

MB MASTER-BILT®

Refrigeration Solutions



Installation & Operations Manual for



R290 SERIES **BLG-HGP Model**

Bottom Mounted Full-Length Swing Glass Door
Freezer Merchandiser

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INTRODUCTION

This manual contains important instructions for installing, using, and servicing a flammable refrigerant BLG-Plus case. Failure to properly install, use, or service this product could cause damage to cabinet, explosion, fire, injuries and even death. A parts list is included with this manual. Read all these documents carefully before installing or servicing your equipment.

STORE CONDITIONS

The BLG-Plus cases are designed to operate in the controlled environment of an air-conditioned store. The store temperature should be at or below 75°F and a relative humidity of 55% or less. At higher temperature or humidity conditions, the performance of these cases may be affected and the capacity diminished.

The BLG-Plus cases should not be positioned where it is directly exposed to rays of sun or near a direct source of radiant heat or airflow. This will adversely affect the case and will result in poor performance.

If this case is to be located against a wall, there should be at least 6" space between the wall and the back of the case. This space will allow for the circulation of air behind the case, which will prevent condensation on the exterior surfaces.

DANGER



Risk of fire or explosion. Flammable refrigerant used. Consult instruction manual/repair manual/owner's guide before attempting to install or service this product. All safety precautions must be followed.

DANGER



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

NEVER use an extension cord to power these units. All electrical wiring hook-ups must be done in accordance with all applicable local, regional or national standards.

NOTICE



Installation and service of the refrigeration and electrical components of the cabinet must be performed by a refrigeration mechanic and/or a licensed electrician.

The portions of this manual covering refrigeration and electrical components contain technical instructions intended only for persons qualified to perform refrigeration and electrical work.

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

WARNING LABELS AND SAFETY INSTRUCTIONS



DANGER

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



CAUTION

Risk of fire or explosion. Flammable refrigerant used. Consult instruction manual/repair manual/owner's guide before attempting to install or service this product. All safety precautions must be followed.



NOTICE

Installation and service of the refrigeration and electrical components of the cabinet must be performed by a refrigeration mechanic and/or a licensed electrician



NOTICE TO EMPLOYERS

You must make sure that everyone who installs, uses or services your cabinet is thoroughly familiar with all safety information and procedures.

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

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

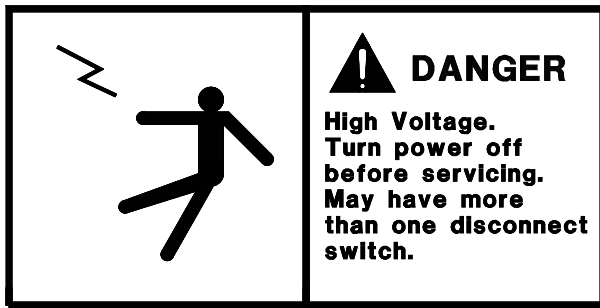
DANGER: Severe injury or death will occur if you ignore the message.

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

CAUTION: Minor injury or damage to your cabinet can occur if you ignore the message.

NOTICE: This is important installation, operation or service information. If you ignore the message, you may damage your cabinet.

The warning and safety labels shown throughout this manual are placed on your Products cabinet at the factory. Follow all warning label instructions. If any warning or safety labels become lost or damaged, call your customer service department for replacements.



This label is located on top of the electrical control label.



*This label is attached to the cabinet power cord
on models with a power cord.*

PRE-INSTALLATION INSTRUCTIONS

INSPECTION FOR SHIPPING DAMAGE

You are responsible for filing all freight claims with the delivering truck line. Inspect all cartons and crates for damage as soon as they arrive. If damage is noted to shipping crates or cartons or if a shortage is found, note this on the bill of lading (all copies) prior to signing.

If damage is discovered when the cabinet is uncrated, immediately call the delivering truck line and follow up the call with a written report indicating concealed damage to your shipment. Ask for an immediate inspection of your concealed damage item. Crating material must be retained to show the inspector from the truck line.

INSTALLATION INSTRUCTIONS



CAUTION

Risk of fire or explosion due to puncture of refrigerant tubing; follow handling instructions carefully. Flammable refrigerant used.

GENERAL INSTRUCTIONS

1. Be sure the equipment is properly installed by competent service people.
2. Keep the equipment clean and sanitary so it will meet your local sanitation codes. Clean the cabinet with a mild detergent and water, then rinse.
3. Rotate your stock so that older stock does not accumulate. This is especially important for ice cream. A "First-In, First-Out" rotation practice will keep the products in good salable condition.
4. Do not place product in the case when it is soft or partially thawed. Also, product should not be put in the case for at least 6 hours after it is started.
5. Stock cases as quickly as possible, exposing only small quantities to store temperatures for short periods of time.
6. When replacing burned out light bars, be sure that the electrical power to the lighting circuit is turned off.

