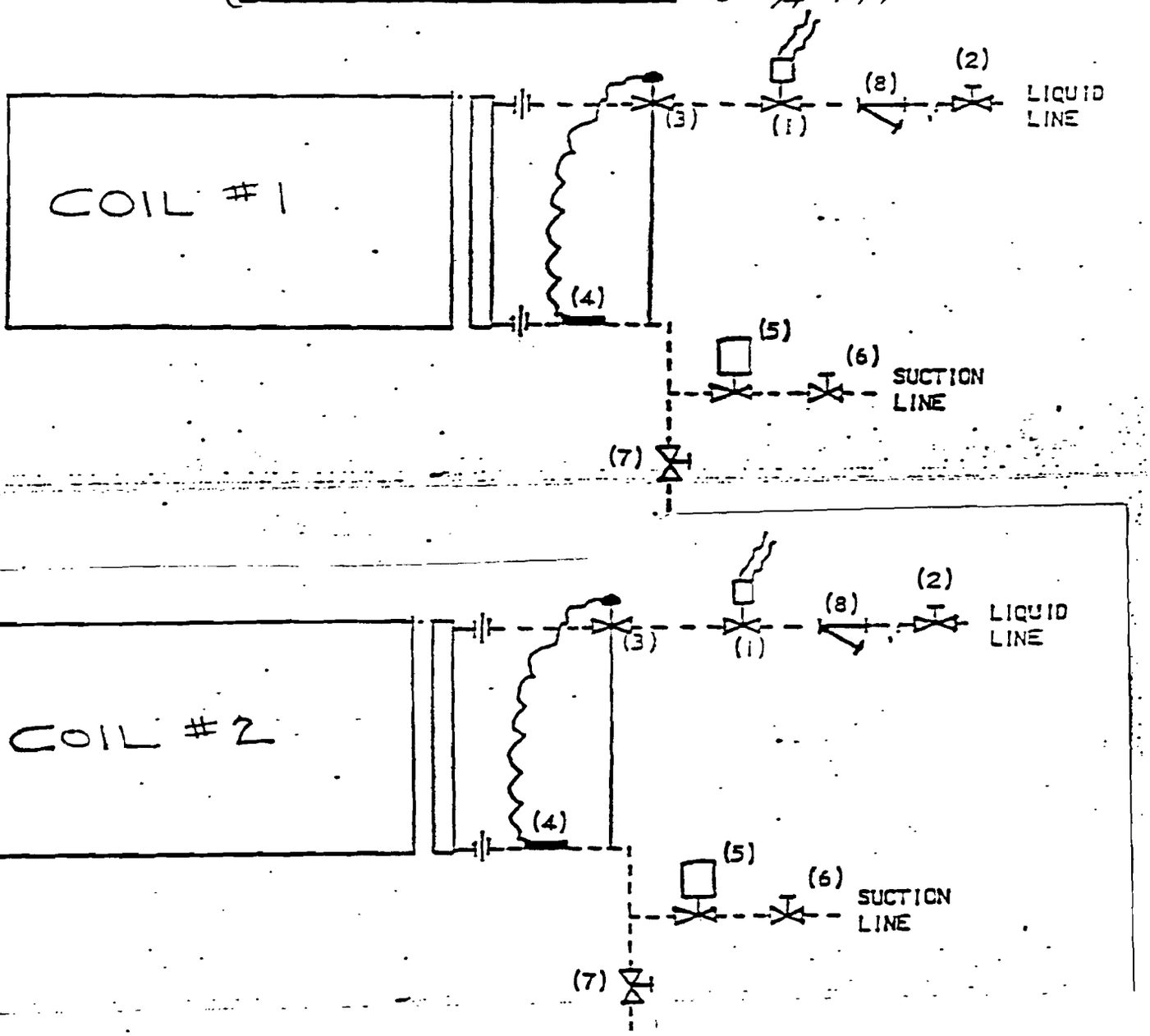
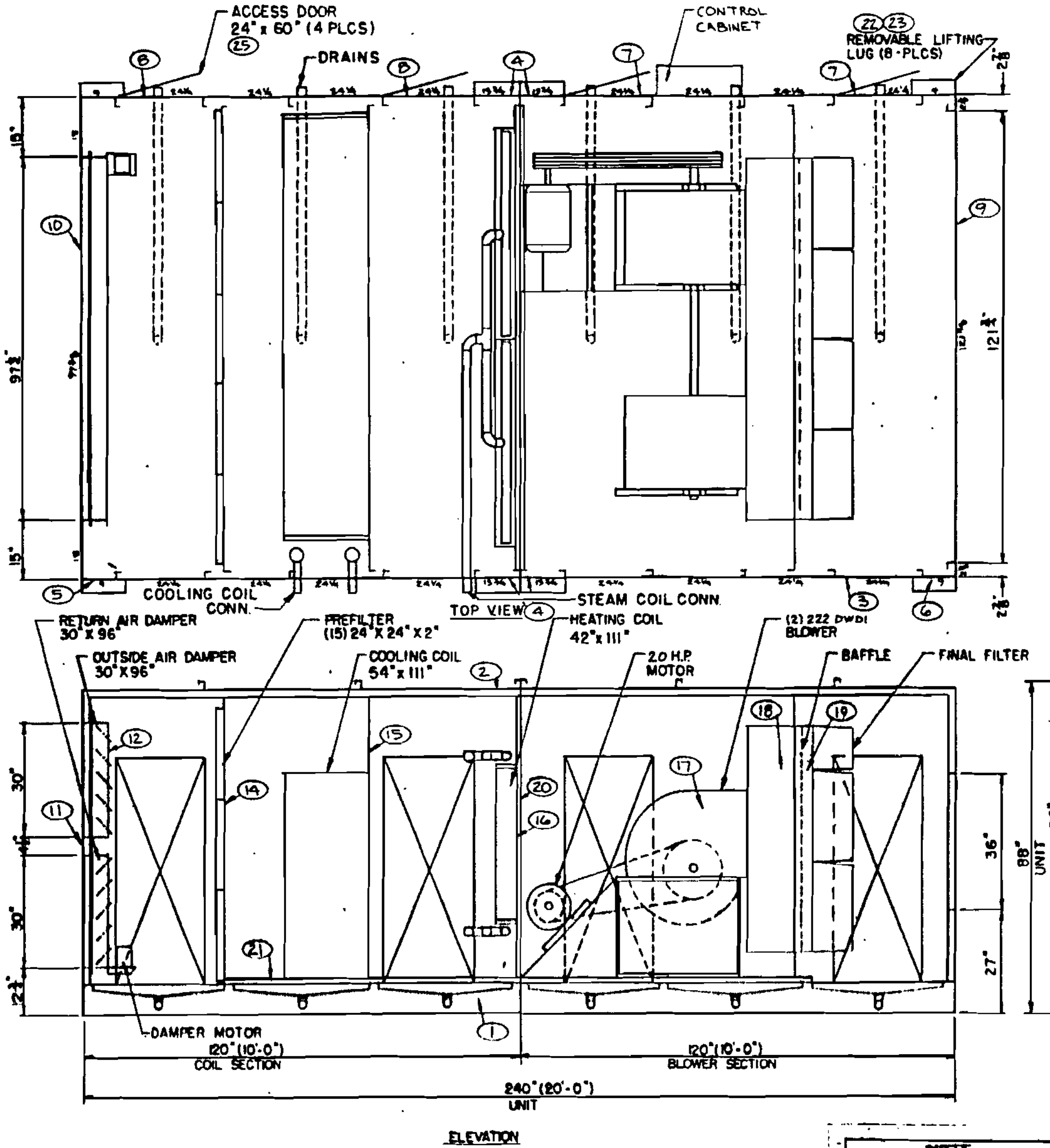
DX AMMONIA PIPING

