

READ AND SAVE THESE INSTRUCTIONS

VAPORMIST[®] and VAPORMIST[®] DI ELECTRIC STEAM HUMIDIFIERS

For Ducted or Ductless Applications

Installation Instructions
and
Maintenance Operations
Manual



UL LISTED



CUL LISTED



DRI **STEEM**[®]
HUMIDIFIER COMPANY

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TO THE PURCHASER AND INSTALLER

Thank you for purchasing our VAPORMIST® humidifier. We have designed and built this equipment to give you complete satisfaction and trouble-free service for many years. Familiarizing yourself with this manual will help you to ensure proper operation of the equipment for years to come.

This manual covers the installation and maintenance procedures for both the VAPORMIST AND VAPORMIST DI humidifiers.

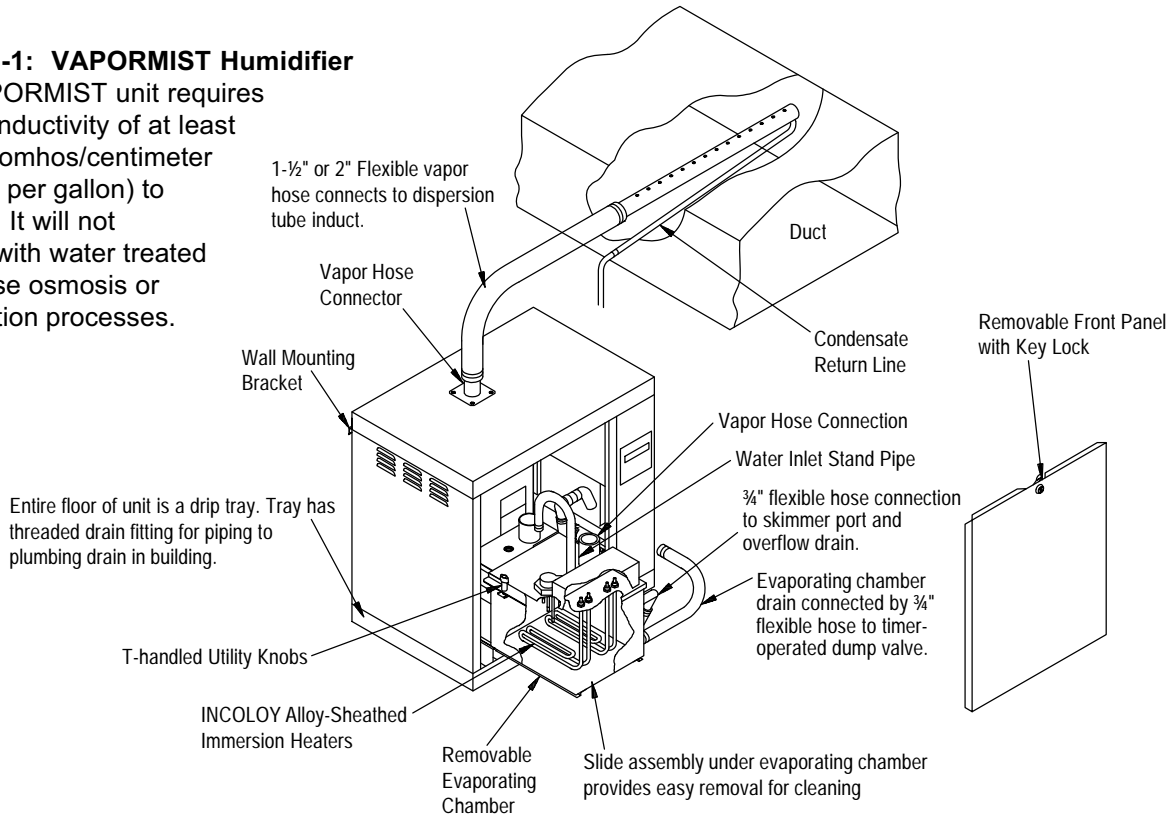
DRI-STEEM Humidifier Company

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VAPORMIST® DIAGRAMS

Figure 3-1: VAPORMIST Humidifier

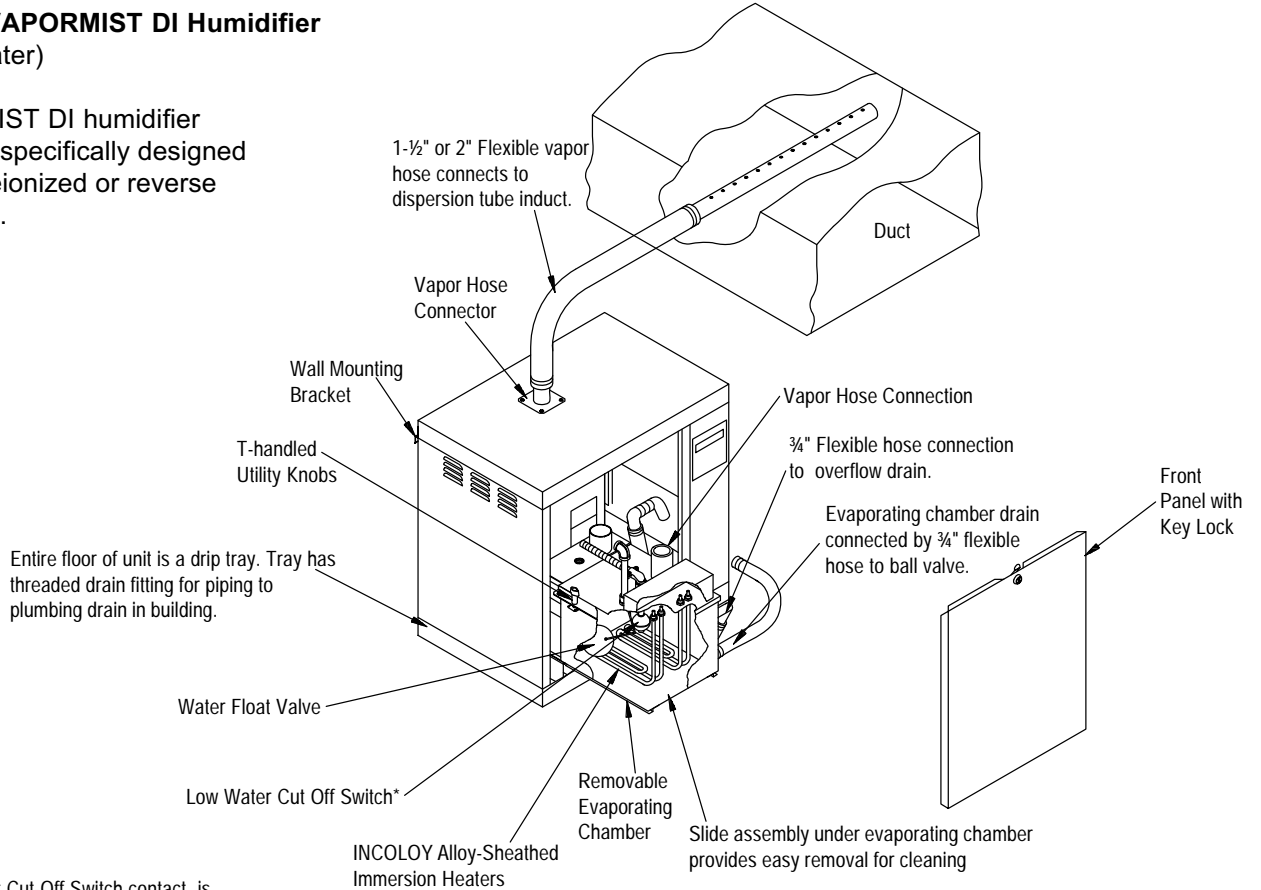
The VAPORMIST unit requires water conductivity of at least 100 micromhos/centimeter (2 grains per gallon) to operate. It will not operate with water treated by reverse osmosis or deionization processes.



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Figure 3-2: VAPORMIST DI Humidifier (Deionized Water)

The VAPORMIST DI humidifier shown here is specifically designed for use with deionized or reverse osmosis water.



*Caution: Low-Water Cut-Off Switch contact is normally open when float is in its lowest position.

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INSTALLATION

Locating and Mounting the VAPORMIST® Humidifier

The VAPORMIST humidifier is designed to hang on a wall, and should be installed in a mechanical room or in a space located near an air duct system.

Consider the following when selecting the location of the humidifier:

- Visible location (preferred)
- Convenient access to duct
- Electrical and plumbing connections
- Required clearances

The mounting location should provide a minimum clearance of 36" to the front and 24" to the right side of the unit. This clearance is required for removing the evaporating chamber and accessing electrical compartment.

Electrical power supply, water make-up piping and drain piping must also be considered. These service connections are made at the lower right rear corner of the unit.

