

January 2006

HUSSmann®

**INSTALLATION & SERVICE
INSTRUCTIONS
FOR**

SHM

Specialty Horizontal Merchandisers

HUSSmann®

First Call for help (US and Canada):

1-800-922-1919

Soporte Técnico y Asistencia (México):

01-800-522-1900

**For a Service Network Locator and other
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**P/N OII – SHM
January 2006**

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GENERAL, INSTALLATION, CARE and CLEANING

GENERAL –

The Hussmann Models SHM have been carefully designed to offer versatility in the display of food items such as pre-made sandwiches, fresh fruit, and vegetables, cheeses, and deli items.

So that you can realize maximum benefit from this fine piece of equipment we urge both you and your installer to carefully read and follow this brief set of instructions prior to installation of the equipment.

INSPECTION –

The equipment has been skidded and crated prior to shipment from the factory. It is the carrier's responsibility to deliver it to you in good condition until such time as you sign for it. Upon receipt of the cabinet, examine the packaging for damage. If the packing is damaged, make specific notation on the delivery ticket as to the location and extent of damage prior to signing for the piece.

Carefully remove packaging and examine the cabinet for damage. If damage is found, contact the delivering carrier immediately and request that his agent prepare an inspection report for the purpose of filing a claim. **THIS IS YOUR RESPONSIBILITY NOT THE FACTORY'S.** Save all packaging materials and move the cabinet as little as possible prior to inspection.

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. A minimum distance of two feet should be allowed in the front of the case to allow proper free air movement to and from the condenser for maximum operating efficiency.

SKID -

The skid should be left on the cabinet 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 approx. 6", block securely and remove the 2 skid bolts on the raised end and screw back into the holes 2 leg levelers.

The procedure is repeated on the opposite end. When the leg levelers are in place, the case may be slid off the skid and placed in its final location.

LEVELING –

The cabinet must be leveled properly to insure full drainage of condensate water from the evaporator coil. Level the case from front to rear and end to end. Optional legs can be provided for this purpose.

DRAINS -

Remote draining is not required in self-contained models. The condensate water from the evaporator drains out

through the bottom of the cabinet into the condensing unit compartment to a heated condensate pan.

The pan uses a thermistor to sense the presence of water in the pan and adjusts the amount of heat required to evaporate the water. Care should be taken to insure the drain hose is properly trapped and in the pan.

LEGS – (optional)

If required by Health Inspectors the levelers can be removed and replaced with NSF Approved legs to raise the case 6 inches for cleaning purposes. An optional skirt kit can be provided to snap on the legs.

CARE and CLEANING – **EXTERIOR** –

When cleaning the exterior of the cabinet, use a soft cloth or sponges with water and a mild detergent. Rinse and wipe dry. Do not use an abrasive cleanser on the painted surfaces as this will mar the finish.

For plexiglass surfaces, use an approved plexiglass cleaner such as Craftics 20/20 Plasti-Cleaner

To check the interior drain – **SHUT OFF POWER TO THE CABINET!** This may be accomplished by turning off the cabinet power switch or by turning off the breaker located in the store electrical panel. Remove the product from the cabinet. Lift up and remove the stainless steel shelves. The drain is located in the center of the interior bottom directly behind the evaporator coil. Remove any pricing

Labels, product wrappers, etc., that may be found over the drain opening. When finished checking, assemble cabinet in reverse order, turn back on the power and allow cabinet to pull down to proper operating temperatures before restocking.

INTERIOR –

For cleaning the interior of the product compartment, remove the product, disconnect the electrical power, and allow cabinet to warm to room temperature.

Use a soft cloth or sponge with a mild detergent to wash the interior. The drainage area and drain should be checked to insure that they have not become clogged.

If the condensate drain hose is removed from the electric condensate pan for cleaning, it must be reinstalled prior to operating the case. Do not use an abrasive cleanser on the painted surfaces as this will mar the surface.

Wipe dry before restarting the cabinet. The time clock (see Electrical section) should be reset to the correct time of day. Allow the cabinet to cool down to proper temperature before reloading product.

CLEANING STAINLESS STEEL

Generally soap and water will be sufficient for most cleanings when done often and regularly.

When necessary several cleaning agents can be used. Some of them are Comet, Bab-O, Liquid NuSteel, Cooper's Stainless Steel Cleaner, Allen's Stainless Steel Cleaner, etc.

