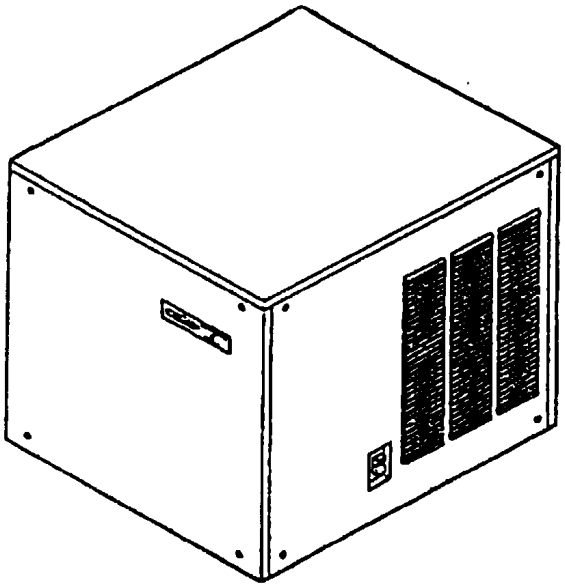
MODULAR FLAKED ICE MAKER

Service Manual

MODELS: SERIES 750 (R404a),
SERIES 1100 (R22),
SERIES 2400 (R404a)



Part No. 166240009
OCTOBER 1994
Revised October, 1996

THIS DOCUMENT CONTAINS IMPORTANT INFORMATION
This Manual must be read and understood before installing or operating this equipment

PRINTED IN U.S.A

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INTRODUCTION

We have strived to produce a quality product. The design has been kept simple thus insuring trouble–free operation.

This manual has been prepared to assist servicemen and users with information concerning installation, construction and maintenance of the ice making equipment. The problems of the serviceman and user have been given special attention in the development and engineering of our ice makers.

If you encounter a problem which is not covered in this manual, please feel free to write or call. We will be happy to assist you in any way we can.

When writing, please state the model and serial number of the machine.

Address all correspondence to:

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SPECIFICATIONS 750 AND 1100 SERIES

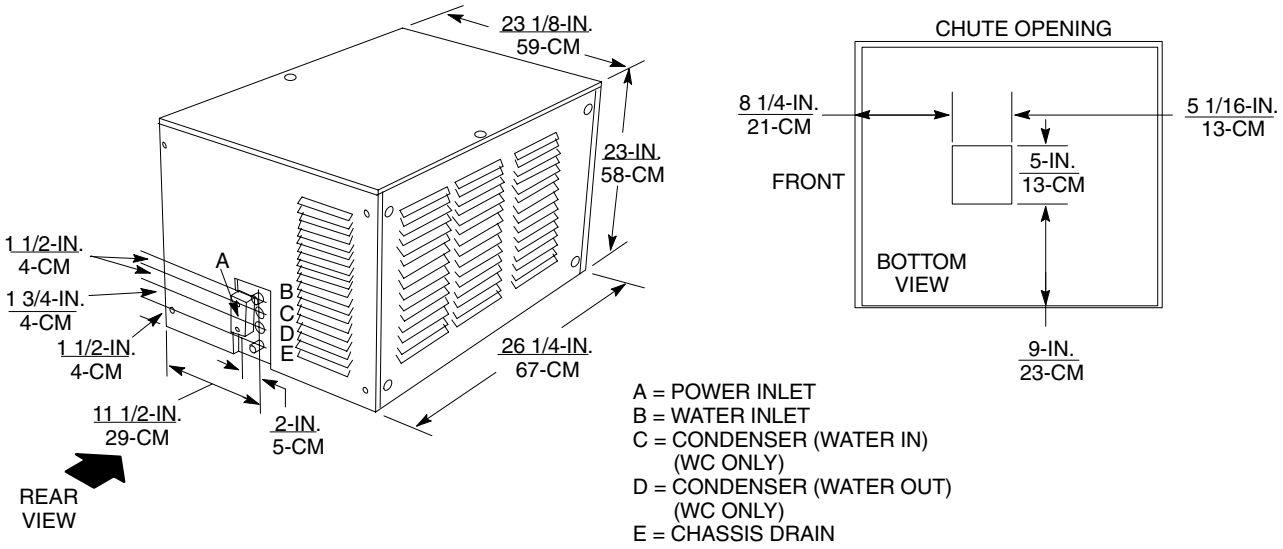


FIGURE 1. 750 AND 1100 SERIES SPECIFICATIONS

ICE PRODUCTION CAPACITY (approximate)

AF-750-P-MHR PRODUCTION CHART			
AIR TEMPERATURE	**WATER TEMPERATURE**		
	50˚F/10˚C	**70˚F/21˚C**	**80˚F/27˚C**
50˚F/10˚C	873 lbs/397 kgs	745 lbs/339 kgs	695 lbs/316 kgs
70˚F/21˚C	869 lbs/395 kgs	738 lbs/335 kgs	688 lbs/313 kgs
90˚F/32˚C	755 lbs/343 kgs	662 lbs/301 kgs	609 lbs/277 kgs

AF-750-P-MH50R PRODUCTION CHART			
AIR TEMPERATURE	**WATER TEMPERATURE**		
	50˚F/10˚C	**70˚F/21˚C**	**80˚F/27˚C**
50˚F/10˚C	748 lbs/340 kgs	643 lbs/292 kgs	595 lbs/279 kgs
70˚F/21˚C	739 lbs/336 kgs	635 lbs/289 kgs	585 lbs/266 kgs
90˚F/32˚C	678 lbs/308 kgs	586 lbs/266 kgs	542 lbs/246 kgs

WF-750-P-MHR PRODUCTION CHART			
AIR TEMPERATURE	**WATER TEMPERATURE**		
	50˚F/10˚C	**70˚F/21˚C**	**80˚F/27˚C**
50˚F/10˚C	765 lbs/348 kgs	643 lbs/292 kgs	587 lbs/267 kgs
70˚F/21˚C	748 lbs/340 kgs	631 lbs/287 kgs	585 lbs/266 kgs
90˚F/32˚C	730 lbs/332 kgs	621 lbs/282 kgs	582 lbs/265 kgs

AF-1100-P-MH PRODUCTION CHART			
AIR TEMPERATURE	**WATER TEMPERATURE**		
	50˚F/10˚C	**60˚F/16˚C**	**70˚F/21˚C**
70˚F/21˚C	1202 lbs/545 kgs		
80˚F/27˚C		1119 lbs/508 kgs	
90˚F/32˚C			988 lbs/448 kgs

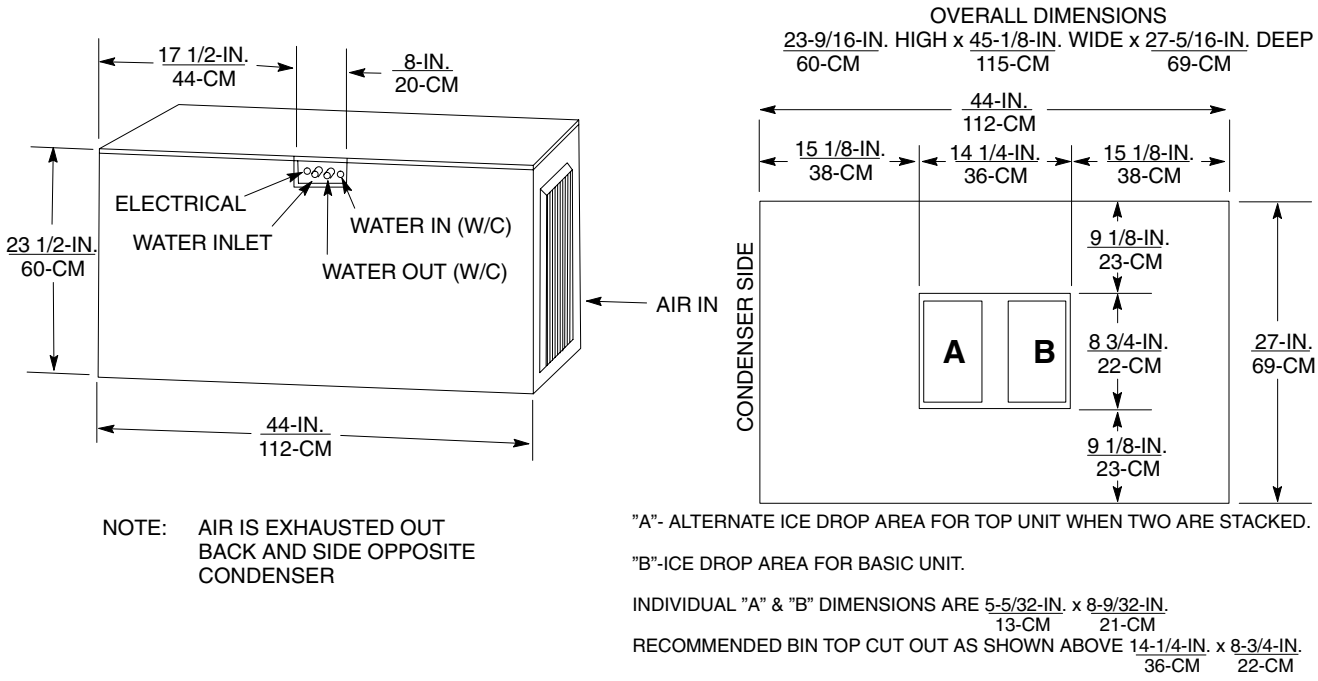
WF-1100-P-MH PRODUCTION CHART			
AIR TEMPERATURE	**WATER TEMPERATURE**		
	50˚F/10˚C	**60˚F/16˚C**	**70˚F/21˚C**
70˚F/21˚C	1151 lbs/523 kgs		
80˚F/27˚C		1123 lbs/509 kgs	
90˚F/32˚C			1060 lbs/467 kgs

ICE PRODUCTION CAPACITY (approximate)

RF-1100-P-MH PRODUCTION CHART			
AIR TEMPERATURE	**WATER TEMPERATURE**		
	50˚F/10˚C	**60˚F/16˚C**	**70˚F/21˚C**
70˚F/21˚C	1202 lbs/545 kgs		
80˚F/27˚C		1119 lbs/508 kgs	
90˚F/32˚C			988 lbs/448 kgs

	750	**1100**
Compressor Electrical Rating	3/4 hp	2 hp
Compressor Model	Copeland RS64CIE-PAF-214	Copeland CRD-10200PFV
Condenser	Air or Water Cooled	Air or Water Cooled
Refrigerant Charge	AC–21oz R404a	AC–25 oz R–22
	WC–18oz R404a	WC–23 oz R–22
Refrigerant Control (Air Cooled)	AXV (30 PSI)	AXV (15-17 PSI)
Refrigerant Control (Water Cooled)	AXV (28 PSI)	AXV (15-17 PSI)
Voltage	115V	208/230V 60HZ 1PH
Total Amp. Draw	16 AMPS	12 AMPS
Gearmotor Amp. Draw	1.6 AMPS	.7 AMPS
Gearmotor Electrical Rating	1/8 hp	1/7 hp
Maximum Fuse Size	20 AMPS	15 amps

SPECIFICATIONS 2400 SERIES



NOTE: AIR IS EXHAUSTED OUT BACK AND SIDE OPPOSITE CONDENSER

"A"- ALTERNATE ICE DROP AREA FOR TOP UNIT WHEN TWO ARE STACKED.

"B"-ICE DROP AREA FOR BASIC UNIT.

