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MS-1200 DESICCANT DEHUMIDIFIER

INSTALLATION, OPERATION, AND MAINTENANCE INSTRUCTIONS



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Table of Contents

<u>Subject</u>	<u>Page Number</u>
Read this Manual	1
Principle of Operation	1
Machine Set-Up	1
Operating Instructions	2
Controls	3
Maintenance Instructions.	7-8
Spare Parts List.....	9
Wiring Schematics.....	10
Unit Outline	11
Warranty	12

READ THIS MANUAL

This manual is provided for the MS-1200 dehumidifier so the user can gain thorough understanding of the proper set-up, operation, and maintenance. This dehumidifier is built around tested engineering principles and has passed a thorough inspection for quality of workmanship and function. A thorough understanding of the set-up, operation, and maintenance of this equipment will allow it to provide maximum performance and reliability.

PRINCIPLES OF OPERATION

The MS-1200 is a self-contained desiccant dehumidifier designed to efficiently remove water vapor from the air. A portion of the desiccant rotor is exposed to the “process” air effectively adsorbing moisture while the second portion of the rotor is exposed to heated “reactivation” air effectively removing the adsorbed moisture. This process is done on a continuous basis, providing constant dehumidified process air.

MACHINE SET-UP

- Carefully **remove** the machine from its shipping carton.
- Thoroughly **inspect** the machine for shipping damage. Should any damage be found, report the damage to the freight company immediately.
- Carefully **place** the machine on a level surface within the space to be dried.
- **Connect** 10” hoses to the process inlets and outlets as required for the drying project.
- **Connect** 10” hoses to the reactivation inlet and outlet as required for the drying project.
- **CAUTION- Do not pinch or kink the hoses.** Blockage of the hoses will result in reduced airflow and moisture removal capacity.
- **Check** to ensure the machine is turned “off” prior to connecting power. Circuit breakers are provided in the control enclosure. Check that they are switched “on” once power is applied.
- **Connect** an appropriate power cord and locking connector to the flanged inlet receptacle provided at the rear of the machine. The cord should be connected to 220vac power with either a 30a breaker or fuse with proper grounding for operation at “low”, 50a breaker or fuses for operation at “high”.

OPERATION

- Machine operation is fully automatic and requires no adjustments to airflow or other primary functions.



- A “POWER ON” lamp is provided to indicate that power is applied to the machine.
- A “RUN” lamp is provided to indicate that the unit is operational. This lamp will be illuminated when the “ON-OFF” switch is in the “ON” position.
- Position the “HIGH/LOW” switch to match the appropriate power supply (50a High, 30a Low).
- Position the “HUMIDISTAT” switch to “BYPASSED”.
- Turn the “ON-OFF” switch to the “ON” position. The machine will start operating. At this point, both fans, reactivation heaters, and rotor drive will be operational.
- If **humidity control** is desired to prevent over drying, a flanged receptacle is provided for a remote humidity sensor. Connect the appropriate plug and humidity sensor with dry contacts only-**DO NOT APPLY VOLTAGE TO THIS CIRCUIT.**
- Position the “HUMIDISTAT” switch to “CONTROL ON”. The reactivation fan, heater, and drive circuit will now cycle on and off from the humidistat input.
- An hour meter is provided to track time of operation for to aid in scheduling inspection and maintenance.

CONTROLS/ELECTRICAL



- The controls in this machine are UL listed and provide for automatic operation and all required protection of the machine components. Access to the control panel is via the control cover located on top of the machine.
- Air flow is accomplished using internal motorized impellers for process and reactivation air. The process fan will operate any time the "ON-OFF" switch is in the "ON" position. The reactivation air fan, heaters, and drive motor will operate when the "HUMIDISTAT" switch is in "BYPASSED" or via humidity control when the switch is in the "CONTROL ON" position.
- A fractional HP gear motor drives the desiccant rotor.
- Self-regulating PTC heater elements provide the "heat source" for reactivation.

