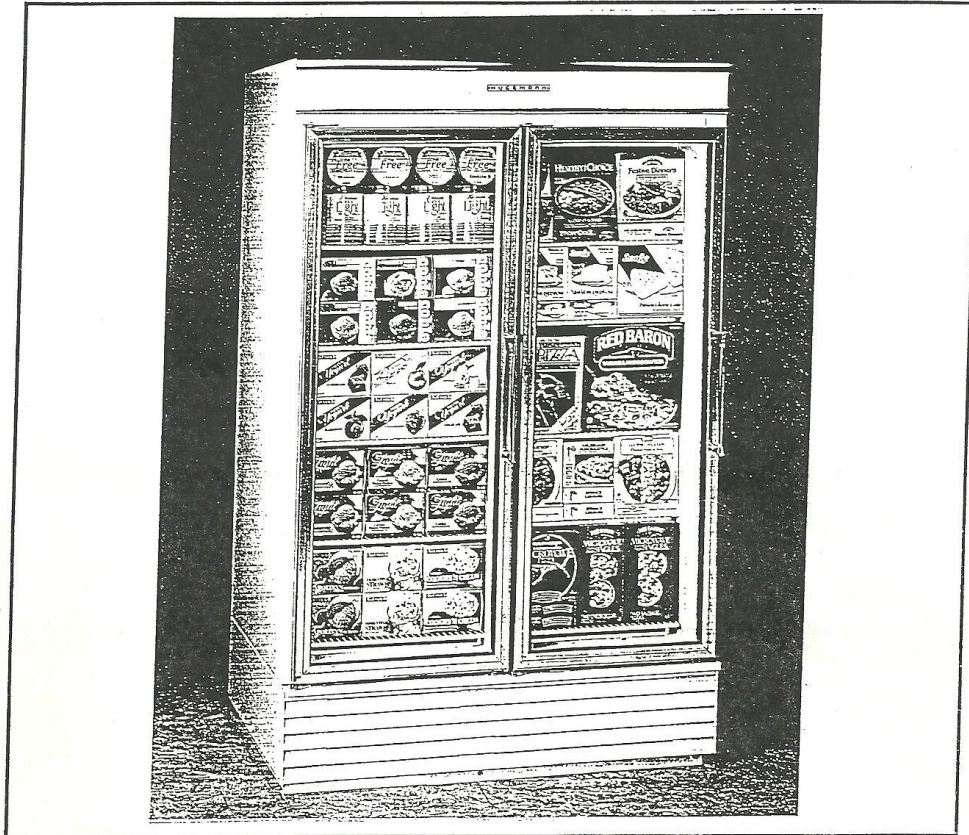


# OPERATING AND INSTALLATION INSTRUCTIONS

Self-Contained Equipment



## Product Family Name

Models:

UML-1-BS  
UML-2-BS  
UML-3-BS

UML-1-TS  
UML-2-TS  
UML-3-TS

Self-Contained Vertical  
Glass Door Merchandisers  
Frozen Food and Ice Cream

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# HUSSMANN®

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I.

**INTRODUCTION**

Hussmann UML-TS/BS models are self-contained, low temperature, vertical display merchandisers for ice cream and frozen foods. Design features include heated glass doors for fog free visibility, automatic defrost, efficient foamed in place non-CFC insulation, and balanced refrigeration systems for energy saving performance.

II

**INSPECTION UPON RECEIPT**

Upon receipt of the cabinet, carefully examine the crating for damage. If crate is damaged, make a note on the delivery ticket before signing. Carefully remove shipping crate and examine cabinet for "concealed" damage. If damage is found, contact the delivery carrier immediately and have his agent prepare an inspection report for the purpose of filing a claim. **THIS IS YOUR RESPONSIBILITY.**

II.

**PROPER LOCATION AND CLEARANCE**

1. Location - Avoid locating the cabinet where direct sunlight would shine into the fixture or where drafts from air conditioning grills, fans and open doors could affect its operation.
2. Clearance - Because the condensing unit is located at the top of the UML-TS, at least twelve (12) inches of clearance should be allowed at the rear of the cabinet and at the top of the case. This clearance is necessary to provide free air movement to and from the condenser for maximum operating efficiency.

Because the condensing unit is located on the bottom of the UML-BS, at least twenty four (24) inches of clearance should be allowed in front of the case and six (6) inches of clearance at the rear to provide the necessary free air movement to and from the condenser.

IV

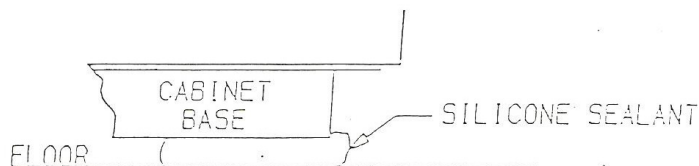
**INITIAL SET-UP**

1. Skid - The skid should be left on the case until it is near its final location. The skid provides protection for both case and floor. The skid is removed by raising one end of the case approximately six inches. **BLOCK SECURELY** and remove the two skid bolts on the raised end. The procedure is repeated on the opposite end. When the skid bolts are removed, the case may be slid off the skid.
2. Leg Installation - **FOR TOP MOUNTS ONLY** - After the case is near its final location and the skid has been removed, the NSF approved legs should be installed. The legs are packaged inside the cabinet. Replace the tape and door blocks. To install legs, raise one end of the cabinet approximately eight (8) inches, **BLOCK SECURELY**, and install two legs. The leg mounting plates are factory installed and contain a 1/2 x 13 tapped hole to mate with the leg assembly. The procedure is repeated on the opposite end. The 3-door requires legs in the center. With cabinet legs installed, the cabinet should be positioned in its final location and leveled.



The cabinet is leveled by turning the bottom section of each leg. The self-closing doors require the cabinet to be properly leveled. End to end leveling will make the door(s) close with uniform speed and tightness. A slight pitch from front to rear is desirable. **THE CABINET BACK SHOULD NEVER BE HIGHER THAN THE FRONT.**

3. Leveling - Sealing - **FOR BOTTOM MOUNTS ONLY** - The case can be leveled by shimming under the cabinet base frame. The self-closing doors require the cabinet to be properly leveled. End to end leveling will make the doors close with uniform speed and tightness. A slight pitch from front to rear is desirable. Once level the case should be sealed to the floor as shown in the following drawing, using an NSF approved material such as General Electric RTV-102 silicone sealer or an equivalent.



4. Condensate Pan - **TOP MOUNTS ONLY** - An electrically heated (300w, 115v) condensate pan is provided to evaporate the defrost water. The heated condensate pan slides onto the slide plate on the cabinet bottom, and has a thermistor. A power cord is provided for connection to a separate electrical outlet. The pan is removable for cleaning. A vinyl drain tube is provided for connection to the heated condensate pan. **The drain must be trapped** to guard against drain line freezing and for good sanitation practice.

