

KYSOR // WARREN

The Leading Edge of Technology

INSTALLATION & OPERATION MANUAL

*UL Approved
7/23/92*

MODEL:

D1C1/ LD1C1

SPOT MERCHANDISER

THIS REFRIGERATOR CONFORMS TO THE COMMERCIAL
REFRIGERATOR MANUFACTURERS ASSOCIATION HEALTH AND
SANITATION STANDARD.

KYSOR // WARREN

DIVISION OF KYSOR INDUSTRIAL CORPORATION

1600 INDUSTRIAL BLVD., CONYERS, GEORGIA 30207 / 404•483•5600

5201 TRANSPORT BLVD., COLUMBUS, GEORGIA 31907

INSTALLATION AND OPERATING INSTRUCTIONS

FOR

D1C1 AND LD1C1 MODELS

SPOT MERCHANDISER

APPLICATION:

The Kysor//Warren Spot Merchandisers were designed to merchandise dairy and frozen food products. These cases should be installed and operated according to the instructions contained in this manual to insure proper performance. They are designed for display of products in an air-conditioned store where temperature and humidity are maintained at a maximum of 75Dg F dry bulb temperature, 55% relative humidity.

MODELS

DESCRIPTION

D1C1-5

Medium Temperature Dairy
Off-Time Defrost
Self-Contained (R-12)
Electric Condensate Evaporation Pan

LD1C1-5

Dual Temperature Dairy & Frozen Food
Electric Defrost
Self-Contained (R-502)
Electric Condensate Evaporation Pan

GENERAL

The D1C1 and LD1C1-5 are designed to be installed individually in an area of 3-1/2' x 5-1/2'. Adjustable glides are provided on each case for leveling. Swivel plate brake model casters are optional. The cases are standard with continuous wrap-around sides and solid insulated top panels. For additional product viewing, the top panels of the return air side and ends are available with heated glass.

Each case has three (3) insulated deck pans with adjustable wire racks available. All cases are factory checked and charged. For shipping, two (2) compressor mounting spring pad nuts (left front & right rear) have been tightened to prevent damage to the condensing unit during shipment. THESE NUTS MUST BE LOOSENEED BEFORE START UP so that the compressor can float freely. To gain access to the compressor mounting bolts, remove the lower front and right side panel.

ALL COMPRESSOR AND BASE SERVICE VALVES ARE OPEN IN OPERATING POSITION.

SHIPPING DAMAGE

All equipment should be examined for shipping damage before and during unloading. If there is any damage, the carrier should be notified immediately and an inspection requested. The delivery receipt "must" be noted that the equipment was received damaged. If damage is of a concealed nature you must contact the carrier immediately or no later than three (3) days following delivery. A claim must be filed with the carrier by the consignee for all damage.

NOTE: ALL CLAIMS FOR SHORTAGES MUST BE MADE WITHIN 10 DAYS AFTER RECEIPT OF SHIPMENT.

CLEANING

To insure minimum maintenance cost, the case should be thoroughly emptied and cleaned every three (3) months. The exterior should be cleaned weekly. A mild soap and water solution is recommended for painted surfaces of the case. Do not use cleaners containing abrasive materials which will scratch or dull finish. The waste outlet should be checked and cleaned.

CAUTION: DO NOT FLUSH WITH WATER. THIS CASE IS NOT CONNECTED TO A DRAIN SYSTEM AND HAS ITS OWN EVAPORATING PAN WITH LIMITED CAPACITY.

BE SURE REFRIGERATION IS TURNED OFF AND ALL ELECTRICAL IS OFF BEFORE WASHING YOUR REFRIGERATOR.

LOADING

Merchandise should not be placed in the fixture until all controls have been adjusted and the refrigerator is at proper temperature. At no time should the fixture be stocked above the load line located on the top of the inside panel. In doing so, you will seriously affect the performance, which will result in higher product temperatures and increased operating costs.

ELECTRICAL

All field installed wiring must comply with the NATIONAL ELECTRICAL CODE AND LOCAL CODES.

