READ THIS PAGE FIRST

1. **Howard-McCray would like to thank you for purchasing one of our units.**
   PLEASE READ THIS MANUAL CAREFULLY BEFORE PROCEEDING WITH THE INSTALLATION OR OPERATING OF THIS UNIT.

2. **Environment -** These display cabinets are made to operate at 75°F and 55% relative humidity. Temperature and/or humidity greater than the factory recommendations will hinder the performance of this cabinet.

3. **Cabinet Set-Up** – A qualified refrigeration mechanic should set-up this cabinet. Check control settings are extremely critical to the proper operation of this unit. These settings are the responsibility of the customer and are not covered by factory warranties. Failure to have this unit installed by a qualified refrigeration mechanic may VOID all the warranties on this unit.

4. **Location** – This cabinet must not be located in the direct rays of the sun or near radiant heat sources. A minimum of 3" of free air space is required at the rear of the cabinet.

5. **Never spray water into the cabinet.** This will cause damage to the seals.

6. **If additional assistance is required, please call us at 1-800-344-8222.**

READ THIS PAGE FIRST

Howard-McCray

Installation and Operating Instructions For

GF-Series
GLASS DOOR FREEZERS

Important Instructions

Please Read carefully
Before attempting to
Install or operate the cabinet

Keep this Book for Future Reference

Table of Contents

The following instructions are for the benefit of the new owner and the installing contractor. They should be studied carefully before attempting to install or operate the cabinet. This manual is the property of the owner and should remain in the owner's possession.

Engineering Specifications – GF Models

Model No.	Cabinet Dimensions D x H x L * or **	Comp. HP	Electrical Voltage	Max. Amps	Connection NEMA Plug Type
GF22	35 x 78 x 26-1/2	3/4	115/60Hz/1PH	16.0	5-20P-NEMA
GF48	35 x 78 x 52-1/4	1-1/2	115/208-230/60Hz/1PH	16.0	L14-20P-NEMA
GF75	35 x 78 x 78	1-3/4	115/208-230/60Hz/1PH	16.0	L14-20P-NEMA
GF102	35 x 78 x 103-3/4	1-1/2%	115/208-230/60Hz/1PH	16.0%	L14-20P-NEMA
GF22BM	36 x 83-1/2 x 26-1/2	3/4	115/60Hz/1PH	16.0	5-20P-NEMA
GF48BM	36 x 83-1/2 x 52-1/4	1-1/2	115/208-230/60Hz/1PH	16.0	L14-20P-NEMA
GF75BM	36 x 83-1/2 x 78	1-3/4	115/208-230/60Hz/1PH	16.0	L14-20P-NEMA
GF102BM	36 x 83-1/2 x 103-3/4	1-1/2%	115/208-230/60Hz/1PH	16.0%	L14-20P-NEMA
GF22LBM	33-1/2 x 78-1/2 x 26-1/2	3/4	115/60Hz/1PH	16.0	5-20P-NEMA
GF48LBM	33-1/2 x 78-1/2 x 52-1/4	1-1/2	115/208-230/60Hz/1PH	16.0	L14-20P-NEMA
GF75LBM	33-1/2 x 78-1/2 x 78	1-3/4	115/208-230/60Hz/1PH	16.0	L14-20P-NEMA
GF102LBM	33-1/2 x 78-1/2 x 103-3/4	1-1/2%	115/208-230/60Hz/1PH	16.0%	L14-20P-NEMA
GF22-FF	35 x 78 x 26-1/2	3/4	115/60Hz/1PH	16.0	5-20P-NEMA
GF48-FF	35 x 78 x 52-1/4	1-1/2	115/208-230/60Hz/1PH	16.0	L14-20P-NEMA
GF75-FF	35 x 78 x 78	1-3/4	115/208-230/60Hz/1PH	16.0	L14-20P-NEMA
GF102-FF	35 x 78 x 103-3/4	1-1/2%	115/208-230/60Hz/1PH	16.0%	L14-20P-NEMA
GF22BM-FF	36 x 83-1/2 x 26-1/2	3/4	115/60Hz/1PH	16.0	5-20P-NEMA
GF48BM-FF	36 x 83-1/2 x 52-1/4	1-1/2	115/208-230/60Hz/1PH	16.0	L14-20P-NEMA
GF75BM-FF	36 x 83-1/2 x 78	1-3/4	115/208-230/60Hz/1PH	16.0	L14-20P-NEMA
GF102BM-FF	36 x 83-1/2 x 103-3/4	1-1/2%	115/208-230/60Hz/1PH	16.0%	L14-20P-NEMA
GF22LBM-FF	33-1/2 x 78-1/2 x 26-1/2	3/4	115/60Hz/1PH	16.0	5-20P-NEMA
GF48LBM-FF	33-1/2 x 78-1/2 x 52-1/4	1-1/2	115/208-230/60Hz/1PH	16.0	L14-20P-NEMA
GF75LBM-FF	33-1/2 x 78-1/2 x 78	1-3/4	115/208-230/60Hz/1PH	16.0	L14-20P-NEMA
GF102LBM-FF	33-1/2 x 78-1/2 x 103-3/4	1-1/2%	115/208-230/60Hz/1PH	16.0%	L14-20P-NEMA

% = Two Refrigeration Systems

* = Top mounts does not includes 5" Casters
or
** = Top mounts does not includes 6" Legs

These cabinets are designed to operate in an air conditioned location ONLY.
Temperature not to exceed 75ºF and a relative humidity not to exceed 55%.

Receiving and Inspection Procedure

1) The cabinet has been carefully operation tested and inspected before crating and has been determined to be in good operating condition before leaving the factory.

2) Upon arrival of the cabinet, the crate should be inspected thoroughly for any damage that may have occurred in transit. In the event that any damage is discovered, it should be noted on the delivery ticket or Bill of Lading and signed to that effect. An immediate claim should then be filed against the carrier giving them the description and amount of damage.

3) After the crate has been removed, the cabinet should be examined carefully for any damage. If there is any concealed damage, the carrier should be notified immediately. Make a request in writing with the carrier for an inspection within 15 days, and retain all packaging. The carrier will supply the inspection report and the required claim forms.

4) Our Company can assume no responsibility for filing freight claims as the cabinet was in good condition on a clear Bill of Lading, F.O.B. Philadelphia. However, the factory will assist, if required.

5) Shortages - Check your shipment for any possible shortages of material. If one exists and is found to be responsibility of Howard-McCray, notify the factory. Howard-McCray will acknowledge shortages within ten days from receipt of acknowledgement. If a shortage exists and it involves the carrier, notify the carrier immediately and request an inspection.

Installation

As with any refrigerated cabinet, there are several very important requirements that must be complied with for proper operation. They are as follows:

1. This line of cabinets is designed to operate in a location with an ambient temperature of 75°F and a relative humidity of 55%. This cabinet should not be located in an area the cabinet may be subjected to radiant heat from spot or flood lamps, sun rays or heat from suspended gas heating fixtures.

2. After locating the cabinet, it must be leveled from front to back as well as end-to-end. This will facilitate proper refrigeration at the evaporator and proper dissipation of the defrost water.

3. The minimum clearance allowed for the rear of the cabinet is 3 inches and the sides can have no clearance if need be.

4. All wiring must be installed by a competent electrician and conform to local codes. The incoming voltage must be maintained to within 5% of the voltage shown on the cabinet nameplate.

Electrical Service Connection

Some of the models are provided with a Service Power Cord, see the ***Engineering Specifications*** for the plug type of your cabinet. Locate the electrical outlet in such a manner that you may plug in the service cord directly, without the use of an extension cord. The electrical outlet used to supply the cabinet must have proper ground facilities to match the service plug on the cabinet service cord. Make sure that no other electrically operated devices are connected to the circuit operating this cabinet, which will cause an overload. Overloaded circuits are extremely hazardous.
The electrical connection for models that are not supplied with a Service Power Cord is to be made in junction box located at the rear of the cabinet (see applicable Plan View drawing for exact location).
The incoming voltage must be maintained to within 5% of the voltage shown on the nameplate. Howard-McCray will not accept responsibility for the performance of the cabinet or malfunction of any component due to an incorrect voltage supply than that indicated on the serial rating plate. Use separate electrical supply lines connected to a fuse block or circuit breaker of proper capacity.

Caster or Leg Installation

Top Mount Only

Most Top Mount cabinets are supplied with a set of casters. These casters are shipped as separate items and will need to be installed before the cabinet is located in position. See the ***Caster Installation*** drawing for exact instructions.

The Top Mount cabinets requiring power supply to be hardwired are supplied with adjustable legs. These legs and mounting plates are shipped as separate items and will need to be installed before the cabinet is located in position. See the ***Leg Installation*** drawing for exact instructions.

NOTE When installing either Casters or Legs, take all necessary safety precautions when elevating the cabinet.

Control Settings

Temperature Control-Electronic

The standard temperature control, when it leaves is set to Cut-Out at - 10°F and Cut-In 0°F, and can be located in the machine compartment right front behind the grille. This control may have to be reset to satisfy the owner's requirements or local conditions. See attached controller manual. The controller is located in the machine compartment behind the front grille.

Stocking the Cabinet

After the equipment is running, it should be operated for a sufficient length of time to bring the storage temperature down to cycling of the condensing unit. On freezers, three to four hours usually will be enough to allow temperatures to drop.
The evaporator fans draw air up from the storage area, circulate it through the evaporator and discharge it down the rear wall of the cabinet. Be certain that their good air circulation.

Defrost Period

Three defrost periods per day. The defrost period occurs 8 hours after start-up or can be reset by forcing a manual defrost on the controller. Pressing the defrost button on the controller for 2 seconds will manually start a defrost. Defrost is set to terminate at 50°F Evaporator Coil Temperature.

Drain Trap Installation

A properly installed drain trap is extremely important in ensuring satisfactory cabinet operation, and protection from product loss. The drain hose on this model is factory attached to the rear of the cabinet. The drain hose is supplied at a length sufficient to reach a floor drain, when the cabinet is equipped with either casters or legs. Determine where the drain hose will overlap the drain trap by a minimum of 2" and cut the hose to this length. Insert the drain trap into the drain hose and secure them to the rear of the cabinet.

CHECK-LIST FOR USE BEFORE START-UP

The following items should be checked, when applicable to the cabinet:

Make sure that the door gaskets make a proper seal to the cabinet.

Make sure that all fan motors are properly plugged in.

Make sure that all fan blades are tight on all fan motor shafts.

Make sure that the expansion valve sensing bulb is properly positioned and is tightly secured.

Make sure that all flare nuts are tight.

Make sure that tubing entrance holes both inside and outside the cabinet are properly sealed.

Make sure that all SEALANT MATERIAL that was removed from position in the cabinet during installation and piping is correctly replaced and seals in a satisfactory manner.

Make sure that all the loose debris in the cabinet is removed.

Start-Up

1. Electrically energize the cabinet. Check the supply voltage, must be within +/- 5%. Check the evaporator fan motors to ensure all are operating and rotating in the correct direction.

2. Electrically energize the refrigeration system. Check the supply voltage, must be within +/- 5%.

3. Verify refrigeration system is operating properly.

4. Verify proper Defrost operation (as outlined in the Defrost section).

5. Verify the proper setting of the Crankcase Pressure Valve (as outlined in the Crankcase Pressure Valve section).

Controller Start-Up

SET: To display target set point; in programming mode it selects a parameter or confirm an operation.
(DEF) To start a manual defrost

(**UP**): To see the max. Stored temperature; in programming mode it browses the parameter codes or increases the displayed value.
(**DOWN**) To see the min stored temperature; in programming mode it browses the parameter codes or decreases the displayed value.

To switch the instrument off, if onF = oFF.

Not enabled.

KEY COMBINATIONS:

+ To lock & unlock the keyboard.

SET + To enter in programming mode.

SET + To return to the room temperature display.

The controller has been programmed to delay the compressor and fan motors for one minute. It will take approximately 30 minutes for the compressor to cycle, in a 75ºF room. The cabinet will cycle between -10ºF to 0ºF.

If the alarm should go off during the pull-down period just press the SET button on the controller.

Alarm Program

The alarm is programmed to sound if the temperature should reach a high of 15ºF or a low of -25ºF by pressing the SET button on the controller this will restart the unit until it reaches the programmed temperature.

Individual Controller Parameters:

- **Cabinet Internal Temperature**
  = Cut-In-5ºF, Cut-Out-10ºF
- **Anti-Short cycle Delay [AC]**
  = 1 Minute Delay
- **Defrost Termination Temp[dtE]**
  = 50ºF Evaporator Coil Temperature
- **Between Defrost Periods [idF]**
  = 8 Hours
- **Maximum Time in Defrost [MdF]**
  = 30 Minutes
- **Alarm High Limit [ALU]**
  = 15ºF
- **Alarm Low Limit [ALL]**
  = -25ºF
- **Alarm Delay**
- **+10 Minutes after Limit been reached**

See chart in this manual for additional parameter settings.

High Pressure Limit Control Side

The cabinet is equipped with a High Pressure Limit Control. This control is for Safety purposes, and SHOULD NOT BE ADJUSTED UNDER ANY CIRCUMSTANCES.

Defrost Heater

The defrost heater is pressed into the underside of the evaporator coil fins. The heat from the heater rises into the evaporator and melts the frost and ice that has accumulated on the coil.

To check if the defrost heater is operating properly first verify that it receiving the proper voltage with a voltmeter. Use an ammeter to check for the proper current draw of the heater. The amps for the heaters are as follows:

- GF22/BM: 5.2A @ 115V
- GF48/BM: 4.8A @ 230V
- GF75/BM: 6.9A @ 230V
- GF102/BM: 4.8A @ 230V(X2)

Drain Pan Heater

The drain pan heater is attached to the drain pan with aluminum tabs. The drain pan heater warms the drain pan so that the condensate water from the evaporator coil will not freeze to the pan, and will drain freely out of the cabinet.

