

MB MASTER-BILT® Refrigeration Solutions

FIP-50
FIP-50
FIP-50

Installation & Operations Manual

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INTRODUCTION

Thank you for purchasing a Master-Bilt cabinet. This manual contains important instructions for installing, using, and servicing a Master-Bilt **FIP-50** case. A parts list is included with this manual. Read all these documents carefully before installing or servicing your equipment.

STORE CONDITIONS

The Master-Bilt **FIP-50** 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 Master-Bilt **FIP-50** should not be positioned where it is directly exposed to rays of sun or near a direct source of radiant heat. This will adversely affect the case and will result in poor performance.



NOTICE

Read this manual before installing your cabinet. Keep the manual and refer to it before doing any service on the equipment. Failure to do so could result in personal injury or damage to the cabinet.



DANGER

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

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 us:

Customer Service Department
Master-Bilt Products
Highway 15 North
New Albany, MS 38652
Phone (800) 684-8988
Fax (800) 684-8988

WARNING LABELS AND SAFETY INSTRUCTIONS



This symbol is the safety-alert symbol. When you see this symbol on your cabinet or in this manual, be alert to the potential for personal injury or damage to your equipment.

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



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.

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

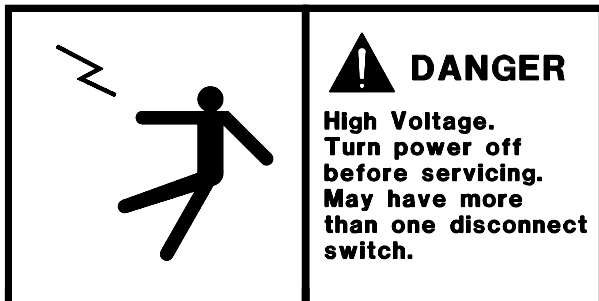
DANGER: Severe injury or death will occur if you ignore the message.

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

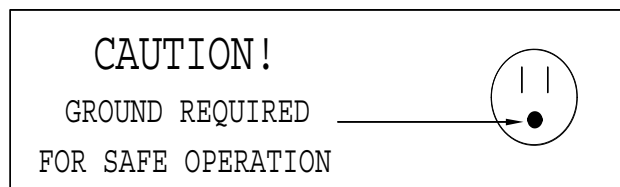
CAUTION: Minor injury or damage to your cabinet can occur if you ignore the message.

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 Master-Bilt 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 at (800) 684-8988 for replacements.



This label is located on top of the electrical control label and on the wiring channel.



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

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 fluorescent tubes, be sure that the electrical power to the lighting circuit is turned off.

MECHANICAL

Remove front grille and check refrigeration lines to see that they are free (not touching each other or compressor). Spin condenser fan blade to see that it is free.

Check that all service valves (2) are open. Cut compressor hold-down strap and remove the compressor. The springs are secured for shipping by either tightening bolts or shipping strap. Remove the strap or loosen the hold-down bolts so that the compressor floats freely.



Fig. 1 – Semi-Hermetic Compressor

LOCATION

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.

To comply with Sanitation requirements the cabinet must be sealed to the floor with a N.S.F. listed silicone sealant, mounted on casters, or with 6" minimum legs. Minimum clearance as follows: 0" air space at front, 0" air space at each side, but top and back are open required for compliance.

Remove shipping supports from bottom edge and top edge of doors.

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.

It is recommended that a separate circuit be run for each cabinet to prevent another appliance blowing the fuse or HAC&R C/B, causing loss of product. This circuit should be sized according to the amp rating on the cabinet data label.

SERVICE INSTRUCTIONS

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. Safety thermostat is defective.
 - C. Defrost termination is defective.
 - D. Timer defrost is not set at a minimum of 34 minutes.
 - E. Refrigerant overcharged.
 - F. Location too hot.
 - G. Condenser clogged.
 - H. Condenser fan motor defective.
 - I. Defrost heater not operating.
5. Compressor starts and runs – but cycles on overload:
 - A. Low voltage
 - B. Relay defective.
 - C. Overload defective.
 - D. High head pressure (see #1).

*To determine if time clock solenoid or the defrost termination is defective, you should have continuity across the terminals of the defrost termination thermostat when it is exposed to temperatures of +70 F and above. You can also remove the time clock and inspect the solenoid to see that it is moving freely for proper operation

Special service situations:

There are rare occasions when the refrigerant charge must be evacuated from a cabinet in order to perform service work. In those situation, Master-Bilt recommends that a refrigerant reclaimer be used according to the EPA guidelines to eliminate the possibility of refrigerant being released to the atmosphere.

If moisture or liquid is observed around or under a Master-Bilt cabinet, an immediate investigation should be made by qualified personnel to determine the source of the moisture or liquid. The investigation made should determine if the cabinet is malfunctioning or if there is a simple housekeeping problem.

Moisture or liquid around or under a 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 a cabinet should be corrected immediately.

Temperature control, defrost heater and fan motor replacement

WARNING: Before making any change, the technician should disconnect power to the cabinet.