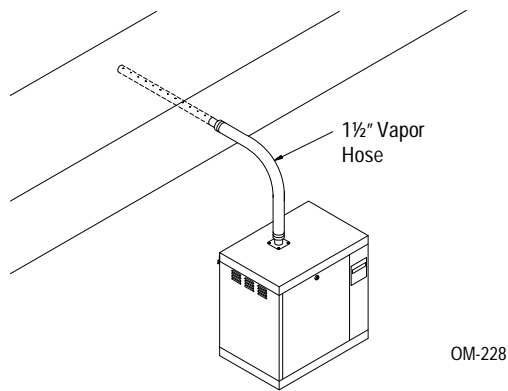
When mounting on a stud wall (studs 16" on center), locate studs and position mounting bracket in place so that each of the two holes (16" apart) will center on a stud. Mark hole locations and pre-drill 1/4" diameter pilot holes. Secure bracket to wall with lag bolts provided.

For hollow block or poured concrete wall mounting, position mounting bracket in place and mark the second hole from each end. Drill appropriate pilot hole for two 3/8" toggle bolts or two 3/8" machine bolt lead anchors. Secure bracket in place.

When the VAPORMIST humidifier is in final operation, the panel access keys should be removed and secured in a different place.

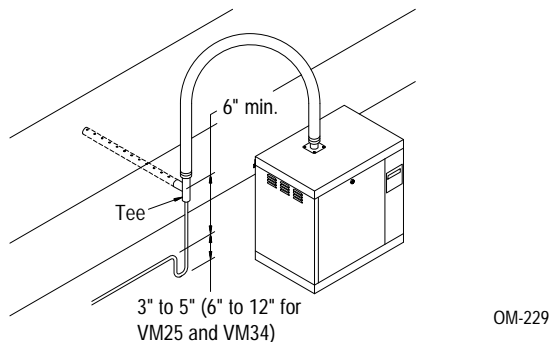
Examples of Mounting the Dispersion Tube

Figure 4-1: Mounted Horizontally in Duct



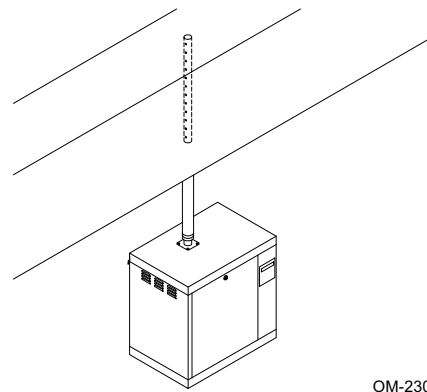
Vapor hose and dispersion tube should be pitched back to the humidifier with a gradual slope of 2" per foot (minimum).

Figure 4-2: Mounted Horizontally in Duct and Lower Than VAPORMIST Unit



A water seal must be located in drain line as shown to maintain steam pressure.

Figure 4-3: Mounted Vertically (Optional)



This is not recommended on VM16, VM25, and VM34.

When duct is located more than 10 feet away from unit, vapor hose is not recommended; 1/2" minimum I.D. hard pipe should be used instead.

INSTALLATION

VAPORMIST® Mounting Tube with Condensate Drain Line

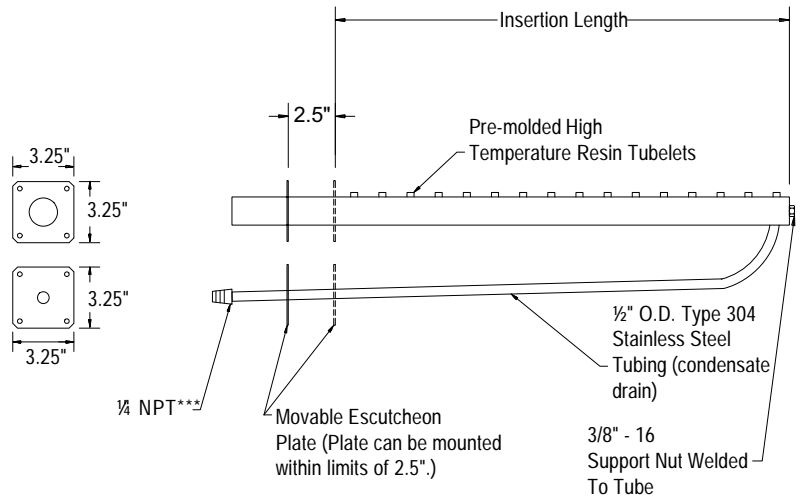
- Mount dispersion tube level.
- For best vapor absorption, orient dispersion tube so that tubelets are directed against the air flow.

Connecting Dispersion Tube to Humidifier

- Connection can be made with vapor hose or rigid tubing
- Vapor piping should have a minimum I.D. of 1½".
- A minimum pitch of 2" per foot back to the humidifier should be maintained.
- 90° elbows are not recommended; use two 45° elbows 12" apart instead.
- Thin-walled tubing will heat up faster than heavy-walled pipe, causing less steam loss at start-up.
- Insulating rigid tubing will reduce the steam output loss caused by condensation.
- When mounting the humidifier above the level of dispersion tube, see figure 4-2 on page 4.

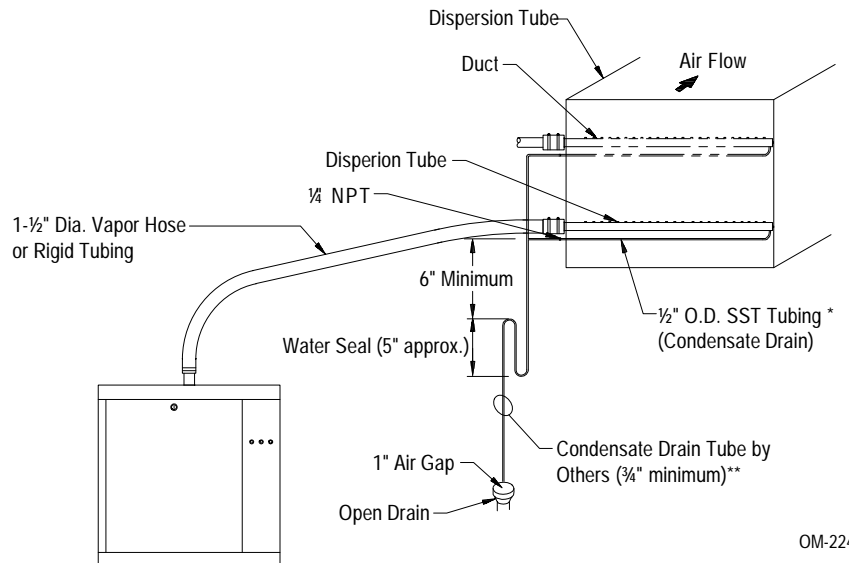
Failing to follow these recommendations may result in excessive back pressures being imposed on the humidifier. This may lead to dispersion tube(s) spitting, lost water seals, or leaking gaskets. When distances between humidifier and the dispersion tube(s) exceed 20 feet, consult factory for recommendations.

Figure 5-1: Single Tube



OM-351-1

Figure 5-2: Multiple Tube with Condensate Wasted to Floor Drain



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* ½" diameter condensate tubing is not needed nor provided when steam flow is 34 lbs per hour or less per dispersion tube.

**Note: Condensate drain tubing material must be suitable for 212°F (100°C) water.

Minimum condensate return line sizing:

- One or two tubes - 1/2" I.D.
- Three or more tubes - 3/4" I.D.

PIPING AND WIRING

Water make-up piping may be of any code-approved material (copper, steel, or plastic). The final connection size is 1/4" NPT. In cases where water hammer may be a possibility, a shock arrestor should be considered.

Drain piping may be of any code-approved material (copper, steel, or plastic rated for 212°F minimum). If drainage by gravity is not possible, a small lift pump should be used. (DRI-STEEM part #400280.)

The final connection sizes are 3/4" O.D. for evaporator drain and 1/2" NPT for cabinet drain. These connection sizes should not be reduced. (See figures 6-1 and 6-2 for proper drain piping configurations.) The evaporator drain and cabinet drain should be piped separately to and discharge into a floor drain. Combining the two into a single drain line may result in the backflow of drain water into the humidifier cabinet leading to malfunctioning of the unit.