BOTTOM MOUNTS ONLY -

A vinyl drain tube is provided which runs to a hot gas drain pan in the condensing unit area to handle the defrost water. No piping to a floor drain is necessary. The pan is removable for cleaning.

5. Bottom Louvered Panel Removal - The louvered panel provides access to the condensing unit and the electrical box. The panel is secured by screws to prevent injury. Remove shipping screw on electrical box to allow the electrical box to slide out for servicing.
6. Top Decorative Panel Removal - The top decorative panel is removed by sliding the panel up into the upper aluminum trim and pulling it forward until it clears the bottom aluminum trim.
7. Compressor - The compressor is mounted on springs and banded for shipping purposes and this band needs to be cut upon installation. **DO NOT LOOSEN THE COMPRESSOR MOUNTING BOLTS AS THESE ARE FACTORY PRE-SET FOR PROPER RIDING ON THE SPRINGS.**

8. Shelves - Each cabinet is provided with 4 cantilever shelves per door that are adjustable on 1 inch increments and are tiltable. Each cabinet also has one bottom shelf per door. These shelves have one inch legs to allow proper air flow in the cabinet. Behind the shelves are wire flue spacers which also allow for proper air flow. All shelves and flue spacers are white, epoxy coated for durability and ease of cleaning. Shelves should be adjusted to desired operating height.
9. Air Distribution and Rear Flue Spacer - Air is drawn through the evaporator from front to rear and is discharged down the back wall, returning up the face of the glass door to the return air grill. **NOTE:** Rear wire flue spacer must be in place as this forms a discharge air flue at the back of the cabinet.
10. Electrical Connections - The UML-1-TS/BS is supplied with a power supply cord with a grounding prong. Do not remove the grounding prong under any circumstances.

The UML-2,3-BS/TS require conduit connections of 2 supply voltages. The proper voltage connections are marked over the conduit box holes, located on the back of the electrical box at the top or bottom of the case. **IT IS VERY IMPORTANT FOR SAFETY TO YOU AND YOUR CUSTOMERS TO HAVE THE CABINET PROPERLY GROUNDED.** Conduit connections are required for positive grounding. The electrical installation should be done by a qualified electrician in accordance with the National Electrical Code and/or local codes.

**NOTE:** Connecting this unit to any electrical supply other than specified on the serial plate will void the warranty and may result in serious damage to the unit. The cabinet should be supplied with its own service.

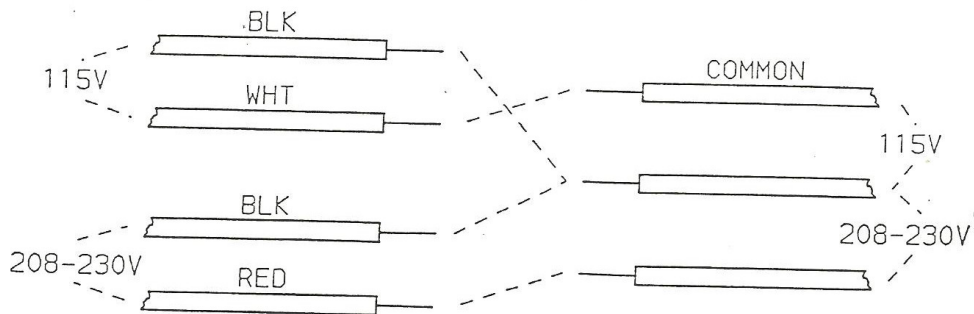
A chart showing Dual Voltage to a 3-wire system is supplied for you on the next page.

MAXIMUM OVERCURRENT  
PROTECTIVE DEVICE

MODEL	DUAL VOLTAGE SYSTEM		3-WIRE SYSTEM
	115/1/60	208-230/1/60	208-230/1/60
UML-2-TS or -BS	15	15	20
UML-2-T or -B	15	15	15
UML-2-TT or -BT	15	15	15
UML-2-TRS	15	15	20
UML-3-TS or -BS	15	15	20
UML-3-T or -B	15	15	15
UML-3-TT or -BT	15	15	15
UML-3-TRS	15	15	20
USL-3	15	15	15
USL-3-R	15	15	15
LBF-10	15	15	20
LBF-10-R	15	15	15

Many installers have asked for a '3 wire' system instead of the dual voltage electrical connections as we provide. We do not have the capability at the factory of run testing our equipment with this type of electrical connection but this does not mean that the dual voltage system can not be hooked up to a '3 wire' system in the field.

The table above outlines the amperage required for the various electrical circuits. Below is a diagram showing the connection of dual voltage circuits to a '3 wire' circuit..



11 Serial Plate Information - The serial plate is located in the upper left hand corner of the case interior. It has all the pertinent information needed for proper electrical installation. The serial plate should not be removed for any reason.

12 Specifications - Dimensions

Model	Cu		Exterior			Interior		
	Cap.	Drs.	L	W+	H	L	W	H
UML-1-TS	26.0	1	32 5/8"	34 5/8"	84 1/4"	28"	26"	62 3/4"
UML-2-TS	44.3	2	52"	34 5/8"	84 1/4"	46 15/16"	26"	62 3/4"
UML-3-TS	67.8	3	77 5/8"	34 5/8"	84 1/4"	72 11/16"	26"	62 3/4"
UML-1-BS	26.0	1	32 5/8"	34 5/8"	82 1/8"	28"	26"	62 3/4"
UML-2-BS	44.3	2	52"	34 5/8"	82 1/8"	46 15/16"	26"	62 3/4"
UML-3-BS	67.8	3	77 5/8"	34 5/8"	82 1/8"	72 11/16"	26"	62 3/4"

+ Exclusive of Door Handles

13 Electrical

	Unit			Run		Ship
	H.P.	Hz/Ph	Volts	Amps	Fuse Size	Wt.
1-TS	3/4	60/1	115	12.0*	15 amp	667
2-TS	1	60/1	115	4.4	15 amp	875
			208-230	8.8	15 amp	
3-TS	1 1/2	60/1	115	8.0	15 amp	1146
			208-230	12.0	15 amp	
1-BS	3/4	60/1	115	12.0*	15 amp	667
2-BS	1	60/1	115	4.4	15 amp	936
			208-230	8.8	15 amp	
3-BS	1 1/2	60/1	115	8.0	15 amp	1225
			208-230	12.0	15 amp	

\* 115v/15a grounded power cord included

14 BTU Capacities -

	RATING TEMPS °F		
	BTU/HR	EVAP	COND
1-TS/BS	3100	-20	110
2-TS/BS	4160	-20	110
3-TS/BS	5900	-20	110

Prior to 2/95, all these cases used R-502 Refrigerant. During and after 2/95 they were converted to R-404a. Check the serial plate for the specific refrigerant used.