SERIAL PLATE –

The serial plate is located on the interior left wall of the cabinet. It contains all pertinent information such as model, cabinet serial number, amperage rating, refrigerant type and charge. This information will be needed to install, service, or order parts for this piece of equipment.

POWER REQUIREMENTS –

The SHM –3, 4, 5 & 6 use a 115/60/1 power source, with the SHM-3 and –4 models using a 15 amp cord and the SHM-5 and –6 using a 20 amp cord. The SHM-8 requires 208/230-60/1 power and uses a 20 amp plug. It is very important for the safety of you and your customers to have each circuit grounded properly.

A qualified electrician should perform all wiring in accordance with the National Electrical Code and/or all local codes

Separate circuits are recommended for each case in order to prevent product loss due to overloading or malfunction of other equipment on the same circuit. Fuses or circuit breakers should be supplied for each circuit.

For proper operation of equipment, voltage as measured at the compressor must not vary more than 5% from the cabinet serial plate rating.

If either a high or low voltage condition exists, contact your electrician, local power company, or equipment manufacturer.

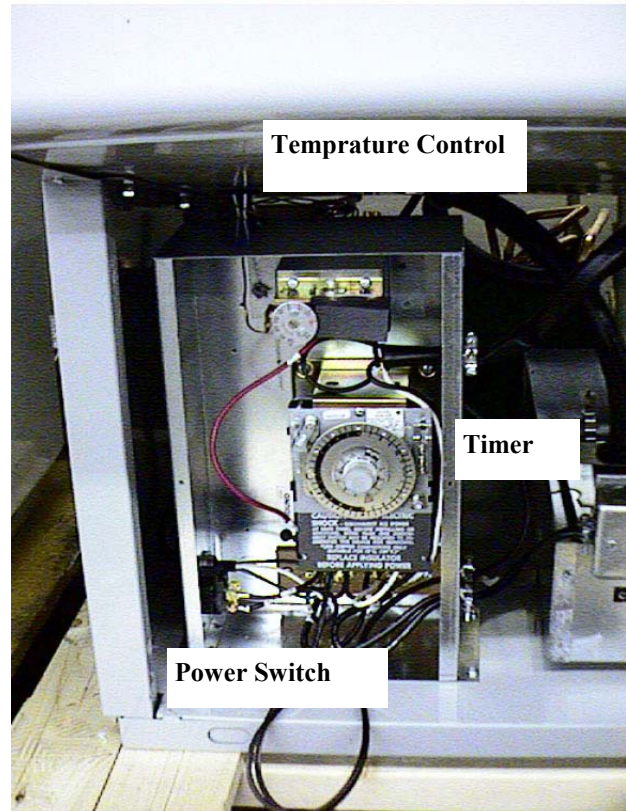
ELECTRICAL BOX –

The electrical box is located behind the louvered access panel. The box contains the items described below. On remote units the box is used to bring the field supply to. There is a grounding lug provided on these models for grounding purposes.

POWER SWITCH –

The main power switch is located behind the louvered access panel covering the condensing unit compartment on the customer side of the case.

This switch controls all power to the case.



The cabinet power switch must be in the OFF position before starting any cleaning or service work on the equipment.

DEFROST TIME CLOCK –

The time clock, located in the electrical box, provides a definite off-time so that the evaporator will clear itself of frost.

The clock is provided with pins to initiate defrost. The failsafe setting sets the length of defrost (from 2 minutes minimum to 110 maximum).

The clock is factory preset for 1 defrost per day at 40 minutes, which should be sufficient for most applications.

Additional defrost may be required for cases located in high humidity or high usage cases. If possible, avoid setting a defrost during the day or peak usage periods. The clock time pointer should be set to the correct time of day when the cabinet is ready to be started.

SETTING THE TIMER – Extra pins are provided with the timer.

- a. Put pin in the hole in dial face for the time you wish cabinet to defrost. Note that there is an AM and PM section on the dial face. Be sure the pin is tight.**
- b. Set the length of time for the defrost (failsafe). Push down on the adjustment and slide it to the length of time. (Do not set the time longer than 60 minutes.**
- c. Set the time pointer to the proper time of day and start cabinet.**

START UP AND OPERATION –

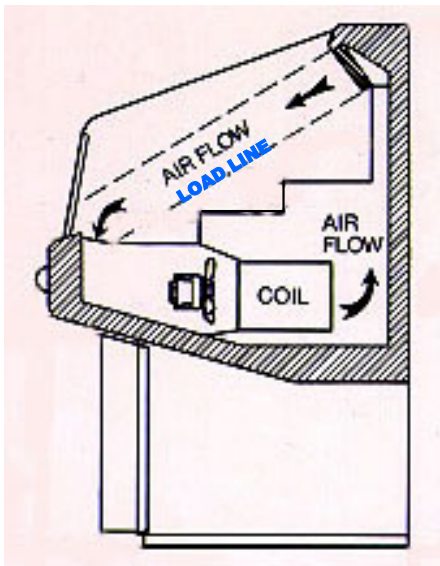
It is important that the four previous sections of this installation booklet have been read and followed carefully before attempting to start up the equipment.

