



HOSHIZAKI

Parts List

Glass Door Merchandiser

Model

RM-49

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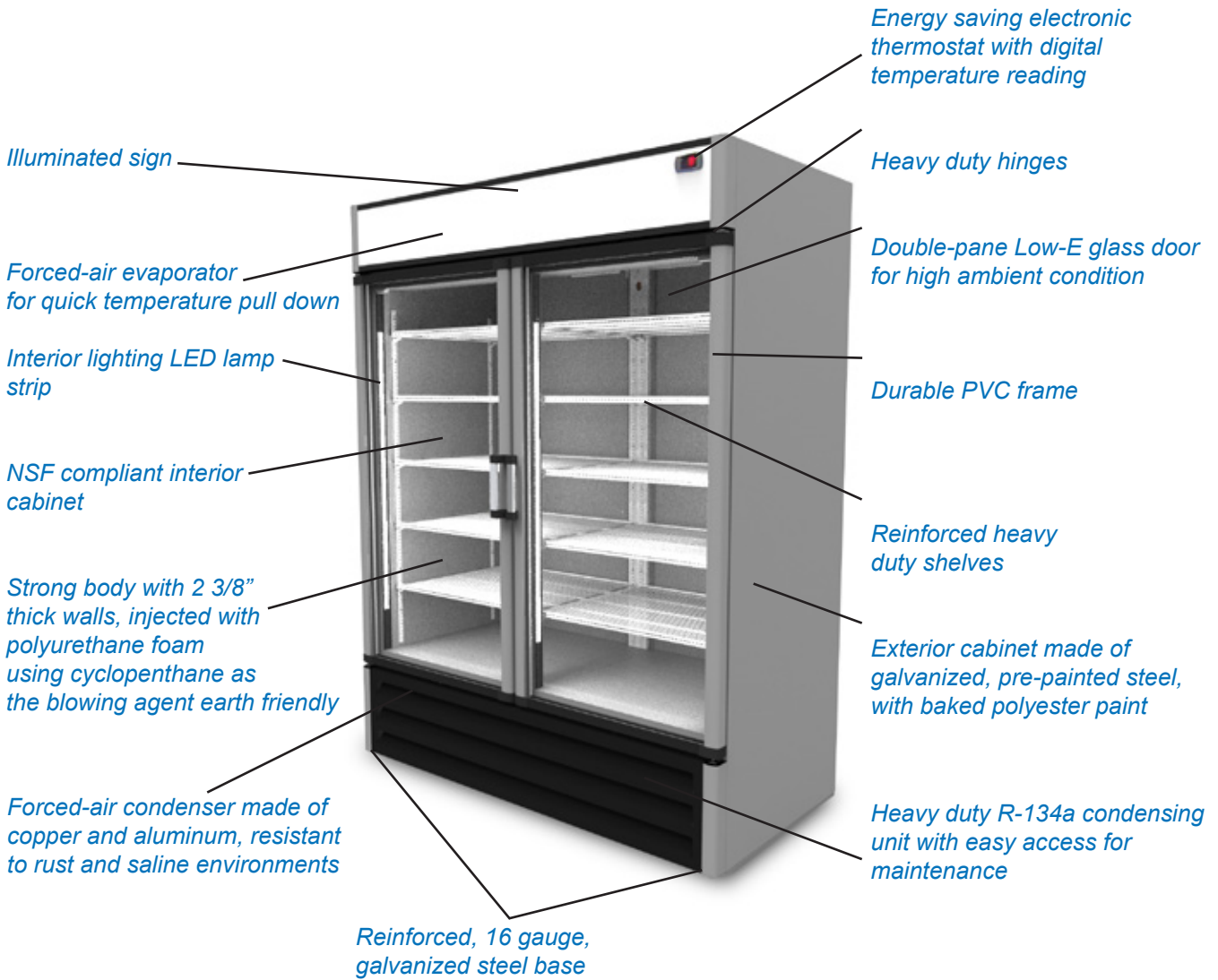


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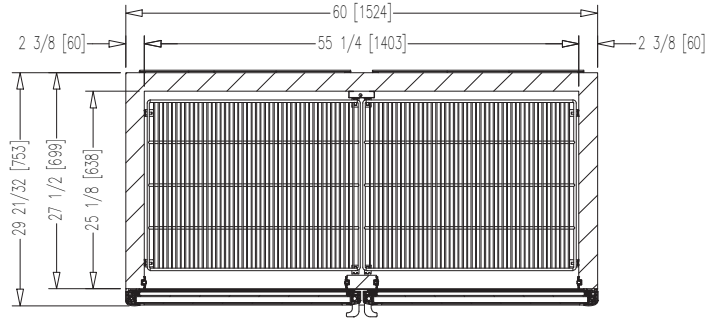


UNIT FEATURES

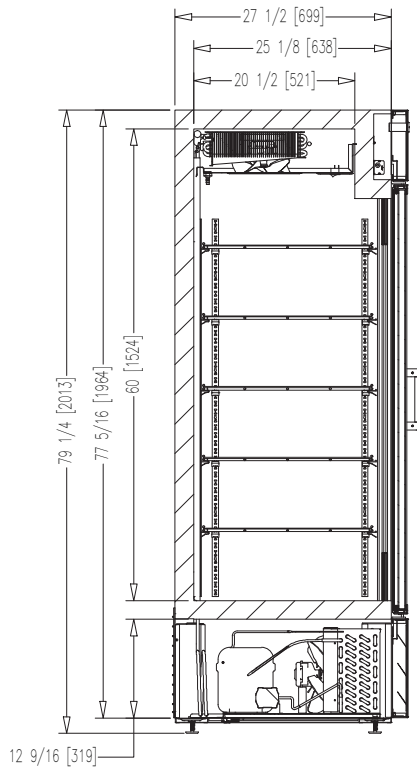




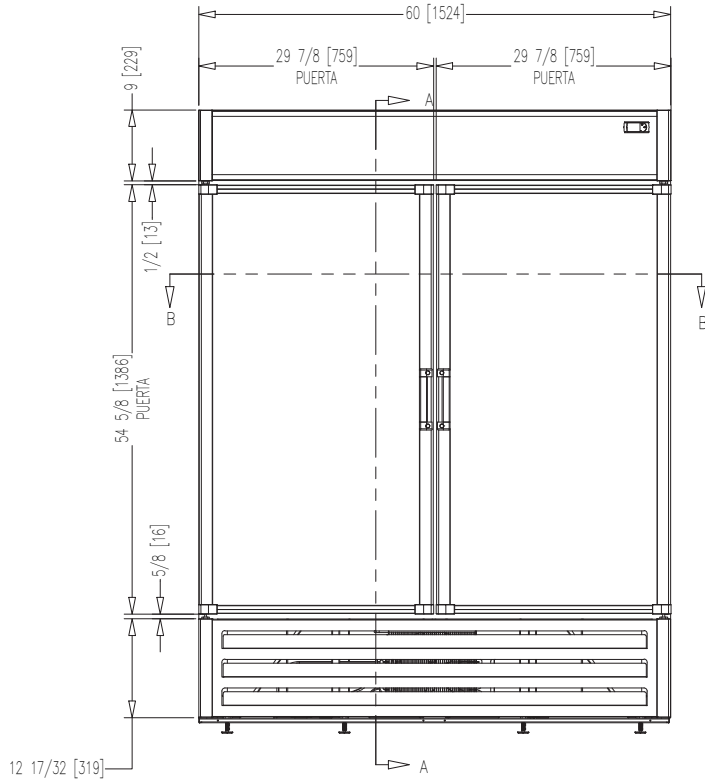
CROSS SECTION VIEWS RM-49 (DIMENSIONS: INCHES [MM])