V.

**INITIAL START-UP AND LOADING**

1. After the wiring has been completed, set the defrost timer for the correct time of day, making sure the defrost pins are secure in the face of the clock. UML cabinets are factory set for 2 defrost periods in 24 hours. (6 a.m. and 10 p.m.)
2. Cut the band holding the compressor in place during shipping.
3. Check the cabinet thoroughly for loose nuts and bolts and electrical connections. Inspect the refrigeration lines for any visible damage or chafing.



4. Replace the electrical box cover.
5. Start the cabinet and allow to pull down to operating temperature before loading.

VI

**GENERAL UPKEEP AND CLEANING**

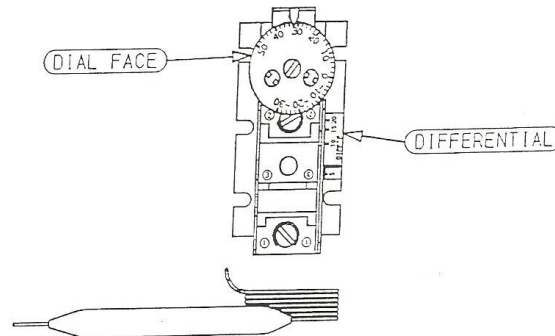
1. Care and Cleaning - To insure good sanitation, appearance, and minimum maintenance, the cabinet should be cleaned and washed regularly as use demands. Clean with mild detergent and warm water. **DO NOT USE AN ABRASIVE CLEANER OR STEEL WOOL AS THEY WILL MAR THE FINISH.**
2. Routine Maintenance - Under normal conditions, after the cabinet is installed and running, very little maintenance should be required. However, the following list of housekeeping practices will assure trouble-free operation.
  - A. Check operation of condenser fan motors. Fan blades must turn freely.
  - B. Check drain pan and heater to prevent accidental overflow.
  - C. Make sure doors are closing properly and that the gaskets seal.
  - D. Make sure all evaporator fan motors are running. These can be seen through grill inside cabinet.
  - E. Clean the cabinet with a mild detergent. This will insure good sanitation, and minimize maintenance. Never use an abrasive as this could mar the finish.

VI.

**OPERATION AND MAINTENANCE**

1. Power Switches - The power switches are located at the electrical box which is behind the top decorative panel (TS models) or bottom louvered panel (BS models). There is a switch for each voltage circuit and they will shut off all power to these circuits.
2. Temperature Control - The temperature control is located at the left hand end of the evaporator grill in the cabinet on the bottom mount versions and in the electrical box on the top of the case on the top mount versions. The temperature control **does not have an 'OFF' position.** Adjustments may be made by the use of a screwdriver in the slot provided in the face of the control. Turning it clockwise will give warmer temperatures while counter-clockwise will give colder temperatures. There is also an adjustable temperature differential (the difference between the cut-in temperature and the cut-out temperature) located next to the dial face.

The control has a range of  $-30^{\circ}\text{F}$  to  $+50^{\circ}\text{F}$  with a differential of  $5^{\circ}$  to  $20^{\circ}$ . It is factory set for approximately  $-15^{\circ}\text{F}$  with an  $8^{\circ}$  differential. The temperature should be checked with a thermometer other than the case thermometer after it is running to insure that the case is running at the proper temperature for the product.



3. Thermometer - The thermometer is located by looking through the right hand door on bottom mount version or in the center of the top decorative panel on top mount versions. The thermometer will probably need resetting to reflect the proper case temperature. Using a separate thermometer located on a shelf in the case, compare this temperature to the case thermometer. If the case thermometer needs to be adjusted, remove the clear protective cover by popping it off with a small screwdriver and turning the small adjustment screw on the face of the thermometer.

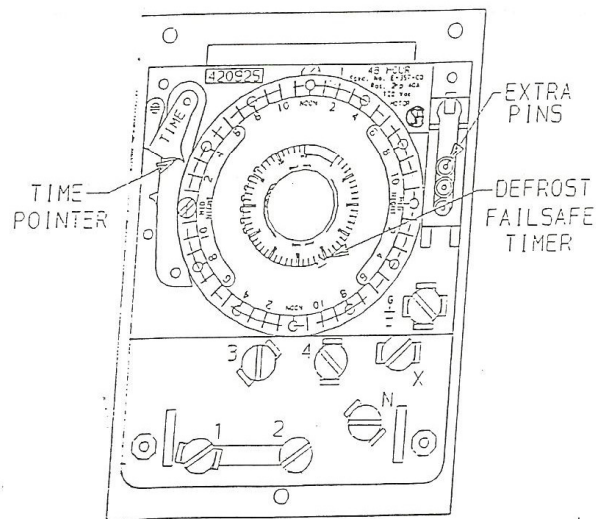
The thermometer will also warm up rather rapidly when the case door is held open for a time such as when the case is being restocked or a shopper is making a decision on a product. After the door is closed it will take some time for the thermometer to pull back down to the case temperature.

4. Electrical Enclosure - The electrical enclosure contains the defrost time clock and terminal boards. For servicing convenience, access is gained by removing the top decorative panel and electrical box cover. **THE CABINET SUPPLY BREAKERS SHOULD BE DISCONNECTED BEFORE REMOVING THE ENCLOSURE COVER.**

5. Defrost Time Clock - The timer is factory pre-set for two (2) defrost cycles per day at 6:00 A.M. and 10:00 PM with a 40 minute failsafe. The timer must be adjusted to the proper time of day when the cabinet is started. The timer is adjusted by turning the knurled adjustment knob in the center of the dial face counter-clockwise until the time indicator corresponds with the correct time of day. The defrost pins should be checked for tightness. The timer will require re-adjusting after a power failure or the cabinet supply is turned off for extended periods of time. If an additional defrost is required due to ambient or cabinet usage conditions, do not put a defrost during the middle of the day. Put any additional defrosts during the night or at a time when the cabinet has the lowest usage.

Defrost is time initiated and temperature terminated.

If the thermostat should fail, the timer is equipped with a failsafe set at 40 minutes that will allow defrost to terminate on time.



6. Defrost Heater Thermostat - The defrost heater thermostat is clamped to the evaporator outlet tube. It is a bi-metal thermostat that is tied in series with the evaporator fans for a delay and with defrost time clock solenoid to end defrost when the temperature has been satisfied. The evaporator fans will not come on until the thermostat senses 32°F and defrost will terminate when the stat senses 58°F

7. Defrost Heater Replacement - The defrost heaters are firmly embedded in the evaporator and held in place with spring clips. To remove the heater, first remove all the spring clips and pull the defective heater out of the slots in the evaporator, starting at the wire supply lead.