A thorough inspection should be made prior to start up to assure that there are no loose nuts, bolts, electrical connections or refrigeration lines rubbing or chafing.

Turn the power switch to the ON position. Allow the system to reach normal operating temperature prior to loading any product in it.

This cabinet has a forced-air curtain that flows over the top of the product. See Shelves under this section for special loading instructions.

Air flows out of the honeycomb diffuser located above the product, across the product, and into the return duct. The honeycomb can be removed for cleaning.



TEMPERATURE CONTROL –

Interior cabinet temperatures are controlled through the use of a bulb and capillary type temperature control.

The body portion of the control is located in the electrical enclosure. Access to the enclosure is gained by removing the louvered panel on the front of the cabinet. If you have a BW version of the SHM, the electrical enclosure is located behind the louvered panel on the rear of the cabinet. The sensing element of the control is located on top of the evaporator coil fins of the left end of the evaporator.

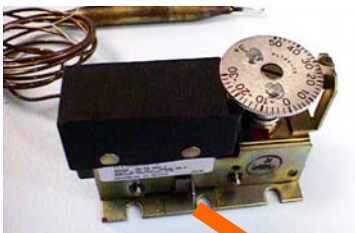
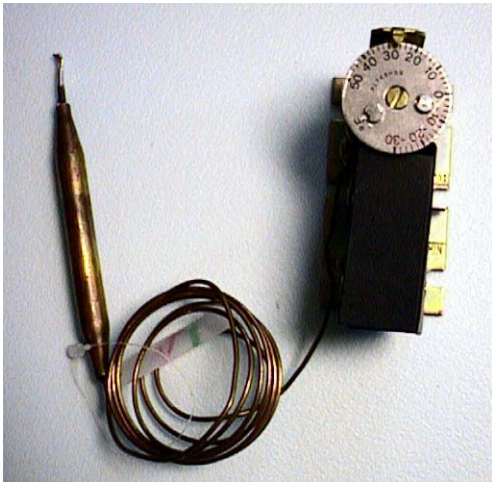
PRIOR TO PERFORMING ANY SERVICE OR CONTROL REPLACEMENT, DISCONNECT THE POWER TO THE CABINET.

The dial face of the control is adjustable from -10 to $+50^{\circ}$. The control is factory pre-set at between 26 and 28° to maintain interior cabinet temperatures of 35 to 40° . The control also has an adjustable differential that determines the cut-in and the cut-out temperature. This is adjustable from 5 to 20° . The factory setting is 9° to insure proper off time to keep the evaporator from icing.

When replacing the control, make sure to reseal the penetration in the cabinet bottom to prevent moisture from leaking through.

A picture of this control is on the next page.

Penn A19-AHA-2D



Differential

CONDENSING UNIT –

A regular program should be set up for cleaning the fin-and-tube condenser. Dust and dirt accumulation can cause serious efficiency loss.

Access is gained to the unit area by removing the louvered grille. Before attempting to slide out condensing unit you must first remove the screws holding the condenser baffles with a phillips screw driver.

The unit slides forward to facilitate cleaning and for service. Care should be taken when pushing the unit back in to insure that the pullout coil does not become kinked or damaged in some way. Double check to make sure the drain hose is in the drain pan before putting the access grille back on. The rear access panel is also removable if it is necessary to work at the back of the case.

SHELVES –

The cabinet is equipped with shelves for the display of your product. THERE IS A 'LOAD LINE' LABEL ON THE BACK WALL OF THE INNER LINER. DO NOT LOAD ABOVE THIS LINE AS THE PRODUCT WILL BE IN THE DISCHARGE AIR FLOW AND ADVERSELY AFFECT THE CABINETS PERFORMANCE

THERMOMETER –

A thermometer is provided that has both Fahrenheit and Centigrade. The thermometer is located in the back interior corner.

Its reading will be 5° to 7°F warmer than the discharge air off the honeycomb.