ELECTRICAL CONNECTIONS

All field connections are made at the Terminal Board in the case electrical box. To access the electrical box, remove the lower end panel. Make sure that proper voltage is supplied to your refrigerator. Check refrigerator nameplate for fan and anti-sweat volts and defrost volts. ALL REFRIGERATORS MUST BE GROUNDED

Make sure that proper wire size and branch circuit protection are employed for safe operation.

Chart #1 shows the electrical ratings for your refrigerator. This is the same information that appears on your refrigerator nameplate.

EVAPORATOR FAN MOTOR

The fan motor employed is permanently oiled for the life of the motor and requires no periodic maintenance. The motor is wired according to the enclosed wiring diagram and MUST RUN CONTINUOUSLY.

ANTI-SWEAT HEATERS

These heaters are placed in the fixture to eliminate sweat and frost from forming on certain areas of fixture. All glass assemblies contain three (3) 3/16" panels with two (2) 1/4" air space in between panels. The outside panel contains a heater of 8 watts per square foot.

DEFROST HEATERS (LD1C Model Only)

A standard 115 volt heater is located under the deck pans and fan plenum and is attached to the front of the coil. This heater is designed to give full coverage to the evaporator coils to insure proper defrosting of the refrigerator.

EXPANSION VALVE

The expansion valve furnished with your refrigerator has been sized for maximum coil efficiency. The superheat on this expansion valve has been preset at the factory. Should it be necessary to adjust superheat, place a thermocouple under the expansion valve bulb. Read the suction line pressure at the base valve. Convert coil suction pressure to temperature. The difference between coil temperature and the thermocouple temperature is superheat. (Use average superheat when expansion valve is hunting.) Do not set superheat until cases have pulled down to operating temperature and never open or close valve over 1/4 turn between adjustments and allow 10 minutes or more between adjustments. Superheat should be set to 10-12Dg. F.

REFRIGERANT LINES

The suction line is 1/2" OD and the liquid line is 1/4" OD on both case models. The liquid and suction line are connected to service valves on the base of the condensing unit. All normal service except compressor replacement can be done without removing the unit.

REFRIGERANT

R-502 expansion valves are standard on LD1C1. R-12 expansion valves are standard on D1C1.

HEAT EXCHANGER

Heat exchangers are standard in these refrigerators. They aid to increase operating efficiency and reduce frosting and flood-back to compressors.

OPERATION

Each case contains a thermostat for temperature control. The thermostat bulb is located in the discharge air. Chart #2 shows approximate settings for the control. Since many variables are present in each installation, such as store temperature, temperature desired in refrigerator, etc., Chart #2 is only a guide for the installer.

ELECTRIC DEFROST MODELS

On the electric defrost models (LD1C1), the evaporator fan must run continuously to circulate air through the coils and baffles to remove frost that has accumulated. On electric defrost models, the defrost cycle is started by the time clock, which opens the control circuit on the refrigeration cycle and closes the defrost circuit, which engages the defrost heater until the defrost termination control or the failsafe setting on the time clock terminates the defrost cycle and returns the case to refrigeration. A defrost heater safety is wired in series with the heater to open at 70 deg F. Control settings for the defrost cycle are listed on Chart #2.

OFF-TIME DEFROST MODELS

On the off-time defrost models (D1C1-5), the evaporator fans run continuously. Defrost termination is by time (fail safe). See Chart #2 for defrost settings.

CONDENSING UNIT

The dual temperature model (LD1C1-5) incorporates a Kysor//Warren condensing unit with a KAM2-0075-IAA Copeland compressor. R-502 is the standard refrigerant in this system.

This unit is equipped with a preset crankcase pressure regulator (30 PSIG) to protect the compressor after defrost and in medium temperature operation.

The medium temperature model (D1C1-5) incorporates a Kysor//Warren condensing unit with a JRE1-033-IAA Copeland compressor. R-12 is the standard refrigerant in this system.

Both case models use an electric condensate evaporating pan to dissipate drain water. The low wattage heater operates continuously to evaporate drain water between defrost cycles. A safety thermostat is wired in series with the heater to prevent an over temperature condition.