Drain Piping Configurations

Figure 6-1: Drain Adjacent to Wall

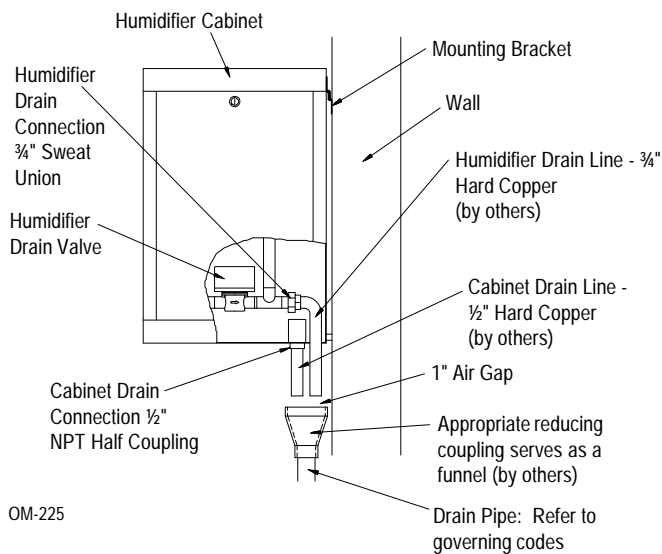
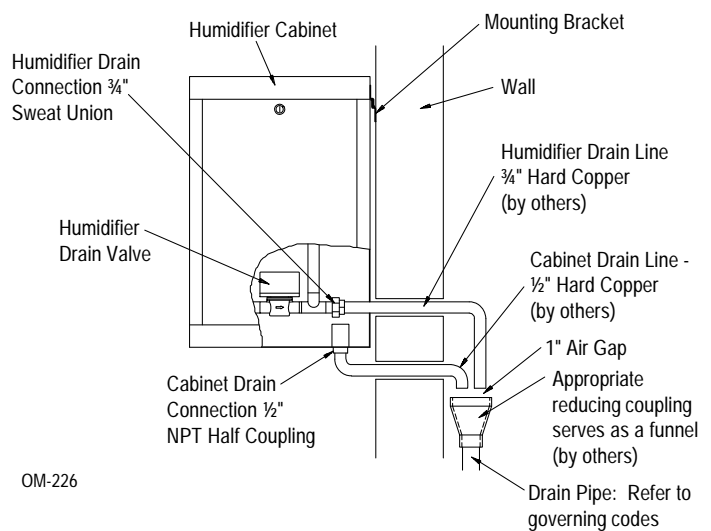


Figure 6-2: Drain Through or in Wall



Note: Locate the cabinet drain line exit away from the humidifier drain line exit, if possible. This will prevent water vapor from migrating up the cabinet drain line, causing the cabinet bottom to rust. Extending the cabinet drain line may be effective also.

WIRING

All wiring must be in accordance with all governing codes, and with VAPORMIST® or VAPORMIST DI wiring diagrams. The diagram is located inside the removable front panel on the right-hand side of the unit.

ELECTRICAL SPECIFICATIONS AND CAPACITIES/DIMENSIONS

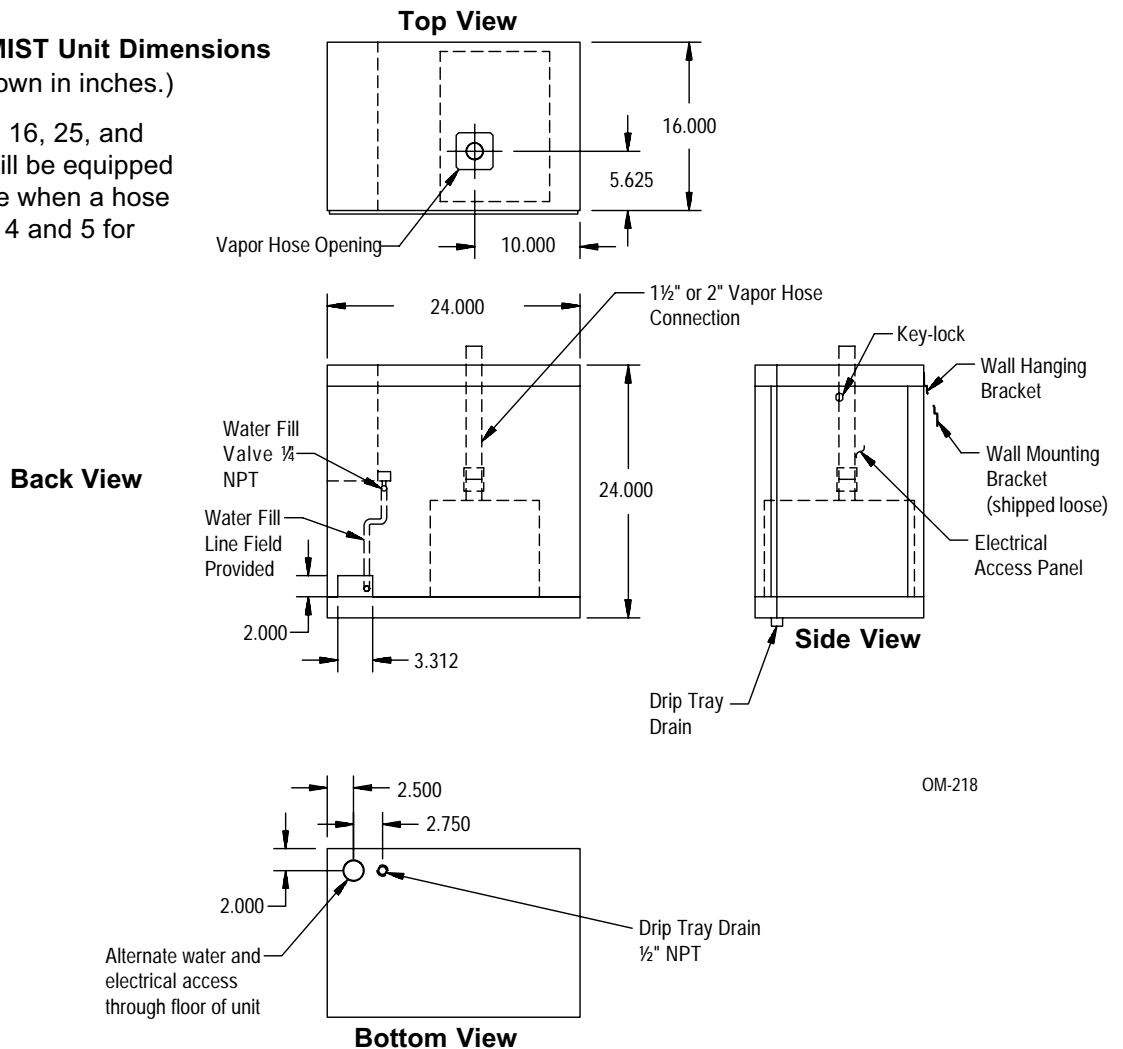
Table 8-1: Electrical Specifications and Capacities

| | VM2 | | VM4 | | VM6 | | VM8 | | VM10 | | VM12 | | VM16* | | VM25 | | VM34 | |
|---------------------------|-----------|-------|------------|-------|------------|-------|-------------|-------|-------------|-------|-------------|---------|-----------|---------|-------------|--|---------------|--|
| Op. Weight | 83 lb. | 38 kg | 83 lb. | 38 kg | 93 lb. | 42 kg | 93 lb. | 42 kg | 93 lb. | 42 kg | 100 lb. | 45.4 kg | 100 lb. | 45.4 kg | | | | |
| Shp. Weight | 78 lb. | 35 kg | 78 lb. | 35 kg | 85 lb. | 39 kg | 85 lb. | 39 kg | 85 lb. | 39 kg | 92 lb. | 41.7 kg | 92 lb. | 41.7 kg | | | | |
| AMPS: 120/1 | 17.0 | | -- | | -- | | -- | | -- | | -- | | -- | | -- | | -- | |
| *208/1/3 wire | 9.6 | | 19.2 | | 28.8 | | 38.5 | | -- | | -- | | -- | | -- | | -- | |
| *240/1/3 wire | 8.3 | | 16.7 | | 25.0 | | 33.3 | | 41.7 | | -- | | -- | | -- | | -- | |
| 480/1 | 4.2 | | 8.3 | | 12.5 | | 16.7 | | 20.8 | | 25.0 | | 33.3 | | -- | | -- | |
| 575/1 | -- | | -- | | -- | | -- | | -- | | -- | | -- | | 43.5 | | -- | |
| 208/3/4 wire | -- | | 16.7** | | 25.0** | | 33.3** | | 29.2** | | 33.3 | | 44.4 | | -- | | -- | |
| 240/3/4 wire | -- | | 14.4** | | 21.7** | | 28.9** | | 25.3** | | 28.9 | | 38.5 | | -- | | -- | |
| 480/3 | -- | | 7.2** | | 10.8** | | 14.4** | | 12.7** | | 14.4 | | 19.2 | | 30.1 | | 40.9 | |
| KW | 2 | | 4 | | 6 | | 8 | | 10 | | 12 | | 16 | | 25 | | 34 | |
| Output/hour/ lb/gal/kg | 6/1.7/2.7 | | 12/1.4/5.4 | | 18/2.2/8.2 | | 24/2.9/10.9 | | 30/3.6/13.6 | | 36/4.4/16.4 | | 50/6/22.7 | | 75/9.1/34.0 | | 102/12.4/46.2 | |

* On 208/240 single phase (3 wire) and 3 phase (4 wire) supplies, the neutral line may be utilized for 120 volt when used in conjunction with SDU fan unit.
 ** For wire sizing. Highest leg draw is shown due to current unbalance in some cases. All VAPORMISTS operate 50/60 Hz.

