

# **MB MASTER-BILT**<sup>®</sup>

**™** *Refrigeration Solutions*

## **BLAST CHILLER Installation Instructions**

**MCR – 33101**

**MCR – 33102**

**MCR – 33101PT**

**MCR – 33102PT**

**Master-Bilt Products**  
908 Highway 15 North  
New Albany, MS 38652  
Phone: (800) 684-8988

PN\_57-02064



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## INTRODUCTION

THANK YOU for purchasing a **Master-Bilt** Blast Chiller. The **Master-Bilt** Blast Chiller is designed for accurate and rapid field assembly.

### NOTICE

Read this manual carefully before you begin Blast Chiller installation or operation. Failure to do so could result in personal injury or damage to your Blast Chiller.

### NOTICE

This manual is a necessary and permanent part of your Blast Chiller. Always keep this manual accessible for installation and operation procedures.

This manual cannot cover every installation, use or operation situation. If you need additional information, call or write our customer service department for assistance.

### **MASTER-BILT Products**

908 Highway 15 North  
New Albany, MS 38652

Phone: 1-800-684-8988

If this manual or any of the warning labels on your **Master-Bilt** Blast Chiller are marred or destroyed, contact **Master-Bilt** to replace them.

Locate the serial number plate on the Blast Chiller. Write the 10-digit serial number below. Your **Master-Bilt** dealer needs this number when you order parts.

**Serial Number** \_\_\_\_\_

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## ABOUT THIS MANUAL

Please read this entire installation manual before you install your **Master-Bilt** Blast Chiller. It provides information on installation and operation of the Blast Chiller. It is very important that you complete each step of installation in the order that the steps appear in the installation sections of this manual. Otherwise, you may find yourself unnecessarily disassembling and re-assembling parts.

The information and graphics in this manual are common to installation of all **Master-Bilt** Blast Chillers. A customized print is provided specific to your order. Your print provides information specific to your design and installation. This manual indicates when you should refer to your site-specific drawings.

## BLAST CHILLER MODELS

- All Blast Chiller electrical connections should be made per the wiring diagrams found in this manual for the electrical box and control panel.
- All Blast Chiller refrigeration connections should be made per the attached refrigeration diagrams and charts found in this manual according to the correct model. Refer to the correct air or water-cooled schematic per the condensing unit markings and labels.
- All Blast Chillers accept the same size rack.

## WARNING LABELS AND SAFETY INSTRUCTIONS

### RECOGNIZE SAFETY INFORMATION

This is the safety alert symbol. When you see this symbol on your equipment or in this manual be alert to the potential for personal injury or damage to your **Master-Bilt** Blast Chiller.


Be sure you understand all safety messages and always follow recommended precautions and safe operating practices.




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### UNDERSTAND SIGNAL WORDS


Important safety information is presented in this section and throughout the manual. These signal words are used in the warnings and safety messages.

 **DANGER**  
Severe injury or death will occur if you ignore the message.


 **DANGER**

 **WARNING**  
Severe injury or death can occur if you ignore the message.

 **WARNING**

 **CAUTION**  
Minor injury or damage to your U **Master-Bilt** Blast Chiller can occur if you ignore the message. **CAUTION** also calls attention to safety messages in this manual.

 **CAUTION**

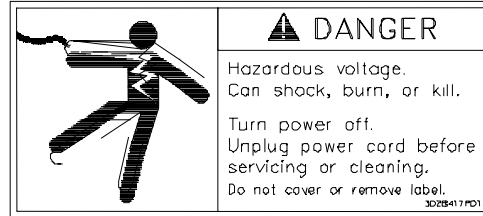
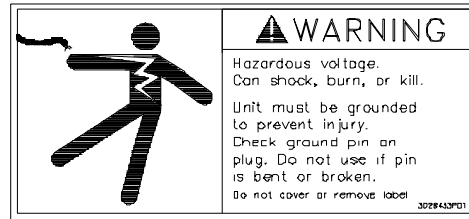
 **NOTICE**  
This is important installation, operation, or maintenance information that you should pay special attention to. If you ignore this information, you may damage your **Master-Bilt** Blast Chiller.

 **NOTICE**

## AVOID INJURY FROM HIGH VOLTAGE ELECTRICAL SHOCK

Disconnect power before cleaning or servicing the Blast Chiller. Do not spray with water or steam. Use a damp cloth to remove dirt.

Be sure Blast Chiller is grounded. Check ground connection. Do not use if unit is not grounded.

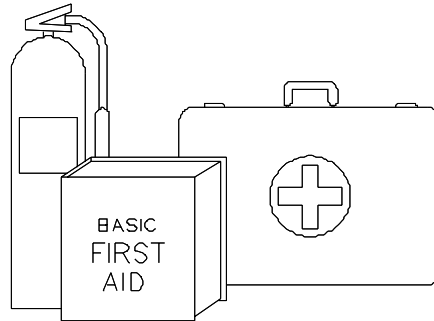


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## PREPARE FOR EMERGENCIES

Be prepared if a fire starts. Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital and fire department near your telephone.



**⚠ WARNING TO EMPLOYERS**  
Never allow small children inside or around your blast chiller. They can become trapped inside and be injured or killed.



## **FOLLOW SAFETY INSTRUCTIONS**

Carefully read all safety messages in this manual and safety signs on your equipment. Keep safety signs in good condition. Replace any missing or damaged safety signs.

Learn how to operate the equipment and how to use controls properly. Do not let anyone operate without instruction and proper training.

### **NOTICE TO EMPLOYERS**

It is the employers' responsibility to make sure all persons around this equipment know where the inside latch is and how it works.

Keep your equipment in proper working condition. Unauthorized modifications to the equipment may impair the functions and/or safety and reduce equipment life.

## **OBSERVE SAFETY SIGNS**

Your **Master-Bilt** Blast Chiller requires two electrical supplies: an electrical supply for the blast chiller box, fan, controls, etc., and an electrical supply for the condensing unit.

## **ELECTRICAL CONNECTIONS**

The wiring will be performed by a qualified and certified electrician.

Improper or faulty hook-up of electrical components of the walk-in can result in severe injury or death.

Installation of the refrigeration and electrical components of the walk-in must be performed only by a refrigeration mechanic or licensed electrician.

### **NOTICE**

Electrical connections must be done in accordance with all applicable local, regional, or national standards as well as the National Electrical Code.

### **NOTICE**

Installation and service of blast chiller must be performed by licensed refrigeration mechanic and/or licensed electrician.

## INSTALLATION

### PRE-INSTALLATION

Read and comply with the following information:

-Packing List	Page 10
-Van Shipment (if applicable)	Page 11
-Freight Claims	Page 12
-Site Checklist	Page 14

### INSTALLATION

Special equipment needed for installation includes:


-Fork lift or hoist

Your envelope contains:

- Your **Master-Bilt** Blast Chiller Installation and Operations Manual
- Customized drawings and diagrams for your specific order:
  - Installation diagram
  - Panel numbering diagram
  - Wiring diagram\*

\*2 identical wiring diagrams are provided:

- One is included in the envelope for use at the installation site.
- One is a permanent part of your manual.

 <b>NOTICE</b> <b>Master-Bilt</b> recommends you practice safe lifting and safe moving techniques.
--

### AFTER INSTALLATION

Complete the Installation Data on pages 44 to 46.

Retain one copy.

Return one copy to **Master-Bilt**.

Leave one copy at the installation site.

## PACKING LIST

Assure that all components on this packing list are included when unit arrives:

<u>Quantity</u>	<u>Description</u>
_____	Insulated Wall Panels
_____	Insulated Ceiling Panels Assembly
_____	Control Box
_____	Top Trim Panels
_____	Top Trim Panel Mounting Strips
_____	Evaporator Coil Assembly
_____	Evaporator Fan Assembly
_____	Interior Top Trim Panels
_____	Interior Side Trim Panels
_____	Optional Stainless Steel Floor Pan
_____	Box of Hardware: Screws, Bolts, Light Globe, Wall Panel, Plug Buttons, Locking Wrench, Installation Manual
_____	Blast Chiller Rack
_____	Compressor/Condenser Unit

## **VAN SHIPMENT**

If your Blast Chiller is shipped by van, it is not crated. Components are blanket wrapped and secured carefully in the van. Be sure to check your packing list (page 8) to be sure all parts are received.

If parts are missing or damaged:

- Make a notation to that effect on the driver's Bill of Lading
- Notify the van company at once

Since van shipped parts are not crated, handle and store them carefully before you begin installation.

## **FREIGHT CLAIMS**

### **IMPORTANT**

#### **FREIGHT CLAIMS INSPECTION:**

**You are responsible for all claims.** It is vitally important that upon arrival, all cartons and crates are inspected for visible damage. If at all possible, cartons and crates should be opened immediately to check for concealed damage within. All cartons and crates must be saved until the unit is completely removed from the carton so concealed damaged claims can be filed.

You, as the consignee, must file freight claims with the delivering truck line. If there is any question whatsoever regarding the condition of the equipment, this question should be noted on the bill of lading, which you sign as a delivery receipt.

All shortages must be noted on the bill of lading as the shipment is received. If a bill of lading is signed as complete for the delivering truck driver, there is virtually no way to secure a claim for shortages which are found later.