REFRIGERANT CHARGE

The LD1C1 and the D1C1 cases are critical charge units. If the unit should require recharging, the system must be evacuated and charged with the amount of refrigerant indicated.

D1C1	1lb.	10oz.	R-12
LD1C1	1lb.	10oz.	R-502

Chart #1

<u>ITEM</u>	<u>D1C1-5</u>	<u>MODEL</u>	<u>LD1C1-5</u>
Evaporator Fan Motor	.33A		.33A
Anti Sweat Heaters without glass	2.64A		2.64A
with glass	1.62A		1.62A
Defrost Heater	N/A		7.8 A
Compressor	6.4 A		11.5 A
Condenser Fan Motor	.5 A		.5 A
Condensate Pan Heater	2.5 A		2.5 A
Nameplate Amps	7.8 A		13.1 A
Min. Circuit Ampacity	9.4 A		16.0 A
Max. Overcurrent Protection	15.0 A		20.0 A

ALL ELECTRICAL RATINGS ARE AT 115 VOLTS

CHART #2

RECOMMENDED CONTROL SETTINGS

<u>Model</u>	<u>Thermostat Discharge Air Temperature Cut-Out Cut-In</u>	
D1C1-5 R-12	+25	+29
*LD1C1-5 R-502	-25	-21

Defrost Period

<u>Model</u>	<u>Number of Periods</u>	<u>Termination</u>	<u>Fail Safe Setting Elect. Off-Cycle</u>
LD1C1-5	2	Preset 55dg.F	40 min.
D1C1-5	3		40 min.

Note: A thermostat is installed in the electric panel located in the lower compressor section. To adjust the thermostat, simply remove the black plug from the lower end panel.

*To operate LD1C1-5 at medium temperature, set thermostat as indicated for D1C1-5.

TYPICAL OPERATING DATA

	<u>D1C1</u> 75dgF	<u>LD1C1</u> 75dgF
Ambient Temperature		
<u>30 Minute After Defrost</u>		
Suction Pressure	17 psig	15 psig
Discharge Pressure	98 psig	205 psig
Discharge Air Temp.	26dgF	-1dgF
Return Air Temp.	30dgF	10dgF
<u>At Temperature Cycle</u>		
Suction Pressure	12 psig	9 psig
Discharge Pressure	94 psig	181 psig
Discharge Air Temp.	20dgF	-19dgF
Return Air Temp.	24dgF	-9dgF