Figure 8-1: VAPORMIST Unit Dimensions
 (All measurements shown in inches.)

Note: For models VM 16, 25, and 34, dispersion tubes will be equipped with a condensate tube when a hose kit is used. See pages 4 and 5 for installation details.



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AREA-TYPE APPLICATION USING SPACE DISTRIBUTION UNIT (SDU)

The SDU converts a VAPORMIST® duct humidifier into an area-type humidifier. Instead of the steam dispersion tube being located inside an air duct, the dispersion tube is built into the fan unit. A fan draws in room air and blows it across the dispersion tube, where it picks up the moisture and disperses it into the room.

The space distribution unit can be used on all models; however, a condensate drain from the dispersion tube is required in all applications. (See figure 9-1 on page 9.)

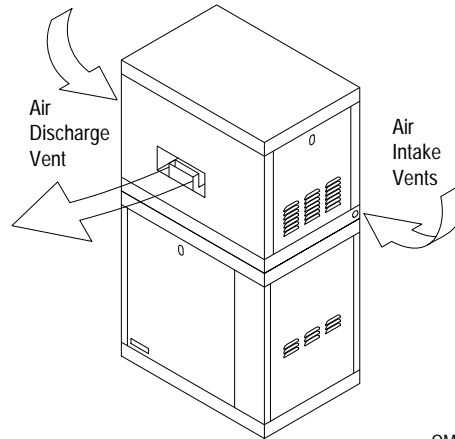
Mounting the SDU

The SDU may be placed directly on top of the VAPORMIST cabinet or it may be mounted on a wall. A wall mounting bracket and two 3/8" lag bolts are provided with each fan unit. (See page 4 for mounting instructions.)

Rise and Carry

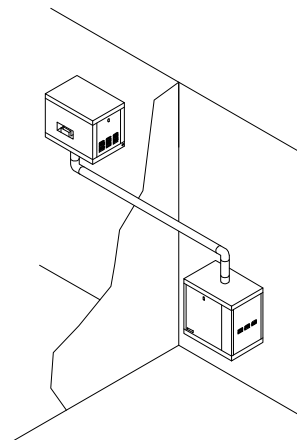
As steam is discharged from the humidifier, it quickly cools and turns to visible, warm, microscopic drops of water "fog" that are lighter than air. As this "fog" is carried away from the humidifier by the fan airstream, it tends to rise towards the ceiling. If this "fog" contacts solid surface (columns, beams, ceiling, pipes, etc.) before it disappears, it may collect and drip as water. This should be considered when locating an Area-Type steam humidifier. The greater the space relative humidity, the higher and further the fog will carry and rise in the space before disappearing. The distance the "fog" is blown and rises before it disappears is given in table 9-1 on page 9.

This optional fan unit mounts on top of the VAPORMIST cabinet.



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If necessary, fan unit can be mounted on a wall, allowing the VAPORMIST to be remotely located.



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AREA-TYPE APPLICATION USING SDU

Table 9-1 lists the recommended minimum vertical (RISE) and horizontal (CARRY) clearances for area-type humidifiers at 50% and 60% RH of the space.

The SDU contains a 435 cfm blower (120/1/60) wired independently of the VAPORMIST humidifier. A wiring diagram of the SDU is included with the unit.

On a call for humidity, the humidifier will begin producing steam and the start relay will energize the SDU blower. When the steam reaches the SDU, a time delay switch is activated. The humidifier will continue to produce steam until the humidistat becomes satisfied, shutting off the humidifier and activating the start-relay. The blower will continue to run until the time delay switch is activated.

Once the SDU is mounted, panel access keys should be removed and secured elsewhere.

Table 9-1: SDU Visible Fog Travel

| Humidifier Size | 50% RH | | 60% RH | |
|-----------------|-------------|--------------|-------------|--------------|
| | Rise (ft.)* | Carry (ft.)* | Rise (ft.)* | Carry (ft.)* |
| VM4 | 1.0 | 3.0 | 1.0 | 3.5 |
| VM6 | 1.0 | 3.5 | 1.5 | 3.5 |
| VM8 | 1.5 | 5.0 | 2.0 | 5.0 |
| VM10 | 1.5 | 6.0 | 2.0 | 6.0 |
| VM12 | 2.0 | 7.0 | 2.0 | 8.0 |
| VM16 | 2.0 | 8.0 | 2.0 | 8.5 |
| VM25 | 5.0 | 15.0 | 5.0 | 16.0 |
| VM34 | 6.0 | 20.0 | 7.0 | 22.0 |

*Rise: Height visible fog rises above discharge grille of humidifier.
 Carry: Horizontal distance visible fog travels from humidifier.
 Surfaces cooler than ambient or objects directly in the path of visible fog discharge may cause condensation and dripping.

Figure 9-1: SDU Mechanical Detail

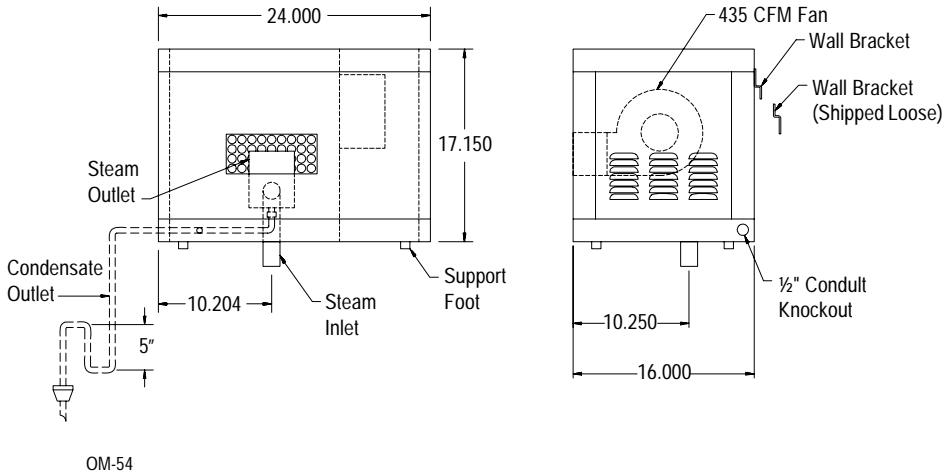
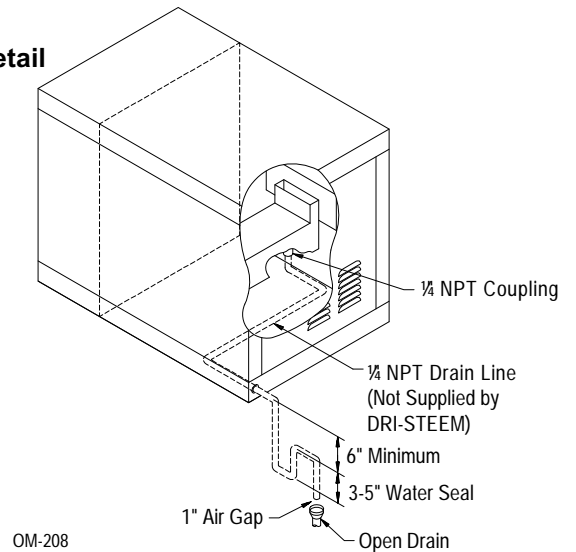


Figure 9-2: SDU Drain Detail



START-UP AND OPERATION

Introduction

After the system has been properly installed and connected to both electrical and water supplies, it may then be started.

Start-up and Checkout Procedures

Mounting

Check mounting to see that the unit is level and securely supported before filling with water.

Piping

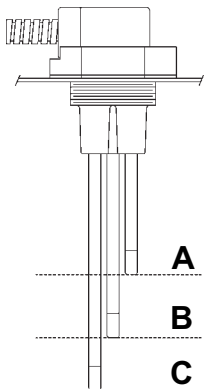
Verify that all piping connections have been completed as recommended and that water pressure is available.

Electrical

Verify that all wiring connections have been made in accordance with all governing codes and the enclosed VAPORMIST® wiring diagram.

Caution: Only qualified electrical personnel should perform start-up procedure.

