January 2006

HUSSMANN®

INSTALLATION & SERVICE INSTRUCTIONS FOR

GGSM SPECIALTY MERCHANDISER

Low Temperature

Glass Front and Sides

HUSSMANN®

First Call for help (US and Canada):

1-800-922-1919

Soporte Tècnico y Asistencia (Mèxico):

01-800-522-1900

For a Service Network Locator and other Information visit us at

www.hussmann.com

select Worldwide Locations

P/N OII – GGSM
January 2006

TABLE OF CONTENTS

INTRODUCTION –

The GGSM-3 is for the display of frozen foods and/or ice cream products. The design of the cabinet allows most service operations to be performed from the front of the cabinet.

The GGSM-3 is designed to operate in ambient conditions of 75º F / 24ºC, with humidity levels not to exceed 55%. Conditions not meeting this criteria will adversely effect the cabinet performance.

INSPECTION –

The equipment has been skidded and crated prior to shipment from the factory. It is the carrier's responsibility to deliver it to you in good condition until such time as you sign for it.

Upon receipt of the cabinet, examine the packaging for damage. If the packaging is damaged, make specific notation on the delivery ticket as to the location and extent of damage prior to signing for the piece.

Carefully remove packaging and examine the cabinet for damage. If damage is found, contact the delivering carrier immediately and request that his agent prepare an inspection report for the purpose of filing a claim. THIS IS YOUR RESPONSIBILITY, NOT THE FACTORY'S

LOCATION –

Careful consideration should be given when locating the cabinet in the store. Locations where direct sunlight would shine into the cabinet for extended periods of time, and locations where drafts from open doors, air conditioning ducts, fans, and grills would blow into the cabinet should be avoided

A minimum of 24 inches in the front of the cabinet and 4 inches in the rear of the cabinet is required when installing. This clearance is required for proper intake and discharge of air over the condensing unit.

SKID –

The shipping skid should be left on the cabinet until it is placed near its location in the store. The skid provides protection for both the cabinet and the floor.

The skid is fastened to the cabinet base by 4 bolts located on the underside of the skid protruding up through the cabinet base with lock washers and nuts. Access for the removal of these bolts is gained by removing the front and side access panels. Once the nuts have been removed the cabinet may be lifted off the shipping skid and set in place.

At this time, the condensing unit area should be checked for loose wires, tubing rubbing or broken, and setting of the timer to correct time of day. Also check for tightness of the defrost pins, loose connections on the timer, etc. before replacing the access panels.

LEVELING –

Once the cabinet is in place, it should be leveled. Leveling may be accomplished by using the leveling legs provided with the

cabinet. These legs are located on the underside of the cabinet base, in the front two corners of the base. A slight pitch from front to rear is desirable for proper draining of the water created during the defrost cycle. NEVER HAVE THE REAR OF THE CABINET HIGHER THAN THE FRONT !!

The cabinet also comes with four casters, (non-swiveling or locking), and two handles on the back of the cabinet. These are provided so the cabinet may be easily moved to a different location in the store if desired.

SERIAL PLATE -

The cabinet serial plate is located on the rear exterior wall of the cabinet. The serial plate contains pertinent information about the cabinet such as volts, refrigerant charge, refrigerant type, etc. The serial plate should NEVER be removed or altered in any way.

ACCESS PANEL –

The front access panel covers the condensing unit compartment. To gain access to the condensing unit, remove the screws holding the panel in place. The screws are located on the exterior underside of the cabinet directly above the access panel. Once the access panel has been removed, the condensing unit may be pulled forward for servicing by removing the hold down bracket.

ELECTRICAL BOX –

The electrical component enclosure is located behind the lower left access panel. Access to the enclosure is accomplished by first removing the front access panel, and then the side panel. There are two screws in each end of this panel. The electrical enclosure contains the main power switch, defrost timer, temperature control, and terminal boards. IMPORTANT – DISCONNECT ALL POWER TO CABINET BEFORE SERVICING. THIS IS FOR YOUR SAFETY – SERIOUS INJURY OR DEATH MAY RESULT IF THIS IS NOT DONE !!