To check if the defrost heater is operating properly first verify that it receiving the proper voltage with a voltmeter. Use an ammeter to check for the proper current draw of the heater. The amps for the heaters are as follows:

- GF22/BM: 3.5A @ 115V
- GF48/BM: 1.7A @ 230V
- GF75/BM: 1.7A @ 230V
- GF102/BM: 1.7A @ 230V(X2

Crankcase Pressure Valve
(Freezer Models)

Some freezer models utilize a crankcase pressure valve to protect the compressor against excessive suction pressure, during initial start-up and upon termination of the defrost cycle. This valve is factory set to limit the compressor suction pressure to 20 PSIG, and should not be changed.

To check this setting, it is necessary that the pressure on the inlet side, or evaporator side, of the valve be above 20 PSIG. If not checking during the start-up, place the cabinet into the defrost cycle, to obtain a raised evaporator suction pressure. With a gauge installed on the suction service valve, check for the proper setting after the defrost cycles terminates. This setting should be checked several times before leaving the installation.

Maintenance Suggestions

An attractive operation can be a very profitable. Dirty and poorly merchandised cabinets are offensive to most discriminating customers, so a clean attractive cabinet will pay dividends. Weekly or more often, if necessary, the display area should be cleaned and attractively stocked.

Important Notice

1. ALWAYS disconnect the power to the cabinet before attempting to clean it with any liquid.

2. NEVER under any circumstances should a water hose be sprayed into this cabinet.

3. NEVER use ammonia or solutions with ammonia on this cabinet.

4. The use of abrasive cleaning materials on this cabinet will VOID all cabinet warranties.

The Cleaning Process

1. Turn the power off from the source.
2. Remove all merchandise from the cabinet and store in a refrigerated area. Then remove all shelves and floor pans.
3. This cabinet can be hand cleaned internally with a mild soap detergent and hot water. Diluted non-chlorine bleach and hot water is a good sanitizer. The cleaning cloth should be just wet enough to get a reasonable cleaning action but should not be wet to a point where it will emit a large amount of water which will flow through the drain system causing it to overflow.
4. After the cabinet is cleaned, any remaining water in the cabinet can be soaked up with the use of a sponge and dried out with a dry cloth completely before resuming operations.
5. Make sure that the internal drain is open and remove all scraps, paper, and lint.
6. All external panels may be cleaned with a damp cloth, and then they may be polished with a dry lint free cloth. This will preserve the luster of the cabinet.

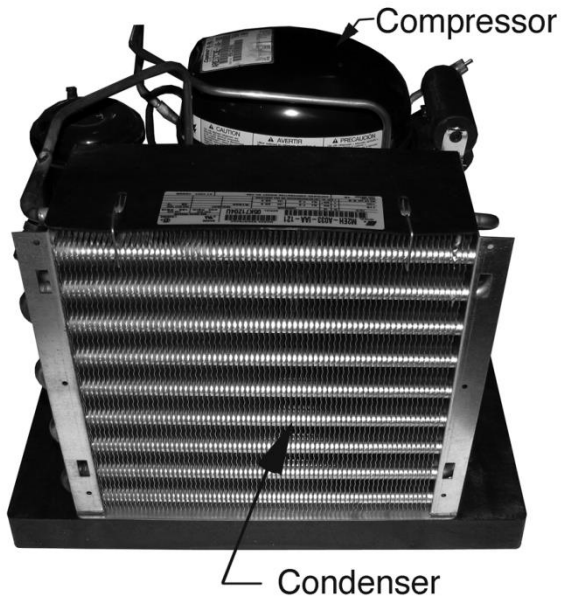
Cleaning the Condenser

It is crucial that the condenser face be cleaned weekly. The condenser is prone to quickly accumulate any dust or dirt from the location. A dirty condenser will diminish the cooling ability of the system, thus resulting in longer operational times and warmer product temperatures.

The condenser face can be cleaned with the use of a hose/brush attachment on a vacuum cleaner. Take care to avoid bending the condenser fins, it is of vital importance that the condenser gets the proper amount of air through the fins and around the tubes, therefore all dirt, lint, and dust needs to be removed.

Cleaning the Machine Compartment

At intervals of four to six months, or before if necessary, it is recommended that the Machine Compartment be cleaned out. It should be accomplished in the following order:



1. Shut down the cabinet electrically.
2. Remove the front grille. Using a hose/brush attachment on a vacuum cleaner, all dirt, store lint and dust can be removed from the machine compartment.
3. If any traces of oil are found contact your Refrigeration Service person as soon as possible.
4. Before reloading the cabinet with merchandise, allow an hour for refrigeration pull-down. Make sure that all merchandise is in a good salable and refrigerated condition when re-loading the cabinet.

Trouble Chart

A. Compressor will not start - no hum

Possible Causes:
1. Disconnect switch open
2. Blown fuse
3. Incorrect wiring
4. Overload protector tripped
5. Open control contacts (control may be defective, or unit location may be too cold)
6. Inoperative overload protector

B. Compressor will not start - hums but cycles on overload

Possible Causes:
1. Low voltage
2. Unit wired incorrectly
3. Starting capacitor inoperative
4. Starting relay contact not closing
5. Compressor motor defective
6. High head pressure
7. Bearings or pistons tight - low oil charge

C. Compressor starts, but starting winding remains in circuit

Possible Causes:
1. Low voltage
2. Unit wired incorrectly
3. Starting capacitor weak
4. Running capacitor inoperative
5. Starting relay inoperative
6. Compressor motor inoperative
7. High head pressure
8. Bearings or pistons tight-low oil charge

D. Compressor starts and runs but cycles on overload

Possible Causes:
1. Low voltage
2. Running capacitor defective
3. Overload protector inoperative
4. High head pressure
5. Fan motor, pump, etc., wired to wrong side of overload protector
6. Compressor motor partially grounded
7. Unbalanced line voltage (3 phase models)
8. Bearing or pistons tight - low oil charge

E. Compressor tries to start when thermostat closes but cuts out on overload, starts after several attempts

Possible Causes:
1. Low voltage
2. Thermostat differential too close.
3. Thermostat bulb not in tight contact with evaporator.

F. Compressor short cycles

Possible Causes:
1. Control different set too close
2. Refrigerant undercharge
3. Refrigerant overcharge
4. Discharge valve leaking
5. Expansion valve leaking
6. Cutting out on high pressure control
7. Cutting out on overload protector because of tight bearings, stuck piston, high head pressure or restricted air cooled condenser

G. Running cycle too long or unit operated continuously

Possible Causes:
1. Insufficient refrigerant charge
2. Dirty or restricted condenser
3. Unit: location too hot, exceeding operating ambient conditions of 75ºF and 55% RH.
4. Control contacts stuck
5. Air or other non-condensable gases in system
6. Expansion valve inoperative
7. Fixture doors left open too long
8. Insufficient, or water - logged insulation

H. Evaporator temperature too high

Possible Causes:
1. Shortage of refrigerant, or leak on system
2. Restricted strainer or drier
3. Control setting too high
4. Expansion valve restricted
5. Expansion valve too small
6. Evaporator coil plugged with ice or dirt
7. Evaporator oil logged

I. Noisy Unit

Possible Causes:
1. Compressor oil charge low
2. Fan blade bent causing vibration
3. Fan motor bearings loose or worn
4. Tube rattle
5. Loose parts on condensing unit

J. Liquid line hot

Possible Causes:
1. Unit undercharged or leak in system
2. Expansion valve opened too far

K. Liquid line frosted

Possible Causes:
1. Restriction in drier
2. Shut off valve on receiver either partially closed or restricted

L. Suction line sweating or frosted

Possible Causes:
1. Expansion valve open too wide
2. Evaporator iced up

Parts List

Part #	Description	Usage (QTY)
20-007	Defrost Heater-Evaporator Coil (4.8a)	GF22*(1)
20-011	Defrost Heater-Evaporator Coil (4.8a)	GF48*(1), GF102*(2)
20-012	Defrost Heater-Evaporator Coil (6.9a)	GF75*(1)
20-013	Defrost Heater-Drain Pan (1.8a)	GF22*(1)
20-014-HTR	Defrost Heater-Drain Pan (1.8a)	GF48*(1), GF75*(1), GF102*(2)
20-143	Lamp Ballast (1.4a)	GF22*(1), GF48*(1), GF75*(1), GF102*(2)
20-251	Door Frame Heater (0.3a)	GF22*(1), GF48*(2), GF75*(3), GF102*(4)
20-481F	Door Frame Heater (0.3a)	GF22LBM(1), GF48LBM(2), GF75LBM(3), GF102LBM
20-500	Fan Motor-Evaporator Assembly (0.10a)	120V FREEZERS
20-500	Fan Motor-Evaporator Assembly (0.052a)	230V FREEZERS
21-376-B	ELECTRONIC CONTROLLER PROBES	ALL GF SERIES
21-376-XR75CX-A	ELECTRONIC CONTROLLER XR75CX-A	ALL GF SERIES
30-501	Glass Door RH	GF22*(1), GF48*(1), GF75*(3), GF102*(4)
30-502	Glass Door LH	GF48*(1)
30-715R	Glass Door RH	GF22LBM(1), GF48LBM(1), GF75LBM(3), GF102LBM(4)
30-715L	Glass Door LH	GF48LBM(1)
40-105-C	Shelf w/ Clips	GF22*(4)
40-106-C	Shelf w/ Clips – End	GF48*(8), GF75*(8), GF102*(8)
40-107-C	Shelf w/ Clips – Center	GF75*(4), GF102*(8)
40-150	Shelf w/ Brackets - Ends	GF48*(8), GF75*(8), GF102*(8)
40-151	Shelf w/ Brackets - Center	GF75LBM(4), GF102LBM(4)
51-240-ERVE05Z	Thermostatic Expansion Valve 407A	GF22*LT(1)
51-240-ERVE10Z	Thermostatic Expansion Valve 407A	GF48*LT(1), GF102*LT(2)
51-240-ERVE15Z	Thermostatic Expansion Valve 407A	GF75*LT(1)
51-240-ERVE02Z	Thermostatic Expansion Valve 407A	GF22,48,102*FF(1)
51-240-ERVE05Z	Thermostatic Expansion Valve 407A	GF75*FF(1)
70-101	Condensing Unit R404A (9.9a + 0.85a)	GF22*LT(1)
70-099	Condensing Unit R404A (9.9a + 0.85a)	GF48*LT(1), GF102*LT(2)
70-100	Condensing Unit R404A (9.6a + 1.10a)	GF75*LT(1)
70-100-HP	HIGH PRESSURE SWITCH	ALL FREEZERS
71-097	Condensing Unit R448A (10.5 + 1.4a)	GF22-FF
71-098	Condensing Unit R448A (9.0 + .85a)	GF48-FF , GF102-FF(2)
71-099	Condensing Unit R448A (10.0 + .85a)	GF75-FF
80-142	Door Hinge – Spring Assist	GF22*(1), GF48*(2), GF75*(3), GF102*(4)
80-148	Door Hinge	GF22*(1), GF48*(2), GF75*(3), GF102*(4)

* = Base model number may be followed by BM or LBM

NOTE: Additional parts not included in this list are available from the factory. Contact the Parts & Service department at the phone numbers at the bottom of the page.

Keep this Page for Your Records:

Dear Customer:

We wish to congratulate you on your judgment. We are very proud to have been privileged to serve you with Howard-McCray equipment to fill your requirements.

Howard-McCray equipment is the product of a company dedicated in producing products of quality, incorporating progressive features on a timely basis and backed by a warranty which provides confidence.

Should you have any questions regarding features, operation, or service, call the Howard-McCray Assistance Center toll free. (800-344-8222)

Thank you,
Howard-McCray

Customer Installation Record:

Cabinet Model Number _____

Serial Number _____

Condensing Unit Model Number and Horsepower _____

Type of Control _____

Refrigerant _____

Thermostat _____

Other _____

_____

_____

Defrost Period _____

Date of Start-Up _____

Other Remarks _____

_____

_____

_____

Installing Contractor _____

_____

Address _____

_____

_____

_____

Phone Number _____

NOTES:

SCHEDULE A – COMPRESSOR REPLACEMENT WARRANTY

FAILURE TO CLEAN THE CONDENSOR COIL ON A WEEKLY BASIS WILL VOID THE WARRANTY

First 15 months the compressor must be exchanged at the local refrigeration wholesaler.

