



United Electric Company, L.P.
501 Galveston St.
Wichita Falls, TX 76301

Phone: (940) 397-2100
techsupport@magicaire.com

Warranty and Freight Damage Policy

Warranty Registration: For all new units, Magic Aire requires a Unit Ventilator Warranty Registration Form to be submitted for each unit configuration within ten (10) days of start-up to comply with the terms of the Magic Aire warranty. Forms should be returned to Magic Aire, Warranty Department, 501 Galveston St., Wichita Falls, TX, 76301 or emailed to: techsupport@magicaire.com. These forms can be found inside the IOM shipped with each unit.

First Piece Review and Warranty Checklist: Contractor bears liability for correcting repeat occurrences of problems identifiable with first piece inspection. To save time and to reduce the possibility of costly errors, set up and complete a first piece installation in a typical room at jobsite for each unique unit configuration. Complete installation checklist, check all critical dimensions such as pipe, wire, and duct connection requirements. Refer to job drawings and product dimension drawings as required. Instruct all trades in their part of the installation.

In the event of a unit that is not functioning properly during start-up or soon after, please follow the following steps so that the factory can assist in the quickest and most efficient way possible: Contact the Factory for technical assistance and guidance at 940-397-2100. Or, for less urgent matters, please email us at: techsupport@magicaire.com

We have many diagnostic sheets available to assist with troubleshooting. See General Diagnostics in IOM. If more Root Cause analysis needed, we offer conference calls with all applicable staff if enough notice is given. Please fill out form in the back of IOM and send with details to the factory with time and date requested.

If parts are needed, a Returns Good Authorization (RGA) request needs submitted, and a new order needs to be placed. For instructions, please see <https://www.magicaire.com/support/rga-request/>.

All shipments are FOB Wichita Falls, TX where ownership transfers from Magic Aire to the customer when product is loaded onto the freight line truck. Customer should not Refuse Freight or the time frame for resolution extends greatly and can lower the settlement value.

SEE PROCESS FOR FREIGHT CLAIMS ON NEXT PAGE.

FREIGHT CLAIMS PROCESS

- All shipments are FOB Wichita Falls, TX where ownership transfers from Magic Aire to the customer when product is loaded onto the freight line truck.
- Customer should not Refuse Freight or the time frame for resolution extends greatly and can lower the settlement value. Note on the delivery ticket any visible signs of damage
- Un-package and inspect the product to look for concealed damage soon after delivery. **Most concealed damage claims must be filed within 5 days. Need to mark POD with damage if at all possible.** Product is to be retained until the claim is concluded including the packaging.
- Forms and Instructions for submitting Freight at:
<https://www.magicaire.com/support/rga-request/>

Unit Ventilator Start-up Report and Warranty Registration Form

Self-Contained Unit Ventilator Warranty Registration Form must be completed and returned within 10 days

of start up to comply with the terms of warranty. Forms should be emails to techsupport@magicaire.com.

Job Name	_____	City	_____
Sales Order #	_____	Unit Tag	_____
Model Number	_____	Serial Number	_____
Installer	_____	Quantity of Units	_____
Supply Voltage	_____	Nameplate Rating	_____

Unit Check

Yes

No

•Does electrical service correspond to unit nameplate?

•Are all electrical power connections tight?

•Does all field wiring conform to unit wiring diagram? Does VFD

power wiring, fuse block wiring, and disconnect wiring conform?

•Is Unit installed per IOM (level, cabinet pait condition, etc)?

•Is the condensate disposal system operating correctly?

•Are bearing locking screws on fan shaft tight?

•Are dampers operating properly?

•Is the filter clean?

Piping Check

Yes

No

•Is unit piping correct and insulated to prevent condensation?

•Are the control valve packages piped correctly?

•Are valve packages properly insulated?

•Are there any leaks detected?

Installation, Operation and Maintenance Manual

Magic Aire Unit Ventilators are designed for floor (vertical) or ceiling (horizontal) mounting. Units shall incorporate chilled water or direct expansion cooling and hot water, steam, or electric heating as specified. Units are available with DDC, Direct Digital Controls, that provide stand-alone operation or can be incorporated into a BACnet network. Indoor air quality is assured with Ventilation options and Economizer modes.

How to Use this Manual:

This manual gives general instructions regarding installation, operation and maintenance for the UV and UH model unit ventilators. For more information refer to:

Catalog brochure for unit dimensions, weights, options, pipe connections, clearances, guide specifications and performance information.

Controls Guide for specific DDC Controls instructions and sequences of operation.

Unit Mounted Wiring Diagram and Label for all electrical connections. Follow NEC (National Electrical Code) and local codes.

Website www.magicaire.com for replacement component procedures, software downloads, product data and contact info for your local representative.

Replacement Parts Tool: To obtain a list of parts and drawings specific to unit. Please enter the serial number or model number in our online part quoting tool, RPL:

<http://magicstatus.magicaire.com/>



Online Parts Pricing Tool: For a quote by part number (found in replacement parts guides, previously quote, or from Magic Aire sticker on part),

<http://magicstatus.magicaire.com/>



Service Videos:

Videos on replacing motors, blower wheel alignment, and more at:

<https://www.magicaire.com/products>



Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by and unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

Table of Contents and Safety Instructions

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Safety Instructions

Self-Contained Unit Ventilators are manufactured according to the latest U.S. Safety Standards. Particular emphasis has been placed on the user's safety. Safety icons are explained below and safety instructions applicable to the products in this bulletin are grouped on Page 5. These instructions should be retained throughout the lifetime of the compressor. You are strongly advised to follow these safety instructions.

Symbols Explanation

	Please read this instruction manual carefully before proceeding.
	Maintenance personnel should read this manual and installation and maintenance manual carefully before operation.
	More information can be found in installation and maintenance manual, control guides, unit wiring diagrams, and other product literature available.

	AVERTISSEMENT RISQUE D'INCENDIE. RÉFRIGÉRANT INFLAMMABLE UTILISÉ.	Consultez le manuel de réparation/le guide du propriétaire avant d'essayer de réparer le produit.
		Toutes les précautions de sécurité doivent être respectées.
		Suivez attentivement les instructions de manipulation conformément aux réglementations nationales/règlements.

Table of Contents and Safety Instructions

Safety Icon Explanation



DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



NOTICE is used to address practices not related to personal injury.



CAUTION without the safety alert symbol, is used to address practices not related to personal injury.

Safety Instructions

Also See Addendum for units with Flammable Refrigerants

WARNING	ELECTRICAL SHOCK HAZARD • Electrical connections must be made by qualified electrical personnel. • Disconnect and lock out power before servicing. • Allow drive components to electrically discharge for a minimum of two minutes before servicing. • Use compressor with grounded system only. • Refer to original equipment wiring diagrams. • Failure to follow these warnings could result in serious personal injury.
WARNING	PRESSURIZED SYSTEM HAZARD • For units with refrigerant, refer to addendum titled “Installation, Operation and Maintenance Manual Addendum for units with Flammable Refrigerants” dated 02/23/2024, or latest version at www.magicaire.com, for specific warnings and instructions when using this product with flammable refrigerants. • For add on heat pumps with flammable refrigerants, see the manufacturers unit Installation and Maintenance Manual for critical-to-safety wiring connection of the leak detection sensor or leak detection system. • For units with refrigerant coils, system contains the A2L refrigerant, the type of which is on the label of the unit, and oil under pressure. Verify refrigerant marked on nameplate is the refrigerant being used in the current system. • Refrigerant compressors must be employed only for their intended use. Only qualified and authorized HVAC or refrigeration personnel are permitted to install, commission, and maintain this equipment. • Remove refrigerant from both the high and low compressor side before removing compressor. • Never install a system and leave it unattended when it has no charge, a holding charge, or with the service valves closed without electrically locking out the system. • Use only approved refrigerants and refrigeration oils. • This UV and UH units are PARTIAL UNIT AIR CONDITIONERS, complying with PARTIAL UNIT requirements of this standard, and must only be connected to other units that have been confirmed as complying to corresponding PARTIAL UNIT requirements of this Standard, UL 60335-2-40/CSA C22.2 No. 60335-2-40, or UL1995/CSA C22.2 No 236. • Units are designed to be used up to a maximum of 10,000 ft (3048m) altitude. • For the UH model units, the unit and the bottom of the ductwork should be installed no lower than 7.21 ft (2.2m) from the floor. • Personal safety equipment must be used. • Units are not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction. Children being supervised are not to play with the unit. • Failure to follow these warnings could result in serious personal injury.
WARNING	BURN HAZARD • Use caution when brazing system components. • Personal safety equipment must be used. • Failure to follow these warnings could result in serious personal injury or property damage.

Pre-Installation

Pre-Installation

Immediately inspect each unit for damage upon receipt. Inspect units for external and concealed damage immediately. File any damage claims in accordance with the Terms and Conditions of sale. Do not repair damaged units without written authorization. Protect stored units from damage.

Protect Units from Damage

To maintain warranty, protect units against adverse weather, theft, vandalism, and debris on jobsite. Do not allow foreign material to fall into drain pan. Prevent dust and debris from being deposited on motor and fan wheels. If the equipment is stored for any length of time before installation, it should remain in its shipping container in a clean, dry, and climate controlled area. The warning label on the side of the unit must be observed. This label designates that at least two pallets must be used under the Unit when moving.

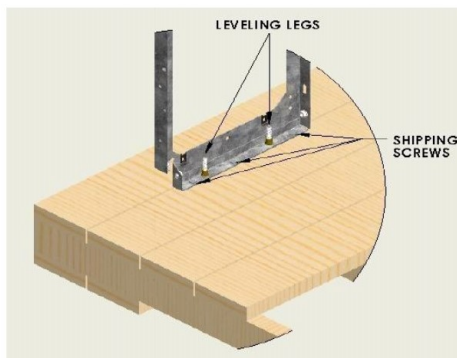


Figure 1

Prepare Jobsite for Unit Installation

To save time and to reduce the possibility of costly errors, set up a complete sample installation in a typical room at jobsite. Check all critical dimensions such as pipe and wire connection requirements. Refer to job drawings and product dimension drawings as required. Instruct all trades in their part of the installation. Installation must comply with all applicable local codes.

Identify and Prepare Units

1. Each unit is attached to a pallet for shipping (Figure 1 and 2). When units are unpackaged, locate within end compartments the bag of caps to insert in attachment holes (UH only)
2. Be sure power requirements match available power source. Refer to the unit nameplate and wiring diagram.
3. Remove front access panels from the unit. Retain the $\frac{5}{32}$ inch socket head fasteners and panels for reinstallation later.
4. Rotate the fan shaft by hand to ensure that fans are unrestricted and can rotate freely. Check for shipping damage and fan obstructions.

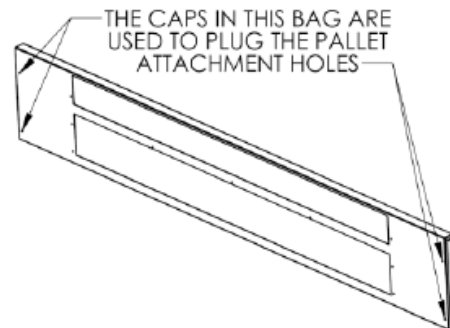


Figure 2

INSTALLATION

Vertical Units

1. Select the unit location; ensure that service clearance is provided. Allow enough grille clearance to maintain un-restricted airflow. Service clearance 2 feet from front and sides of unit. If cabinetry is installed on side of UV models, all service will be restricted to the front of unit.
2. Make sure wall behind unit is smooth and plumb; if necessary, install furring strips on walls with irregular surfaces or mullions. Furring strips must be positioned behind mounting holes in unit. Fasteners, furring strips, and other seals (if required) must be field supplied.
3. Remove all wall and floor moldings from behind the unit.
4. Move unit into position. Unit must be snug against wall and furring strips.
5. Adjust unit leveling legs so unit is level. Unit must be level for proper operation and condensate drainage.
6. Using field-supplied fasteners, reach into unit and attach unit to the wall using the 3/4 in. mounting holes in the back panel.
7. Vertical units are intended for exposed floor mount application only. Do not suspend from structure.

Horizontal Units

Select the unit location; ensure that service clearance is provided. Allow enough grille clearance to maintain unrestricted airflow. Make sure that ceiling is able to support the weight of the unit. See catalog and pages 6-10 for unit weight and dimensions.

NOTE: See page 14 for additional requirements regarding units ducted to multiple openings.

Ensure that bottom panels have been removed from unit. When unit is lifted, access to the 3/4 in. mounting holes is through the bottom of the unit. Hanger rods and fasteners and other required hardware must be field supplied.

Using a forklift or other mechanical lifting device, raise the unit to the mounting position. If forklift or other lifting device is likely to contact a painted wall surface, protect the surface as necessary.

Use rods and fasteners to suspend the unit at the mounting holes on the top of the unit. The unit must be suspended at the 3/4 in. mounting holes; do not use any other locations.

If desired, install field-supplied vibration isolators. Adjust isolators so unit is uniformly suspended and level.

To ensure proper drainage and operation, ensure unit is level and tighten all fasteners. **DO NOT** mount the unit on a slope. Pitch of horizontal suspended units can change after coil is filled; recheck after filling coil.

Protect the unit from jobsite debris. Do not allow foreign material to fall into drain pan. Prevent dust and debris from being deposited on motor or fan.

CAUTION

Units must be installed level and plumb. Failure to do so may result in excessive vibration and/or premature failure.

Physical Data

Table 1: Physical Data - UVF Models					
Unit Model	MAUVF1	MAUVF2	MAUVF3	MAUVF4	MAUVF5
Nominal Airflow, CFM	500	750	1000	1250	1500
Indoor Fan Data					
Quantity	1	2	3	4	5
Diameter (in.) x Width (in.)	8.12 X 7.75	8.12 X 7.75	8.12 X 7.75	8.12 X 7.75	8.12 X 7.75
Motor Data (1 each)					
Indoor Motor HP	1/3	1/3	1/3	1/2	1/2
Filters (1 each)					
Nominal Size (1 in.)	9.25 x 24.25	9.25 x 36.25	9.25 x 48.25	9.25 x 60.25	9.25 x 72.25
Nominal Size (2in.)	9.25 x 24.25	9.25 x 36.25	9.25 x 48.25	9.25 x 60.25	9.25 x 72.25

Table 1: Physical Data - UHF Models					
Unit Model	MAUHF2	MAUHF3	MAUHF4	MAUHF5	MAUHF6
Nominal Airflow, CFM	750	1000	1250	1500	2000
Indoor Fan Data					
Quantity	2	3	4	5	5
Diameter (in.) x Width (in.)	8.12 X 7.75	8.12 X 7.75	8.12 X 7.75	8.12 X 7.75	8.12 X 7.75
Motor Data (1 each)					
Indoor Motor HP	1/3	1/3	1/2	1/2	3/4
Filters (1 each)					
Nominal Size (1 in.)	9.75 x 36.25	9.75x 48.25	9.75 x 60.25	9.75 x 72.25	9.75 x 72.25
Nominal Size (2in.)	9.75 x 36.25	9.75 x 48.25	9.75 x 60.25	9.75 x 72.25	9.75x 72.25

Digit 1-4 - Series

MAUV- Unit Ventilator - Vertical

Digit 5 - Design Version

F- Design Designation

Digit 6 - Size

- 1 - 500 CFM
- 2 - 750 CFM
- 3 - 1000 CFM
- 4 - 1250 CFM
- 5 - 1500 CFM

Digit 7 - Paint Color

- P - Polar Ice Front Panels - Bronze Top
- B - Beige Front Panels - Bronze Top
- G - Gray Front Panels - Bronze Top
- W - White Front Panels - Bronze Top
- 1 - Polar Ice Front & Top Panels
- 2 - Beige Front & Top Panels
- 3 - Gray Front & Top Panels
- 4 - White Front & Top Panels
- 5 - Bronze Front & Top Panels

Digit 8 - Access Panel Gauge

- 1 - Standard 16 Gauge Panels
- 2 - Heavy Duty 14 Gauge Panels

Digit 9 - End Panel Kits

- A - No End Panels Factory Installed
- B - Solid End Panels - 16 5/8" Deep Unit
- C - 2.5 x 7 Cutout End Panels - 16 5/8" Deep Unit
- D - 4 x 18 Cutout End Panels - 16 5/8" Deep Unit
- E - 4 x 22 Cutout End Panels - 16 5/8" Deep Unit
- F - Solid End Panels - 21 7/8" Deep Unit
- G - 2.5 x 7 Cutout End Panels - 21 7/8" Deep Unit
- H - 4 x 18 Cutout End Panels - 21 7/8" Deep Unit
- J - 4 x 22 Cutout End Panels - 21 7/8" Deep Unit
- K - 5.25 x 2.5 Corner Cutout End Panels - 21 7/8" Deep Unit

Digit 10 - Inlet Air Arrangement**16-5/8" Cabinet, Standard Cabinet**

- A - Rear OA Open Piping Tunnel
- B - Rear OA Closed Piping Tunnel
- C - Bottom OA Open Piping Tunnel
- D - No OA Open Piping Tunnel

21-7/8" Cabinet, Standard Cabinet

- E - Rear OA Piping Passage Unit
- F - Rear OA Full Adapter Back
- G - Top OA Full Adapter Back
- H - Bottom OA Open Adapter Back
- I - No OA Open Adapter Back
- J - 2.5" Step Down Pipe Pass Adapter Back
- K - 2.5" Step Down Full Adapter Back

16-5/8" Cabinet, Extended Cabinet

- 1 - Rear OA Open Piping Tunnel
- 2 - Rear OA Closed Piping Tunnel

21-7/8" Cabinet, Extended Cabinet

- 5- Rear OA Piping Passage Unit
- 6- Rear OA Full Adapter Back
- V - 2.5" Step Down Pipe Pass Adapter Back
- Z - 2.5" Step Down Full Adapter Back

EXTENDED CABINET SUBMITTAL DRAWINGS:

UV-305, UV-306, UV-309, UV-310.