POWER REQUIREMENTS –

The cabinet is designed to operate on 120 volts. It comes equipped with a 5-15A NEMA plug. THE GROUNDING PRONG ON THIS PLUG SHOULD NEVER BE REMOVED FOR ANY REASON. THIS IS FOR EVERYONE'S PROTECTION!

The cabinet also requires a dedicated circuit to ensure proper voltage is being supplied to the cabinet. All electrical wiring should conform to local and national specifications.

LIGHTED SIGN –

The lighted sign has its own on/off power switch. The switch is located on the rear of the fixture. The fixture also contains the ballast and starter. Access to these components is gained by removing the four screws on the rear of the fixture. (Two on each end) Slide the assembly straight up. Reassemble in reverse order. ALWAYS REMEMBER TO DISCONNECT THE POWER SUPPLY BEFORE SERVICING.

REFRIGERATION SYSTEM and AIR CIRCULATION –

The refrigeration system of the GGSM-3 utilizes a capillary tube to feed the evaporator, and a hermetically sealed compressor. When servicing the evaporator

Section, care should be taken so as not to damage the capillary tube.

Air is forced through the evaporator by the use of two fan motors. These motors run continuously through both the refrigeration and defrost cycles. Air is taken in by the front glass and discharged at the top rear of the cabinet interior. Care should be taken when loading the cabinet with product, not to block these areas.

GLASS HEATERS –

The front and side glass pieces are heated through the use of heaters around the exterior of the glass. These heaters are replaceable in case of failure. Each piece of glass has its own heater. The heaters are on continuously. The glass is triple pane LOW-E coated.

ELECTRIC CONDENSATE PAN –

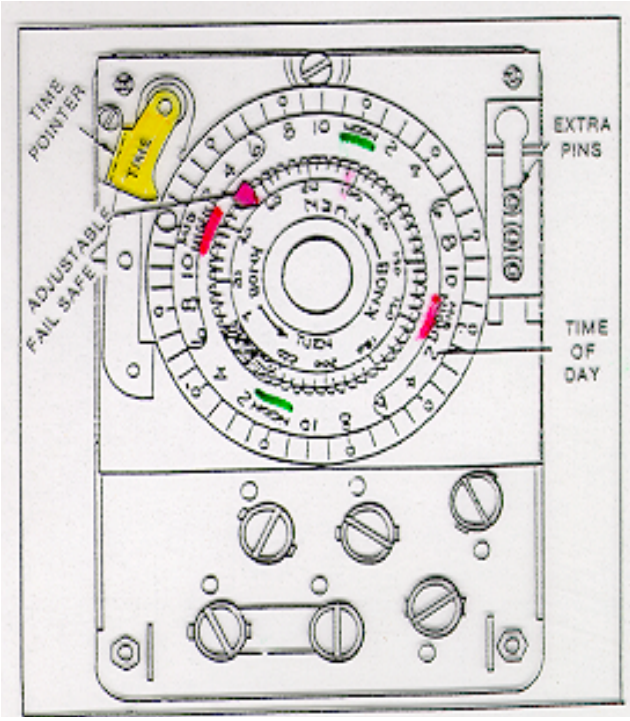
Evaporation of the condensate water created during the defrost cycle is accomplished through the use of an electrically heated pan located in the condensing unit are. The heater in this pan is 300W and is cycled on and off by a thermostat built into the heater. The drain carrying water to this pan should be trapped to prevent warm air migrating back to the evaporator.

Defrosting of the evaporator is accomplished through the use of five cal-rod type heaters. These heaters are located on the front of the case under the front glass, on the front of the evaporator coil, the top middle of the evaporator coil, and the lower rear of the case behind the evaporator coil. The heaters under the front glass and cabinet rear are 150 watts each, the two on the front and the top of the evaporator are 350 watts each.