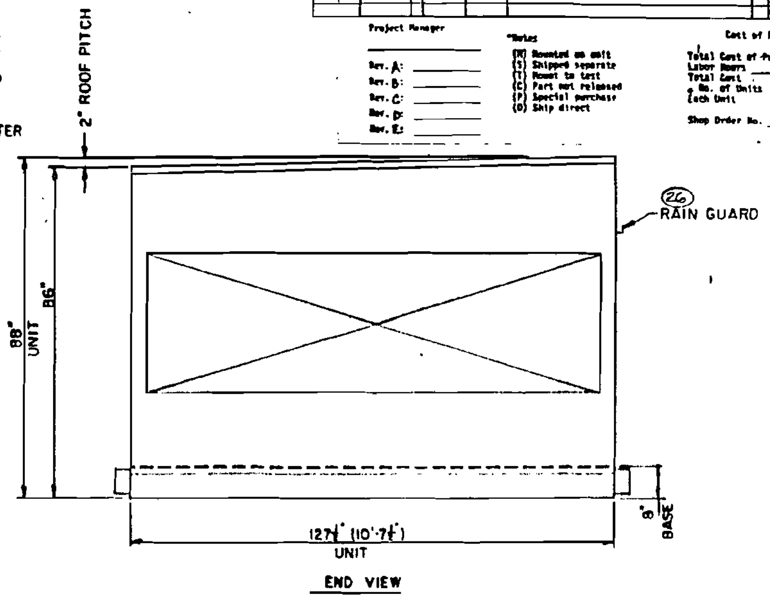
— EQ ROOM —
V2037B

CUSTOMER : TUSCAN DAIRY — DATE 3-17-88
UNION, NEW JERSEY
KLIMATIC KING MODEL NO. 2025-99 AIR VOLUME 20,000 CFM
COOLING CAPACITY: 80 TONS USING +35° °F SUCTION TEMP.
Δ °F ENTRERING AIR, °F LEAVING AIR
COIL CONNECTION 1138 DIST. IPS INLET, 2" IPS OUTLET
PIPE SIZE IPS INLET, IPS OUTLET