#### **MASTER-BILT Products**

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New Albany, MS 38652

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# PRE-ASSEMBLY PROCEDURES

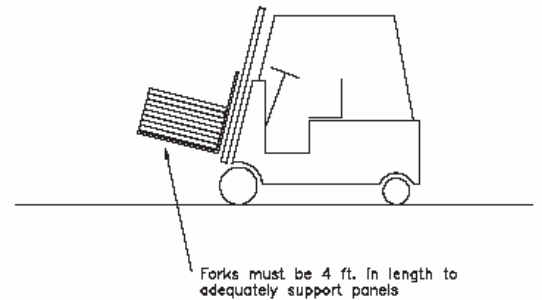
## HANDLING AND SET-UP PRECAUTIONS

It is the responsibility of the installer to use safe unloading, handling, and construction practices. If you have any questions about proper installation of the unit or accessories, contact **Master-Bilt**.

### ▲ NOTICE

Use material handling procedures appropriate to the job you are doing. Failure to use proper loading or handling procedures or to follow manual instructions can cause bodily injury or damage to your blast chiller.

Forklifts used to handle skids or panels must have forks at least four feet long and set far enough apart to adequately support panels or skids (see Figure Below). Forklifts must have the capacity to support panels weighing two pounds per square foot each.



## STORAGE

When the unit must be stored at the job site prior to set-up, it is very important that it be stored properly.

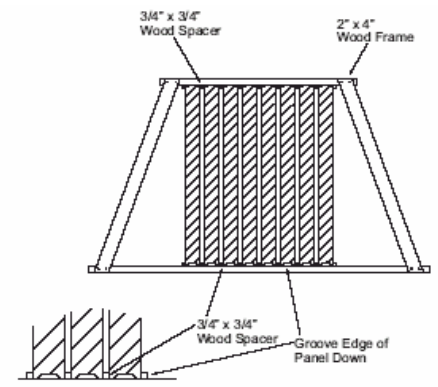
### ▲ NOTICE

The panels should be stored on a level area eliminating the risk of the panels falling and injuring someone. The panels being stored should not be stacked over 2 skids high.

Whenever possible store the unit indoors. Panels stored indoors may be stored in their original factory packaging. If it is necessary to store panels outdoors, stack them vertically on skids, with spacers between the panels. This protects the panel edges and provides proper ventilation. This method of stacking permits drain-off of moisture and guards against rust stains.

Panels should be covered with a waterproof covering to protect them from the weather.

**Master-Bilt** recommends black polyethylene sheeting, which keeps sunlight out and eliminates the "greenhouse" condition, which occurs when clear plastic is used. In heavy traffic areas, it is advisable to place protective rails around stacks of panels to guard them from any possible damage



## SITE CHECKLIST

-Inspect the area where your **Master-Bilt** Blast Chiller will be installed.

1. Check to make sure the floor is level.
  - a. The entire floor under the Blast Chiller must be level, clean, and smooth.

### NOTICE

The existing surface must be level before the blast chiller is installed. If it is not, leveling must be performed to insure proper installation

If the floor area under the Blast Chiller is not level and smooth, have the area grouted.

2. Check the ceiling height above the Blast Chiller area:
  - a. Refer to the enclosed print specific to this project.
  - b. The top area of the Blast Chiller must be accessible for servicing.
  - c. Make sure proper clearance is allowed.
3. Assure a drain is located near the Blast Chiller.
  - a. Make sure the drain is located relative to the enclosed Blast Chiller print.
  - b. Measure and locate where the drain will exit the Blast Chiller box.
4. Assure electrical supply is near the Blast Chiller.
  - a. Review the enclosed Blast Chiller print to determine the best location for the (customer supplied) electrical disconnects for the two electrical supplies required.
    - i. On an adjacent wall for blast chiller.
    - ii. At condensing unit.
  - b. Measure and locate where the electrical supply will be located.
  - c. Review the enclosed Blast Chiller prints for voltage, amperage, and phase and location.
5. Assure adequate clearance is allowed for the door to the Blast Chiller to swing open.

# BLAST CHILLER BOX INSTALLATION

## STEP 1

In this step you will prepare the floor and install either the wall angles, or optional floor pan or optional floor.

### WALK-INS WITHOUT FLOORS

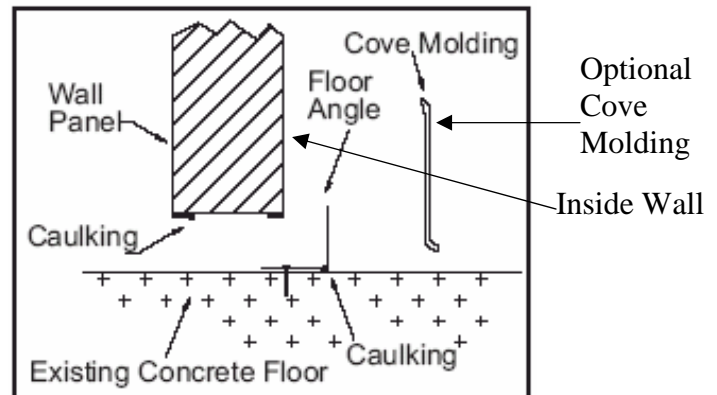
- Locate the Blast Chiller print sent with the unit.
- Mark the floor with the inside dimensions.
- Check the marked area for:
  1. Level surface
    - a. Floor must be completely level around wall parameter.
    - b. Add grout as needed
  2. Surface condition
    - a. Surface must be smooth.
    - b. Add grout as needed
  3. Cleanliness
    - a. Sweep and clean area to assure surface is free of dirt, debris, water, oil, and grease.
  4. Adequate space.
    - a. Allow for insulated panel thickness if the Blast Chiller location is against a wall or partition.
    - b. Measure between the inside flange and the wall to assure adequate space is allowed.
    - c. Refer to the Blast Chiller print (the standard **Master-bilt** panel is 4" thick)
- Correct any of the above problems with the floor BEFORE proceeding with Blast Chiller installation

-On floorless-type walk-ins you may use 1-1/2" x 1-1/2" floor angles with which to attach the bottom of all wall sections or screeds to the existing floor.

-Attach the floor angles to the existing floor before the wall panels are installed.

-Make sure that the angles are fastened to the floor straight and square, and that they are spaced so that the wall panels can be placed on top of the angle flange attached to the floor.

-Seal with NSF approved sealant as shown.

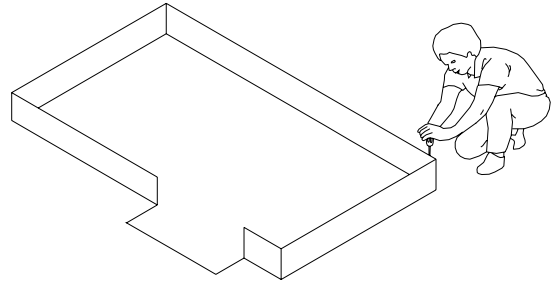


If you are not sure about any of the above conditions, **STOP**.  
Call **Master-bilt** at 1-800-647-1284.

## WALKINS WITH FLOOR PAN

- Locate the Blast Chiller floor pan.
- Move the floor pan into position (wear heavy gloves).
- Scribe the floor pan location.
- Move the floor pan aside.
- Check the scribed area for:

1. Level surface:
  - a. Floor must be completely level.
  - b. Add grout as needed.
2. Surface condition:
  - a. Surface must be smooth (capable of having vinyl tile/carpet laid)
  - b. Add grout as needed.
3. Cleanliness
  - a. Sweep and clean area to assure surface is free of dirt, debris, water, oil, and grease.
4. Adequate space
  - a. Allow for insulated panel thickness if the Blast Chiller location is against a wall or partition.
  - b. Measure between the inside flange and the wall to assure adequate space is allowed.
  - c. Refer to the Blast Chiller print (the standard **Master-bilt** panel is 4" thick)



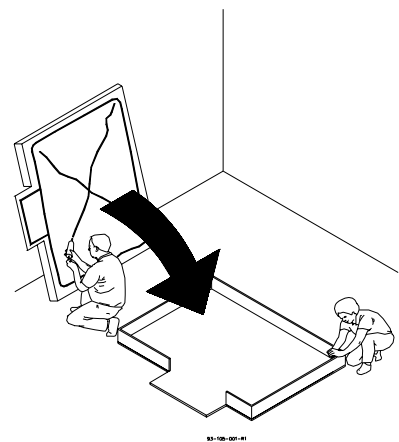
95-105-000 R1

-Correct any of the above problems with the floor BEFORE proceeding with Blast Chiller installation

If you are not sure about any of the above conditions, **STOP**. Call **Master-bilt** at 1-800-984-8988.

- Carefully stand the floor pan up on one end against a stable wall.
- Apply NSF approved clear silicone to the floor pan.

1. Around the perimeter of the floor pan.
  - a. Locate the bead about 4" in from the floor pan edge.
  - b. Use a uniform bead of about 3/8".
2. To the center of the floor pan (surfaces that contact the floor).
  - a. Crisscross the floor pan center until the floor pan is completely covered with silicone. This prevents any air trapped under the installed floor pan from creating an "oil canning" effect and also any condensation that may appear on the other side of the floor pan.



95-105-000 R1

- With the aid of helpers, carefully lower the floor pan into position for installation.
- Carefully walk on the floor pan to remove trapped air.
- Check to make sure the silicone properly coats the floor pan perimeter.

### WARNING

Install Blast Chiller floor pans on concrete floors only.

## WALK-INS WITH FLOORS

- Locate the Blast Chiller floor panels.
- Lay out all floor panels in sequence as shown on assembly drawings.
- Scribe floor around floor panels.
- Move floor panels out of scribed area.
- Check the scribed area for:
  1. Level surface:
    - a. Floor must be completely level.
    - b. Add grout as needed.
  2. Surface condition:
    - a. Surface must be smooth.
    - b. Add grout as needed.
  3. Cleanliness
    - a. Sweep and clean area to assure surface is free of dirt, debris, water, oil, and grease.