DEFROST TIMER –

The defrost timer is a 48 hour timer. The defrost is factory set at two defrosts per 24 hours – at 10:00 a.m. and 10:00 p.m., with a 40 minute failsafe.

As previously mentioned, the timer needs to be set for the correct time of day at installation. This is accomplished by turning the knurled adjustment knob counterclockwise until the time indicator corresponds to the correct time. If additional defrosts are required, extra pins are provided with the timer for this purpose, and should be inserted in the timer face at the time(s) desired.



The timer will need to be reset after a failure of the power supply, or if the power is turned off for an extended period of time.

The defrost cycle is time initiated-temperature terminated. The defrost stat is located on the left hand side of the evaporator, on a return bend of the tubing near the rear of the evaporator. When the stat senses a temperature of 58ºF / 14ºC the defrost cycle is terminated. If the stat should fail, then defrost is terminated by the failsafe setting on the timer.

TEMPERATURE CONTROL –

The temperature control is located in the electrical enclosure. The control is factory preset to maintain ice cream storage temperatures. Turning the control clockwise will derive colder temperatures. The sensing tube for the control is mounted on the cabinet interior rear wall. Access to the tube is gained by removing the interior rear wall panel.

CONDENSER –

The fin and tube condenser requires periodic cleaning. To clean the condenser, remove the front access panel. Using a soft brush, remove the dirt and lint off the fins. A vacuum or compressed air may also be used. NEVER USE A HARD OBJECT TO CLEAN THE FINS AS DAMAGE TO THE CONDENSER MAY OCCUR!!

A regular schedule should be established for the cleaning of the condenser. Failure to keep the condenser clean will result in premature compressor failure and/or efficiency loss. Location of the cabinet in the store and store traffic should be considered when setting up this schedule.

TEMPERATURE CONTROL REPLACEMENT -

If there is product in the cabinet, it must be placed in a storage freezer. Disconnect power to the cabinet. Remove the front and left side access panels. Remove electrical enclosure cover. Remove the knob on the control and the two screws holding the plate and control body in place. Remove the flag connections from the control. Remove the interior bottom pans and the rear interior wall.

The wall has two screws, one in each upper corner, holding it in place. The sensing bulb for the control is clamped to the rear wall. Remove the clamp and replace the control. Assemble in reverse order, reset timer, and reconnect the power supply. Allow the cabinet to pull down to proper temperature before reloading.

DEFROST STAT REPLACEMENT -

Remove product from cabinet and place in another freezer. Disconnect power to the cabinet. Remove front and left side access panels. Remove electrical enclosure cover. Remove proper wires from stat connected to terminal board. Remove interior bottom pans. Remove stat from return bend on evaporator coil and install new stat making sure retaining clip holds stat to tubing tightly. Cut wires from old stat and tape wires to new stat wires. Gently pull old wires guiding wires through hole penetration in bottom of case. Connect new wires to corresponding numbers on terminal board. Reset timer and reconnect power to cabinet. Allow cabinet to pull down to proper temperature before loading.

GLASS HEATER WIRE REPLACEMENT –

Disconnect power to cabinet. Remove front and left side access panels. Remove electrical enclosure cover. There are four individual heaters hooked in series. One around each piece of glass, and one located across the rear top of the cabinet interior under the light fixture. Connections for these heaters are in each of the four corners of the cabinet.

To gain access to these heaters, remove the light fixture and lift off the plastic top. Each heater will have to be tested to find the defective one. Lift out glass and replace defective heater with new one exactly as the defective one was installed. Once heater has been replaced, reassemble cabinet in reverse order, reset timer and reconnect power.

DEFROST HEATER REPLACEMENT –

Remove product from cabinet and place in storage freezer. Disconnect power to cabinet. Remove front and left side access panels. Remove electrical enclosure cover. Remove bottom interior pans. After locating defective heater, remove from location and install new heater in place.