TOP VIEW



SIDE VIEW

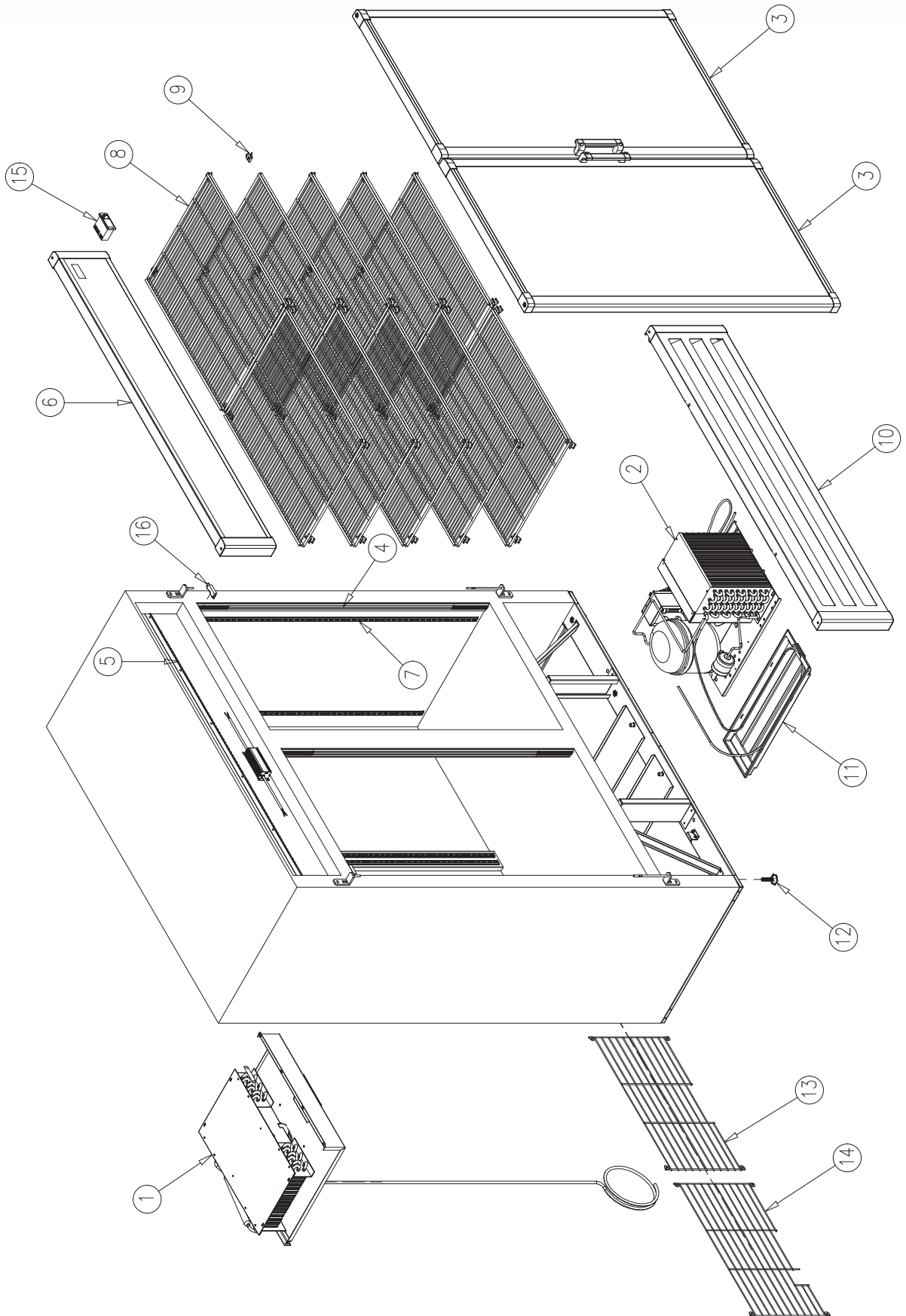


FRONT VIEW



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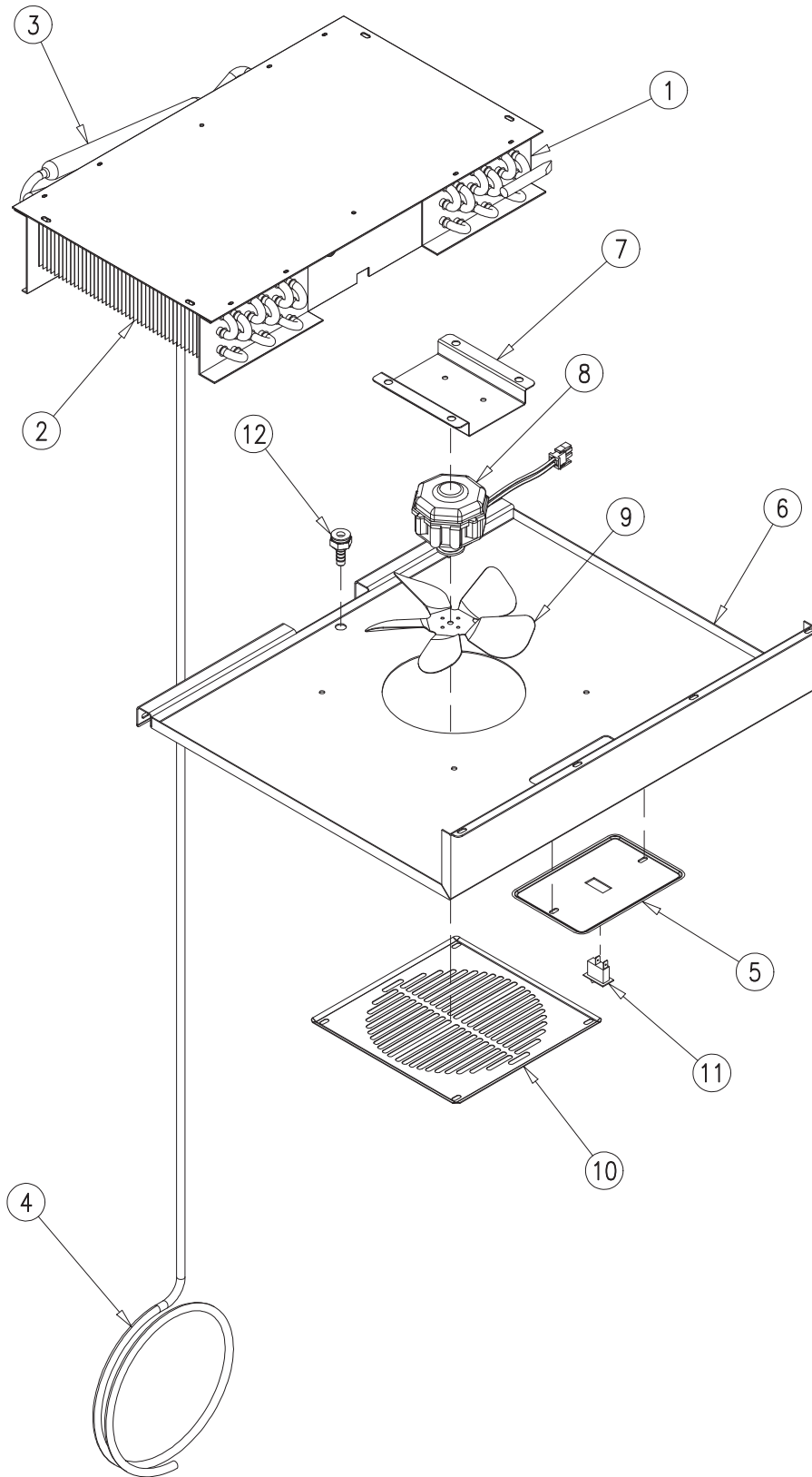
EXPLODED VIEW