Figure 10-1: Electronic Probe Control for Maintaining Proper Water Level (VAPORMIST® Only)



A simple three-probe conductivity sensor cycles a solenoid-operated water fill valve to maintain the proper water levels.

LW415

When the power is first turned on, the solenoid-operated water fill valve will open, filling the evaporating chamber. Filling will continue until water reaches level A, then after a two-second delay the fill valve will close. To ensure that a water seal is created in the overflow hose, disconnect probe plug and cable from probe rod assembly (located on cover,) allowing the fill valve to re-energize and overflow humidifier tank. This process will take only

seconds; probe plug and cable must then be reconnected. A call for humidity will then energize the heating element.

Water Refill

During operation, the water line will drop to level B. At this time the fill valve will open, and will remain open until the water line returns to level A.

Heater Protection

Should the water line ever drop below level C, the heaters are de-energized and remain OFF until the water level has been restored to level C. This feature provides heater protection in the event of a low-water condition.

Adjustable Surface Skimmer

Each time the evaporating chamber refills, the upper 1/4" of water is immediately drained off through the skimmer. This carries away the mineral residue formed during the previous evaporating cycle. This skimming action effectively removes most of the mineral concentration in much the same way as the surface blowdown does in a steam boiler. This simple device greatly reduces the frequency of cleaning the evaporating chamber.

Drain/Flush Feature

This control module contains an integral electronic timer which tracks the humidifying time of the unit. When this accumulated time reaches what has been set in the timer, the drain/flush cycle is activated.

Upon activation, the following sequence occurs:

1. The drain valve opens and begins to drain water and minerals from the evaporating chamber.
2. When the height of the water drops to the "REFILL" level, the fill valve opens.
3. The drain and fill valves remain open for ten more minutes, thus flushing the chamber.
4. The drain valve then closes, the chamber refills, and the fill valve closes. The timer begins to track the time as the unit resumes normal operation.

The electronic timer comes factory-set for drainage after 40 hours of operation time. Alternate settings of 20 hours and 80 hours can be made. See wiring diagram(s) attached to the unit for timer board location and instructions for changing the timer setting.

START-UP AND OPERATION

Test Cycling the Drain/Flush System

The timer board contains four pairs of terminal pins which are marked 20, 40, 80 and "T" (TEST). To test:

1. Pull the pin block off the pair of pins in use, move it to the "T" pair, and push it on.
2. Set the humidistat high enough so that unit will remain "on call" for at least one hour.
3. After about 35 minutes of operation, a drain/flush cycle will take place.
4. Once the test cycle is completed, move the pin block back to the desired pair of pins. Failure to do so will result in a drain/flush cycle every 35 minutes.

VAPOR-LOGIC₂

The VAPOR-LOGIC₂ key pad allows the adjustment of surface water bleed-off amount to accommodate the water condition. This adjustment varies the duration of the overflow with each water fill cycle.

The adjustable skim time allows for an extended period of time (2 to 40 seconds) to reduce mineral accumulation. In addition to controlling the water level, VAPOR-LOGIC₂ determines when the heaters are energized. If there is a call for humidification, even during the fill cycle, the heating elements will stay on to provide continuous output.

For more information regarding the operation of the VAPOR-LOGIC₂ microprocessor, see the VAPOR-LOGIC₂ *Installation Instructions and Maintenance Operations Manual*.

VAPORMIST®

Make-up Water Piping

Use cold or hot make-up water. If the water pressure is above 60 psi and/or water hammer would be objectionable, a pressure-reducing valve or shock arrester should be installed. Even though the VAPORMIST has an internal 1" air gap, some local codes may require a vacuum breaker.

Important: Minimum water supply pressure is 10 psi.

VAPORMIST DI

Make-up Water Piping

In this unit the electronic probe control is replaced by a float valve and a float operated low water cut-off switch.

The basic water level system and circuit for heater protection in the event of a low-water condition is common to all DI humidifiers and can be found in the wiring diagram located inside the removable front panel on the right-hand side of the unit.

Control Circuit

- a) Adjust humidistat to "call" setting.
- b) Open shut-off valve on water supply line. Unit should begin filling with water through the fill valve.
- c) Shortly before the fill valve shuts off, the heater cut-off switch will "make". When this switch makes, the heating element contactor(s) will be actuated after a ten-second delay. A time delay relay prevents contactor chatter due to bouncing of heater cut-off float.
- d) Check heater cut-off circuit.
 1. Close manual top valve on water supply.
 2. Open ball valve and start draining unit.
 3. When water level drops past switching level on the heater cut-off float, the heating element contactor(s) will drop out.
 4. When step 3 has been satisfactorily completed, close drain valve.
- e) Check function of field-installed safety controls, such as the fan proving switch. Contactor(s) should drop out when any proving switch is "open".
- f) Check heater draw by testing and recording voltage and amperage in each phase. Readings should match name plate readings; name plate is located on the humidifier housing.
- g) Inspect installations for steam or air leaks while operating the VAPORMIST. Any leaks should be sealed.

MAINTENANCE

VAPORMIST®

Mineral Precipitate

As evaporation takes place in a standard VAPORMIST unit, the minerals dissolved in the water come out of solution and a portion of these minerals float on the water surface. If not removed, these minerals will eventually form a sludge and settle to the bottom of the evaporating chamber.

Cleaning once or twice a season is usually adequate, assuming the water has a hardness of up to 15 grains per gallon.

To dramatically reduce mineral accumulation inside the evaporating chamber use softened water for make-up water source. Using softened water will reduce cleaning frequency to once every several years in most cases.

Cleaning the Evaporating Chamber

The heating element itself is self cleaning. The mineral buildup on the element flakes off after reaching a thickness of about 1/16", and settles to the bottom of the chamber.

Note: Before this scale accumulation builds up to the underside of the heating element, it must be removed. Failure to do so may result in premature heater burn-out.

To Service:

1. **Shut off electrical power to the unit.** Using the key, unlock and remove the large front panel. Drain the evaporating chamber by manually opening the "DRAIN" valve. Open the lever on the valve to the "MANUAL" position and lock in place.
2. Disconnect the connector tube on top of the evaporating chamber, the flexible hose from the overflow pipe, and the flexible hose from the drain. Install a rubber plug into tank drain nipple. All plumbing connections should be removed from the evaporating chamber. **NOTE: DO NOT DISCONNECT THE FLEXIBLE ELECTRICAL POWER CONDUIT.**
3. Disconnect tank-grounding wire.
4. Slide the evaporating chamber out of the unit on the sliding track. Remove the cover of the chamber, and slide it into holding slots.
5. Remove the evaporating chamber, dump out mineral residue.

6. Unscrew the probe housing, and remove any mineral build-up accumulated in the housing.
7. Clean the probe-rod assembly. Scrape off build-up on rods, and brush with sand paper or steel wool off tips to remove mineral residue.
8. Replace chamber onto the sliding track.
9. Secure the chamber cover making sure the chamber is sealed. Push chamber back into the unit on the slide track.
10. Reconnect the tube and slip coupling, the overflow hose, the drain hose, and connect tank-grounding wire.
11. Move drain valve lever back to "AUTO" .
12. Replace the front panel and lock. Turn on the electric power. VAPORMIST is again ready to humidify.

Off Season Shut-Down

1. Switch off electrical power.
2. Shut off water supply to make-up valve.
3. Drain evaporation chamber, and clean if necessary (see "Cleaning the Evaporating Chamber" above).
4. Leave chamber dry, the power "OFF," and the water shutoff valve closed until the next humidification season.

VAPORMIST DI

The VAPORMIST DI unit uses DI/RO water. Because these water types are mineral-free, cleaning the evaporating chamber should not be necessary. However, there are some simple maintenance steps that should be followed to ensure all parts of the unit are in good working order.

To Service:

1. Shut off electric power.
2. Shut off water supply to make-up valve.
3. Unlock and remove front panel.
4. Make sure the evaporating chamber is drained by manually opening the drain valve.
5. Check the condition of the overflow and drain hoses.

MAINTENANCE

6. Remove the evaporating chamber as follows:
Disconnect the flexible connector tube on top of the evaporating chamber, the flexible overflow hose, and the flexible drain hose. All connections should be removed at the evaporating chamber. **DO NOT DISCONNECT ANY OF THE ELECTRICAL CONDUITS.**
7. Slide the evaporating chamber forward on the track. Remove the cover of the chamber, raise and slide into holding slots.
8. Check operation of the float valve, inspect valve seat and heater cut-off.
9. Inspect the heating elements. Replace if inoperative.
10. Inspect the evaporating chamber. Clean if necessary.
11. Replace the chamber cover and slide chamber back into unit.
12. Reconnect connector tube and flexible hoses.
13. Return drain valve handle to closed position.
14. Replace front panel and turn on electric power.
15. VAPORMIST DI is again ready to humidify.