VALVES SUPPLIED (2) AAE-50-L EXPANSION VALVES - 3/4" FPT —
(2) MA-17 SOLENOIDS - 24V COILS - 3/4" FLANGED —
(2) SPORLAN B006 STRAINERS - 3/4" FPT —







Description: 2025-99 UNIT LH GALV LINER

Sold To: ______

Ship To: ______

Tag: ______

Indoor ______ Outdoor ______

Date ______ Sheet ______ of ______

[ ] Unit Control [ ] Piping Sub-Assembly

Job Number ______

Drawing No. A602-0042

Quantity ______

ITEM NO.	Part Number	Source Number	Qty	Description	*	Unit Cost	Total Cost
1	5001-2111		1	BASE ASS'Y	M		
2	3144-0015		1	TOP PANEL ASS'Y	M		
3	101307		12	SIDE PANEL 24¼ x 78	M		
4	5007-A003		4	SIDE PANEL 13¾ x 78	M		
5	[illegible]		2	CORNER PANEL 9 x 15 x 78	M		
6	5007-4077		2	CORNER PANEL 9 x 2¾ x 78	M		
7	5007-0334		2	ABOVE DOOR PANEL 24¾ x 16	M		
8	5007-0111		1	ABOVE DOOR PANEL 24¾ x 16	M		
9	5007-4102		1	ABOVE & BELOW OF MID PANEL 121¾ x 21	M		
10	5007-4072		2	ABOVE & BELOW OF MID PANEL 97¾ x 6½	M		
11	5007-9905		1	BETWEEN OF MID PANEL 97¾ x 7½	M		
12	[illegible]		1	O/A & RA DAMPER ASS'Y	M		
					M		
14	5210-0055		1	PREFILTER CLOSURE	M		
15	5277-0003		1	COOLING COIL CLOSURE	M		
16	[illegible]		1	HEATING COIL CLOSURE	M		
17	[illegible]		1	BLOWER/MOTOR ASS'Y	M		
18	[illegible]		1	TRANSITION	M		
19	[illegible]		1	FINAL FILTER CLOSURE	M		
20	5110-012		1	SHIPPING SPLIT FRAME	M		
21	[illegible]		1	HAT CHANNEL ASS'Y	M		
22	100517	AW	8	LIFTING LUG	M		
23	100518	"	8	PROTECTION PLATE 20 GA	M		
25	101084	"	4	24 x 60 ACCESS DOOR	M		
26	100566	"	4	RAIN GUARD	M		

Project Manager ______

Rev. A: ______
Rev. B: ______
Rev. C: ______
Rev. D: ______
Rev. E: ______

*Notes
(M) Mounted on unit
(S) Shipped separate
(T) Mount to test
(C) Part not released
(P) Special purchase
(D) Ship direct

Cost of Parts $ ______
Total Cost of Parts ______
Labor Hours ______
Total Cost ______
÷ No. of Units ______
Each Unit ______
Shop Order No. ______

NOTE

ALL EXTERNAL FASTENERS ARE TO BE #104599 (#12 x ¾" LG. SELF DRILLER)

CAULK ALL SEAMS W/102781 (SILICONE SEALANT)

PAINT EXTERIOR OF UNIT WITH 102875 (GREY ENAMEL)

2025-99 VENT. UNIT L.H.