INDIVIDUAL "A" & "B" DIMENSIONS ARE 5-5/32-IN. (13-CM) x 8-9/32-IN. (21-CM)

RECOMMENDED BIN TOP CUT OUT AS SHOWN ABOVE 14-1/4-IN. (36-CM) x 8-3/4-IN. (22-CM)

FIGURE 2. SPECIFICATIONS FOR 2400 SERIES

ICE PRODUCTION CAPACITY (approximate)

AF-2400-P-MHR PRODUCTION CHART			
AIR TEMPERATURE	**WATER TEMPERATURE**		
	50˚F/10˚C	**70˚F/21˚C**	**80˚F/27˚C**
50˚F/10˚C	2507 lbs/1140 kgs	2175 lbs/989 kgs	2008 lbs/913 kgs
70˚F/21˚C	2495 lbs/1134 kgs	2045 lbs/930 kgs	1850 lbs/841 kgs
90˚F/32˚C	2095 lbs/952 kgs	1800 lbs/818 kgs	1680 lbs/764 kgs

Compressor Electrical Rating	2 hp
Compressor Model	Copeland CS14K6E-PFV-235
Condenser	Air Cooled
Refrigerant Charge	26 oz R404a/each side
Refrigerant Control	AXV 26-PSI factory setting/Each Side
Voltage	208/230 1 ph. 60 hz.
Inlet Water Supply	3/8" SAE male flare
Gearmotor Electrical Rating	1/7 hp
Gearmotor Amp Draw	.7 amps at 230V
Mamimum Fuse Size	40 amps
Total Amp Draw	30 amps

Refer to serial plate for maximum circuit ampacity and minimum time delay fuse size.

INSTALLATION INSTRUCTIONS

You will get better service from the ice machine, longer life and greater convenience if you choose its location with care.

Here are a few points to consider:

1. Select a location as close as possible to where you are going to use the ice.
2. Allow a minimum of 6" space at sides and rear of machine for ventilation.
3. A kitchen installation is not desirable as a rule. If a kitchen installation is necessary, locate the machine as far away from the cooking area as possible. Grease laden air will form a greasy deposit on the condenser. This reduces the ice making efficiency and necessitates thorough cleaning quite often.
4. If you install the unit in a storeroom, be sure the room is well ventilated.

NOTE: Do not install where the ambient and incoming water temperature will drop below 50˚ F rise to over 100˚ F.

WARNING: If water pressure exceeds 50 pounds, a water pressure regulator should be installed in water inlet line between water shut–off valve and strainer. Minimum incoming water pressure required is 22 pounds.

5. Uncrate the unit by removing the staples or nails from the bottom of the carton and lift off.
6. Remove the bolts holding the skid to the machine.
7. For units supplied with a bin sealing gasket, cement the gasket to the bottom outside edge of the machine before it is set on the bin. NOTE: This is an N.S.F. requirement and must be done by the installer.
8. Make sure the correct bin adapter has been supplied when used. Then mount the unit on the bin and level both properly.
9. For units not supplied with bin sealing gasket, seal the machine to bin with an N.S.F. approved sealant such as Dow R.T.V. #732, 734, or G.E. #102, 108. This is an N.S.F. requirement and is the responsibility of the installer.
10. The incoming water for the ice making section requires a 3/8" copper line. Connect this water line to the 3/8" male flare fitting on the back of the unit.

NOTE: For water cooled units, a separate 3/8" copper water line is required to be connected to the flare fitting on the back of the unit marked condenser water in. A 3/8" flare connected line will have to be provided from the fitting marked condenser water out to the drain.

A water regulating valve installed at the factory was set to maintain 270 to 310 PSI head pressure for R–404a units and 210 to 225 PSI for R–22 units (Approx. 105° to 110° F). Check temperatures at condenser outlet and adjust if necessary.

11. Connect a drain hose to the condensate drain stub tube.

NOTE: All plumbing must be done in accordance with national and local codes.

12. Bring the electrical supply into the unit through a handy box located on the back of unit and make connections.

NOTE: NOTE: Make sure the proper voltage and number of wires are provided. See serial plate and make connections.

NOTE: All wiring must conform to national and local codes.

13. Turn on water supply and observe water level in evaporator sections. Water level is to be maintained at the top of the evaporator. (See adjustment procedure)

14. Turn machine on and check for proper voltage and amp draw on the entire unit as well as components such as the gearmotor and fan motor.

15. Check refrigerant circuit and all plumbing connections for leaks, etc.

16. Check bin thermostat or mechanical shut–off for proper operations. In the mid–range the bin thermostat will open at 42˚ and has a 6˚ differential.

REMOTE CONDENSER

Remote condensers should be installed above the ice machine and in a level configuration. They are connected to the ice making unit by copper tubing and line valves. The female half of the line valve is mounted on the ice making unit and the remote condenser. The male half is soldered on the tube ends when tubing kits are provided with the machine. If tubing kits are not provided, the male half of the line valves will be provided in a valve kit and the installer will mount them on the tubing he provides.

NOTE: WHEN VERTICAL LINES ARE INVOLVED IN THE INSTALLATION, FOLLOW STANDARD REFRIGERATION PRACTICES FOR VERTICAL LINES TO ASSURE POSITIVE OIL RETURN TO THE COMPRESSOR. VERTICAL LIFT TO BE NO MORE THAN 15 FEET.

NOTE: WE DO NOT RECOMMEND TUBING RUNS OF MORE THAN 40 FEET..

NOTE: The seals for the line valves will be found in an envelope on the remote condenser. Make sure they are used.

NOTE: REMOVE CAP PLUGS FROM ALL LINE VALVES BEFORE MAKING VALVE CONNECTIONS WITH THE SEAL.

NOTE: A LOW VOLTAGE ELECTRICAL CONTROL CIRCUIT MUST BE FIELD WIRED BETWEEN THE ICE MACHINE AND THE REMOTE CONDENSER RELAY. THOSE WIRES SHOULD BE RUN WITH THE TUBING DURING INSTALLATION. REFER TO APPLICABLE WIRING DIAGRAMS.

NOTE: When the line valves are connected to each other the refrigerant circuit is complete. Each valve half has its own shut-off which must be fully opened to allow the refrigerant to flow though the system before it is started.

The ice making unit utilizing a remote condenser is shipped from the factory with the receiver holding the refrigerant charge. Additional refrigerant may be required upon installation depending upon the ambient conditions the remote condenser is operating under, the condenser and line sizing.

A three way head pressure control valve is used to maintain a relatively consistent head pressure between 175 and 185 PSI for R22 in the receiver in cold ambient conditions. Because of this valve some liquid refrigerant will be held in the condenser.

NOTE: THE HEAD PRESSURE CONTROL VALVE WILL NOT OPERATE CORRECTLY WHEN A TOTAL PRESSURE DROP OF 14 POUNDS OR MORE IS CREATED BETWEEN THE ICE MAKING UNIT, THROUGH THE TUBING TO THE REMOTE CONDENSER, THE CONDENSER AND THE RETURN TUBING TO THE ICE MAKING UNIT.

The remote condenser requires a separate power supply from the ice making unit. Refer to the remote condenser wiring diagram.

WARNING: WATER LEVEL MUST BE MAINTAINED AT THE TOP OF THE EVAPORATOR.

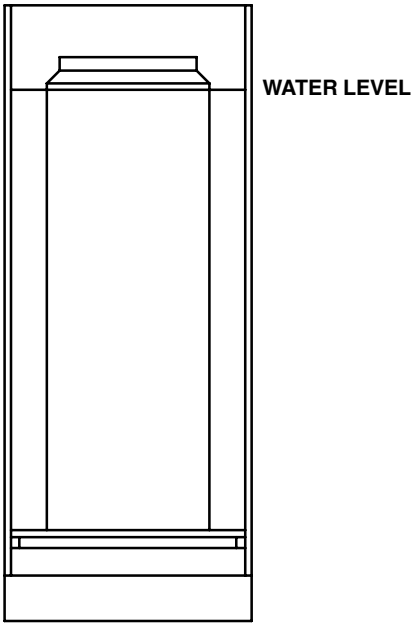


FIGURE 3. WATER LEVEL

1. Remove gearmotor and auger.
2. Adjust float valve to get water level to top seam of the evaporator.
3. Re–install auger. WATER LEVEL WILL RISE WHEN AUGER IS INSERTED BUT WHEN THE MACHINE IS TURNED BACK ON AND ICE STARTS BEING MADE, THE WATER LEVEL WILL GO BACK TO THE ORIGINAL SETTING.
4. Re–install gearmotor assembly and start machine.

STACKING INSTRUCTIONS FOR STACKING KIT 29757

The Kit consists of:

1 – #26102 Sealer

2 – #261 1/4-20x5/8 screw

2 – #256 1/4" flat washer
2 – #239 1/4" Lock Washer

1 – #29758 Stacking Chute Extension

1. After uncrating machine to be stacked, remove front and rear panels.
2. Remove top and front panels of bottom machine.
3. Remove alternate chute opening cover from bottom machine.
4. Insert vertical chute extension from kit into alternate chute opening of bottom unit and seal it to the base with sealer provided in the kit.
5. Carefully mount stacking unit reversed 180° with the compressor and condenser opposite those of the bottom unit.

NOTE: When mounting, make sure stacking unit vertical chute aligns and inserts correctly with chute extension installed in alternate chute opening of bottom unit. Raise chute bracket to cover opening and tighten bracket screws.

6. Secure both machines together as shown in the illustration utilizing screws and washers provided in the kit.
7. After stacking unit, hook up electrical and water.

NOTE: The two units must operate independently of each other.

8. Connect drain line from tee under the stacked unit to run out of the back of the unit.
9. Replace panels of stacked unit front to front and back to back as the machine is mounted. Replace front panel of bottom unit.

TYPICAL WATER CIRCUIT

The supply water enters the float chamber through a small orifice. The water level rises and lifts the buoyant float with it. The float attached to the float arm seats a valve to shut off any further water supply. As water leaves the float chamber, the level drops along with the float and arm, causing the valve to open and admit more water. Thus the water level is maintained automatically as the machine operates.

Water now flows through a hose connected to the float chamber and enters the opening of the evaporator shell. The water level in the shell will rise to the same level that is maintained in the float chamber. The water that is in immediate contact with the center post evaporator will be reduced in temperature. As a result, freezing occurs and ice forms on the surface of the evaporator.

As more water is frozen, the thickness of the ice increases until it exceeds the distance allowed between the evaporator and auger. The auger rotates at a slow speed to wipe off the accumulated ice as well as help it to the surface. After the ice reaches the surface it is discharged through the top opening in the shell. An ice chute attached to the shell conveys the ice to the storage bin where it accumulates in the insulated bin until it is used. The ice will pile up to a point where the bin thermostat tubing is located. When the ice touches this brass tubing, the unit will shut–off and remain off until enough ice is used or melted to reduce the pile. Any ice that melts will pass through the drain and drain hose to an open drain.

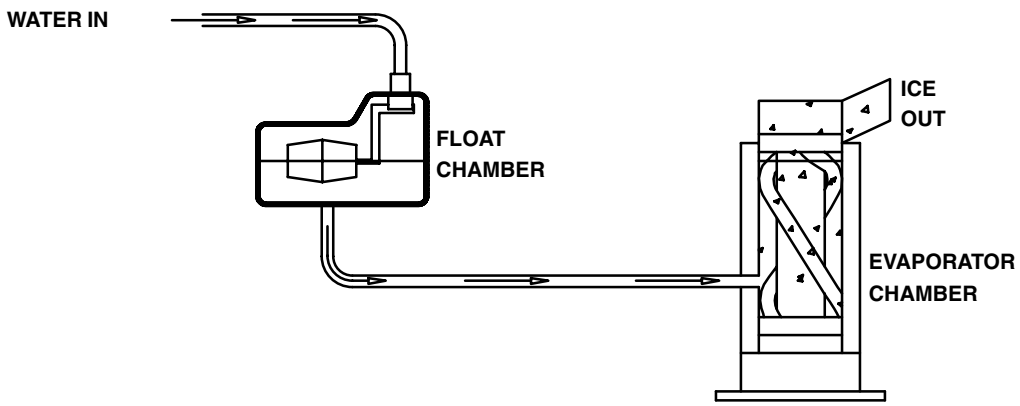


FIGURE 4. TYPICAL WATER CIRCUIT

TYPICAL REFRIGERANT CIRCUIT

Heat always flows from hot to cold and therefore, the ”heat load” supplied to the evaporator section by water gives up its heat to the refrigerant which is at a temperature below the freezing point of water. This refrigerant now passes through the heat exchanger back to the compressor, as a low pressure vapor.