MAINTENANCE

- This machine is designed for minimal maintenance and years of trouble free service.
- Clean the exterior of the machine with a damp cloth and mild soap if necessary.
- **DO NOT** use a garden hose or pressure washer to clean this machine!
- Occasionally inspect internal components for loose fasteners or damage from handling.
- Inspect the flanged power inlet, connector, and cord for damage.
- Check to ensure all access panels are in place and secure.

Air Inlet Filters

Process: 12x24x2" pleated
React: 10x10x2" pleated

- Filter access is accomplished by removing filter access covers for both the process and reactivation filter.



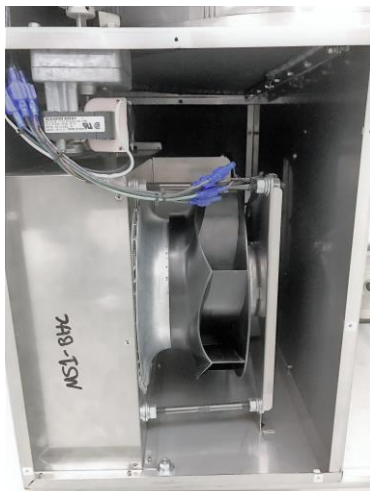
- **Inspect filters** regularly and replace if dirty. Regular air filter maintenance is critical to extending the life of the desiccant rotor and moisture removal efficiency.

Keeping filters clean is the most important long term maintenance on this machine!

- In dusty or dirty environments, the filter replacement interval will be greatly reduced. The hour meter provided can be used to establish a filter replacement interval.

Motorized Impellers (blowers)

- The motorized impeller motors provided in this machine require no maintenance. They are sealed and permanently lubricated.



Desiccant rotor drive system

- The rotor drive system consists of a fractional HP gear motor, timing pulley, timing belt, and spring tensioner. The gear motor is sealed and permanently lubricated. Check the motor fasteners and timing pulley to be secure. Inspect the timing belt for cracks, tears, or abrasion. The tensioner should keep slack form the belt with light tension.



Rotor Seals

- Periodically inspect the rotor seals for damage, tears, or gaps.



Reactivation Electrical Heaters

- The heating elements are self-regulating PTC type and require no maintenance.
- Heating surfaces of element are “live” conductors.
- **DO NOT TOUCH ELEMENTS WITH POWER APPLIED!**



Unit dolly wheels

- The bearings in the dolly wheels are pre-lubricated and require no maintenance.



SERVICE *

Service of this machine should be performed by qualified personnel only.

- Should questions arise, please contact Climate by Design International (CDI) I at the number on the front of this manual.
- This machine is equipped with full perimeter service covers on both sides of the machine for easy access for inspection, maintenance and service.
- Note:
- The process filter access cover must be removed prior to removing the service access cover.

Process and React Fan Replacement

- Disconnect power to the machine.
- Disconnect the fan wire spade terminals and remove the 3 hex nuts attaching the motor/motor plate to the support studs.
- Slide the assembly out of the machine.
- Remove the fan from the mounting plate and install the new fan onto it.
- Reverse removal procedure for installation.

Rotor Replacement

- Disconnect power from the machine.
- Remove the drive belt from the tensioner roller to slack it.
- Remove the two ¼-20 machine screws from the center of dividing panels at each face of the rotor.
- Carefully slide the rotor from the machine, using the belt to pull it.
- The rotor shaft and top and bottom spacers will be loose.
- Remove them as soon as they clear the dividing panels. They will be re-used.
- Remove seal/drive bands from the perimeter of the rotor. They will be re-used.

