, make sure the cabinet thermistor is in its correct position and secure. |

V. Maintenance

WARNING

- The interior cabinet and its contents of the appliance are HOT!
- Let the appliance cool before servicing or cleaning.
- Unplug the appliance before performing maintenance to prevent electric shock or injury by moving parts. To reduce the risk of electric shock, do not touch the plug with damp hands.
- Before performing maintenance, move all foods into another clean heated cabinet.
- Metal edges can cause cuts. Use proper PPE when cleaning.
- Do not pour or spray water on or into the appliance.

1. Power Supply Connection

If the plug or power cord is damaged, contact your local Hoshizaki service representative or local Hoshizaki distributor immediately and ask for repairs.

All other maintenance or service on this appliance should be performed in accordance with the Hoshizaki Instruction Manual by a qualified service technician.

VI. Preparing the Appliance for Periods of Non-Use

When shutting down the appliance for periods of non-use, follow the instructions below.

| |
|------------------|
| ⚠ WARNING |
|------------------|

- | |
|---|
| <ul style="list-style-type: none">• Prevent the doors from closing to reduce the risk of children getting trapped.• To reduce the risk of electric shock, do not touch the plug with damp hands. |
|---|

- 1) Before shutting down the appliance, remove all foods, trays, and containers.
- 2) Press and hold the "U" button on the control module until a dot appears in the display, then unplug the appliance from the electrical outlet. See Fig. 5.

VII. Disposal

| |
|------------------|
| ⚠ WARNING |
|------------------|

| |
|--|
| Remove the door to reduce the risk of children getting trapped. Leave the shelves in place so that children may not easily climb inside. |
|--|

The appliance must be disposed of in accordance with applicable national, state, and local codes and regulations.