Digit 11 - Discharge Aire Arrangement

- A - Top Barstock Grille Only
- B - Top Barstock Grille W/Mesh
- C - Top Discharge With No Grille

Digit 12 - Fan Motor Selection

- 1 - PSC Standard Motor
- 2 - ECM - High Efficiency - Three Speed
- 5 - ECM - High Efficiency - Variable Speed

Digit 13 - Face and Bypass Damper

- 1 - No Face & Bypass Damper -Valve Controlled
- 2 - Face & Bypass Damper -Face & Bypass Controlled

Digit 14 - Outdoor Air Damper

- 1 - Standard Damper Assembly
- 3 - Cold Weather Damper Assembly
- 5 - No Outside Air Damper - Recirculation Only

Digit 15 - Temperature Controls

- A - Field Provided and Installed Controls

DDC Ready Unit - With Damper Actuators

- D-Valve Proportional Control
- E-Valve Floating Point Control
- G-Face and Bypass Proportional Control
- H-Face and Bypass Floating Point Control

FACTORY SUPPLIED & INSTALLED LG COMM CARD

- 5 - Field Supplied and Installed DDC Controls

6 - DDC Ready Unit - With Damper Actuators

- Valve Proportional Control

7—DDC Ready Unit - With Damper Actuators

- Valve Floating Point Control

8 - DDC Ready Unit - With Damper Actuators

- Face and Bypass Proportional Control

9-DDC Ready Unit - With Damper Actuators

- Face and Bypass Floating Point Control

Digit 16 - Occupied/Unoccupied Options

0 - No Requirement (Networked or Field provided and Installed)
 3 - Unit Mounted Time Clock With Holiday Switch for DDC Ready Controls

B - DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT
 C - DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT
 D - DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT

E - RDS with DDC Ready
 F - RDS & DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT
 G - RDS & DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT
 H - RDS & DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT
 I - DDC Ready with CONDENSATE SWITCH

J - DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT & CONDENSATE SWITCH
 K - DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT & CONDENSATE SWITCH
 L - DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT & CONDENSATE SWITCH

M - RDS & DDC Ready with CONDENSATE SWITCH

N - RDS & DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT & CONDENSATE SWITCH
 O - RDS & DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT & CONDENSATE SWITCH
 P - RDS & DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT & CONDENSATE SWITCH

Q - DDC Ready & GPS-FC-48-AC Ionizer (Customer Supplied) - BY QUOTE
 R - DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT & GPS-FC-48-AC Ionizer (Customer Supplied) - BY QUOTE
 S - DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT & GPS-FC-48-AC Ionizer (Customer Supplied) - BY QUOTE
 T - DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT & GPS-FC-48-AC Ionizer (Customer Supplied) - BY QUOTE

U - DDC Ready & GPS-FC-3-BAS Ionizer (Customer Supplied) - BY QUOTE
 V - DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT & GPS-FC-3-BAS Ionizer (Customer Supplied) - BY QUOTE
 W - DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT & GPS-FC-3-BAS Ionizer (Customer Supplied) - BY QUOTE
 Y - DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT & GPS-FC-3-BAS Ionizer (Customer Supplied) - BY QUOTE

A - DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT & PA 602 Ionizer (Customer Supplied) - BY QUOTE
 1 - DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT & PA 602 Ionizer (Customer Supplied) - BY QUOTE
 2 - DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT & PA 602 Ionizer (Customer Supplied) - BY QUOTE

4 - DDC Ready & PA FC-400 Ionizer (Customer Supplied) - BY QUOTE
 5 - DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT & FC-400 Ionizer (Customer Supplied) - BY QUOTE
 6 - DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT & FC-400 Ionizer (Customer Supplied) - BY QUOTE
 7 - DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT & FC-400 Ionizer (Customer Supplied) - BY QUOTE

8 - No Controls with Ionizer (BY QUOTE)
 9 - No Controls with CONDENSATE SWITCH

Digit 17 - Power Supply

J - 115V-1 Phase
 K - 208V - 1 Phase
 L - 230V - 1 Phase
 M - 265V - 1 Phase
 5 - 200V - 3 Phase
 6 - 230V - 3 Phase
 7 - 460V - 3 Phase

Digit 18 - Coil Arrangement

1 - Pre-heat
 2 - Re-heat

Digit 19 - Heating Coil

A - None
 B - 1 Row Left Hand
 C - 1 Row Right Hand
 D - 2 Row Left Hand
 E - 2 Row Right Hand
 F - 3 Row Left Hand
 G - 3 Row Right Hand
 H - 4 Row Left Hand
 J - 4 Row Right Hand
 M - Steam 1 Row - Same End Connections - Left Hand
 N - Steam 1 Row - Same End Connections - Right Hand
 P - Steam 2 Row - Same End Connections- Left Hand
 R - Steam 2 Row - Same End Connections- Left Hand
 S - Steam 1 Row - Opposite End Connections- Left Hand
 T - Steam 1 Row - Opposite End Connections- Right Hand
 V - Steam 2 Row - Opposite End Connections - Left Hand
 W - Steam 2 Row - Opposite End Connections - Right Hand
 2 - Electric Heat - 2 Elements
 3 - Electric Heat - 3 Elements
 4 - Electric Heat - 4 Elements
 5 - Electric Heat - 5 Elements
 6 - Electric Heat - 6 Elements

Digit 20 - Heating Valve & Actuator

A - No Requirement
 B - Hot Water 3way Proportional -2.0cv
 C - Hot Water 3way Floating Point-2.0cv
 D - Hot Water 3way Proportional -4.0cv
 E - Hot Water 3way Floating Point-4.0cv
 F - Hot Water 3way Proportional -7.5cv
 G - Hot Water 3way Floating Point -7.5cv
 H - Hot Water - 3way-2position Valve / 24 VAC
 J - Hot Water - 2way Proportional -2.0cv
 K - Hot Water - 2way Floating Point -2.0cv
 L - Hot Water - 2way- Proportional - 4.0cv
 M - Hot Water - 2way- Floating Point - 4.0cv
 N - Hot Water - 2way- Proportional - 7.5cv
 O - Hot Water - 2way- Floating Point - 7.5cv
 P - Hot Water - 2way-2position Valve / 24 VAC
 1 - Steam-2way - Proportional - 2.5cv
 2 - Steam-2way - Floating Point - 2.5cv
 3 - Steam-2way-Proportional - 4..0cv
 4 - Steam-2way-Floating Point- 4..0cv
 5 - Steam-2way-Proportional - 6.3cv
 6 - Steam-2way-Floating Point- 6.3cv
 P - Steam - 2way-2position Valve / 24 VAC

Digit 21 - Heating Valve Package

A - No Requirement
 B - 2way Valves - Piping Package #1
 C - 2way Valves - Piping Package #2
 D - 2way Valves - Piping Package #3
 E - 2way Valves - Piping Package #4
 F - 3way Valves - Piping Package #1
 G - 3way Valves - Piping Package #2
 H - 3way Valves - Piping Package #3
 J - 3way Valves - Piping Package #4
 U- Unions Only

Digit 22 - Cooling Coil

F - 3 Row Water Coil Left Hand - Same Hand Connection

 G - 3 Row Water Coil Right Hand - Same Hand Connection

 H - 4 Row Water Coil Left Hand - Same Hand Connection

 J - 4 Row Water Coil Right Hand - Same Hand Connection

 K - 5 Row Water Coil Left Hand - Same Hand Connection

 L - 5 Row Water Coil Right Hand - Same Hand Connection

 8 - 5 Row High Capacity Water Coil Left Hand - Same Hand Connection

 9 - 5 Row High Capacity Water Coil Right Hand - Same Hand Connection

 2 - 4 Row R-410A DX Left Hand - standard

 3 - 4 Row R-410A DX Right Hand - standard

 4 - 4 Row R-410A DX Left Hand—standard coil with no TXV for use with LG VRF outdoor units and other VRF manufacturers who want standard capacity and no TXV.

 5 - 4 Row R-410A DX Right Hand—standard coil with no TXV

for use with LG VRF outdoor units and other VRF manufacturers who want standard capacity and no TXV.

6 - 4 Row R-410A DX Left Hand—reduced capacity coil with no TXV for use with Hitachi VRF outdoor units and other VRF manufacturers who want reduced capacity and no TXV.

7 - 4 Row R-410A DX Right Hand—reduced capacity coil with no TXV for use with Hitachi VRF outdoor units and other VRF manufacturers who want reduced capacity and no TXV.

R - 4 Row R-410A DX Left Hand—standard coil for use with LG VRF outdoor units and other VRF manufacturers who want standard capacity—LG EEV Kit factory provided and installed

S - 4 Row R-410A DX Right Hand—standard coil for use with LG VRF outdoor units and other VRF manufacturers who want standard capacity—LG EEV Kit factory provided and installed

V - 4 Row R-454B DX Left Hand - standard

W- 4 Row R-454B DX Right Hand - standard

Y - 4 Row R-454B DX Left Hand - NO TXV

Z- 4 Row R-454B DX Right Hand - NO TXV

Digit 23 and 24 - No Requirement

Digit 25 – Drain pan

A - Galvanized Drain Pan
 B - IAQ Drain Pan

Digit 26 - Air Filter

1 - 1" Disposable Air Filter
 2 - 1" Renewable Air Filter
 3 - 1" Permanent Air Filter
 4 - 2" Pleated Air Filter—MERV 10
 5 - 2" Pleated Air Filter—MERV 13

Digit 27 - Warranty

H - 1 year Standard Warranty
 J- 2 year Standard Warranty
 K - 3 year Standard Warranty
 L - 4 year Standard Warranty
 M - 5 year Standard Warranty

X in codestring denotes custom option requiring a Request for Custom (RFCP) design request quote and set up

Digit 1-4 - Series

MAUH Unit Ventilator - Horizontal

Digit 5 - Design Version

F- Design Designation

Digit 6 - Size

2 - 750 CFM
3 - 1000 CFM
4 - 1250 CFM
5 - 1500 CFM
6 - 2000 CFM

Digit 7 - Paint Color

P - Polar Ice
B - Beige
G - Gray
W - White
Z - Charcoal Bronze

Digit 8 - Future Use

A - Always A

Digit 9 - Future Use

A - Always A

Digit 10 - Inlet Air Arrangement

A - Bottom Return Air / Top Outside Air
B - Bottom Return Air / Rear Outside Air
C - Bottom Return Air / No Outside Air
D - Rear Return Air / Top Outside Air
E - Rear Return Air / Rear Outside Air
D - Rear Return Air / No Outside Air

Digit 11 - Discharge Aire Arrangement

A - Front Discharge / Barstock Grille Only
B - Front Discharge / Barstock Grille with Mesh
C - Front Discharge / Open Fan Outlet Suitable for Duct Collar by Others
D - Front Discharge Plenum/ Open Fan Outlet Suitable for Duct Collar by Others
E - Front Discharge Plenum/ Front Double Deflection Grille
F - Front Discharge Plenum/ Bottom Double Deflection Grille (Down Discharge)

Digit 12 - Fan Motor Selection

1 - PSC Standard Motor
2 - ECM - High Efficiency - Three Speed
5 - ECM - - High Efficiency - Variable Speed

Digit 13 - Face and Bypass Damper

1 - No Face & Bypass Damper -Valve Controlled
2 - Face & Bypass Damper -Face & Bypass Controlled

Digit 14 - Outdoor Air Damper

1 - Standard Damper Assembly
3 - Cold Weather Damper Assembly
5 - No Outside Air Damper - Recirculation Only

Digit 15 - Temperature Controls

A - Field Provided and Installed Controls

DDC Ready Unit - With Damper Actuators

D-Valve Proportional Control
E-Valve Floating Point Control
G-Face and Bypass Proportional Control
H-Face and Bypass Floating Point Control

FACTORY SUPPLIED & INSTALLED LG COMM CARD

5 - Field Supplied and Installed DDC Controls

6- DDC Ready Unit - With Damper Actuators

-Valve Proportional Control

7—DDC Ready Unit - With Damper Actuators

Valve Floating Point Control

8-DDC Ready Unit - With Damper Actuators

Face and Bypass Proportional Control

9-DDC Ready Unit - With Damper Actuators

Face and Bypass Floating Point Control

Digit 16 - Occupied/Unoccupied Options

0 - No Requirement (Networked or Field provided and Installed)
3 - Unit Mounted Time Clock With Holiday Switch for DDC Ready Controls

B - DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT
C - DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT
D - DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT

E - RDS with DDC Ready
F - RDS & DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT
G - RDS & DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT
H - RDS & DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT
I - DDC Ready with CONDENSATE SWITCH

J - DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT & CONDENSATE SWITCH
K - DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT & CONDENSATE SWITCH
L - DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT & CONDENSATE SWITCH

M - RDS & DDC Ready with CONDENSATE SWITCH

N - RDS & DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT & CONDENSATE SWITCH
O - RDS & DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT & CONDENSATE SWITCH
P - RDS & DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT & CONDENSATE SWITCH

Q - DDC Ready & GPS-FC-48-AC Ionizer (Customer Supplied) - BY QUOTE
R - DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT & GPS-FC-48-AC Ionizer (Customer Supplied) - BY QUOTE
S - DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT & GPS-FC-48-AC Ionizer (Customer Supplied) - BY QUOTE
T - DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT & GPS-FC-48-AC Ionizer (Customer Supplied) - BY QUOTE

U - DDC Ready & GPS-FC-3-BAS Ionizer (Customer Supplied) - BY QUOTE
V - DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT & GPS-FC-3-BAS Ionizer (Customer Supplied) - BY QUOTE
W - DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT & GPS-FC-3-BAS Ionizer (Customer Supplied) - BY QUOTE
Y - DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT & GPS-FC-3-BAS Ionizer (Customer Supplied) - BY QUOTE

A - DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT & PA 602 Ionizer (Customer Supplied) - BY QUOTE
1 - DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT & PA 602 Ionizer (Customer Supplied) - BY QUOTE
2 - DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT & PA 602 Ionizer (Customer Supplied) - BY QUOTE

4 - DDC Ready & PA FC-400 Ionizer (Customer Supplied) - BY QUOTE
5 - DDC READY WITH 1k-NICKEL TEMPERATURE SENSORS FOR DAT, RAT, OAT & FC-400 Ionizer (Customer Supplied) - BY QUOTE
6 - DDC READY WITH 10K TYPE II TEMPERATURE SENSORS FOR DAT, RAT, OAT & FC-400 Ionizer (Customer Supplied) - BY QUOTE
7 - DDC READY WITH 10K TYPE III TEMPERATURE SENSORS FOR DAT, RAT, OAT & FC-400 Ionizer (Customer Supplied) - BY QUOTE

8 - No Controls with Ionizer (BY QUOTE)
9 - No Controls with CONDENSATE SWITCH

Digit 17 - Power Supply

J - 115V-1 Phase
K - 208V - 1 Phase
L - 230V - 1 Phase
M - 265V - 1 Phase
5 - 200V - 3 Phase
6 - 230V - 3 Phase
7 - 460V - 3 Phase

Digit 18 - Coil Arrangement

1 - Pre-heat
2 - Re-heat

Digit 19 - Heating Coil

A - None
B - 1 Row Left Hand
C - 1 Row Right Hand
D - 2 Row Left Hand
E - 2 Row Right Hand
F - 3 Row Left Hand
G - 3 Row Right Hand
H - 4 Row Left Hand
J - 4 Row Right Hand
M - Steam 1 Row - Same End Connections - Left Hand
N - Steam 1 Row - Same End Connections - Right Hand
P - Steam 2 Row - Same End Connections- Left Hand
R - Steam 2 Row - Same End Connections- Left Hand
S - Steam 1 Row - Opposite End Connections- Left Hand
T - Steam 1 Row - Opposite End Connections- Right Hand
V - Steam 2 Row - Opposite End Connections - Left Hand
W - Steam 2 Row - Opposite End Connections - Right Hand
2 - Electric Heat - 2 Elements
3 - Electric Heat - 3 Elements
4 - Electric Heat - 4 Elements
5 - Electric Heat - 5 Elements
6 - Electric Heat - 6 Elements

Digit 20 - Heating Valve & Actuator

A - No Requirement
 B - Hot Water 3way Proportional -2.0cv
 C - Hot Water 3way Floating Point-2.0cv
 D - Hot Water 3way Proportional -4.0cv
 E - Hot Water 3way Floating Point-4.0cv
 F - Hot Water 3way Proportional -7.5cv
 G - Hot Water 3way Floating Point -7.5cv
 H - Hot Water - 3way-2position Valve / 24 VAC
 J - Hot Water - 2way Proportional -2.0cv
 K - Hot Water - 2way Floating Point -2.0cv
 L - Hot Water - 2way- Proportional - 4.0cv
 M - Hot Water - 2way- Floating Point - 4.0cv
 N - Hot Water - 2way- Proportional - 7.5cv
 O - Hot Water - 2way- Floating Point - 7.5cv
 P - Hot Water - 2way-2position Valve / 24 VAC
 1 - Steam-2way - Proportional - 2.5cv
 2 - Steam-2way - Floating Point - 2.5cv
 3 - Steam-2way-Proportional - 4..0cv
 4 - Steam-2way-Floating Point- 4..0cv
 5 - Steam-2way-Proportional - 6.3cv
 6 - Steam-2way-Floating Point- 6.3cv
 P - Steam - 2way-2position Valve / 24 VAC

Digit 21 - Heating Valve Package

A - No Requirement
 B - 2way Valves - Piping Package #1
 C - 2way Valves - Piping Package #2
 D - 2way Valves - Piping Package #3
 E - 2way Valves - Piping Package #4
 F - 3way Valves - Piping Package #1
 G - 3way Valves - Piping Package #2
 H - 3way Valves - Piping Package #3
 J - 3way Valves - Piping Package #4
 U- Unions Only

Digit 22 - Cooling Coil

F - 3 Row Water Coil Left Hand - Same Hand Connection
 G - 3 Row Water Coil Right Hand - Same Hand Connection
 H - 4 Row Water Coil Left Hand - Same Hand Connection
 J - 4 Row Water Coil Right Hand - Same Hand Connection
 K - 5 Row Water Coil Left Hand - Same Hand Connection
 L - 5 Row Water Coil Right Hand - Same Hand Connection
 8 - 5 Row High Capacity Water Coil Left Hand - Same Hand Connection
 9 - 5 Row High Capacity Water Coil Right Hand - Same Hand Connection

2 - 4 Row DX Left Hand—standard
 3 - 4 Row DX Right Hand—standard

4 - 4 Row DX Left Hand—standard coil with no TXV
 for use with LG VRF outdoor units and other VRF
 manufacturers who want standard capacity and no TXV.
 5 - 4 Row DX Right Hand—standard coil with no TXV
 for use with LG VRF outdoor units and other VRF
 manufacturers who want standard capacity and no TXV.
 6 - 4 Row DX Left Hand—reduced capacity coil with no TXV
 for use with Hitachi VRF outdoor units and other VRF
 manufacturers who want reduced capacity and no TXV.
 7 - 4 Row DX Right Hand—reduced capacity coil with no TXV
 for use with Hitachi VRF outdoor units and other VRF
 manufacturers who want reduced capacity and no TXV.

R - 4 Row DX Left Hand—standard coil
 for use with LG VRF outdoor units and other VRF
 manufacturers who want standard capacity—LG EEV Kit
 factory provided and installed

T- 4 Row DX Right Hand—standard coil
 for use with LG VRF outdoor units and other VRF
 manufacturers who want standard capacity—LG EEV Kit
 factory provided and installed

V - 4 Row R-454B DX Left Hand - standard
 W- 4 Row R-454B DX Right Hand - standard
 Y - 4 Row R-454B DX Left Hand - NO TXV
 Z- 4 Row R-454B DX Right Hand - NO TXV

Digit 23- Cooling Valve & Actuator

A - No Requirement

Digit 24 - Cooling Valve Package

A - No Requirement

Digit 25 – Drain pan

A - Galvanized Drain Pan

B - IAQ Drain Pan

Digit 26 - Air Filter

1 - 1" Disposable Air Filter
 2 - 1" Renewable Air Filter
 3 - 1" Permanent Air Filter
 4 - 2" Pleated Air Filter—MERV 10
 5 - 2" Pleated Air Filter—MERV 13

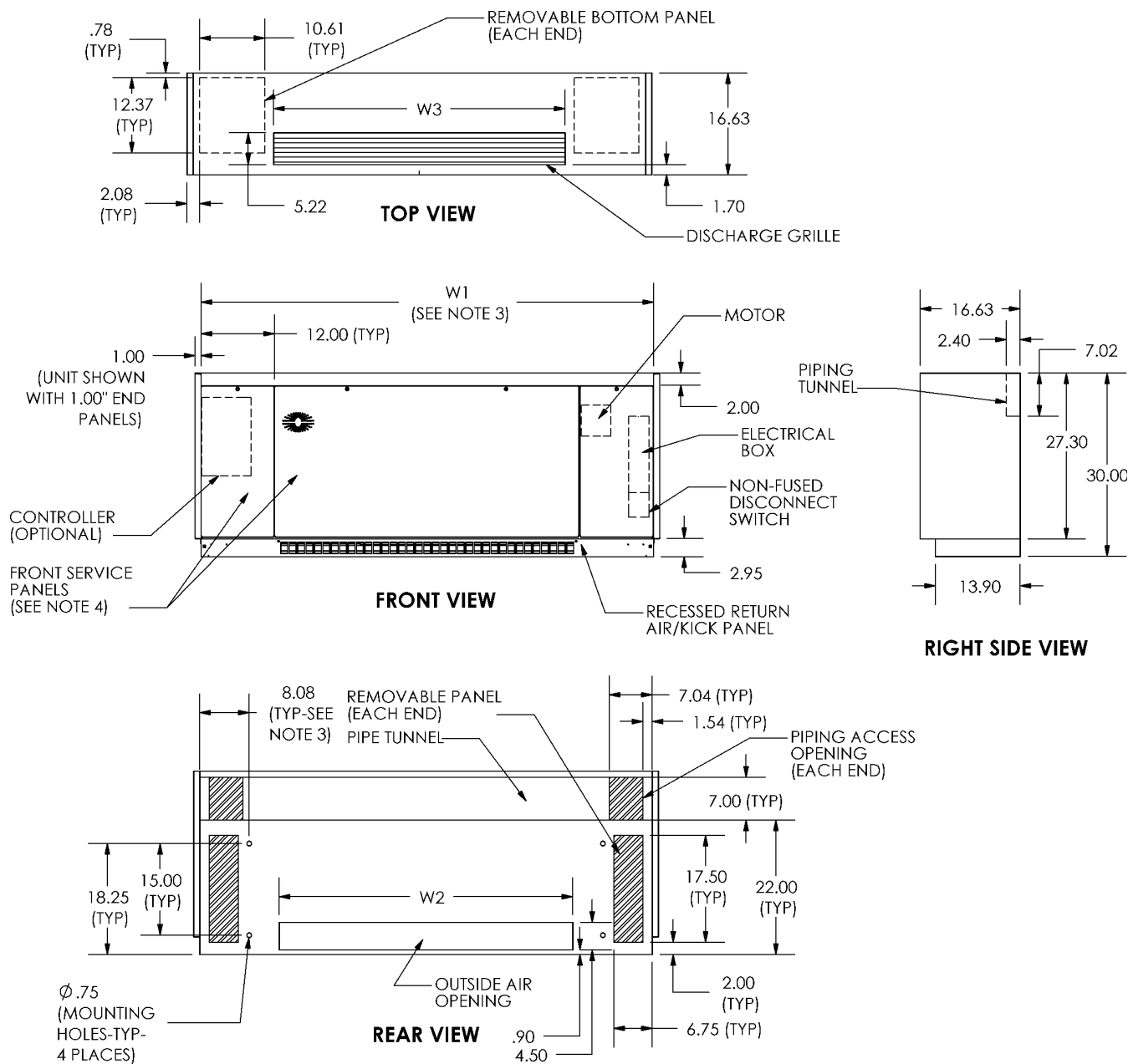
Digit 27 - Warranty

H - 1 year Standard Warranty
 J- 2 year Standard Warranty
 K - 3 year Standard Warranty
 L - 4 year Standard Warranty
 M - 5 year Standard Warranty

X in codestring denotes custom option requiring a Request for
 Custom (RFCP) design request quote and set up

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MODEL NO.	CFM	W1	W2	W3	Approx. Installed Weight (LBS)
MAUVF1	500	50	24	16.6	315
MAUVF2	750	62	36	31.67	380
MAUVF3	1000	74	48	46.74	460
MAUVF4	1250	86	60	61.81	570
MAUVF5	1500	98	72	78.47	640

NOTE:

- Drawing refers to Design "F" units.
- All dimensions in inches.
- Dimension does not include end panels.
- Three front panels provided for service access.
- Motor and electrical power input box on right side of unit. Box includes Fan Speed Switch, On/Off Switch and non-fused disconnect switch.