Off-Season Shut-Down Procedure

1. Switch off electric power.
2. Remove front panel.
3. Shut off water supply to make-up valve.
4. Drain evaporating chamber by manually opening the drain valve.
5. Replace front panel.
6. Leave chamber dry, power off, and water shut off valve closed until the next humidification season.

VAPORMIST® TROUBLE-SHOOTING GUIDE

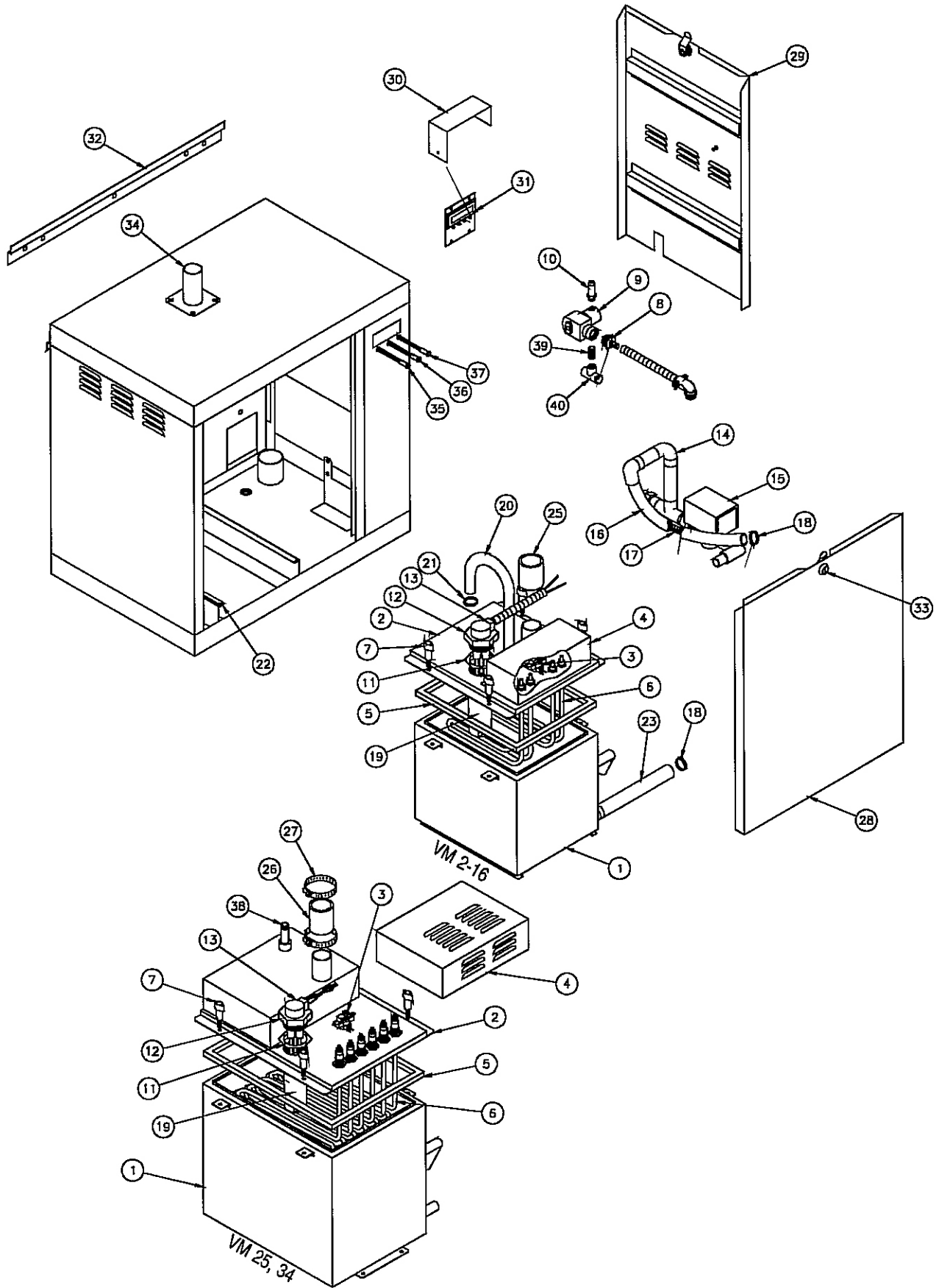
| PROBLEM | CONTROL PANEL LIGHTS | | | POSSIBLE CAUSE | RECOMMENDED ACTION |
|---|----------------------|-------------|---------------------------|---|--|
| | FILL | READY WATER | DRAIN | | |
| Humidifier will not heat | Off | Off | Off | Control transformer | Verify control voltage across secondary leads of transformer. Reset transformer circuit breaker. |
| | Off | On | Off | Humidistat is not calling | Set humidistat to call. Inspect for faulty humidistat. |
| | | | | Safety controls open | Check safety controls, air flow switch, high limit humidistat, etc. |
| | | | | Faulty control board | Verify control voltage between terminals H & N. |
| | | | Probe head deterioration* | Replace probe head. | |
| Humidifier will not fill | On | Off | Off | No water pressure at valve. | Check water supply/shut off valves. |
| | | | | Faulty water fill valve | Verify action of fill water solenoid valve by turning control module switch from standby to normal op. Audible click should be heard as solenoid operates. |
| | | | | Plugged strainer | Check strainer. |
| | | | | Plugged valve | Check valve. |
| | | | Faulty control board | Verify control voltage across terminals H & N. | |
| Humidifier does not stop filling | On | Off | Off | Lack of tank to probes electrical continuity. Water conductivity 100 micromhos/cm (2 gr/gal) min. | Jumper wires brown to yellow. If water stops, verify tank ground; check water supply conductivity; then consult factory. |
| | | | | Fill valve is stuck open | Check valve for foreign matter. |
| | | | | Drain Valve not closed Fill valve installed backward | Check for correct water flow, through valve, note arrow. |
| | On | Off | On | Auto-drain mode | 10 Minute must complete first. |
| Low output | Off | On | Off | Electric drain valve not seating | Correct cause of leakage or replace valve. |
| | Off | On | Off | Fill valve is stuck open | Check valve for foreign matter. |
| Unit short cycles | On & Off | On | Off | Probes may be incorrectly wired or need cleaning | Confirm that unit is wired per diagram. Clean probe rod tips with steel wool. |
| Reduced or no output even though water is at the proper level | Off | On | Off | Heater malfunctioning | Verify that proper voltage is being applied to heaters. Check heater (amp draw and compare to wiring diagram ratings. |
| | | | | Malfunctioning control system | Heater contactor not functioning replace. Service fuses blown. Auxiliary limit controls not allowing system to operate (dust humidistat, air flow proving switch, etc.). Reset, replace or calibrate as required. Faulty or inaccurate humidistat, replace or calibrate. |

*Probe rod corrosion or probe head material aging may cause level control system failure. This generally does not occur in the first two years of operation.

VAPORMIST® DI TROUBLE-SHOOTING GUIDE

| PROBLEM | READY WATER | POSSIBLE CAUSE | RECOMMENDED ACTION |
|---|-------------|--|--|
| Humidifier will not heat | Off | Control transformer Humidistat is not calling Safety controls open Low water float switch | Verify control voltage across secondary leads of transformer. Reset transformer circuit breaker. Set humidistat to call. Inspect for faulty humidistat. Check safety control. Air flow switch, high limit humidistat, etc. Verify control voltage from float switch and transformer secondary common. |
| Humidifier will not fill | Off | No water pressure at valve Malfunctioning water float valve Plugged float valve | Check manual water supply. Valve, minimum 30 psi water pressure. Check to make sure that valve float & steam moves freely. Check float valve seat. |
| Water float valve does not close | On | Open drain valve Manual drain valve not closed Malfunctioning float valve Water passing into overflow stand pipe Float valve stuck | Obstruction in drain valve will not allow complete closure, clean or replace valve. Close drain valve. Float ball has water leak. Float valve seat defective, replace. Readjust float valve rod, so water level reaches 1/4-3/8" from over flow edge when water is at ambient or cold state. Excessive water pressure, 100 psi maximum. Obstruction will not allow float valve to seat properly, clean or replace with new seat. |
| Reduced or no output even though water is at the proper level | On | Heater malfunctioning Malfunctioning control system Time delay/interlock relays Low water cut-off switch | Verify that proper voltage is being applied to heaters. Check heaters (amp draw and compare to wire diagram ratings) Heater contactor not functioning, replace. Service fuses blown. Auxiliary limit controls not allowing system to operate (duct humidistat, air flow proving switch, etc.). Reset, replace or calibrate as required. Faulty or inaccurate humidistat, replace or calibrate. On delay relay delay time 10-15 seconds. Check relays. Check for proper operation. |