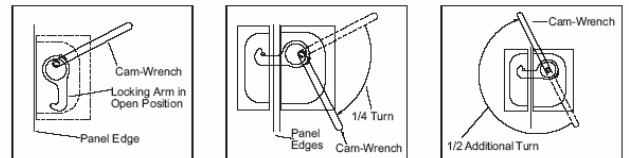
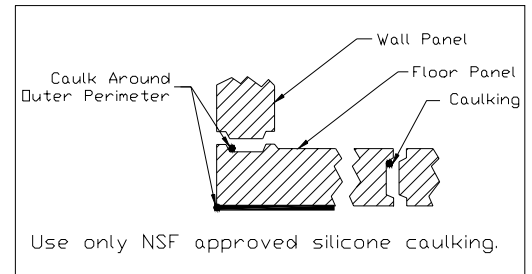
-Correct any of the above problems with the floor BEFORE proceeding with Blast Chiller installation.

If you are not sure about any of the above conditions, **STOP**. Call **Master-bilt** at 1-800-684-8988.

- Caulk panels as shown with NSF approved caulking.
- Fasten these panels as evenly as possible to each other to provide a square and level base for the wall panels.
- Using wrench provided tighten the cam fasteners all the way so that the panels are evenly aligned and fit snugly.

-Caulk around outer perimeter with NSF approved caulking.

1. This prevents condensation that may appear on the other side of the floor panel.

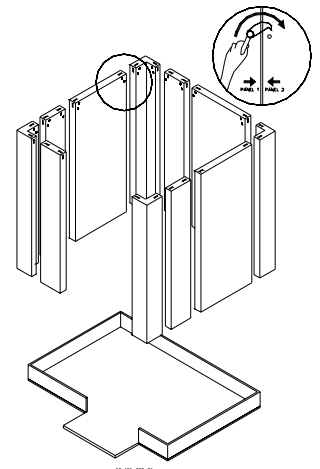


### STEP 3

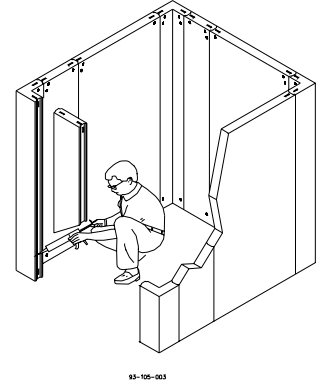
In this step you install the insulated wall panels

#### INSTALL INSULATED WALL PANELS

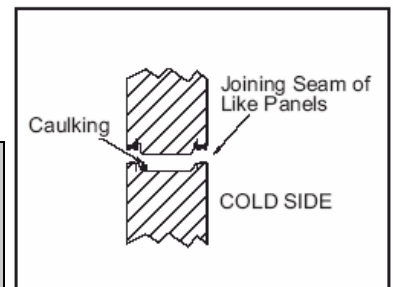
- Refer to the enclosed panel print customized for your order.
- Locate and arrange panels according to the panel print.
- Hold the first panel in place.
  1. Position the panel to cause it to seat with the floor, floor pan, or floor angle.
  2. Apply NSF approved clear silicone to the bottom of the panel.
  3. Refer to the print to position the panel and cause it to seat with the floor, floor pan, or floor angle.



- Hold the first panel in place
- Place the second panel in place.
  1. Position the panel to cause it to seat with the floor, floor pan, or floor angle.
  2. Apply NSF approved clear silicone to the outside of the V joint of the side panel and to the bottom.



- Lock these panels together using internal cam locks.
  1. Locate cam lock wrench provided.
  2. Insert wrench onto the hex head pin in the cam lock opening.
  3. Rotate the cam lock clockwise until the lock hooks with the adjoining panel.
  4. Continue rotating until the lock pulls the panel together snugly as shown above.



**▲ NOTICE**  
Occasionally, a cam fastener will not operate because an operating hex pin is broken or rounded off during assembly. If one cam on a panel fails to fasten, the remaining cam fasteners provide adequate support and alignment for assembly of the chiller.

**▲ NOTICE**  
The stainless steel panels are covered with a protective sheet of plastic. Remove the protective plastic covering from the wall panels as each area is completed.

- Continue to erect the sides and back of the chiller box.
  1. Insure the panels are even at the top.

**▲ WARNING**  
Perform the following installation steps now. The area is not accessible after the evaporator and fan assemblies are installed.

- Apply a small bead of silicone at the joint of the floor pan flange and the chiller wall.
- Check all remaining cam locks.
  1. Tighten or re-tighten as needed.
- Press the cam lock covers (plug covers) into the holes with your hands.

**▲ NOTICE**  
DO NOT INSTALL THE DOOR PANEL AT THIS POINT. The door panel is installed after the coil assembly is installed. All panels except the door panel and ceiling panels must be complete before the evaporator coil assembly is installed.

## **STEP 4**

In this step you will install the evaporator and fan assemblies and drain piping.

### **INSTALL EVAPERATOR AND FAN ASSEMBLYS**

-Refer to your project-specific print for proper positioning of the evaporator and fan assemblies.

-Carefully unpack evaporator and fan assemblies.

1. Remove all protective plastic from the stainless parts.
2. Keep the assembly in a vertical position during positioning.
3. Move these assemblies with care.

-Refer to the drawing on the next page to assure the proper installation sequence is followed:

1. Slide the evaporator assembly in place.
2. Slide the fan assembly in place.

#### **▼ NOTICE**

You must slide the fan assembly in with a straight-on approach. The evaporator drain pan and the fan assemblies drain pan overlap so they carry water to the drain opening together. The evaporator and fan assemblies fit into position with a tight clearance.

1. Use a level to plumb the evaporator and fan bank, shim as required for a tight level fit.
2. Mark location of evaporator assembly.
3. Slide the fan assembly temporarily into the opposite corner.

-Mark hole location for drain piping.

1. Locate drain piping on Blast Chiller Drawing and compare with drain at site location.
  - a. With evaporator assembly in its correct location and correct drain location identified measure for drain line exit location and mark the side panel for a 1 ½” hole penetration.
  - b. Depending on location of drain will determine if you will need to run the piping through the predrilled holes in the evaporator and fan assembly’s.
  - c. Double check hole location before drilling.
2. Drill a 1 ½” hole for drain line.
  - a. Evaporator assembly may have to be moved to allow access to drill.

#### **▲ WARNING**

Beware of others on the opposite side of the panel when drilling through the wall.

#### **CAUTION**

Do not drill holes through the evaporator or fan assemblies use the pre-drilled holes.

3. Move evaporator and fan assembly’s back into place and check hole location using pipe.
4. Move units back away from wall.
5. Apply NSF approved clear silicone to side and back flanges (full perimeter) of drip pan (see diagrams below).
6. Push the assemblies back into place.
7. Use a level to plumb the evaporator and fan bank, shim as required for a tight level fit.

-Remove the access covers on the lower front of the evaporator and fan banks.

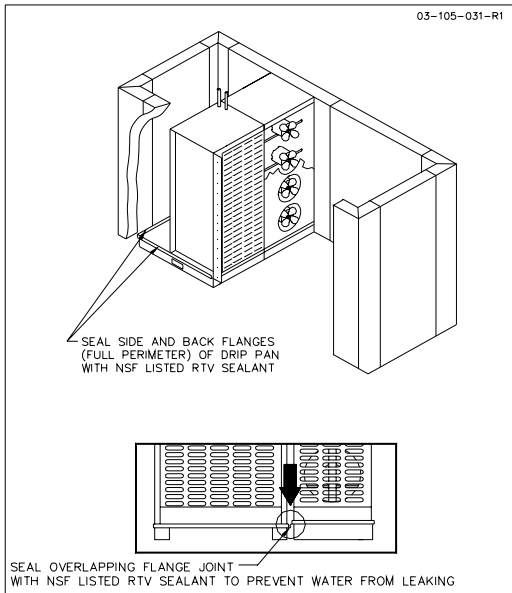
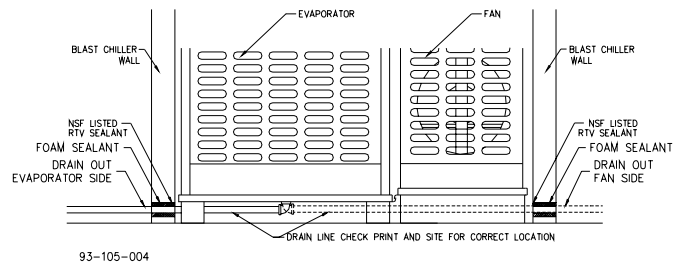
-Install the drain piping:

1. Connect piping to the 90E elbow(s) at the bottom of the evaporator drain pan(s).
  - a. Use a non-permanent thread sealer because drain lines must be capable of being removed for future servicing.

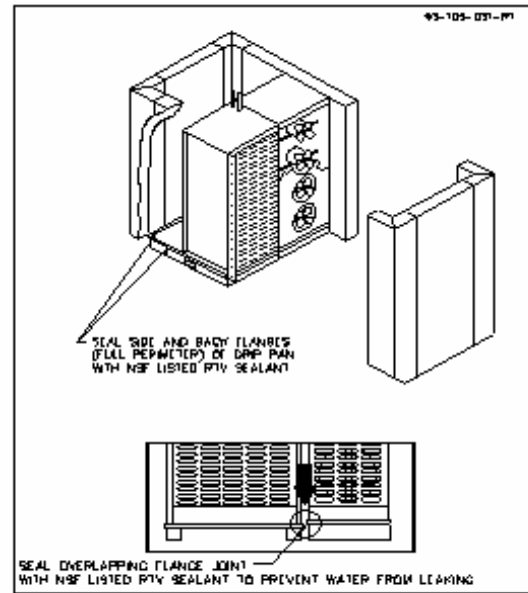
-Seal the inside drain pipe hole with NSF approved silicone sealant.