Perimeter Seal Replacement

- Verify length of new seals by wrapping around rotor, allowing for 1" of overlap.
- Trim the ends of one edge of the seal with a small radius, overlap by 1-1/4" and staple overlap in two places.
- Prepare a second seal with the overlap opposite direction of the first.
- Install new seals loosely on the rotor, overlap tabs pointing in direction of rotation, flush with the face so they do not protrude.
- Install the seal/drive bands around the rotor, on top of the seal, fingers pointing toward each other.
- Tighten the clamping screws so that the bands are snug, but not tight.
- Install rotor, shaft and spacers with the rotor positioned so that the gap between the rotor and rotor panel are even all the way around.
- Tighten the cap screws securing the rotor shaft to the dividing panel.
- Press the perimeter seals and drive bands toward the rotor panels, working around the perimeter until the seals are uniformly cured toward the panels, approximately ½" of the seal/clamp on the rotor.
- Apply a bead of Silicone RTV to the joint where the inner edge of the seal, band, and rotor perimeter band meet. Allow to cure prior to placing the rotor in service.

Dividing Seal Replacement (4 ea.)

- Disconnect power from the machine.
- Remove the screws attaching the seal retention strips and seals to the dividing panels.
- Cut the new seal material to match the original seal length and end profile (left and right).
- Install the new seal with retention strip and screws.

Drive Belt Replacement

- Disconnect power from the machine.
- Remove the two ¼-20 machine screws from the center of dividing panels at each face of the rotor.
- Shift the rotor position off to one side to clear the center shaft of the divider panel.
- Carefully slip the belt through the perimeter seal on top of the rotor, past the center shaft, spacers and around the perimeter of the rotor.
- Position the rotor and shaft back into place and tighten the cap screws through the dividing panel.

Drive Motor Replacement

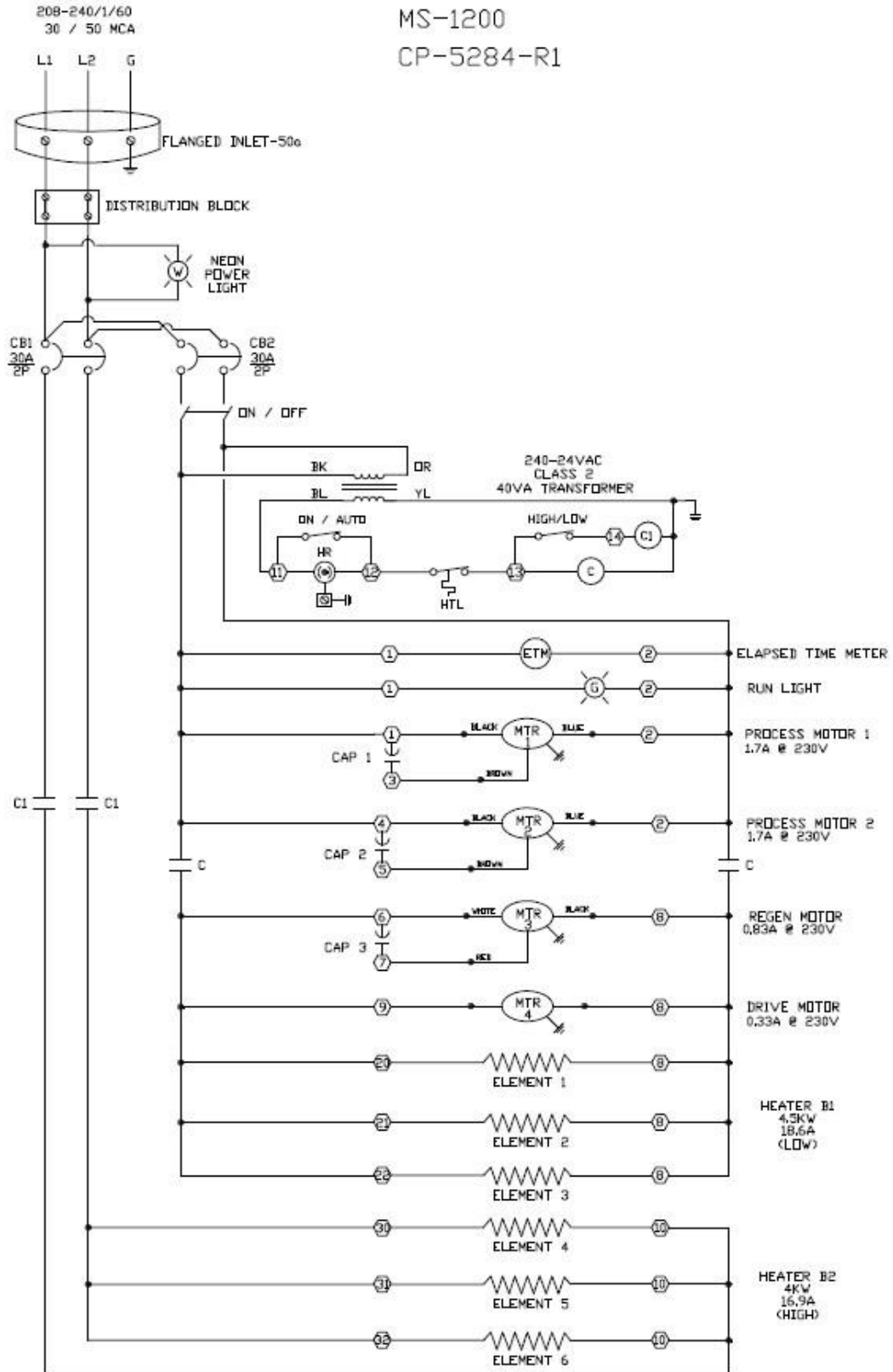
- Disconnect power from the machine.
- Disconnect the spade terminals on the motor wire leads.
- Remove the drive belt from around tensioner pulley and pulley.
- Loosen the set screws in the drive pulley and remove it from the motor shaft.
- Remove the 4 screws attaching the motor and remove the motor.
- Reverse procedure to install.