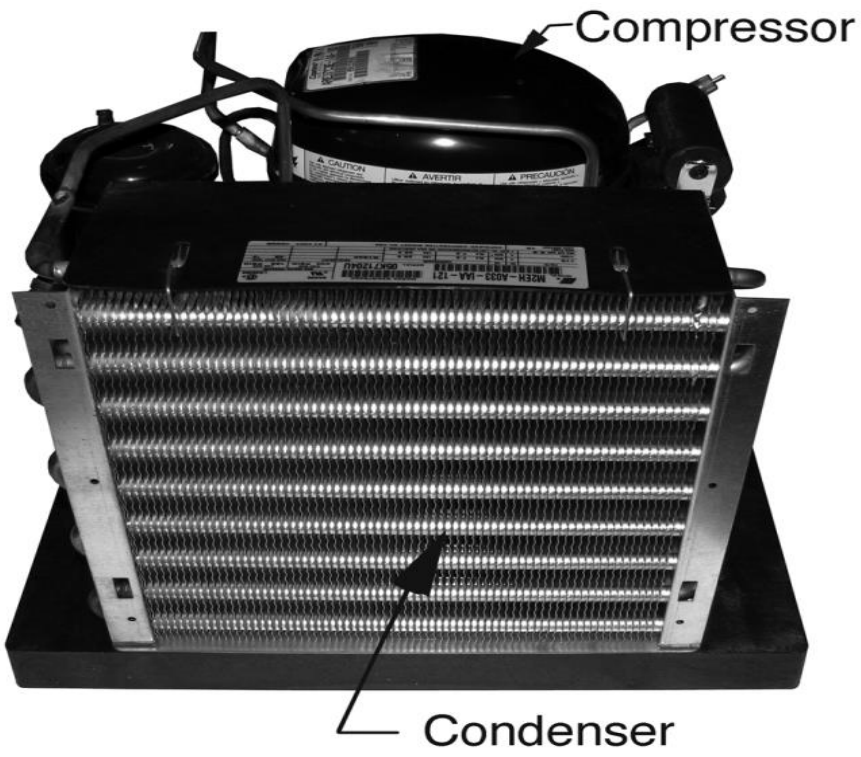
The Factory reserves the right to supply the replacement compressor if the compressor is older than 16 months.

Months 16-36 - 100% reimbursement from factory provided the factory is provided the Compressor plate (photo will be permitted) and copy of actual invoice from the local refrigeration wholesaler.

Months 37-48 - 75% reimbursement from factory provided the factory is provided the compressor plate (photo will be permitted) and copy of actual invoice from the local refrigeration wholesaler.

Months 49-60 - 50% reimbursement from factory provided the factory is provided the compressor plate (photo will be permitted) and a copy of the actual invoice from the local refrigeration wholesaler.

FAILURE TO CLEAN THE CONDENSOR COIL ON A WEEKLY BASIS WILL VOID THE WARRANTY



SCHEDULE B – LABOR RATES

Item	Allowable Labor hours	Part must be returned
CONDENSING UNIT ISSUES		
Compressor replacement	4.0	No
Compressor start components	1.0	No
Replace Condenser Fan Motor	1.0	Exchange
REFRIGERATION ISSUES		
Diagnose & Repair refrigerant leak	3.0	No
(PICTURES OF LEAK REQUIRED FOR INVOICE APPROVAL)		
Diagnose & replace Expansion Valve	4.0	No
Diagnose & replace faulty Evaporator Coil	4.0	No
Diagnose & replace defective filter drier & sight glass	1.5	No
Diagnose & replace defective pressure switch	3.0	Yes
Diagnose & replace solenoid valve	2.0	No
DEFROST HEATERS		
Diagnose & replace drain pan heater	1.0	Yes
Diagnose & replace drain line heater	1.0	Yes
Diagnose & replace coil heater	1.0	Yes
Diagnose & replace faulty defrost relay	1.0	Yes
ELECTRICAL COMPONENTS		
Diagnose & replace faulty electronic controller	1.0	Yes
Diagnose & replace faulty sensor probes	1.0	No
Diagnose & replace faulty evaporator fan motor	1.0	Yes
Diagnose & replace 2 faulty evaporator fan motors same unit	1.5	Yes
Diagnose & replace 3 faulty evaporator fan motors same unit	2.0	Yes
Diagnose & replace faulty condensate pan	1.0	Yes
Diagnose & replace faulty fan relay	1.0	Yes
Replace LED driver	1.0	Yes
Replace Light switch	1.0	Yes
DOOR ISSUES		
Diagnose & replace faulty or damaged door	2.0	No
Diagnose & repair door gasket	1.0	Yes

Travel time - Not to exceed 1.5 hours max charge is $150.00 If travel times exceeds 1.5 hours approval need first

SCHEDULE C - PARTS WARRANTY

HMC is obligated to replace or repair all parts covered under the 1-year original manufacture warranty. These parts will be replaced by the original factory supplying the parts or a designated wholesaler.

It is the responsibility of the repairing refrigeration company to return these parts to HMC for the claim to be processed. The part must be MARKED with: MODEL, SERIAL, & AUTH #

Refrigerant – only the factory specified charge amount will be accepted. The charges are listed on the serial plate.

COPELAND – ALL condensing unit parts are covered under COPELANDS 1 YEAR OVER THE COUNTER EXCHANGE WARRANTY. Please provide model & serial number to condensing unit being serviced.

TECUMSEH – ALL condensing unit parts are covered under COPELANDS 1 YEAR OVER THE COUNTER EXCHANGE WARRANTY. Please provide model & serial number to condensing unit being serviced.

APW – All hot well warranty claims must include APW serial number off faulty well.

Anthony International – All Anthony international door warranty claims must have Anthony International WO# attached

Heatcraft – All Heatcraft condensing unit/compressor claims must include condensing unit serial number.

All reimbursement requests for parts must include wholesaler invoice copy except for Sight Glass & Filter Driers. The current reimbursement rates for these parts are found below.

Refrigerant prices based on average prices from UNITED REFRIGERATION in 12/1/21

404A REFRIGERANT- $40.00 per LBS
134A REFRIGERANT- $35.00 per LBS
513A REFRIGERANT- $50.00 per LBS
448A REFRIGERANT- $40.00 per LBS

SLP0530 low pressure switch: $35.00

Sight Glass - $ 40.00
Filter Drier - $ 40.00

SCHEDULE D - Request for Warranty Reimbursement

Howard/McCray
HMC Enterprises LLC
831 E. Cayuga St
Philadelphia, PA 19124

For questions related to Warranty & Service please email the address below.
TSC@howardmccray.com

Today's Date _____Date of Service _____

Service Authorization Number (SA#) _____

Model Number _____

Serial Number _____

Service Company _____

Address _____

City _____ State/Province _____

Zip Code _____ Contact Phone Number _____

Email Address _____

Service Performed _____

_____

_____

Labor Rate per hour _____ Labor Hours to perform service_____

Travel Time _____ Total Labor: _____

Checklist:

Name & Contact info: _____

Original Service dispatch from HMC: _____

Service authorization number _____

Model & Serial number: _____

Copy of receipt/invoice for parts purchased in field: _____

Description of work performed: _____

4 Front Panel Commands

Figure 4-1 *- XR75CX Front Panel*

4.1. Keys and Functions

Table 4-1 shows the keys that are found on the front panel of the XR75CX controller and their corresponding functions:

Key	Function
SET	Press to display target setpoint, to select a parameter in programming mode, or to confirm an operation
❄	Starts a manual defrost
∧	Press the UP arrow key to see the MAX stored temperature, to browse the parameter codes in programming mode, or to increase the displayed temperature value.
∨	Press the DOWN arrow key to see the MIN temperature, to browse the parameter codes in programming mode, or to decrease the displayed temperature value.
⏻	Switches the device ON and OFF, if **onF** = **oFF**
☼	Switches the light ON and OFF, if **oA1** = **Lig**
∧ + ∨	Locks/Unlocks the keyboard
SET + ∨	To enter programming mode
SET + ∧	Returns to room temperature display

Table 4-1 *- XR75CX Front Panel Keys and Functions*

4.2. Use of LEDS

Each LED function is described in ***Table 4-2***:

LED	Mode	Function
❄	ON	Compressor enabled
	Flashing	Anti-short cycle delay enabled
❄	ON	Defrost enabled
	Flashing	Drip time in progress
fan	ON	Fans enabled
	Flashing	Fans delay after defrost in progress.
alarm	ON	An alarm is occurring
	ON	Continuous cycle is running
	ON	Energy saving enabled
☼	ON	Light ON
AUX	ON	Auxiliary relay ON
°C °F	ON	Measurement unit
	Flashing	Programming phase

Table 4-2 *- LEDs*

5 Max and Min Temperature Memorization

5.1. How to See the MIN Temperature

1. Press and release the DOWN button.
2. The **Lo** message will be displayed followed by the minimum temperature recorded.
3. By pressing the DOWN button again or by waiting five seconds, the normal display will be restored.

5.2. How to See the MAX Temperature

1. Press and release the UP button.
2. The **Hi** message will be displayed followed by the maximum temperature recorded.
3. By pressing the UP button again or by waiting 5 seconds, the normal display will be restored.

5.3. How to Reset the Max and Min Temperature Recorded

1. Press and hold the SET button for more than 3 seconds while the max or min temperature is displayed (**rSt** message will be displayed).
2. After confirming the operation, the **rSt** message will start blinking and then the normal temperature will be displayed.

6 Main Functions

6.1. How to See the Setpoint

1.Press and immediately release the SET key: the display will show the setpoint value.

2. Press and immediately release the SET key or wait for 5 seconds to display the probe value again.

6.2. How to Change the Setpoint

1. Press and hold the SET button for more than 2 seconds to change the setpoint value.
2. The value of the setpoint will be displayed and the **°C** or **°F** LED will start blinking.
3. To change the setpoint value, press the UP or DOWN buttons within 10 seconds.
4. To memorize the new setpoint value, press the SET key again or wait 10 seconds.

6.3. How to Start a Manual Defrost

Press and hold the **DEF** key for more than 2 seconds and a manual defrost will start.

6.4. How to Change a Parameter Value

To change a parameter value, follow these steps:

1. Enter the Programming mode by pressing the SET + DOWN buttons for 3 seconds (the **°C** or **°F** LED will start blinking).
2. Select the required parameter. Press the SET button to display its value.
3. Use the UP or DOWN buttons to change its value.
4. Press SET to store the new value and move to the next parameter.

To exit: Press the SET + UP buttons or wait 15 seconds without pressing a key.

NOTE: The set value is stored even when the time-out expires and ends the procedure.

6.5. The Hidden Menu

The hidden menu includes all the parameters of the controller.

6.5.1. How to Enter the Hidden Menu

1. Enter the Programming mode by pressing the SET + DOWN buttons for three (3) seconds (the **°C** or **°F** LED will start blinking).
2. Release the buttons and then push the SET + DOWN buttons for more than seven (7) seconds. The **Pr2** label will be displayed immediately followed by the **HY** parameter: *You can now browse the Hidden Menu.*
3. Select the required parameter.
4. Press the SET button to display its value.
5. Use the UP or DOWN buttons to change its value.
6. Press SET to store the new value and move to the next parameter.

To exit: Press SET + DOWN or wait 15 seconds without pressing a key.

NOTE: If no parameter is present in Pr1 menu, after three (3) seconds the noP message is displayed. Keep the keys pressed until the Pr2 message is displayed.

NOTE: The set value is stored even when the time-out expires and ends the procedure.

6.5.2. How to Move a Parameter From the Hidden Menu To the First Level and Vice Versa

Each parameter present in the Hidden Menu (Pr2) can be moved into the user level (Pr1) by pressing SET + DOWN buttons. If a parameter is part of the user level, when it appears in the Hidden Menu, the decimal point will be illuminated.

6.6. How to Assign a MODBUS Address

1. Follow steps 1 and 2 of **Section 6.5.1.**, *How to Enter the Hidden Menu* to access the Hidden Menu.
2. Select the **Adr** parameter.
3. Press SET to select.
4. Choose the address number using the buttons and press SET again to save.
5. Press SET and UP buttons to exit.

Note that devices cannot have duplicate addresses on the network. Assigning MODBUS addresses prior to terminating the network and leaving the address of device 1 as unused until the network is connected can prevent duplicate addressing network issues.

6.7. How to Lock the Keyboard

1. Keep the UP + DOWN buttons pressed for more than 3 seconds.
2. The **PoF** message will be displayed and the keyboard will be locked. At this point it will be possible to see the setpoint or the MAX or Min temperature stored only.
3. If a button is pressed for more than 3 seconds the **PoF** message will be displayed.

6.8. To Unlock the Keyboard

Press and hold the UP and DOWN buttons for more than 3 seconds until the **Pon** message displays.

6.9. The Continuous Cycle

When a defrost is not in progress, it can be activated by pressing and holding the UP button for about 3 seconds. The compressor operates to maintain the **CCS** setpoint for the time set through the **CCt** parameter. The cycle can be terminated before the end of the set time using the same activation button (UP button for 3 seconds).

6.10. The ON/OFF Function

When **onF** = **oFF**, pressing the **ON/OFF** key will switch OFF the controller. The **OFF** message is displayed. In this configuration, the regulation is disabled.

To switch the controller ON, press the **ON/OFF** key again.

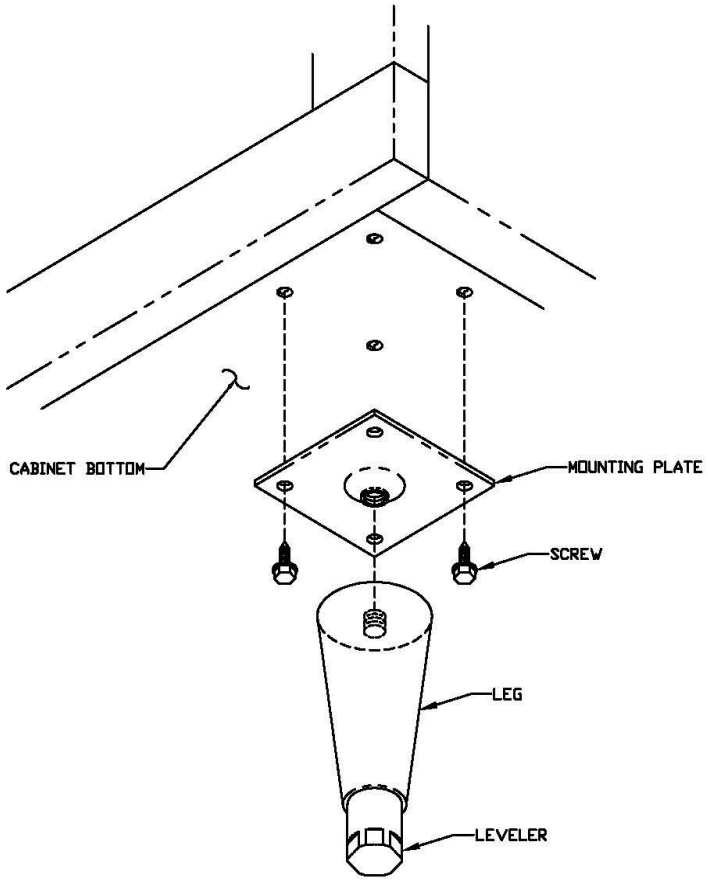
WARNING! Loads connected to the normally closed contacts of the relays are always supplied and under voltage (powered up), even if the device is in stand-by mode.