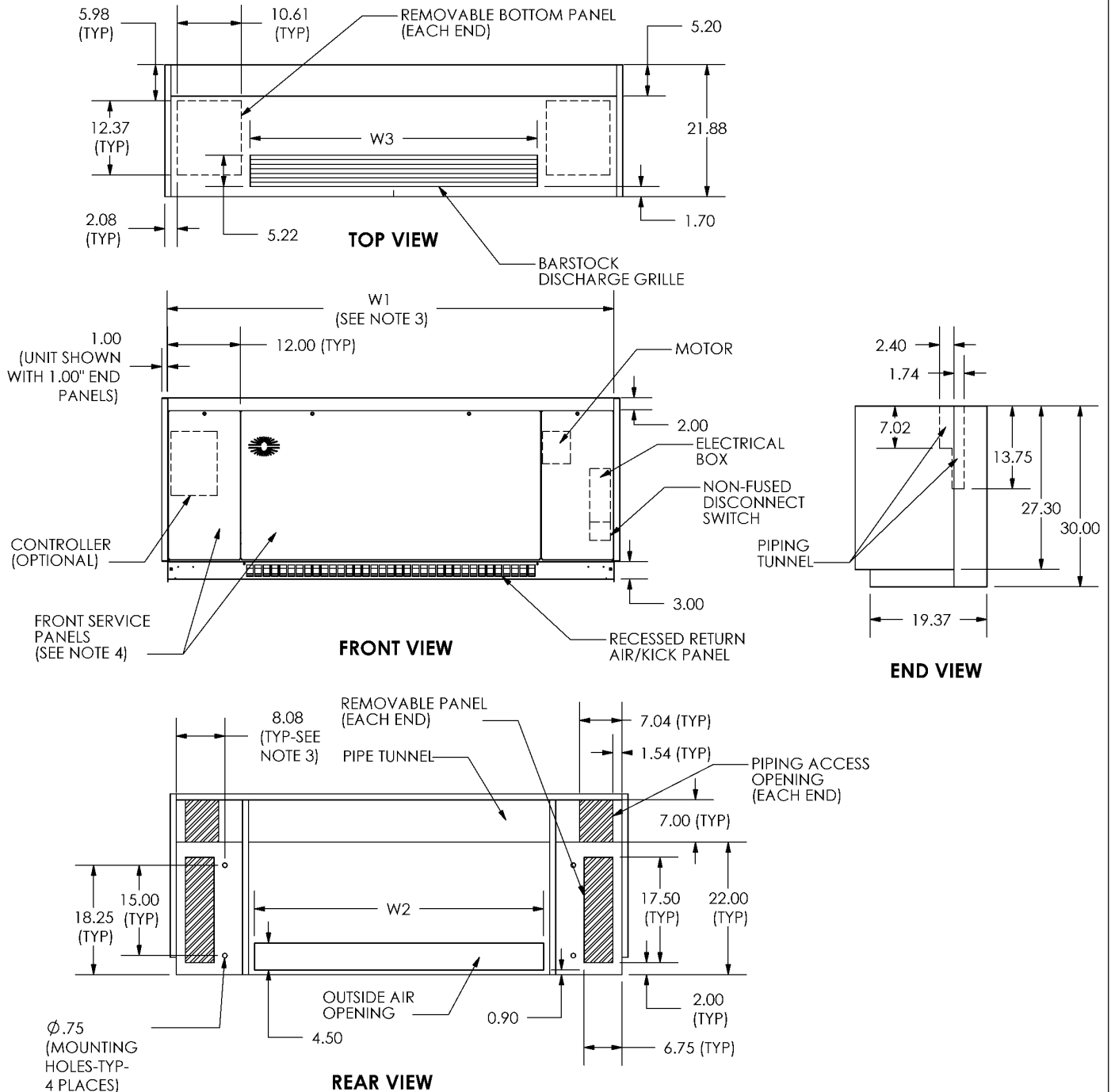
Magic Aire Unit Ventilator Model MAUVF

Certified Drawing
100-2B

Inlet Air Arrangements
21 7/8" Deep Unit

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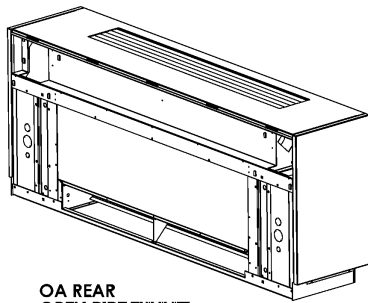


MODEL NO.	CFM	W1	W2	W3	Approx. Installed Weight (LBS)
MAUVF1	500	50	24	16.6	325
MAUVF2	750	62	36	31.67	390
MAUVF3	1000	74	48	46.74	470
MAUVF4	1250	86	60	61.81	595
MAUVF5	1500	98	72	78.47	655

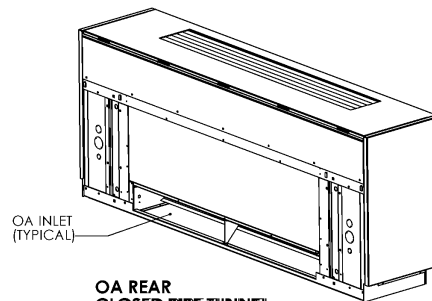
NOTE:

1. Drawing refers to Design "F" units.
2. All dimensions in inches.
3. Dimension does not include end panels.
4. Three front panels provided for service access.
5. Motor and electrical power input box on right side of unit. Box includes Fan Speed Switch, On/Off Switch and non-fused disconnect switch.

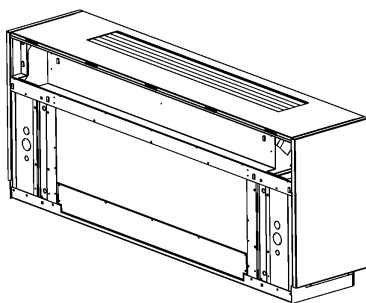
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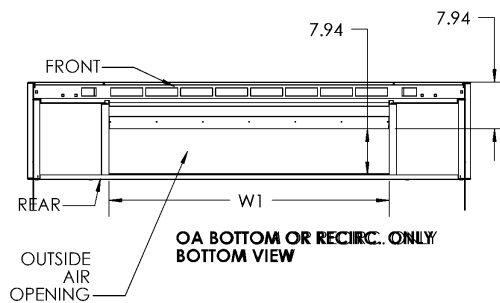
**OA REAR
OPEN PIPE TUNNEL
(A, L)**



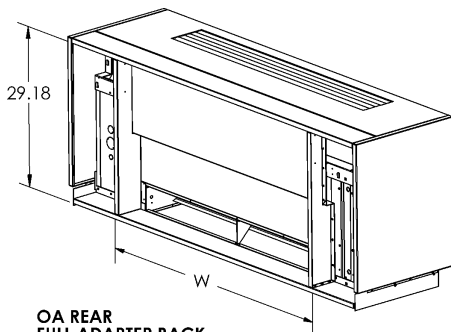
**OA REAR
CLOSED PIPE TUNNEL
(B, M)**



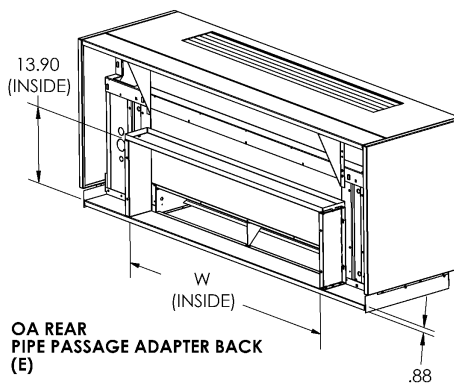
**OA BOTTOM OR RECIRC. ONLY
(C, D, N, O)**



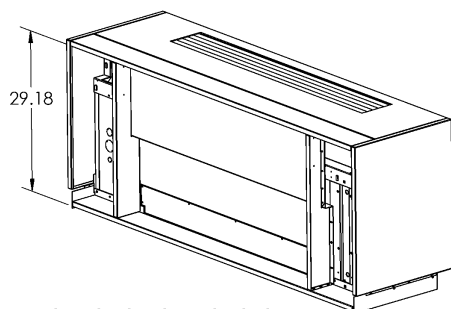
**OA BOTTOM OR RECIRC. ONLY
BOTTOM VIEW**



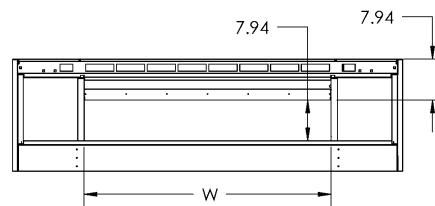
**OA REAR
FULL ADAPTER BACK
(F, R)**



**OA REAR
PIPE PASSAGE ADAPTER BACK
(E)**

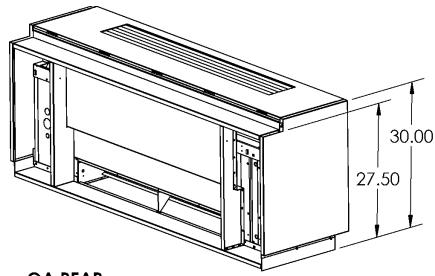


**OA BOTTOM OR RECIRC. ONLY
FULL ADAPTER BACK
(H, I, T, U)**

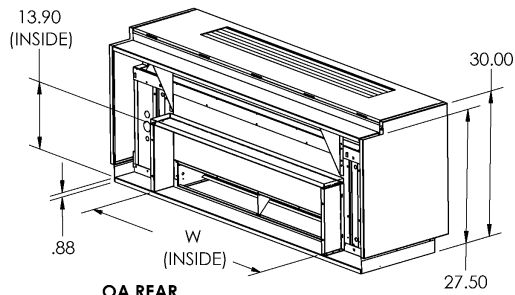


**OA BOTTOM OR RECIRC. ONLY
FULL ADAPTER BACK
BOTTOM VIEW**

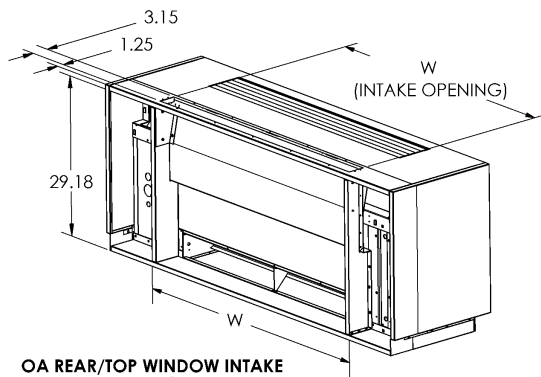
Model No.	CFM	W
MAUVF1	500	26
MAUVF2	750	38
MAUVF3	1000	50
MAUVF4	1250	62
MAUVF5	1500	74



**OA REAR
2.5" STEP DOWN
FULL ADAPTER BACK
(K,Y)**



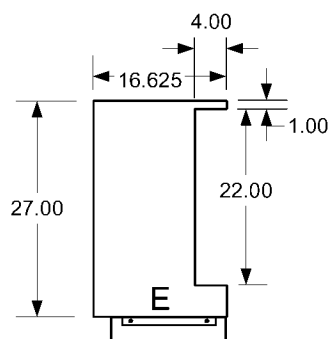
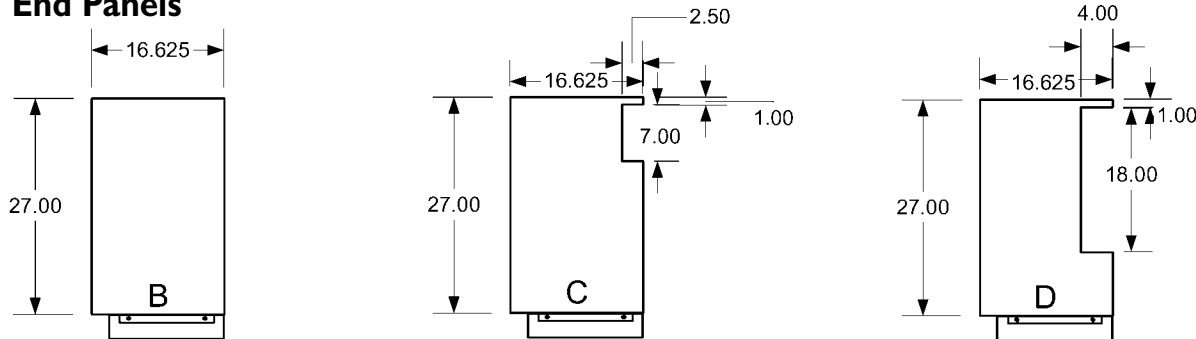
**OA REAR
2.5" STEP DOWN
PIPE PASSAGE ADAPTER BACK
(J,W)**



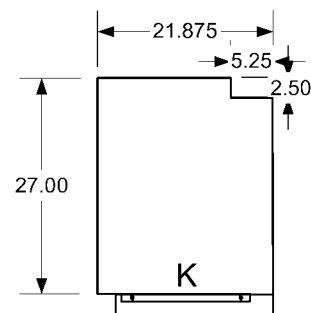
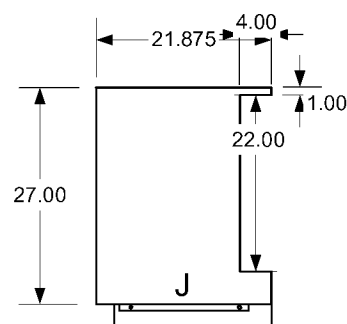
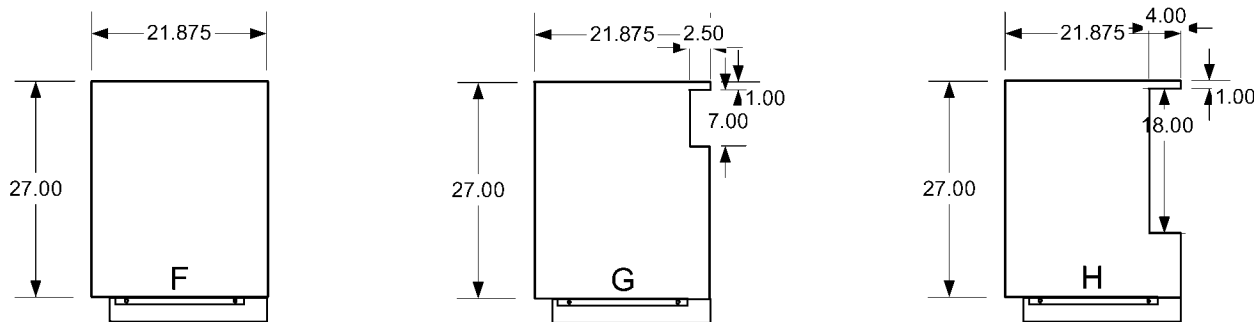
**OA REAR/TOP WINDOW INTAKE
FULL ADAPTER BACK
(G)**

End Panel Options

16-5/8" End Panels



21-7/8" End Panels



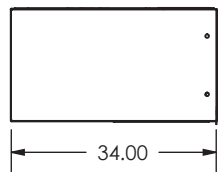


Magic Aire Horizontal Unit Ventilator **Models MAUHF 2-5**

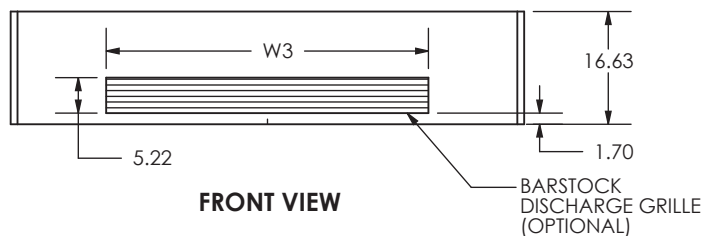
Certified Drawing
UHF-300-I

Discharge Air Arrangement
Barstock Grille/Duct Collar

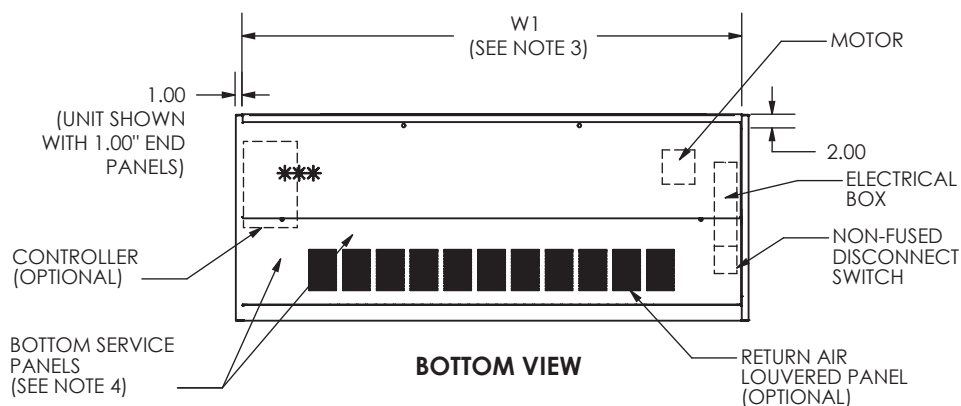
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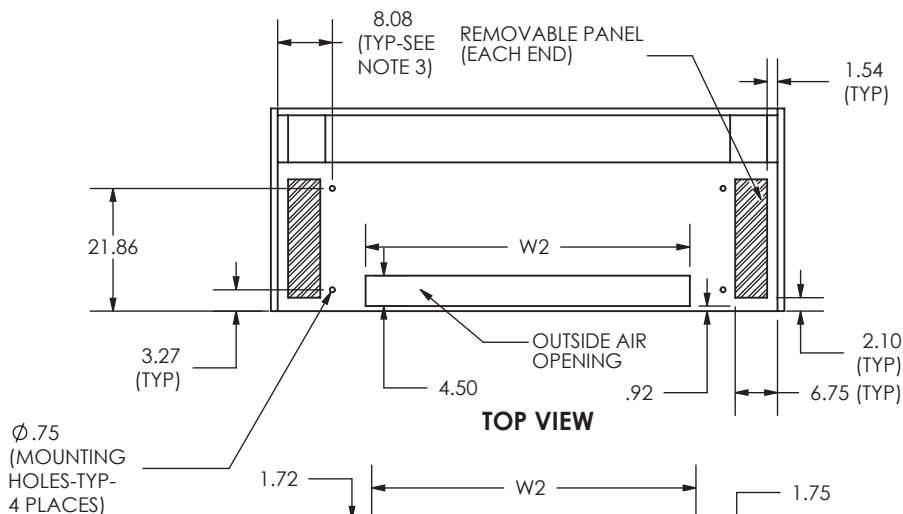
LEFT SIDE VIEW



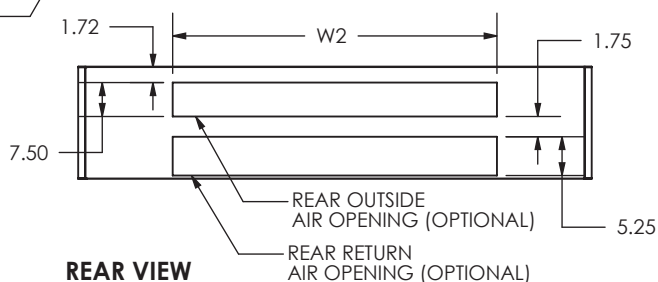
FRONT VIEW



BOTTOM VIEW



TOP VIEW



REAR VIEW

NOTE:

1. Drawing refers to Design "F" units.
2. All dimensions in inches.
3. Dimension does not include end panels.
4. Two bottom panels provided for service access.
5. Motor and electrical power input box on right side of unit. Box includes Fan Speed switch and non-fused disconnect switch.
6. Connection hand is determined by facing discharge of unit.