This low pressure vapor is compressed in the compressor, as it leaves the compressor at a high pressure in vapor form it enters the top of the condenser. The condenser has a rapid flow of cool air across it which removes much of the heat from the hot refrigerant vapor.

As the vapor, passing through the condenser, loses heat it condenses back to a liquid since it is still under high pressure and cooler than when it entered the condenser. The liquid refrigerant then passes through the drier/filter still under pressure and goes through the heat exchanger where further cooling takes place. As the refrigerant leaves the automatic expansion valve, the pressure has dropped, causing the refrigerant to vaporize and boil off as it picks up heat in the evaporator and since the pressure is low, the refrigerant will be cold.

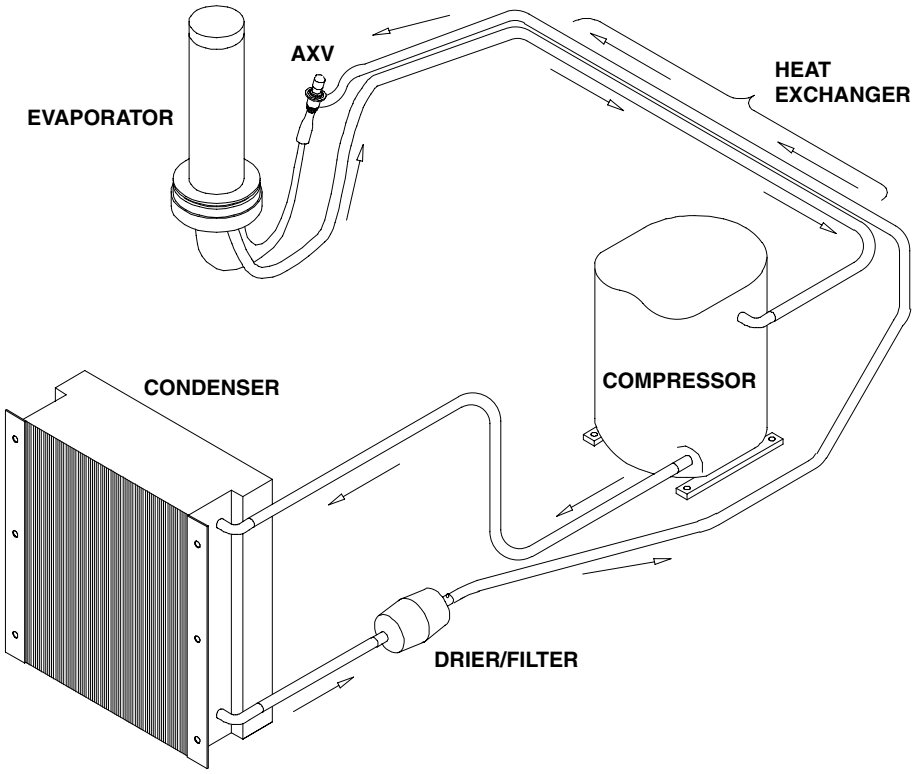


FIGURE 5. TYPICAL REFRIGERANT CIRCUIT

ELECTRICAL CIRCUIT

CIRCUIT DESCRIPTION

As the manual on–off–circuit breaker switch is pushed to ”on”, an electrical circuit is completed to the gearmotor via the circuit breaker gearmotor overload, power relay / contactor, gearmotor delay thermostat and the bin thermostat. After the previous circuit has been completed the condenser fan motor will start as will the compressor (via the high pressure control and the compressor starting relay).

COMPONENT DESCRIPTION

BIN THERMOSTAT

This is electrically in ”series” with the ice making system. when the bin is full, the contact opens, terminating power to the machine.

GEARMOTOR START RELAY

This is a current type relay which means as the gearmotor run winding comes ”on” the line, the current draw initially is relatively heavy through the relay coil (coil is in series with run winding). It then acts like a normal relay and the N.O. start contact ”makes”, completing a circuit through the start capacitor to the start winding. As the gearmotor picks up speed, the amp draw through the relay coil drops off allowing the armature to return to its normal position (start contact ”opens”). This action removes the start winding from the circuit.

POWER RELAY / CONTACTOR

This relay controls the compressor power only.

GEARMOTOR DELAY THERMOSTAT

This thermostat keeps the gearmotor running until the suction line temperature reaches 45° after the full bin switch terminates power to the power relay / contactor.

ON–OFF SWITCH / CIRCUIT BREAKER

This switch interrupts power to the entire unit. The switch has a circuit breaker incorporated into its’ design. This circuit breaker will trip out in the event the gearmotor draws to high of amps In such an event the power is interrupted to the unit. To reset the circuit breaker and reestablish power to the unit, push the switch to the ”off” position and then back to the ”on” position.

FAN CYCLING SWITCH (R404a Units)

The function of this switch is to maintain condensing pressures at a satisfactory level during–low ambient conditions. The switch breaks the circuit to the condenser fan motor at 205 PSI and makes the circuit at 275 PSI.

HIGH PRESSURE CONTROL

The high pressure cut out is electrically in series with the power relay. As the head pressure rises to 450 PSIG for R404a charged units and 400 PSIG for R 22 charged units, a preset level, the contact opens thus breaking the circuit to the compressor via the power relay contactor. This control must be reset manually on R404a units.

COMPRESSOR START RELAY

This is a current type relay and contains a N.O. contact which is connected in series with the start winding of the compressor. The relay coil is electrically in series with the run winding. When power is applied, the compressor draws high current which sets up a magnetic field around the magnet coil which causes the relay to operate, closing the relay contact. As the compressor approaches operating speed, the current flowing through the coil decreases, permitting the relay contact to open, thereby opening the starting circuit.

POTENTIAL RELAYS

The potential relay is used as a compressor starting relay, The contact in the potential relay is N.C.. The magnet coil is connected across (parallel) the start winding and is affected by induced voltage, generated by the start winding. As the compressor comes up to design speed, the voltage across the relay coil increases and at running speed is sometimes as much as 2 1/2 times the supply voltage. This voltage sets up a magnetic field which causes the relay to operate. The starting relay is calibrated to remove the start capacitor (open the starting circuit) at approximately 85% of the motor design speed.

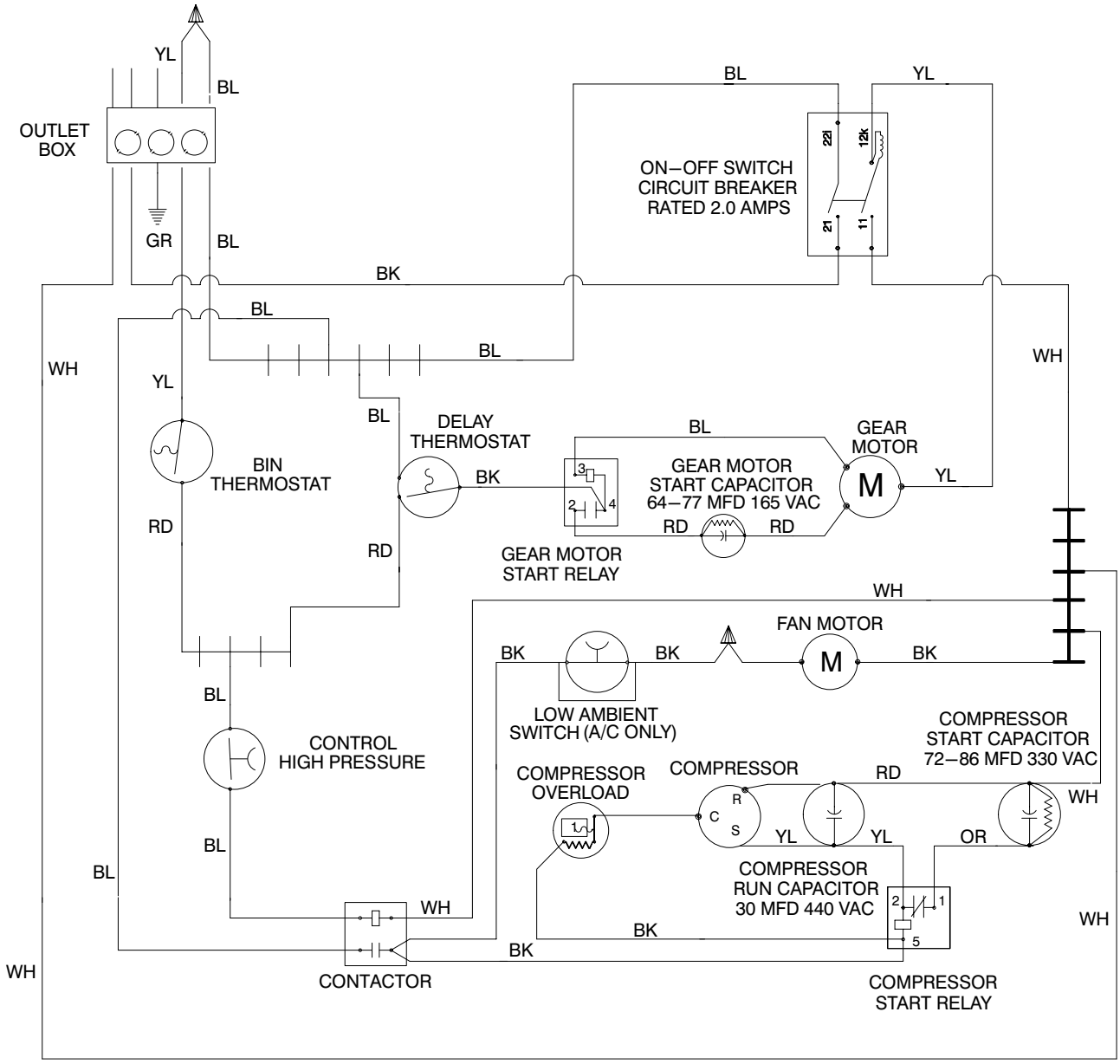
NOTE: BOTH TYPES OF RELAYS ARE DESIGNED TO OPERATE WITHIN VERY NARROW LIMITS OF VOLTAGE AND CURRENT DICTATED BY MOTOR DESIGN, THEREFORE, WHEN MAKING A REPLACEMENT OF A RELAY ALWAYS PROVIDE AN EXACT REPLACEMENT, RECOMMENDED BY THE COMPRESSOR MANUFACTURER.

CAPACITORS – GENERAL

An electrical capacitor is a device which stores up electrical energy. Capacitors are used with single phase motors to provide starting torque and improve running characteristics; by feeding this energy to the start winding in step with the run winding.

Any capacitor has three (3) essential parts, two (2) of which are usually foil plates separated and insulated by the third part called the dielectric.

Two general types of capacitors are used with electric motors. The electrolytic starting capacitor usually uses a very thin film of oxide on the metallic plate as the dielectric. The running capacitor usually is of the liquid filled type.