OPERATING CONDITIONS AND PRESSURES

With room ambient temperature of +80 F and cold cabinet (unit cycling on control):

Suction Pressure	2 to 5 psig
Head Pressure	240 to 260 psig

TEMPERATURE CONTROL SETTING

The FIP cabinet has a thermostatic control that is adjustable from #1 (warmest setting) to #7 (coldest setting). It is recommended that the defrost termination-fan delay be pre-set to the "11:00" position. Turn the knob counter-clockwise to lengthen the defrost time or clockwise to shorten the defrost time. Turning the knob varies the defrost termination temperature and has no affect on the fan delay. There is also a defrost time clock. All the above controls are accessible by removing the left hand rear grille.

The timer is normally set with two defrost pegs and 34 minute defrost. Additional pegs are included, and can be installed if extreme usage of the cabinet requires additional defrost. After the cabinet has been started, make sure that the time clock dial corresponds to the actual time of day. It is recommended that the defrost pegs be placed at a time either one hour before or one hour after store hours. Make sure that the cabinet runs long enough to obtain a -10 F. Observe the cabinet during a complete defrost cycle to determine all defrost mechanisms and defrost termination mechanisms are operating properly.

FAN OPERATION AND VIBRATION; VOLTAGE CHECK

Check the operation of the fan blade and also check for vibration noises due to refrigerant lines rattling against one another. While the cabinet is in operation, check the voltage draw and the amperage draw versus this rating on the nameplate. Voltage should be checked at the compressor terminals while the compressor is initially starting. The FIP-50 models are designed to operate at +/- 10% of 115/60/1. This means at time of start-up, the voltage should be between 103 volts and 126.5 volts at the compressor.

THERMOSTAT CHECK

After the cabinet has pulled down in temperature to approximately 10 at load line at the center front interior, check the thermostatic control by turning it to the warmest setting, which should shut the compressor off. Check that the main double pole double-throw toggle switch operates and turns off not only the refrigeration system, but also the lights of the cabinet.

REFRIGERATION SYSTEM AND OPERATION

All FIP-50 model use R-404a Copeland Copelametic ½ horsepower compressors. All models have a bare tube condenser, which virtually eliminates the possibility of condenser blockage by dust and dirt.

All units operate with an exact charge of refrigerant, which is shown on the nameplate in ounces of R-404a, and use an expansion valve for the refrigerant metering device to the evaporator. It includes an automatic electric defrost system which is initiated (by the time clock) and terminated by a defrost termination thermostat which is mounted in the electrical box in the unit compartment. This defrost termination overrides the time clock and turns the compressor back on line when the gravity coil is defrosted. This is the point where the coil has reached sufficient temperature to insure complete defrost. If the defrost termination control should fail to operate, the time clock will automatically turn off defrost and again turn on the compressor after the 34 minute interval set on the time clock. If the time clock fails to turn the heaters off, a final back-up safety thermostat will shut off the heaters when gravity coil temperature reaches +80 F. All FIP-50 models are provided with a pressure limited expansion valve which insures that the compressor will not overload itself due to high back pressures which usually occur during initial start-up or after prolonged off-cycle due to relocation of the cabinet or service work being performed. This valve is pre-set at approximately ten to eleven pounds of suction pressure and should not be change in the field. Refer to the attached specification sheets and electrical diagrams.

FINAL CHECK LIST

- A. Check operating pressures.
- B. Check electrical requirements of unit to supply voltage.
- C. Set temperature control for desired temperature range.
- D. Check sight glass for proper refrigerant charge.
- E. Check system for proper defrost settings and operation.
 - 1. Verify setting of two 34 minutes defrost per 12 hours.
- F. Check condensing unit for vibrating or rubbing tubing. Dampen and clamp as required.
- G. All valves should be completely open counter-clockwise.
- H. Check packing nuts on all service valves.
- I. Replace all service valve caps and latch unit covers.

SALE AND DISPOSAL

OWNER RESPONSIBILITY

If you sell or give away your Master-Bilt 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, Master-Bilt will provide them free. Contact the customer service department at Master-Bilt at (800) 684-8988.