MODEL NO.	CFM	W1	W2	W3	APPROXIMATE SHIPPING WEIGHT (LBS)	APPROXIMATE INSTALLED WEIGHT (LBS)
UHF2	750	62	36	31.67	420	405
UHF3	1000	74	48	46.74	500	480
UHF4	1250	86	60	61.81	620	600
UHF5	1500	98	72	78.47	690	670

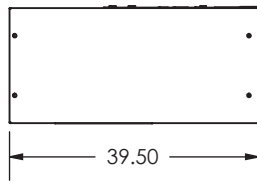
Product Information is Subject to Change Without Notice



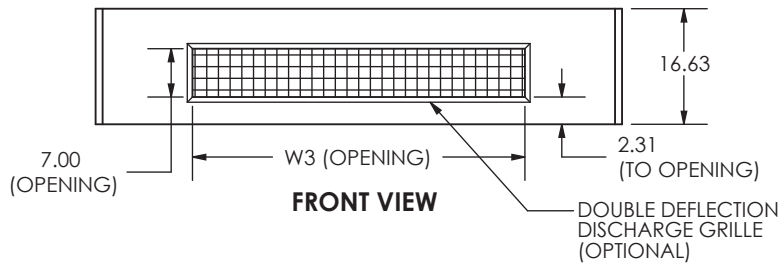
Magic Aire Horizontal Unit Ventilator **Models MAUHF 2-5**

Certified Drawing
UHF-301-I
Front Discharge Plenum
Double Deflection Grille/Duct Collar

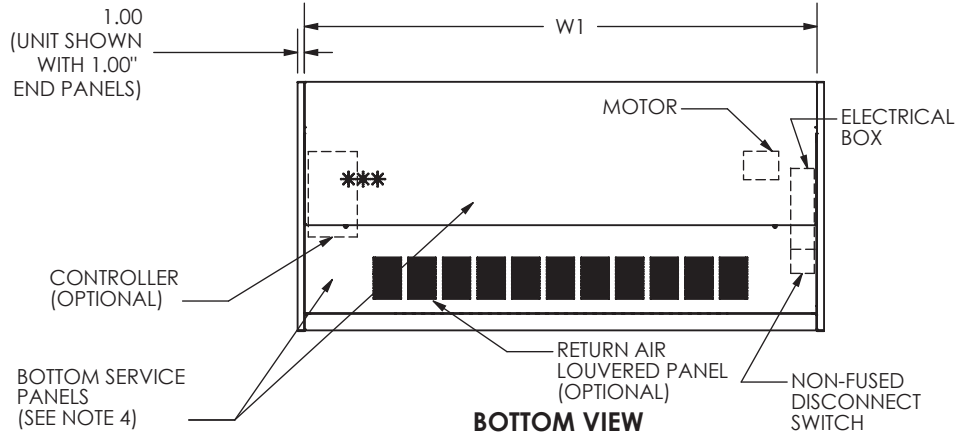
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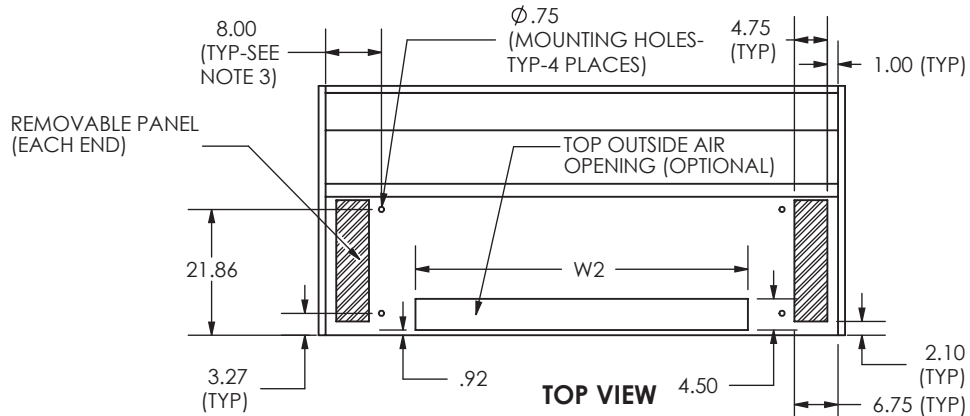
LEFT SIDE VIEW



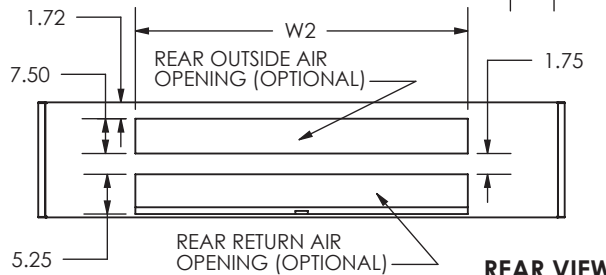
FRONT VIEW



BOTTOM VIEW



TOP VIEW



REAR VIEW

MODEL NO	CFM	W1	W2	W3	APPROXIMATE SHIPPING WEIGHT (LBS)	APPROXIMATE INSTALLED WEIGHT (LBS)
UHF2	750	62	36	36	500	485
UHF3	1000	74	48	48	600	580
UHF4	1250	86	60	60	740	720
UHF5	1500	98	72	72	830	810

NOTE:

1. Drawing refers to Design "F" units.
2. All dimensions are in inches.
3. Dimension does not include end panels.
4. Two bottom panels provided for service access.
5. Motor and electrical power input box on right side of unit. Box includes Fan Speed switch and non-fused disconnect switch.
6. Connection hand is determined by facing discharge of unit.

Product Information is Subject to Change Without Notice

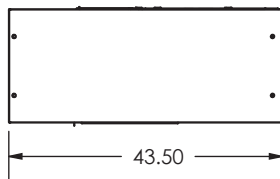


Magic Aire Horizontal Unit Ventilator **Models MAUHF 2-5**

Certified Drawing
UHF-302-I

Down Discharge Plenum
Double Deflection Grille

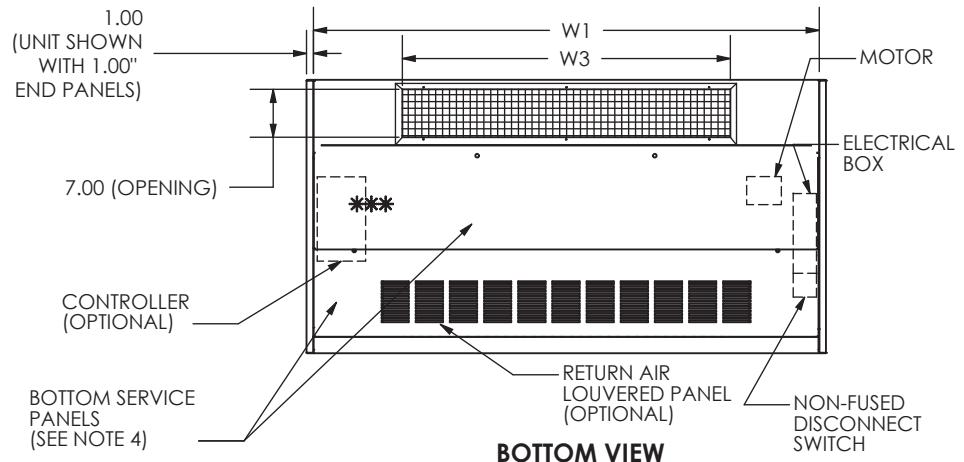
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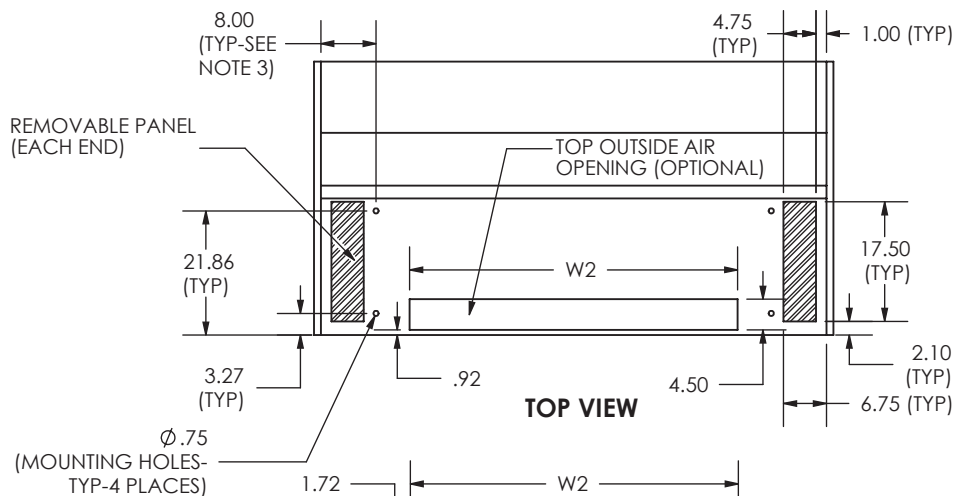
LEFT SIDE VIEW



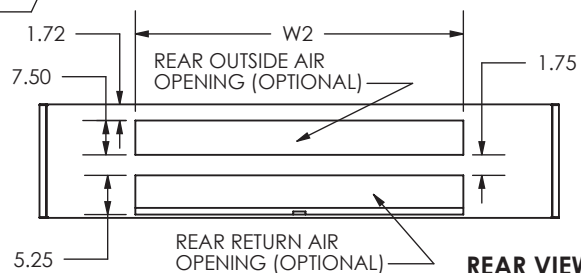
FRONT VIEW



BOTTOM VIEW



TOP VIEW



REAR VIEW

MODEL NO.	CFM	W1	W2	W3	APPROXIMATE SHIPPING WEIGHT (LBS)	APPROXIMATE INSTALLED WEIGHT (LBS)
UHF2	750	62	36	36	530	515
UHF3	1000	74	48	48	640	620
UHF4	1250	86	60	60	790	770
UHF5	1500	98	72	72	880	860

NOTE:

1. Drawing refers to Design "F" units.
2. All dimensions are in inches.
3. Dimension does not include end panels.
4. Two bottom panels provided for service access.
5. Motor and electrical power input box on right side of unit. Box includes Fan Speed switch and non-fused disconnect switch.

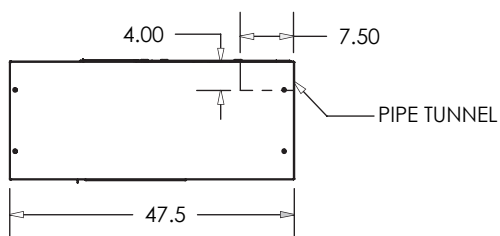
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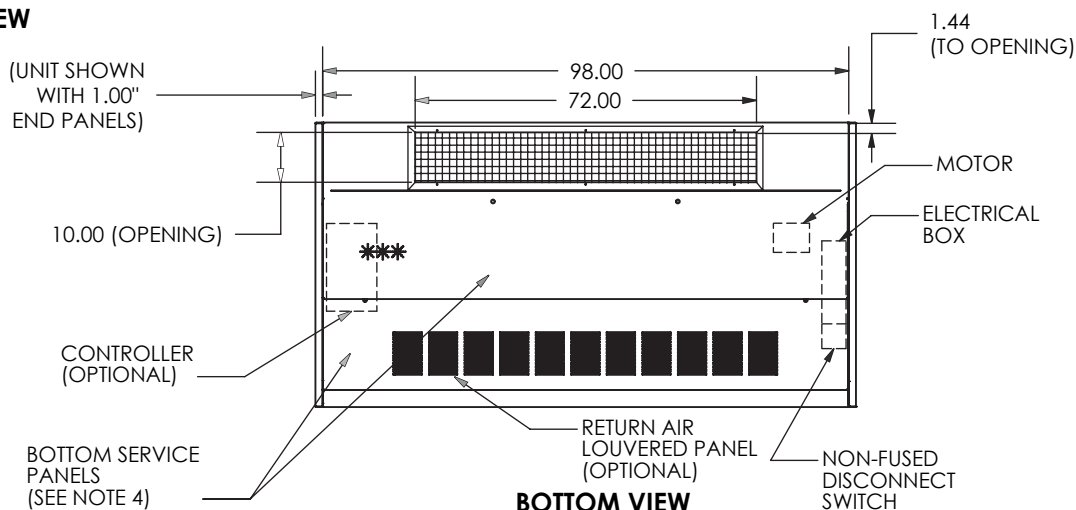
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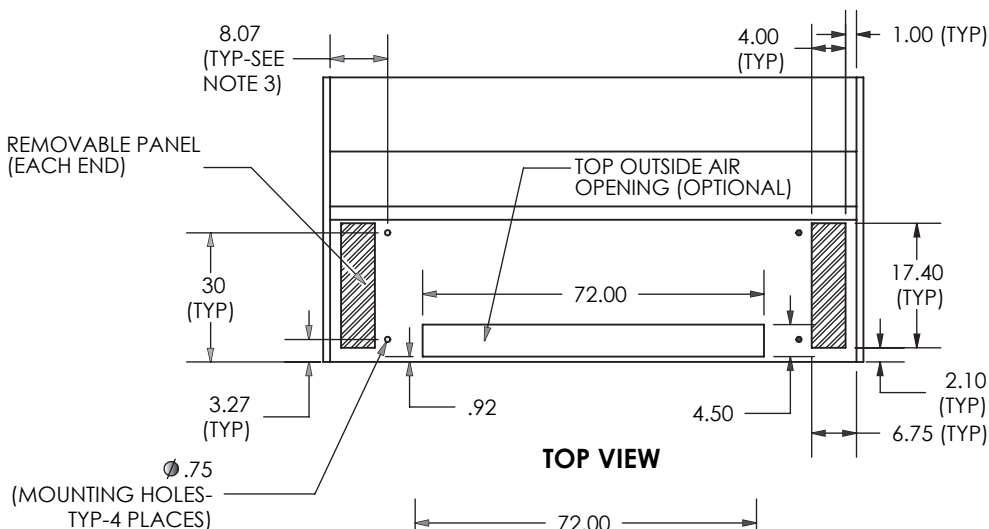
LEFT SIDE VIEW



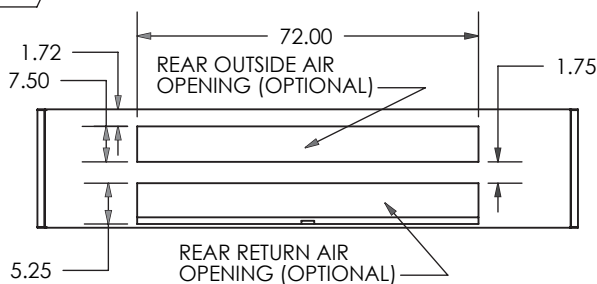
FRONT VIEW



BOTTOM VIEW



TOP VIEW



REAR VIEW

NOTE:

1. Drawing refers to Design "F" units.
2. All dimensions are in inches.
3. Dimension does not include end panels.
4. Two bottom panels provided for service access.
5. Motor and electrical power input box on right side of unit. Box includes Fan Speed switch and non-fused disconnect switch.
6. Connection hand is determined by facing discharge of unit.
7. Approx shipping weight is 1050 lbs. Approx installed weight is 1030 lbs.

Electrical Connections

Electrical Connections

Refer to unit serial plate for required supply voltage, amperage, and required circuit ampacities. Refer to unit wiring diagram for unit and field wiring.

Access to all electrical connections can be gained through the access panel at the right front side of unit. The fan motor should never be controlled by any wiring or device other than the factory-supplied switch or thermostat/switch combination unless prior factory authorization is obtained.

Fan motor may be temporarily wired for use during construction only with prior factory approval and only in strict accordance with the instructions issued at that time.

All electrical connections should be made by qualified personnel and be in accordance with governing codes and ordinances. Any modification of unit wiring without factory authorization will invalidate all factory warranties and nullify any agency listings.

For units with DX coils and Magic Aire DDC Controls, Magic Aire provides a relay that is to be field connected to the remote field supplied and installed compressor/condenser.

Magic Aire's control transformer is only to be used for factory supplied equipment. A separate transformer must be field supplied for field supplied equipment such as compressors. See unit wiring diagram for unit and field wiring.

For units with a two-pipe system and Magic Aire DDC Controls, a changeover (aquastat) is provided. The aquastat switch is factory wired to the DDC controller as shown on the unit wiring diagram. During installation in the field, this switch must be clamped onto the pipe supplying water to the unit upstream of the valve.

Field-supplied actuators must be mounted on 1/2 in. diameter damper shafts.

Electrical Heat

Electric heat is available in the reheat position only.

Electric heat elements are the open wire type mounted in individual heavy gauge galvanized steel frames and suspended in ceramic insulators.

Dual capillary type thermal sensing elements, one

automatic reset and one manual reset, is used to protect the unit from overheating in the event of abnormal operation.

Automatic Reset Limit is set at 210°F. The access for the limit switch is located on the same end of fan motor.

Manual Reset High Limit is set at 240°F. The access for the limit switch is located at opposite end of the fan motor.

WARNING

Proper Field Wiring and Grounding Required! All field wiring must be performed by qualified personnel. Improperly installed and grounded field wiring poses Fire and Electrocution hazards. To avoid these hazards, you must follow requirements for field wiring installation and grounding as described in NEC and your local/state electrical codes. Failure to follow code could result in death or serious injury.

WARNING

For use with copper conductors only.

WARNING

WARNING: Hazardous voltage. Only qualified personnel must install the electrical service. Disconnect and Lock Out all incoming power sources and ensure that all supply mains wiring is disconnected on all poles as allowed by the NEC and local codes before connecting, servicing, or installing unit.

WARNING: This appliance must be permanently grounded in accordance with the National Electrical Code and local code requirements. All field wiring must conform to the Class II temperature limitations described in the NEC.

Leak Sensor (Refrigerant Leak Detection System - RDS)

Refrigeration Leak Detection System

Refer to unit wiring diagram for unit and field wiring. If a unit is equip with RDS, see example wiring diagrams on following pages.

The field will need to wire the leak sensor alarm signal to fan relay (FR2-2 shown on unit wiring diagram). Fan Relay, FR2, contact opens on refrigerant leak detection.

Ensure the compressor is controlled OFF when a leak is detected.

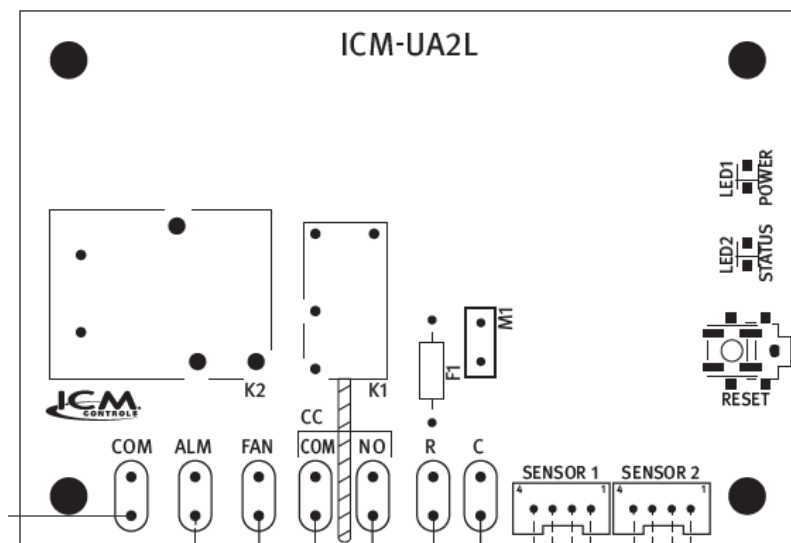
The leak detection system (RDS) consists of two refrigerant detection sensors. When the RDS detects a leak, the field provided and installed DDC Controls shall initiate mitigation:

- Energize the supply fans to deliver a required minimum amount of circulation airflow.
- Disable compressor operation.
- Disable electric heat if equpt.