Howard McGray

Parameter	Description	Original	Vis. level
Hy	Differential	10	Pr1
LS	Minimum set point	-20	Pr2
US	Maximum set point	10	Pr2
ot	Thermostat probe calibration	0	Pr1
P2P	Evaporator probe presence	yes	Pr1
oE	Evaporator probe calibration	0	Pr2
P3P	Third probe presence	no	Pr2
o3	Third probe calibration	0	Pr2
P4P	Fourth probe presence	yes	Pr2
o4	Fourth probe calibration	0	Pr2
odS	Outputs delay at start up	1	Pr2
AC	Anti-short cycle delay	1	Pr1
rtr	P1-P2 percentage for regulation	100	Pr2
CCt	Continuous cycle duration	0.00	Pr2
CCS	Set point for continuous cycle	0	Pr2
Con	Compressor ON time with faulty probe	18	Pr2
CoF	Compressor OFF time with faulty probe	12	Pr2
CF	Temperature measurement unit	°F	Pr2
rES	Resolution	in	Pr1
Lod	Probe displayed	P1	Pr2
rEd	X-REP display	P1	Pr2
dLy	Display temperature delay	0.20	Pr2
dtr	P1-P2 percentage for display	50	Pr2
tdF	Defrost type	EL	Pr2
dFP	Probe selection for first defrost	P2	Pr2
dtE	Defrost termination temperature first defrost	55	Pr1
idF	Interval between defrost cycles	8	Pr1
MdF	(Maximum) length for first defrost	30	Pr1
dSd	Start defrost delay	0	Pr2
dFd	Displaying during defrost	SEt	Pr2
dAd	Max display delay after defrost	4	Pr2
Fdt	Draining time	5	Pr2
dPo	First defrost after start-up	no	Pr2
dAF	Defrost delay after fast freezing	0.00	Pr2
FnC	Fan operating mode	O_n	Pr1
Fnd	Fan delay after defrost	2	Pr1
FCt	Differential of temperature for forced activation of fans	0	Pr2

FSt	Fan stop temperature	20	Pr1
Fon	Fan on time with compressor off	0	Pr2
FoF	Fan off time with compressor off	0	Pr2
FAP	Probe selection for fan	P2	Pr2
ACH	Kind of action for auxiliary relay	CL	Pr2
SAA	Set point for auxiliary relay	32	Pr2
SHy	Differential for auxiliary relay	2	Pr2
ArP	Probe selection for auxiliary relay	nP	Pr2
Sdd	Auxiliary relay switched off during defrost	no	Pr2
ALP	Probe selection for temperature alarms	P1	Pr2
ALC	Temperature alarms configuration	Ab	Pr2
ALU	Maximum temperature alarm	0	Pr1
ALL	Minimum temperature alarm	-25	Pr1
AFH	Differential for temperature alarm recovery	2	Pr2
ALd	Temperature alarm delay	5	Pr2
dAo	Delay of temperature alarm at start up	2.00	Pr2
AP2	Probe selection for condenser temperature alarms	P4	Pr2
AL2	Condenser low temperature alarm	-40	Pr2
AU2	Condenser high temperature alarm	200	Pr2
AH2	Differ. for condenser temp. alarm recovery	45	Pr2
Ad2	Condenser temperature alarm delay	5	Pr2
dA2	Delay of condenser temper. alarm at start up	1.30	Pr2
bLL	Compressor off for condenser low temperature alarm	no	Pr2
AC2	Compressor off for condenser high temperature alarm	no	Pr2
tbA	Alarm relay switched off by pushing a key	yes	Pr2
oA2	Second relay configuration	LiG	Pr2
AOP	Alarm relay polarity	CL	Pr2
i1P	Digital input 1 polarity	OP	Pr1
i1F	Digital input 1 configuration	dor	Pr1
i2P	Digital input 2 polarity	CL	Pr1
i2F	Digital input 2 configuration	EAL	Pr2
did	Digital input 2 alarm delay	5	Pr2
doA	Door alarm delay	5	Pr1
nPS	Number of activation of pressure switch	15	Pr2
OdC	Compress and fan status when open door	FAn	Pr2
rrd	Regulation restart with door open alarm	yes	Pr2
HES	Differential for Energy Saving	0	Pr2
Adr	Serial address	1	Pr2
PbC	Kind of probe	ntC	Pr2

ITEM	QUAN.	PART NO.	DESCRIPTION



LEG ATTACHMENT:

1) RAISE CABINET FAR ENOUGH OFF OF FLOOR (MIN 8") TO ALLOW LEG INSTALLATION.

2) ATTACH LEG MOUNTING PLATE TO CABINET BOTTOM WITH THE PROVIDED SCREWS.

3) THREAD THE LEG ONTO THE MOUNTING PLATE AND TIGHTEN.

4) GENTLY LOWER THE CABINET TO THE FLOOR AND ADJUST LEVELERS (AS NEEDED).

LET.	REVISION	DATE	BY	ECN

DIMENSIONAL TOLERANCES ON PARTS UNLESS OTHERWISE SPECIFIED:
DECIMAL HOLE DIA. & LOCATION +/- 0.016
DECIMAL DIMENSIONS +/- 0.0313
DECIMAL DIMENSIONS-ASSEMBLIES +/- 0.063

SHEAR SIZE:	CNC #
PART SIZE:	YIELD:
MATERIAL	FINISH

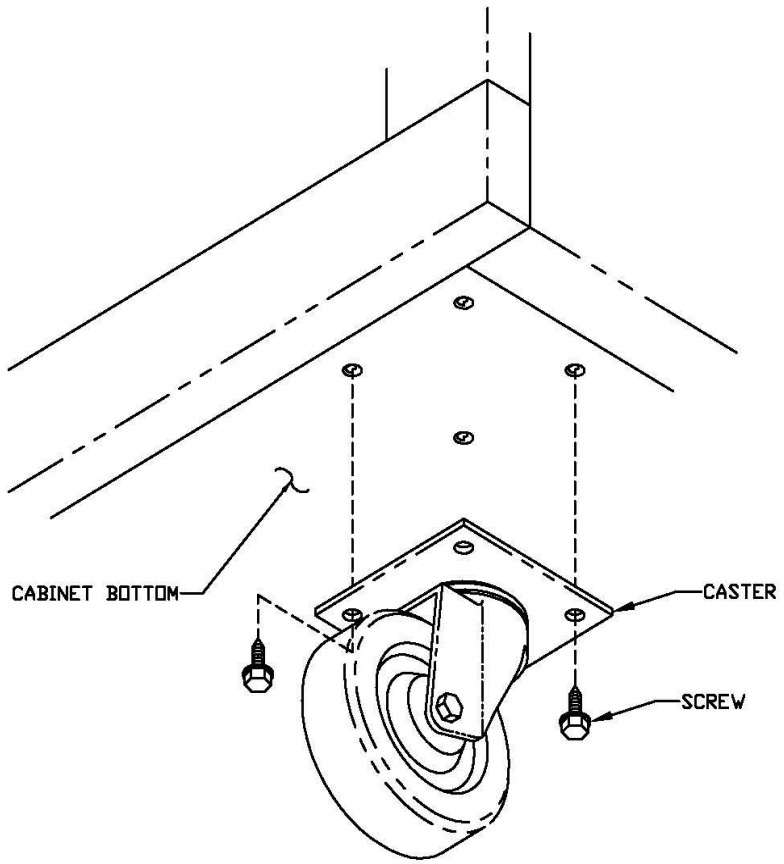
Howard/McCray

PART NAME: LEG INSTALLATION

DRAWN	DATE	SCALE	SHEET	DRAWING NO.
~KWL~	08/29/06	1/2.5	1/1	1SH7789

Howard-McCray

ITEM	QUAN.	PART NO.	DESCRIPTION



CASTER ATTACHMENT:

1) RAISE CABINET FAR ENOUGH OFF OF FLOOR (MIN 6") TO ALLOW CASTER INSTALLATION.

2) ATTACH CASTER TO CABINET BOTTOM WITH THE PROVIDED SCREWS.

NOTE: AT THE FRONT RIGHT AND LEFT CORNERS OF THE CABINET INSTALL THE (2) CASTERS WITH THE BRAKE.

3) GENTLY LOWER THE CABINET TO THE FLOOR AND PUSH INTO PLACE.

! CAUTION ! DO NOT LEAN OR TILT THE CABINET WHEN INSTALLING OR MOVING.

4) AFTER THE CABINET IS IN POSTION, LOCK THE (2) FRONT CASTERS WITH THE BRAKE, SO THAT THE CABINET WILL NOT MOVE.

Howard/McCray

LET.	REVISION	DATE	BY	ECN

DIMENSIONAL TOLERANCES ON PARTS UNLESS OTHERWISE SPECIFIED:
DECIMAL HOLE DIA. & LOCATION +/- 0.016
DECIMAL DIMENSIONS +/- 0.031
DECIMAL DIMENSIONS-ASSEMBLIES +/- 0.063

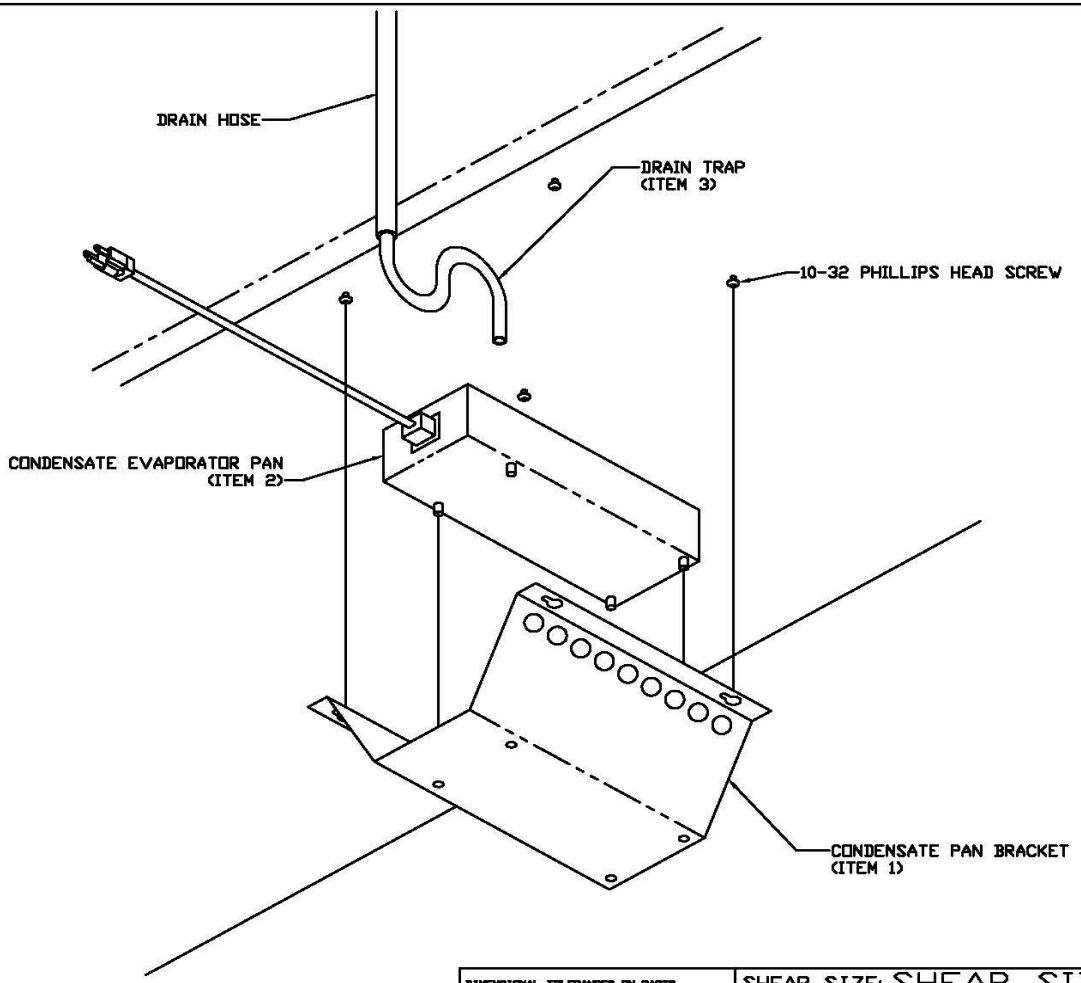
SHEAR SIZE:	CNC #
PART SIZE:	YIELD:
MATERIAL	FINISH

PART NAME: CASTER INSTALLATION

DRAWN	DATE	SCALE	SHEET	DRAWING NO.
~KWL~	08/29/06	1/2.5	1/1	1SH7790

Howard-McCray

ITEM	QUAN.	PART NO.	DESCRIPTION
①	1	1SH2040	BRACKET - CONDENSATE PAN
②	1	20-206	CONDENSATE PAN KIT
③	1	1SH7000	DRAIN TRAP



CONDENSATE EVAPORATOR INSTALLATION

THE CONDENSATE EVAPORATOR PAN AND MOUNTING BRACKET ARE PACKED INSIDE THE CABINET.