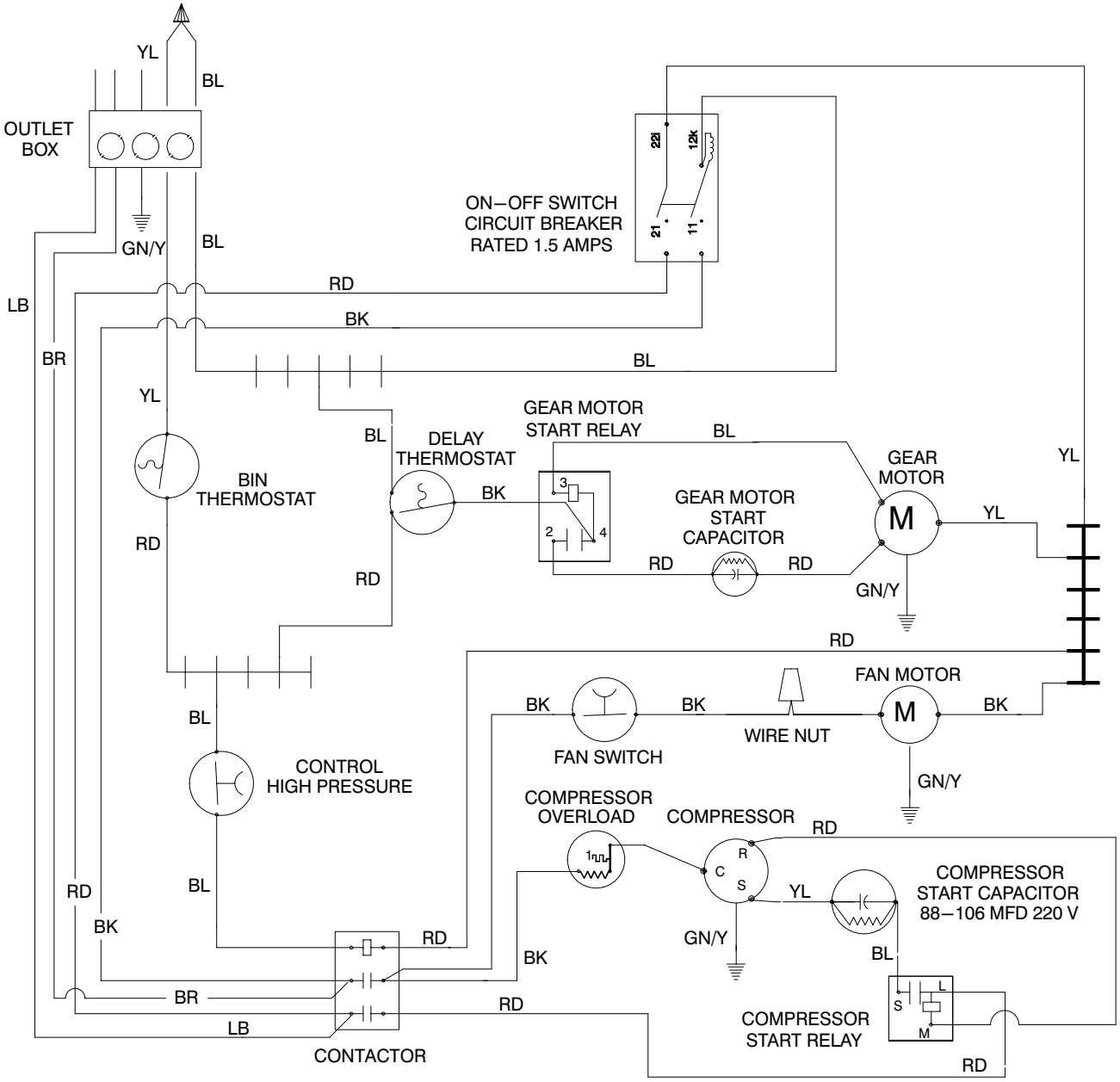


AF/WF–750–MH–R

115 VOLTS 60 Hz

IMI CORNELIUS INC.

FIGURE 6. WIRING DIAGRAM AF/WF–750–MH-R

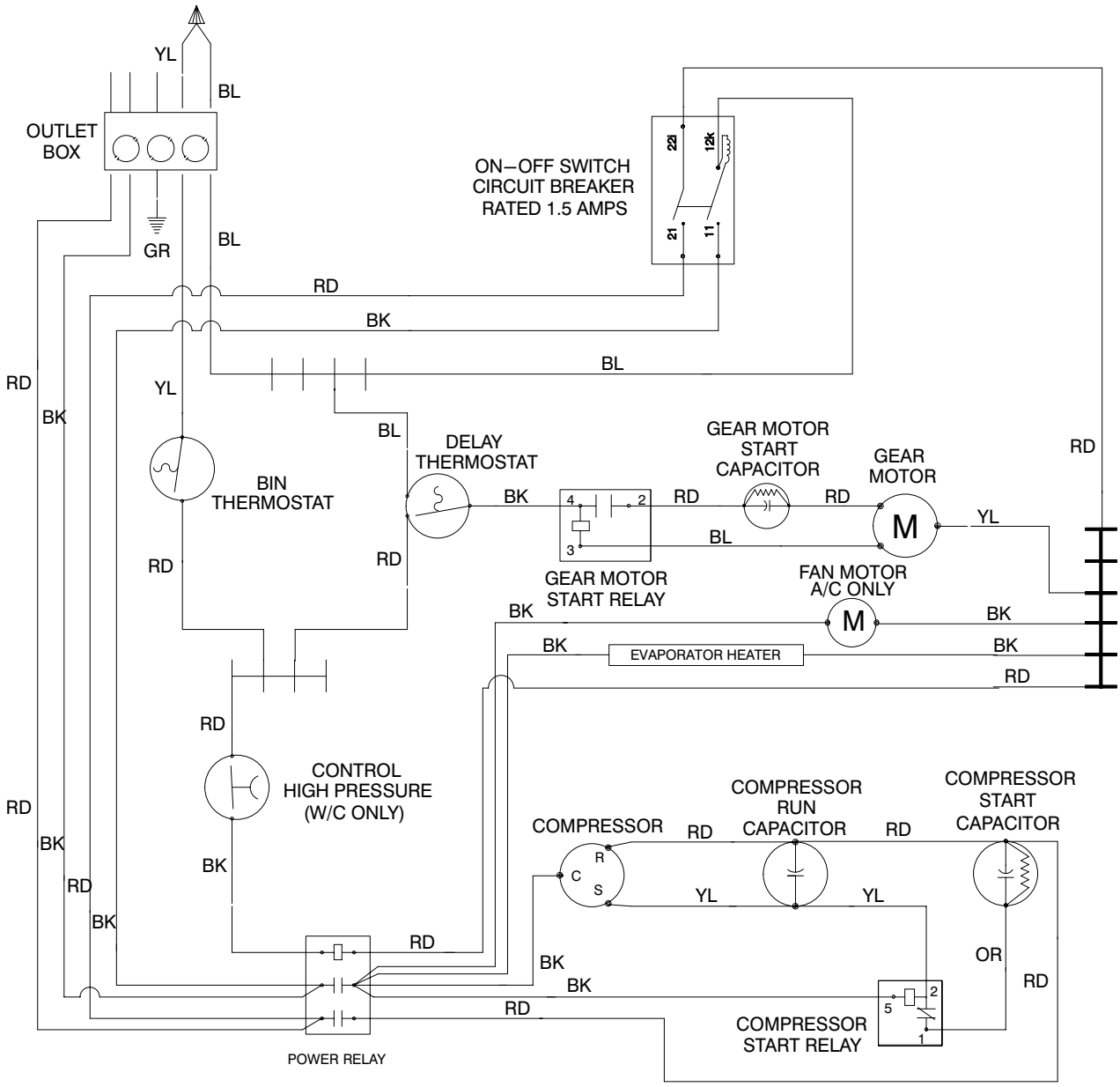


AF750PMH–50–R

220 VOLTS 50 Hz

IMI CORNELIUS INC.

FIGURE 7. WIRING DIAGRAM AF–750–PMH-50R

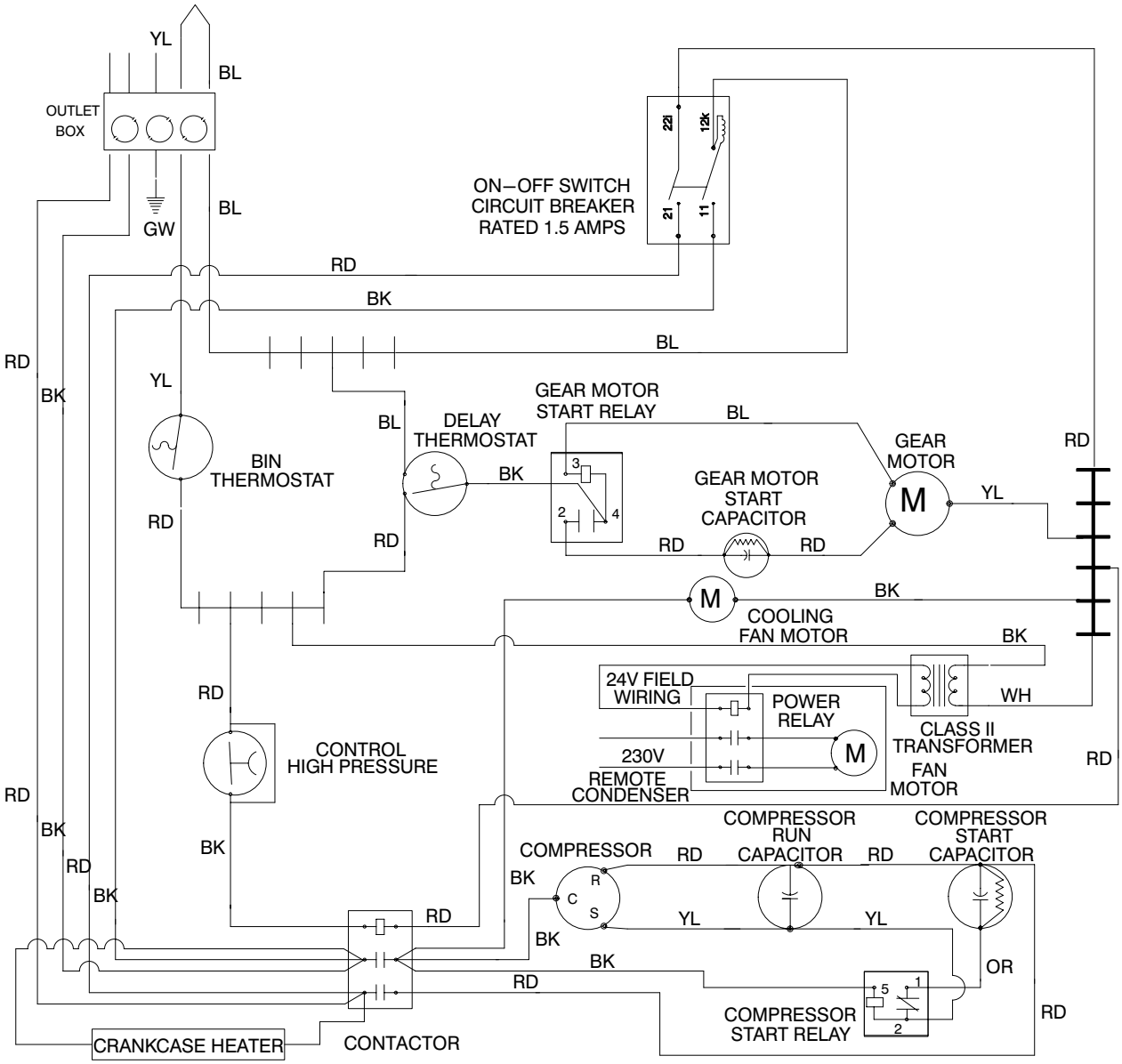


AF/WF–1100–MH

208/230 VOLTS 60 Hz

IMI CORNELIUS INC.