PARTS LIST

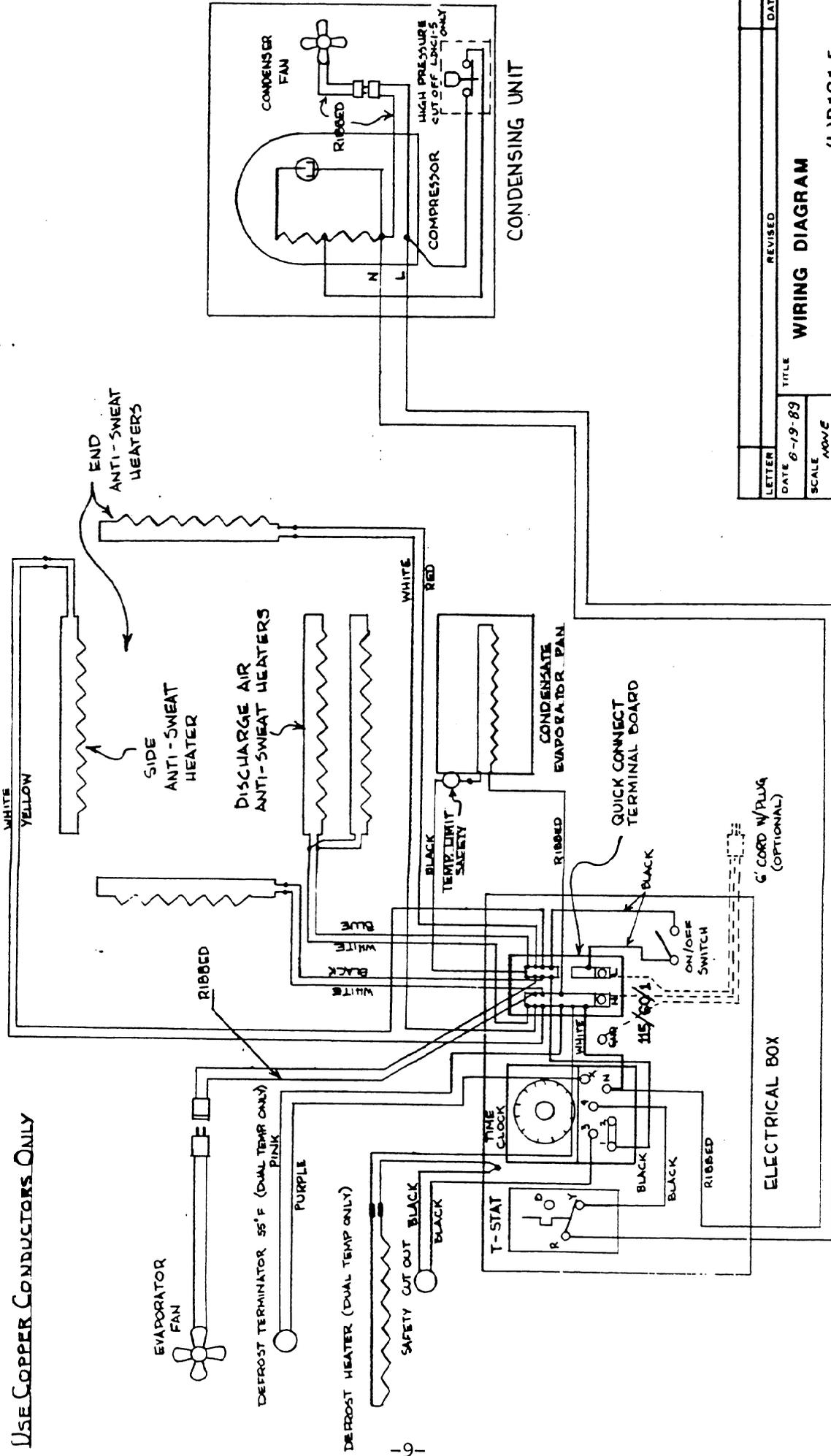
<u>Description</u>	<u>Part No.</u>	<u>D1C1</u>	<u>LD1C1</u>
Evaporator Fan Motor(5W-115V)	9A10-17	1	1
Evaporator Fan Blade(7",20dgP)	9B10-13	1	1
Expansion Valve (FFE-1/4C)	3A10-60	1	
Expansion Valve (FRE-1/4Z)	3A10-61		1
Honeycomb Refrig. Jet	13A15-20	1	1
Defrost Heater	10K10-117	-	1
Wire Rack	28G19-187	3	3
High Pressure Safety C.O. 370	10J10-45		1
Condenser Fan Motor (9W-115V)	9A10-62	1	1
Condenser Fan Blade (10",20dgP)	9B10-48	1	1
Crankcase Press Regulator Valve	3E10-92	<i>set @ 30A</i>	1
Dryer	5B10-55	1	1
Temp. Control (Penn)	8A11-27	1	1
Defrost Termination Control	8A11-38	-	1
Time Clock	8A10-86	1	1
Glides	18J10-24	4	4
Swivel-Plate Casters	17B10-14	4	4
Trap Drain Assy	18H13-24	1	1
Casting - Upper Corner W/A	16F10-61	4	4
Coil - Evaporator	5A20-114	1	1
Heated Glass Assy. End 31-1/2"Lg	14D11-42	2	2
Heated Glass Assy. Side 56-1/2"Lg	14D11-43	1	1
Return Air Grill	28G13-64	1	1
Deck Pan	54N18-206	3	3
Colorband Wrap-Around Side Brt	55F11-33	2	2
Colorband Wrap-Around End Brt	55F11-31	2	2

*changed
to "G" Body
TEV 4/1/93
As Standard*

Parts List Cont.