NOTICE TO STORE OWNERS / MANAGERS

Moisture or liquid around or under the cabinet is a potential slip/fall hazard for persons walking by or working in the general area of the cabinet. Any cabinet malfunction or housekeeping problem that creates a slip/fall hazard around or under the cabinet should be corrected immediately.

If moisture or liquid is observed around or under the cabinet, an immediate investigation should be made by qualified personnel to determine the source of the moisture or liquid. The investigation should determine if the cabinet is malfunctioning or if there is a drainpipe leaking.

MECHANICAL



CAUTION

Risk of fire or explosion due to puncture of refrigerant tubing; follow handling instructions carefully. Flammable refrigerant used.



CAUTION

Installation and service of the refrigeration and electrical components of the cabinet must be performed by a refrigeration mechanic and/or a licensed electrician.

Remove front grille and check refrigeration lines to see that they are free (not touching each other or compressor). Refrigeration system processing tubes for a cabinet possessing flammable refrigerant is painted red. Spin condenser fan blade to see that it is free. Insulate quick connects with pipe insulation to prevent condensation and/or ice accumulating.

Remove cabinet from crate base and slide into location. Cabinet must be level from side to side and front to back for correct draining of coil pan and for self-closing doors to operate correctly. Allow minimum of 4" between back of cabinet and wall and between top of cabinet and ceiling for proper condensing unit air circulation.

To comply with Sanitation requirements the cabinet must be mounted on legs (6" high min.), casters, or the base must be sealed to the floor with an N.S.F. listed silicone sealant. When sealing to the floor, leveling bolts can be used to assure the cabinet is level before applying silicone sealant.

ELECTRICAL

WARNING



Before servicing electrical components in the case or the doors or door frames make sure all power to case is off. Always use a qualified technician.

Check voltage and amps drawn on (**TABLE 2**) to determine proper line and fuse or circuit breaker size. Check power supply for low voltage.

For example: If voltage reads “230” with no load, and it drops below “207” when the compressor tries to start, it is an indication of too small supply wiring or too long to run.

It is recommended that a separate circuit be run for each cabinet to prevent another appliance blowing the fuse or breaker, causing loss of product.

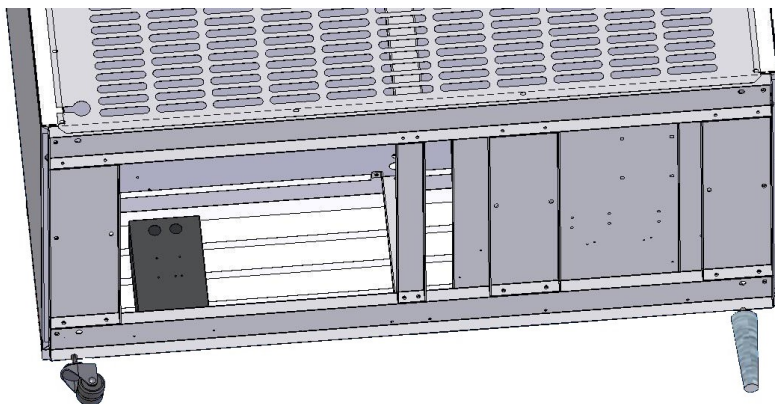
IMPORTANT



Models (3 door cabinet) are pre-wired internally with a 208-230V NEMA L14-20P plug and should only be plugged into a NEMA L14-20P receptacle. See wiring diagrams for more details. The cabinet should be grounded.

LEG / CASTER INSTALLATION

1. Screw legs / casters tightly into the rail base mounting holes.



DOORS

The cabinets have Anthony glass doors that are equipped with a patented TorqueMaster™ hinge system. The doors are easily adjusted using a flathead screwdriver (Fig.3).