If replacing heater on the evaporator coil, make sure new heater is in direct contact with coil to ensure proper defrost. Cut wires from old heater and tape new wires to old wires. Gently pull wires through hole penetration in bottom of cabinet and connect to proper terminals on terminal board. Reset timer, and reassemble cabinet in reverse order.

BULB / BALLAST REPLACEMENT -

Disconnect power to cabinet. Remove four screws from rear of fixture and slide assembly straight up. Bulb, ballast and lampholders are now exposed. Replace defective component and reassemble cabinet. Turn power to cabinet back on.

DEFROST TIMER REPLACEMENT –

Disconnect power to cabinet. Remove front and left side access panels. Remove electrical compartment cover. Remove screws holding timer in place and install new timer. Disconnect wires from old timer, one screw at a time and install on new timer. Set timer for correct time of day and install defrost pins in timer at proper time of day. Reassemble in reverse order and turn power back on.

THERMOMETER –

The thermometer readings are in both Centigrade and Fahrenheit. The sensing bulb for the thermometer is located in the right front of the cabinet near the evaporator coil. The bulb is in the return air going to the evaporator. The thermometer may be replaced by first removing the light fixture, then the plastic top, and removing the bottom pans covering the evaporator. Once the thermometer has been replaced, reassemble the cabinet in reverse order.

SERVICE SPECIFICATIONS –

Condensing Unit	-	M4CL-0060CFA
Compressor	-	Aspera AFT26CIE-CFA
Relay Ass'y	-	514C017-01

Cap Tube - .042 ID x .020 Wall Thick x 83"

Min. Fuse Size - 15 amps

Refrig. Charge - 23 ounces R 404
652.05 grams

Operating Pressure	**75F/24C**	**90F/32C**
Head	**215**	**235**
Suction	**10**	**10.5**

TROUBLESHOOTING CHART

TROUBLE	POSSIBLE CAUSE	REMEDY
Compressor starts but immediately cuts out on overload.	**1. Low voltage**	**1. Check voltage at cabinet. Should be within 5% of serial plate rating**
	2. Relay defective	**2. Replace**
Compressor will not start, no hum.	**1. Power disconnected**	**1. Reconnect power**
	2. Power switch off	**2. Reposition switch to ON**
	3. Blown or tripped breaker	**3. Reset breaker**
	4. Defective wiring	**4. Repair or replace**
	5. Defective temp control	**5. Replace**
	6. Defective overload	**6. Replace**
Compressor will not start, hums but cycles on overload	**1. Low Voltage**	**1. Check voltage at cabinet. Should not be more than 5% below serial plate rating.**
	2. Defective compressor	**2. Replace**
	3. Defective relay	**3. Replace**
	4. Restriction (pinched cap tube)	**4. Replace cap tube**

	5. Restriction (moisture)	**5. Evacuate, replace drier, recharge**
	6. Dirty condenser	**6. Clean**
	7. Defective condenser fan motor	**7. Replace**
Compressor runs continuously	**1. Defective control**	**1. Replace**
	2. Short of refrigerant	**2. Leak check, change drier, evacuate, recharge**
High head and suction pressures	**1. Air in system**	**1. Evacuate and recharge**
	2. Dirty condenser	**2. Clean**
	3. Condenser fan motor not working	**3. Replace**
	4. Condenser discharge air blocked	**4. Remove obstruction**
	5. Defrost heater on during refrigeration (possible defrost heater joints grounded or time clock defective)	**5. Repair / replace**
Low head and suction pressure	**1. Short of refrigerant**	**1. Leak check, change drier evacuate and recharge**
	2. Restricted cap tube	**2. Replace**
	3. Coil iced up	**3. De-ice and check defrost cycle**
Normal pressures, warm cabinet	**Refrigerant undercharge – Due to the fact that it takes a considerale amount of undercharge before it has any great effect on pressures and inaccuracy of gauges it is possible to have an undercharge of refrigerant. This undercharge will "starve" the coil and seriously affect the cabinet temperature.**	
	Evaporator coil oil logged. Blow oil out of evaporator with high pressure, (250-275 pounds), with dry nitrogen	