The replacement heater should be firmly seated in the slots by using a small block of wood and a mallet. After the new heater is in place, replace all of the spring retaining clips to assure heater retention. One lead of the defective heater may be used to pull the new leads through the cabinet to the respective terminals as marked on each lead.

NOTE: Care must be taken to make sure the drain stub is correctly inserted in the cabinet drain stub for proper drainage.

8. Lighting - Interior lighting is provided by cool white fluorescent bulbs located inside each doorway. The tubes are sleeved to maintain proper heat around the bulb for maximum light intensity and to protect the product in case of breakage. The tubes can be replaced without removing shelves or products. To replace merely push the tube up into the spring loaded top socket enough to clear the bottom socket, and then bring the assembly towards you and down.

Each UML model has a convenient ON/OFF switch so lights may be turned off to conserve energy during hours when the store is closed. The switch is located inside the cabinet above the left hand light fixture. This switch only controls the lights. 115 Volt power must be shut off at the main power supply source located within the store prior to starting any service or maintenance work.

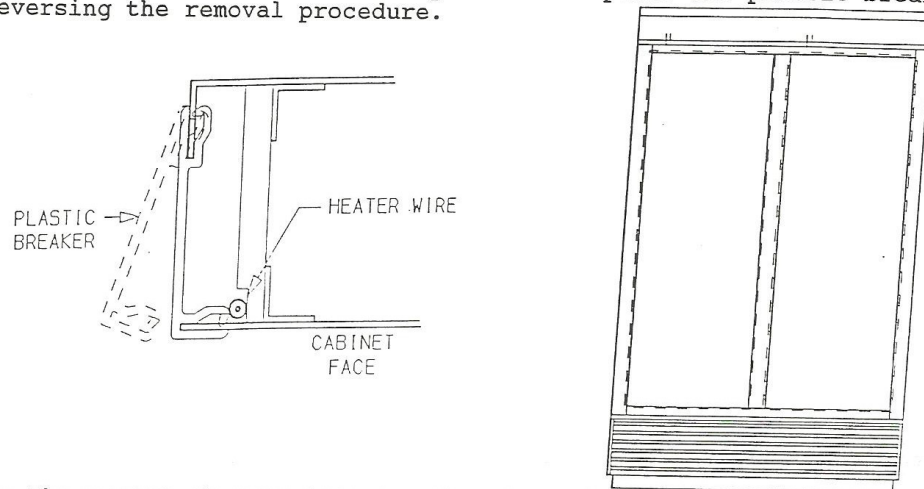
Light ballasts are located on top of the case next to the wiring channel on the top mounts and behind the electrical box on the bottom mounts.

9. Door Switches - The switches at the top of the doorways operate the evaporator fan motors. These switches stop the fan motors when the doors are open.

10. Door and Frame Heaters - This cabinet is equipped with both frame and door heaters. These are thermostatically controlled and will not come on until the cabinet is at operating temperature.



- 11 Frame Heater Replacement - To replace the cabinet frame heater wires, first remove the vinyl breaker strips by pulling the outer edge away from the cabinet as shown in diagram below. Replace wires exactly as removed, pulling the leads through the plastic conduit. After connections have been made, check the heaters for operation. Replace the plastic breakers by reversing the removal procedure.



- 12 Alarm Thermostat (heater delay) - The alarm (heater delay) thermostat is located on the top of the inner liner in the upper left hand corner behind the evaporator. The thermostat will not turn the heaters on until it senses  $0^{\circ}$  and in turn will turn the heaters off when it senses  $+18^{\circ}$  F. This is so that unwanted heat will not be added to the case during defrost or if the case refrigeration system fails.

- 13 Expansion Valve Adjustment - Expansion valve must be adjusted to fully feed the evaporator. Before attempting to adjust the valve make sure the evaporator is either clean or only lightly covered with frost, and that the cabinet is within  $10^{\circ}$  of its expected operation temperature. Adjust the expansion valve as follows:

Attach two sensing probes to the evaporator, one under the clamp holding the expansion valve sensing bulb and the other securely taped to one of the return bends two thirds of the way through the evaporator circuit. Some "hunting" of the expansion valve is normal. The valve should be adjusted so that during the hunting the greatest difference between the two probes is  $3^{\circ}$  to  $5^{\circ}$  F. Remove valve stem cover and turn valve stem counter-clockwise to decrease temperature difference between the probes. To increase temperature difference of probes, turn the valve stem clockwise. With this adjustment, during a portion of the hunting the temperature differences between the two probes may be less than  $3^{\circ}$  F, or at times as low as  $0^{\circ}$  F. Make adjustments of no more than one half turn of the valve stem at a time and wait for at least fifteen minutes before rechecking probe temperature and making further adjustments. Replace and tighten cover of the valve stem.

14 Refrigeration - As stated previously, these cases are self-contained systems featuring semi-hermetic compressors and thermostatic expansion valves. The condensers are of a fin-and -tube construction and **SHOULD BE PERIODICALLY CLEANED TO MAINTAIN EFFICIENT OPERATION.**

If it should become necessary to leak test the system, please adhere following notice:

**NOTICE:** Because of the CFC atmospheric considerations being taken today, we ask that leak testing be done with refrigerant 22 mixed with nitrogen. If the condensing unit nameplate designates a refrigerant other than R-22 remove all R-22 from the immediate area to avoid confusion after leak testing and evacuating the unit. Recharge the unit with proper refrigerant.

15 Leak Testing -

\*\*\*\*\* CAUTION \*\*\*\*\*

**THE TEST GAS CYLINDER MUST BE EQUIPPED WITH A PRESSURE GAUGE AND REGULATOR SO THAT SYSTEM TEST PRESSURES DO NOT EXCEED MAXIMUM ALLOWABLE LIMITS. DO NOT EVER USE ANYTHING OTHER THAN A R-22/NITROGEN MIXTURE FOR LEAK TESTING.**

Attach a refrigerant test gas cylinder to your service manifold and connect the manifold to the charging port on the liquid line valve. Charge an R-22/Nitrogen mixture into the system, raising the pressure to the remote unit's nameplate for the low side and high side pressures. Using an electronic detector, carefully check the entire system for leaks. Take special care to inspect all brazed and flare connections.