THE KING CO.
OWATONNA, MINNESOTA

A602-0042

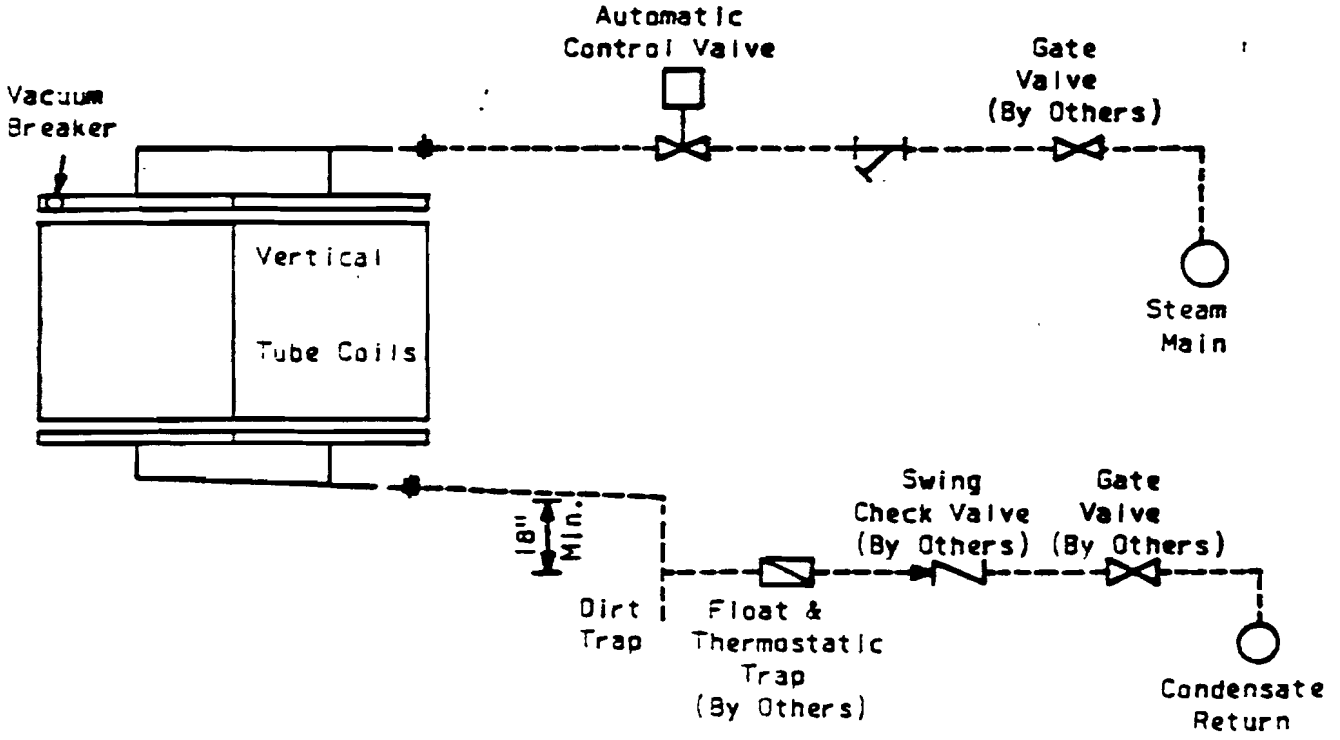
2241

STEAM PIPING

4-77 HE4-01A.3

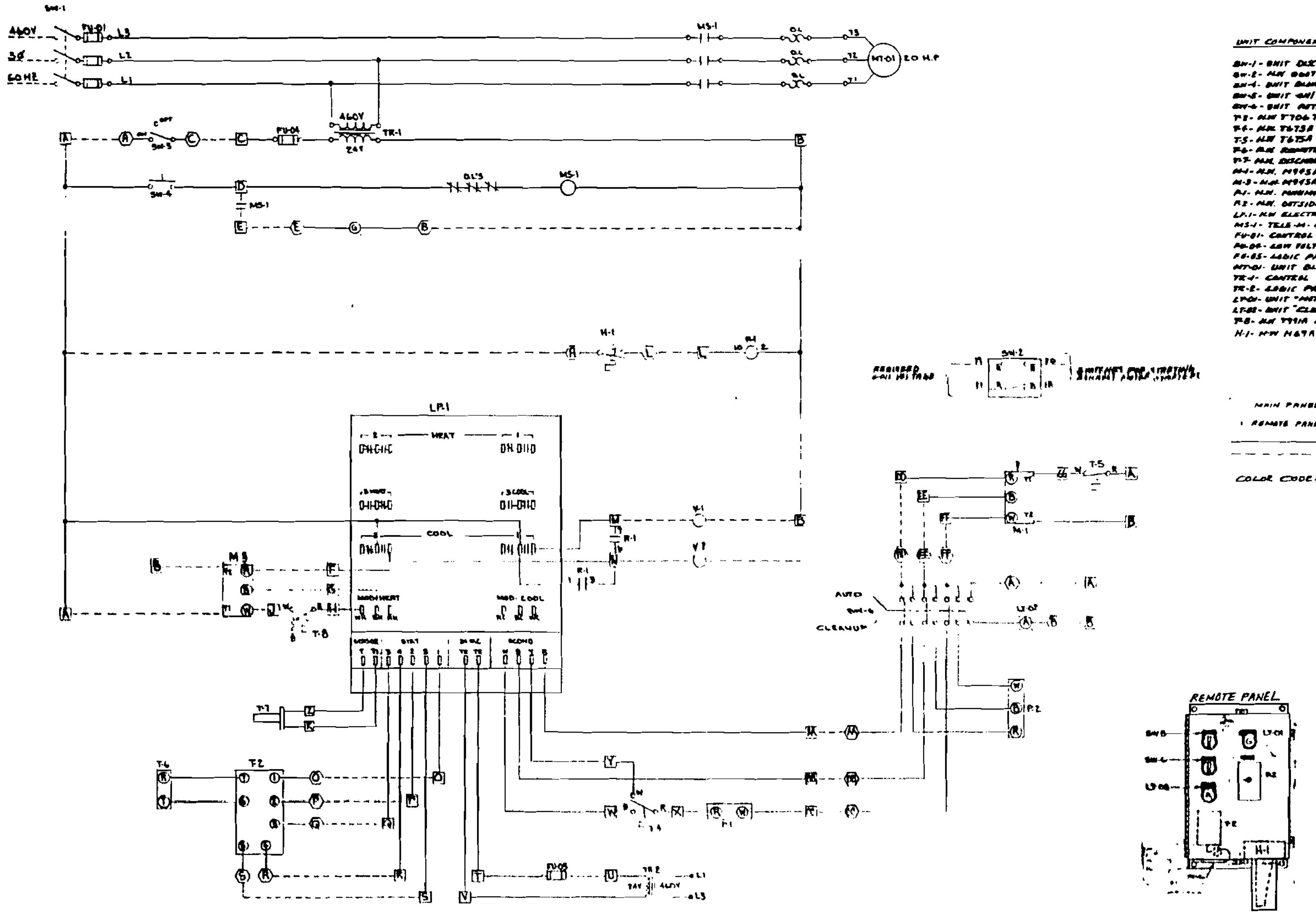
EQ Room & Creamer Room
V2037B V2037A

Cust.: Tuscan Dairy Date: 3-17
Union, New Jersey
Klimatic King Model No. 2025-99
Unit Air Capacity: 20,000 C.F.M.
Heating Capacity: 1,728,000 BTU.
_____ °F (D.B.) Entering Air
_____ °F (D.B.) Leaving Air
80 °F Temperature Rise
Steam Pressure: 15 LBS. at the Steam Coil
Pounds of Condensate: 1827 LBS.
Coil Connection: 2½" IPS Inlet, 1½" IPS Outlet.
(2) Steam Valve Model 5011G1103 C_v= 40,
2" " Connections.
Vacuum Breaker: (2) ½" "



——— Piping By The King Co.
- - - - - Piping (By Others)

SEE NOTES ON REVERSE SIDE



UNIT COMPONENTS:

SW-1 - UNIT DISCONNECT SWITCH, WEST, 60 AMP
SW-2 - M.H. 8047B AUX END SWITCH - ON M-1 MOTOR -
SW-4 - UNIT BLOWER INTERLOCK SWITCH
SW-5 - UNIT ON/OFF SWITCH - REMOTE PANEL
SW-6 - UNIT AUTO/CLEANUP SWITCH - REMOTE PANEL