<u>Description</u>	<u>Part No.</u>	<u>D1C1</u>	<u>LD1C1</u>
Heater-Solid Side A-Sweat	81D10-31	3	3
Heater-Solid End A-Sweat	81D10-32	2	2
Evaporating Pan Assy	55M12-16	1	1
Cover-Front & Back Access	51X16-69	2	2
Cover-Electrical Box	51X16-70	2	2

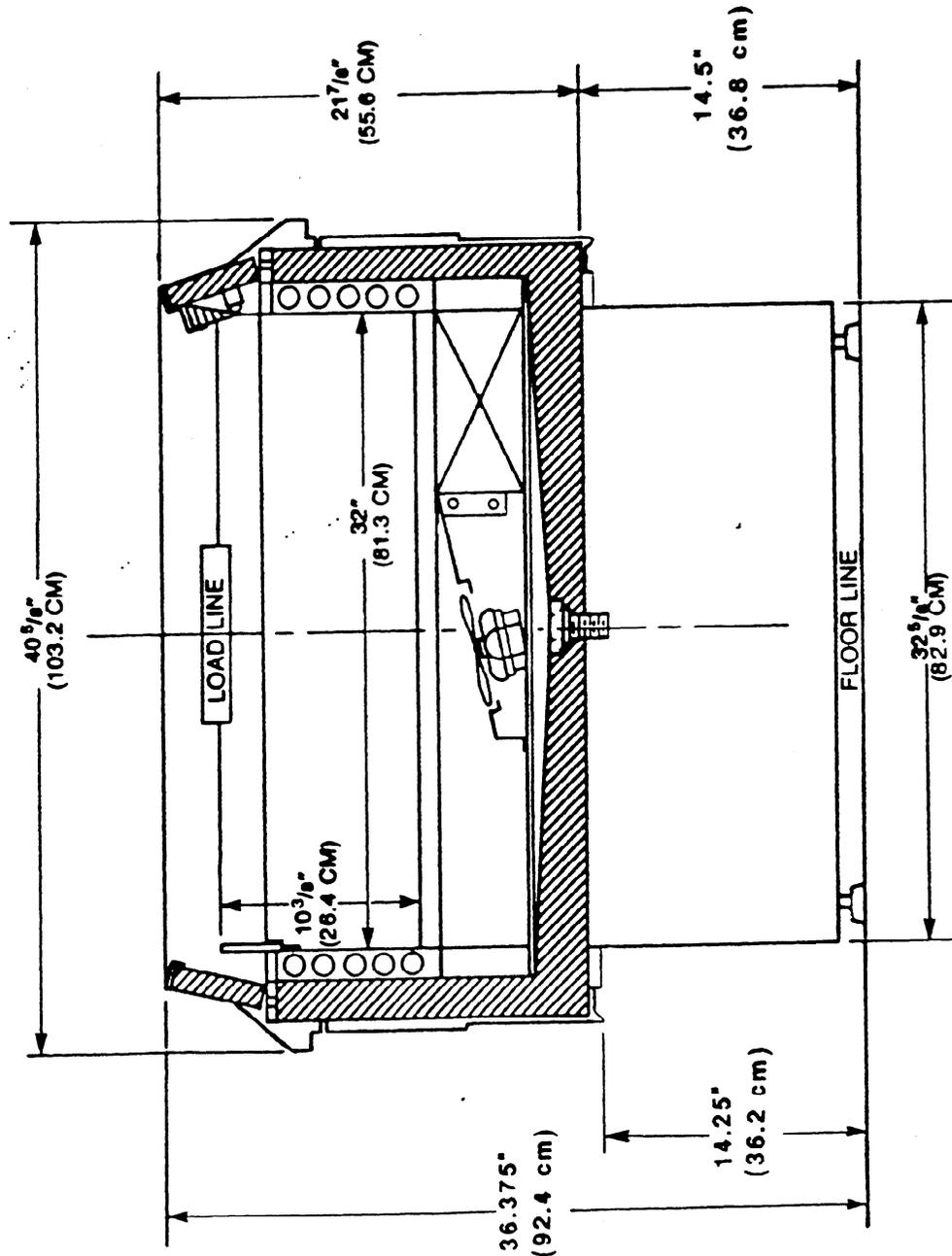
USE COPPER CONDUCTORS ONLY



LETTER	REVISED	DATE	BY
		6-19-89	
SCALE	NONE		
DRAWN	D. DROS-JAHN		
APPROVED	[Signature]		
TITLE		WIRING DIAGRAM	
		(L)D1C1-5	
DRAWING NUMBER		PB-22683	
KYSOR DIVISION OF ALLIANCE INDUSTRIAL CORPORATION			

KYSOR//WARREN PP# 31C10-428

REF. 88 V22-024



LETTER	REVISED	TITLE	DATE
		CROSS SECTION	7-27-69
		MODEL - (L) D1C1-5	
SCALE	NONE	DRAWN	J. KROW
APPRO		DESIGNED BY	PA-30112

BRUNING 40-109 411374

IN THE CONSTANT EFFORT TO IMPROVE OUR PRODUCTS, WE RESERVE THE RIGHT TO CHANGE AT ANY TIME SPECIFICATIONS, DESIGN, OR PRICES WITHOUT INCURRING OBLIGATION.



DIVISION OF KYSOR INDUSTRIAL CORPORATION

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ONE-YEAR WARRANTY

KYSOR/WARREN warrants to the original purchaser this new equipment and all parts thereof, to be free from defects in material and workmanship under normal use and service. If any part or parts of the equipment should prove defective during the period of one year from installation date (not to exceed one year and thirty days from the date of original shipment from the factory), KYSOR/WARREN hereby guarantees to replace or repair, without charge (F.O.B. CONYERS, GEORGIA), such part or parts as prove defective, and which KYSOR/WARREN's examination discloses to its satisfaction to be thus defective, with a new or functionally operative part. The liability of KYSOR/WARREN under this warranty shall be limited to claims made by the original purchaser to KYSOR/WARREN or its local distributor within the warranty period.