-Seal the remainder of drainpipe hole in blast chiller wall with foam insulation.

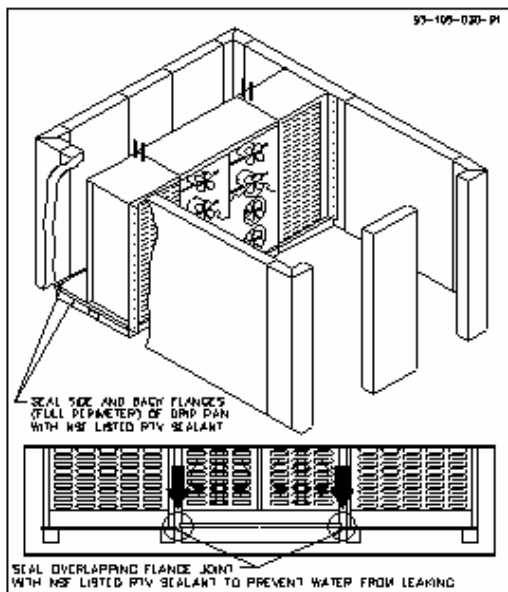
1. This will stop any airflow around the pipe



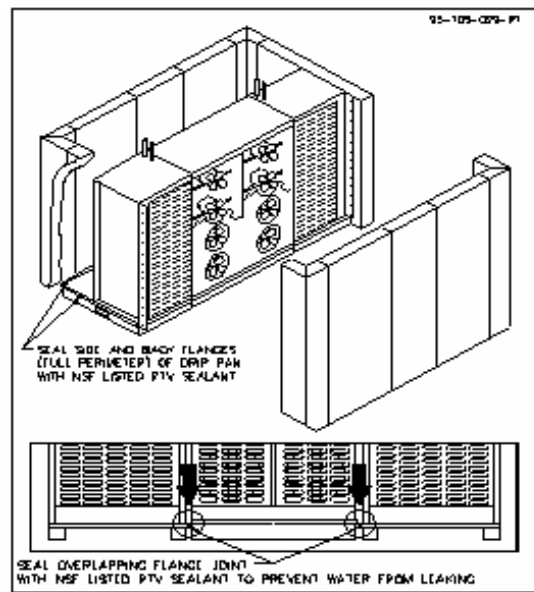
BLAST CHILLER FAN INSTALLATION



BLAST CHILLER FAN INSTALLATION (33-101PT)



BLAST CHILLER FAN INSTALLATION (33-102)



BLAST CHILLER FAN INSTALLATION (33-102PT)

## STEP 5

In this step you position the ceiling panels.

### INSTALL CEILING PANELS

#### NOTICE

**Master-bilt** recommends safety be your first priority at all times. Use either a forklift or a properly designed panel-lifting device to lift the ceiling panels.

#### DANGER

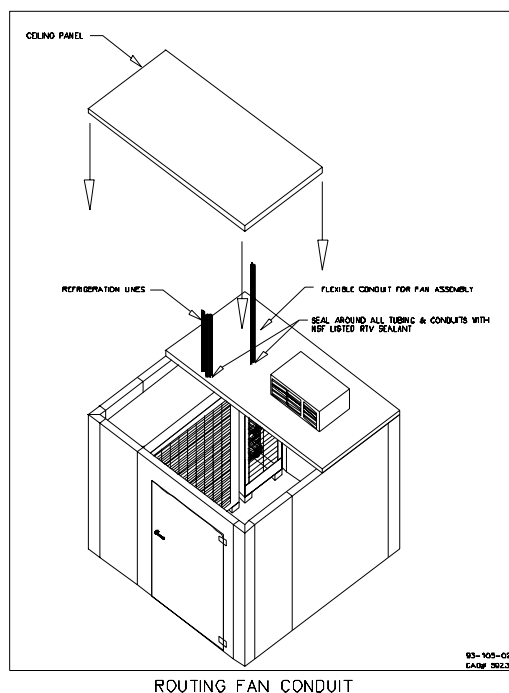
DO NOT LIFT PANEL AT THE OUTER EDGES.

-Place a protective padding material between the lift and the ceiling panel.

-Carefully lift the ceiling panels into place.

-Refrigerant line location.

1. Some Blast Chillers have refrigeration tubing extending out of the top of the chiller box.
2. Care must be taken to prevent damage to refrigerant lines when lowering ceiling panels onto box.
3. Refrigerant line size and location will depend on the blast chiller and condensing unit purchased, see the Condensing Unit and Refrigeration Unit Installation section in this manual to determine the correct location and hole sizes.
4. Drill holes required.



#### **⚠** WARNING

Beware of others on the opposite side of the panel when drilling through the wall.

#### CAUTION

Do not drill holes through the evaporator or fan assemblies.

## STEP 6

In this step you install the door panel(s).

### INSTALLATION OF DOOR PANEL

After all the wall and ceiling panels are in place and aligned straight and square, you are ready to install the door and frame.

-Attach the ceiling panels to the wall panels and verify unit is square and panels align correctly.

#### **▲ NOTICE**

The evaporator coil grill cover(s) must be removed to tighten the wall-to-ceiling cam locks located behind the coil and fan assemblies.

-Loosen the cam fasteners on the ceiling panel above the doorframe and on the wall panels on each side of the door so that there is enough room for movement to set doorframe in place.

-Remove the shipping brace from the bottom of the doorframe.

-Place door panel into wall opening and position.

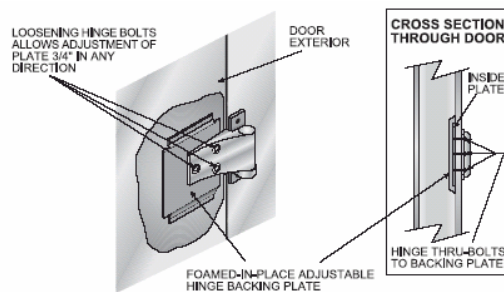
#### **▲ CAUTION**

Support the door evenly when handling the door. Prevent the door from swinging open during handling.

1. Place a carpenter's level against the doorframe leg (inside door opening) to ensure that it is correctly aligned vertically, and latch the doorframe to the adjoining wall panel.
2. Place a carpenter's level against the face of the door frame to ensure correct vertical alignment and latch the door frame to the ceiling panel while holding level in place.
3. Retighten the cam fasteners on the adjoining ceiling and wall panels.

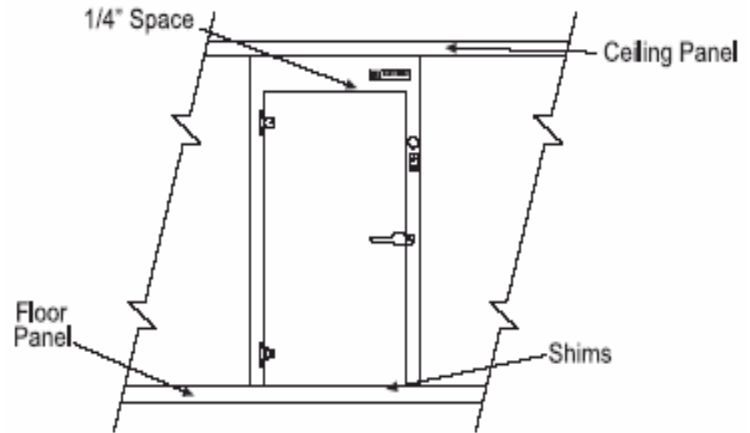
-Attach the optional threshold plate if provided.

1. Apply a bead of caulking around the perimeter of the door threshold.
2. Set the threshold in the door opening to maintain the opening width.
3. Secure the threshold to the building floor and doorjamb with anchor kit.
4. Caulk each joint to seal against moisture.
5. Adjust the bottom wiper gasket of the door so that it sweeps when the door is closed.
  - a. Do not adjust the wiper gasket so far down that it prevents the door from closing properly.



-Adjusting Door:

1. If adjustment is necessary, all swing doors have adjustable back-up plates in the door for hinge adjustment.
2. Place shims under door.
3. Loosen but do not remove the screws that attach the hinge blade to the door.
4. Shim under door as necessary to provide a 1/4" space between top of door and the doorframe to ensure square fit.
5. Tighten screws attaching the hinge blade to the door.
6. After adjusting the hinges, remove shims and check the space at the top of the door for proper alignment.



### STEP 7

In this step you install the interior trim.

#### INSTALL INTERIOR TRIM

- Install snap-on cover caps on the door panel cam locks.
- Use a level to plumb the evaporator and fan bank.
- Use the flange as a template to mark the screw hole placement with a marking pen to make sure the evaporator and fan banks are installed plumb.
- Line drill through the holes in the flange using a 3/16" (#18) drill.
- Insert size 1/4" x 3/4" long self-threading screws (included).
- Fasten the fan bank and evaporator bank modules to the Blast Chiller interior as follows:
  1. Install stainless steel trim pieces to the Blast Chiller interior above the fan and evaporator banks.
  2. This provides a neat finished appearance and promotes easy cleaning.

## **STEP 8**

In this step you route the temperature sensors

### **ROUTE TEMPERATURE SENSOR & MOUNT CONTROL PANEL**

-Standard Control Panel:

1. Select a convenient location for the control panel. Remove the cover to gain access to the mounting holes. Position the control panel so that the top conduit connection box is completely above the walk in top. Secure the control panel to the walk-in with six #10 self-tapping screws

** WARNING**

Beware of others on the opposite side of the panel when drilling through the wall.

** CAUTION**

Do not drill holes through the evaporator or fan assemblies. Cover wiring and controls to prevent drill shavings remaining in the control panel.