*** The tension needs to be checked and set when first install.**

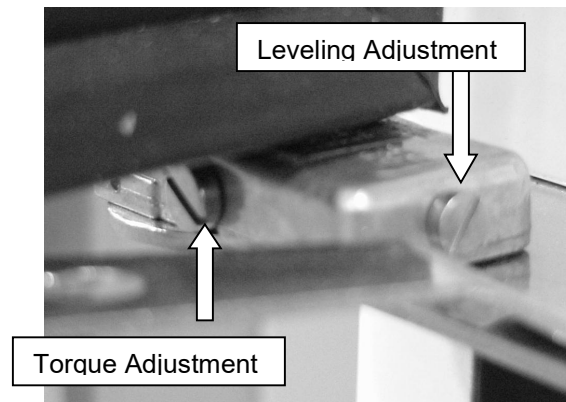


Figure 3



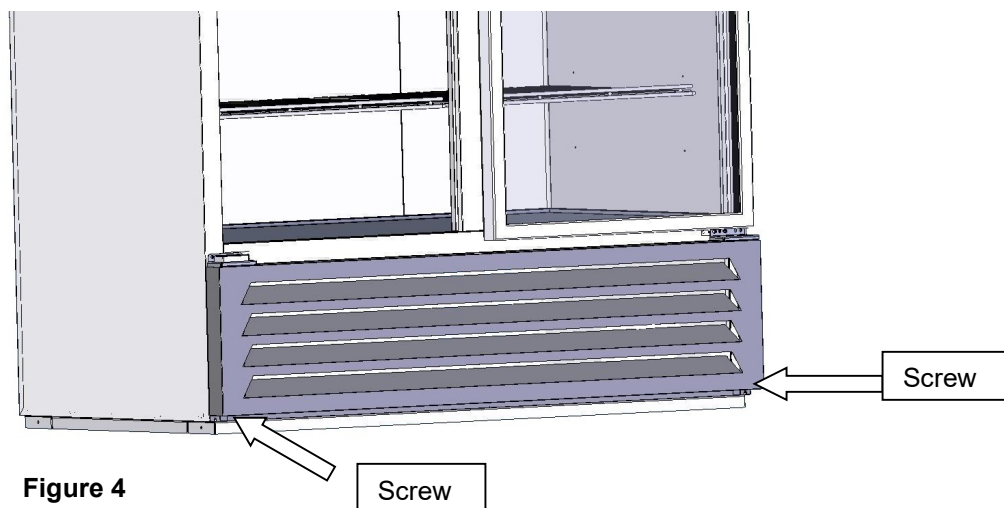
NOTICE

The doors on these cabinets are Anti-Fog Glass so it is important to follow the information below when cleaning these doors. Failure to observe the details below in cleaning doors will void door supplier warranty.

- Do not use sealants, gaskets, or other materials containing silicone that can contaminate the coating.
- Do not use tape, glue, stickers, attachments, or magic markers on the anti-fog coating.
- Do not use razor blades or any other mechanical device to remove foreign residue or objects directly from the coated glass.
- Do not use abrasive cleaners or materials on the coated glass. Examples of these cleaners or materials include Ajax, Brillo, Comet, Scotch Brite, Steel Wool, and Soft Scrub.
- Do not use cleaners or materials on the coated glass that hinder the anti-fog performance by leaving residue or damaging the surface. Examples of these cleaners include: Armor All, Tilex, Bleach, Windex no-drip, Windex Wipes, Pledge, or any product containing silicone oils or waxes.
- Recommended cleaners include: Isopropyl Alcohol, Greased Lighting, Formula 409 Grease & Grime, Formula 409 Grease & Surface, Fantastic, Windex Vinegar, Windex Original, Now, Mean Green, or Mr. Clean (degreasing cleaners).
- Recommended cleaning is with a soft dry or slightly damp towel, or with one of the degreasing cleaners listed above.