EXPLODED VIEW

<i>Item No.</i>	<i>Description</i>	<i>Part No.</i>	<i>Quantity per cooler</i>
1	REFRIGERATION SYSTEM	See pages 8 & 9	
2	COMPLETE 1/2HP 115V/60HZ CONDENSING UNIT	SC18G-R	1
3	COMPLETE DOOR	OT-PTA-RM49	1
4	INTERIOR LIGHTING SYSTEM	See pages 14 & 15	
5	EXTERIOR LIGHTING SYSTEM	See pages 14 & 15	
6	HEADER SIGN	OT-ROT-RM49	1
7	PILASTER 48"	PI-5	8
8	FLAT SHELF	SH-0183-LEDR-HD-FE	10
9	SHELF CLIPS	CL-51-SS-E	40
10	FRONT GRILL	OT-CUBREM-RM49	1
11	WATER PAN	OT-TF-0383	1
12	LEVELING LEGS	LG-27	8
13	RIGHT BACK GRILL	SH-0258-D-G-B	1
14	LEFT BACK GRILL	SH-0258-I-G-B	1
15	ENERGY SAVING ELECTRONIC THERMOSTAT	CT-185-CA	1
16	MAGNETIC SWITCH	EL-360-C	1





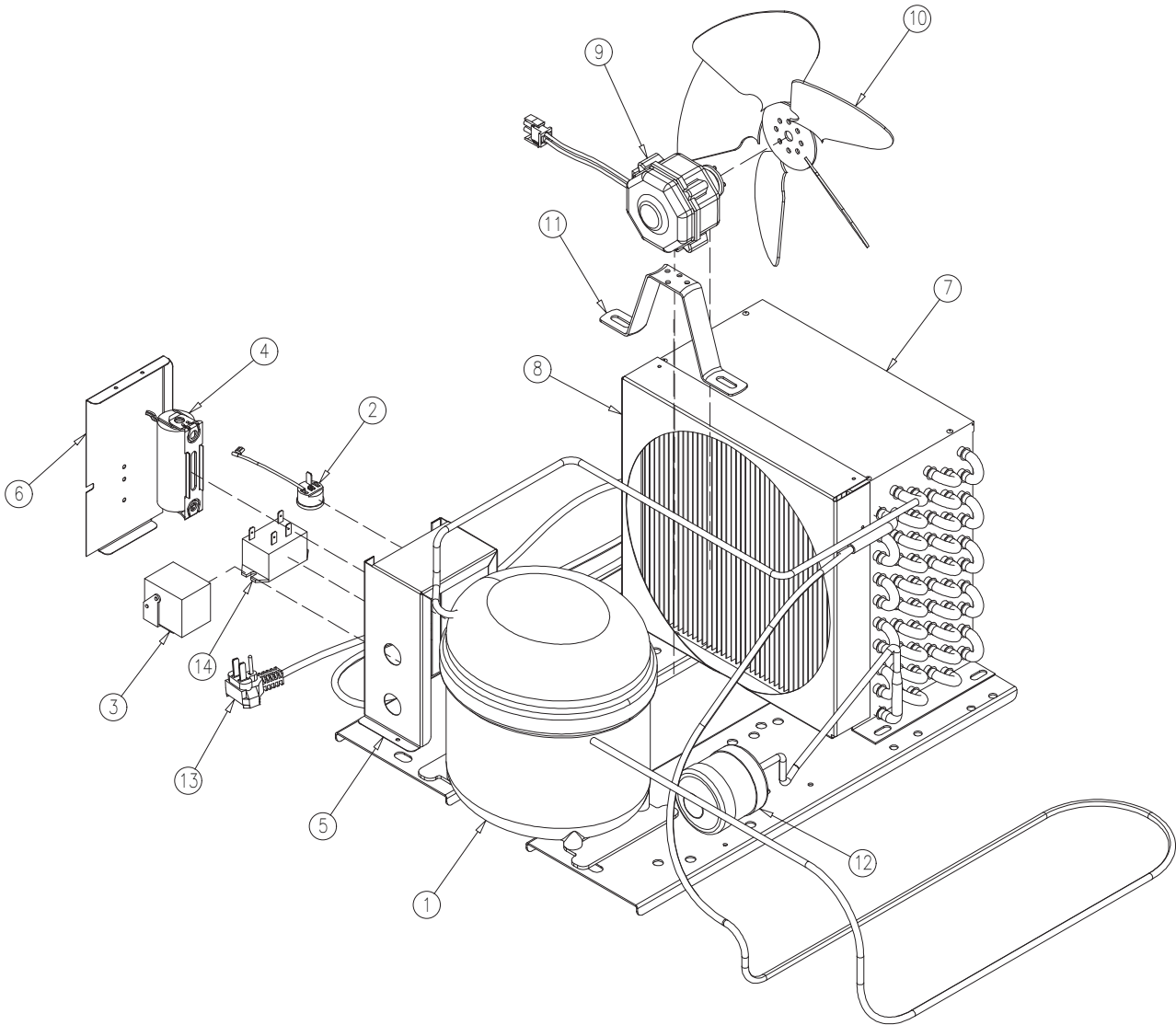
REFRIGERATION SYSTEM

<i>Item No.</i>	<i>Description</i>	<i>Part No.</i>	<i>Quantity per cooler</i>
1	LEFT EVAPORATOR	CO-135-I	1
2	RIGHT EVAPORATOR	CO-135-D	1
3	ACCUMULATOR	DR-15-P	1
4	HEAT EXCHANGER	EN-0122	1
5	SWITCH BRACKET	OT-17197	1
6	BAFFLE	OT-8564	1
7	EVAPORATOR FAN MOTOR BRACKET	OT-17491	1
8	EVAPORATOR FAN MOTOR	FA-41	1
9	EVAPORATOR FAN BLADE	FA-2-EBM	1
10	FAN GUARD	OT-2395	1
11	LIGHT SWITCH	EL-303-E	1
12	PLASTIC DRAIN	DR-1-P	1