A solar powered thermometer is provided with each cabinet. Temperature display in Fahrenheit degrees is standard. Celsius display is available as an option. The thermometer is located in the cabinet interior in the top left hand rear corner.

To replace the thermometer, remove the two screws holding the thermometer to its mounting bracket. Remove the sensing element from its clip. Install the replacement thermometer in reverse order.

To clean the sensing element of the thermometer, follow replacement procedure. Clean the element with a water and mild detergent solution. Make sure the sensing element is wiped clean of any residue to ensure proper temperature readings

REFRIGERATION –

The SHM 3, 4, 6 models use a R-134a refrigerant and the SHM-5 and –8 models use R-404A refrigerant. All models use a hermetic compressor.

The systems employ capillary tubes for refrigerant flow control. The capillary tube is soldered to the suction line pull-out coil for proper heat exchange. If the capillary should be come plugged or damaged for some reason **IT IS BEST TO REPLACE THE WHOLE HEAT EXCHANGER WITH A NEW ONE.** Consult the factory for the proper replacement.

Listed below are BTU requirements for the SHM series cabinets at a +20° F evaporator and 110° F condenser temperature.

SHM-3	2900
SHM-4	3000
SHM-5	4400
SHM-6	5400
SHM-8	6400

The following pressures are optimum when the case is in a 75° to 80°F ambient and is running from 35° to 40°F cabinet temperature and are for reference only:

	SHM-3,4,6	SHM-5 –8
Head Pressure	110-120 psig	Head Pressure 280-290 psig
Suction Pressure	15-20 psig	Suction Pressure 36-40 psig

Consult the serial plate for the correct refrigerant charge. This charge is critical and should be weighed in.

EVAPORATOR FAN MOTORS –

To replace an evaporator fan motor, the product must be removed from the cabinet and the step shelves also removed. The shelves are only set in place.

Next, remove the plate covering the fans by removing the two screws holding this in place. The fans are now accessible.

WARRANTY –

Please read carefully to assure prompt and accurate service

Ordering Replacement Parts –

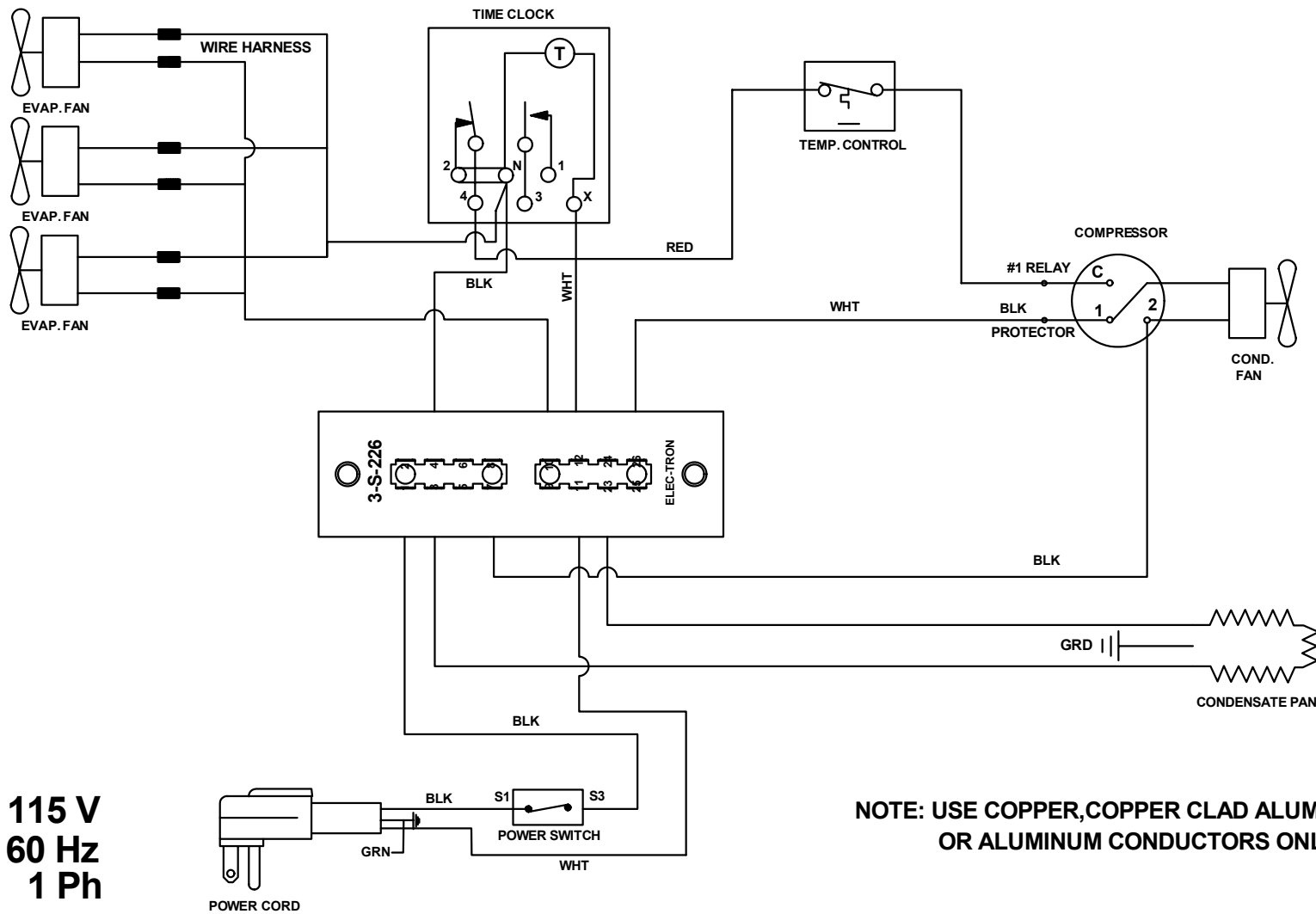
- **Contact your nearest Hussmann Distributor.**
- **Always specify model and serial number of cabinet.**
- **If correct part number is not known, give a clear description of part itself and its function in the cabinet or remote unit.**