If the refrigerant sensor has a fault, is at the end of its life, or is disconnected, the unit will initiate the mitigation actions. Mitigation actions may be verified by disconnecting the sensor.

The refrigerant sensors do not need service. Use only manufacturer-approved sensors when replacement is required.

Leak Detection System only suitable only for systems with POE 32 oil or less viscosity.



FAULT CODE

Status LED	Mode
Off	Normal operation
On	Sensor "warm up"
1-blink	LFL Fault
2-blink	Communication Fault

115V ~ Unit Ventilator with Electronic Motor DDC Ready Option, DX

CNSW	Condensate Switch	LLT	Water Coil Low Limit
CR	Control Relay	PS	Power Supply
DISC	Disconnect Switch	SW	Switch
FU	Fuse	TRAN	Transformer
HPS1	Ref. High Press Switch	TB	Terminal Block



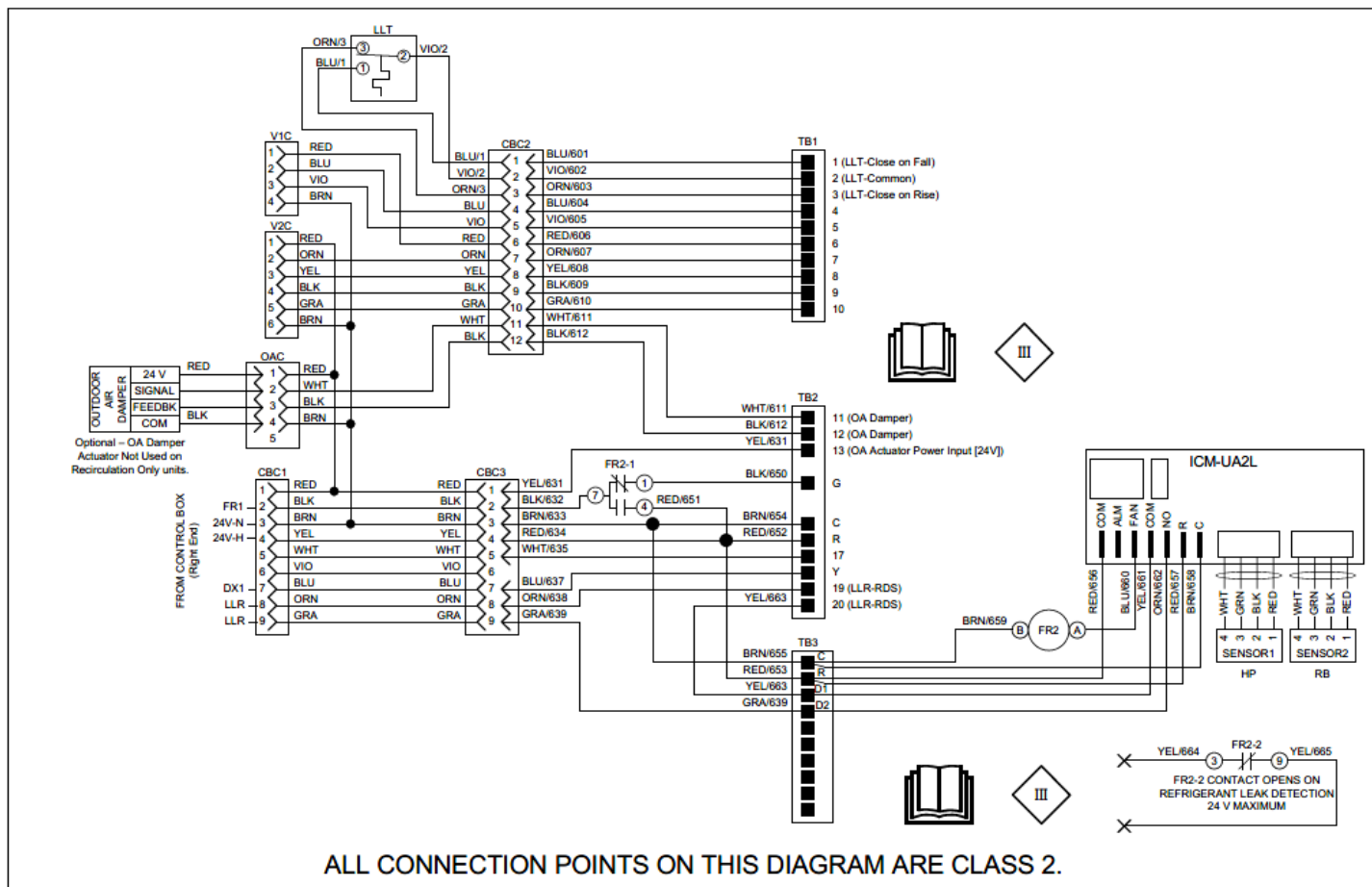
Electrical Connections

WIRING DIAGRAM

DDC Ready Wiring
Proportional OA Damper
DX Cooling with
Refrigeration Detection System

KEY

CNSW	Condensate Switch	LLT	Water Coil Low Limit
CR	Control Relay	PS	Power Supply
DISC	Disconnect Switch	SW	Switch
FU	Fuse	TRAN	Transformer
HPS1	Ref. High Press Switch	TB	Terminal Block



Electric Heater Data for Units with PSC Motor

UNIT	HP	NOMINAL V/Ph/Hz	NUMBER OF ELEMENTS	FLA	LAT (F)	MCA	MOCP	TOTAL CAPACITY (kW)
UV050 (at 500 Cfm)	1/5	208/1/60	3	17.2	90	21.5	25	3.2
			4	22.2	97	27.8	30	4.2
			5	27.3	104	34.1	35	5.3
			6	32.3	110	40.4	45	6.3
		240/1/60	3	19.5	97	24.4	25	4.2
			4	25.3	106	31.7	35	5.6
			5	31.2	115	39.0	40	7.0
			6	37.0	124	46.3	50	8.4
		277/1/60	3	16.8	97	21.0	25	4.2
			4	21.8	106	27.3	30	5.6
			5	26.9	115	33.6	35	7.0
			6	31.9	124	39.9	40	8.4
		208/3/60	3	10.8	90	13.5	15	3.2
			4	15.8	97	19.8	20	4.2
			5	19.5	104	24.4	25	5.3
			6	19.5	110	24.4	25	6.3
		240/3/60	3	12.1	97	15.1	20	4.2
			4	17.9	106	22.4	25	5.6
			5	22.2	115	27.8	30	7.0
			6	22.2	124	27.8	30	8.4
		460/3/60	3	6.0	97	7.5	15	4.2
			4	8.9	106	11.1	15	5.6
			5	11.0	115	13.8	15	7.0
			6	11.0	124	13.8	15	8.4
UV,UH075 (at 750 Cfm)	1/5	208/1/60	3	23.7	89	29.6	30	4.5
			4	30.9	96	38.6	40	6.0
			5	38.1	102	47.6	50	7.5
			6	45.3	108	56.7	60	9.0
		240/1/60	3	27.0	96	33.8	35	6.0
			4	35.3	104	44.2	45	8.0
			5	43.7	113	54.6	60	10.0
			6	52.0	121	65.0	70	12.0
		277/1/60	3	23.3	96	29.1	30	6.0
			4	30.5	104	38.1	40	8.0
			5	37.7	113	47.1	50	10.0
			6	44.9	121	56.2	60	12.0
		208/3/60	3	14.5	89	18.2	20	4.5
			4	21.7	96	27.2	30	6.0
			5	27.0	102	33.8	35	7.5
			6	27.0	108	33.8	35	9.0
		240/3/60	3	16.5	96	20.6	25	6.0
			4	24.8	104	31.0	35	8.0
			5	30.9	113	38.6	40	10.0
			6	30.9	121	38.6	40	12.0
		460/3/60	3	8.2	96	10.2	15	6.0
			4	12.3	104	15.4	20	8.0
			5	15.4	113	19.2	20	10.0
			6	15.4	121	19.2	20	12.0

LEGEND

DX	— Direct Expansion
FLA	— Full Load Amps
LAT	— Leaving-Air Temperature at 70 F Entering-Air Temperature
MCA	— Unit Minimum Circuit Ampacity
MOCP	— Maximum Overcurrent Protection (Maximum Fuse Size or Circuit Breaker Amps)
PSC	— Permanent Split Capacitor

*Left-hand coil connections only.

NOTES:

1. LAT (leaving-air temperature) (F) is measured at nominal cfm.
2. Water and DX coils used on electric heat units have left-hand coil connections.
3. Electric heat is available in the reheat position only and connections are on the right side.
4. Face and bypass units are available with 3 heating elements only.
5. The PSC motor is not available on unit size 200.

Electric Heater Data for Units with PSC Motor (cont)

UNIT	HP	NOMINAL V/Ph/Hz	NUMBER OF ELEMENTS	FLA	LAT (F)	MCA	MOCP	TOTAL CAPACITY (kW)
UV,UH100 (at 1000 Cfm)	1/5	208/1/60	3	30.9	89	38.6	40	6.0
			4	40.5	95	50.7	60	8.0
			5	50.2	102	62.7	70	10.0
			6	59.8	108	74.7	80	11.9
		240/1/60	3	35.3	96	44.2	45	8.0
			4	46.5	104	58.1	60	10.7
			5	57.6	112	72.0	80	13.3
			6	68.7	121	85.8	90	16.0
		277/1/60	3	30.5	96	38.1	40	8.0
			4	40.1	104	50.1	60	10.7
			5	49.7	112	62.2	70	13.3
			6	59.4	121	74.2	80	16.0
		208/3/60	3	18.7	89	23.4	25	6.0
			4	28.3	95	35.4	40	8.0
			5	35.4	102	44.3	45	10.0
			6	35.4	108	44.3	45	11.9
		240/3/60	3	21.3	96	26.6	30	8.0
			4	32.4	104	40.5	45	10.7
			5	40.5	112	50.7	60	13.3
			6	40.5	121	50.7	60	16.0
		460/3/60	3	10.6	96	13.2	15	8.0
			4	16.1	104	20.1	25	10.7
			5	20.2	112	25.2	30	13.3
			6	20.2	121	25.2	30	16.0
UV,UH125 (at 1250 Cfm)	1/5	208/1/60	3	38.1	89	47.6	50	7.5
			4	50.1	96	62.7	70	10.0
			5	62.2	102	77.7	80	12.5
			6	74.2	108	92.8	100	15.0
		240/1/60	3	43.7	96	54.6	60	10.0
			4	57.6	104	71.9	80	13.3
			5	71.4	113	89.3	90	16.7
			6*	85.3	121	106.7	110	20.0
		277/1/60	3	37.7	96	47.1	50	10.0
			4	49.7	104	62.2	70	13.3
			5	61.8	113	77.2	80	16.7
			6	73.8	121	92.2	100	20.0
		208/3/60	3	22.9	89	28.6	30	7.5
			4	34.9	96	43.6	45	10.0
			5	43.7	102	54.7	60	12.5
			6	43.7	108	54.7	60	15.0
		240/3/60	3	26.1	96	32.6	35	10.0
			4	40.0	104	50.0	50	13.3
			5	50.2	113	62.7	70	16.7
			6	50.2	121	62.7	70	20.0
		460/3/60	3	13.0	96	16.2	20	10.0
			4	19.9	104	24.9	25	13.3
			5	25.0	113	31.3	35	16.7
			6	25.0	121	31.3	35	20.0

LEGEND

DX	— Direct Expansion
FLA	— Full Load Amps
LAT	— Leaving-Air Temperature at 70 F Entering-Air Temperature
MCA	— Unit Minimum Circuit Ampacity
MOCP	— Maximum Overcurrent Protection (Maximum Fuse Size or Circuit Breaker Amps)
PSC	— Permanent Split Capacitor

*Left-hand coil connections only.

NOTES:

1. LAT (leaving-air temperature) (F) is measured at nominal cfm.
2. Water and DX coils used on electric heat units have left-hand coil connections.
3. Electric heat is available in the reheat position only and connections are on the right side.
4. Face and bypass units are available with 3 heating elements only.
5. The PSC motor is not available on unit size 200.

Electric Heater Data for Units with PSC Motor (cont)

UNIT	HP	NOMINAL V/Ph/Hz	NUMBER OF ELEMENTS	FLA	LAT (F)	MCA	MOCP	TOTAL CAPACITY (kW)
UV,UH150 (at 1500 Cfm)	1/5	208/1/60	3	45.3	89	56.7	60	9.0
			4	59.8	96	74.7	80	12.0
			5	74.2	102	92.8	100	15.0
			6*	88.7	108	110.8	125	18.0
		240/1/60	3	52.0	96	65.0	70	12.0
			4	68.7	104	85.8	90	16.0
			5*	85.3	113	106.7	110	20.0
			6	—	—	—	—	—
		277/1/60	3	44.9	96	56.2	60	12.0
			4	59.4	104	74.2	80	16.0
			5	73.8	113	92.3	100	20.0
			6	—	—	—	—	—
		208/3/60	3	27.0	89	33.8	35	9.0
			4	41.5	96	51.9	60	12.0
			5	52.1	102	65.1	70	15.0
			6	52.1	108	65.1	70	18.0
		240/3/60	3	30.9	96	38.6	40	12.0
			4	47.6	104	59.5	60	16.0
			5	59.8	113	74.8	80	20.0
			6	59.8	121	74.8	80	24.0
		460/3/60	3	15.4	96	19.2	20	12.0
			4	23.7	104	29.6	30	16.0
			5	29.8	113	37.3	40	20.0
			6	29.8	121	37.3	40	24.0

LEGEND

DX	—	Direct Expansion
FLA	—	Full Load Amps
LAT	—	Leaving-Air Temperature at 70 F Entering-Air Temperature
MCA	—	Unit Minimum Circuit Ampacity
MOCP	—	Maximum Overcurrent Protection (Maximum Fuse Size or Circuit Breaker Amps)
PSC	—	Permanent Split Capacitor

*Left-hand coil connections only.

NOTES:

1. LAT (leaving-air temperature) (F) is measured at nominal cfm.
2. Water and DX coils used on electric heat units have left-hand coil connections.
3. Electric heat is available in the reheat position only and connections are on the right side.
4. Face and bypass units are available with 3 heating elements only.
5. The PSC motor is not available on unit size 200.

Electric Heater Data for Units with ECM

UNIT	HP	NOMINAL V/Ph/Hz	NUMBER OF ELEMENTS	FLA	LAT (F)	MCA	MOCP	TOTAL CAPACITY (kW)
UV050 (at 500 Cfm)	1/3	208/1/60	3	16.5	90	20.6	25	3.2
			4	21.5	97	26.9	30	4.2
			5	26.6	104	33.2	35	5.3
			6	31.6	110	39.5	40	6.3
		240/1/60	3	18.8	97	23.5	25	4.2
			4	24.6	106	30.8	35	5.6
			5	30.5	115	38.1	40	7.0
			6	36.3	124	45.4	50	8.4
		277/1/60	3	16.3	97	20.3	25	4.2
			4	21.3	106	26.6	30	5.6
			5	26.4	115	33.0	35	7.0
			6	31.4	124	39.3	40	8.4
		208/3/60	3	10.1	90	12.6	15	3.2
			4	15.1	97	18.9	20	4.2
			5	18.8	104	23.5	25	5.3
			6	18.8	110	23.5	25	6.3
		240/3/60	3	11.4	97	14.3	15	4.2
			4	17.2	106	21.6	25	5.6
			5	21.5	115	26.9	30	7.0
			6	21.5	124	26.9	30	8.4
		460/3/60	3	5.4	97	6.8	15	4.2
			4	8.3	106	10.4	15	5.6
			5	10.5	115	13.1	15	7.0
			6	10.5	124	13.1	15	8.4
UV,UH075 (at 750 Cfm)	1/3	208/1/60	3	24.0	89	30.0	30	4.5
			4	31.2	96	39.0	40	6.0
			5	38.4	102	48.0	50	7.5
			6	45.6	108	57.0	60	9.0
		240/1/60	3	27.3	96	34.1	35	6.0
			4	35.6	104	44.5	45	8.0
			5	44.0	113	55.0	60	10.0
			6	52.3	121	65.4	70	12.0
		277/1/60	3	23.7	96	29.6	30	6.0
			4	30.9	104	38.6	40	8.0
			5	38.1	113	47.6	50	10.0
			6	45.3	121	56.7	60	12.0
		208/3/60	3	14.8	89	18.5	20	4.5
			4	22.0	96	27.6	30	6.0
			5	27.3	102	34.2	35	7.5
			6	27.3	108	34.2	35	9.0
		240/3/60	3	16.8	96	20.9	25	6.0
			4	25.1	104	31.4	35	8.0
			5	31.2	113	39.0	40	10.0
			6	31.2	121	39.0	40	12.0
		460/3/60	3	8.2	96	10.2	15	6.0
			4	12.3	104	15.4	20	8.0
			5	15.4	113	19.2	20	10.0
			6	15.4	121	19.2	20	12.0

LEGEND

DX	— Direct Expansion
ECM	— Electronically Commutated Motor
FLA	— Full Load Amps
LAT	— Leaving-Air Temperature at 70 F Entering-Air Temperature
MCA	— Unit Minimum Circuit Ampacity
MOCP	— Maximum Overcurrent Protection (Maximum Fuse Size or Circuit Breaker Amps)

NOTES:

1. LAT (leaving-air temperature) (F) is measured at nominal cfm.
2. Water and DX coils used on electric heat units have left-hand coil connections.
3. Electric heat is available in the reheat position only and connections are on the right side.
4. Face and bypass units are available with 3 heating elements only.

*Left hand coil connections only.

Electric Heater Data for Units with ECM (cont)

UNIT	HP	NOMINAL V/Ph/Hz	NUMBER OF ELEMENTS	FLA	LAT (F)	MCA	MOCP	TOTAL CAPACITY (kW)
UV,UH100 (at 1000 Cfm)	$\frac{1}{3}$	208/1/60	3	31.5	89	39.4	40	6.0
			4	41.1	95	51.4	60	8.0
			5	50.8	102	63.4	70	10.0
			6	60.4	108	75.5	80	11.9
		240/1/60	3	35.9	96	44.9	45	8.0
			4	47.1	104	58.8	60	10.7
			5	58.2	112	72.7	80	13.3
			6	69.3	121	86.6	90	16.0
		277/1/60	3	31.2	96	39.0	40	8.0
			4	40.8	104	51.0	60	10.7
			5	50.4	112	63.1	70	13.3
			6	60.1	121	75.1	80	16.0
		208/3/60	3	19.3	89	24.1	25	6.0
			4	28.9	95	36.2	40	8.0
			5	36.0	102	45.0	50	10.0
			6	36.0	108	45.0	50	11.9
		240/3/60	3	21.9	96	27.3	30	8.0
			4	33.0	104	41.2	45	10.7
			5	41.1	112	51.4	60	13.3
			6	41.1	121	51.4	60	16.0
		460/3/60	3	10.6	96	13.3	15	8.0
			4	16.2	104	20.2	25	10.7
			5	20.3	112	25.3	30	13.3
			6	20.3	121	25.3	30	16.0
UV,UH125 (at 1250 Cfm)	$\frac{1}{2}$	208/1/60	3	39.4	89	49.3	50	7.5
			4	51.5	96	64.3	70	10.0
			5	63.5	102	79.4	80	12.5
			6	75.5	108	94.4	100	15.0
		240/1/60	3	45.0	96	56.2	60	10.0
			4	58.9	104	73.6	80	13.3
			5	72.7	113	90.9	100	16.7
			6*	86.6	121	108.3	110	20.0
		277/1/60	3	39.0	96	48.7	50	10.0
			4	51.0	104	63.8	70	13.3
			5	63.1	113	78.8	80	16.7
			6	75.1	121	93.9	100	20.0
		208/3/60	3	24.2	89	30.2	35	7.5
			4	36.2	96	45.3	50	10.0
			5	45.0	102	56.3	60	12.5
			6	45.0	108	56.3	60	15.0
		240/3/60	3	27.4	96	34.2	35	10.0
			4	41.3	104	51.6	60	13.3
			5	51.5	113	64.3	70	16.7
			6	51.5	121	64.3	70	20.0
		460/3/60	3	13.2	96	16.5	20	10.0
			4	20.2	104	25.2	30	13.3
			5	25.3	113	31.6	35	16.7
			6	25.3	121	31.6	35	20.0

LEGEND

DX	— Direct Expansion
ECM	— Electronically Commutated Motor
FLA	— Full Load Amps
LAT	— Leaving-Air Temperature at 70 F Entering-Air Temperature
MCA	— Unit Minimum Circuit Ampacity
MOCP	— Maximum Overcurrent Protection (Maximum Fuse Size or Circuit Breaker Amps)

*Left hand coil connections only.