T-2 - M.H. T7067B ROOM THERMOSTAT - REMOTE PANEL
T-4 - M.H. T675A OUTDOOR AIR THERMOSTAT
T-5 - M.H. T675A FREEZE CONTROL
T-6 - M.H. REMOTE TEMPERATURE SENSOR, T7022A1010 - REMOTE PANEL
T-7 - M.H. DISCHARGE AIR SENSOR, C7046A1004
M-1 - M.H. M945A1009 MODULATING DAMPER MOTOR
M-3 - M.H. M945A M19 MODULATING STEAM VALVE MOTOR
P-1 - M.H. MINIMUM SETTING POTENTIOMETER, Q209B
P-2 - M.H. OUTSIDE DAMPER POSITIONER - S963B POTENTIOMETER - REMOTE PANEL
LP-1 - M.H. ELECTRONIC LOGIC CONTROL PANEL W973B1016.
MS-1 - TELE-M. MAGNETIC MOTOR STARTER
FU-01 - CONTROL CIRCUIT FUSE
FU-04 - LOW VOLTAGE CONTROL CIRCUIT FUSE - 12 AMP
FU-05 - LOGIC PANEL CONTROL CIRCUIT FUSE
MT-01 - UNIT BLOWER MOTOR
TR-1 - CONTROL CIRCUIT TRANSFORMER - 250 VA
TR-2 - LOGIC PANEL TRANSFORMER
LT-01 - UNIT "MOTOR ON" LIGHT - REMOTE PANEL
LT-02 - UNIT "CLEANUP" LIGHT - REMOTE PANEL
T-8 - M.H. T991A LOW LIMIT DISCHARGE THERMOSTAT
H-1 - M.H. H49A HUMIDISTAT - REMOTE PANEL