Warranty Parts Procedure –

- **Same as items above**
- **Give original installation date of cabinet and, if possible, forward a copy of the original invoice or delivery receipt.**
- **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.**
- **Contact your Hussmann Distributor for instructions on returning in-warranty parts.**
- **Warranty parts must be returned to the factory within 30 days of date of failure to assure proper disposition.**
- **Lack of any of the above information may result in the shipment of the wrong part, or a delay in shipment.**

Compressor Replacement Procedure –

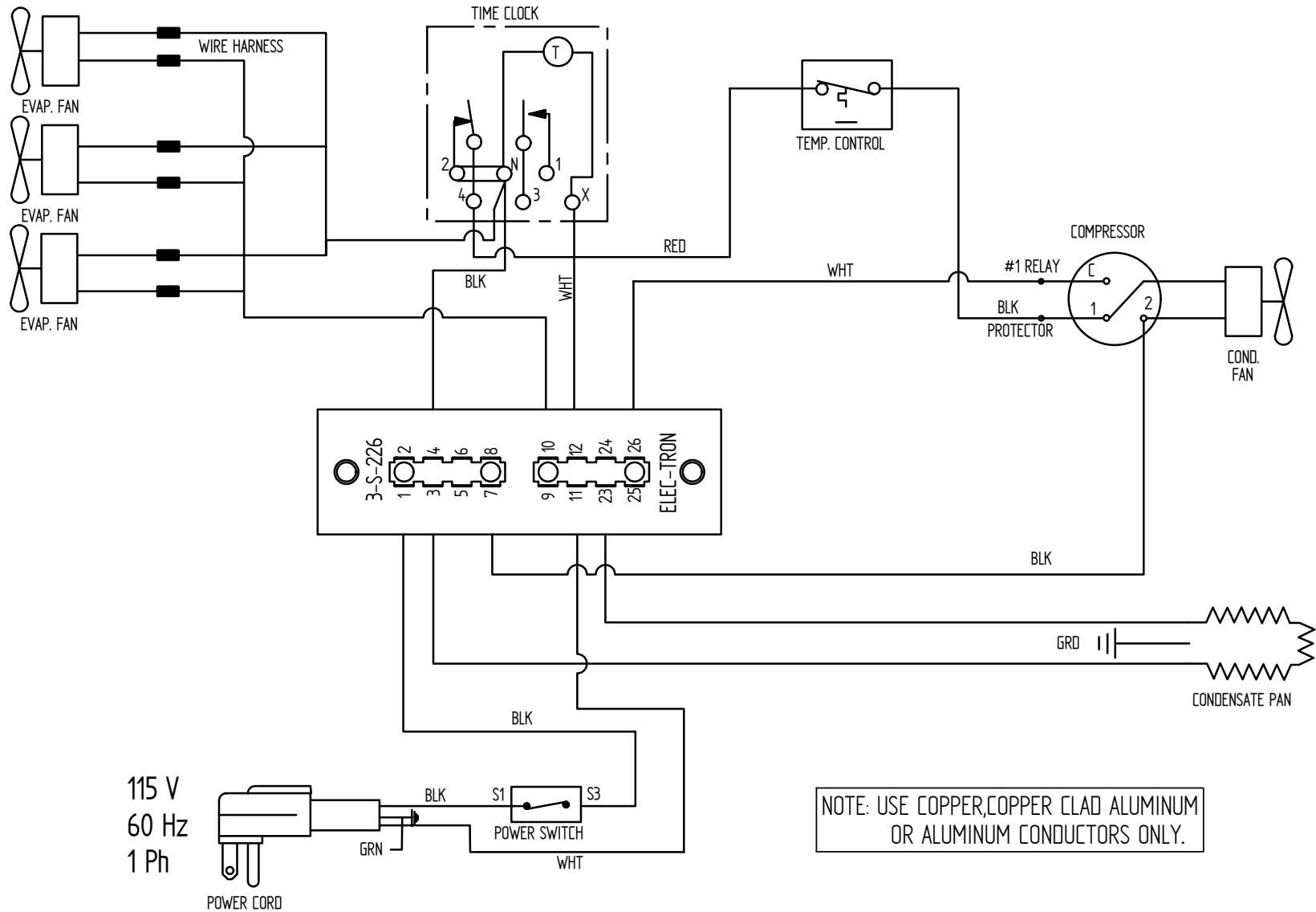
- **Replacement compressors will not be shipped from the Hussmann factory. They may be obtained from your nearest Copeland Wholesaler.**
- **Your wholesaler will replace, free of charge, any compressor found to be defective within twelve months of installation, not to exceed twenty months from the date of manufacture, as determined by the compressor serial number on the compressor serial plate.**
- **For any defective compressor beyond the twelve or twenty month time period, a salvage value credit will be given too partially offset the invoice for the replacement.**