16 Evacuation -

After the system is proven leak tight, thoroughly evacuate the system according to the following procedure:

- A. Discharge the refrigerant-nitrogen mixture, allowing it to blow from the system as rapidly as possible, into an empty cylinder. Be sure that all service valves and solenoid valves are open to allow all of the mixture to be discharged.
- B. Connect a deep-drain vacuum pump to both the high and low side of the system. Pull a vacuum on the system to at least 1500 microns.
- C. Break the vacuum by adding refrigerant into the system until the pressure is above 0 PSIG. Always charge the refrigerant line into the system through a new drier in the charging manifold line. A 16 cubic inch drier is sufficient for this purpose.
- D. Repeat steps 2 and 3 two more times, the third time evacuating the system to 500 microns.

- 17 Operational Data - The following is typical data for UML models based on lab tests, and may vary under field operating conditions. All data is based on a discharge air temperature of  $-25^{\circ}\text{F}$  and a return air temperature of  $-10^{\circ}\text{F}$ .

Case Models	All	UML-1/2-BS/TS		UML-3-BS/TS	
AMBIENT TEMPERATURE	$75^{\circ}\text{F}$	$75^{\circ}\text{F}$	$80^{\circ}\text{F}$	$75^{\circ}\text{F}$	$80^{\circ}\text{F}$
HEAD PRESSURE (psi)	225	230-240	235-245	230-240	235-250
SUCTION PRESSURE (psi)	3-5	5-6	5-7	16-18	16-20
REFRIGERANT	R-502	R-404A	R-404A	R-404A	R-404A

- 18 Receiver - The receiver should not be confused for a filter-drier or muffler. The receiver is in the liquid line after the condenser and just ahead of the filter-drier. The manufacturer may label the receiver as a muffler or a drier but it is in fact an empty shell.
- 19 Muffler - The muffler is located between the compressor and the condenser and is sweat into the compressor discharge line. It reduces the overall noise level of the condensing unit.
- 20 Crankcase Pressure Regulator - The UML-1-TS/BS and UML-2-TS/BS employ a crankcase pressure regulator in the suction line. The CPR is set for 12 psi. The purpose of the valve is to maintain a low suction pressure on start-up so that the compressor will start properly. On start-up, the valve will hold the suction pressure at the desired setting until the suction pressure has dropped below the setting, then the valve will open.

If it becomes necessary to check or reset the setting, the case must be warm such as after a defrost cycle or from an initial warm case condition. Put a suction compound gauge on the compressor suction valve, start the compressor. If the pressure needs to be reduced turn the adjustment screw clockwise or, counterclockwise to raise the pressure. **DO NOT SET THE VALVE BASED ON THE NAMEPLATE AMPERAGE RATING AS THE PRESSURE SETTING WILL BE TOO HIGH AND THE COMPRESSOR WILL NOT START PROPERLY.**



<u>SYMPTOM</u>	<u>PROBABLE CAUSE(S)</u>	<u>POSSIBLE SOLUTION(S)</u>
Compressor runs continuously Product too warm	<ol style="list-style-type: none"> <li>1. Short of refrigerant</li> <li>2. Inefficient compressor</li> <li>3. Dirty condenser</li> </ol>	<ol style="list-style-type: none"> <li>1. Leak check, change drier, evacuate, and recharge</li> <li>2. Replace</li> <li>3. Clean</li> </ol>
High Head Pressure	<ol style="list-style-type: none"> <li>1. Cabinet location too warm</li> <li>2. Restricted condenser air flow</li> <li>3. Defective condenser fan motor</li> <li>4. Air or non-condensable gases in system</li> </ol>	<ol style="list-style-type: none"> <li>1. Relocate cabinet</li> <li>2. Clean condenser to remove air flow restriction</li> <li>3. Replace</li> <li>4. Leak check, change drier, evacuate, and recharge</li> </ol>
Warm storage temperatures	<ol style="list-style-type: none"> <li>1. Temperature control not set properly</li> <li>2. Short of refrigerant</li> <li>3. Cabinet location too warm</li> <li>4. Too much refrigerant</li> <li>5. Low voltage. Compressor cycling on overload</li> <li>6. Condenser dirty</li> </ol>	<ol style="list-style-type: none"> <li>1. Reset control</li> <li>2. Leak check, change drier, evacuate, and recharge</li> <li>3. Relocate</li> <li>4. Change drier, evacuate, and recharge</li> <li>5. Check power</li> <li>6. Clean</li> </ol>
Compressor runs continuously product too cold	<ol style="list-style-type: none"> <li>1. Defective control</li> <li>2. Control feeler tube not in positive contact</li> <li>3. Short on refrigerant</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace</li> <li>2. Assure proper contact</li> <li>3. Leak check, change drier, evacuate, and recharge</li> </ol>
Compressor will not start no noise	<ol style="list-style-type: none"> <li>1. Blown fuse or breaker</li> <li>2. Defective or broken wiring</li> <li>3. Defective overload</li> <li>4. Defective temperature control</li> <li>5. Power disconnected</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace fuse or reset breaker</li> <li>2. Repair or replace</li> <li>3. Replace</li> <li>4. Replace</li> <li>5. Check service cord or wiring connections</li> </ol>



Compressor will not start cuts out on overload	1. Low voltage	1. Contact electrician
	2. Defective compressor	2. Replace
	3. Defective relay	3. Replace
	4. Restriction or Moisture	4. Leak check, replace drier, evacuate and recharge
	5. Inadequate air over condenser	5. Plugged condenser
	6. Defective condenser fan motor	6. Replace
	7. CRO not set properly	7. Reset to 12 psi.
Icing condition in drain pan	1. Low voltage	1. Check voltage at compressor
	2. Cabinet not level	2. Check front to rear leveling, adjust legs accordingly
	3. Defective drain tube heater	3. Replace
	4. Defective drain pan heater	4. Replace

**TROUBLE SHOOTING LIGHTING SYSTEM**

<b>PROBLEM</b>	<b>SOLUTION</b>
Lights won't start	<ol style="list-style-type: none"> <li>1. Check light switch</li> <li>2. Check continuity to ballast</li> <li>3. Check to see if bulbs inserted properly into sockets</li> <li>4. Check voltage</li> </ol>
Lights Flicker	<ol style="list-style-type: none"> <li>1. Allow lamps to warm up</li> <li>2. Check lamp sleeve for cracks</li> <li>3. Check sockets for moisture and proper contact</li> <li>4. Bulb replacement may be necessary</li> <li>5. Check voltage</li> <li>6. New bulbs tend to flicker until used</li> </ol>
Ballast Hums	<ol style="list-style-type: none"> <li>1. Check voltage</li> <li>2. Replace ballast</li> </ol>

This UML case was manufactured in Gloversville, New York. Our phone #'s are (518) 725-0644 for New York state residents and our toll free # 800-753-7790 for outside New York - should you have further questions.