NOTES:

1. LAT (leaving-air temperature) (F) is measured at nominal cfm.
2. Water and DX coils used on electric heat units have left-hand coil connections.
3. Electric heat is available in the reheat position only and connections are on the right side.
4. Face and bypass units are available with 3 heating elements only.

Electric Heater Data for Units with ECM (cont)

UNIT	HP	NOMINAL V/Ph/Hz	NUMBER OF ELEMENTS	FLA	LAT (F)	MCA	MOCP	TOTAL CAPACITY (kW)
UV,UH150 (at 1500 Cfm)	$\frac{1}{2}$	208/1/60	3	46.7	89	58.3	60	9.0
			4	61.1	96	76.4	80	12.0
			5	75.6	102	94.4	100	15.0
			6*	90.0	108	112.5	125	18.0
		240/1/60	3	53.3	96	66.6	70	12.0
			4	70.0	104	87.5	90	16.0
			5*	86.6	113	108.3	110	20.0
			6	—	—	—	—	—
		277/1/60	3	46.2	96	57.8	60	12.0
			4	60.7	104	75.8	80	16.0
			5	75.1	113	93.9	100	20.0
			6	—	—	—	—	—
		208/3/60	3	28.3	89	35.4	40	9.0
			4	42.8	96	53.5	60	12.0
			5	53.4	102	66.7	70	15.0
			6	53.4	108	66.7	70	18.0
		240/3/60	3	32.2	96	40.3	45	12.0
			4	48.9	104	61.1	70	16.0
			5	61.1	113	76.4	80	20.0
			6	61.1	121	76.4	80	24.0
		460/3/60	3	15.6	96	19.5	20	12.0
			4	24.0	104	30.0	30	16.0
			5	30.1	113	37.6	40	20.0
			6	30.1	121	37.6	40	24.0
UH200 (at 2000 Cfm)	$\frac{3}{4}$	208/1/60	3	50.1	84	62.7	70	9.0
			4	64.6	89	80.7	90	12.0
			5	79.0	94	98.8	100	15.0
			6*	93.5	99	116.8	125	18.0
		240/1/60	3	56.8	89	71.0	80	12.0
			4	73.5	96	91.8	100	16.0
			5*	90.1	102	112.7	125	20.0
			6	—	—	—	—	—
		277/1/60	3	48.8	89	61.0	70	12.0
			4	63.3	96	79.1	80	16.0
			5	77.7	102	97.1	100	20.0
			6	—	—	—	—	—
		208/3/60	3	31.8	84	39.8	40	9.0
			4	46.3	89	57.9	60	12.0
			5	56.9	94	71.1	80	15.0
			6	56.9	99	71.1	80	18.0
		240/3/60	3	35.7	89	44.6	45	12.0
			4	52.4	96	65.5	70	16.0
			5	64.6	102	80.8	90	20.0
			6	64.6	108	80.8	90	24.0
		460/3/60	3	16.9	89	21.1	25	12.0
			4	25.2	96	31.5	35	16.0
			5	31.3	102	39.1	40	20.0
			6	31.3	108	39.1	40	24.0

LEGEND

DX	— Direct Expansion
ECM	— Electronically Commutated Motor
FLA	— Full Load Amps
LAT	— Leaving-Air Temperature at 70 F Entering-Air Temperature
MCA	— Unit Minimum Circuit Ampacity
MOCP	— Maximum Overcurrent Protection (Maximum Fuse Size or Circuit Breaker Amps)

NOTES:

1. LAT (leaving-air temperature) (F) is measured at nominal cfm.
2. Water and DX coils used on electric heat units have left-hand coil connections.
3. Electric heat is available in the reheat position only and connections are on the right side.
4. Face and bypass units are available with 3 heating elements only.

*Left hand coil connections only.

Motor Data

PSC Motor Data

UNIT	UV,UH SIZE	MOTOR Hp	VOLTAGE	FLA	MCA	MOP (Amps)	MAX FUSE SIZE (Amps)
050*		1/5	115	3.7	4.6	8.3	15
			208/230	2.0	2.5	4.5	15
			265	1.6	2.0	3.6	15
075		1/5	115	3.7	4.6	8.3	15
			208/230	2.0	2.5	4.5	15
			265	1.6	2.0	3.6	15
100		1/5	115	3.7	4.6	8.3	15
			208/230	2.0	2.5	4.5	15
			265	1.6	2.0	3.6	15
125		1/5	115	3.7	4.6	8.3	15
			208/230	2.0	2.5	4.5	15
			265	1.6	2.0	3.6	15
150		1/5	115	3.7	4.6	8.3	15
			208/230	2.0	2.5	4.5	15
			265	1.6	2.0	3.6	15

ECM Motor Data

UNIT	UV,UH SIZE	MOTOR Hp	VOLTAGE	FLA	MCA	MOP (Amps)	MAX FUSE SIZE (Amps)
050*		1/3	115	1.4	1.8	3.1	15
			208/230	1.3	1.6	2.9	15
			265	1.1	1.4	2.6	15
075		1/3	115	3.7	4.6	8.3	15
			208/230	2.3	2.9	5.1	15
			265	2.0	2.5	4.5	15
100		1/3	115	4.0	5.0	9.1	15
			208/230	2.6	3.2	5.8	15
			265	2.3	2.9	5.1	15
125		1/2	115	4.7	5.9	10.6	15
			208/230	3.3	4.1	7.4	15
			265	2.9	3.6	6.6	15
150		1/2	115	4.7	5.9	10.6	15
			208/230	3.3	4.1	7.4	15
			265	2.9	3.6	6.6	15
200†		3/4	115	9.6	12.0	21.6	20
			208/230	6.8	8.5	15.3	15
			265	5.5	6.9	12.4	15

LEGEND

ECM — Electronically Commutated Motor
FLA — Full Load Amps
MCA — Minimum Circuit Amps
MOP — Maximum Overload Protection
PSC — Permanent Split Capacitor

*Available in vertical configuration only.

†Available in horizontal configuration only.

NOTE: The PSC motor is not available on unit size 200.

Make Duct Connections — If applicable install all ductwork to and from unit in accordance with all applicable codes. Duct construction must allow unit to operate within duct external static pressure limits as shown on job submittals and in Tables 5 and 6. Duct opening should be the same size as the unit. For UH units ducted to multiple openings, allow adequate straight duct, as shown below, immediately after the unit.

UH	075	100	125	150	200
Minimum Straight Duct Required (Length in inches)	45	52	58	63	75

⚠ CAUTION

Units designed to operate with ductwork may be damaged if operated without intended ductwork attached.

Ensure that units ducted to multiple openings have sufficient straight duct immediately after the unit.

Units provided with outside air must utilize the low-temperature safety switch to prevent coil freeze-up.

Insulate all ductwork as required. Use flexible connections to minimize duct-to-unit alignment problems and noise transmission where specified.

Install ductwork, grilles, and plenums so that they do not restrict access to filter.

Cut openings for supply and return air grilles, thermostats, and switch plates where specified on job drawings. Be careful not to cut wires, piping, or structural supports. Use a steel thermostat shield ring to protect drywall from thermostat wiring where applicable.

Prevent dust and debris from settling in unit. If wall finish or color is to be applied by spraying, cover all openings to prevent spray from entering unit.

Table 5 — Unit Ventilator Airflow — PSC Motor*

FACTORY SETTINGS — CHILLED WATER COIL APPLICATIONS								
Unit	Speed	Approximate Air Delivery (Cfm)						
		1-row	2-row	3-row	4-row	5-row	6-row	7-row
UV050	Max	522	510	497	485	490	489	457
	High	503	490	476	464	473	476	444
	Low	458	449	440	425	452	455	430
UV,UH075	Max	806	778	750	747	766	732	697
	High	682	664	645	629	621	596	570
	Low	569	554	539	527	533	514	495
UV,UH100	Max	1064	1033	1001	1013	973	980	967
	High	662	659	655	642	763	740	717
	Low	530	519	507	503	498	501	504
UV,UH125	Max	1295	1285	1215	1218	1239	1250	1175
	High	899	930	876	865	852	846	846
	Low	568	616	597	570	568	558	573
UV,UH150	Max	1542	1480	1500	1484	1468	1482	1374
	High	1071	1068	1065	1034	1033	1031	1013
	Low	812	801	790	881	848	842	799
FACTORY SETTINGS — ELECTRIC HEAT/DX COIL APPLICATIONS								
Unit	Speed	Approximate Air Delivery (Cfm)						
		1-row	2-row	3-row	4-row	5-row	6-row	7-row
UV050	Max	522	510	497	485	490	489	457
	High	503	490	476	464	452	455	430
	Low	458	449	440	425	410	414	406
UV,UH075	Max	806	778	750	747	766	732	697
	High	682	664	645	629	621	596	570
	Low	569	554	539	527	533	514	495
UV,UH100	Max	1064	1033	1001	1013	973	980	967
	High	794	788	782	773	857	834	810
	Low	662	659	655	642	628	620	611
UV,UH125	Max	1295	1285	1215	1218	1239	1250	1175
	High	1055	1040	1024	995	1099	1091	1052
	Low	738	767	732	719	987	986	964
UV,UH150	Max	1542	1480	1500	1484	1468	1482	1374
	High	1285	1257	1229	1248	1246	1239	1199
	Low	934	928	922	901	1033	1031	1013

LEGEND

CW — Chilled Water Applications
DX — Direct Expansion
HW — Hot Water
PSC — Permanent Split Capacitor

*Standard on sizes 050-150.

NOTE: Use the table below to determine the heating and cooling coil combinations available with PSC motor operation.

COOLING COIL	HEATING COIL		
	HW	Steam	Electric
5 Rows CW	1 or 2 rows	N/A	3 elements
4 Rows CW or DX†	3 rows	1 or 2 rows	4 elements
3 Rows CW	4 rows	1 or 2 rows	5 or 6 elements

†DX cooling applications are only available in 4-row cooling configuration.

Unit Ventilator Airflow — ECM Airflow

UNIT SIZE	MOTOR HP	COIL TYPE	APPROXIMATE AIR DELIVERY (Cfm)											
			ESP Speed Board Position											
			Low Position (0.0 in. wg)			Med Position (0.10 in. wg)			High Position (0.25 in. wg)			Max Position (0.45 in. wg)		
			Max	High	Low	Max	High	Low	Max	High	Low	Max	High	Low
UV050	¹ / ₃	CW	499	336	248	—	—	—	—	—	—	—	—	—
		3-4EH/DX	499	419	336	—	—	—	—	—	—	—	—	—
		5-6EH	491	380	324	—	—	—	—	—	—	—	—	—
UV,UH075	¹ / ₃	CW	747	484	346	753	548	432	752	530	437	751	541	386
		3-4EH/DX	747	644	498	753	609	472	752	612	470	751	618	498
		5-6EH	755	645	583	746	598	539	755	585	554	765	610	542
UV,UH100	¹ / ₃	CW	997	703	505	987	693	543	1012	663	483	994	692	480
		3-4EH/DX	997	853	615	987	850	639	1012	823	626	994	819	618
		5-6EH	1016	819	719	1002	851	709	1024	798	787	1024	820	734
UV,UH125	¹ / ₂	CW	1266	880	657	1239	905	609	1235	898	676	1231	898	627
		3-4EH/DX	1266	1023	769	1239	1055	758	1235	1037	765	1231	1010	778
		5-6EH	1259	1049	897	1239	995	888	1226	995	888	1253	994	919
UV,UH150	¹ / ₂	CW	1503	1033	775	1479	1046	712	1494	1020	770	1486	1075	737
		3-4EH/DX	1503	1246	956	1479	1216	965	1494	1209	927	1486	1222	917
		5-6EH	1517	1222	1068	1490	1206	1087	1498	1159	1120	1503	1188	1074
UH200	³ / ₄	ALL	2014	1384	1023	1981	1386	971	1965	1385	997	1814	1354	993

LEGEND

3-4EH/DX — Direct Expansion Coil Applications with 3 to 4 Elements of Electric Heat
5-6EH — 5 to 6 Elements of Electric Heat
CW — Chilled Water Applications
ECM — Electronically Commutated Motor
ESP — External Static Pressure

NOTES:

1. Factory default is Low Position.
2. Med, High, and Max positions are field settings.

Make Piping Connections

Access to piping is available through the access panels at the front, top, or end of the vertical unit (horizontal access from bottom or side). Route piping through the pipe tunnel or the unit's back panel or floor panel. When making solder connections care **MUST** be taken to prevent the dripping of solder or other debris onto the insulation, control wiring, control box, actuators, and DDC controller (if so equipped).

While using a torch anywhere in the unit care must be taken to not burn any components. The metal blank off panels must be refitted around the piping to restore installation integrity.

All piping connections must be performed by qualified personnel in accordance with local and national codes.

Drain Connections

Condensate drain connections are located on each end of the drain pan near the bottom of the UVF and UHF units. Access by removing end panel.

NOTE: The Drainpan is sloped toward side with largest coil's connections or the DX coil connections (i.e. for a unit with a 2-row right hand water coil and a 4-row left hand water coil, the drainpan is sloped down to the left hand side). The uphill connection is sealed with a plug. Downhill field connection is covered with plastic cap except when the drainpan is stainless steel, then both connections are sealed with a plug. Remove cap (or plug on stainless steel) on the downhill connection. Do not remove the high side drain connection plug.

The slope may be reversed in field by removing the drainpan screws (2ea per side), shifting the drainpan up to the opposite set of holes and sealing the uphill connection. See Figure 3A for UHF and Figure 3B for UVF.

Condensate drain line must be $\frac{3}{4}$ in. copper tubing, galvanized pipe, PVC or similar plastic pipe. Install drain line in accordance with all applicable codes. Insulate the drain line to prevent sweating. See Fig. 4 for typical drain trap construction.

Units with cooling coils require traps to prevent air from entering the condensate fitting and preventing proper drainage. Drain must be sloped downhill from the unit a minimum of $\frac{1}{8}$ in. per ft. Drain must be free and clear at all times. It is not recommended to tie multiple units into one condensate line due to potential for overflow.

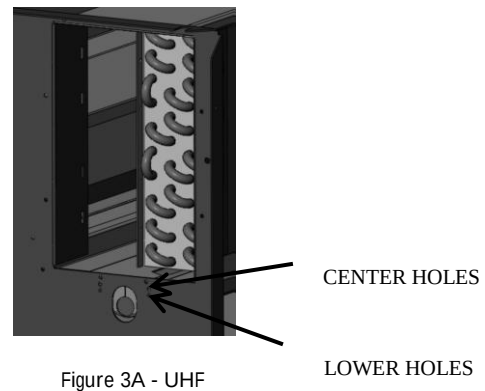


Figure 3A - UHF

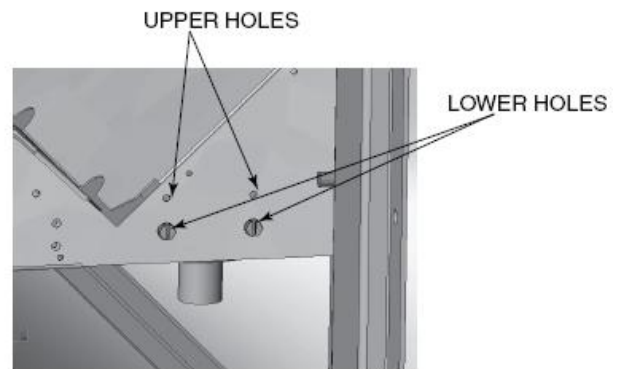


Figure 3B - UVF

Figures 3A and 3B show drain pan connections on the coil section ends for UHF and UVF respectively. Reverse slope by reversing connections on each side.

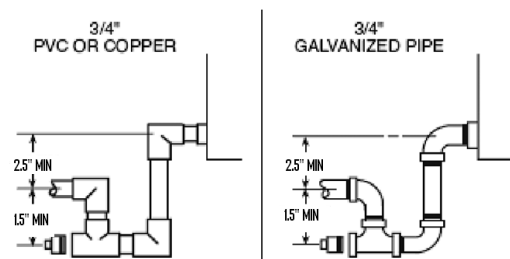


Figure 4
Typical Condensate Drain Trap Construction

Water Supply/Return Connections

Install piping in accordance with all applicable codes. All piping must be supported separately from coils. Water supply must be connected so that entering water is on leaving-air side of coil. See the connection labels on the unit to locate the inlet. Coils must be adequately vented to prevent air binding. Be sure valves are in proper operating position and are easily accessible for adjustment.

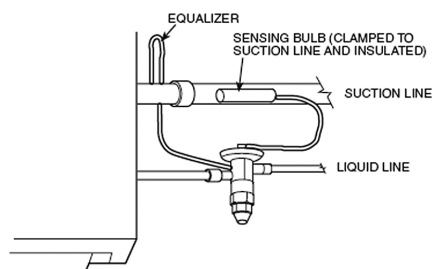
If coil and valve package connections will be made with a solder joint, care should be taken to ensure that components in the valve package are not subjected to high temperatures which may damage seals or other materials.

If coil connection is made with a union, the coil side of the union must be prevented from turning (it must be backed up) during tightening. Do not overtighten! Overtightening will distort (egg shape) the union seal surface and destroy the union.

Direct Expansion Refrigerant Piping

Use the condensing unit manufacturer's recommended line sizes and requirements. Perform leak test using nitrogen. Evacuate and charge per recommended heating, ventilation, and air conditioning (HVAC) procedures and all applicable codes. Insulate suction line after leak test up to the coil section end plate for correct operation and to eliminate sweating. Use refrigerant-grade copper lines only. R-22 units are not to be applied as a heat pump.

See Figure 5 for refrigerant piping connections with recommended locations for the thermostatic expansion valve (TXV) and sensing bulb.



NOTE: Follow TXV manufacturer's instructions.

Figure 5

Locate bulb in horizontal run from approximately the 9:00 to 3:00 position or in a vertical run.

Hydronic Coil Piping

When all joints are complete, perform hydrostatic test for leaks. Vent all coils at this time. Check interior unit piping for signs of leakage from shipping damage or mishandling. If leaks are found, notify Magic Aire before initiating any repairs. Release trapped air from system (refer to Final Preparations section).

Following the hydrostatic test the installer shall insulate all piping up to the coil section end plate to prevent condensation ("sweating") and heat loss. Insure that factory provided valve packages are properly insulated. Piping insulation is the responsibility of the installer and should be of suitable thickness to prevent sweating and with adequate vapor barrier.

To ensure compliance with building codes, restore the structure's original fire resistance rating by sealing all holes with material carrying the same fire rating as the structure.

Note: A Low Limit stat is factory installed on all coils

CAUTION

All water coils must be protected from freezing after initial filling with water. Even if system is drained, unit coils may still have enough remaining water to cause damage when exposed to temperatures below freezing.

Steam Connections

On units with steam heating coils, the maximum steam pressure applied to the unit should never exceed 6 psig.

Magic Aire recommends Float & Thermostatic ("F&T") type steam traps for best results. However, other styles may work and selection is the responsibility of the customer.

Sizing and selection of the steam trap and design of the steam system piping should be done with the recommendation of the steam trap supplier.

Vacuum breaker is factory supplied with the unit ventilator steam coil, and must be field piped to a location downstream of the trap to allow vacuum relief when the coil is turned off.

In all situations, the steam piping connected to the unit should be designed and installed according to good piping practices for steam systems.

Control Valves

Water valves can be either 2-way or 3-way.

Hot water valves are piped normally open to the coil.

Chilled water valves are piped normally closed to the coil.

On 2 pipe heat/cool applications, the valves are piped as though heating valves (Normally Open).

Piping packages are installed and tested in the factory to ensure proper operation and leak tightness.

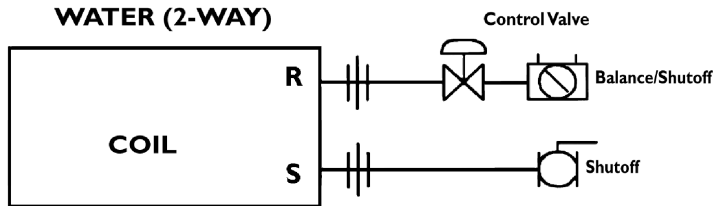
The packages are disconnected at the unions and shipped in the end compartments.