115 V
60 Hz
1 Ph

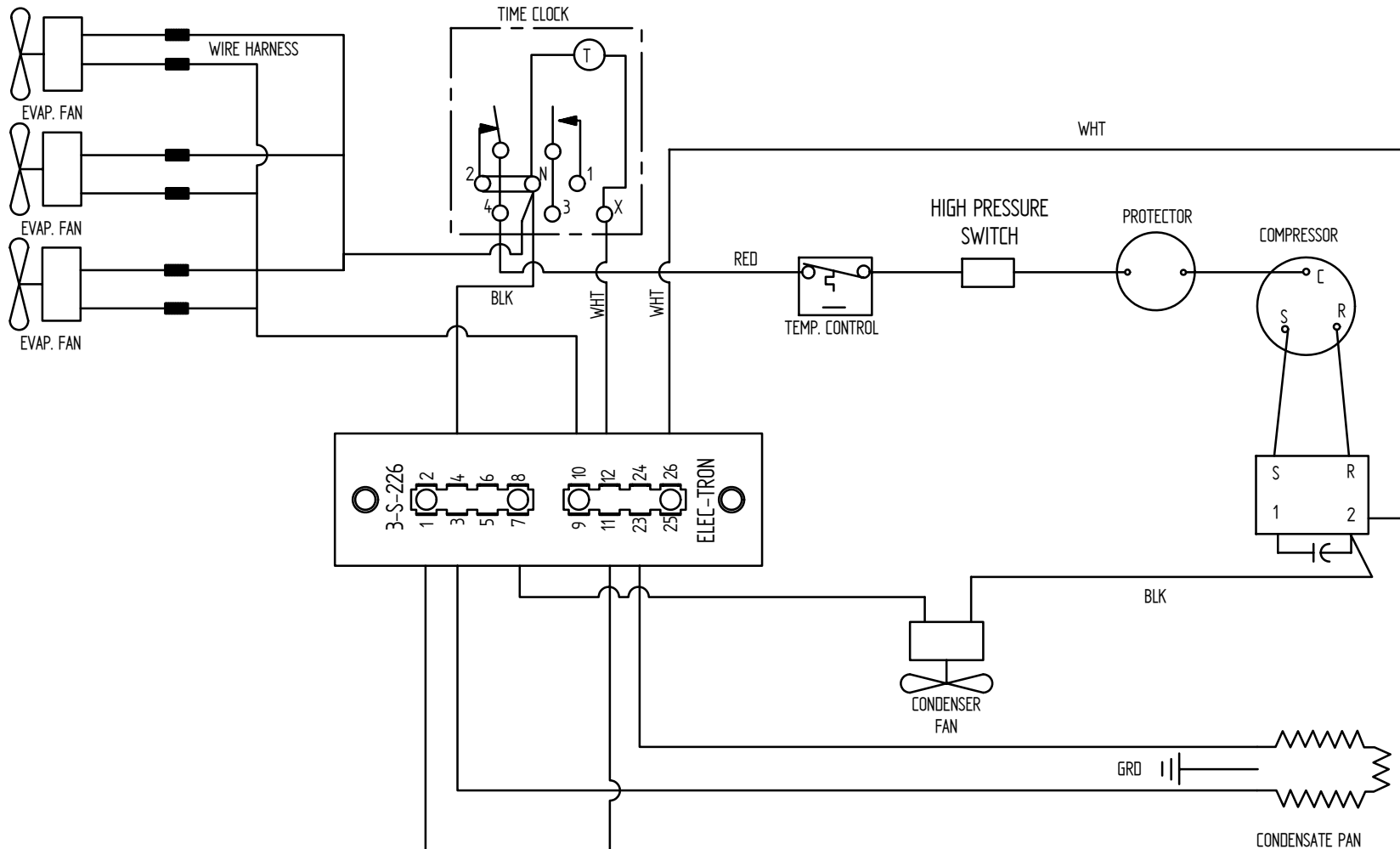
NOTE: USE COPPER, COPPER CLAD ALUMINUM
OR ALUMINUM CONDUCTORS ONLY.