X.

**WARRANTY**

**WARRANTY AND PARTS INFORMATION** Important - PLEASE READ CAREFULLY TO ASSURE PROMPT AND ACCURATE SERVICE

**ORDERING REPLACEMENT PARTS -**

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

**WARRANTY PARTS PROCEDURE -**

1. Same as Items 1, 2, and 3 above.
2. Give original installation date of cabinet and, if possible, forward a copy of the original invoice or delivery receipt.
3. All shipments of in-warranty replacement parts will be invoiced from the factory until such time as the defective part is returned and proved to be defective by our Quality Control Department.
4. Contact your Hussmann Distributor for instructions on returning in-warranty parts.
5. In case of a compressor failure, see instructions below.
6. Warranty parts must be returned to the factory within 30 days of date of failure to assure proper disposition.
7. Lack of any of the above information may result in the shipment of the wrong part, or a delay in shipment.

**COMPRESSOR REPLACEMENT PROCEDURE -**

1. Replacement compressors will not be shipped from the Hussmann factory. They may be obtained from your nearest Copeland wholesaler.
2. Your wholesaler will replace, free of charge, any compressor found to be defective within twelve months of installation, not to exceed twenty months from the date of manufacture, as determined by the compressor serial number on the compressor serial plate.
3. For any defective compressor beyond the twelve or twenty month time period, a salvage value credit will be given to partially offset the invoice for the replacement.
4. If the cabinet was purchased with the optional Hussmann five-year warranty on the motor compressor or was purchased after March 16, 1991 when all cases have the five-year warranty as standard, the following procedure applies:

Forward to your nearest Hussmann Distributor:

- a) The cabinet model and serial number.
- b) A copy of the customer's five-year warranty or the policy number.
- c) A copy of the wholesaler's invoice, along with a copy of the salvage value credit.

XI.

**WIRING DIAGRAM**

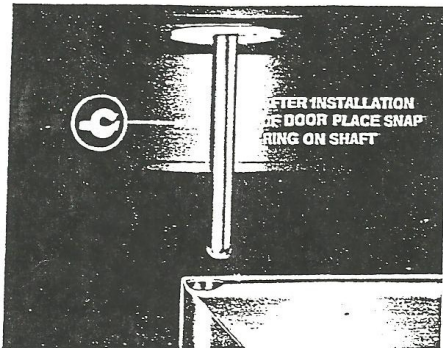
Wiring Diagrams are attached at the end of this booklet.

XII.

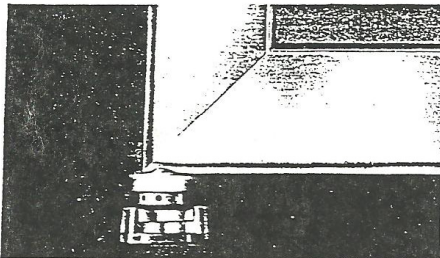
**ELECTRICAL COMPONENTS REPLACEMENT LIST**

MODEL	UML-1-TS/BS	UML-2-TS/BS	UML-3-TS/BS
(R-502)			
Compressor (Copeland)	KAA2-0075-IAA	KALB-0100-CAV	KALB-0150-CAV
(R-404a)			
Compressor (Copeland)	KAAB-007E-CAA	KALB-010E-CAV	KALB-015E-CAV
Condensor Fan Motor	EMS ESPL25EM13	EMS ESPL25EM23	EMS ESPL25EM23
Evaporator Fan Motor	Morrill SPB5EM1	Morrill SPB5EM2	Morrill SPB5EM2
Light Ballast	8G3738W	8G3738W	8G3736W
Fluorescent Lamp	F48T10CW	F48T10CW	F48T10CW

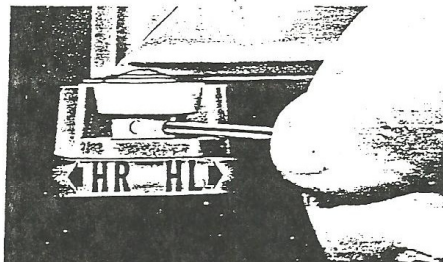
# Door Installation



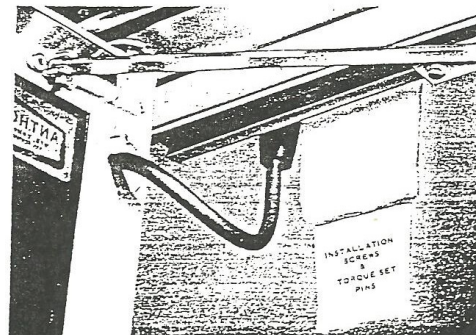
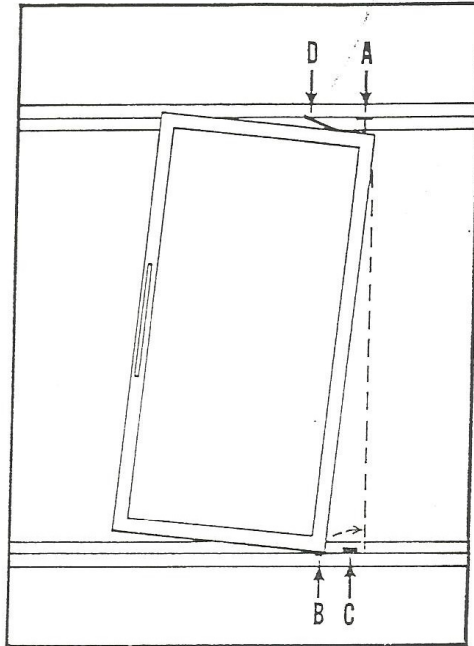
A. Insert top of door into top hinge pin "A".



B. Lift up door and insert torque shaft "B" into torque socket "C".



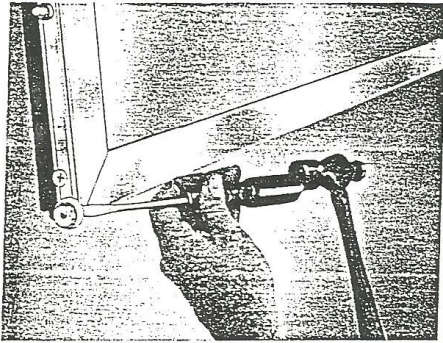
C. Using 2 long pins, adjust torque to desired tension and set with 1 short pin. Both long and short pins provided. (Caution: Do not over adjust tension to the point of slamming.)