## STEP 9

In this step you route the electrical control wiring

### CONTROL WIRING

#### **▲ NOTICE**

A qualified and certified electrician should only perform this work.

#### **▲ NOTICE**

The Blast Chiller wiring has been completely pre-assembled by the manufacturer.

#### **▲ NOTICE**

The control wiring, with watertight conduit, is pre-cut and ready to connect.

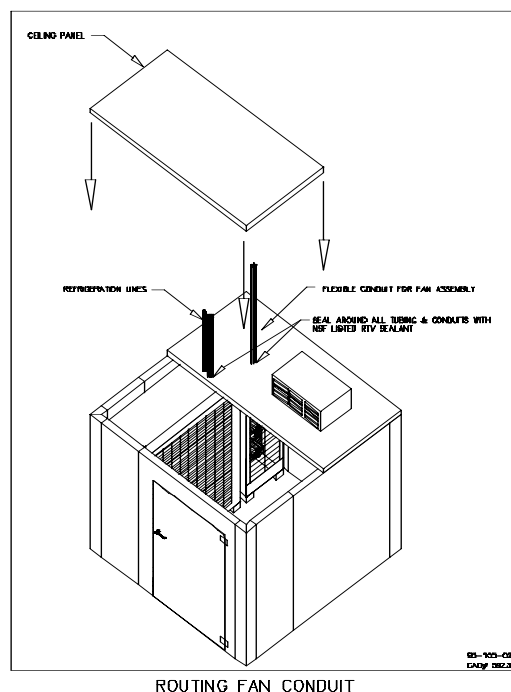
#### **▲ WARNING**

Beware of others on the opposite side of the panel when drilling through the walls and ceiling.

#### **▲ CAUTION**

Do not drill holes through the evaporator or fan assemblies.

- Control panel is pre-wired.
- Check all conduit and wire connections to insure they remained secure during shipping.
- Mount the optional door switch(s) if provided.
  1. Switch is mounted outside the box
- Install the door, light, and heater conduit.
  1. Drill hole through the ceiling above the electrical box located inside the chiller by the light fixture for the flexible conduit to feed through.
  2. Feed the flexible conduit labeled "Door Light and Heater" through the hole in the ceiling panel.
  3. Connect wires.
- Connect the fan bank power.
  1. Remove the fan assembly grill.
  2. Drill hole through the ceiling above the fan tower assembly.
  3. Feed the flexible conduit labeled "Fan" through the ceiling (as indicated in the graphic on the opposite page) to the Blast Chiller Fan Assembly.
  4. Connect the wires.
  5. Assure the conduit watertight connection on the top of the fan bank is secure.
  6. Apply wire nut connectors (included).
  7. Check fans and insure all blades turn freely.
  8. Replace the fan assembly grill.



-Place refrigeration solenoid valve close to refrigeration liquid line before it enters the box.

**▲ NOTICE**

The solenoid valve/power is pre-wired by **Master-bilt**.

1. Remove electrical solenoid from valve before it is installed on refrigeration line.
    - a. Keep away from heat during installation.
  2. Replace electrical solenoid onto valve after valve is installed.
- Connect junction box to the front control panel.
1. Flexible conduit is provided pre-wired.
  2. Connect numbered wires to corresponding terminals.
- Connect the incoming power to the terminals in the junction box (see wiring diagram).
1. Ensure the power includes a neutral and a ground.
  2. Ensure the power/voltage supply matches the Blast Chiller Data Plate.

**WARNING**

Replace fuses with appropriate rated fuse.

**STEP 10**

In this step you install the exterior trim

**NOTICE**

If the model you are installing has a "C" suffix (Correctional Model) please skip this step.

**INSTALL EXTERIOR TRIM**

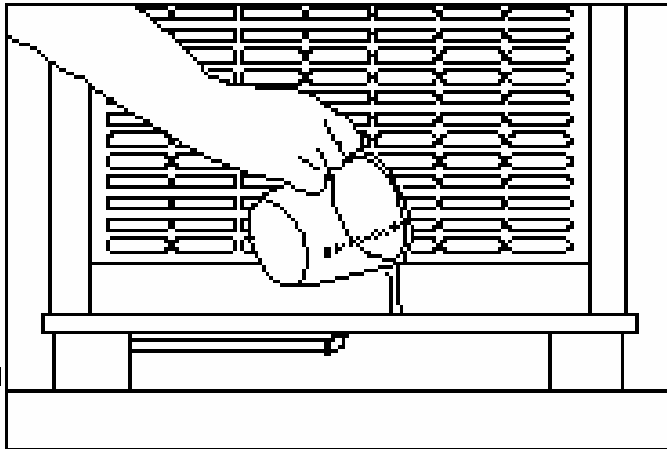
- Locate the top trim channels and offset strips (if provided)
- Locate 8-32 hex head screws
- Locate the numbered trim channels and numbered offset strips
- Locate the pre-formed corner fillers provided for each corner
- Determine the proper location on the Blast Chiller for each trim channel and offset strip
- Mount and secure all top trim
  1. Align top trim channels with the ceiling panels
  2. Secure with 8-32 x 1/2" long size hex head screws

## **STEP 11**

In this step you check for drain leaks

### **CHECK THE DRAIN FOR LEAKS**

- Pour a small amount of water (about 1 gallon) into the drain pan underneath
- Inspect the floor area for water leaks
- Replace the evaporator coil and fan base cover panels



## **STEP 12**

In this step you check the door swing

### **CHECK DOOR SWING**

- Check the Blast Chiller door swing for proper opening and closing operation
- Observe the clearance from the door to the Blast Chiller door frame
  1. Clearance should be even around the perimeter of the door
  2. If even clearance is not observed, adjust the door hinges

## **STEP 13**

*In this step you inspect the equipment as delivered*

### **NOTICE**

Please read this section prior to installing your Blast Chiller Condensing Unit. This information is based on good refrigeration practice and should be used as a guide for installation and operation of your equipment.

### **DELIVERY INSPECTION**

-Check for damages when the carrier delivers the equipment

1. Refer to Freight Claims, page 10

-Indicate damages on the carrier's Bill of Lading so a claim may be filed

### **NOTICE**

To minimize damage to the unit housing, it is recommended that the crate not be removed until the unit is moved to its final location.

*\* Follow the installation instructions included with the Condensing Unit.*

### **INSTALLATION DATA**

#### **EQUIPMENT REQUIRED**

-Pans and lids

1. Hold food during blast chill operation
2. Hold food for refrigerated storage

-Thermometer to check food temperature (0-200EF)

## CONTROL OPERATION AND PROGRAMMING

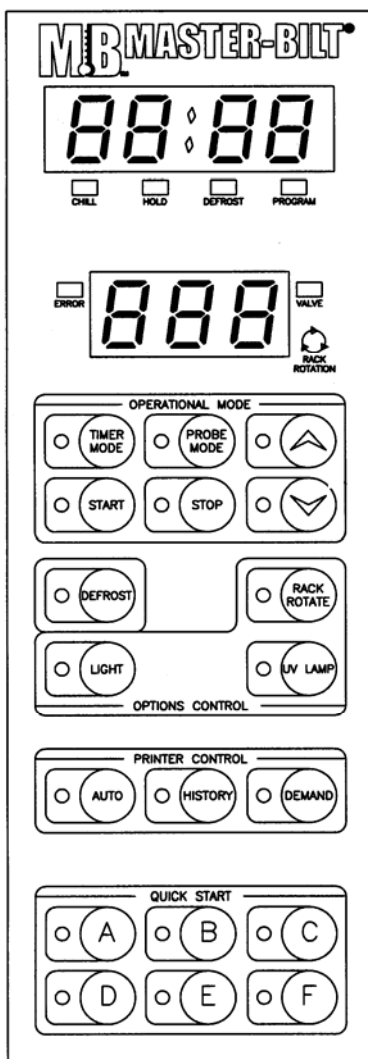
The blast chiller is operated by an electronic control which can operate in two main modes, HOLD or CHILL. In addition, there are six keys, each of which may be programmed for a specific operating mode and other keys depending on the options selected by the owner at purchase.

The unit has 19 keys separated into four functional groups:

- Chill group, which includes the Start, Stop, Timer Mode Select, Probe Mode Select, Up and Down keys.
- Accessory group, which includes the Manual Defrost, Light, Rack Rotation and UV Lamp keys
- Printer group, which provides the Automatic, History and Demand
- Quick Start group which includes six programmable keys for chill cycles

The overlay contains some optional features (light, rack rotation, and UV lamp), which only work if those options were ordered.

There are also several LEDs that allow the user to see what is currently happening with the unit. The top group of four LEDs serves as “current mode” indicators (chills, hold, defrost, and program.) There is an LED to indicate various error conditions, one to indicate that the solenoid valve output is active, and finally a group of three LEDs indicating when the racks are in movement. Each key also has its LED, either to indicate the key is expected, or to indicate an enabled function (i.e. if the light LED is on, the light output is on also.)