TO INSTALL THE CONDENSATE EVAPORATOR PAN, PROCEED AS FOLLOWS:
1) LOOSEN THE FOUR (4) (10-32 PHILLIPS HEAD) SCREWS IN THE BOTTOM OF THE CABINET. SLIDE THE EVAPORATOR PAN BRACKET UNDER THE CABINET. INSERT THE SCREWS THROUGH THE KEYHOLE SLOTS IN THE BRACKET, MOVE THE BRACKET FORWARDS AND TIGHTEN THE SCREWS.
2) SET THE CONDENSATE EVAPORATOR PAN INTO THE BRACKET, SO THAT THE FOUR LEGS OF THE PAN FIT INTO THE HOLES IN THE BRACKET.
3) THE CONDENSATE EVAPORATOR PAN IS TO BE SUPPLIED BY A SEPERATE ELECTRICAL POWER SOURCE.
4) INSTALL THE DRAIN TRAP INTO THE DRAIN HOSE AND DIRECT IT INTO THE EVAPORATOR PAN.
5) MOVE THE CABINET INTO ITS FINAL LOCATION.

LET.	REVISION	DATE	BY	ECN

DIMENSIONAL TOLERANCES ON PARTS
UNLESS OTHERWISE SPECIFIED:
DECIMAL HOLE DIA. & LOCATION +/- 0.016
DECIMAL DIMENSIONS +/- 0.0313
DECIMAL DIMENSIONS-ASSEMBLIES +/- 0.063

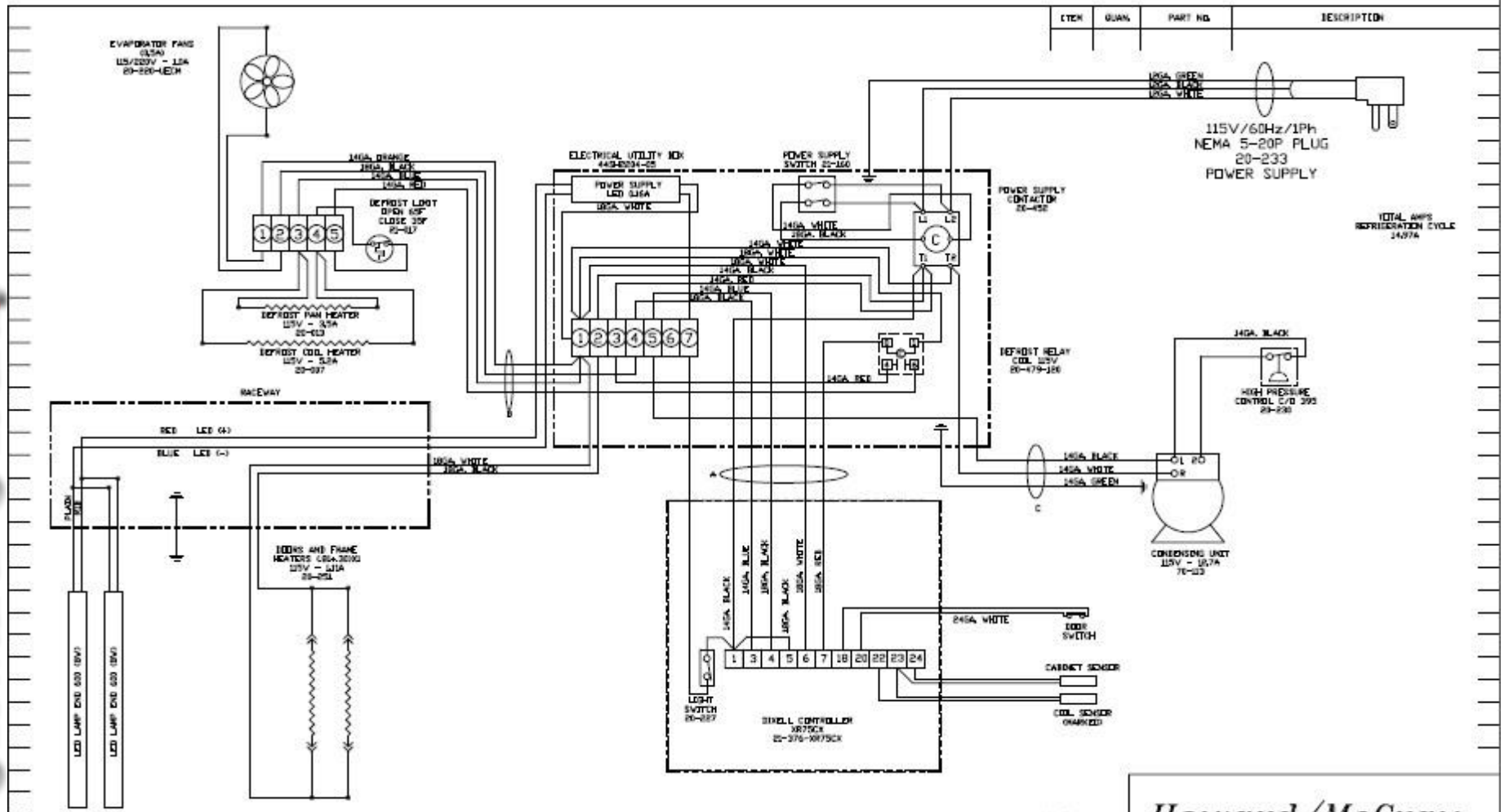
SHEAR SIZE: SHEAR SIZE | CNC # 0000
PART SIZE: PART SIZE | YIELD: 00
MATERIAL: MATERIAL | FINISH

Howard/McCray

PART NAME: COND PAN INSTRUCTION

DRAWN	DATE	SCALE	SHEET	DRAWING NO.
~KWL~	10/03/05	1/5	1/1	1SH7788

Howard-McCray



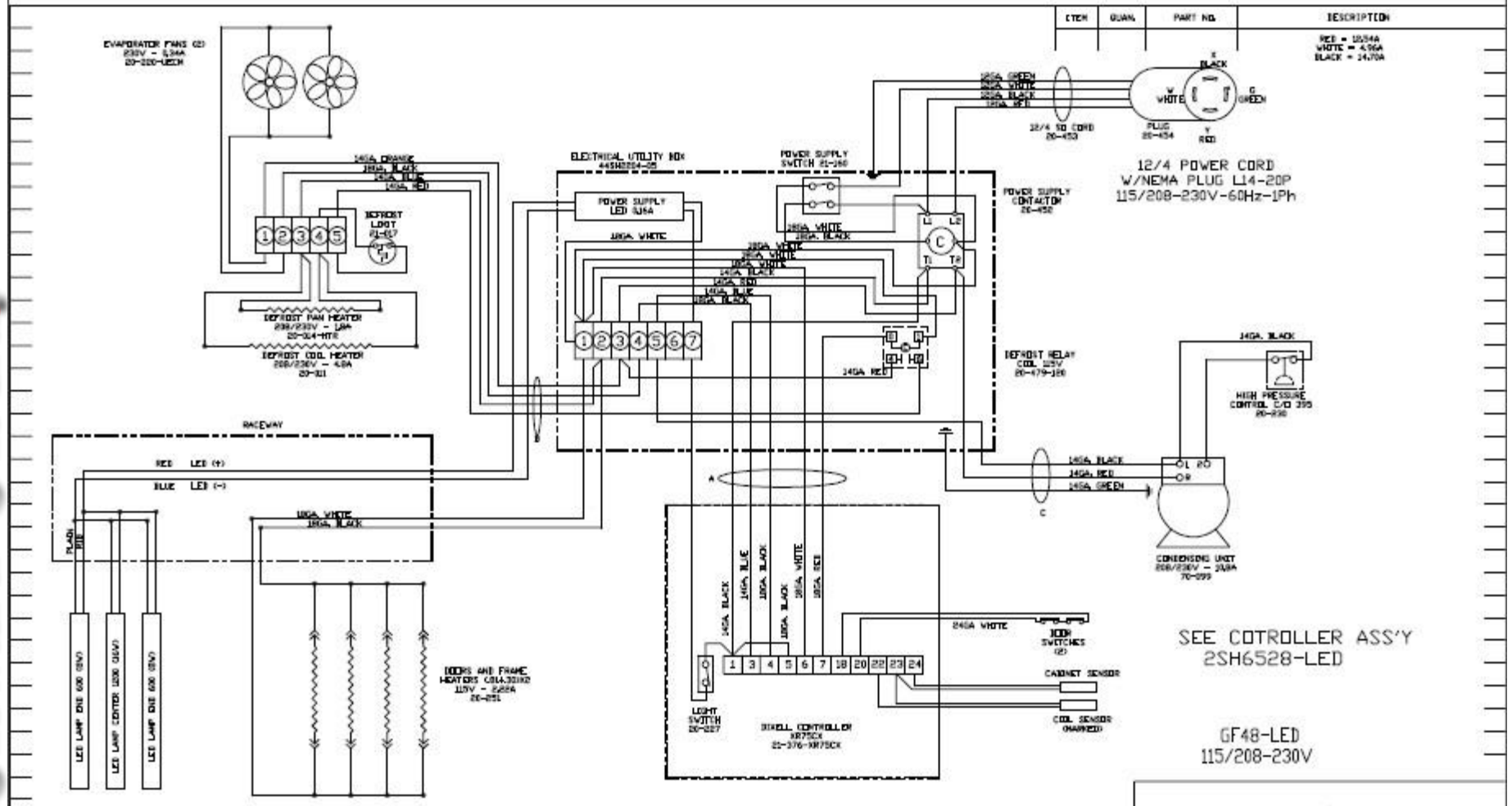
LET.	REVISION	DATE	BY	ECN
(D)	REPLACE DIXELL CONTROLLER 21-376-XR75CX WAS 21-376-XR60CX	5/17/24	JSR	3133
(C)	MOVED LIGHT SWITCH AND LED DRIVER	06/05/19	LTD	0000
(B)	CONDENSATE PAN REMOVED FROM DRAWING	07/28/16	BCT	ENG
(A)	DELETED CR1200 REGULATOR	3/25/15	NEK	

DIMENSIONAL TOLERANCES ON PARTS
UNLESS OTHERWISE SPECIFIED:
DECIMAL HOLE DIA. & LOCATION +/- 0.016
DECIMAL DIMENSIONS +/- 0.0313
DECIMAL DIMENSIONS-ASSEMBLIES +/- 0.063

SHEAR SIZE: NOTED
PART SIZE: NOTED
CNC # 0000
YIELD: 00
MATERIAL: NOTED
FINISH: NOTED

PART NAME: WIRING DIAGRAM GF22-V4-LED

DRAWN	DATE	SCALE	SHEET	DRAWING NO.
WDW	10/19/11	1/5	1/1	ISH6510-V4-LED



LET.	REVISION	DATE	BY	ECN
D	MOVED LED DRIVER & LIGHT SWITCH	5/24/18	NEK	2616
C	ADDED DOOR SWITCH	4/20/18	NEK	ENG
B	CONDENSATE PAN REMOVED FROM DRAWING	07/28/16	BCT	ENG
A	DELETED CR2400 REGULATOR	8/25/15	NEK	0000
E	REPLACE DIXELL CONTROLLER 21-376-XR75CX WAS 21-376-XR60CX	5/16/24	JSR	3133

DIMENSIONAL TOLERANCES ON PARTS UNLESS OTHERWISE SPECIFIED:
DECIMAL HOLE DIA. & LOCATION +/- 0.016
DECIMAL DIMENSIONS +/- 0.0313
DECIMAL DIMENSIONS-ASSEMBLIES +/- 0.063

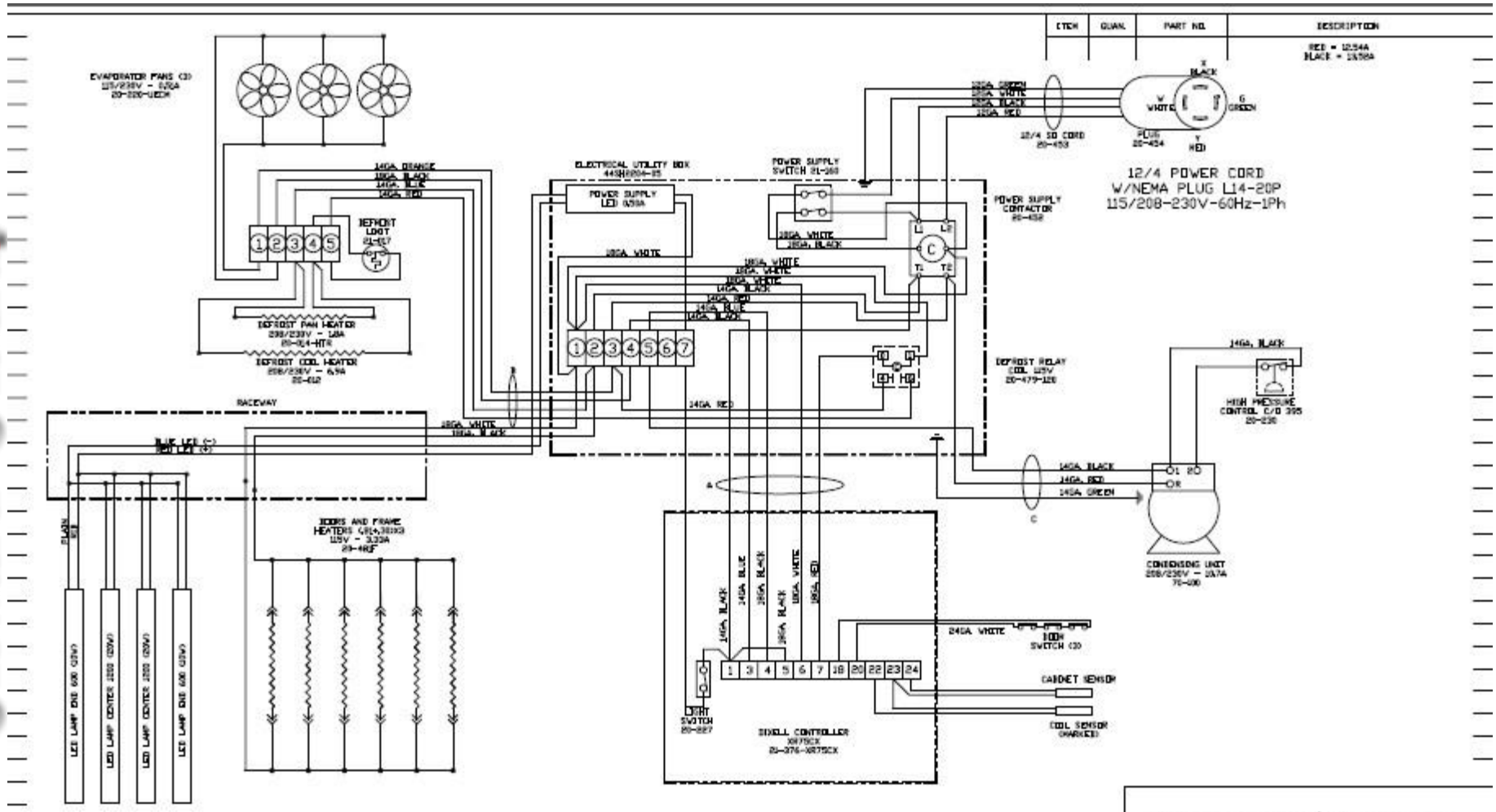
SHEAR SIZE: | CNC #
PART SIZE: | YIELD:

MATERIAL: NOTED | FINISH: NOTED

Howard/McCray

PART NAME: WIRING DIAGRAM GF48-LED

DRAWN	DATE	SCALE	SHEET	DRAWING NO.
WDW	10/24/11	NONE	1/1	2SH6510-LED



LET.	REVISION	DATE	BY	ECN
(D)	MOVED LED DRIVER & LIGHT SWITCH	6/14/18	NEK	2616
(C)	ADDED DOOR SWITCHES	01/09/18	LTD	ENG
(B)	CONDENSATE PAN REMOVED FROM DRAWING	07/28/16	BCT	ENG
(A)	DELETED CR3600 REGULATOR	3/25/15	NEK	0000
(E)	REPLACE DIXELL CONTROLLER 21-376-XR75CX WAS 21-376-XR60CX	5/16/24	JSR	3133

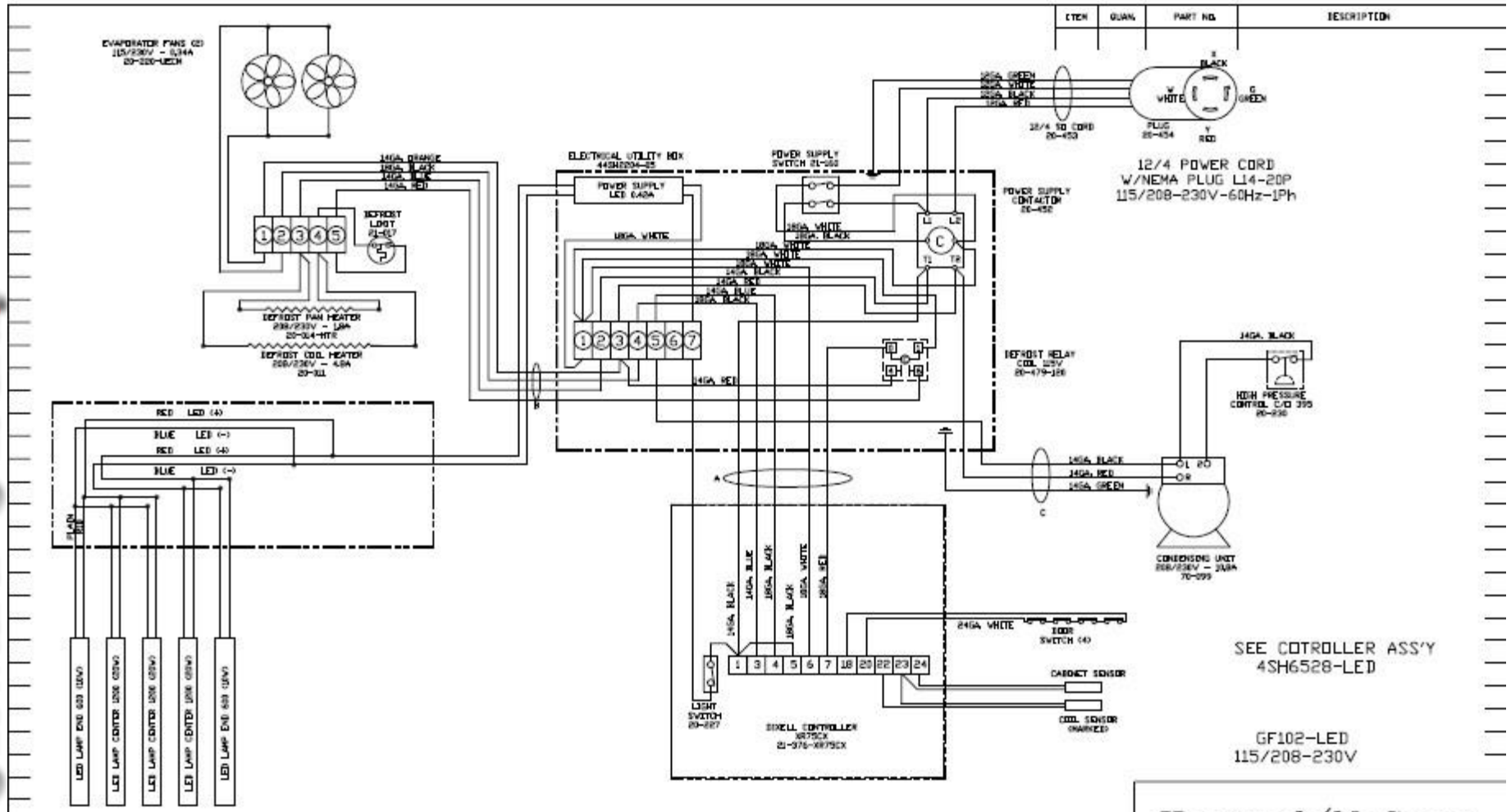
DIMENSIONAL TOLERANCES ON PARTS
UNLESS OTHERWISE SPECIFIED:
DECIMAL HOLE DIA. & LOCATION +/- 0.016
DECIMAL DIMENSIONS +/- 0.031
DECIMAL DIMENSIONS-ASSEMBLIES +/- 0.063

SHEAR SIZE:
PART SIZE:
CNC #
YIELD:
MATERIAL: NOTED
FINISH: NOTED

Howard/McCray

PART NAME: WIRING DIAGRAM GF75-LED

DRAWN	DATE	SCALE	SHEET	DRAWING NO.
WDW	01/25/11	1/5	1/1	3SH6510-LED



LET.	REVISION	DATE	BY	ECN
(E)	REMOVED DOOR AND FRAME HEATERS	9/22/20	NEK	XXXX
(D)	MOVED LED DRIVER & LIGHT SWITCH	6/14/18	NEK	2616
(C)	ADDED DOOR SWITCHES	01/10/18	LTD	2439
(B)	CONDENSATE PAN REMOVED FROM DRAWING	07/28/16	BCT	ENG
(A)	DELETED CR3000 & CR1800 REGULATOR	3/25/15	NEK	0000
(F)	REPLACE DIXELL CONTROLLER 21-376-XR75CX WAS 21-376-XR60CX	5/16/24	JSR	3133

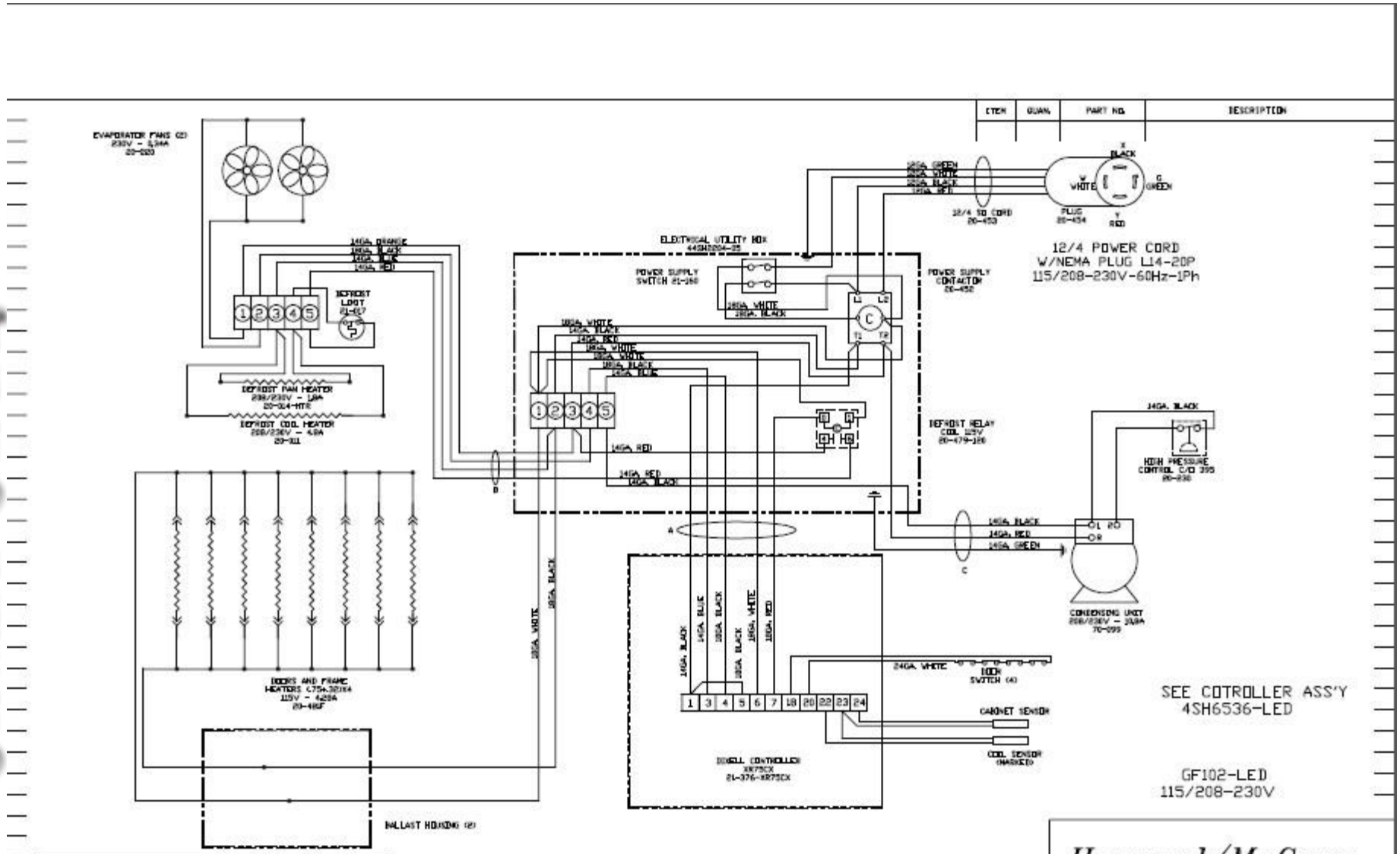
DIMENSIONAL TOLERANCES ON PARTS UNLESS OTHERWISE SPECIFIED:
DECIMAL HOLE DIA. & LOCATION +/- 0.016
DECIMAL DIMENSIONS +/- 0.0313
DECIMAL DIMENSIONS-ASSEMBLIES +/- 0.063

SHEAR SIZE: | CNC #
PART SIZE: | YIELD:
MATERIAL: NOTED | FINISH: NOTED

Howard/McCray

PART NAME: WIRING DIAGRAM GF102 1 OF 2

DRAWN	DATE	SCALE	SHEET	DRAWING NO.
WDW	10/26/11	NONE	1/2	4SH6510-LED



LET.	REVISION	DATE	BY	ECN
(D)	REPLACE DIXELL CONTROLLER 21-376-XR75CX WAS 21-376-XR60CX	5/16/24	JSR	3133
(C)	MOVED DOOR SWITCHES	9/22/20	NEK	XXXX
(B)	ADDED DOOR SWITCHES	11/10/18	LTD	ENG
(A)	CONDENSATE PAN REMOVED FROM DRAWING	07/18/16	BCT	ENG