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CONDENSING UNIT ASSEMBLY AND ITS COMPONENTS





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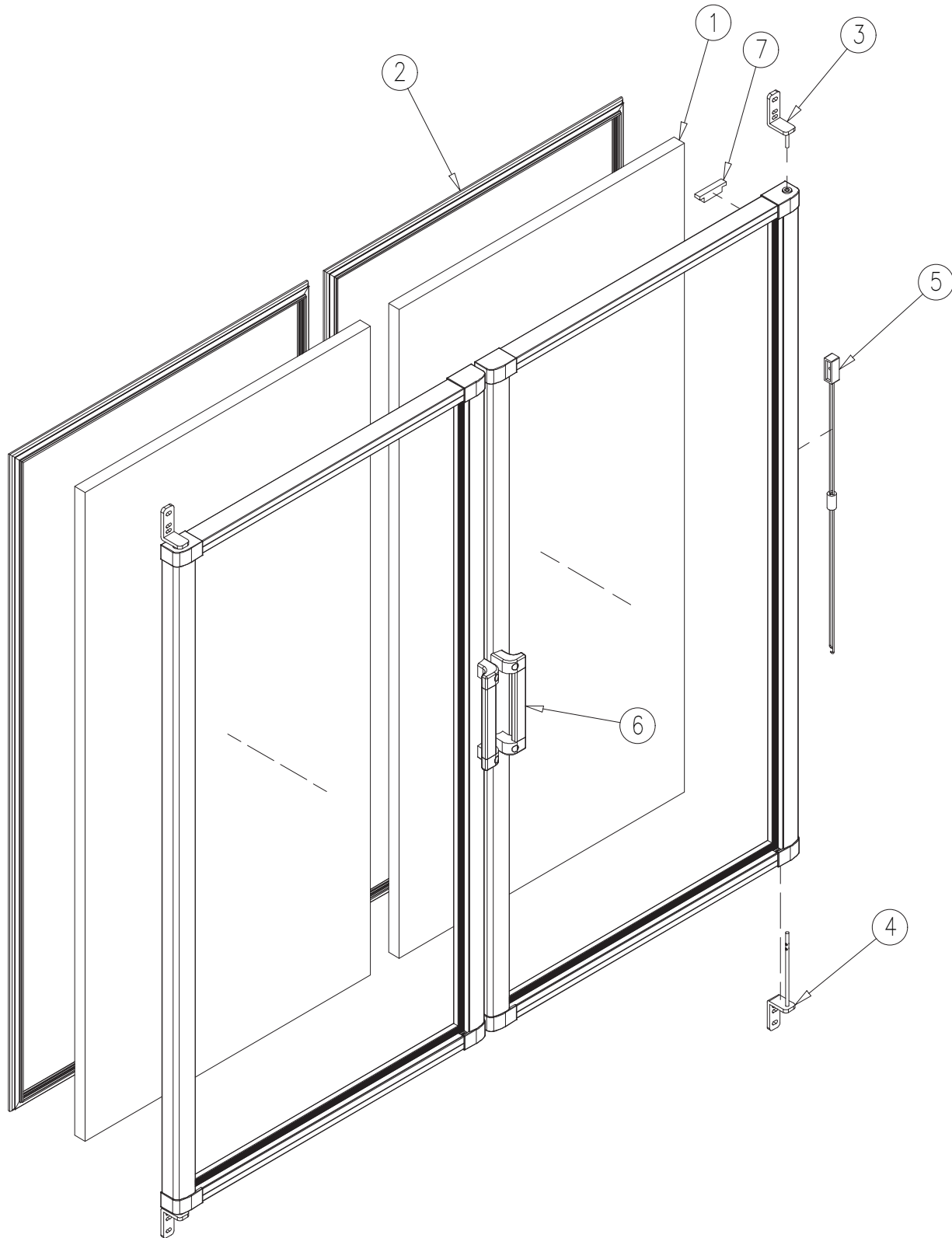
CONDENSING UNIT ASSEMBLY AND ITS COMPONENTS

<i>Item No.</i>	<i>Description</i>	<i>Part No.</i>	<i>Quantity per cooler</i>
1	1/2HP 115V/60HZ COMPRESSOR	SC18G	1
2	OVERLOAD PROTECTOR 117U3212	EL-1945-R	1
3	RELAY 117-7441	EL-1944-R	1
4	START CAPACITOR 410 μ F	CAP-117U5028	1
5	ELECTRICAL BOX	OT-6729	1
6	ELECTRICAL BOX COVER	OT-7087	1
7	CONDENSER	CO-272	1
8	CONDENSER SHROUD	OT-4546	1
9	CONDENSER FAN MOTOR	FA-41	1
10	CONDENSER FAN BLADE	FA-11-WE	1
11	CONDENSER FAN MOTOR BRACKET	FA-18	1
12	DRIER	DR-404	1
13	POWER CORD	EL-1265-9	1
14	MAGNETIC CONTACTOR	EL-716-R	1



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SWING DOOR ASSEMBLY AND ITS COMPONENTS