				MATERIAL: XXXXXX-XX	SHEET SIZE B	TOLERANCES UNLESS OTHERWISE SPECIFIED. FRACTIONAL <input type="checkbox"/> 1/32" DECIMAL <input type="checkbox"/> 0.031" ANGULAR <input type="checkbox"/> 10' HOLE LOCATION & SPACING <input type="checkbox"/> 1/64"		HUSSMANN <small>Gloversville, N.Y. 12078</small>		
				SIZE XXXXXXXXXX			TITLE WIRING DIAGRAM, SHM-5, SHM-6			
XX/XX/XX	XXX	XXXX		DIE NO. XXXX-XXXX	FINISH XXXXXXXXXXXX	SCALE:	TYPE CODE X	DRAWN DATE 08/03/94	DWG. NUMBER M100-1937	REV. X
REV.	DATE	BY	E.C.N.				CHECKED XXX			



NOTE: USE COPPER, COPPER CLAD ALUMINUM OR ALUMINUM CONDUCTORS ONLY.

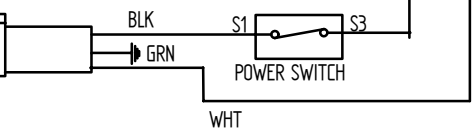
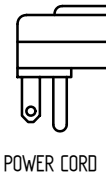
REV E.O. #	REV DATE	REV BY	TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONAL 1/32" DECIMAL 0.031" ANGULAR 1° HOLE LOCATION & SPACING 1/64"	 GLOVERSVILLE, NY 12078
-	-	-		
APPROVED BY	ED NUMBER		WIRING DIAGRAM SHM-3,4 M100-1871	
DRAWN BY	JLS	SCALE	INCHES	
DATE DRAWN	8/3/1994	SHEET #	1 OF 1	
APPROVED BY				



NOTE: USE COPPER, COPPER CLAD ALUMINUM OR ALUMINUM CONDUCTORS ONLY.