FIGURE 8. WIRING DIAGRAM AF/WF–1100–MH

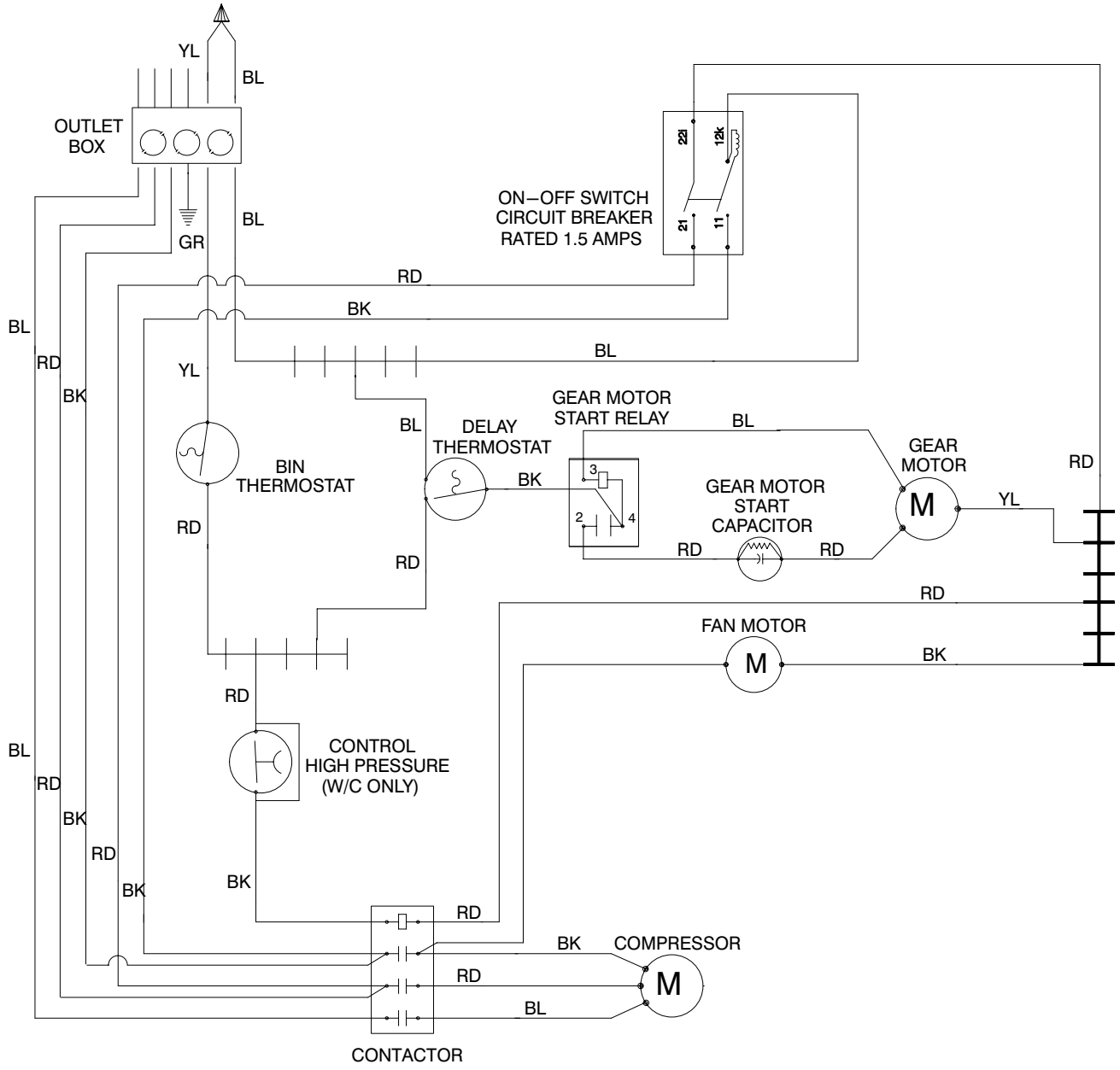


RF–1100–MH

208/230 VOLTS 60 Hz

Cornelius
IMI CORNELIUS INC.

FIGURE 9. WIRING DIAGRAM RF–1100–MH

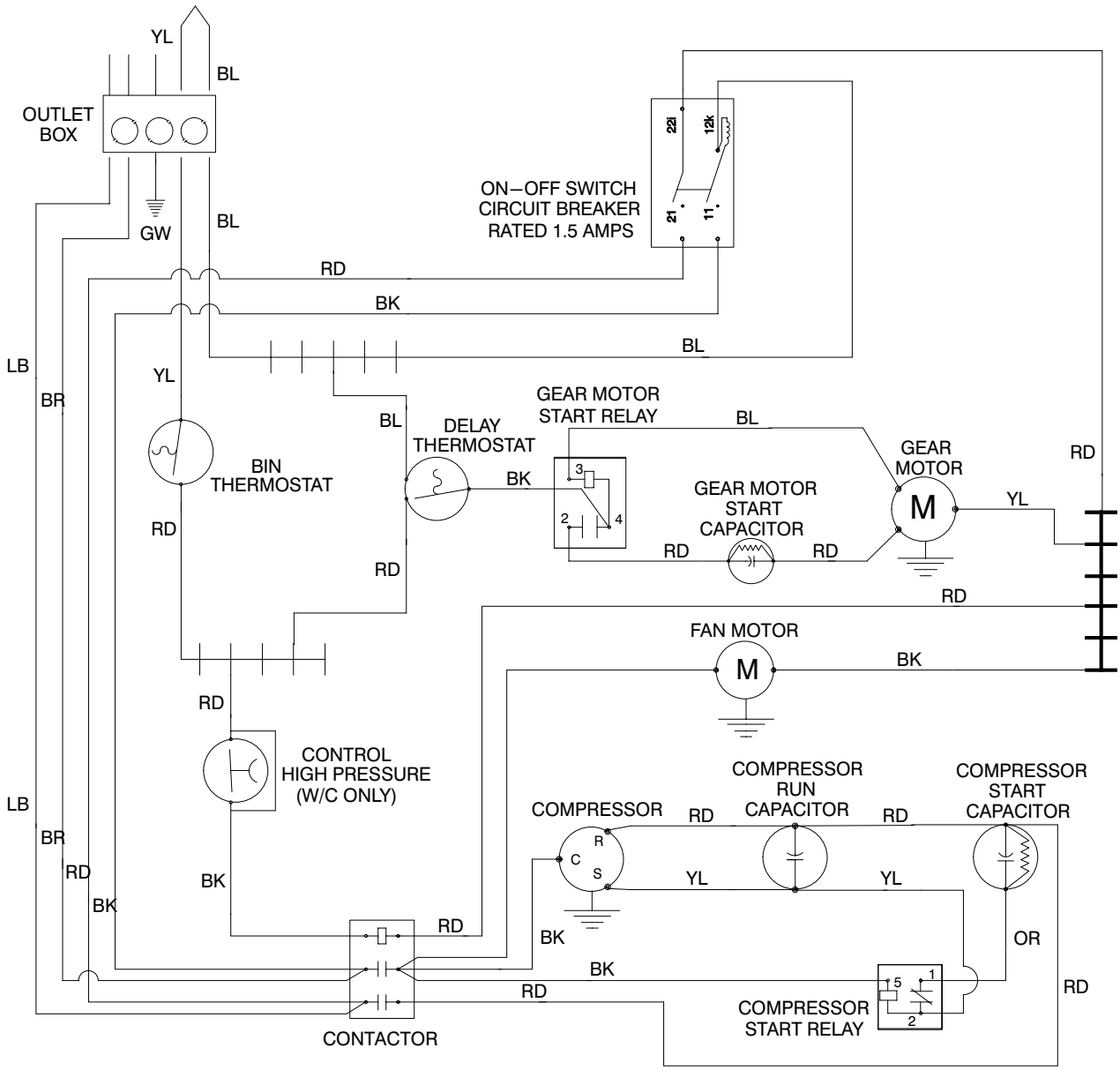


AF/WF–1100–MH–3

3 PHASE 208/230 VOLTS 60 Hz

IMI CORNELIUS INC.

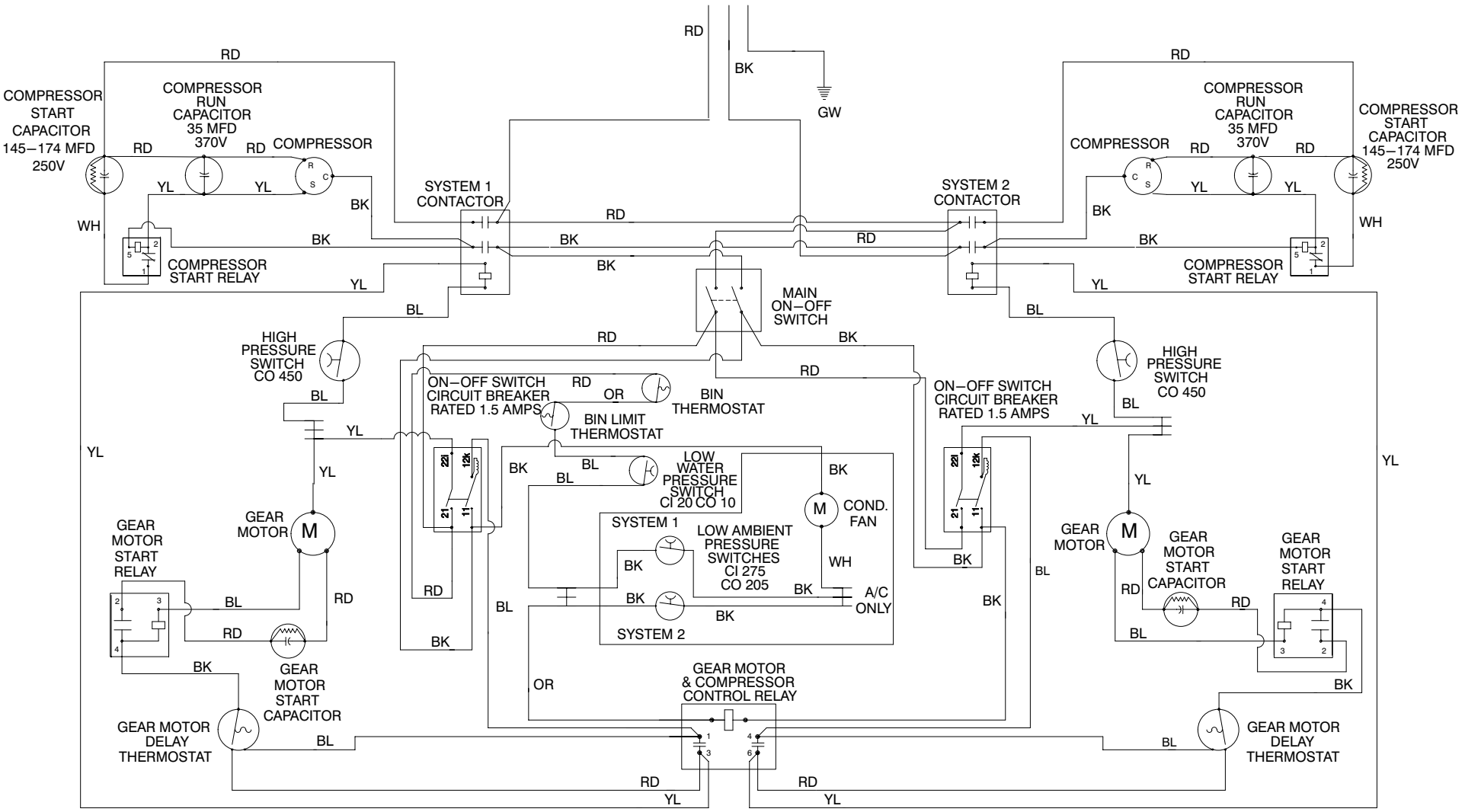
FIGURE 10. WIRING DIAGRAM AF/WF–1100–MH–3



AF/WF–1100–MH–50

240 VOLTS 50 Hz

FIGURE 11. WIRING DIAGRAM AF/WF–1100–MH–50



AF/WF–2400 PMHR DUAL COMPRESSORS

208/230 VOLTS 1 PHASE

FIGURE 12. WIRING DIAGRAM 2400 SERIES

MAINTENANCE

THE FOLLOWING MAINTENANCE SHOULD BE PERFORMED AT LEAST EVERY SIX MONTHS ON FLAKED ICE MACHINES:

1. Check power supply with machine running for proper voltage.
2. Check water level in the float tank reservoir. Water level should be maintained at the top of the evaporator. Adjust if necessary. (See illustration and adjustment procedure)
3. Clean the air–cooled condenser coil with a stiff brush or vacuum cleaner (See procedure)

CAUTION: CONDENSER COOLING FINS ARE SHARP, USE CARE WHEN CLEANING.