Evaporator coil blocked with ice	**1. Defective time clock**	**1. Replace**
	2. Cabinet location in store	**2. Move cabinet away from door or other source of draft**
	3. Defective defrost heater	**3. Replace**
	4. Defective defrost thermostat	**4. Replace**

The defrost thermostat should have the defrost circuit in the closed position when the cabinet goes into defrost. It is set to open that circuit at 58ºF/14ºC, at which time it also energizes the solenoid in the time clock which trips the time clock off defrost and back into the refrigeration cycle. It must be remembered that when checking the time clock and defrost circuit, that the time clock can be put into the defrost cycle manually by turning the time clock dial, but the defrost heater will not come on until the defrost thermostat temperature has been reduced below 32ºF/ 0ºC.

Defrost cycle too long	**1. Terminating on timer failsafe. (factory set 40 mins)**	**1. Replace defrost thermostat**

The defrost termination thermostat should terminate the defrost when it senses 58F/-10C.

Time clock mechanism not tripping off defrost due to bad solenoid in the time clock. If there is an open circuit in the coil of this solenoid, it will not trip the time clock mechanism off defrost after the defrost termination thermostat has operated. To determine if the solenoid is good, turn the clock into defrost. Place a jumper across X and N at the clock. If the soldnoid is good this will trip the clock off defrost indicating that it is working.

Adverse conditions require a longer than normal defrost. Air currents over and into the cabinet, or a great amount of usage during conditions of high humidity could create excessive frost.

WARRANTY AND PARTS INFORMATION

IMPORTANT – Please read carefully to assure prompt and accurate service.

ORDERING PARTS REPLACEMENT –

- **Contact your nearest Hussmann Distributor.**
- **Always specify model and serial number of cabinet.**
- **If correct part number is not know, give a clear description of part itself and its function in the cabinet or remote unit.**

WARRANTY PARTS PROCEDURE

- **Same as first three items in Ordering Replacement Parts Procedure.**
- **Give original installation date of cabinet and, if possible, forward a copy of the original invoice or delivery receipt.**
- **All shipments of in-warranty replacement parts will be invoiced from the factory until such time as the defective part is returned and proved to be defective by our Quality Control Department.**
- **Contact your Hussmann Distributor for instructions on returning in-warranty parts.**
- **Warranty parts must be returned to the factory within 30 days of date of failure to assure proper disposition.**
- **Lack of any of the above information may result in the shipment of the wrong part, or a delay in shipment.**