SHM-3
R-404A

115 V
60 Hz
1 Ph

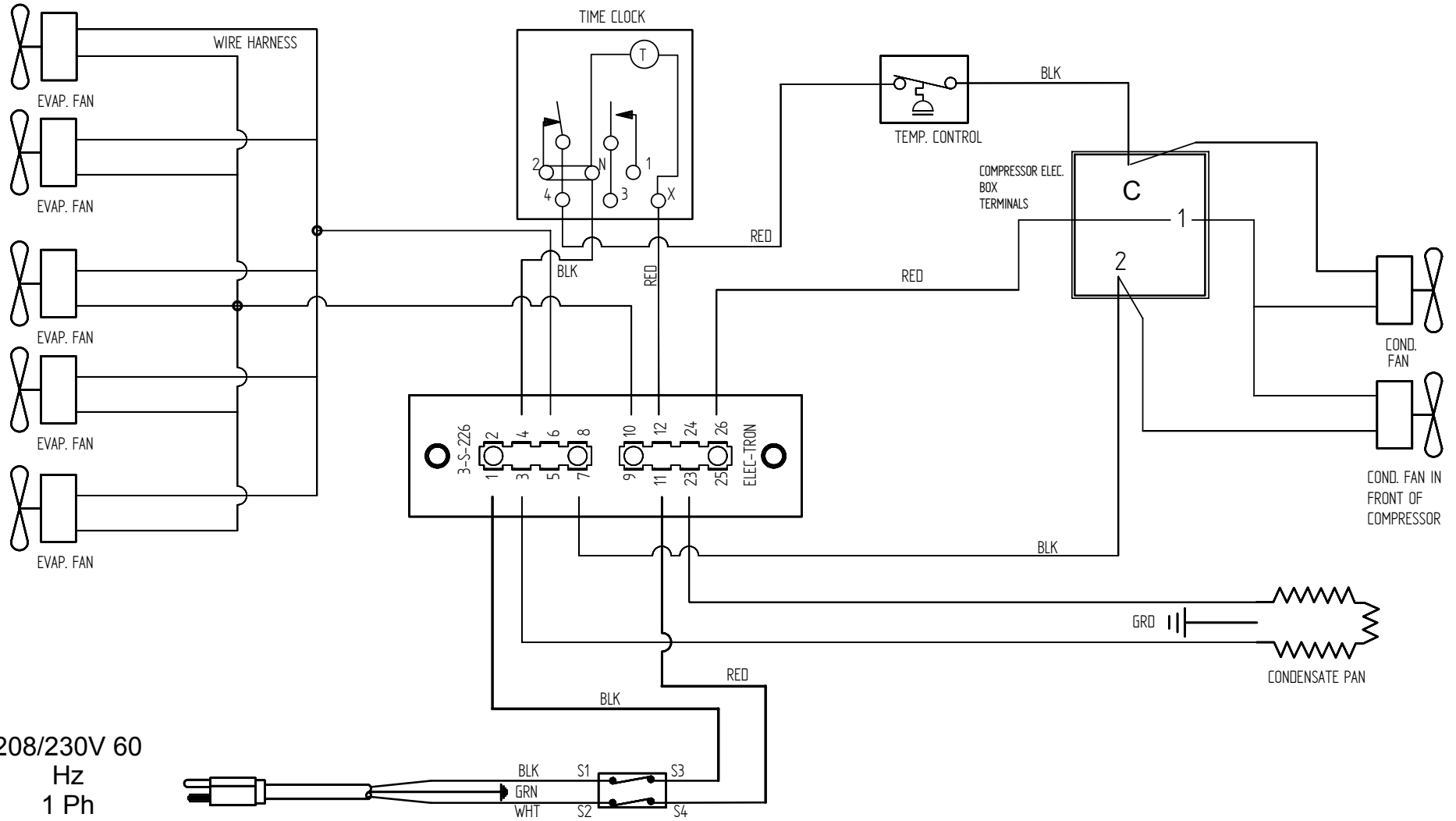


REV	EO #	REV DATE	REV BY	TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONAL 1/32" DECIMAL 0.031" ANGULAR 1° HOLE LOCATION & SPACING 1/64"
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APPROVED BY:				ED NUMBER
				-
DRAWN BY:			JHB	SCALE INCHES
DATE DRAWN:			7/13/2000	SHEET # 1 OF 1
APPROVED BY:				

HUSMANN
GLOVERSVILLE, NY 12078

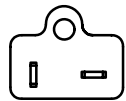
WIRING DIAGRAM

M100-2197



208/230V 60
Hz
1 Ph

20 AMP 250V
POWER CORD



PLUG END
DETAIL

NOTE: USE COPPER, COPPER CLAD ALUMINUM,
OR ALUMINUM CONDUCTORS ONLY.

POWER SWITCH

SHM-8

HUSSMANN
GLOVERSVILLE, NY 12078

REV	EO #	REV DATE	REV BY	TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONAL 1/32" DECIMAL 0.031" ANGULAR 1° HOLE LOCATION & SPACING 1/64"	HUSMANN	
-	-	-	-		GLOVERSVILLE, NY 12078	
APPROVED BY				EO NUMBER	SHM-8 WIRING DIAGRAM	
				-	M100-2133	
		DATE DRAWN	2/19/98	UNIT	INCHES	
		DRAWN BY	JHB	SHEET #	1 OF 1	
		APPROVED BY	-			