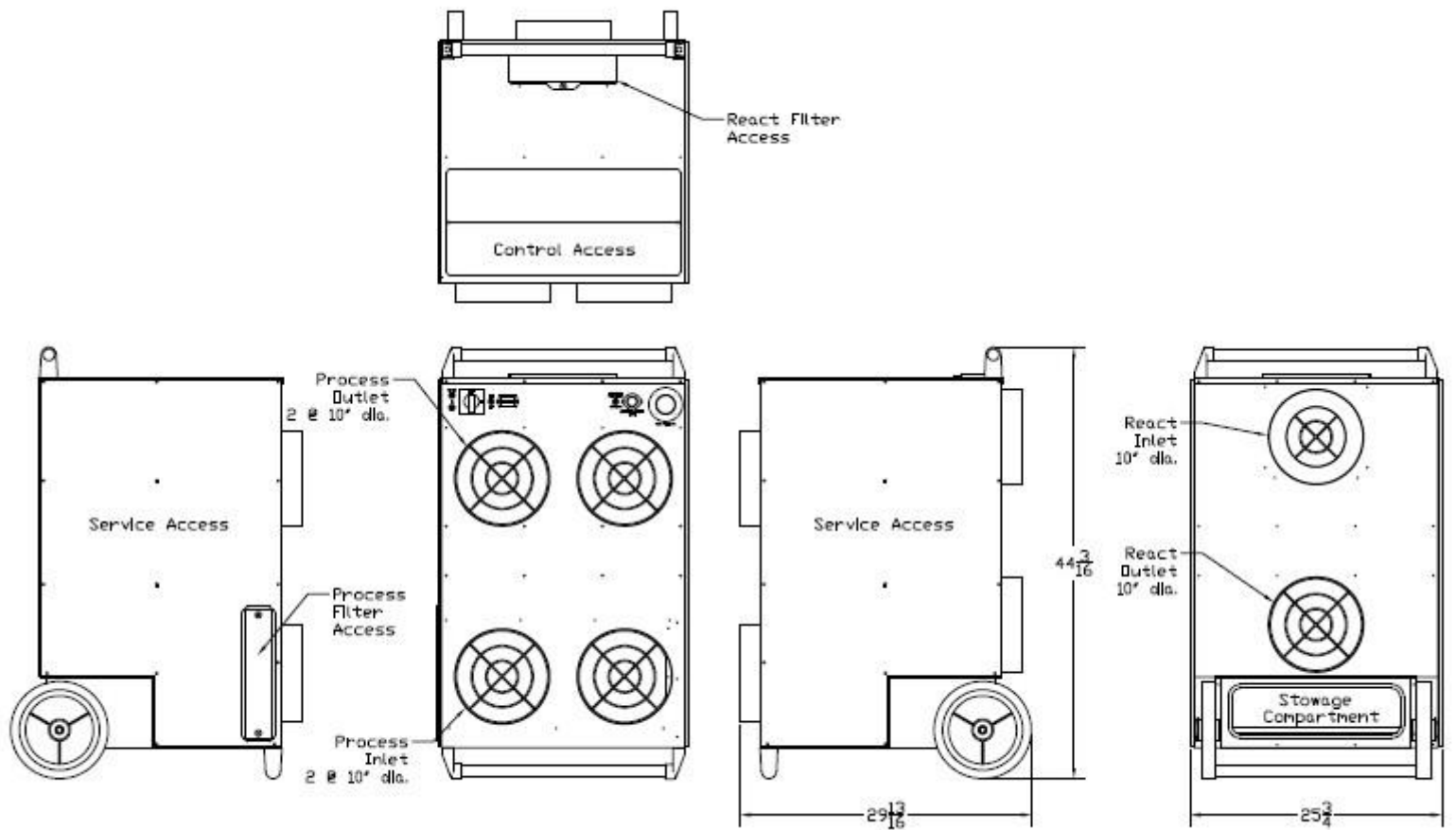
Dolly Wheel Replacement

- Drill a small hole (1/4-3/8") in the center of one of the push nut caps retaining the wheel axle in the dolly.
- Use a center punch and hammer to drive the shaft out of the cap.
- Slide the shaft from the dolly frame, noting position of the wheel spacers.
- Install new wheels by inserting the axle and spacers as required, pushing the axle through the far side of the frame.
- Using a block of wood to support the installed push cap, lightly tap the new cap securely onto the axle.

**MS1200-R1 Spare Parts
List**

ID	P/N	Description	Qty Req'd
	PPSR-550-100	Desiccant rotor assembly	1 ea.
	20XL037-6FA4	Drive Pulley	1 ea.
	736XL037NG	Drive Belt	1 ea.
	BT-100	Belt Tensioner Assembly	1 ea.
	HG-001	Heater Gasket	6 ea.
	2W234	Filter, 12x24x2 Pleated	1 ea.
	5W977	Filter, 10x10x2 Pleated	1 ea.
	VSS-01	Viton Seal Strip, 1" x .040"	15.5 ft.
	550-SDB	Seal/drive band, XL belt, 4/set	1 ea.
	98704A430	Plastic Hd Thumb Drive Screw, 10-24x3/4"	3 ea.
	WHL549	Wheel w/cap 10"x1-1/2"	2 ea.
	94803A060	Push Nut Cap, zinc plt for 5/8" shaft	2 ea.
	MS-1200 O&M	Operators Manual	1 ea.