VII. Technical Information

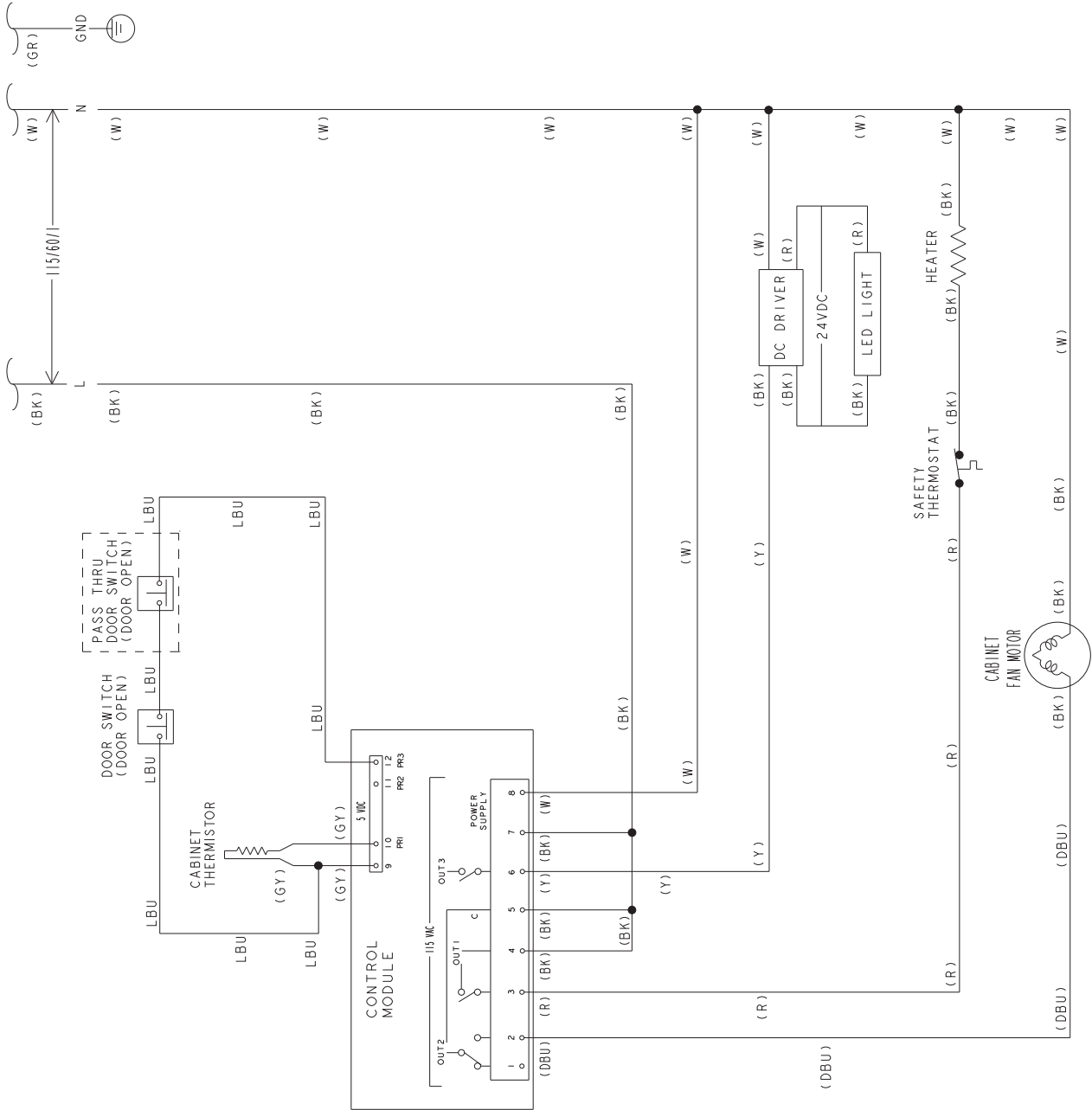
A. Electrical Data

| Model | AC Supply Voltage | Amperes |
|--------------|--------------------------|----------------|
| HC1A-FS | 115/60/1 | 10.0 |
| HC1A-HS | 115/60/1 | 10.0 |
| HC1A-FS-FS | 115/60/1 | 10.0 |
| HC1A-HS-HS | 115/60/1 | 10.0 |
| HC1A-FGE | 115/60/1 | 10.0 |
| HC1A-HGE | 115/60/1 | 10.0 |
| HC1A-FGE-FGE | 115/60/1 | 10.0 |
| HC1A-HGE-HGE | 115/60/1 | 10.0 |
| HCRN1A-FS | 115/60/1 | 11.0 |
| HCRT1A-FS-FS | 115/60/1 | 11.0 |
| HC2A-FS | 208-230/60/1 | 9.0/10.0 |
| HC2A-HS | 208-230/60/1 | 9.0/10.0 |
| HC2A-FS-FS | 208-230/60/1 | 9.0/10.0 |
| HC2A-HS-HS | 208-230/60/1 | 9.0/10.0 |
| HC2A-FGE | 208-230/60/1 | 9.0/10.0 |
| HC2A-HGE | 208-230/60/1 | 9.0/10.0 |
| HC2A-FGE-FGE | 208-230/60/1 | 9.0/10.0 |
| HC2A-HGE-HGE | 208-230/60/1 | 9.0/10.0 |
| HCRN2A-FS | 208-230/60/1 | 10.0/11.0 |
| HCRT2A-FS-FS | 208-230/60/1 | 10.0/11.0 |

See the nameplate for electrical specifications. The nameplate is located inside the cabinet. We reserve the right to make changes in specifications and design without prior notice.