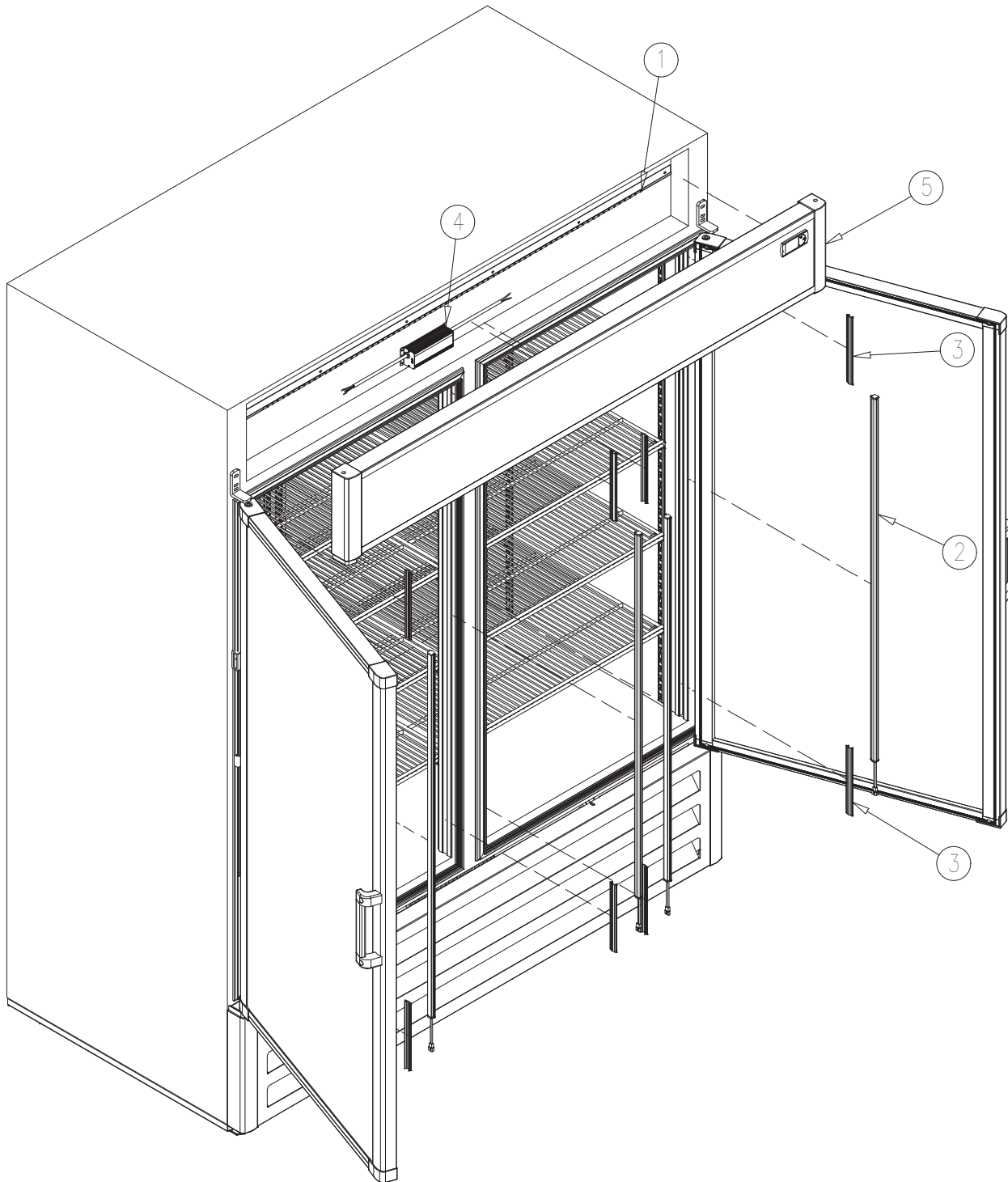
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SWING DOOR ASSEMBLY AND ITS COMPONENTS

<i>Item No.</i>	<i>Description</i>	<i>Part No.</i>	<i>Quantity per cooler</i>
1	GLASS PANE	GL-677-AD-E	2
2	MAGNETIC GASKET TPE	GA-424-B	2
3	UPPER HINGE ASSEMBLY	HA-535-R	2
4	LOWER HINGE ASSEMBLY	HA-522-R	2
5	TORSION MECHANISM	HA-479	2
6	DOOR HANDLE	OT-HA-676	2
7	MAGNETIC SWITCH	EL-360-D	2



INTERIOR LIGHTING SYSTEM





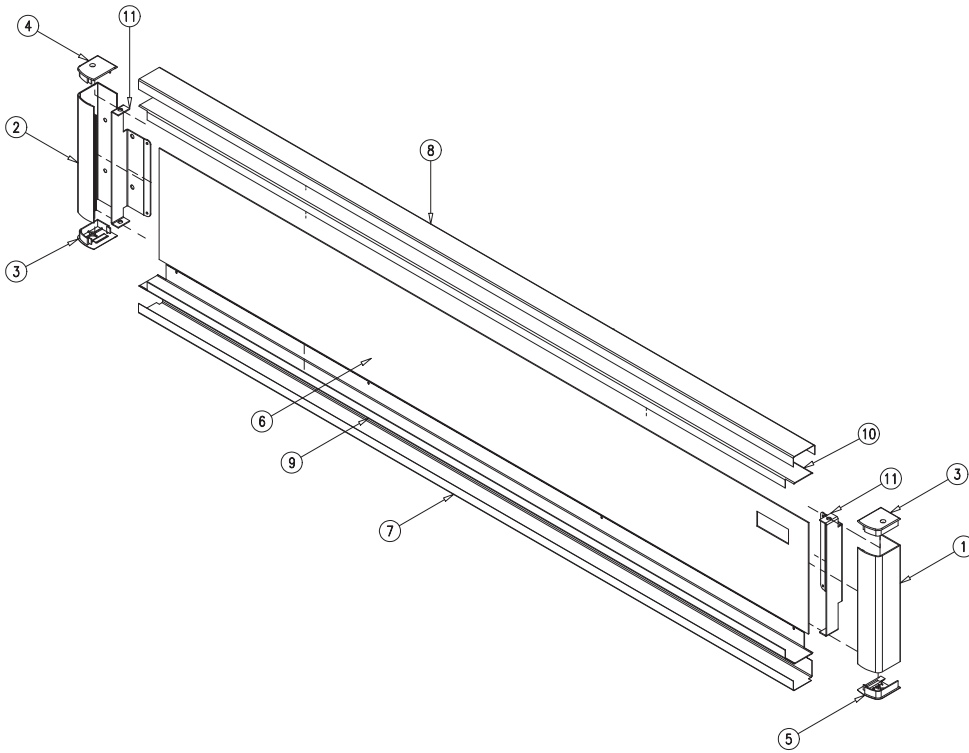
INTERIOR LIGHTING SYSTEM

<i>Item No.</i>	<i>Description</i>	<i>Part No.</i>	<i>Quantity per cooler</i>
1	53 1/4" HIGH INTENSITY FLEXIBLE LED STRIP	OT-EL-170-53.25	1
2	39 3/8" LED LAMP STRIP	EL-148	4
3	7 3/8" LED PROFILE COVER	OT-BR-253-57-7.375	8
4	4.0 Amp. LED POWER SUPPLY	OT-EL-157-T	1
5	HEADER SIGN	OT-ROT-RM49	1