CB1	QOU230	Circuit Breaker, 30a, 2P	1 ea.
CB2	QOU230	Circuit Breaker, 30a, 2P	1 ea.
ETM	1878T42	Elapsed Time Meter	1 ea.
MTR1	R2E250-RB06-12	Motorized impeller, 230/1/60	2 ea.
CAP1	450-20-0023	Capacitor, 5 uf	2 ea.
MTR2	R2E250-RB06-12	Motorized impeller, 230/1/60	2 ea.
CAP2	450-20-0023	Capacitor, 5 uf	2 ea.
MTR3	XR225-2B35-12	Motorized impeller, 9", 230/1/60	1 ea.
CAP3	MO-CAP04M-500V	Capacitor	1 ea.
MTR4	2514-B0336I-1098	Drive Motor 2 rpm, 220vac	1 ea.
HTR 1-6	HF214U44F2	1500 Watt Heater	6 ea.
TX	6WU91	Transformer, 230v/24vac	1 ea.
C	AF26-40-00-41	Contactator, 24vac coil, 4P	1 ea.
C1	AF26-40-00-41	Contactator, 24vac coil, 4P	1 ea.
W	1051QA4	White Pilot Lamp, 250v	1 ea.
G	10511QA5	Green Pilot Lamp, 250v	1 ea.
ON-OFF	OT40FT3	Disconnect Switch, 2p	1 ea.
	OHBS2RJ	Disconnect Handle	1 ea.
On-Auto	18159	Toggle Switch, SPST	1 ea.
High-Low	18159	Toggle Switch, SPST	1 ea.
HR	3D271	Humidistat Receptacle	1 ea.
FI	CS6375	Flanged Inlet, 50 amp 125/250v, 3P 4 wire	1 ea.
HTL	STO-160	High Temp Limit	1 ea.
	TBD	Corner Protectors,	4 ea.
Optional	CS6364C	Twist lock connector, 50a, 125/250, 3P 4wire	1 ea.