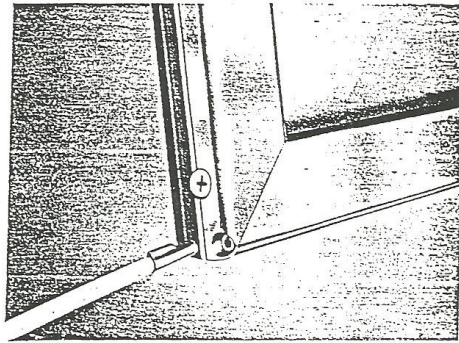
D. Connect 90° door stop arm to slide block on frame, secure with screw provided. Installation screws and torque set pins provided in attached bag.



## Torque Closer Replacement

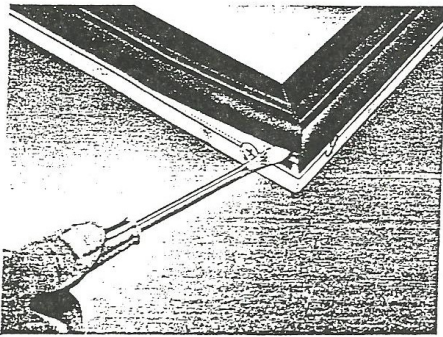


A. Door does not have to be disassembled to replace torque closer. Drive tapered shaft of torque closer from door as shown.

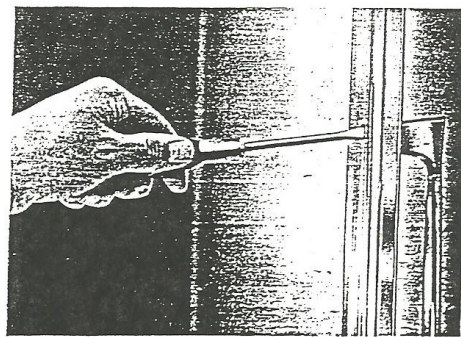


B. To replace new torque closer align torque shaft with keyway in door. Tapered shaft must be driven flush with bottom door rail.

## Door Handle Replacement

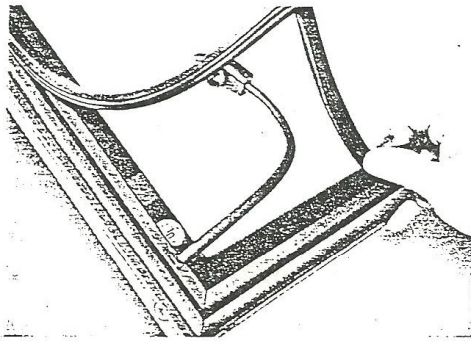


A. Remove gasket and gasket retainer strip on handle side only to expose access hole.

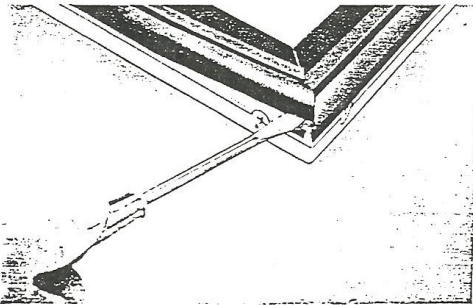


B. Remove galvanized heated element cover and loosen handle screws. Attach new handle and reassemble.

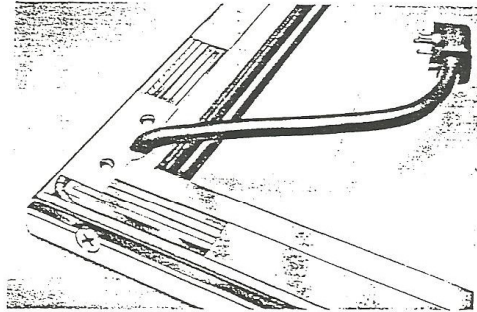
# Door Heater Replacement



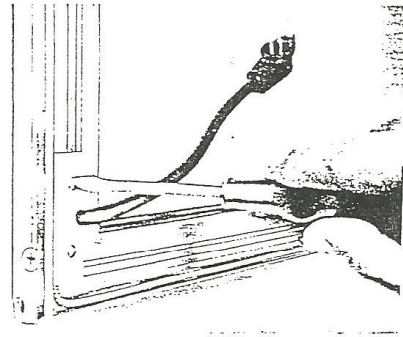
A. Disconnect SJ cord, lift door up and out. Carefully pull gasket from gasket retainer strip.



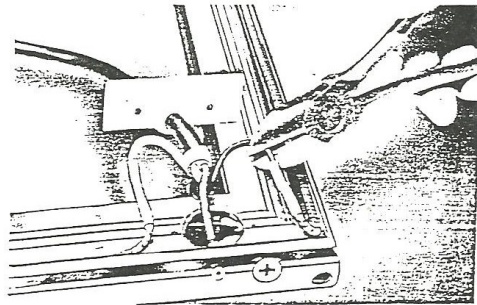
B. To remove gasket retainer strip start at the corner of the door carefully lift as shown.



C. Remove galvanized heater element cover.



D. Unscrew SJ cord retainer to expose element wires.



E. Disconnect defective heater element from SJ cord as shown. Replace with new heater element. Replace with new heater element. Reconnect leads from clearpane electrically heated glass, if used. Check wires for continuity and reassemble.

INSTALLATION CHECK LIST  
(UML/UMM UPRIGHT CABINETS)