## QUICK OPERATION GUIDE

- Turn POWER switch ON. Unit will show **READY FOR OPERATION**
- Press START button, Freezer goes into **HOLD** mode keeping unit between 35 and 40°F. NOTE: Unit is not a refrigerator and should NOT be used to store food.
- Press TIMER MODE, PROBE MODE, or Quick Start A – F button to select Chilling mode.
  - Quick Start buttons starts the Pre-Programmed Chill Cycle.
  - START button needs to be pressed for Timer and Probe Mode selections, and goes into selected Chill Cycle.
- Unit will automatically Defrost, Chills the food, and go back into the Hold mode.
  - Displays **AUTOMATIC DEFROST** & **XX°F**.
  - Then Displays the time remaining in TIME Mode **0:54** and Bottom displays nothing for 10 seconds then show the Air temperature, **AIR** and Bottom displays temperature **XX°F** for 2 seconds.
  - In PROBE Mode, the food probe readouts are also displayed for 2 seconds each **PRB 1** to **PRB 4** or **PRB 8** and Bottom displays temperature **XX°F** of each.
  - When finished the display will show **READY** and the ALARM will sound.
- Turn off ALARM by pressing the STOP Button for 3 to 5 seconds.
- Unit will Display **HOLD** and return to the HOLD Mode.
- Remove food and store.
- Turn Off unit, press STOP Button for 3 to 5 seconds, Unit will read **READY FOR OPERATION**, or place more food to be chilled and start again.

Leave Unit reading **READY FOR OPERATION** with the power switch ON, Except when cleaning. (See Cleaning Instructions).

## OPERATING MODES

### POWER OFF

- Power Switch OFF – Display Blank
  - Power OFF to all inside chiller components
  - Refrigeration condensing unit pumps down and shuts off,
  - **⚠ WARNING: POWER TO REFRIGERATION CONDENSING UNIT IS ON UNTIL TURNED OFF AT UNIT.**

### POWER ON

- Turning Power Switch ON – OFF mode
  - Top display reads: **READY FOR OPERATION**
    - **⚠ WARNING: POWER TO CONTROL CABINET IS ON.**
    - START and HISTORY key LEDs are on, all others off.
  - Pressing HISTORY for 3 seconds will print out the print log stored in memory and: Display reads: **PRINTING LOG** Pressing the STOP key will stop the printout.  
**NOTE: HISTORY key only works on OFF mode.**
  - Pressing the LIGHT key will turn the inside light on and the LED will light ONLY if the light key option was ordered, pressing again will turn light off.
  - Pressing the UV LAMP key will turn the inside UV light on ONLY if the UV Lamp option was ordered and the box is above 45°F, its LED will light, pressing button again will turn light off, (UV Lamp will turn off when door is opened) or unit timed out.
  - Pressing the TIME key for 5 seconds shows the date and time.
  - All other keys do not work in OFF Mode.

### HOLD CYCLE

- Pressing START key will turn chiller on to HOLD cycle.
  - Top display shows **HOLD**
  - Bottom display shows current Air temperature
  - Hold LED is on.
  - START, DEFROST, and either TIMER or PROBE (depending on what was previously selected) LEDs are on.
    - Fans turn on and stay on
    - Unit regulates air temperature to hold temperature, *factory set at 35°F*, refrigeration turns OFF, 40°F refrigeration turns ON, VALVE LED turns ON and OFF as refrigeration is required
    - LIGHT stays on if previously selected and LED stays ON
    - UV LAMP stays on if previously selected and LED stays ON
    - Unit stays in HOLD mode till stopped or power switch is turned OFF
- Pressing STOP key for 3 seconds cancels Hold mode and unit returns to OFF mode and turns OFF all functions selected, HOLD, LIGHT, RACK ROTATE, UV LAMP, AUTO Print, and DEFROST returning the unit to the ready mode.
  - TIMER key selects the chill by time mode, *Factory set at 1 hour*, also disables PROBE Mode and TIMER LED turns on. **NOTE: Select TIMER or PROBE mode BEFORE starting CHILL CYCLE.**
  - PROBE key selects the chill by food probes mode, *Factory set at 38°F with 2 hours maximum time*, also disables TIMER Mode and PROBE LED turns on.
  - Manual DEFROST key starts a manual defrost cycle, *Factory set at 10 minutes*, and DEFROST LED turns off, Top display shows **MANUAL DEFROST**
    - Refrigeration turns off after minimum short cycle timer is timed out and the box is below 35°F.
    - Electric heaters turn on **ONLY** if the Electric Heat Defrost was ordered with the unit and the box is below 50°F.

- RACK ROTATE key selects/deselects Rack Rotation mode, RACK ROTATE LED turns on or off, but rack DOES NOT rotate till unit is in the CHILL mode. This is available ONLY if the rack rotation package option was ordered.
- LIGHT key turns on/off box light output, and LED is on accordingly if option was ordered.
- UV LAMP key turns UV Lamp on or off, and LED is on accordingly, if option was ordered and the box is above 45 ° F and door closed.
- Quick Start keys, A – F, start a Chill cycle in either TIMER or PROBE mode, appropriate mode LED lights up, according to Quick Start program entered by user, (see Programming Quick Start keys).
- AUTO Print key turns on the Automatic Printing and the AUTO LED turns ON.
  - When on, unit prints the Log Header at the beginning of every Chill cycle.
  - Subsequently, at Print Interval, *Factory set at 10 minutes*, as well as at end of each Chill cycle.
  - Printing shows probe Errors, 888 – Food probe warning, --- Food probe error. See ERROR and **WARNING** section.

## CHILL CYCLE

When unit is running in HOLD mode, press either the TIMER or PROBE key to select Chill mode desired or press a QUICK START pre-programmed key (A-F) to start Chill Cycle.

Pressing START key from the HOLD CYCLE starts the CHILL CYCLE in the currently selected chill mode selected TIMER or PROBE.

- AUTO DEFROSTS – First Step of any Chill cycle.
  - Top display scrolls: **AUTOMATIC DEFROST**
    - First step of any Chill cycle.
    - Automatic defrost ends when its timer expires.
    - *Factory set at 10 minutes.*
  - Bottom display shows current Air Temperature **XX°F**
  - CHILL LED is ON.
  - LIGHT, UV LAMP, AUTO, & RACK ROTATE stay in previously selected mode.
    - Fans are on
    - Unit regulates Air temperature to Hold Temperature (Valve LED on when required)
    - Rack Rotate key selects Rack Rotation mode (on or off), but rack does not turn in till CHILL starts.
- CHILL CYCLE - Second Step of any Chill cycle.
  - Top display successively shows 2 parameters:
    - Cycle remaining time, **0:54** and Bottom displays nothing for 10 seconds.
    - Air temperature, **AIR** and Bottom displays temperature **XX°F** for 2 seconds.
    - In addition, in Probe Mode, the food probe readouts are also displayed for 2 seconds each **PRB 1** to **PRB 4** or **PRB 8** and Bottom displays temperature **XX°F** of each.
  - Chill LED is ON
  - TIMER or PROBE LED is on showing selected mode.
    - Fans are on.
    - Unit regulates Air temperature to Chill Temperature, *Factory set at -10°F*, and VALVE LED turns on and off as refrigeration is required.
    - Rack motors will rotate, if door is closed and turned on.
    - RACK ROTATE key selects Rack on/off mode. If turned off, rack will continue until indexed to correct position or door is opened.
    - Light key turns on/off box light.
    - UV Lamp key turns UV Lamp on/off if box is above 45°F.
  - AUTO Print key turns on the Automatic Printing and the AUTO LED turns ON.
    - When on, unit prints the Log Header at the beginning of every Chill cycle.
    - Subsequently, at Print Interval, *Factory set at 10 minutes*, as well as at end of each Chill cycle.

- Printing shows probe Errors, 888 – Food probe warning, --- Food probe error. See ERROR and WARNING section.
  - DEMAND Print can be selected, CHILL mode only.
    - Immediately outputs a line of current data (Log Line) to the printer.
    - The first time Demand is used in a Chill cycle, Log Header is printed first
  - After TIMER mode is started, the food probe information can be displayed by pressing the PROBE key, it's LED turns on also, indicating that the unit is only displaying probe temperatures, but is still in Timer mode.
- Chill ends with time or temperature, depending on chilling mode.
- TIME Mode ends when timer times out.
  - PROBE Mode ends when **ALL** probes reach the target temperature or when timer expires, whichever comes first, probes showing errors (888 or ---) are not looked at.
- At end of Chill cycle, TIMER or PROBE, unit beeps continuously and displays **READY** until Stop key is pressed for 3 seconds and then returns to HOLD mode leaving ON all functions selected, HOLD, LIGHT, RACK ROTATE, UV LAMP, and AUTO Print returning the unit to the ready mode.
- Pressing STOP key for 3 seconds cancels CHILL mode and unit returns to HOLD mode

## PRINTER & LOGGING FUNCTIONS

### DATA LOGGING

This control electronically logs data at all times when operating in the CHILL Mode at a rate defined by the Print interval. This log is accessible through the History button. Log capacity is approximately 9700 samples: Date, Time, and 9 Probe values are logged.

- At 1 minute intervals – about 7 days of information
- At 10 minute intervals – about 67 days of information
- At 30 minute intervals – about 202 days of information
- When the memory is full, unit displays **MEMORY FULL** and no longer stores new logs. To clear the log, a special sequence of buttons must be pressed: A 10 second press of the Automatic button is required with unit in OFF mode and **ERASE LOG** is displayed. The AUTO key is used to toggle between the question and the answer **YES** or **NO**. Use the UP/DOWN keys to select answer, and press AUTO button again for 3 seconds to confirm.
- **⚠ WARNING THE LOG SHOULD FIRST BE PRINTED OUT BEFORE CLEARING IT, OTHERWISE DATA WILL BE LOST**
- Weekly or Monthly clearing of the memory is required to prevent the memory from getting full.

### PRINT OPTION

This system supports an IBM-compatible printer connected to it, which may be purchased separately from the system. Contact your MASTER-BILT representative for more information.

The Automatic button can be used in any mode (except off); toggles the automatic print on and off. When on, unit prints the Log Header at the beginning of every Chill cycle. Subsequently, at Print Interval (as well as at end of Chill cycle) unit prints a Log Line.