STANDARD WARRANTY

AND

LIMITATION OF REMEDIES FOR BREACH OF WARRANTY

Climate by Design International (CDI) warrants all products to be free of defects in material and workmanship for twelve (12) months from the date of shipment. CDIMS shall only be liable under this warranty if the product is installed and used according to the directions furnished by Climate by Design International (CDI).

Climate by Design International's (CDI) obligation shall be limited to the replacement of new parts of the products for those returned to CDIMS' factory at the purchaser's expense and found to be defective by Climate by Design International (CDI). Replacement parts will be shipped F.O.B. Climate by Design International (CDI) factory. Replacement of parts shall not extend the original warranty period of the original total product, including replacement parts supplied.

This warranty does not cover corrosion; normal deterioration; misapplication; labor charges paid for parts replacement, adjustments, repairs or other work; loss of refrigerant or natural gas, oil, or other fuel; components supplied by others; defects in parts resulting from neglect, negligence, accident, fire, explosion, high or low voltage, jumpering or jamming controls, shorting out of components; improper or contaminated fuel, excessive or inadequate fuel pressure; frozen heating coils; or any acts of nature.

This warranty does not cover failure of the purchaser to provide normal maintenance, lubrication, adjustments, cleaning or service on the heating system; improper repairs or alterations; or misapplication of the equipment.

It is expressly understood that this warranty is made IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, WHETHER ARISING FROM STATUTE, COMMON LAW, CUSTOM, OR OTHERWISE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE, QUALITY,

DESIGN, CONDITION, DURABILITY OR SUITABILITY, and in consideration of the express warranty herein contained, BUYER EXPRESSLY WAIVES ANY RIGHT TO CLAIM OTHER WARRANTIES, EXPRESSED OR IMPLIED.

It is further understood that CDI's liability for breach of warranty shall be limited to terms of this warranty and buyer agrees that CDI SHALL NOT, IN ANY EVENT, BE LIABLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, OR DELAY.

The buyer's remedies are exclusive, and shall be limited to those provided herein. Climate by Design International (CDI) neither assumes nor does not authorize any person to assume any obligation or warranty other than those stated herein.

Any suggestion to the contrary notwithstanding, Climate by Design International (CDI) shall not, in any event, have any liability under this warranty unless and until it has been paid in full for the products. The warranty period shall begin as described above, whether or not payment has been made.

WARRANTY CLAIMS

Defective material may be repaired or replaced at our option. If replaced, full credit will be issued in the amount of the original purchase price, plus freight, for the returned material in the event the material is found to be not defective, or to be damaged or abused, we reserve the right to return the material "as is" to the sender and at his freight cost. If Climate by Design International (CDI) agrees to keep such material, credit will be issued minus the cost of repair and reconditioning, less freight for the return and less restocking charges.

REPLACEMENT PARTS

When writing or calling to Climate by Design International (CDI) for service parts, provide the serial number of the unit as stamped on the unit plate attached to the electrical door. For questions regarding wiring diagrams, it will be necessary to provide the number on the specific diagram. If replacement parts are required, include the date of installation, the date of failure, an explanation of the malfunction, and a description or part number of the replacement parts required.