All water coils contain vent and drain plugs as standard.

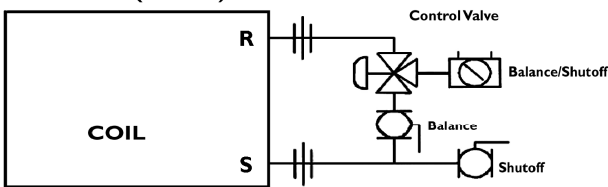
Control valve and all components by the factory, unless otherwise indicated.

Valve packages must always be field insulated to prevent sweating.

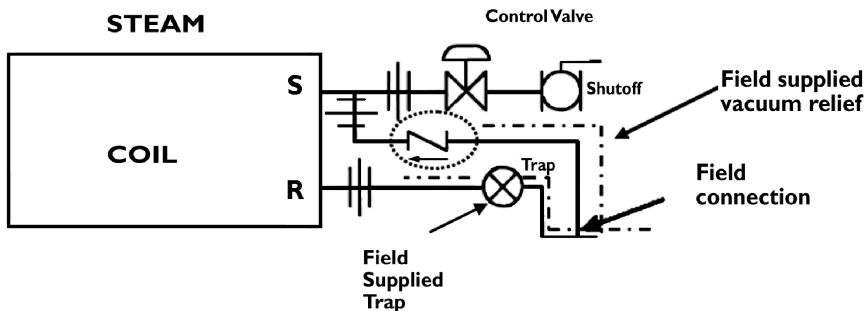
WATER (2-WAY)



WATER (3-WAY)



STEAM



LEGEND

--- Field supplied and installed piping

○ Factory supplied vacuum breaker assembly. Field install in vertical orientation with flow arrow up and piping down so that ball seats with gravity.

Piping Connections

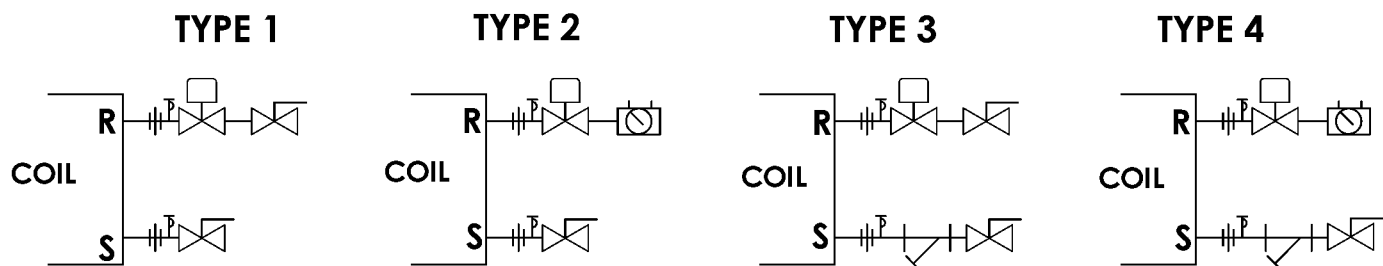
Control Valves and Valve Piping

Water valves can be either 2 way or 3 way. Hot Water valves are piped normally open to the coil. Piping packages are installed and tested in the factory to ensure proper operation and leak tightness. The packages are disconnected at the unions and shipped in the end compartments. All water coils contain vent and drain plugs as standard. Control valve and all components by the factory, unless otherwise indicated. Valve packages must always be field insulated to prevent sweating.

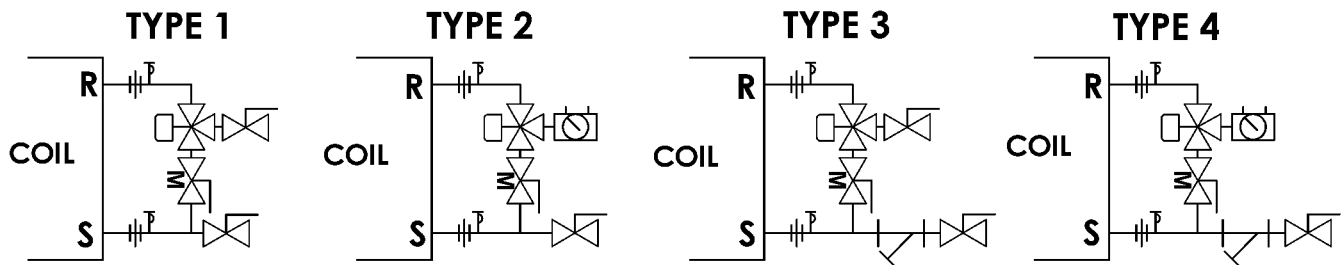
NOTICE

Be sure to install the control valve(s) on the correct unit ventilator. Mixing the valves in the field can result in valves improperly sized for the desired flow rate, which can result in poor operation and coil freeze-ups. Install valve so there is at least 2" (55 mm) minimum clearance to remove the actuator from valve body.

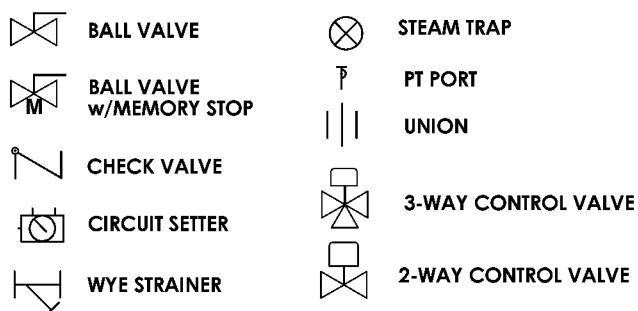
Two Way - Valve Package Components



Three Way - Valve Package Components



LEGEND



Piping Considerations

Water Quality Standards

Magic Aire provides Water Quality guidelines, but it is the responsibility of the user to check that the water supply to the units is free of contaminants or corrosive agents, chemicals or minerals. The general contractor or owner should contact a local water treatment company regarding water treatment.

Magic Aire Water Quality Guidelines		
For Heat Exchanger Coils with Copper Tubes		
Condition	Acceptable Level	
pH	7 to 9	
Total Hardness	Calcium and magnesium carbonate should not exceed 20 grains per gallon (350 ppm).	
Iron Oxides	< 1 ppm.	
Iron Bacteria	No level allowable.	
Brackish	Calcium or sodium chloride concentrations < 125 ppm. (Seawater is approximately 25,000 ppm)	
Corrosion ¹		
	Ammonia, Ammonium Hydroxide	0.5 ppm
	Ammonium Chloride, Ammonium Nitrate	0.5 ppm
	Ammonium Sulfate	0.5 ppm
	Chlorine/Chlorides	0.5 ppm
	Hydrogen Sulfide ²	None Allowable

NOTES:

1. If the concentration of these corrosives exceeds the maximum allowable level, then the potential for serious corrosion problems exists.
2. Sulfides in the water quickly oxidize when exposed to air, requiring that no agitation occur as the sample is taken. Unless tested immediately at the site, the sample will require stabilization with a few drops of one Molar zinc acetate solution, allowing accurate sulfide determination up to 24 hours after sampling. A low pH and high alkalinity cause system problems, even when both values are within ranges shown. The term pH refers to the acidity, basicity, or neutrality of the water supply. Below 7.0, the water is considered to be acidic. Above 7.0, water is considered to be basic. Neutral water contains a pH of 7.0.
3. To convert ppm to grains per gallon, divide by 17. Hardness in mg/l is equivalent to ppm.

Maximum Refrigerant Charge and Minimum Room Area

(this section only applies to units with A2L Refrigerants such as R-32 and R454B. There is no minimum area requirements for units with R-22 or R-410A)

See Installation Manual Addendum for units with flammable A2L refrigerants

Magic Aire refrigerant products that include a A2L refrigerant coil comply with UL safety standard UL 60335, which defines safe design and use strategies for equipment using A2L refrigerants. This standard limits the refrigerant concentration in a space in the event of a refrigerant leak.

To meet the requirements, the UL standard defines minimum room area, refrigerant charge limit, and minimum ventilation airflow requirements and/or use of a unit refrigerant leak detection system.

Minimum Room Area Limits Equipment with R-454B charge greater than 3.9 lb per circuit and R-32 charge greater than 4.0 lb per circuit may require additional circulation, ventilation airflow, or leak sensor mitigation strategies if the Minimum Room Service Area is less than the minimum Area required shown in the table on next page. There are two Minimum Areas shown on the table:

Area Min - the column with the larger area required. For units without a leak sensor or continuous fan ventilation.

Area Min Sensor or Ventilation - the column with the smaller area shown. For units equipped with a leak sensor or for units that are capable of continuous ventilation.

Min Vent CFM - For units equipped with a leak sensor or continuous fan ventilation.

Split systems minimum room area requirements need to be determined after final field charging. The following table is for reference only. Charge weight may vary 30% or more depending on installation and condenser design. Consult the condenser manual for recommended charge weight. Use the tables from our “Installation Manual Addendum for units with flammable refrigerants” also shipped with unit to determine the systems Amin value. Record the final charge value on the label provided on the unit.

WARNING

Failure to install units in areas that meet these requirements could result in death or serious injury.

If unit is connected via an air duct system to one or more rooms with A2L refrigerants and are installed in a room with an area less than Amin as determined in Installation and Maintenance manual or installed in a room with an effective dispersal volume less than the minimum as found in the Installation and Maintenance manual, that room shall be without continuously operating open flames (e.g. an operating gas appliance) or other potential ignition sources (for e.g. an operating electric heater, hot surfaces).

For units using A2L refrigerants connected via an air duct system to one or more rooms, all approved auxiliary devices by manufacturer will be found in the unit Installation and Maintenance Manual

Maximum Refrigerant Charge and Minimum Room Area

(this section only applies to units with A2L Refrigerants such as R-32 and R454B. There is no minimum area requirements for units with R-22 or R-410A)

See Installation Manual Addendum for units with flammable A2L refrigerants

REFRIGERANT	COIL	Product	Max System Charge Wt (kg)	Max System Charge Wt (lb)	Area Min (sqm)	Area Min (sqft)	Min Vent CFM	Area Min (sqm) Sensor or Ventilation	Area Min (sqft) Sensor or Ventilation
R32	UV-500	UVF	2.21	4.87	42	453	128	24	260
R32	UV-750	UVF	3.18	6.99	87	933	183	35	373
R32	UV-1000	UVF	4.14	9.11	147	1583	239	45	485
R32	UV-1250	UVF	5.10	11.23	223	2405	294	56	598
R32	UV-1500	UVF	6.07	13.34	316	3398	350	66	711
R32	UV-1000 VRF reduced	UVF	3.21	7.06	88	951	185	35	376
R32	UV-1250 VRF reduced	UVF	3.96	8.71	134	1447	228	43	464
R32	UV-750	UHF	3.18	6.99	9	102	183	9	102
R32	UV-1000	UHF	4.14	9.11	12	132	239	12	132
R32	UV-1250	UHF	5.10	11.23	17	179	294	15	163
R32	UV-1500	UHF	6.07	13.34	23	253	350	18	194
R32	UH-2000	UHF	6.42	14.13	26	283	371	19	205
R454B	UV-500	UVF	2.28	5.01	48	520	136	26	276
R454B	UV-750	UVF	3.26	7.18	99	1070	195	37	396
R454B	UV-1000	UVF	4.25	9.36	169	1816	254	48	516
R454B	UV-1250	UVF	5.24	11.53	256	2759	313	59	636
R454B	UV-1500	UVF	6.23	13.71	362	3898	372	70	755
R454B	UV-1000 VRF Reduced	UVF	3.30	7.25	101	1091	197	37	400
R454B	UV-1250 VRF Reduced	UVF	4.07	8.95	154	1659	243	46	493
R454B	UV-750	UHF	3.26	7.18	10	108	195	10	108
R454B	UV-1000	UHF	4.25	9.36	13	141	254	13	141
R454B	UV-1250	UHF	5.24	11.53	19	205	313	16	173
R454B	UV-1500	UHF	6.23	13.71	27	290	372	19	206
R454B	UH-2000	UHF	6.60	14.51	30	325	394	20	218

Notes:

1. Refrigerant Charge Shown for reference only. Consult condenser manual for recommended charge weight.
2. Charge weight may vary 30% or more depending on installation and condenser design.
3. After system charge, record actual charge weight on area label provided on unit.
4. See charge weight table and record minimum area on label provided on unit.

Operating Limits

Water Temperature Range

Minimum Entering Water, °F	40
Maximum Entering Water, °F	180

Model	GPM Minimum	GPM Maximum
UVF1	2	8
UVF2	2	8
UVF3	2	8
UVF4	6	12
UVF5	8	14
UHF2	2	8
UHF3	2	8
UHF4	6	12
UHF5	8	14
UHF6	10	14

Steam Pressure

Maximum Steam Pressure, psig	6
------------------------------	---

Unit Start Up

Hydronic Coil Venting

The Hydronic coil is provided with a Schrader or screw-type manual air vent on the return manifold to release air from the coil. **NOTE:** This vent is not adequate for removing air from the building piping system. Customer must provide for venting of the piping system.

1. Pressurize building piping system with water. Vent trapped air at system vents.
2. Schrader-type vent: Remove cap. Depress valve at coil vent until air is expelled from unit. Release valve. Reinstall cap.
3. Screw-type vent: Back out manual vent setscrew until air is expelled. Retighten setscrew.

NOTICE

If unit is marked for 200°F maximum entering water temperature, customer must ensure that water vaporization does not occur especially at higher elevations when entering water temperatures are greater than 190°F.

Final Preparations

1. Turn power off (lock out and tag electrical disconnect).
2. Clean dirt, dust, and other construction debris from unit interior. Be sure to check fan wheels and housings.
3. With proper hand protective equipment, rotate all fan wheels to be sure they are free and do not rub on housings.
4. Be sure drain line is clear and is properly and securely positioned. Pour water in drain pan and ensure water flows freely towards the drain connection.
5. Make sure all service valves are open and that motorized control valves, if supplied, are set for automatic operation.
6. Install filter in frame at the front of the unit. If field supplied filters are used, be sure to size correctly according to Table I.
7. Do not attempt to operate the unit fans until the room air fan shaft bearing has been oiled. Use a high grade SAE 20 or 30 non-detergent oil for evaporator shaft end bearing. A few drops are sufficient. Do not over oil. The fan motor does not require oiling. Use PVE 68 for compressor oil when required. Mid Fan Shaft bearings (when present) are permanently lubricated sealed bearings.

End Panel Installation

End panels have sound insulation applied and are required to optimize sound levels. Attach two (2) hex head bolts provided to the bottom end of the unit. Align the end panel with the front and top edges of the unit.

Unit Start Up

All building windows and doors should be installed and closed before starting unit. During summer construction, avoid unit sweating by allowing for gradual pull down of the unit.

1. Set fan switch to High speed for maximum airflow.
2. Make sure maximum entering water temperature is set to 180°F unless nameplate indicates 200°F.
3. Set fan switch to Low speed and verify that fan operates.
4. If applicable, see Controls Manual for this unit. Set controls to desired set point according to this manual. Note that at first unit controller power up there will be a 1 minute and 30 second delay for controls initiation. Unit will resume normal operation after initial power up.

NOTICE

Do not operate unit without filter or grille in place. Operating the unit without filter or grille in place could cause equipment failure.

Warranty Sign Up

Completely fill out and return the Start Up report found at the beginning of this manual within 10 days of start up to comply with the terms and conditions of the Limited Warranty.

Maintenance

CAUTION

Hazardous Service Conditions Exist. The maintenance and troubleshooting procedures recommended in this section of the manual could result in exposure to electrical, mechanical, or other potential safety hazards. Always refer to the safety warnings provided throughout this manual concerning these procedures. When possible, disconnect all electrical power including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. When necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks. Failure to follow all of the recommended safety warnings provided could result in death or serious injury.

CAUTION

Personal injury hazard. Avoid contact with sharp edges.

Check Drain

Check drain pan, drain line, and trap at start of each cooling season. A standard type pipe cleaner pipe can be used to be sure pipe is clear of obstruction so that condensate is carried away. Check the drain line at filter cleaning time during the cooling season. Be sure that debris has not fallen into unit through supply air grille.

Fan Shaft Bearing

The mid and inboard bearings are permanently sealed and lubricated. No additional maintenance is required. The sleeve bearings at the end of the shaft must be lubricated at the start of each cooling and heating season. Add 5 to 10 drops of SAE 20 or 30 non-detergent based oil to the end sleeve bearing.

Refrigerant Oil

Use PVE 68 for compressor oil when required.

Clean or Replace Air Filters

At the start of each cooling season and after each month of operation (more or less depending on operating conditions), replace throwaway filter or clean permanent filter.

Throwaway type filter - Replace filter with a good quality filter of the correct size. Do not attempt to clean And reuse disposable filters. See Table I for filter sizes.

Permanent Filter (fiber type) -

1. Tap on solid surface to dislodge heavy particles.
2. Wash in hot water. If needed, use mild solution of commercial solvent such as soda or trisodium phosphate.
3. Set filter on end so that water drains out through slots in frame. Allow filter to dry thoroughly.
4. Recharge filter with recharging oil. Three ounces is sufficient for a medium size filter. Oil may be applied by insect spray gun. For easier spraying, the oil can be warmed. If the filter is dipped in the recharging oil, remove it immediately and allow to drain through slots in frame..
5. Replace filter in unit.

If another type of filter is used, follow the filter manufacturer's instructions.

NOTICE

Do not operate unit without filter or grille in place. Operating the unit without filter or grille in place could cause equipment failure.

Preventive Maintenance Schedule:

Monthly - Inspect filter. Replace dirty filter

Before Each Cooling and Heating Season -

Oil Indoor sleeve end bearing

Yearly - Inspect and clean coils

Yearly - Inspect fan wheels and housings for damage

Yearly - Clean and tighten all electrical connections

Service - Indoor ECM Motors

CAUTION

Ensure the unit is completely assembled when checking the fan speed. Replace all panels, including the filters, before checking the fan for operation. When the internal pressure drops at a normal condition, the loading on the motor will be such that the fan can come up to selected speed. Failure to ensure unit is completely assembled may result in reduced life of unit and/or personal injury.

ECM Motor Removal and Reinstallation

The ECM motor is programmed with an algorithm that maintains a constant torque, as the static pressure on the system varies. For example, as the filter pressure drop increases due to dirt, the fan will increase speed (rpm).

Voltage is present at all times when the motor is energized.

When replacing the motor, note the following::

1. Check the program number of the old motor against that of the replacement. There is a tag indicating the program number on the cap end of the motor. The program must match the original for correct operation.
2. The motor must be installed per the instructions on the following pages. It is important to maintain the dimension between the fan compartment bulkhead and the coupling.