The History button can only be used in the OFF mode. A three second long press of the History button starts a printout of log (Stop can cancel printout if it is too long). Log stored internally is then printed out to the printer as Log Lines, starting with Log Header. Depending on length of log (and log interval), this may take more or less time. PRINTING LOG is displayed during this time. If log is empty, Log Header is printed, followed by EMPTY.

The Demand button can only be used in the CHILL Mode. The unit immediately outputs a line of current data (log line) to the printer. The first time Demand is used in a CHILL cycle, Log Header is printed first.

## Data Printed

### Log Header:

MANUFACTURER NAME: MASTER-BILT  
PRODUCT NAME: BLAST CHILLER  
SOFTWARE: 443  
REVISION: 1.0

DATE    TIME    AIR #1 #2 #3 #4 #5 #6 #7 #8  
-----

### Log lines:

... (previous line, may be Log Header)  
03/12/08 10:45AM 35F 46F 48F 52F 41F --- 888 45F 49F  
03/12/08 10:55AM 35F 43F 44F 49F 39F --- 888 42F 46F  
03/12/08 11:05AM 35F 40F 41F 46F 36F --- 888 39F 43F  
... (subsequent lines)

**---** FOOD PROBE ERROR – Food probe was not hooked up or not working correctly.  
**888** FOOD PROBE WARNING – Food probe was within 20° F of set chill temperature in the first minute of the chill cycle, probably not inserted in the food correctly.

If no probe is connected, unit displays **---** instead of a temperature. If a FOOD PROBE WARNING was not reset the unit displays **888**. The same applies to the printout.

## ALARMS

In all cases, alarms do not inhibit normal cooling function. If there is an Air Probe alarm, the unit will continue to cool on a Duty Cycle basis. Errors/Alarms/Warnings are listed here in order of message priority should 2 or more situations occur at the same time the priority alarm is displayed.

- **INTERNAL COMMUNICATION ERROR** – If the ECM-1 cannot communicate with an ECM-3 an alarm is generated. The ERROR LED lights up and buzzer sounds until Stop button is pressed. Refrigeration unit continues working normally, but termination can only be time based so the unit will only work in TIME mode, (no Probes) and fans will remain on all the time.
- **AIR PROBE ERROR** – Detection of open, shorted, or defective Air Temperature probe. The ERROR LED lights up and buzzer sounds until Stop button is pressed. Unit continues working on a duty cycle basis and box temperature will **NOT** be regulated. There are different preprogrammed cycle times for the HOLD or CHILL cycles.
- **FOOD PROBE ERROR** – One or more of the food probes were not hooked up or are not working correctly. The alarm only sounds when the unit is in the Chill by PROBE mode. The bottom display shows **---** after the top display shows **PRB 1** to **PRB 4** or **PRB 8** showing which probe is having the problem. The ERROR LED lights up and buzzer sounds until Stop button is pressed. Plugging in a unplugged probe will clear this error. Unit will continue working as if the probes in error had already reached its target temperature. Chill cycle termination will depend on the working probes or time whichever comes first. If all probes are defective, Chill cycle termination is immediate, and only Timer Mode chill is available.
- **DEFROST PROBE ERROR** – Detection of open, shorted, or defective Defrost probe. This probe is only used with the Electric Defrost Option. The ERROR LED lights up and buzzer sounds until Stop button is pressed. Unit continues working normally, but defrost termination can only be time based.

- **HIGH TEMPERATURE ERROR** – If the Air temperature in Hold Mode exceeds 40° F for over 30 minutes, an alarm is generated. Error LED lights up and buzzer sounds until Stop button is pressed. Unit continues working.
- **FOOD PROBE WARNING** – After a Chill cycle is started in PROBE mode and the Automatic Defrost is completed, the unit checks the Food Probe temperatures after the first minute. At this time any Food Probe that gives a reading within 20° F of the set temperature, *Factory set at 38°F*, (probe reads between 38° F and 58° F) then an alarm is generated. This indicates this probe was not inserted correctly into the warm food. The bottom display shows **888** after the top display shows **PRB 1** to **PRB 4** or **PRB 8** showing which probe is having the problem. The ERROR LED lights up and buzzer sounds until Stop button is pressed. However, unit continues to work normally, as this may be intentional on the part of the user (unused probe left “hanging” in the blast chiller). Unit keeps operating normally. To clear this error the STOP key must be pressed for 3 seconds to put the unit back into the **HOLD** mode correct problem and restart the CHILL cycle.

## PROGRAMMING

### CLOCK/DATE VIEWING & PROGRAMMING

- Viewing the date and time can only be accessed in the OFF mode. The clock and date programming is only accessible from the OFF mode by pressing and holding the TIMER button for 5 seconds.
- Accessible from Off mode only (5-second long press of Timer Mode key). Unit displays **YY/MM** on first line and **DD** on second line
- Use Timer Mode key to select value to be changed (value blinks)
- Use Up/Down to change value
- After day is programmed, press Timer Mode key again to program time. Unit displays **HH:MM** on first line
- Again, use the Time Mode and Up/Down keys to select and change wanted value
- Press Timer Mode key again for 3 seconds to exit mode; alternatively, if no key is pressed for 30 seconds, unit exits on its own

The unit should then display 'YY/MM' on the first line and 'dd' on the second line. Use the timer button to select the value to be changed (value blinks). Use the UP and DOWN button to change the value. After the day is programmed press the Timer button to program the time. The control will display 'HH/MM' on the first line. Again use the Timer button and the UP and Down buttons to select and change the values. Press the Timer button for 3 seconds to exit or the unit will automatically exit after 30 seconds.

The programming is accessible from the HOLD Mode only and is entered by pressing and holding the Start button for 5 seconds. Parameters are shown in sequence as listed. Press the Start button to toggle between the parameter name and value. Use the Up or Down button to select wanted parameter or change the value. Press the Start button again for 3 seconds to exit programming or unit will automatically exit after 30 seconds.

Parameter Name	Allowed Values	Factory Set Value
Hold Temperature	-50 to 80 F	35 F
	-45 to 26 C	1 C
Chill Temperature	-50 to 80 F	-10 F
	-45 to 26 C	-23 C
Chill Time	1:00 to 4:00	1:00 hr
Probe Temperature	-50 to 80 F	38 F
	-45 to 26 C	3 C
Probe Time	1:00 to 4:00	1:00 hr

<b>Parameter Name</b>	<b>Allowed Values</b>	<b>Factory Set Value</b>
Auto Defrost Time	0:00 to 30:00 ( 0:00 value disables auto defrost )	10:00 min
Manual Defrost Time	1:00 to 30:00	10:00 min
Print Interval	1:00 to 30:00	10:00 min
UV Lamp Time	1:00 to 1:00	30:00

The unit features six quick start buttons that allows the user to program for a specific Chill mode into a single button.

The control is pre programmed for all quick start buttons to operate in the CHILL Mode with Timer. A = 1:15, B = 1:30, C = 1:45, D = 2:00, E = 2:15, F = 2:30. All time is listed as hours: minutes.

To use the quick start buttons, first start up the unit in the HOLD Mode. Then press the wanted quick start button to start the CHILL Mode.

To change the programming of the quick start buttons proceed as follows. When in the HOLD Mode press the wanted button (A through F) for 5 seconds. The parameter list as shown below will be displayed. Press the wanted button ( A through F ) to toggle between parameter and value. Use the UP/Down buttons to select the parameter or change the value. Press the wanted button for 3 seconds to exit or the unit will automatically exit after 30 seconds.

<b>Parameter Name</b>	<b>Allowed Values</b>	<b>Factory Set Value</b>
Quick Start x* Type	Timer or Probe	Timer
Quick Start x* Time	1:00 to 4:00	1:15 to 2:30
Quick Start x* Probe Temperature	-50 to 80 F -45 to 26 C	38 F 3 C

\*X = your choice of button, A, B, C, D, E, or F

## LOW-LEVEL PARAMETER PROGRAMMING

The low-level parameters allow fine tuning various system parameters. This mode is normally only used by qualified service technicians. Programming is started with the unit in the OFF mode. Press and hold the STOP button for 20 seconds, until the first parameter is displayed. STOP button toggles between parameter name and value. Use the UP/DOWN buttons to browse through the parameter names, or to modify the parameter value. Press the STOP button for 3 seconds to end the programming and exit back to the OFF mode, or the unit will automatically exit after 30 seconds.

There is a special button sequence that allows resetting the Low-Level parameters to their factory defaults described here. If the Start button is pressed during power-up, the unit will reset all parameters to their default values as well as clear the log memory. This procedure is recommended if new software is to be downloaded into the control.

Parameter Name	Allowed Value	Factory Set Value
Temperature Units	C or F	F
Temperature Hysteresis (air temperature only)	0 to 50 F 0 to 27 C	10 F 5 C
Solenoid Minimum On Time	1:00 to 30:00	2:00 min
Hold Duty Cycle On (on time of solenoid when there is an air probe alarm)	1:00 to 30:00	2:00 min
Hold Duty Cycle Off (off time of solenoid when there is an air probe alarm)	1:00 to 30:00	5:00 min
Chill Duty Cycle On (on time of solenoid when there is an air probe alarm)	1:00 to 30:00	15:00 min
Chill Duty Cycle Off (off time of solenoid when there is an air probe alarm)	1:00 to 30:00	5:00 min
High Temperature Alarm	32 to 50 F 0 to 10 C	40 F 4 C
High Alarm Delay	0:00 to 1:00	30:00
High Alarm Disable	0:00 to 2:00	1:00
Food Probe Warning Threshold	0 to 50 F 0 to 27 C	20 F 11 C
Food Probe Warning Delay	0:00 to 30:00	1:00
UV Lamp Enable	ON or OFF	OFF

UV Lockout Temperature		60 F
Light Enable	ON or OFF	OFF
Rack Rotate Enable	ON or OFF	OFF
Electric Defrost Enable	ON or OFF	OFF
Manual Defrost Temperature		50 F
Printer Enable	ON or OFF	OFF
Number Of Food Probes	4 or 8	4

## ALARMS

In all cases, alarms do not inhibit normal cooling function. If there is an Air Probe alarm, the unit will continue to cool on a Duty Cycle basis. Errors/alarms/warnings are listed here in order of message priority should 2 or more situations occur at the same time. Whenever a probe is in error, the temperature it would normally display is replaced by (---).