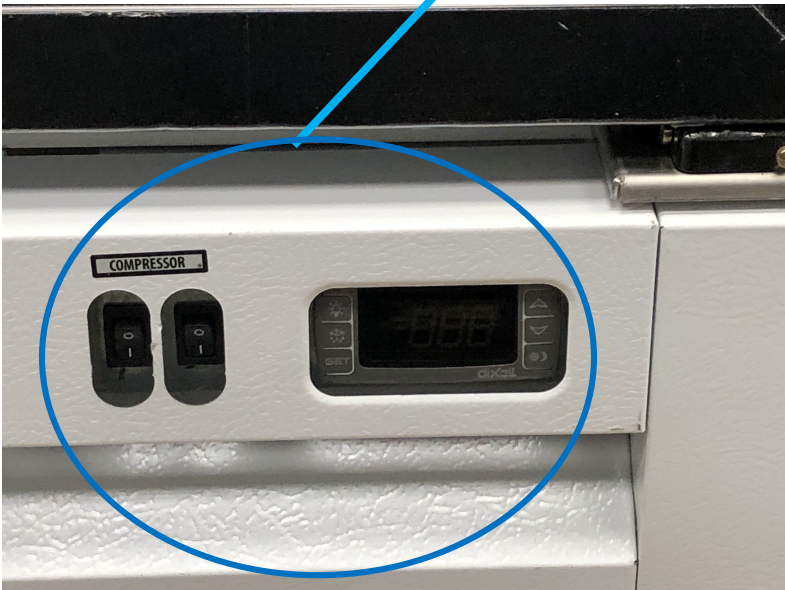
GRILL

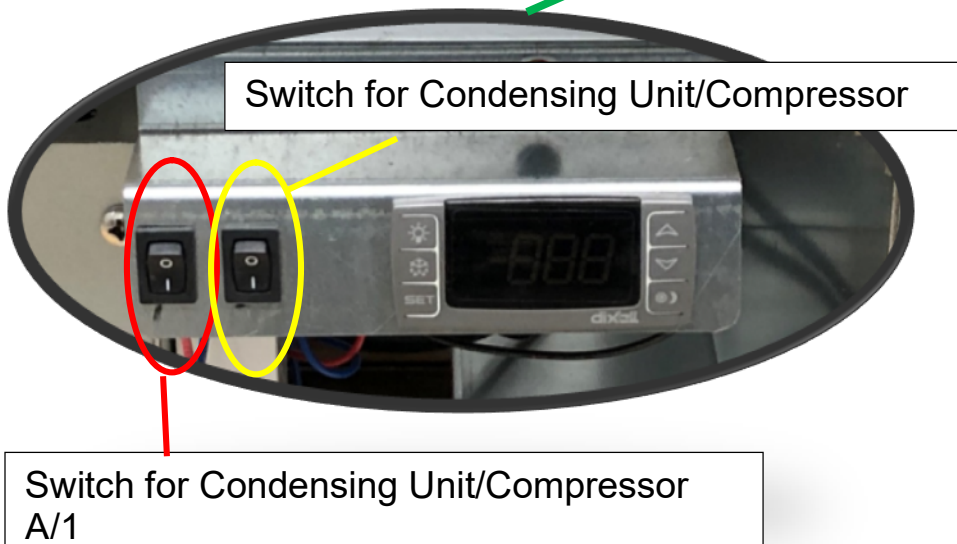
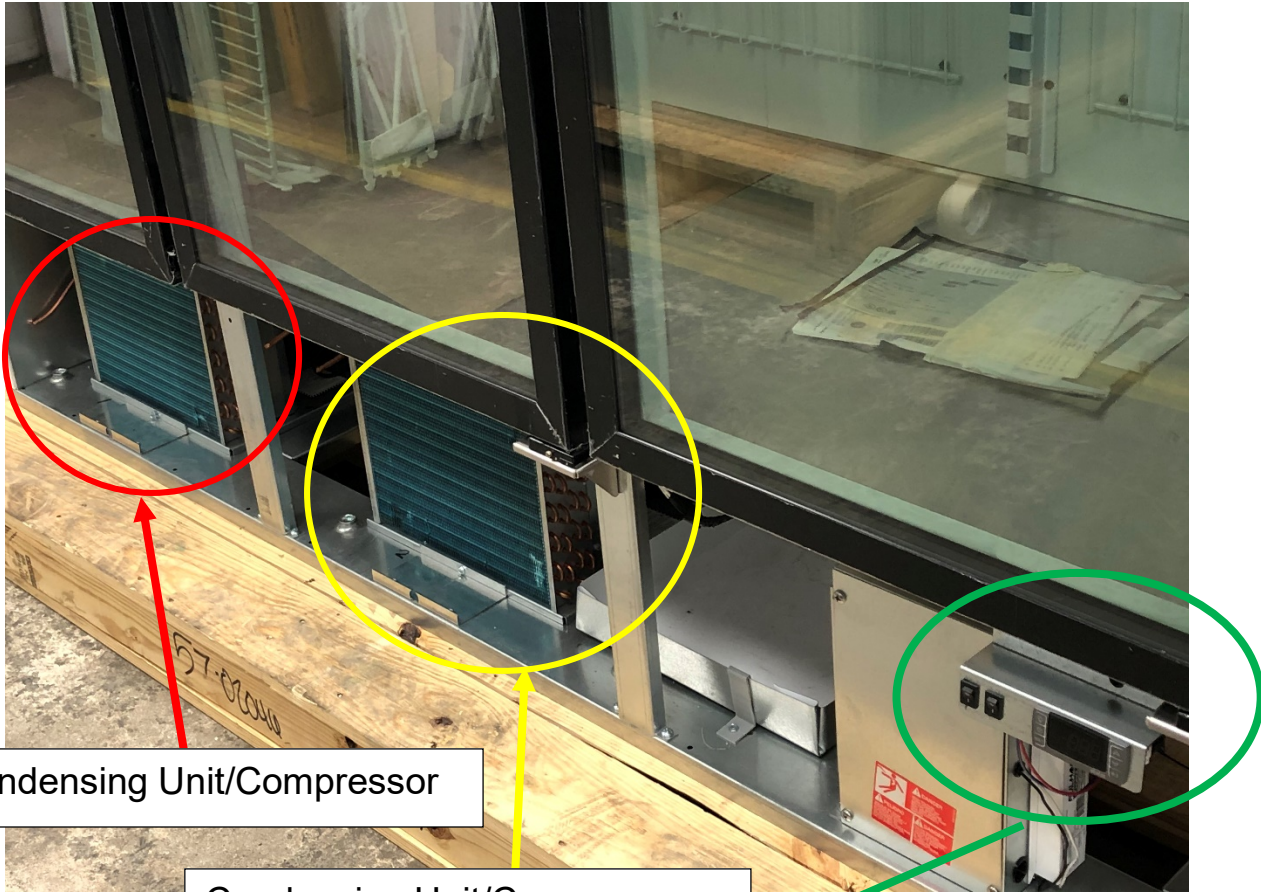
To remove bottom grill, unscrew the 2 screws on the bottom for the grill then drop the grill down from the key-slot hole and pull out. (See Figure 4)



Dual Condensing Units

To provide adequate cooling for the capacity for the GFP74-HG, the refrigeration system consist of two condensing units. The following images in this section details location and function of condensing units. See wiring diagram for wiring information.