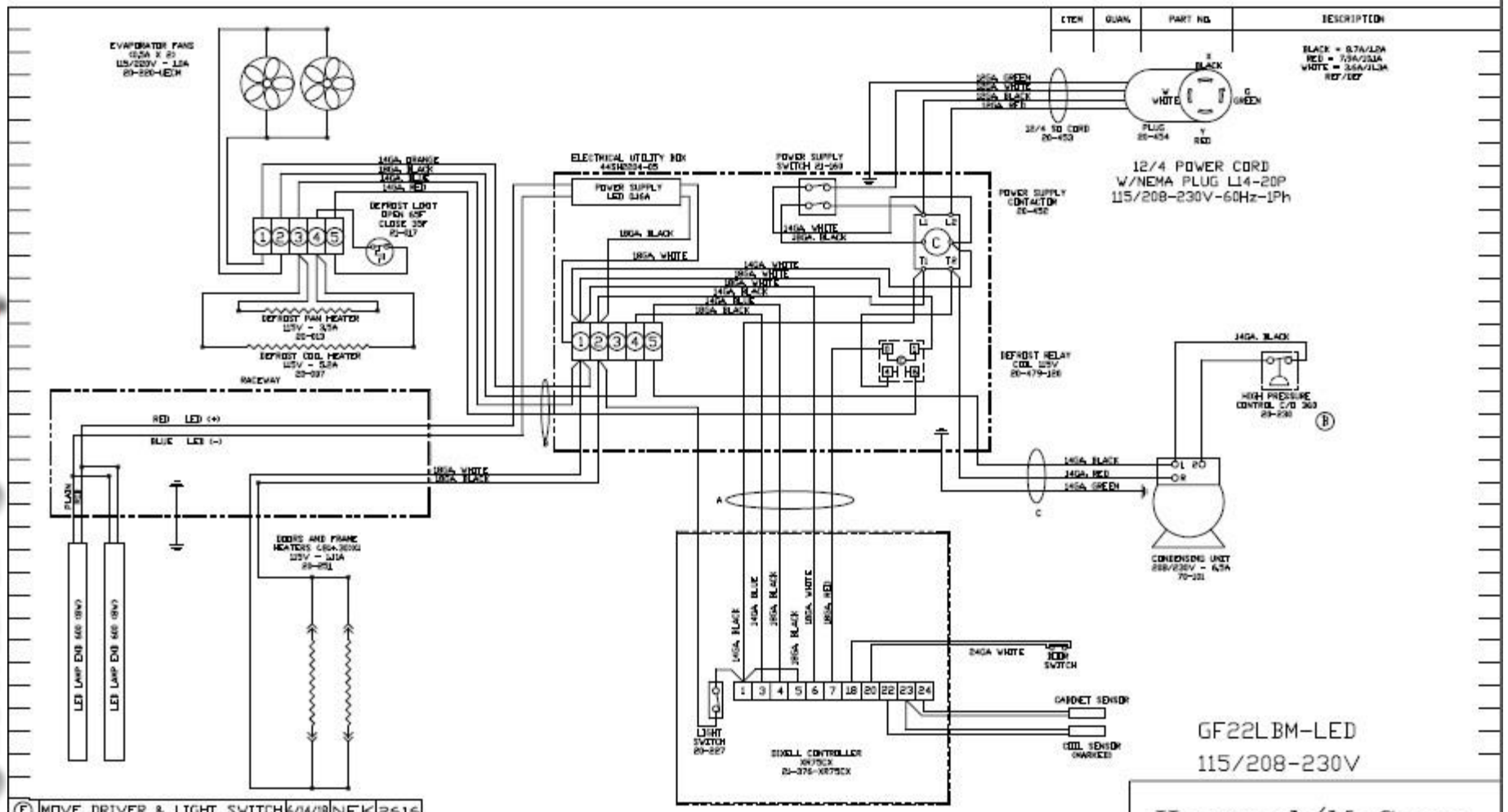
DIMENSIONAL TOLERANCES ON PARTS UNLESS OTHERWISE SPECIFIED:
DECIMAL HOLE DIA. & LOCATION +/- 0.016
DECIMAL DIMENSIONS +/- 0.0313
DECIMAL DIMENSIONS-ASSEMBLIES +/- 0.063

SHEAR SIZE: NOTED
PART SIZE: NOTED
CNC # 0000
YIELD: 00
MATERIAL: NOTED
FINISH: NOTED

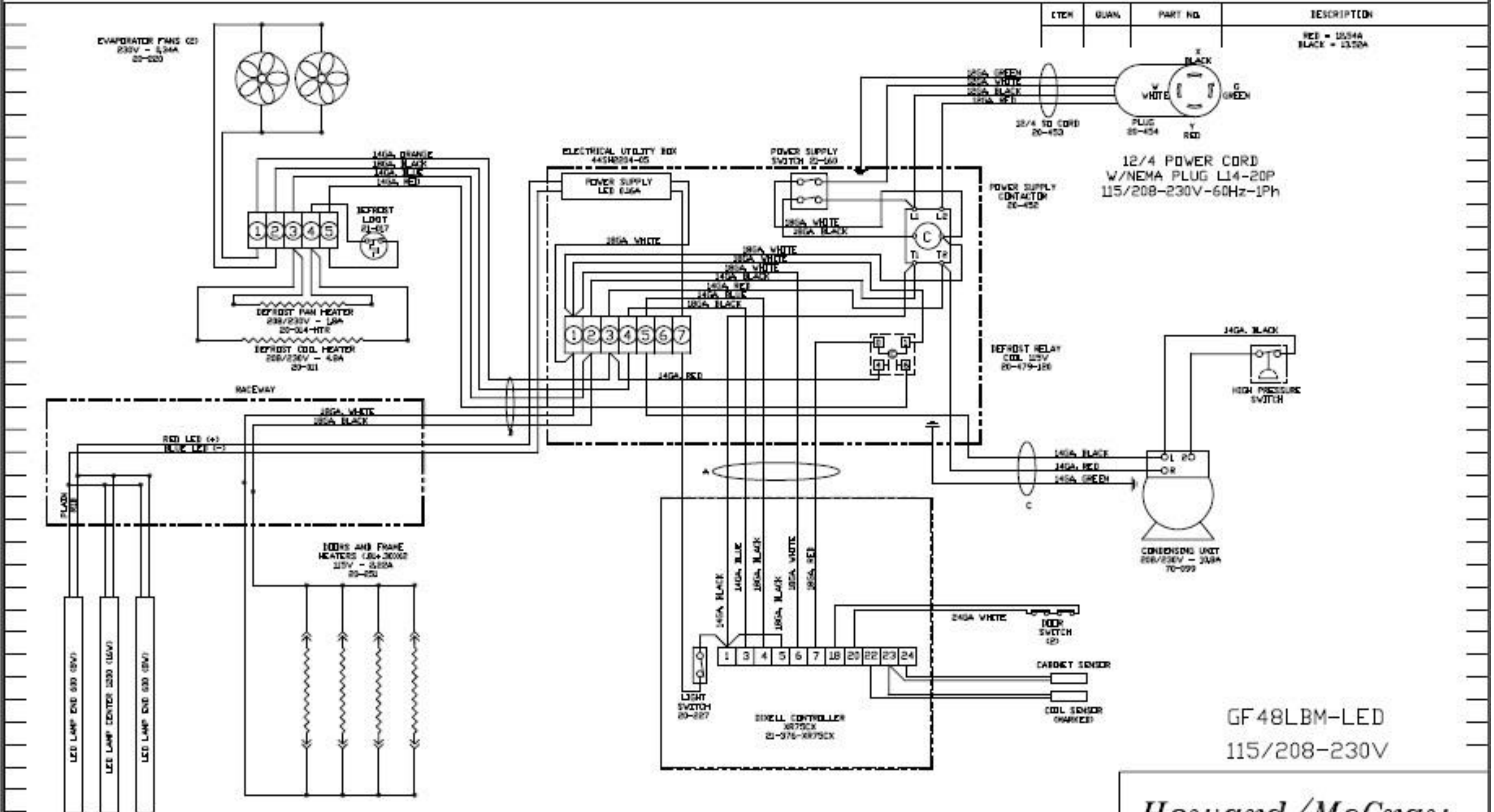
Howard/McCray

PART NAME: WIRING DIAGRAM GF102 2 OF 2

DRAWN	DATE	SCALE	SHEET	DRAWING NO.
WDW	10/26/11	NONE	2/2	4SH6510


ITEM
QUAN.
PART NO.
DESCRIPTION
EVAPORATOR FANS
12/4 POWER CORD
W/NEMA PLUG L14-20P
115/208-230V-60Hz-1Ph
ELECTRICAL UTILITY BOX
POWER SUPPLY
SWITCH 21-069
POWER SUPPLY
CONTACTOR
20-452
DEFROST LOOT
OPEN 65F
CLOSE 35F
20-017
DEFROST PAN HEATER
DEFROST COIL HEATER
RACEWAY
DEFROST RELAY
COIL 120V
20-479-120
HIGH PRESSURE
CONTROL C/O 360
20-238
CONDENSING UNIT
208/230V - 6.5A
70-201
DOOR AND FRAME
HEATERS
LED LAMP
LIGHT
SWITCH
20-227
DOOR
SWITCH
CABINET SENSOR
COIL SENSOR
DIXELL CONTROLLER
XR75CX
21-376-XR75CX
GF22LBM-LED
115/208-230V
Howard/McCray
(F) MOVE DRIVER & LIGHT SWITCH 6/14/18 NEK 2616
(E) ADDED DOOR SWITCHES 01/10/18 LTD ENG
(D) CONDENSATE PAN REMOVED FROM DRAWING 07/18/16 BCT ENG
(C) DELETED CR1200 REGULATOR 3/26/15 NEK 0000
(B) HIGH PRESSURE SETTING 360 WAS 395 11/02/12 WDW PROD
(A) WIRED DEFROST RELAY TO CONTACTOR 11/18/11 WDW BT-PROD
LET. REVISION DATE BY ECN
(G) REPLACE DIXELL CONTROLLER 21-376-XR75CX 5/16/24 JSR 3133
WAS 21-376-XR60CX
DIMENSIONAL TOLERANCES ON PARTS
UNLESS OTHERWISE SPECIFIED:
DECIMAL HOLE DIA. & LOCATION +/- 0.016
DECIMAL DIMENSIONS +/- 0.0313
DECIMAL DIMENSIONS-ASSEMBLIES +/- 0.063
SHEAR SIZE: NOTED
PART SIZE: NOTED
MATERIAL NOTED
FINISH NOTED
CNC # 0000
YIELD: 00
PART NAME
WIRING DIAGRAM GF22LBM-LED
DRAWN WDW
DATE 10/28/10
SCALE 1/5
SHEET 1/1
DRAWING NO. 19SH6505-LED

Howard-McCray



ITEM	QUAN.	PART NO.	DESCRIPTION

LET.	REVISION	DATE	BY	ECN
E	REPLACE DIXELL CONTROLLER 21-376-XR75CX WAS 21-376-XR60CX	5/16/24	JSR	3133
D	MOVED DRIVER & LIGHT SWITCH	6/14/18	NEK	2616
C	ADDED DOOR SWITCHES	01/10/18	LTD	2439
B	CONDENSATE PAN REMOVED FROM DRAWING	07/28/16	BCT	ENG
A	DELETED CR2400 REGULATOR	3/25/15	NEK	0000

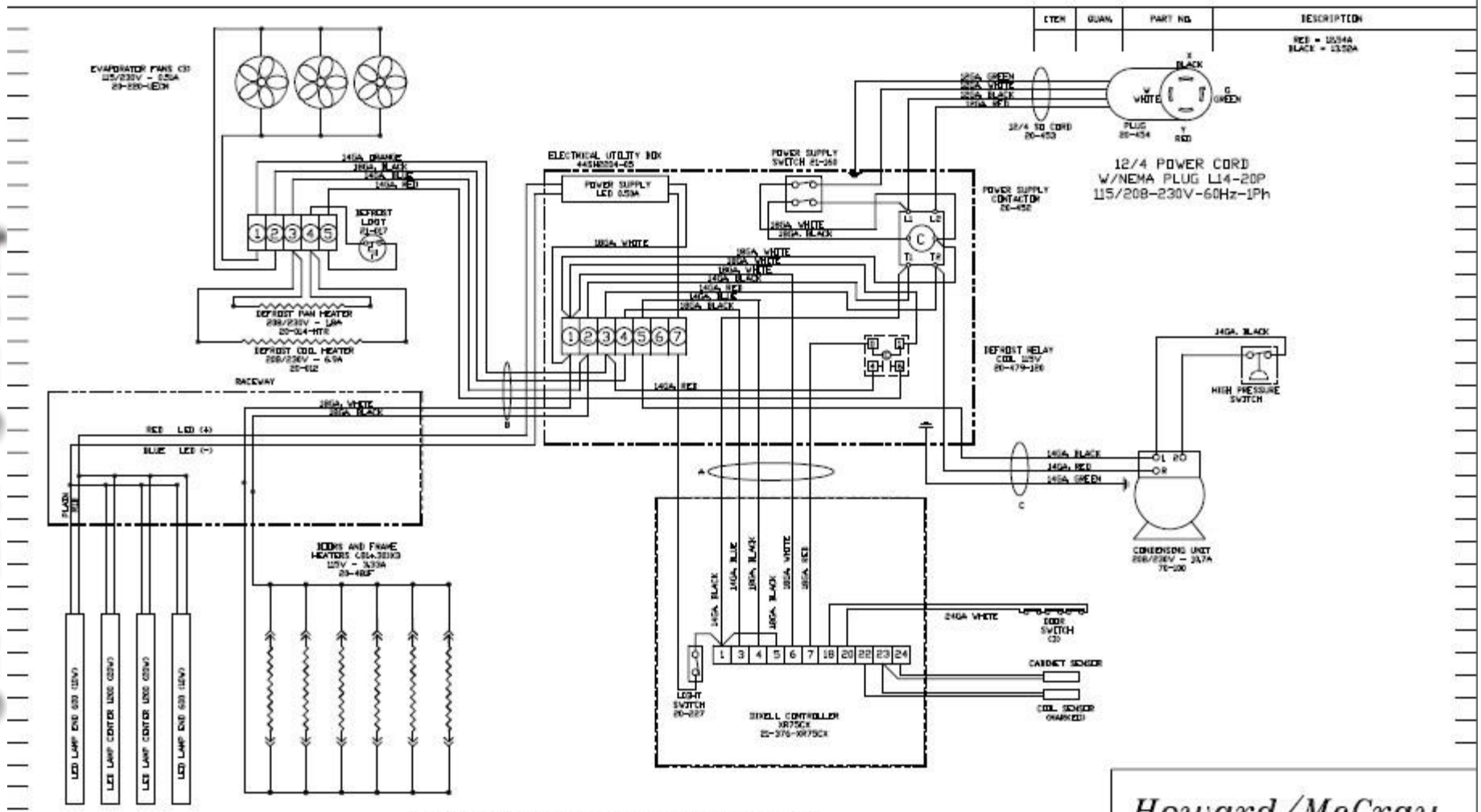
DIMENSIONAL TOLERANCES ON PARTS UNLESS OTHERWISE SPECIFIED:
DECIMAL HOLE DIA. & LOCATION +/- 0.016
DECIMAL DIMENSIONS +/- 0.0313
DECIMAL DIMENSIONS-ASSEMBLIES +/- 0.063