4. Clean the ice storage bin and flush the bin drain at least once a month.
5. If a water conditioner is installed in the inlet water line, change, replace, or clean the filter, strainer or cartridge as required.
6. If heavy mineral deposits on the auger and evaporator shell are encountered due to bad local water conditions, follow sanitizing and cleaning procedure.
7. Loosen hold–down cam locks and remove gearmotor assembly.
8. Check thrust washer; replace if noticeably worn.
9. Lift out auger and examine for wear. The corkscrew auger guide bushing pressed into the drive block should be checked for wear. Replace if loose or if worn flat with auger drive block. If the Helix auger on the corkscrew auger round bar becomes flat on the inside more than 1/8 of an inch over a length of two inches or more it should be replaced.

NOTE: HELIX AUGERS DO HAVE MACHINED FLAT RELIEF SURFACES. DON'T CONFUSE THEM WITH WORN FLAT AREAS.

Check the insert in the bottom ring of the Helix auger and replace if excessively worn.

10. Check shell vertical strips for wear. Replace the shell if excessive wear is shown.
11. Check O–Ring, replace if worn or cut.
12. Re–assemble, steps 7through 11.

CAUTION: IN RE–ASSEMBLING THE AUGER GEARMOTOR, THE HOLD DOWN CLAMPS MUST BE RIGHT AND SECURE. IN RE–INSTALLING THE EVAPORATOR SHELL, BE ABSOLUTELY SURE THAT THE "O" RING IS NOT PINCHED OFF AS THIS WOULD CAUSE A WATER LEAK AROUND THE BASE OF THE EVAPORATOR. LUBRICATE THE "O" RING WITH FOOD GRADE LUBRICANT BEFORE RE–ASSEMBLING SHELL.

13. Check for alignment of ice chute. Make sure chute gasket is not blocking path of ice flow.
14. Check bin thermostat operation. In the mid–range position the bin thermostat will open at 42° and has a 6° differential.

SANITIZING AND CLEANING PROCEDURE

1. Turn switch to ”OFF” to stop unit.
2. Remove top cabinet panel.

CAUTION: Hazardous moving parts. Do not operate unit with panel removed.

3. Mix sanitizing solution by using 0.5-ounces of household liquid bleach (such as Hi-Lex or Chlorox) to one gallon of potable water. This mixture *must* not exceed 200-ppm of chlorine.
4. Turn water ”OFF”. Remove water hose from float chamber and allow all water to drain from the float chamber and evaporator. Restore hose to float chamber and add sanitizing solution to the float chamber. Turn water ”ON”.

   OR

   Remove float chamber cover and while holding float up to prevent water from entering the chamber, remove water hose and allow all water to drain from the float chamber and evaporator. Restore hose to float chamber and add sanitizing solution to the float chamber.
5. Reinstall float chamber cover.
6. Remove vertical ice chute cover.
7. With a plastic bristle brush and sanitizing solution, scrub the interior of the vertical ice chute, including the interior and exterior of the evaporator chute that extends into the vertical chute. Also scrub the vertical chute cover and sensor tube. Allow all parts to air dry.
8. Reinstall the vertical chute cover and cabinet top panel.
9. Turn switch to ”ON” and allow unit to make ice.
10. Remove or melt with warm water, all ice inside of bin.
11. Using the sanitizing solution from step 7 and brush, scrub the interior of the ice bin including the underside of the ice bin cover. Scrub the outside of the ice chute that protrudes into the ice bin, and the inside and outside of the ice bin door.
12. Rinse interior of the ice bin with clean water.
13. Allow machine to make ice for at least 1/2 hour then discard all the ice made. DO NOT ALLOW ICE WITH SANITIZER IN IT TO BE USED.

WATER TREATMENT

During the freezing process, as water passes under the freezing plate, the impurities in the water have a tendency to be rejected and the plate will freeze only the pure water.

However, the more dissolved solids in the water, the more troublesome the freezing operation will be. Bicarbonates in the water are the most troublesome of the impurities. These impurities will cause scaling on the evaporator, clogging of the water distributor head, float valve mechanism and other parts in the water system. If the concentration of impurities is high, cloudy cubes or mushy ice may be the result.

Parts of the ice maker, that are in contact with the water or ice, may corrode if the water is high in acidity. In some areas, water may have to be treated in order to overcome some of the problems that arise because of the mineral content.

IMI Cornelius has water filter/treatment systems available to control impurities found in your water supply. Contact your local dealer for more information.

WINTER STORAGE

If the unit is to be stored in an area where the temperature will drop below freezing, it is most important that all water lines be drained to prevent them from freezing and possible rupture.

To blow out the water line, disconnect the water supply at the cabinet inlet and use air pressure to force the water into the water reservoir pan. This can then be removed from the water pan.

WATER COOLED CONDENSER – To remove water from condenser unhook water supply and attach compressed air hose. Start machine. As head pressure reaches the appropriate level opening the water regulating valve, the compressed air will force the water out. Do not let the machine operate longer than necessary.

CLEANING THE CONDENSER (AIR COOLED)

In order to produce at full capacity, the refrigeration condenser must be kept clean. The frequency of cleaning will be determined by surrounding condition. A good maintenance plan calls for an inspection at least every two months.

Remove the unit compartment grill at the front. With a vacuum cleaner, remove all accumulated dust and lint that has adhered to the finned condenser.

CAUTION: CONDENSER COOLING FINS ARE SHARP. USE CARE WHEN CLEANING.

TROUBLESHOOTING

Trouble	Probable Cause	Remedy
UNIT WILL NOT RUN	A. On–off switch in ”off” position.	A. Turn switch to ”on”.
	B. Defective on–off switch.	B. Check and replace.
	C. Blown fuse.	C. Replace fuse and check for cause of blown fuse.
	D. Thermostat set too warm for ambient.	D. Adjust colder.
	E. Power relay contacts corroded.	E. Check and clean.
	F. Defective thermostat.	F. Check and replace.
	G. Loose electrical connection.	G. Check wiring.
	H. Gearmotor overload protector has cut off machine.	H. Turn switch to off then to on.
COMPRESSOR CYCLES INTERMITTENTLY.	A. Low voltage.	A. Check line voltage.
	B. Dirty condenser.	B. Clean condenser.
	C. Air circulation restricted.	C. Remove restriction.
	D. Defective condenser fan motor.	D. Check and replace.
	E. Defective relay, overload protector or starting capacitor.	E. Check and replace.
	F. Loose electrical connection	F. Check wiring.

Trouble	Probable Cause	Remedy
MAKING WET ICE.	A. Surrounding air temperature too high.	A. Correct or move unit
	B. High water level in float reservoir.	B. Lower water level, see step 2, page 5
	C. Dirty condenser.	C. Clean condenser
	D. Faulty compressor.	D. Check and replace
	E. Refrigerant leak.	E. Check and repair
	F. ”O” ring leaking at bottom of evaporator shell.	F. Check and replace

***NOTE: Special care must be used with R404a (HP62) charged systems using (POE) Polyolester oil. The refrigeration system must not be open longer than 15 min., and the appropriate drier must be used due to the moisture absorption properties of the POE oil.**

UNIT RUNS BUT MAKES NO ICE.	A. Leak in refrigerant system.	A. Check and repair.
	B. Moisture in system.	B. Check, dehydrate and add drier to system.
	C. No water.	C. Check water supply.
	D. ”O” ring leaking at bottom of evaporator shell.	D. Check and replace ”O” ring.
	E. Compressor not running.	E. Check and replace ”O” ring
WATER LEAKS.	A. Worn or bad float valve.	A. Check and replace.
	B. Float and arm assembly stuck.	B. Check and adjust or replace.
	C. ”O” ring leaking at bottom of evaporator shell.	C. Check and replace.
	D. Storage bin drain and tubing.	D. Check and repair.
EXCESSIVE NOISE OR CHATTERING.	A. Mineral or scale deposits on inside of evaporator shell.	A. Remove and clean inside surfaces by immersing evaporator shell in ice machine cleaner.
	B. Intermittent water supply .	B. Check inlet water line .
	C. Water level in float tank too low.	C. Check and adjust water level.
	D. Auger gearmotor end–play or worn bearings.	D. Repair or replace.
	E. Air lock in gravity water supply line from float tank to evaporator shell.	E. Check and adjust warmer.
MACHINE RUNS WITH FULL BIN OF ICE.	A. Storage bin thermostat set too cold.	A. Check and adjust warmer.
	B. Bin thermostat thermowell out of path of ice.	B. Adjust thermowell.

Trouble	Probable Cause	Remedy
UNIT OFF OR TRIPS CIRCUIT BREAKER.	A. Ice jams up in evaporator shell.	A. Clean inside surface of evaporator shell.
	B. Bin thermostat will not shut–off machine. Set too cold.	B. Check and adjust or replace .
	C. Auger motor has worn bearings.	C. Check and replace.
	D. Ice chute out of alignment, restricted ice flow out of evaporator section.	D. Re–align.
	E. Ice chute center separator bent restricting ice flow out of evaporator section .	E. Replace ice chute .
	F. Incoming water temperature too cold.	F. Maintain temperature above 50˚F.
	G. Bin thermostat does not shut–off when bin is full of ice.	G. Replace bin thermostat if necessary.
	H. Mineral or scale deposits on inside of evaporator shell and evaporator.	H. Inspect and clean.
	I. Strips loose or missing on inside of evaporator shell.	I. Inspect and replace evaporator shell if necessary.
	J. Low ambient temperature in room where unit is located.	J. Maintain temperature above 50˚.
	K. Gearmotor sticking which causes it to draw excessive amperage.	K. Check amp draw of gearmotor with an amprobe (1.6 amps) at 115V, (.7 amps) 230V for normal loaded amps.

Trouble		Probable Cause		Remedy
UNIT GOES OFF OR TRIPS CIRCUIT BREAKER. (CONT'D)	L.	Plugged expansion valve, or capillary tube causing low back pressure.	L.	Check back pressure, replace valve or capillary tube. Evacuate and re–charge system, replace drier–strainer.
	M.	Slight leak, causing low back pressure.	M.	Check back pressure, find gas leak, repair leak, evacuate system, add drier and recharge.
	N.	Loose hold–down assy.	N.	Check and tighten or replace.
	O.	Auger worn excessively on the inside surfaces causing thicker flaked ice to be made.	O.	Replace auger.
	P.	Auger out of line causing excessive wear on the lower outside surface where it rubs against evaporator shell liner at the bottom.	P.	Replace auger and evaporator shell.
	Q.	Broken auger	Q.	Replace auger.
	R.	Evaporator surfaces worn or gouged, causing thicker ice to be made.	R.	Inspect and replace evaporator if necessary.
	S.	Auger guide bushing worn down.	S.	Replace auger guide bushing (corkscrew type augers only).
	T.	Loose gearmotor mounting place.	T.	Check and tighten.
	U.	Low water level in float tank reservoir.	U.	Adjust float arm to maintain correct water level.
	V.	Worn thrust washer.	V.	Replace.
	W.	Gearmotor Delay Thermostat does not keep gearmotor running after Bin Thermostat shuts down.	W.	Check operation and / or replace.