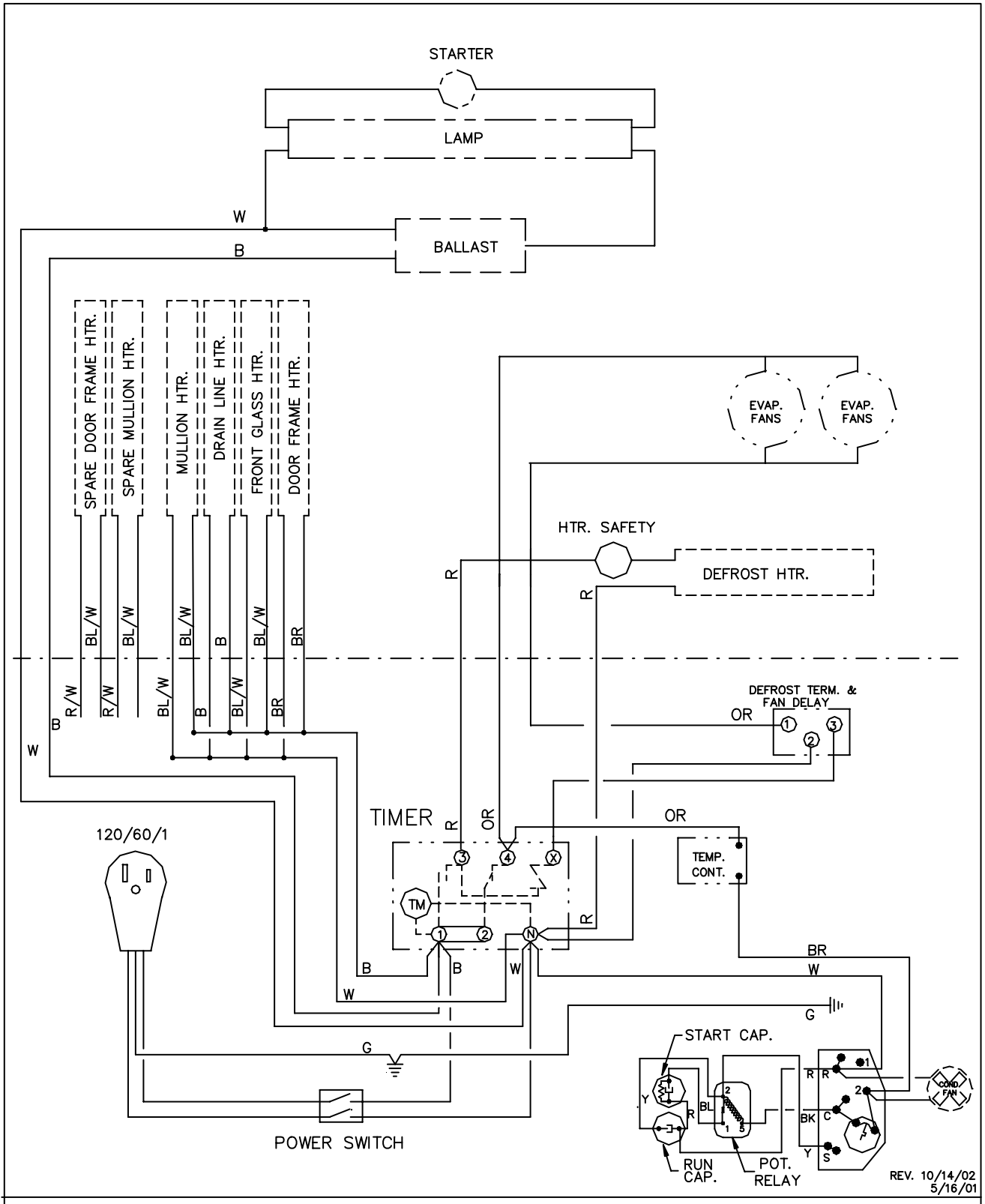
The customer service department at Master-Bilt should be contacted at the time of sale or disposal of your cabinet so records may be kept of its new location.

If you sell or give away your Master-Bilt cabinet and you evacuate the refrigerant charge before shipment, Master-Bilt 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.

MASTER-BILT PART LIST

The table below gives Master-Bilt part numbers. Use this chart when ordering replacement parts for your **FIP-50** cabinets. Always Advise Cabinet Serial Number When Ordering Parts

Description	FIP-50
Ballast, 36"	23-00155
Coil Defrost Heater	17-09085
Compressor	03-14504
Condenser Coil	07-13241
Condenser Fan Blade	15-13093
Condenser Fan Motor	13-00311
Condenser Fan Motor Bracket	13-00754
Crankcase Pressure Valve	09-00992
Defrost Fan Delay Control	19-00890
Door Frame Heater	17-09083
Door Gasket	37-01197
Door Hinge	35-01450
Drain Line Heater	17-00404
Drier	09-09171
Evaporator Coil	07-00134
Evaporator Fan Blade	15-13072
Evaporator Fan Guard	25-01280
Evaporator Fan Motor	13-13075
Expansion Valve	09-09726
Fluorescent Lamp, 48"	23-00327
Front Glass	31-01509
Front Glass Heater	17-09064
Grille	25-01283
Heater Safety Control	19-01307
Mullion Heater	17-09082
Power Cord	21-00312
Shelf, Lower L.H.	33-01399
Shelf, Lower R.H.	33-01400
Shelf, Upper L.H.	33-01398
Shelf, Upper R.H.	33-01397
Shelf Bracket, 12" L.H.	070-16071
Shelf Bracket, 12" R.H.	070-16072
Shelf Bracket, 14" L.H.	070-16073
Shelf Bracket, 14" R.H.	070-16074
Starter, 36"	23-01093
Starter Socket, 18"	23-01093
Starter Socket, 36"	23-01128
Temperature Control	19-13607
Timer	19-00818
Toggle Switch	19-01090



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5/16/01

WIRING DIAGRAM FIP-50

FIP-50