MASTER-BILT ELECTRONIC REFRIGERATION CONTROL

OPERATION

Compressor When power is first turned on to the control, the LED indicator under COMP on the display starts blinking. After one-minute delay the compressor comes on. The COMP LED indicator stays on while compressor relay is energized. Display will show actual box temperature. The image below is the display layout. The compressor will be cycled off when the actual box temperature reaches its set point. The COMP indicator will be off.





Display Lay-out


Fan - The fans will run with the compressor and be off during defrost cycle. After the defrost cycle there is a 3 minute drip time. When in defrost mode, the fan is off until the end of the defrost and the 3 minute drip time has passed. There is 2 minutes delay after a defrost before the fan comes on. FAN LED indicator is on while FAN relay is energized.

Defrost - The control uses timed defrost with at least 2 defrost per day. The control can be used for scheduled defrost. During defrost the display will show dEF and the LED indicator under dF is on. The maximum time for defrost is 30 min or until evaporator probe senses 50°F and defrost will occur every 12 hours from unit start-up.

MANUAL DEFROST

1. Push this **DEFROST**  key for more than 2 seconds and a manual defrost will start.
2. While in defrost, Push and hold the **DEFROST**  key for more than 5 seconds and the controller will end the defrost cycle. The controller will then immediately start the compressor and evaporator fan.

HOW TO SEE THE SETPOINT (Box temperature cut-out)

1.  Push and immediately release the **SET** key: the display will show the Set point value;
2. Push and immediately release the **SET** key or wait for 5 seconds to display the probe value (actual box temperature) again.

HOW TO CHANGE THE SETPOINT

1. Push the **SET** key for more than 2 seconds to change the Set point value;
2. The value of the set point will be displayed and the LED under COMP starts blinking;
3. To change the Set value push the **UP ▲** or **DOWN ▼** arrows within 10s.
To memorize the new set point value push the **SET** key again or wait 10s.

NOTE 1: The set value is stored even when the procedure is exited by waiting the time-out to expire.

NOTE 2: Master-Bilt's SETPOINT is set at a recommended -10°F at the factory for low temperature(LT).

LIST OF PARAMETERS

Here is a list of the parameters the value of which can be changed in the programming mode, as well as their ranges.

Display Symbol	Description	Range	Factory's Setting
SEt	Temperature set point	-17 to 32°F	-10° F
Hy	Cut-out temperature is Set + Hy, Differential	1 to 45°F	10° F
AU	High temperature alarm is enabled after a delay	45°F	45° F
AL	Low temperature alarm is enabled after a delay	-30°F	30° F
Ad	Alarm delay	0 to 255 min	30min

ALARM SIGNALS

Message	Cause	Outputs
"P1"	Room probe failure	Compressor output according to par. "Con" and "COF"
"P2"	Evaporator probe failure	Defrost end is timed
"HA"	Maximum temperature alarm	Outputs unchanged.
"LA"	Minimum temperature alarm	Outputs unchanged.
"dA"	Door open	Compressor and fans restarts
"EA"	External Alarm	Output unchanged
"CA"	Serious External alarm (i1F=bAL)	All output off
"CA"	Pressure switch alarm (i1F=PAL)	Outputs unchanged.

NOTE:

Probe alarms **"P1"** and **"P2"** start some seconds after the fault in the related probe; they automatically stop some seconds after the probe restarts normal operation. Check connections before replacing the probe.

Temperature alarms **"HA"** and **"LA"** automatically stop as soon as the thermostat temperature returns to normal values and when defrost starts.

ELECTRICAL CONNECTIONS

The controller is provided with screw terminal block or male terminals to connect cables with a cross section up to 2,5 mm². Before connecting cables make sure the power supply complies with the control's requirements. Separate the probe cables from the power supply cables, from the outputs and the power connections. Do not exceed the maximum current allowed on each relay, in case of heavier loads use a suitable external relay.

PROBE CONNECTIONS

The probes shall be mounted with the bulb upwards to prevent damages due to casual liquid infiltration. It is recommended to place the thermostat probe away from air streams to correctly measure the average room temperature. Place the defrost termination probe among the evaporator fins in the coldest place, where most ice is formed, far from heaters or from the warmest place during defrost, to prevent premature defrost termination.