1. Air Probe Alarm – Detection of open or shorted Air Temperature probe. The display scrolls ‘AIR PROBE ERROR’. Error LED lights up and buzzer sounds until Stop button is pressed. Unit continues working on a duty cycle basis (2 different values for Hold or Chill cycle). These are low level programmable.
2. Food Probe Alarm – Detection of open or shorted Food probe. The display scrolls ‘FOOD PROBE ERROR’. Error LED lights up and buzzer sounds until Stop button is pressed. Unit continues working as if probe had already reached its target temperature. Chill termination will depend on working probes or time whichever comes first. If all probes are defective, Chill termination is immediate, and only Timer Mode chill is available.
3. Defrost Probe Alarm – Detection of open or shorted Defrost probe. The display scrolls ‘DEFROST PROBE ERROR’. Error LED lights up and buzzer sounds until Stop button is pressed. Unit continues working normally, but defrost termination can only be time based.
4. High Temperature Alarm – If the air temperature in Hold Mode exceeds 40 F (low level programmable) for 30 minutes (also low level programmable), an alarm is generated. Note: at power up, this alarm is disabled until either Hold set point is reached or 60 minutes (low level programmable) have elapsed. The display scrolls ‘HIGH TEMPERATURE ERROR’. Error LED lights up and buzzer sounds until Stop button is pressed.

5. Food probe Warning – After a Chill cycle is started in Probe mode, the unit continuously checks the Food Probe temperatures for a certain time (this time is Food Probe Warning Delay, low level programming). If during this time any Food Probe gives a reading  $>$  (Probe Temperature + Food Probe Warning Threshold), then an alarm is generated. However, unit continues to work normally, as this may be intentional on the part of the user (unused probe left “hanging” in the blast chiller). The display scrolls ‘FOOD PROBE WARNING’. Error LED lights up and buzzer sounds until Stop button is pressed. Unit keeps operating normally.
6. Communications Error – If the ECM-1 cannot communicate with an ECM-3 an alarm is generated. The display scrolls ‘INTERNAL COMMUNICATION ERROR’. Error LED lights up and buzzer sounds until Stop button is pressed. Refrigeration unit continues working normally, but termination can only be time based (no Probes) and fan remains on all the time.

## **PLACE FOOD IN PANS FOR CHILLING AS IT IS PRODUCED**

Temperature of food should be above 140EF.

No attempt should be made to cool food before blast chilling (some cooling does occur, however, as the food is placed in pans and while the rack is loaded).

### **WARNING**

Do not use disposable metal or aluminum foil pans since they lack the handling stability needed for chilled foods. Chilled foods are not rigid like frozen foods.

Pans used for all procedures (including blast chilling, tray assembly, and/or bulk rethermalization) should be:

-Suitable for blast chilling

1. Stainless steel or aluminum permanent ware

a. 12" x 20" x 2-1/2" pans

b. Also 18" x 26" or fractional size pans can be used with wire shelves

-Lids or covers of any kind are NOT used during blast chilling

-Cover foods AFTER blast chilling

-Label food pans

1. Include type of food and date of production (see your Cook-Chill Training Manual)

-Stored under normal refrigeration conditions

## **PLACE PANNED FOOD ON RACK FOR CHILLING**

Rack should be:

Fully loaded with pans of food before it is moved into the Blast Chiller

### **NOTICE**

Partial loads of food do not reduce the effectiveness of the Blast Chiller.

### **Pan placement:**

- There is no requirement for specific placement of foods on the rack
- All locations are equally exposed to the flow of super-cooled air within Blast Chiller.

## **CHILLING RATES FOR BLAST CHILLER**

Chilling rates are dependent upon food:

- Density
- Mass
- Input temperature

Example:

Blast chilling rates vary:

Light density foods (such as eggs) may require 12-15 minutes of blast chilling time

High-density foods such as stews or roasts may require up to 90 minutes of blast chilling time

Pans of poached, scrambled, or fried eggs cool to 36-40EF more quickly than pans of beef stew

Check food temperature with an accurate hand-held thermometer

### **NOTICE**

See your Cook-Chill Training Manual for suggested chilling times.

## **LEAVE FOODS UNCOVERED DURING BLAST CHILLING**

-Pans of food should not be covered during blast chilling

1. Covers:

- a. Shield food
- b. Cause slow foods surface cooling
- c. Increase the food cooling time

-Covers should be used after blast chilling.

## **BLAST CHILLER START UP AND OPERATIONAL CHECK**

Now you perform the final check list

### **PERFORM THE FINAL CHECKLIST**

-Check the high-low pressure control settings on the condenser unit. Set the low-pressure control to cut out at 10 lbs. on pump down.

-Check and record operating pressures, see installation data sheet

-Check the electrical requirements of the condensing unit. Check the electrical requirements of the blast chiller box, fans, controls, etc. Record on installation data sheet.

-Compare the requirements against the following:

1. Power supply
2. Amperage draw

-Set the temperature control for the desired temperature range

1. Locate the thermostat inside the control box (see drawing on opposite page)
2. Holding temperature should be 35 °F
3. Chilling temperature should be -10EF

-Check the superheat setting of the thermostatic expansion valve for proper operation

-Check the sight glass for proper refrigerant charge

-Check the compressor oil level

-Check the condensing units for vibrating or rubbing tubing

1. Dampen or clamp as needed

-Replace all service valve caps and latch unit covers

-Do not let the condensing unit run in a vacuum

## **CLEANING**

To clean usual food stains and spills:

- Use a clean cloth
- Dampen cloth in soap or detergent water
- Clean the surface
- Follow with a clean cloth dipped in hot water
- Avoid excessive amounts of water
- Clean food stains and spills immediately to reduce the cleaning effort

### **DANGER**

Avoid electrical shock hazard:

- Flip "Master" switch to the OFF position
- Do not spray with water or steam

### **CAUTION**

Only use cleaners for stainless steel or aluminum:

Fantastic, Formula 409, Scotch-Brite, dishwashing detergent, or ammonia-based products are recommended. Follow all directions for safe use of these products.

## **IMPORTANT**

**Do not use metal tools to clean any part of the Blast Chiller**

### **CAUTION**

Do not use steel wool. Do not use cleaners containing lye or chlorine. These products may damage the finish of the Blast Chiller.

Exterior cleaning:

- Refer to "Cautions" above when preparing and using cleaning solutions.
- Dip towel in the cleaning solution. Wipe down the cabinet. Allow surfaces to dry.
- Wipe surfaces with towel and stainless steel polish (or towel and lemon oil). Polish with a clean, soft cloth.

**INSTALLATION DATA**

Complete the following data. Three copies are enclosed:

- 1. Retain one copy for your records
- 2. Return one copy to **Master-bilt**, 908 Highway 15 North; New Albany, MS 38652
- 3. Leave one copy at the installation site

**Model #** \_\_\_\_\_

**Company/Organization:** \_\_\_\_\_

**Street Address:** \_\_\_\_\_

**City/State:** \_\_\_\_\_

**Date System Installed:** \_\_\_\_\_

**Name and Address of Blast Chiller Installer:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

**Compressor/Condensing Unit(s):**

**Electrical:** \_\_\_\_\_ **Volts:** \_\_\_\_\_ **Phase:** \_\_\_\_\_

Model #(s) \_\_\_\_\_

Serial #(s) \_\_\_\_\_

**Thermostat Setting:**

Electrical: \_\_\_\_\_ Volts \_\_\_\_\_ Phase \_\_\_\_\_

**Holding**      \_\_\_\_\_ EF      \_\_\_\_\_ EF      \_\_\_\_\_ EF      \_\_\_\_\_ EF

**Chilling**      \_\_\_\_\_ EF      \_\_\_\_\_ EF      \_\_\_\_\_ EF      \_\_\_\_\_ EF

**Operating Pressure:**

**Suction:** \_\_\_\_\_ psig      **Liquid:** \_\_\_\_\_ psig

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Model #(s) \_\_\_\_\_

Serial #(s) \_\_\_\_\_

**Thermostat Setting:**

Electrical: \_\_\_\_\_ Volts \_\_\_\_\_ Phase \_\_\_\_\_

**Holding**      \_\_\_\_\_ EF      \_\_\_\_\_ EF      \_\_\_\_\_ EF      \_\_\_\_\_ EF

**Chilling**      \_\_\_\_\_ EF      \_\_\_\_\_ EF      \_\_\_\_\_ EF      \_\_\_\_\_ EF

**Operating Pressure:**

**Suction:** \_\_\_\_\_ psig      **Liquid:** \_\_\_\_\_ psig

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**Holding**      \_\_\_\_\_ EF      \_\_\_\_\_ EF      \_\_\_\_\_ EF      \_\_\_\_\_ EF

**Chilling**      \_\_\_\_\_ EF      \_\_\_\_\_ EF      \_\_\_\_\_ EF      \_\_\_\_\_ EF

**Operating Pressure:**

**Suction:** \_\_\_\_\_ psig      **Liquid:** \_\_\_\_\_ psig