PARTS LIST FOR 750 AND 1100 SERIES

ILL. NO .	DESCRIPTION	1100	750	1100–50Hz	750–50Hz
1	Shroud, condenser	27597	161890012	27597	161890012
2	Condenser	26266	161870004	26266	161870004
3	Bracket, fan motor	37977	163183006	37977	163183006
4	Blade, condenser fan	23527	165595003	23527	165595003
5	Motor, condenser fan	35961	161871003	35961	161871003
6	Coil, condenser	22499	22429	22499	N/A
7	Clamp, condenser coil	35987	35987	35987	N/A
8	Bracket, coil mounting	36836	36836	36836	N/A
9	Drier	21850	166184002	21850	166184002
10	Valve, water regulating	01211	164980002	01211	N/A
11	Clip, delay thermostat	25871	25871	25871	25871
12	Thermostat, gearmotor delay	25864	25864	25864	25864
13	Pad	26124	26124	26124	26124
14	Hold–down, evaporator	163277003	163277002	163270003	163270002
15	Evaporator	42597	41100	42597	41100
16	O–Ring	03120	03120	03120	03120
17	Auger	21078	03796	21078	03796
18	Shell	162966001	09182	162966001	09182
19	Valve, automatic expansion	27653	161921004	27653	161921004
20	Thrust washer	21711	08043	21711	08043
21	Gearmotor assembly	164826003	164826001	164826003	164826002
22	Disc, centering	20956	20956	20956	20956
23	Chute, vertical	27599	27598	27599	27599
24	Float tank assembly	21789	21789	21789	21789
25	Float & valve only	21924	21924	21924	21924
26	Screw, wing	00890	00890	00890	00890
27	Gasket, chute	08065	08065	08065	08065
28	Chute, inclined ice	20885	09287	20885	09287
29	Compressor (1PH)	40569	162964013	40569	162964041
	Compressor (3PH)	41166	N/A	N/A	N/A
30	Cover, vertical chute	42316	29299	42316	29299
31	Control, high pressure	07024	165677006	07024	165677006
32	Control, low ambient fan	23838	165677005	23838	165677005
33	Relay, power (1PH)	40713	164884002	40713	40713
	Relay, power (3PH)	35547	N/A	N/A	N/A
34	Compressor cooling fan motor (not shown)	23308	N/A	23308	N/A
35	Thermostat, bin	09570	09570	09570	09570
36	Capacitor, compressor run	27765	161192004	27765	N/A
37	Capacitor, compressor start	40284	161165008	40284	25335
38	Capacitor, gearmotor start	37909	161165000	37909	29519
39	Switch, on–off / Circuit Breaker	166220000	166220001	166220000	166220000
40	Relay, compressor start	40285	161998009	40285	161998012
41	Relay, gearmotor start	161627003	161627001	161627003	161627003
42	Compressor cooling fan blade (not shown)	09355	N/A	09355	N/A
43	Plate, gearmotor mounting	03163	03163	03163	03163
44	Valve, Service	N/A	162978003	N/A	162978003
45	Top panel	163652068	163652068	163652068	163652068
	Top panel, stainless steel	27654	27654	27654	N/A
46	Front panel	163498068	163498068	163498068	163498068
	Front panel, stainless steel	27655	27655	27655	N/A
47	Left side panel	163653068	163653068	163653068	163653068
	Left side panel, stainless steel	27657	27657	27657	N/A
48	Right side panel	163654068	163654069	163654068	163654069
	Right side panel, stainless steel	27670	27670	27670	N/A
49	Back panel	163499068	163499068	163499068	163499068
	Back panel, stainless steel	27656	27656	27656	N/A
50	Switch, Fan Cycling	N/A	165677005	N/A	165677005
51	Switch, High Pressure Control	N/A	165677006	N/A	165677006

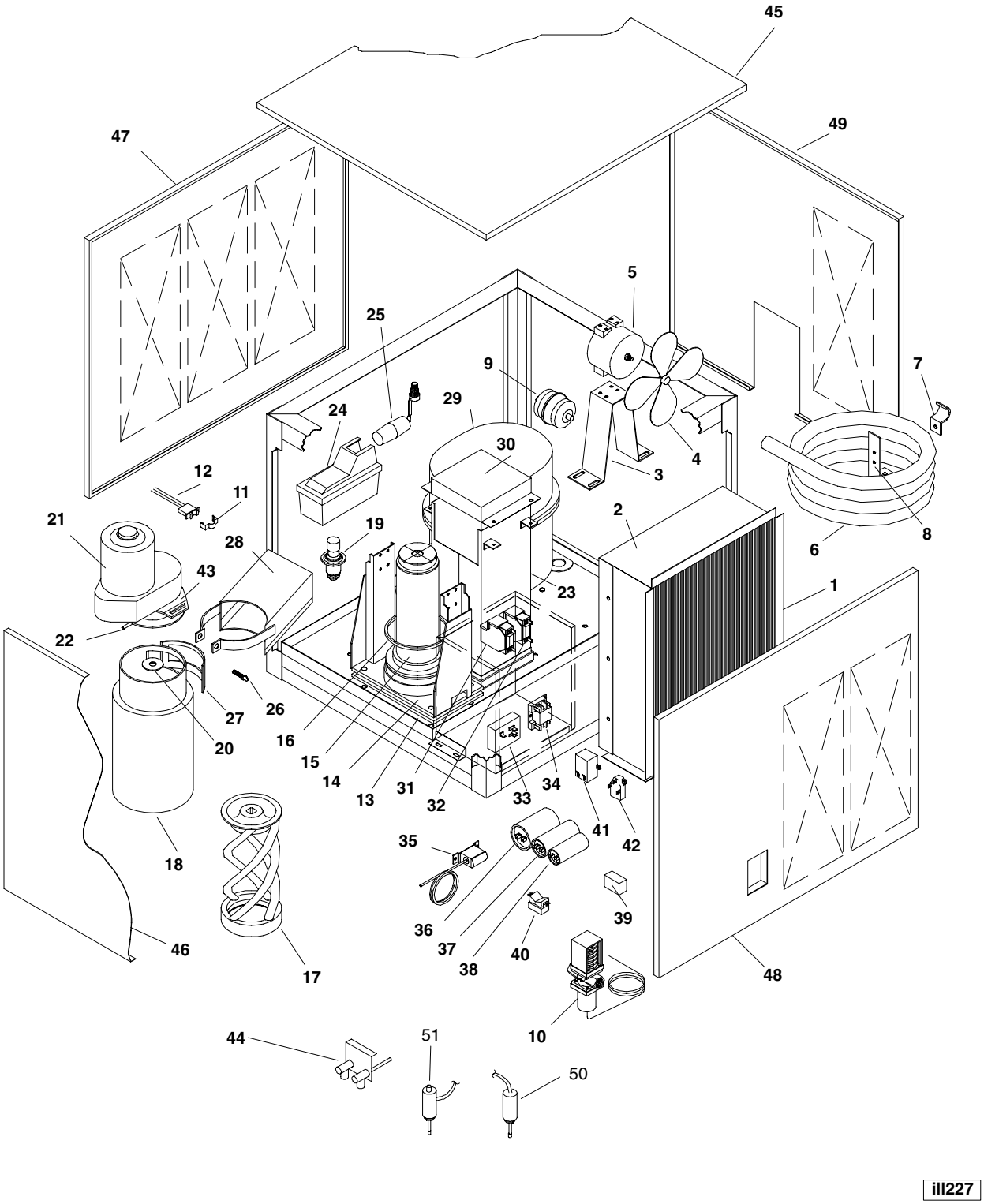


FIGURE 13. ILLUSTRATED PARTS BREAKDOWN SERIES 750 – 1100

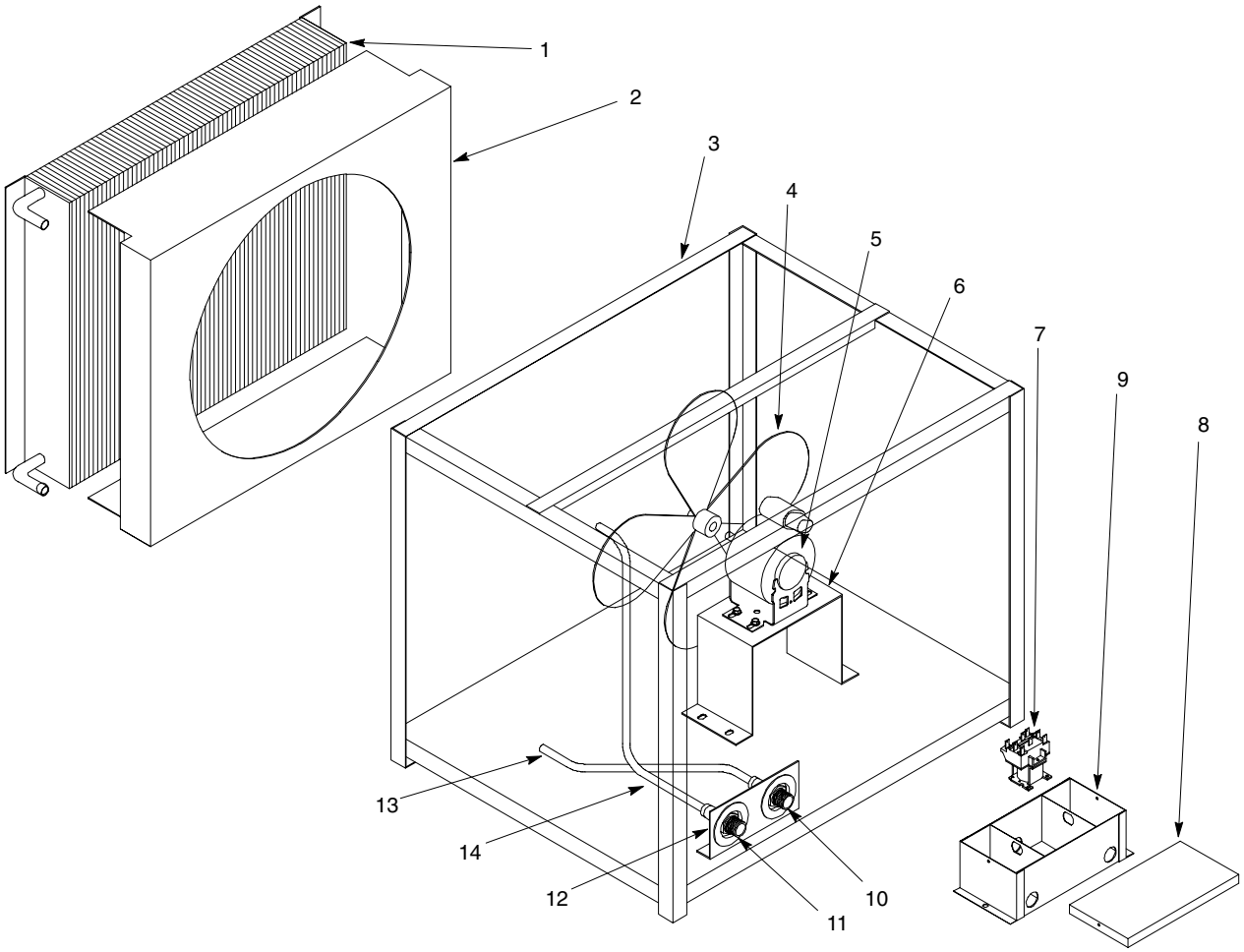


FIGURE 14. REMOTE CONDENSER ILLUSTRATED PARTS BREAKDOWN FOR 1100 SERIES

ILL. NO.	PART NO.	DESCRIPTION
1	27334	Condenser
2	27149	Shroud
3	27576	Frame assy
4	27183	Fan blade
5	27185	Motor, fan
6	27384	Bracket, fan motor mounting
7	27181	Relay
8	27379	Cover, electrical box
9	27345	Electrical box assy
10	42145	CNN–Quick, male
11	42624	CNN–Quick, male
12	42202	Bracket, connector
13	42278	Tube Condenser In
14	42277	Tube Condenser Out