FINAL CHECK LIST



DANGER

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



CAUTION

Risk of fire or explosion. Flammable refrigerant used. Consult instruction manual/repair manual/owner's guide before attempting to install or service this product. All safety precautions must be followed.



CAUTION

Risk of fire or explosion due to puncture of refrigerant tubing; follow handling instructions carefully. Flammable refrigerant used.

- | | | | |
|----|---|----|--|
| A. | Check operating pressures. | F. | Check condensing unit for vibrating or rubbing tubing. Dampen and clamp as required. |
| B. | Check electrical requirements of unit to supply voltage. | G. | All valves should be completely opened counter-clockwise. |
| C. | Set temperature control for desired temperature range. | H. | Check packing nuts on all service valves. |
| D. | Check sight glass for proper refrigerant charge, if provided. | I. | Replace all service valve caps and latch unit covers. |
| E. | Check system for proper defrost settings and operation. | J. | Check and set the door tension at the Torque Adjustment. |

SERVICE INSTRUCTION



DANGER

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



DANGER

Risk of fire or explosion. Flammable refrigerant used. Do not use mechanical devices to defrost refrigerator. Do not puncture refrigerant tubing



CAUTION

Risk of fire or explosion. Flammable refrigerant used. Consult instruction manual/repair manual/owner's guide before attempting to install or service this product. All safety precautions must be followed.



CAUTION

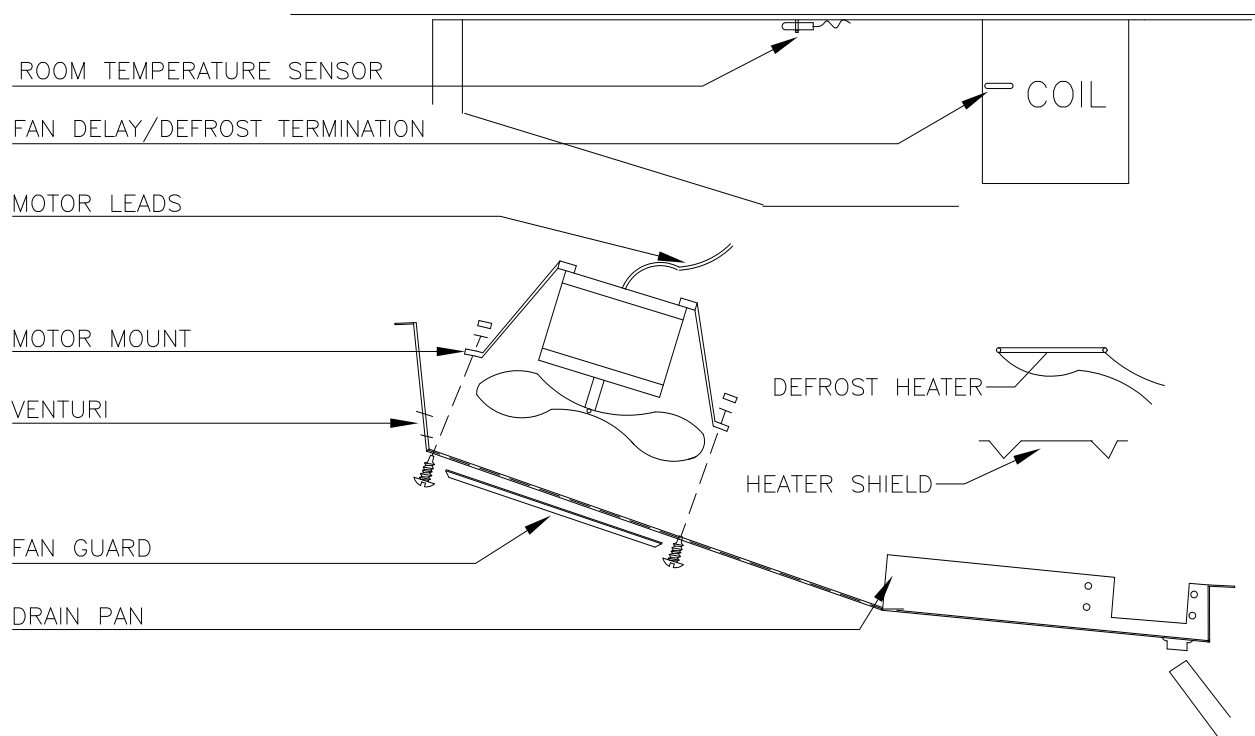
Risk of fire or explosion due to puncture of refrigerant tubing; follow handling instructions carefully. Flammable refrigerant used.