MAIN PANEL TERMINAL
REMOTE PANEL TERMINAL
FACTORY WIRING
WIRING BY OTHERS

COLOR CODE:
POWER CONDUCTORS — BLACK
CONTROL — RED, TAGGED
NEUTRAL — WHITE

TYPICAL WIRING FOR (2) 2025-99 UNITS - TAG: "A" CREAMER ROOM
"B" EB ROOM

TUSCAN DAIRY
UNION, NEW JERSEY

BY JL
DATE 3/7/88
SCALE
THE KING CO.
OWATONNA, MINNESOTA
3158-5
SHEET Nº 6

Operation:

During normal operation, the unit will attempt to use outside air for cooling of the room whenever possible. If cooling is required, the room thermostat will first modulate the outside air dampers open in an attempt to cool the room.

Whenever the outdoor temperatures are above the room thermostat setting, it is not practical to bring in outside air for cooling. Therefore, at this time, the T-4 outdoor thermostat will close the outside air dampers to a pre-determined minimum set point as determined by potentiometer P-1. The dampers will be maintained in this position as long as the outside temperature is above the room temperature.

The system also includes an operate/clean-up switch located in the remote panel. When in the automatic position, the system will operate as described above. However, when the switch is placed in the clean-up position, the remote potentiometer P-2 is used to manually control the outside and return air dampers. This control allows the outside air volumes to be increased during clean-up or to be decreased during non-operating periods.

Check-Out:

First, place the operate/clean-up switch in the operate position. Also, place the T-4 outdoor air thermostat to its highest setting. Now place the room thermostat, T-2, to its lowest setting. If at this time the room temperature is above this setting, it should cause the outside air dampers to completely open and the return air dampers to completely close. If this functions properly, now place the T-4 outdoor thermostat in its lowest setting. In this position, it should allow the P-1 potentiometer to control the outside air dampers. Rotating P-1 to the closed position should cause the outside air dampers to close and rotating it to the open position should cause the outside air dampers to open. If this functions properly, rotate the P-1 potentiometer so that the outside air dampers are approximately one-quarter inch open, or of a sufficient setting to supply pressurization of the area.

Now place the operate/clean-up switch in the clean-up position. This will allow the P-2 potentiometer to control the dampers. Rotating the P-2 potentiometer to the open position should cause the outside air dampers to open and rotating it to the closed position should cause the outside air dampers to close.

If this functions properly, return the operate/clean-up switch to the operate position, and return the T-4 outdoor thermostat to the desired room temperature setting.

Modulating Steam

Components:

M-3 Motor - Honeywell M945A Modulating Steam Valve (Hot Water or Glycol) Motor. The valve, motor, and linkage are shipped loose for field mounting and wiring.

Operation:

The logic controller, LP-01, is used to directly modulate the steam valve (water or glycol) to maintain room temperatures.

Check-Out:

Place the T-2 room controller to the highest setting. Also adjust a T-8 modulating thermostat to its lowest setting. If at this time the room temperature is below this setting, it should cause the motorized steam valve, to completely open. If this functions properly, now place the T-2 room controller to its lowest setting. If at this time the room temperature is above this setting, this should cause the motorized steam valve to close.

Refrigerant Cooling Control

Components:

V-1, V-2, and ... Valve - Liquid Line Solenoid Valve. The liquid line solenoid valve and any other refrigeration valves, when supplied, are shipped loose for field mounting and wiring. Please note that the liquid line solenoid valve is designed for 24 volt control.

Operation:

The LP-01 electronic control module is used to directly control the liquid line solenoid valve(s). The logic panel can incorporate up to three steps of cooling.

Check-Out:

First place the T-2 room controller to the lowest setting. If at this time the room temperature is above this setting, it will first cause the outside air dampers to completely open. Once the dampers are open, the first stage (followed by second and third) will be energized, causing the liquid line solenoid valve to open. If this functions properly, now place the T-2 controller to the highest setting. If at this time the room temperature is below this setting, it will first de-energize the liquid line solenoid valve(s). It will then close the outside air dampers. If this functions properly, return the room thermostat to its desired room setting.

Dehumidification Control

Components:

H-1 Dehumidistat - Honeywell H69A Dehumidistat. The dehumidistat is located in the unit remote panel with the sensing element under the panel.

Operation:

Whenever dehumidification is required, the dehumidistat will fully open the refrigeration control valve. In this mode, the unit will provide maximum cooling and therefore, maximum dehumidification. The heating coil will remain in the circuit and the room temperature will modulate the heating coil to maintain room temperatures and provide reheat if necessary.