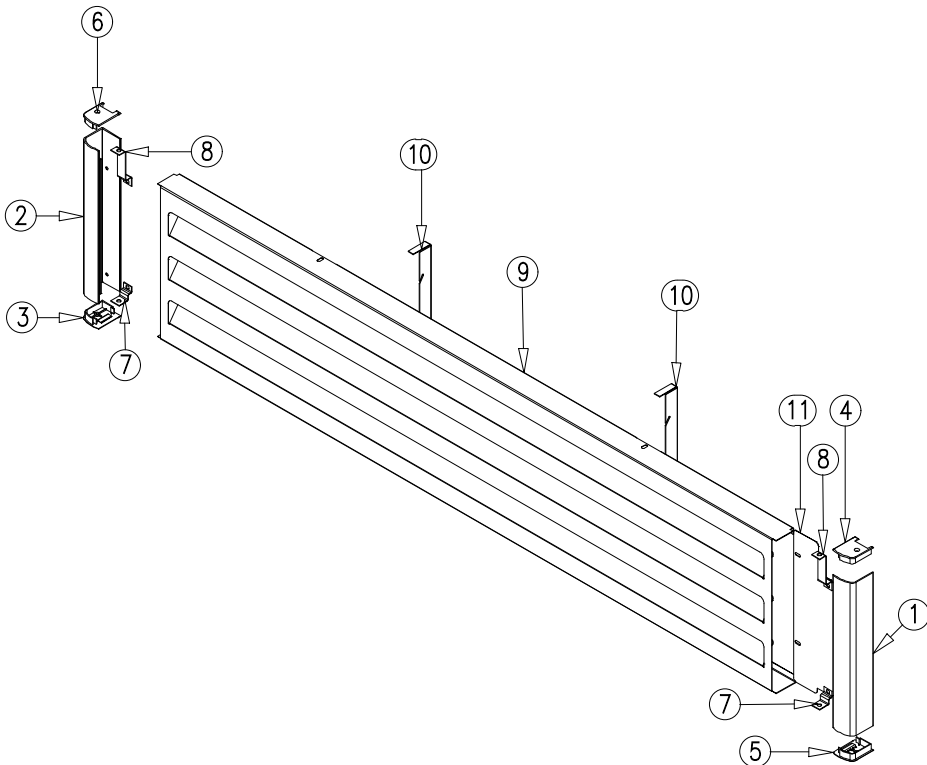


SIGN AND FRONT GRILL ASSEMBLY

Sign Assembly



Front Grill Assembly





SIGN AND FRONT GRILL ASSEMBLY

Sign Assembly

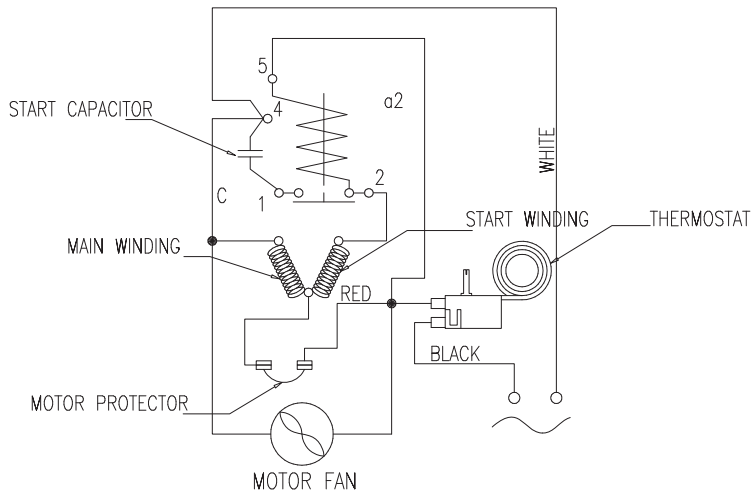
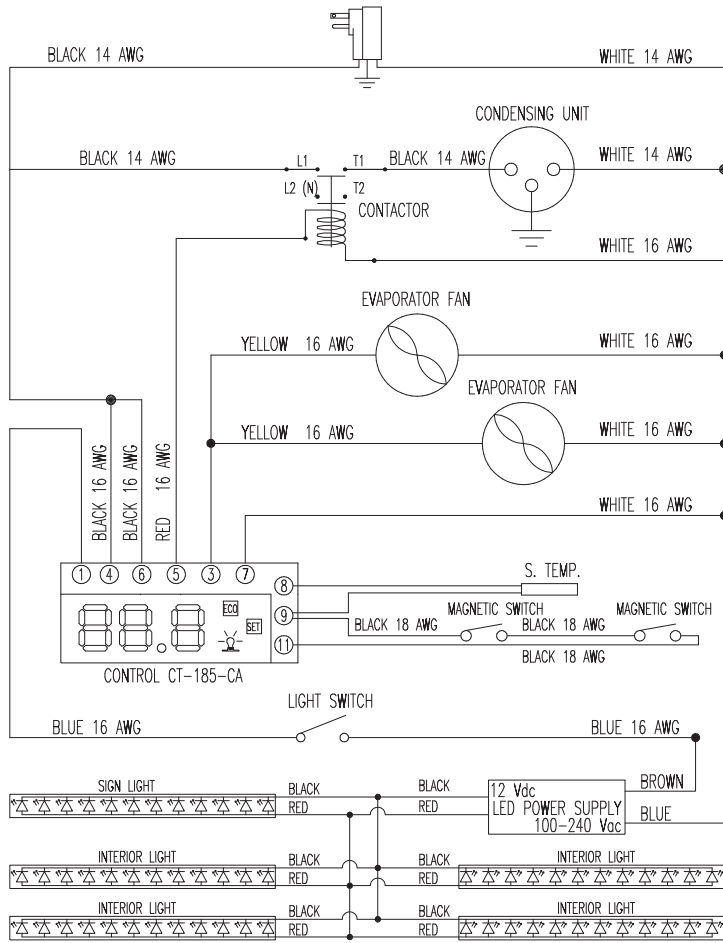
<i>Item No.</i>	<i>Description</i>	<i>Part No.</i>	<i>Quantity per cooler</i>
1	HEADER SIGN RIGHT PROFILE	PL-634-GREY-8.875	1
2	HEADER SIGN LEFT PROFILE	PL-634-GREY-8.875	1
3	HEADER SIGN CORNER A	PL-632-A	2
4	HEADER SIGN CORNER B	PL-633-A	1
5	HEADER SIGN CORNER D	PL-633-B	1
6	HEADER SIGN PLASTIC	ROT-0049	1
7	HEADER SIGN LOWER METAL SHEET	OT-18196	1
8	HEADER SIGN UPPER METAL SHEET	OT-18197	1
9	HEADER SIGN LOWER HORIZONTAL REINFORCEMENT	OT-18198	1
10	HEADER SIGN UPPER HORIZONTAL REINFORCEMENT	OT-18661	1
11	HEADER SIGN REINFORCEMENT	OT-19473	2