1. High head pressure and high back pressure:
 - A. Condenser coil clogged or restricted
 - B. Condenser fan motor defective.
 - C. Air discharge in rear of cabinet restricted.
2. Low back pressure and low head pressure:
 - A. Restriction in system.
 - B. Refrigerant undercharged.
 - C. Leak in system
3. Pressure normal – cabinet warm:
 - A. Coil blocked with frost (see #4).
 - B. Refrigerant undercharged.
 - C. Control set too warm.
4. Cabinet not cycling – coil blocked with frost:
 - A. Defective temperature controller.
 - B. Refrigerant overcharged.
 - C. Location too hot.
 - D. Condenser clogged.
 - E. Condenser fan motor defective.
 - F. Defrost heater not operating.
5. Copressor starts and runs – but cycles on overload:
 - A. Low voltage
 - B. Relay defective.
 - C. Overload defective.
 - D. High head pressure (see #1).

Temperature sensor, defrost heater and fan motor replacement

Before making any change, technician should:

1. Disconnect power to the cabinet
2. Remove screws from venturi and pull down



To change a temperature sensor (cabinet sensor or defrost sensor), simply disconnect the sensor wires from the controller and replace the new sensor in the original position. Use plastic tie to tighten the zone sensor. Insert the sensor for defrost termination firmly into top-center of the evaporator coil, in between the fins. Make sure the sensor wires do not touch or are not close to any heater rods.

To change defrost heater – remove screws from drain pan and pull down – remove screws from coil mounting straps – spring straps open – remove heater shield – pull heater out of slots in coil fins.

To change fan motor – disconnect fan motor leads – remove screws from fan guards and motor mounts.

PART LIST

!CAUTION: Use only cabinet manufacturer OEM parts for the flammable refrigerant product. Failure to observe this caution could cause damage to cabinet, explosion, fire, injury, or even death. Use this chart when ordering replacement parts for your **BLG Plus** cabinets. Always Advise Cabinet Serial Number When Ordering Parts

	BLG-23-HGP	BLG-HGP-27	BLG-48-HGP	BLG-74-HGP
LED Light Bar	23-01926 (L) 23-01927 (R)	23-01926 (L) 23-01927 (R)	23-01926 (L) 23-01927 (R) 23-01928(C)	23-01926 (L) 23-01927 (R) 23-01928 (C)
Light Switch	23-01944	23-01944	23-01944	23-01944
Cap Tube	11-02010	11-02010	11-02011	11-02010 x 2
Evaporator Coil	07-14192	07-14192	07-14193	07-14197
Evaporator Fan Blade	15-13106	15-13106	15-13106	15-13106
Evaporator Fan Motor	13-13445	13-13445	13-13445	13-13445
Evaporator Fan Guard	25-01377	25-01377	25-01377	25-01377
Defrost Heater	17-09668	17-09668	17-09669	17-09670
Drain Line Heater	17-00404	17-00404	17-00404	17-00404
Defrost Heater Safety	19-01164	19-01164	19-01164	19-01164
Condensing Unit	01-01965	01-01965	01-01966	01-01965 x 2
Compressor Switch	19-14810	19-14810	19-14810	19-14810
Thermometer	44-01033	44-01033	44-01033	44-01033
Dixell Controller	19-14814	19-14814	19-14814	19-14815
Dixell Room Sensor	19-14816	19-14816	19-14816	19-14816
Dixell Evap. Sensor	140512	140512	140512	140512
Door – LH (non-locking)	31-03913	31-03914	31-03915	31-03915
Door – RH (non-locking)	31-03931	31-03932	31-03916	31-03916
Door – LH (locking)	31-03913	31-03922 (W) 31-03918(B)	31-03923 (W) 31-03919 (B)	31-03923 (W) 31-03919 (B)
Door – RH (locking)	31-03931	31-03936 (W) 31-03934 (B)	31-03924 (W) 31-03920 (B)	31-03924 (W) 31-03920 (B)
Wall Guard	25-01380 (W) 25-01381 (B)	25-01380 (W) 25-01381 (B)	25-01380 (W) 25-01381 (B)	25-01380 (W) 25-01381 (B)
Shelf (Sides)	33-01821 (W) 33-01822 (B)	33-01819 (W) 33-01820 (B)	33-01817 (W) 33-01818 (B)	33-01817 (W) 33-01818 (B)
Shelf (Middle)	NA	NA	NA	33-01819 (W) 33-01820 (B)
Shelf (Bottom Sides)	NA	33-01402 (W) 33-01590 (B)	33-01453 (W) 33-01606 (B)	33-01453 (W) 33-01606 (B)
Shelf (Bottom Center)	NA	NA	NA	33-01402 (W) 33-01590 (B)

Accessories (Includes HD Models)

Description	BLG-23-HGP	BLG-27-HGP	BLG-48-HGP	BLG-74-HGP
Casters (4) 3" Diameter	A20011140	A20011140	A200-11140	
Casters (6) 3" Diameter				A212-11140
Legs 6"	A20011170	A20011170	A200-11170	A212-11170