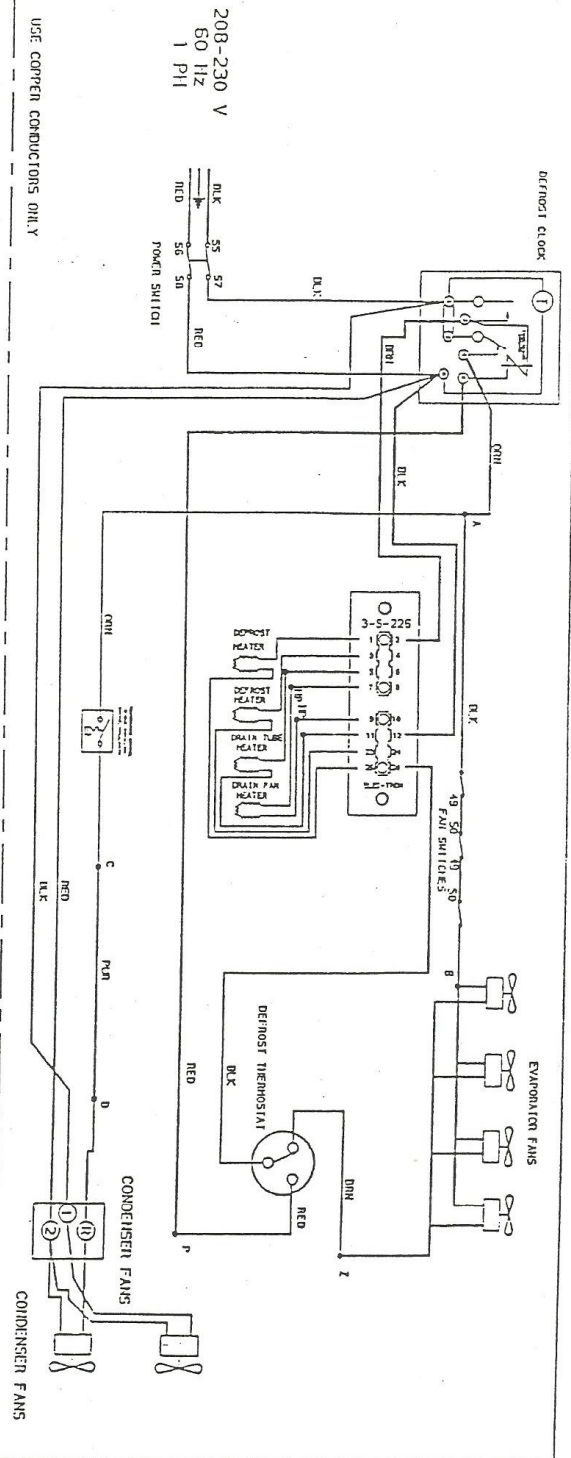
- 1) LEVEL CABINET FRONT TO BACK AND LEFT TO RIGHT.
- 2) IS PROPER VOLTAGE SUPPLIED TO CABINET ?
- 3) CUT AND REMOVE COMPRESSOR SHIPPING BAND (UML ONLY).
- 4) IS TIMER SET FOR CORRECT TIME OF DAY ?  
FAIL-SAFE AT 40 MINUTES, DEFROST PINS AT 10 P.M. AND 6 A.M. (UML ONLY).
- 5) ARE ELECTRICAL CONNECTIONS TIGHT AND TUBING POSITIONED TO PREVENT RUBBING ?  
IS DRAIN HOSE IN WATER PAN AND TRAPPED ?
- 6) DOES THE CONDENSER FAN BLADE(S) TURN FREELY ?
- 7) IS THE TEMPERATURE CONTROL SET PER THE FOLLOWING SPECIFICATIONS ?

	<u>CONTROL SET AT</u>	<u>CABINET TEMPERATURE</u>	
UML	- 12 TO - 20	- 15 OFF	- 7 ON
UMM	+ 25	+ 36 OFF	+ 44 ON

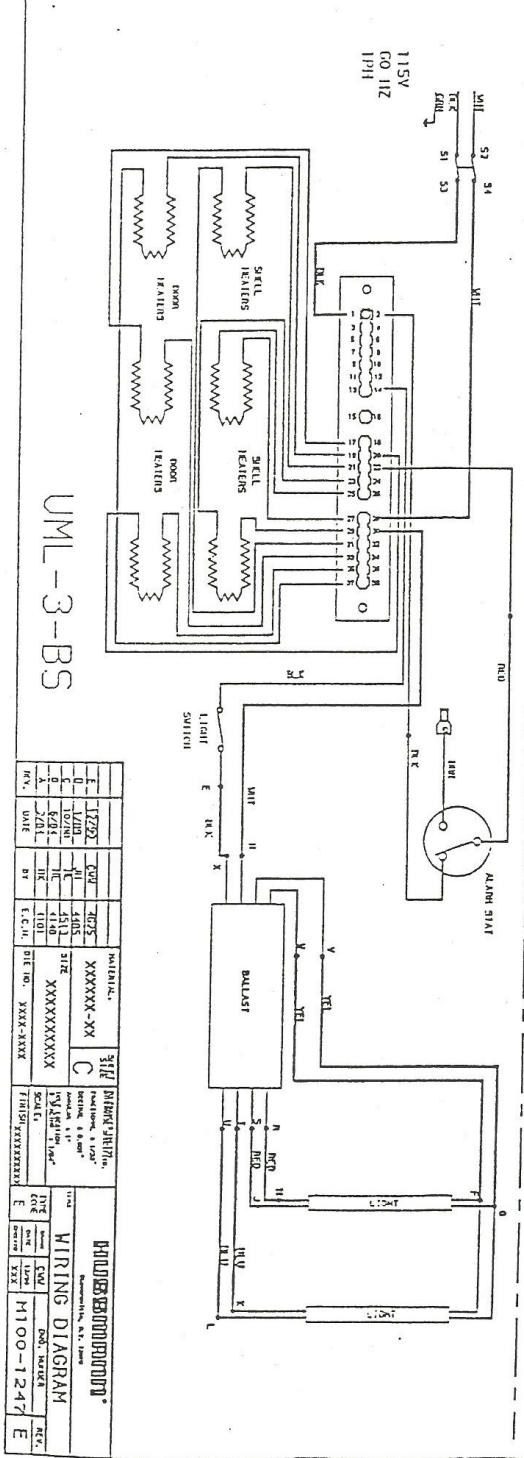
- 8) AFTER REMOVING DOOR BLOCKING MATERIAL, WERE THE WHITE PLUG BUTTONS INSTALLED IN HOLES OF DOOR CHANNEL? (BOTTOM MOUNT ONLY)

*FOR MORE DETAILS ON THE ABOVE, REFER TO  
THE INSTALLATION BOOKLET SENT WITH THE CABINET.*





USE COPPER CONDUCTIONS ONLY



UML-3-BS

REV.	DATE	BY	CHK'D	DESCRIPTION
1	1/20/50	GDW	TRG	INITIALS
2	1/21/50	HL	HLG	XXXXXXXX-XX
3	5/24/50	HL	4513	312 C
4	5/24/50	HL	4140	XXXXXXXXXXXX
5	5/24/50	HL	1101	XXXXXXXXXXXX
6				XXXXXXXXXXXX

REV.	DATE	BY	CHK'D	DESCRIPTION
1	1/20/50	GDW	TRG	INITIALS
2	1/21/50	HL	HLG	XXXXXXXX-XX
3	5/24/50	HL	4513	312 C
4	5/24/50	HL	4140	XXXXXXXXXXXX
5	5/24/50	HL	1101	XXXXXXXXXXXX
6				XXXXXXXXXXXX

REV.	DATE	BY	CHK'D	DESCRIPTION
1	1/20/50	GDW	TRG	INITIALS
2	1/21/50	HL	HLG	XXXXXXXX-XX
3	5/24/50	HL	4513	312 C
4	5/24/50	HL	4140	XXXXXXXXXXXX
5	5/24/50	HL	1101	XXXXXXXXXXXX
6				XXXXXXXXXXXX

VALVE REPAIR PARTS  
HIRING DIAGRAM  
M100-1247  
E