Check-Out:

First place the T-2 room controller in its highest setting. At this time, the outside air dampers should be closed and the refrigeration valve(s) should also be closed. Now rotate the H-1 dehumidistat to its lowest humidity setting. If at this time the humidity is above this setting, it should fully open the refrigeration valve. If this functions properly, rotate the dehumidistat to its highest humidity setting. If at this time the humidity is below that set point, it should close the refrigeration valve. If this functions properly, now place the dehumidistat at the desired set point.

Exhaust Control - One or Two Stage

Components:

SW-2 Switch - Honeywell Q607B Auxiliary Switch located on the outside air damper motor, M-1.

Operation:

The exhaust unit(s) will be staged on as the outside air dampers open. As the outside air dampers reach approximately 50 percent open, the first stage will be energized. As the outside air dampers approach 85 percent open, the second stage will be energized. In this way, the exhaust units are automatically controlled and yet maintain a pressurization within the room. Starters and disconnects for the exhausts are to be supplied by others.

Check-Out:

First, place the auto/clean-up switch in the clean-up position. Now rotate the P-2 potentiometer to the open position. As the outside air dampers reach approximately 50 percent open, the first stage exhaust will be energized. As the dampers reach approximately 85 percent open, the second stage exhaust will be energized. If this functions properly, now place the operate/clean-up switch to the operate position.

Steam Coil Freeze Protection

Components:

T-5 Freezestat - Honeywell T675A. This thermostat is located on the discharge side of the steam coil with its sensing bulb located in the coil discharge air stream.

T-3 Low Limit Discharge - Honeywell T991A. This thermostat is located in the final filter section with its sensing bulb in the supply airstream.

Operation:

The freezestat, T-5, & the low limit stat, T-3, should be set at 38° & 45° respectively. This will allow the outside air damper to close and return air damper to open if the discharge temperature of the steam coil falls below 38°F and if the supply air temperature should fall below 45°F, T-3 will modulate the steam valve open in order to maintain the supply air temperature above 45°.

Blower Motor Control

Components:

SW-1 Switch - Fused Disconnect Switch located on the exterior of the King unit.

MS-1 Starter - Definite Purpose Magnetic Motor Starter located in the unit control panel. The starter is 24 volt control.

SW-5 Switch - Unit On/Off Switch located on the unit's remote panel.

SW-4 Switch - Safety Door Interlock Switch located in the unit's blower access door.

Operation:

During normal operation, the unit on/off switch, SW-5, will directly control the unit motor starter, MS-1. However, the system includes a safety door interlock switch, SW-4, that will de-energize the motor starter whenever the unit blower motor access door is opened. The system also includes a fused disconnect switch, SW-1. This is used to disconnect all power to the King unit for servicing or maintenance.

NOTE: THE FUSED DISCONNECT SWITCH, SW-1, MUST BE IN THE OFF POSITION FOR ANY SERVICING, MAINTENANCE, OR INSPECTION OF THE KING UNIT.

STEAM PIPING NOTES

1. The piping diagrams on the reverse side show one of many acceptable piping methods. Important: Pipe steam coil in accordance with State and Local Codes.

2. To reduce freeze hazard, maintain ample operating pressure and check trap performance.

3. Pitch all supply and condensate piping away from the steam coil.

4. The entire system must be designed and piped to prevent accumulation of condensate at any point.

5. We recommend providing drip legs and traps at all low spots or natural drainage points such as: ahead of risers, ends of mains, ahead of expansion joints or bends and ahead of valves and regulators. Where there is no natural drainage points, drip legs and traps should be provided at intervals no longer than about 500 feet.

6. A full pipe strainer should be installed ahead of each control valve.

7. A vacuum breaker is used to relieve any unwanted vacuum condition within the steam coil. Preferable to locate at the inlet of the steam coil.

8. Locate dirt traps inside where they will not freeze.

9. Steam main and steam supply lines must be kept dry.

10. A condensate by pass line may be included where continuity of service is necessary or to permit trap removal when repairs are required.

11. Due to the large variety of makes, types and applications, it is difficult to advise on a specific make or type of trap. Consult your trap manufacturer for complete trap data.

12. Use swing joints whenever there may be possible damage caused by expansion and contraction of piping and steam coil.

AMMONIA PIPING NOTES

1. The piping diagrams on the reverse side show one of many acceptable piping methods. Important: Pipe ammonia coil in accordance with State and Local Codes.

2. It is important that the unit be installed with the piping in such a way that the unit can be isolated for repair of leaks or coil maintenance.

3. It is considered good practice to locate a stop valve in the inlet and outlet lines to the coil and in long lengths of piping to the coil to permit them to be isolated in case of leaks and to facilitate pumping out.