GLAZING: Glass is not guaranteed against breakage. If this refrigerator is equipped with a glazing assembly carrying the manufacturer's brand name (Thermopane, Twindow, etc.), the manufacturer's glazing warranty in effect at the time of this shipment is extended to that assembly. It is void outside the continental United States.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS, AND ALL OTHER OBLIGATIONS OR LIABILITIES OF KYSOR/WARREN.

THIS WARRANTY SHALL NOT APPLY:

1. To the condensing unit used with refrigerated equipment unless same was sold and shipped by KYSOR/WARREN.
2. When this equipment or any part thereof is damaged by fire, flood, act of God, or when the original model and serial-number plate has been altered, defaced, or removed.
3. When this equipment or any part thereof is subject to accident, alteration, abuse, misuse, tampering, operation on low or improper voltages, or is put to a use other than recommended by KYSOR/WARREN.
4. When this equipment or any part thereof is damaged, or when operation is impaired, due to failure to follow installation manual (improper installation is the responsibility of the installer).
5. Outside the continental United States.
6. To labor cost for replacement of parts, or for freight or shipping expenses.
7. If the Warranty holder fails to comply with all the provisions, terms and conditions of this Warranty.

Parts replaced under this Warranty are warranted only through the remainder of the original Warranty. KYSOR/WARREN may, at its option and in its discretion, elect to honor this Warranty and to disregard the original purchaser's noncompliance with any of the provisions, terms and conditions of this Warranty.

THIS WARRANTY DOES NOT COVER CONSEQUENTIAL DAMAGES.

KYSOR/WARREN shall not be liable under any circumstances for any consequential damages, including loss of profits, additional labor costs, loss of refrigerant or food products, or injury to person or property caused by defective material or parts or for any delay in the performance of this Warranty due to causes beyond its control. The foregoing shall constitute the sole and exclusive remedy of any purchaser and the sole and exclusive liability of KYSOR/WARREN in connection with this product.