REPLACEMENT PARTS



REPLACEMENT PARTS

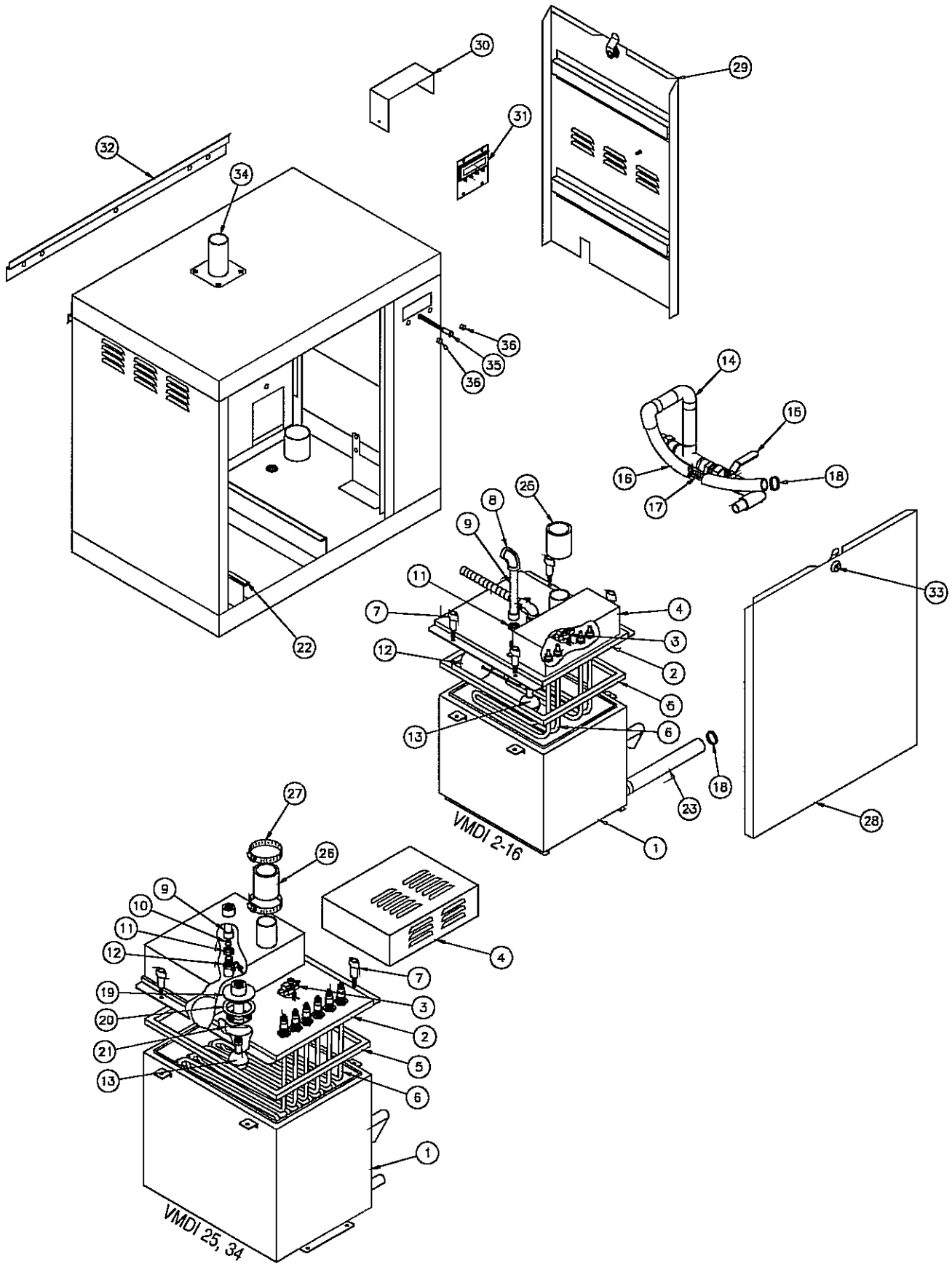
Table 17-1: VAPORMIST (see drawing on page 16)

| No. | Description | Qty. | Part No. |
|-----|--|---------|-------------|
| 1 | Tank | 1 | 160012* |
| 2 | Cover | 1 | * |
| 3 | Thermo Cut-Out | 1 | 409560-001 |
| 4 | Cover, Heater Terminal | 1 | 160750* |
| 5 | Gasket, Cover | 1 | 160695* |
| 6 | Heater | * | 409600* |
| 7 | Knob, T-Handled Utility | 4 | 700725 |
| 8 | Connector, 3/8" flex. | 1 | 407127-038 |
| 9 | Valve, 1/4" Solenoid Fill | 1 | 505084 |
| 10 | Orifice, Fill Valve | 1 | 160225* |
| 11 | Gasket, Probe | 1 | 309750-003 |
| 12 | Probe Assembly | 1 | * |
| 13 | Probe Plug Wire Assembly, 24" | 1 | 406050* |
| 14 | Drain Assembly | 1 | 180520* |
| 15 | Valve, 3/4" Electric Drain | 1 | 505400-001 |
| 16 | Hose, Overflow | ft* | 307020-002 |
| 17 | Spring, Overflow Hose | 1 | 307025 |
| 18 | Hose Clamp, 3/4" ID | 4 | 700560-075 |
| 19 | Probe Housing, Nylon | 1 | 308500 |
| 20 | Hose, 1/2" Fill (21" Long) | 1.75 ft | 307020-001 |
| 21 | Hose Clamp, 1/2" ID | 2 | 700560-001 |
| 22 | Duro Strip, 11" Nylon | 2 | 309980 |
| 23 | Hose, Drain | ft* | 307020-002 |
| 24 | Stopper, Rubber (not shown) | 1 | 309960 |
| 25 | Slip Coupling with O-Rings, 1 1/2" (VM 2, 4, 6, 8, 10, 12, 16) | 1 | 162726-001 |
| 26 | Hose Cuff, 2" ID x 3" (VM 25, 34) | 1 | 305391-0030 |
| 27 | Hose Clamp, 2" ID (VM 25, 34) | 2 | 700560-200 |
| 28 | Panel Weld, Front | 1 | 160310-100 |
| 29 | Cover Weld, Electrical | 1 | 160320-100 |
| 30 | Bracket, Electrical Cover Key Lock | 1 | 120746 |
| 31 | Display Board, JPC LW440 | 1 | 408651 |
| 32 | Wall Bracket | 1 | 160150-101 |
| 33 | Lock, Key | 2 | 700700 |
| 34 | Connector Weld | 1** | 160350* |
| 35 | Light, Amber (FILL) | 1 | 409520-003 |
| 36 | Light, Green (READY WATER) | 1 | 409520-002 |
| 37 | Light, Red (DRAIN) | 1 | 409520-001 |
| 38 | Nipple, 1/4" NPT x 2" | 1 | 250210-002 |
| 39 | Nipple, 1/4" NPT Brass Close | 1 | 250013 |
| 40 | Strainer, 1/4" NPT Sediment | 1 | 300050 |

* Specify humidifier model and serial numbers when ordering.

** Shipped loose except with bonding bracket.

REPLACEMENT PARTS



REPLACEMENT PARTS

Table 19-1: VAPORMIST DI (see drawing on page 18)

| No. | Description | Qty. | Part No. |
|-----|--|------|-------------|
| 1 | Tank | 1 | 160012* |
| 2 | Cover | 1 | * |
| 3 | Thermo Cut-Out | 1 | 409560-001 |
| 4 | Cover, Heater Terminal | 1 | 160750* |
| 5 | Gasket, Cover | 1 | 160695* |
| 6 | Heater | * | 409600* |
| 7 | Knob, T-Handled Utility | 4 | 700725 |
| 8 | Elbow, ¼" 90° (VMDI 2-16) | 1 | 200580 |
| 9 | Pipe Weld, Fill Valve | 1 | * |
| 10 | Orifice, Fill Valve | 1 | 160225* |
| 11 | Seal Ring, ¼" 18 NPT | 1 | 306365 |
| 12 | Float Valve Assembly | 1 | * |
| 13 | Float Switch, Stainless Steel LWCO | 1 | 408420 |
| 14 | Drain Assembly | 1 | 180450* |
| 15 | Valve, ¾" Stainless Steel Ball | 1 | 505000-001 |
| 16 | Hose, Overflow | ft* | 307020-002 |
| 17 | Spring, Overflow Hose | 1 | 307025 |
| 18 | Hose Clamp, ¾" ID | 4 | 700560-075 |
| 19 | DI Conversion Weld, (VMDI 25, 34) | 1 | 167786 |
| 20 | Gasket, (VMDI 25, 34) Conversion Weld | 1 | 160698 |
| 21 | DI Housing, Nylon | 1 | 167780 |
| 22 | Duro Strip, 11" Nylon | 2 | 309980 |
| 23 | Hose, Drain | ft* | 307020-002 |
| 24 | Stopper, Rubber (not shown) | 1 | 309960 |
| 25 | Slip Coupling with O-Rings, 1½" (VMDI 2, 4, 6, 8, 10, 12, 16) | 1 | 162726-001 |
| 26 | Hose Cuff, 2" ID x 3" (VMDI 25, 34) | 1 | 305391-0030 |
| 27 | Hose Clamp, 2" ID (VMDI 25,34) | 2 | 700560-200 |
| 28 | Panel, Front | 1 | 160310-100 |
| 29 | Cover, Electrical | 1 | 160320-100 |
| 30 | Bracket, Electrical Cover Key Lock | 1 | 120746 |
| 31 | Display Board, JPC LW440 | 1 | 408651 |
| 32 | Wall Bracket | 1 | 160150-001 |
| 33 | Lock, Key | 1 | 700700 |
| 34 | Connector Weld | 1** | 160350* |
| 35 | Light, Green (READY WATER) | 1 | 409520-002 |
| 36 | Plug, VMDI Pilot Light Hole | 2 | 409525 |