Front Grill Assembly

<i>Item No.</i>	<i>Description</i>	<i>Part No.</i>	<i>Quantity per cooler</i>
1	FRONT GRILL RIGHT PROFILE	PL-634-GREY-12.375	1
2	FRONT GRILL LEFT PROFILE	PL-634-GREY-12.375	1
3	FRONT GRILL CORNER A	PL-632-A	1
4	FRONT GRILL CORNER C	PL-632-B	1
5	FRONT GRILL CORNER B	PL-633-A	1
6	FRONT GRILL CORNER D	PL-633-B	1
7	FRONT GRILL REINFORCEMENT	OT-18002	2
8	FRONT GRILL REINFORCEMENT	OT-18183	2
9	FRONT GRILL	OT-18195	1
10	FRONT GRILL REINFORCEMENT	OT-18286	2
11	FRONT GRILL REINFORCEMENT	OT-18662	2



115V./60 Hz./1 PHASE ELECTRICAL WIRING DIAGRAM



DETAIL

CONNECTIONS SC18G COMPRESSOR



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TROUBLESHOOTING

Possible causes and solutions

<i>PROBLEM</i>	<i>POSSIBLE CAUSE</i>	<i>SOLUTION</i>
COMPRESSOR WILL NOT START	NO VOLTAGE IN THE ELECTRICAL SOCKET	USE A VOLTMETER TO CHECK THE VOLTAGE
	THE ELECTRICAL CONDUCTOR OR WIRES MAY BE CUT	USE AN OHMMETER, TO CHECK FOR CONTINUITY
	DEFECTIVE ELECTRICAL COMPONENTS SUCH AS: THERMOSTAT, RELAY, THERMAL PROTECTOR, ETC.	REPLACE DEFECTIVE COMPONENTS
	COMPRESSOR MOTOR HAS A WINDING OPEN OR SHORTED	MEASURE THE OHMIC RESISTANCE OF THE MAIN AND AUXILIARY WINDINGS USING AN OHMMETER. COMPARE THEM WITH THE CORRECT VALUES
	DIRTY CONDENSER, LACK OF AIR FLOW	CLEAN CONDENSER AND ALLOW FOR AIR CIRCULATION
	LOW VOLTAGE	USE A VOLTAGE REGULATOR IF THE VOLTAGE IS LOWER THAN 100 VOLTS
THE TEMPERATURE IS TOO COLD	COMPRESSOR IS STUCK	CHANGE THE COMPRESSOR
	THERMOSTAT DOES NOT DISCONNECT THE CONDENSING UNIT	CHECK THE INSTALLATION OF THE THERMOSTAT. IF THE PROBLEM PERSISTS, CHANGE THE THERMOSTAT
THE TEMPERATURE IS NOT COLD ENOUGH	THERMOSTAT'S AMBIENT SENSOR IS LOOSE OR INSTALLED IMPROPERLY	CORRECTLY FASTEN THE THERMOSTAT'S AMBIENT SENSOR
	CONDENSER IS DIRTY; LACK OF AIR FLOW	CLEAN THE CONDENSER AND ALLOW FOR AIR CIRCULATION



PROBLEM

POSSIBLE CAUSE

SOLUTION

THE TEMPERATURE IS NOT COLD ENOUGH

THE REFRIGERATOR HAS BEEN PLACED AT AN INADEQUATE LOCATION

THE UNIT MUST NOT BE NEAR STOVES, WALLS THAT ARE EXPOSED TO THE SUN, OR PLACES THAT LACK SUFFICIENT AIR FLOW

THE REFRIGERATOR HAS BEEN USED IMPROPERLY

THE SHELVES MUST NEVER BE COVERED WITH ANY TYPE OF PLASTIC OR OTHER MATERIAL THAT WILL BLOCK THE CIRCULATION OF COLD AIR WITHIN THE REFRIGERATOR

THE REFRIGERATOR HAS BEEN OVERCHARGED WITH THE REFRIGERANT GAS

CHECK TO SEE IF CONDENSATION OR ICE CRYSTALS HAVE FORMED ON THE SUCTION LINE. IF SO, CHARGE WITH THE CORRECT AMOUNT OF GAS

THE REFRIGERANT GAS IS LEAKING

FIND THE LOCATION WHERE THE GAS IS LEAKING IN ORDER TO SEAL IT OR REPLACE THE DEFECTIVE COMPONENT. CHANGE THE DRIER. PERFORM A GOOD VACUUM AND RECHARGE THE UNIT

THE EVAPORATOR AND/OR CONDENSER FANS AREN'T WORKING

CHECK THE ELECTRICAL CONNECTIONS AND MAKE SURE THAT THE FAN BLADE ISN'T STUCK. REPLACE THE FAN MOTOR IF IT DOESN'T WORK

LOW VOLTAGE

USE A VOLTAGE REGULATOR IF THE VOLTAGE IS LOWER THAN 100 VOLTS

ELECTRICAL SHOCKS

WIRES OR ELECTRICAL COMPONENTS ARE IN DIRECT CONTACT WITH METALLIC PARTS

CHECK FOR APPROPRIATE INSULATION ON THE CONNECTIONS OF EACH ELECTRICAL COMPONENT

NOISE

THE REFRIGERATOR IS NOT PROPERLY LEVELLED

CHECK IF THE NOISE GOES AWAY AFTER YOU LEVEL THE REFRIGERATOR

THE CONDENSER IS NOT FASTENED CORRECTLY. COPPER TUBINGS ARE IN CONTACT WITH METAL

WHILE THE COMPRESSOR IS WORKING, CHECK TO SEE IF METAL PARTS ARE IN CONTACT WITH ONE ANOTHER AND/OR IF THE SCREWS THAT FASTEN THE CONDENSER ARE TIGHTENED

THE EVAPORATOR AND/OR CONDENSER FANS ARE LOOSE

CHECK IF THE FANS ARE SECURELY FASTENED. ALSO, CHECK IF THE FAN BLADES ARE LOOSE, BROKEN OR CROOKED. IF SO, CHANGE THE FAULTY BLADE

COMPRESSOR HAS AN INTERNAL NOISE

IF THE NOISE PERSISTS AFTER ALL OTHER MEASURES HAVE BEEN TAKEN, IT MAY BE ORIGINATING FROM THE COMPRESSOR



<i>PROBLEM</i>	<i>POSSIBLE CAUSE</i>	<i>SOLUTION</i>
EXTREME CONDENSATION INSIDE THE REFRIGERATOR	THERMOSTAT'S AMBIENT SENSOR IS LOOSE OR INSTALLED IMPROPERLY	CORRECTLY FASTEN THE THERMOSTAT'S AMBIENT SENSOR
	THE OUTSIDE ENVIRONMENT'S RELATIVE HUMIDITY IS VERY HIGH (OVER 75%)	THIS TYPE OF OCCURRENCE IS CAUSED BY LOCAL CLIMATIC CONDITIONS AND NOT BY THE REFRIGERATED UNIT
	THE REFRIGERATOR DOOR WON'T SHUT COMPLETELY	CHECK THE DOOR AND/OR THE MAGNETIC GASKET. ADJUST THE DOOR HINGES IF NEEDED; REPLACE THE GASKET IF BROKEN
	THE REFRIGERATOR HAS BEEN PLACED AT AN INADEQUATE LOCATION	THE UNIT MUST NOT BE NEAR SOURCES THAT PRODUCE TOO MUCH HEAT
NO ILLUMINATION	THE LIGHT SWITCH IS IN "OFF" POSITION	PRESS THE LIGHT SWITCH TO THE "ON" POSITION
	FALSE CONTACT ON THE LIGHT SWITCH OR LED	INSPECT ALL CONNECTIONS
	LIGHT SWITCH OR LED ARE DAMAGED	REPLACE THE DAMAGED COMPONENT
	THE THERMOSTAT IS SET TO OPERATE IN ENERGY SAVING MODE	SET THE THERMOSTAT IN NORMAL OPERATION MODE