SHEAR SIZE: NOTED
PART SIZE: NOTED
CNC # 0000
YIELD: 00
MATERIAL: NOTED
FINISH: NOTED

Howard/McCray

PART NAME: WIRING DIAGRAM GF48LBM-LED

DRAWN	DATE	SCALE	SHEET	DRAWING NO.
WDW	10/16/10	1/5	1/1	42SH6505-LED



LET.	REVISION	DATE	BY	ECN
D	MOVED DRIVER & LIGHT SWITCH	6/14/18	NEK	2616
C	ADDED DOOR SWITCHES	01/10/18	LTD	2439
B	CONDENSATE PAN REMOVED FROM DRAWING	07/28/16	BCT	ENG
A	DELETED CR3600 REGULATOR	3/26/15	NEK	0000
E	REPLACE DIXELL CONTROLLER 21-376-XR75CX WAS 21-376-XR60CX	5/16/24	JSR	3133

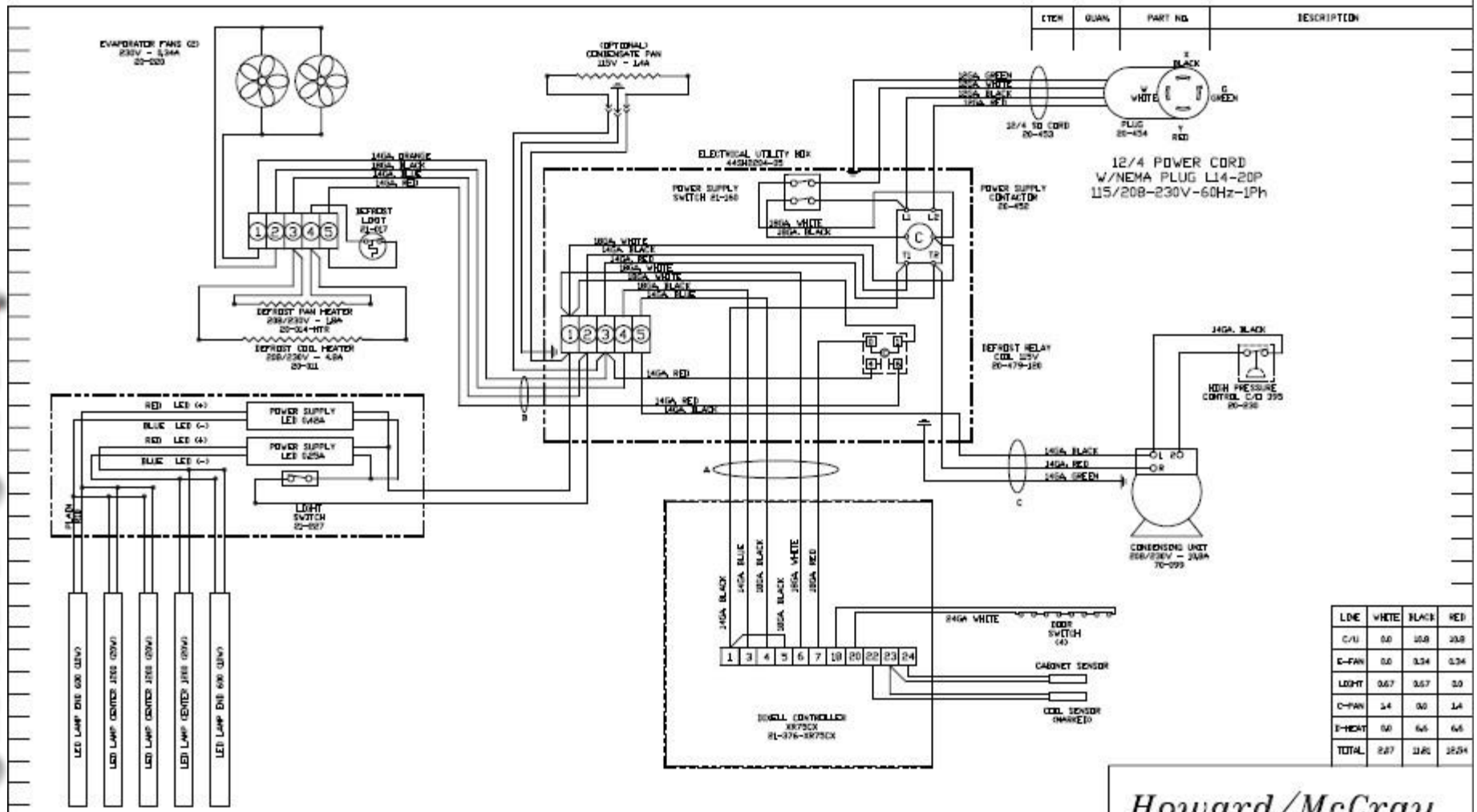
DIMENSIONAL TOLERANCES ON PARTS UNLESS OTHERWISE SPECIFIED:
DECIMAL HOLE DIA. & LOCATION +/- 0.016
DECIMAL DIMENSIONS +/- 0.0313
DECIMAL DIMENSIONS-ASSEMBLIES +/- 0.063

SHEAR SIZE: | CNC #
PART SIZE: | YIELD:
MATERIAL: NOTED | FINISH: NOTED

Howard/McCray

PART NAME: WIRING DIAGRAM GF75LBM-LED

DRAWN	DATE	SCALE	SHEET	DRAWING NO.
WDW	10/16/10	1/5	1/1	65SH6505-LED



LINE	WHITE	BLACK	RED
C/U	0.0	10.8	10.8
E-FAN	0.0	0.34	0.34
LIGHT	0.67	0.67	0.0
C-FAN	1.4	0.0	1.4
E-HEAT	0.0	6.6	6.6
TOTAL	2.27	18.81	18.94

LET.	REVISION	DATE	BY	ECN
(C)	REPLACE DIXELL CONTROLLER 21-376-XR75CX WAS 21-376-XR60CX	5/16/24	JSR	3133
(B)	ADDED DOOR SWITCHES	01/10/18	LTD	2439
(A)	DELETE CR3000 & CR1800 REGULATORS	3/26/15	NEK	0000

DIMENSIONAL TOLERANCES ON PARTS
UNLESS OTHERWISE SPECIFIED:
DECIMAL HOLE DIA. & LOCATION +/- 0.016
DECIMAL DIMENSIONS +/- 0.0313
DECIMAL DIMENSIONS-ASSEMBLIES +/- 0.063

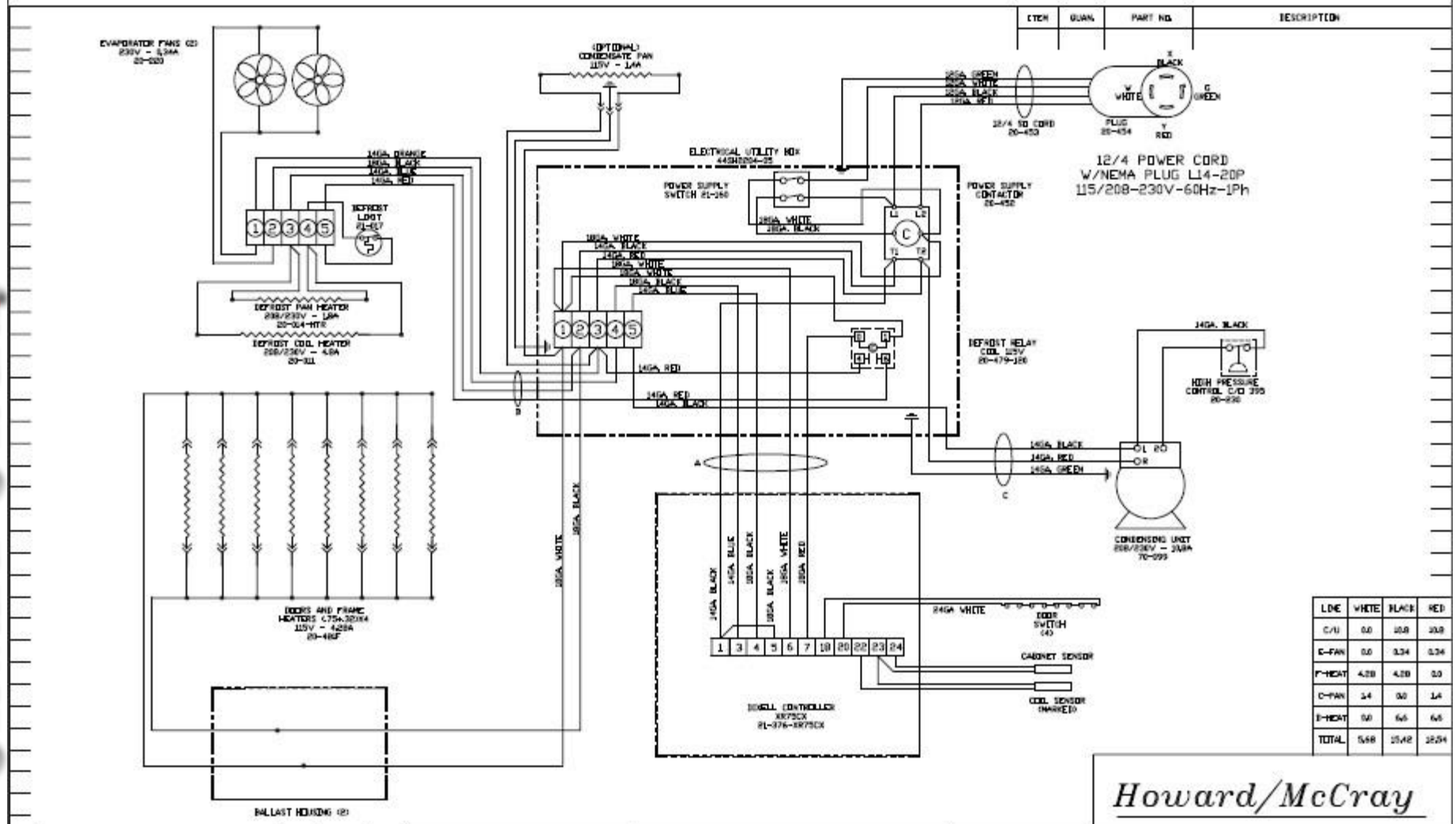
SHEAR SIZE:
PART SIZE:
CNC #
YIELD:

MATERIAL: NOTED
FINISH: NOTED

Howard/McCray

PART NAME: WIRING DIAGRAM GF102LBM 1 OF 2

DRAWN	DATE	SCALE	SHEET	DRAWING NO.
WDW	03/23/11	NONE	1/2	88SH6505-LED


ITEM
QUAN.
PART NO.
DESCRIPTION
EVAPORATOR FANS (2)
230V - 0.9A
20-220
(OPTIONAL)
CONDENSATE PAN
115V - 1.4A
ELECTRICAL UTILITY BOX
12/4 SO CORD
20-453
PLUG
20-454
12/4 POWER CORD
W/NEMA PLUG L14-20P
115/208-230V-60Hz-1Ph
POWER SUPPLY
SWITCH 21-260
POWER SUPPLY
CONTACTOR
20-452
DEFROST
LOOT
21-657
DEFROST FAN HEATER
208/230V - 1.8A
20-324-HTR
DEFROST COIL HEATER
208/230V - 4.8A
20-311
DEFROST RELAY
COIL 115V
20-479-188
HIGH PRESSURE
CONTROL C/O 395
20-230
CONDENSING UNIT
208/230V - 20.8A
70-099
DOORS AND FRAME
HEATERS 4.75A-3PH
115V - 4.28A
20-485F
BALLAST HOUSING (2)
DIXELL CONTROLLER
XR75CX
21-376-XR75CX
DOOR
SWITCH
(4)
CABINET SENSOR
COIL SENSOR
(MARKED)
LINE
WHITE
BLACK
RED
C/U
E-FAN
F-HEAT
C-FAN
E-HEAT
TOTAL
Howard/McCray
REPLACE DIXELL CONTROLLER 21-376-XR75CX
WAS 21-376-XR60CX
5/17/24
JSR
3133
LET.
REVISION
DATE
BY
ECN
DIMENSIONAL TOLERANCES ON PARTS
UNLESS OTHERWISE SPECIFIED:
DECIMAL HOLE DIA. & LOCATION +/- 0.016
DECIMAL DIMENSIONS +/- 0.0313
DECIMAL DIMENSIONS-ASSEMBLIES +/- 0.063
SHEAR SIZE: NOTED
PART SIZE: NOTED
CNC # 0000
YIELD: 00
MATERIAL
NOTED
FINISH
NOTED
PART NAME
WIRING DIAGRAM GF102LBM 2 OF 2
DRAWN
DATE
SCALE
SHEET
DRAWING NO.
WDW
03/23/11
NONE
2/2
88SH6505