PARTS LIST 2400 SERIES

ITEM NO	DESCRIPTION	PART NO.
1	Condenser A/C	161870011
2	Fan mounting bracket	164820021
3	Fan motor	27185
4	Fan blade	27183
5	Drier	166184002
6	Masonite Pad	26124
7	Hold–down	163277003
8	Evaporator	42597
9	Evaporator O–Ring	03120
10	Auger	21078
11	Shell L.H.	162966001
12	Shell R.H.	162966002
13	Automatic expansion valve	161921010
14	Thrust washer	21711
15	Gearmotor	164826003
16	Vertical chute cover	166205001
17	Vertical chute	42328
18	Water reservoir	35225
19	Float & valve	27156
20	Hose	35771
21	Float mounting bracket	35231
22	Compressor	162964029
23	Thermowell end cap	20421
24	Fan Cycling Switch	165677006
25	Delay thermostat	25864
26	Delay thermostat clip	25871
27	Contactor	40713
28	Capacitor, compressor start	40284
29	Gearmotor start relay	161627003
30	Gearmotor–compressor control relay	35548
31	Bin thermostat	09570
32	On–off switch/Circuit breaker	166220000
33	Gearmotor start capacitor	37909
34	Water pressure switch	165677007
35	Compressor run capacitor	27765
36	Gearmotor mounting plate	03163
37	Centering disc	20956
38	Compressor start relay	40285
39	Main power switch	35546
40	Reservoir cover	35230
41	High pressure control switch	165677005
42	Chute	20885
43	Chute gasket	08065
44	Screw, chute mounting	00890

CABINET PARTS NOT ILLUSTRATED 2400 SERIES

Description	Part No.
Top cover	163494068
Front panel	163493068
Right side panel	163492068
Left side panel	163491068
Rear panel	163490068

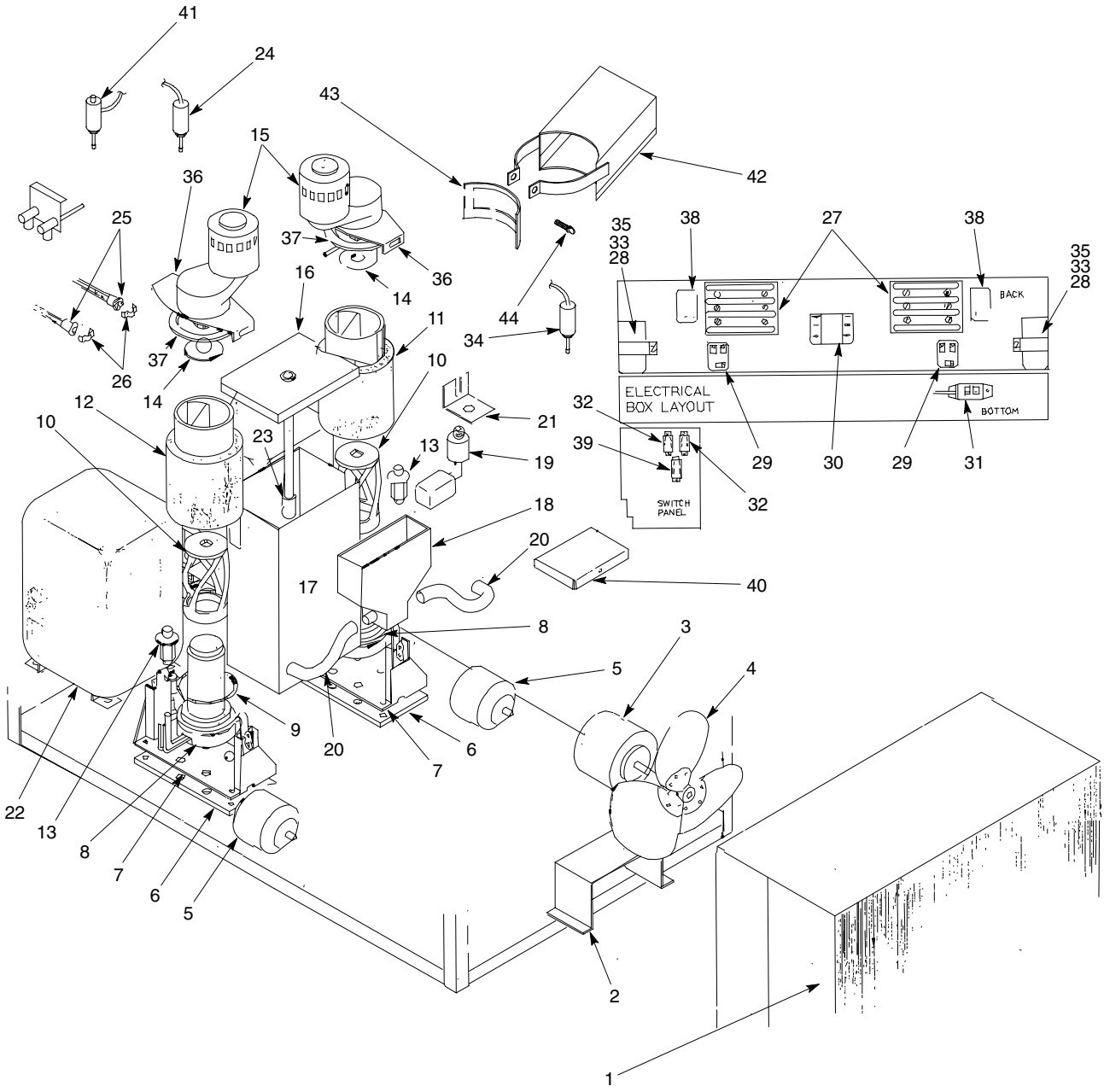


FIGURE 15. ILLUSTRATED PARTS BREAKDOWN SERIES 2400

CORNELIUS LIMITED COMMERCIAL WARRANTY PLAN
TO THE ORIGINAL OWNER OF A CORNELIUS COMMERCIAL FLAKE ICEMAKER

This warranty applies to Icemakers installed within the United States, Canada, Mexico and Puerto Rico only.

For warranty information outside the U.S., Canada, Mexico and Puerto Rico, contact your nearest IMI Cornelius Sales Office.

PARTS WARRANTY PERIOD

IMI CORNELIUS INC., hereinafter referred to as CORNELIUS, warrants to the original owner of a new CORNELIUS commercial flake ice machine ("Machine") who buys solely for commercial uses, that the Machine shall be free from defects in material and/or factory workmanship if properly installed, operated and maintained, under normal and proper use and service conditions with competent supervision. The parts warranty period is two years (24 months) from the date of installation or 27 months from the date of shipment by CORNELIUS whichever time period elapses first. With respect to compressor and the evaporator, and the evaporator only for refrigeration leaks and restrictions which would effect the normal operation of the unit, the warranty period will be five years (60 months) from the date of installation or 63 months from the date of shipment by CORNELIUS whichever time period elapses first. The obligation of CORNELIUS under this warranty is limited to repair or replacement (at the option of CORNELIUS) FOB factory in Mason City, Iowa of the part (or Parts) of any Machine that is proven defective.

LIMITED LABOR WARRANTY PERIOD

In addition to the parts warranty, CORNELIUS will pay scheduled straight time labor to repair or replace a defective component when failure occurs within one year (12 months) from the date of installation or 15 months from the date of shipment by CORNELIUS whichever time period elapses first. With respect to the compressor, evaporator, refrigeration condenser, condenser fan motor, and auger gearmotor, the labor warranty period will be two years (24 months) from the date of installation or 27 months from the date of shipment by CORNELIUS whichever time period elapses first. Time and rate schedules for labor compensation will be published periodically by CORNELIUS. **Additional expenses including but not limited to travel time, truck charges, overtime charges, material cost, accessing or removal of the ice machine, normal prescribed maintenance cleaning, adjustments, and ice purchases are the responsibility of the original owner.**

No parts warranty or labor allowance on the motor compressor assembly will apply when the ice machine's refrigeration system is modified with a condenser heat reclaim device, or parts and assemblies not provided by CORNELIUS, unless CORNELIUS provides approval, in writing, for these modifications for specific locations.

The parts warranty shall not apply when destruction or damage is caused by alterations, unauthorized service, using other than factory authorized replacement parts, risks of transportation, accidents, misuse, damage by fire, flood or acts of God. No components or assembly from which the serial number or identification number has been altered or removed will be covered. Any defective parts to be repaired or replaced must be returned to us through a CORNELIUS distributor/dealer, transportation charges prepaid, and they must be properly sealed and tagged. The serial and model number of the Machine and the date of original installation of such Machine must be given. The warranty of repaired or replaced parts will not extend beyond the period of the original warranty. The decision of the CORNELIUS Service Department regarding the warrantability of parts and eligibility for the labor allowance will be final.

No representative, distributor/dealer or any other person is authorized or permitted to make any other warranty or obligate CORNELIUS to make any other warranty or obligate CORNELIUS to any liability not strictly in accordance with this policy. This warranty is in lieu of all other warranties expressed or implied and of all other obligations or of liabilities on our parts.

OUR LIABILITIES ARE LIMITED SOLELY AND EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT. WE ARE NOT LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND WHATSOEVER. In those jurisdictions where liability for damages cannot be disclaimed, original purchaser's recovery shall not exceed the cost of the warranted product.

Except for descriptions of size, quantity and type, which may appear on CORNELIUS product with specifications of certain industry, government or professional organizations standards which may appear as product information disclosures in CORNELIUS literature and other documents from time to time, THIS WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

CORNELIUS MAKES NO WRITTEN WARRANTY TO ANY PURCHASER WHO BUYS FOR PERSONAL, FAMILY OR HOUSEHOLD USE.

IMI CORNELIUS INC.
ONE CORNELIUS PLACE
ANOKA, MINNESOTA 55303-6234

P/N 163238002
Effective March. 1, 1996
Starting with Production
Serial
Number Code 9603

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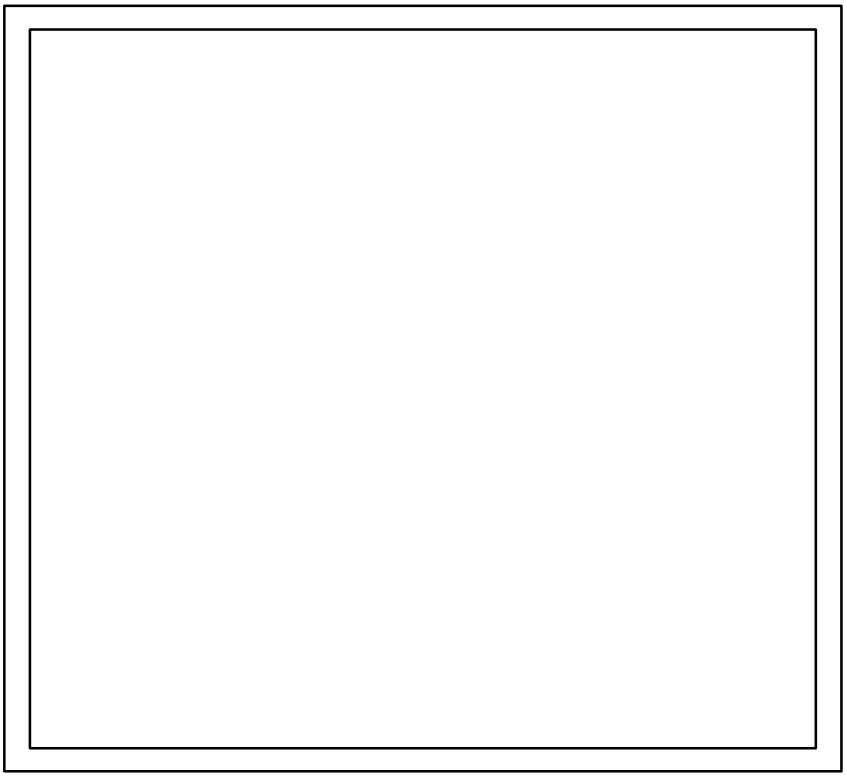

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