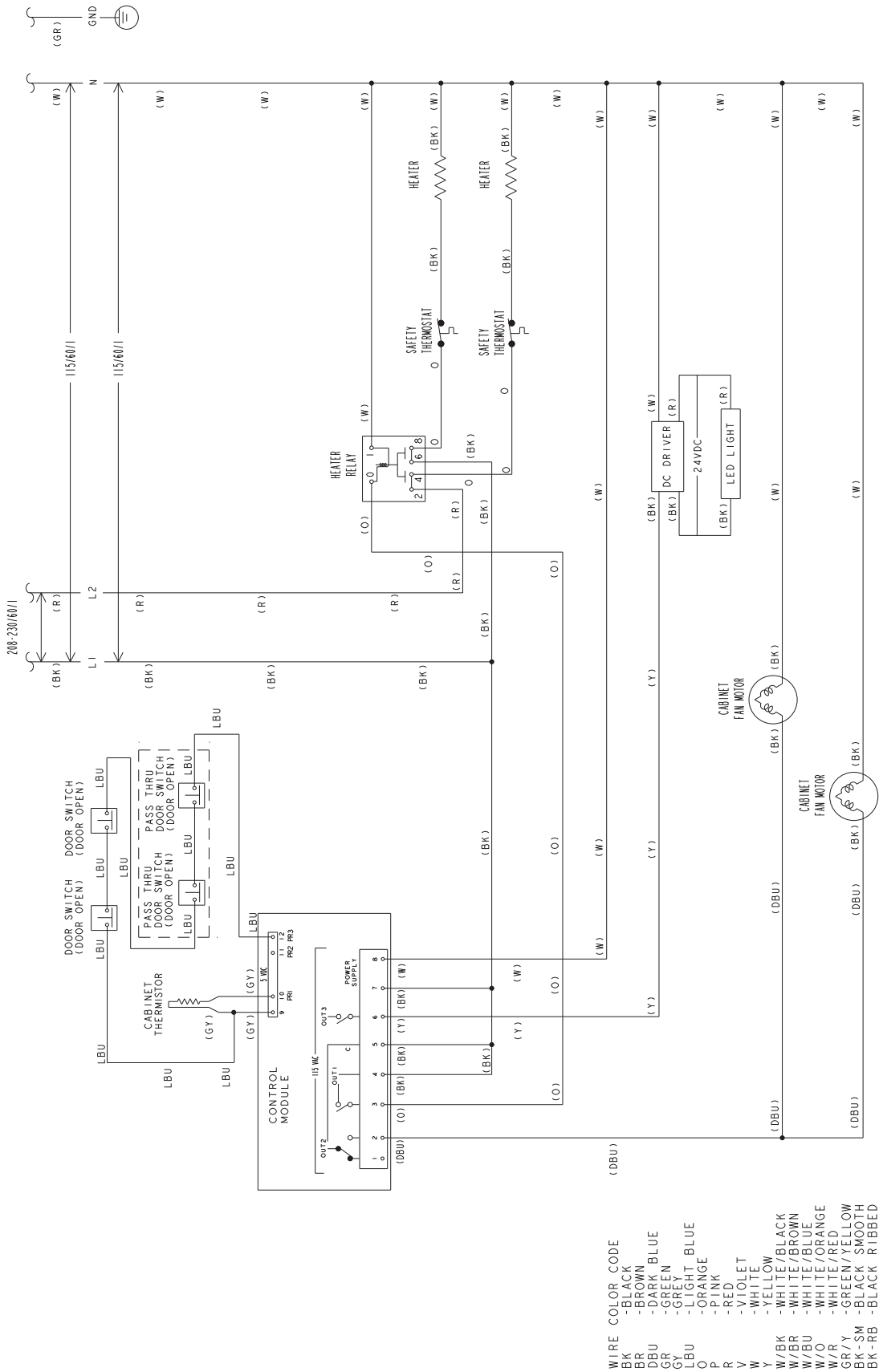
B. Wiring Diagrams

1. HC1A-FS(-HS)(-FS-FS)(-HS-HS)(-FGE)(-HGE)(-FGE-FGE)(-HGE-HGE)

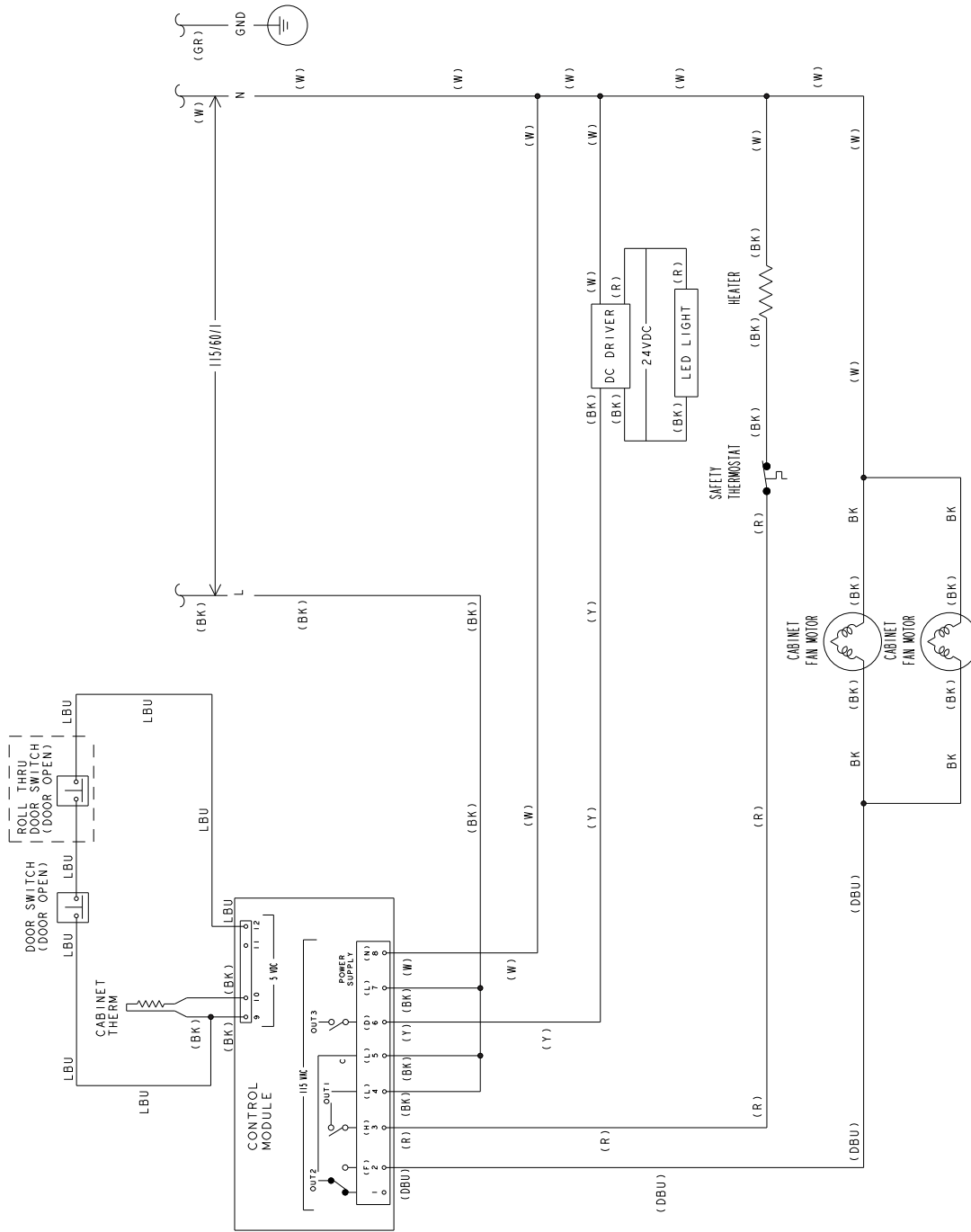


| | |
|-------|---------------|
| WIRE | COLOR |
| BK | -BLACK |
| BR | -BROWN |
| DBU | -DARK BLUE |
| GR | -GREEN |
| GY | -GREY |
| LBU | -LIGHT BLUE |
| O | -ORANGE |
| P | -PINK |
| R | -RED |
| V | -VIOLET |
| Y | -YELLOW |
| W/BK | -WHITE/BLACK |
| W/BR | -WHITE/BROWN |
| W/BU | -WHITE/BLUE |
| W/O | -WHITE/ORANGE |
| W/R | -WHITE/RED |
| GR/Y | -GREEN/YELLOW |
| BK-SM | -BLACK SMOOTH |
| BK-RB | -BLACK RIBBED |

2. HC2A-FS(-HS)(-FS-FS)(-HS-HS)(-FGE)(-HGE)(-FGE-FGE)(-HGE-HGE)



3. HCRN1A-FS, HCRT1A-FS-FS



WIRE COLOR CODE

| | |
|-------|---------------|
| BK | -BLACK |
| BR | -BROWN |
| DBU | -DARK BLUE |
| GR | -GREEN |
| LBU | -LIGHT BLUE |
| O | -ORANGE |
| P | -PINK |
| R | -RED |
| V | -VIOLET |
| W | -WHITE |
| Y | -YELLOW |
| W/BK | -WHITE/BLACK |
| W/BR | -WHITE/BROWN |
| W/BU | -WHITE/BLUE |
| W/O | -WHITE/ORANGE |
| W/R | -WHITE/RED |
| GR/Y | -GREEN/YELLOW |
| BK-SM | -BLACK SMOOTH |
| BK-RB | -BLACK RIBBED |

4. HCRN2A-FS, HCRT2A-FS-FS