4. A relief vent should be installed around the stop valves in the suction line.

5. A strainer should be used in front of control valves to protect them from pipe construction material and dirt.

6. Solenoid valves should be installed upright.

7. Slope suction piping away from the coil.

8. Pipe complete system so as to prevent accumulation of oil in valves, controls and the evaporator coil.

9. The evaporator coil should be piped with an easily accessible oil drain.

CUSTOMER: TUSCAN DAIRY
UNION, NEW JERSEY

FIRST STAGE

EXHAUST UNIT MODEL: BY OTHERS

MOTOR VOLTAGE: _____

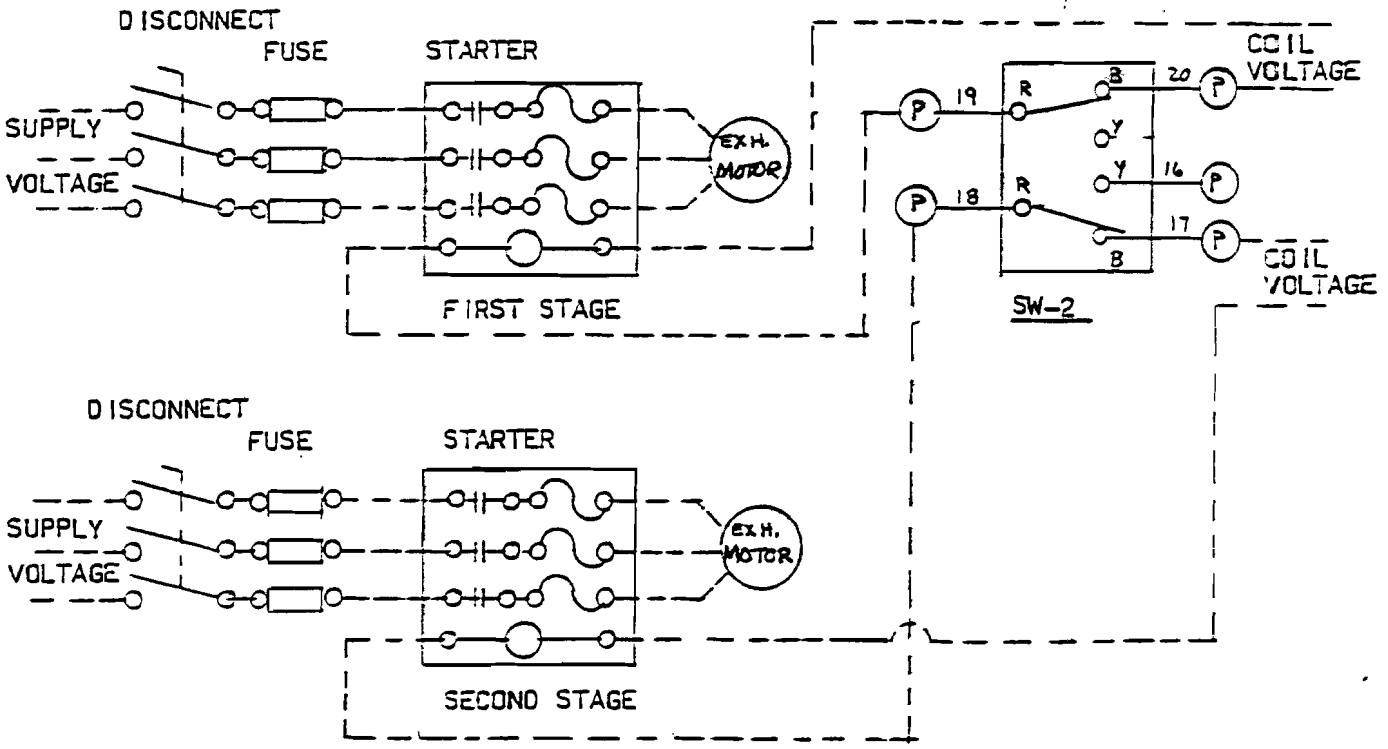
SECOND STAGE:

EXHAUST UNIT MODEL: BY OTHERS

MOTOR VOLTAGE: _____

SINGLE SPEED EXHAUST UNITS

This is a supplement to the Klimatic King Unit wiring diagram 3158-5 sheet #6



NOTE: 1. DISCONNECT, FUSE AND MOTOR STARTER SUPPLIED, WIRED AND INSTALLED BY OTHERS.
2. END SWITCH (SW-2) AND P JUNCTION BOX MOUNTED AND WIRED BY THE KING CO.
3. - - - - - WIRING BY OTHERS, _____ WIRING BY KING CO.

BY	REVISION	DATE	"P" PRESSURIZATION CONTROL EXHAUST MOTOR WIRING
DRAWN BY: K.F.V.	CHKD. BY:	DATE: 12/16/82	ASSEMBLY OR SYSTEM
MATERIAL:		THE KING CO. OWATONNA MINN.	VFE-101-C
SCALE:			