SALE AND DISPOSAL

OWNER RESPONSIBILITY



CAUTION

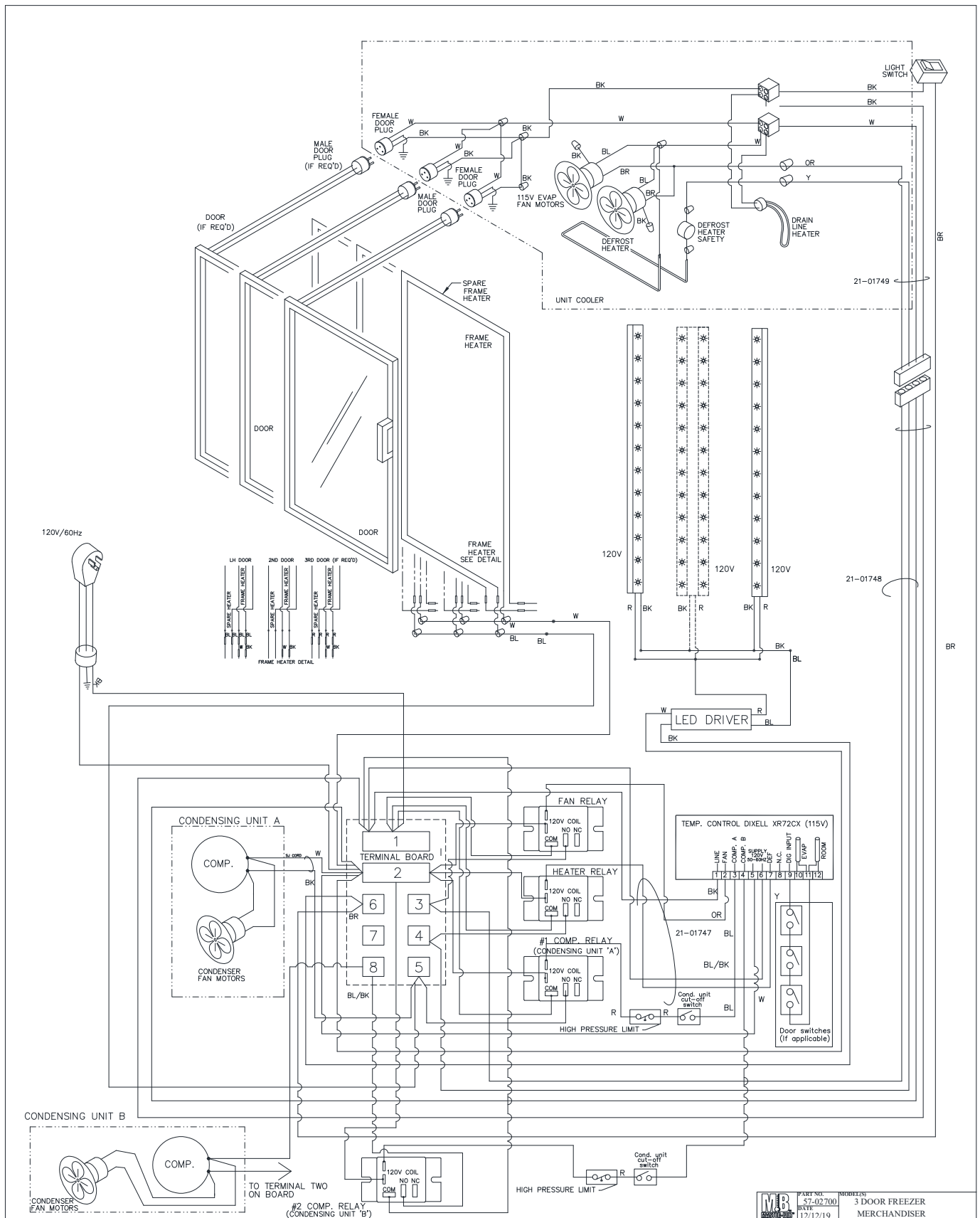
Risk of fire or explosion. Dispose of properly in accordance with federal or local regulations. Flammable Refrigerant used.

If you sell or give away your cabinet; you must make sure that all safety labels and the Installation - Service Manual are included with it. If you need replacement labels or manuals, factory will provide them free. Contact the customer service department at (800) 684-8988.

The customer service department should be contacted at the time of sale or disposal of your cabinet so records may be kept of its new location

If you sell or give away your cabinet and you evacuate the refrigerant charge before shipment, factory recommends that the refrigerant charge be properly recovered in compliance with section 608 of the Clean Air Act effective November 1995 and in accordance with all applicable local, regional, or national standards. The customer service department at Master-Bilt should be contacted at the time of sale or disposal of your cabinet so records may be kept of its new location.







Customer Service/Warranty Parts Phone:
800-684-8988
Fax: 866-882-7629
Email: service@master-bilt.com