COMPRESSOR REPLACEMENT PROCEDURE –

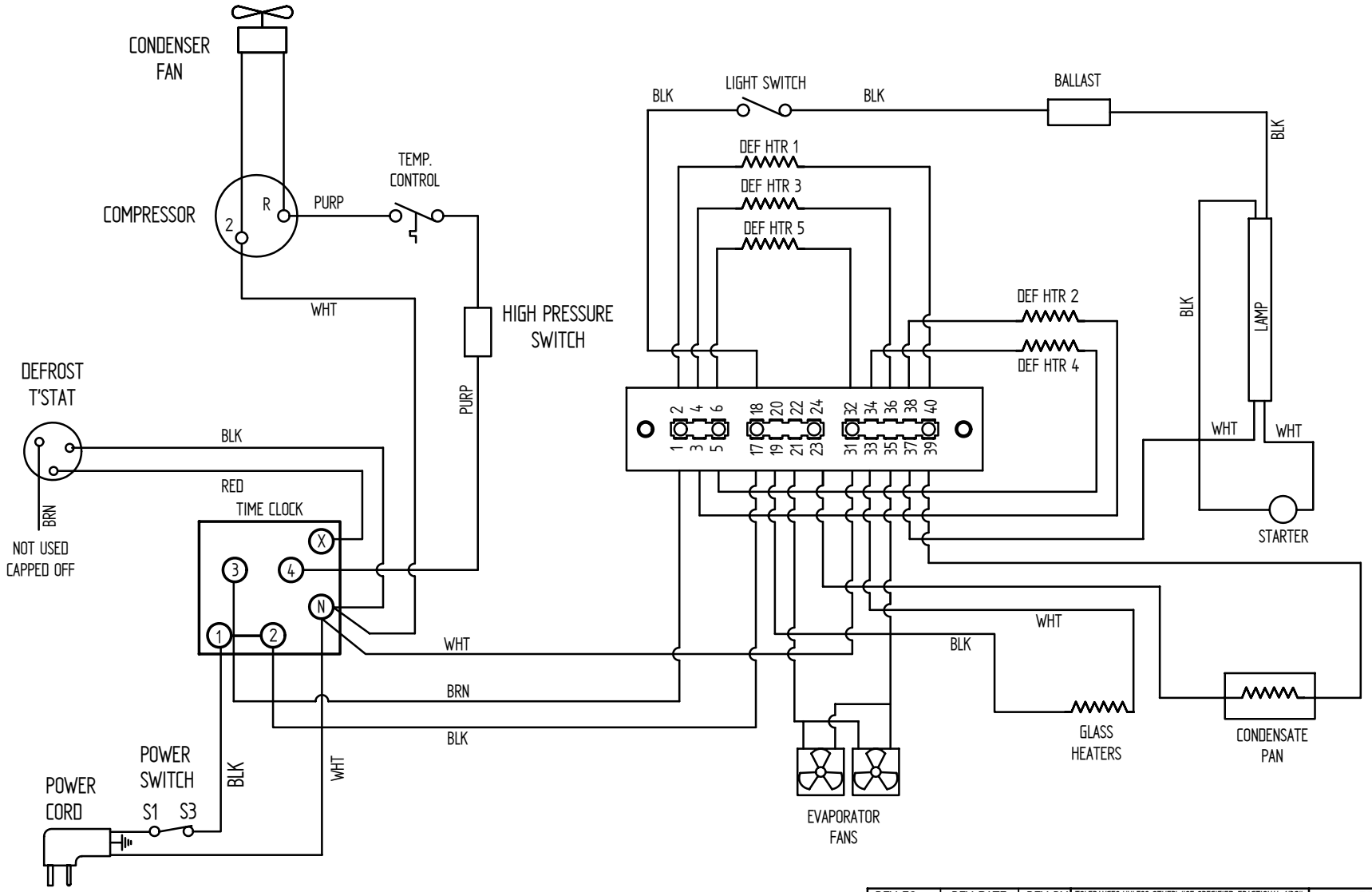
1. **Replacement compressors will not be shipped from the Hussmann factory. They may be obtained from you nearest Compressor Wholesaler.**
2. **Your wholesaler will replace, free of charge, any compressor found to be defective within twelve months of installation, not to exceed twenty months from the date of manufacture – as determined by the compressor serial number on the compressor serial plate.**

For any defective compressor beyond the twelve or twenty month time period, a salvage value credit will be given too partially offset the invoice for the replacement.

To obtain reimbursement forward to: **Hussmann Corporation**
140 East State Street
Gloversville, NY
12078
the following information:

The cabinet model and serial number

2. A copy of the wholesaler's invoice, along with a copy of the salvage value credit.



GGSM-3

REV EO #	REV DATE	REV BY	TOLERANCES UNLESS OTHERWISE SPECIFIED: FRACTIONAL 1/32" DECIMAL 0.031" ANGULAR 1° HOLE LOCATION & SPACING 1/64"
B	7/7/2003	JJH	

APPROVED BY: –

REV A– ADDED HIGH PRESSURE SWITCH 5/2002 BY JHB

–REV B CHANGED WIRING OF LAMP

EO NUMBER: 5232–REV B

DRAWN BY: JHB | SCALE: INCHES

DATE DRAWN: 2/7/2000 | SHEET #: 1 OF 1

APPROVED BY: –

HUSSMANN®
GLOVERSVILLE, NY 12078

WIRING DIAGRAM

M100–2187 B