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REFRIGERATION SYSTEM

Component Description

COMPRESSOR:

The compressor is a factory sealed unit located underneath (outside) the cooling cabinet. This pump is activated by a motor which draws low pressure vapor (refrigerant) from the evaporator. It then compresses the gas and forces it into the condenser at a high pressure.

STARTER RELAY:

The starter relay is attached on one side of the compressor box. The compressor motor has two windings: one for starting and another for running. In order to provide for the necessary additional torque when the motor is first ignited, the starter relay connects the additional start-up windings. After the motor reaches its correct operating speed, the relay opens the ignition windings and the motor carries on with the operation windings.

THERMAL PROTECTOR:

This protector is a thermo-sensible device attached to one side of the compressor's box. In any given

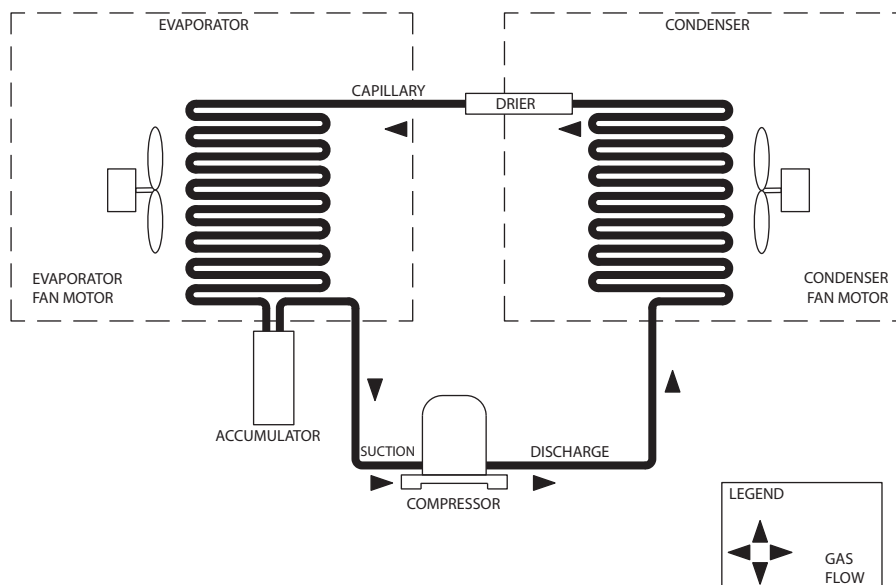
situation, if the compressor overheats or if the voltage source varies drastically, the thermal protector opens, turning off the compressor. After the compressor cools down to a normal and safe working temperature, the thermal protector turns on the compressor.

CONDENSER:

The condenser is located underneath (outside) the cooling cabinet in front of the compressor. It receives hot, high pressure refrigerant gas from the compressor, and cools it down until it returns to liquid state.

CONDENSER FAN MOTOR:

The condenser fan motor is located underneath the cooling cabinet. It is a ventilation device which forces the ambient air to flow over the condenser in order to cool down the refrigerant flowing inside it. The fan motor works only if the compressor is on.





REFRIGERATION SYSTEM

Component Description

EVAPORATOR:

The evaporator is located inside the cooling cabinet. As the gas flows at a low pressure through the evaporator, it absorbs serpentine and removes the heat from inside the cabinet.

EVAPORATOR FAN MOTOR:

This device produces the required circulation of air through the cooling cabinet as well as over the surface of the evaporator's serpentine thermal exchange area. This fan motor runs continuously.

The evaporator and condenser serpentine have aluminum fins that help increase the surfaces for the thermal exchange in an efficient way.

CAPILLARY TUBE:

It consist of several feet of tubing having a small inside diameter. It is a device used to control the amount od refrigerant that flows into the evaporator.

DRIER:

The drier is located in between the condenser and the evaporator. It traps and removes moisture in the refrigeration system while allowing oil and refrigerant to flow freely.

ACCUMULATOR:

The accumulator is located in between the evaporator and the compressor. It is a storage tank which receives refrigerant liquid from the evaporator and prevents it from flowing into the compressor.

ENERGY SAVING ELECTRONIC THERMOSTAT:

The electronic thermostat is responsible for detecting temperature changes inside the cabinet. It starts the compressor whenever the cabinet temperature rises above the desired temperature. The compressor recirculates the refrigerant throughout the system, lowering the temperature inside the cooling compartment. When the temperature drops to the set point programmed in the thermostat, it turns off the compressor and a new cycle starts again.

This electronic thermostat contains a dispositive to save energy when the sales of the day are over. This dispositive is activated by pressing the "Energy Saving" button of the thermostat. When this button is pressed, the lights are turned off and the refrigerator starts operating in a warmer temperature setting, consuming less energy.

COOLING CABINET:

This is the area where the goods are stored. It has been designed to allow for constant cold air circulation to flow through the goods.



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THE REFRIGERATION CYCLE

1. As the temperature inside the cooling compartment increases, it is detected by the thermostats' sensor. The thermostat then turns the compressor and the condenser motor on once the programmed temperature is reached.
2. The compressor recirculates the refrigerant throughout the system by drawing the refrigerant gas at a low vapor pressure from the evaporator. Then it compresses the refrigerant and forces it into the condenser.
3. The condenser, with the help of its fan motor, removes the refrigerants' heat as its flows through the condenser. The heat is then released to the outside environment. Consequently, the decrease in temperature will change the refrigerant from a gaseous to a liquid state.
4. The capillary tube regulates the amount of refrigerant that is discharged into the evaporator and expands it. This expansion causes the refrigerant temperature to decrease.
5. The evaporators' serpentine allows the refrigerant to absorb and remove heat from the cooling compartment.
6. The drop in temperature inside the cooling compartment is caused by the refrigerant's continuous circulation through the system. This gas continuously absorbs the heat that exists inside the cooling compartment and expels it to the outside environment. When the temperature drops to its programmed set point, it is detected by the thermostat and it turns off the compressor and condenser motor.

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