* Specify humidifier model and serial numbers when ordering.

** Shipped loose except with bonding bracket.

REPLACEMENT PARTS

Table 20-1: Subpanel for VAPORMIST and VAPORMIST DI

| No. | Description | Qty. | Part No. |
|-----|--|------|------------|
| 1 | Transformer, 120V, 24V Sec., 75 VA | 1 | 408960 |
| 1 | Transformer, 208/240/480V, 24V Sec., 75 VA | 1 | 408965 |
| 2 | Contactor, 24V, 30 amp | 1 | 407001-007 |
| 2 | Contactor, 24V, 50 amp | 1 | 407001-009 |
| 3 | Terminal Block, 3-Pole | 1 | 408300-002 |
| 4 | Switch, Door Interlock Electric | 1 | 408470 |
| 5 | Microprocessor Board, LW430 | 1 | 408641 |

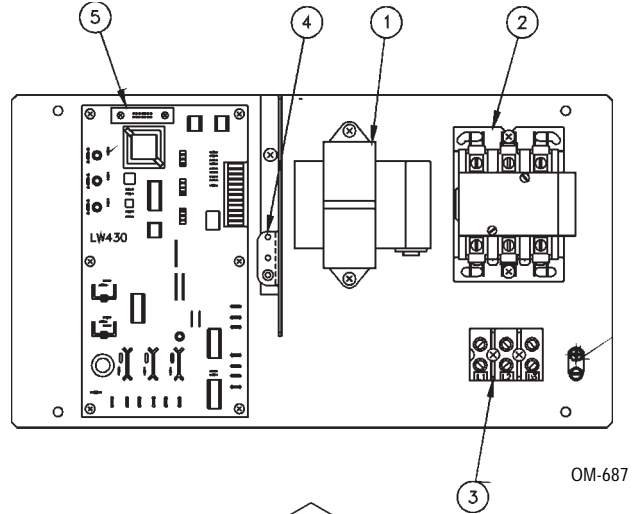


Table 20-2: Space Distribution Unit (SDU)

| No. | Description | Qty. | Part No. |
|-----|------------------------------|------|------------|
| 1 | Dispersion Chamber Weld, 1½" | 1 | 160441 |
| 1 | Dispersion Chamber Weld, 2" | 1 | 160442 |
| 2 | Protective Bumpers | 4 | 310170 |
| 3 | Door Weldment | 2 | 160430-100 |
| 4 | Lock, Cabinet Door | 2 | 700700 |
| 5 | Nut Retainer Assy, ¼" - 20 | 4 | 700650 |
| 6 | Blower, 296/435 CFM | 1 | 409540-001 |
| 7 | Wall Bracket | 1 | 160150-101 |
| 8 | Plug, ¼" NPT Yellow Brass | 1 | 203570 |

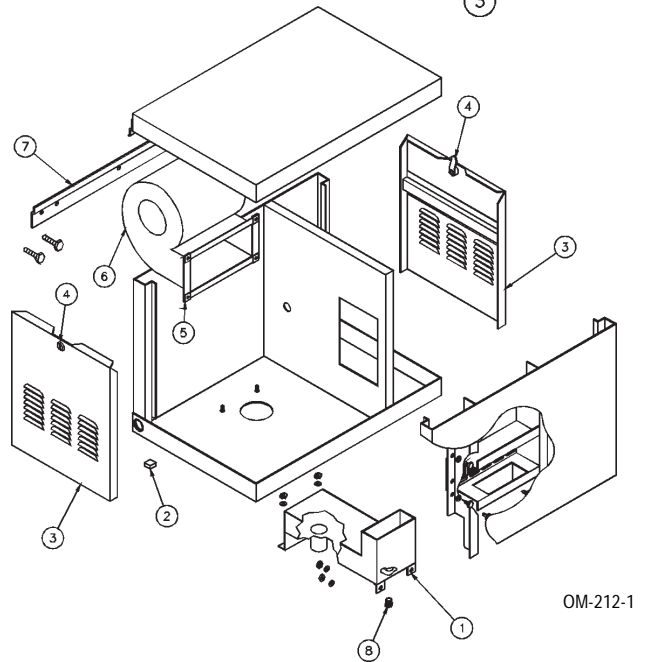


Table 20-3: SDU Subpanel

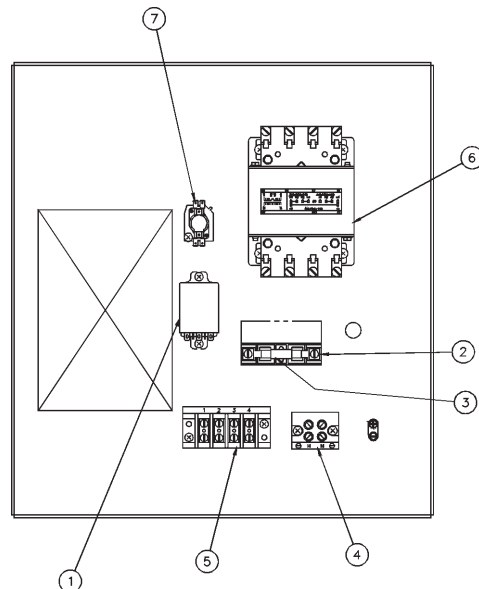
| No. | Description | Qty. | Part No. |
|-----|---------------------------------------|------|---------------|
| 1 | Relay, 2-Pole 24V | 1† | 407900-001 |
| 2 | Time delay 24V | 1†† | 408440-001 |
| 3 | Fuse Holder, Single Pole | 1* | 407450-002 |
| 4 | Fuse, 3 amp | 1* | 406740-006 |
| 5 | Terminal Block, 2 pt pressure contact | 1 | 408300-001 |
| 6 | Terminal Block, 4 pt | 1 | 408250-001 |
| 7 | Transformer | 1** | 408991/408992 |
| 8 | Relay, Thermostatic | 1 | 409598 |

* With 480V or 575V, use quantity (2).

** Refer to individual order for correct selection.

† Quantity two, for SDU with LW430

†† For SDU without LW430



MAINTENANCE SERVICE RECORD

| DATE INSPECTED | PERSONNEL | OBSERVATION | ACTION PERFORMED |
|-------------------|-----------|-------------|------------------|
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TWO-YEAR LIMITED WARRANTY

DRI-STEEM Humidifier Company ("DRI-STEEM") warrants to the original user that its products will be free from defects in materials and workmanship for a period of two (2) years after installation or twenty-seven (27) months from the date DRI-STEEM ships such product, whichever date is the earlier.

If any DRI-STEEM product is found to be defective in material or workmanship during the applicable warranty period, DRI-STEEM's entire liability, and the purchaser's sole and exclusive remedy, shall be the repair or replacement of the defective product, or the refund of the purchase price, at DRI-STEEM's election. DRI-STEEM shall not be liable for any costs or expenses, whether direct or indirect, associated with the installation, removal or re-installation of any defective product.

DRI-STEEM's limited warranty shall not be effective or actionable unless there is compliance with all installation and operating instructions furnished by DRI-STEEM, or if the products have been modified or altered without the written consent of DRI-STEEM, or if such products have been subject to accident, misuse, mishandling, tampering, negligence or improper maintenance. Any warranty claim must be submitted to DRI-STEEM in writing within the stated warranty period.

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Continuous product improvement is a policy of DRI-STEEM therefore, product features and specifications are subject to change without notice.

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