To remove and re-install the motors, proceed as follows referring to the drawing on the next page:

1. Remove the wire plugs from the motor.
2. Loosen the set screw on the shaft coupling between the motor shaft and the fan shaft.
3. Loosen the motor "belly band" (1/4"-20 nut and bolt) and slide the motor out. It is unnecessary to remove the motor mounting bracket from the bulkhead. Loosen only the "belly band" securing the motor in the mount.
4. Install new motor in the belly band.
5. Ensure the blower wheels are centered within the fan

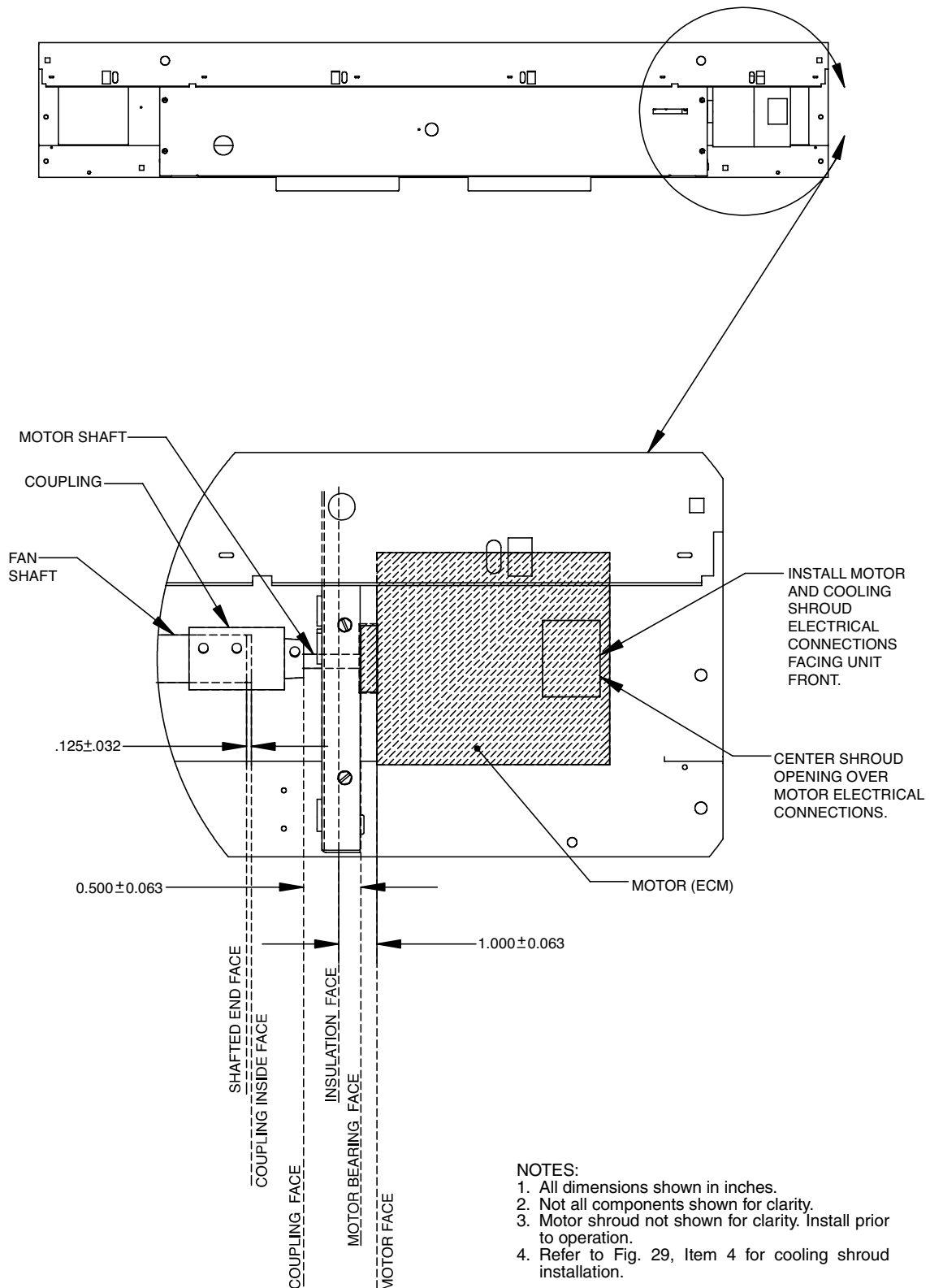
housings(between the inlet rings) before securing the motor shaft coupling.

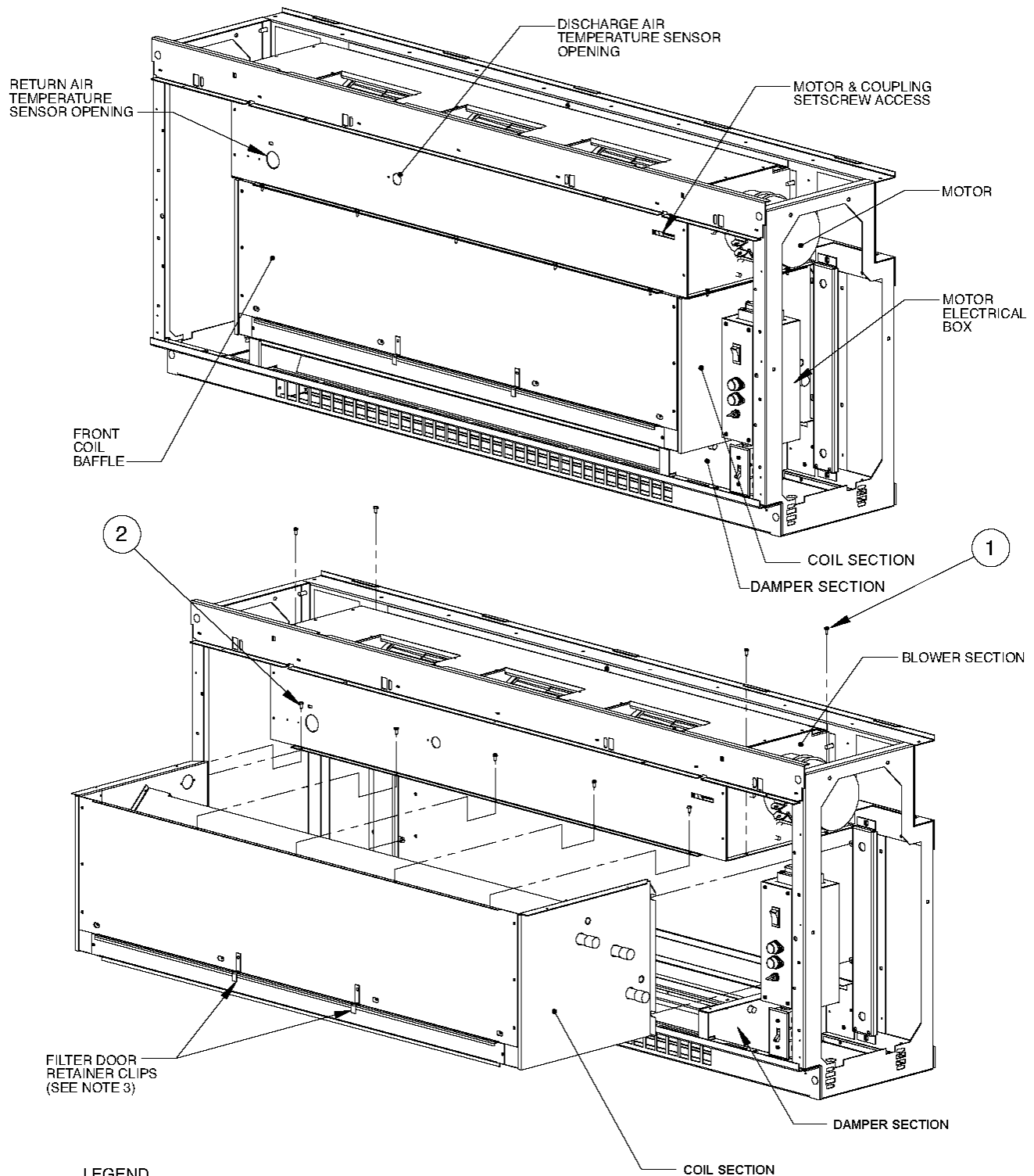
6. Ensure the motor housing is 1 inch from the insulation so that air will be able to circulate over the motor.
7. Position the motor so that the motor wire plugs are front facing on the horizontal plane for the motor.
8. Secure the setscrew on the shaft coupling when the motor is properly positioned and the blower wheels are centered within their housing.
9. Re-secure the motor "belly band" around the motor by tightening the 1/4"-20 nut and bolt.
10. Reinstall the motor shroud. It is important that the motor shroud be installed prior to operation of the motor.
11. Re-secure the two screws holding the motor shroud to the bulkhead.
12. Reinstall the motor wire plugs.

NOTICE

Do not operate unit without motor shroud enclosures in place. Operating the unit without motor shroud enclosures in place could cause equipment failure.

ECM Motor Detail





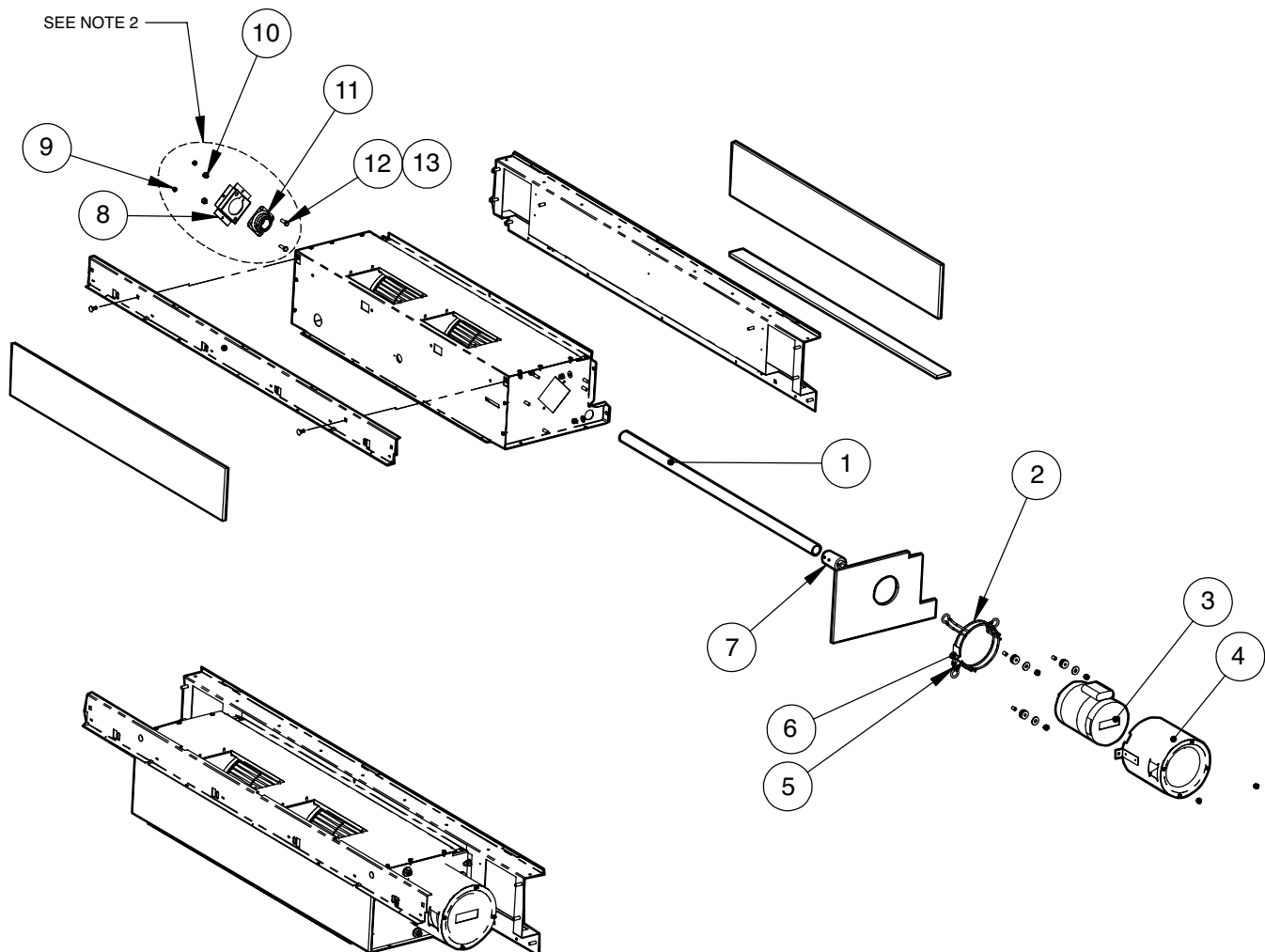
LEGEND

- 1 — 1/4 in. Head Screw
- 2 — 1/4 in. Head Screw

NOTES:

1. Unit shown in vertical orientation. Drawing applies to horizontal and vertical units.
2. Not all components shown for clarity.

Figure 7



NOTES:

1. Not all components shown for clarity.
2. Items no. 8, 11 and associated hardware not required for UV/UH 1500. This unit will have a center bearing assembly.
3. Install motor with capacitor facing up. Note that Motor shroud (item 4) is not required for PSC motors.
4. Install sleeve bearing with oil cup facing up and towards the rear of the assembly.

LEGEND

- | | | |
|----|---|--------------------------------|
| 1 | — | Shaft |
| 2 | — | $\frac{5}{16}$ in. Motor Mount |
| 3 | — | Motor Housing |
| 4 | — | Motor Shroud |
| 5 | — | Bolt |
| 6 | — | Nut |
| 7 | — | Coupling |
| 8 | — | End Bearing Bracket |
| 9 | — | Hex Nut |
| 10 | — | Hex Nut |
| 11 | — | Holding Bearing |
| 12 | — | Bolt |
| 13 | — | Bearing Bracket Assembly |

(SEE NOTE 4)

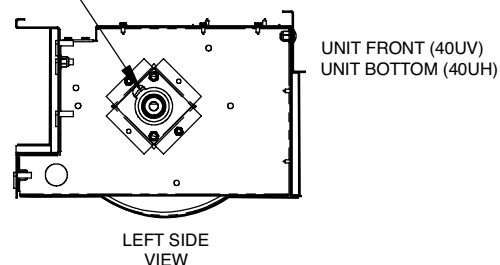
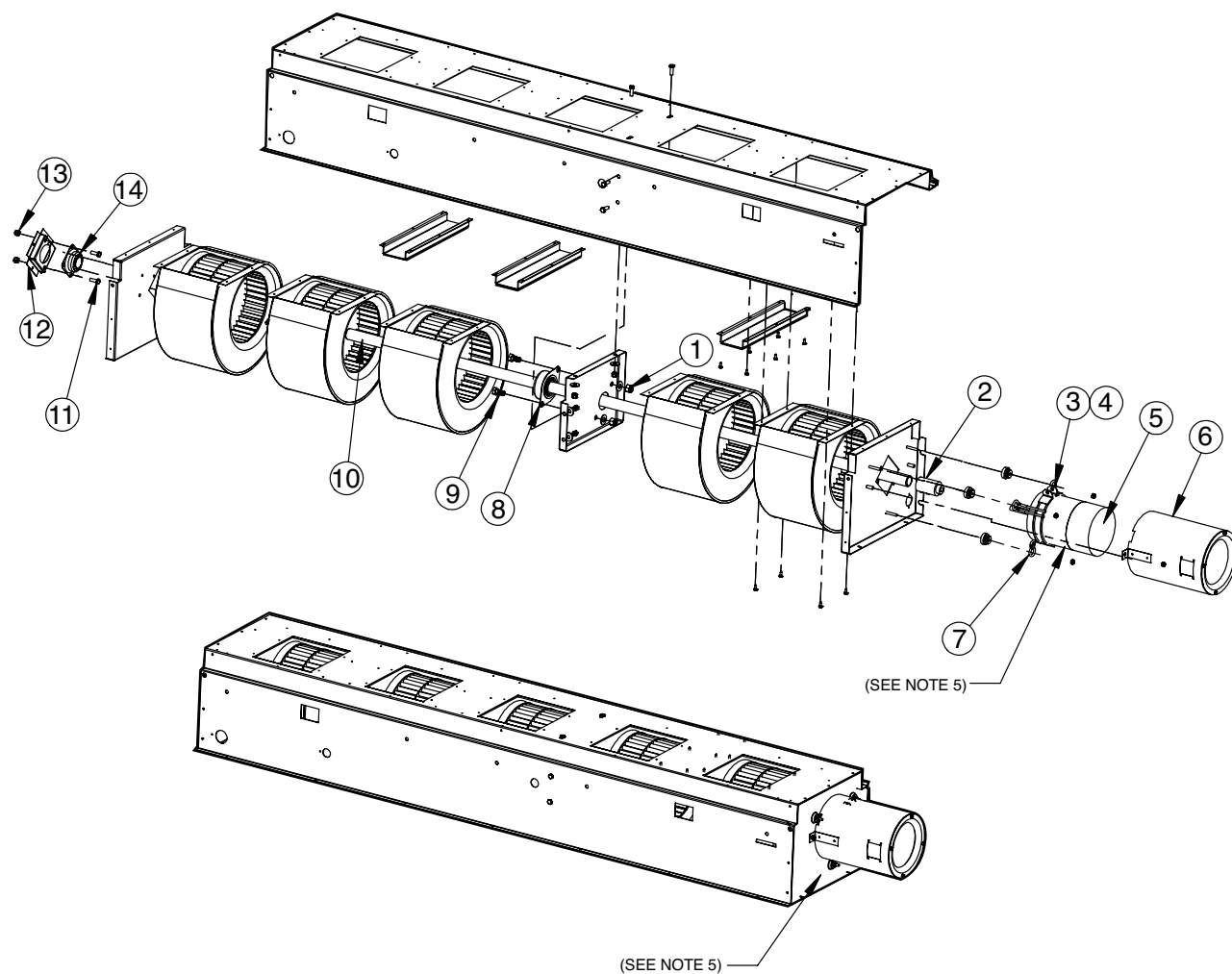


Figure 8

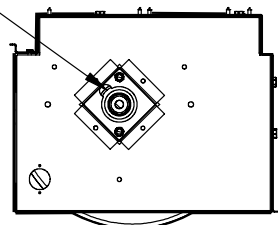
MAUV/MAUH Blower Drive Train Assembly



LEGEND

- 1 — Hex Nut
- 2 — Coupling
- 3 — Nut
- 4 — Bolt
- 5 — Motor Housing
- 6 — Motor Shroud
- 7 — $\frac{5}{16}$ in. Motor Mount
- 8 — Bearing
- 9 — $\frac{1}{2}$ in. Bolt
- 10 — Shaft
- 11 — Bolt
- 12 — End Bearing Bracket
- 13 — Hex Nut
- 14 — Holding Bearing

(SEE NOTE 4)



UNIT
BOTTOM

LEFT SIDE
VIEW

NOTES:

1. Not all components shown for clarity.
2. This drawing applies to 2000 cfm units only.
3. Remove shaft, motor and coupling prior to removing bearing. Refer to Removal and Reinstallation instructions.
4. Install sleeve bearing with oil cup facing up and towards the rear of the assembly.
5. Refer to Fig. 23 for motor-coupling and shaft-coupling tolerances.

Figure 9
MAUH 2000 – Blower Drive Train Assembly

Service - Blower Wheel Adjustment

STEP NO.	TOOLS REQUIRED	INSTRUCTIONS	REFERENCE DRAWING
1	5/32" hex (Allen) tool 3/8" nut driver	Remove all front panels. Remove end panels.	-
2	5/16" nut driver	Remove top panel	-
3	5/32" hex (Allen) tool	Loosen setscrews on all blower wheels (2 per wheel).	Figure 1
4	5/32" hex (Allen) tool	Center each wheel in its respective housing and tighten wheel setscrews (2 per wheel).	Figure 1 & 2 & 3
5	-	Rotate the fan shaft by hand to ensure that fans are unrestricted and can rotate freely. Check for any fan obstructions.	-
6	5/16" nut driver	Reinstall top panel	-
7	5/32" hex (Allen) tool 3/8" nut driver	Reinstall front panels. Reinstall end panels	-



Figure 1 – Set Screw



Figure 2 – Wheel Interference



Figure 3 – Wheel Centered

Service - Hydronic Coil Low Limit

The low limit switch is a single-pole, double-throw device that closes contacts to indicate a near freezing condition. It switches a low level signal and uses the discharge air temperature limit to prevent cycling on the mechanical switch.

- All units with Hydronic Coils include an automatic reset, single-pole, double-throw low limit switch (LLT).
- The switch points are 38° +/- 2°F and differential 7 +/- 1.5°F at sea level.
- This is mounted on the leaving side of the coil

Additional Notes and Diagnostics

Notes:

Any 6" span of the capillary tube and is set at 38 degrees F with enough safety margins to detect below freezing air temperatures. The purpose of the limit switch is to signal the controller when the air temperature reaches a point below 38F

If assistance is requested, please send the following information to techsupport@magicaire.com :

Please explain how the low limit thermostats are failing: do they fail open or closed?

Do the low limits cause nuisance tripping or cycling?

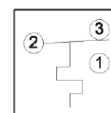
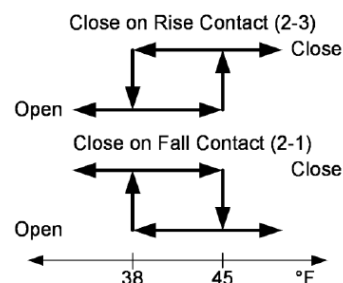
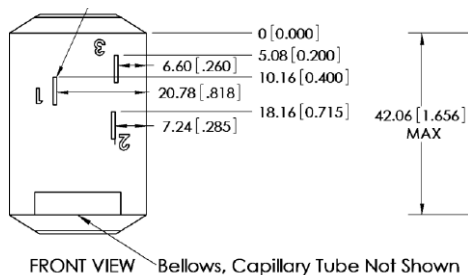
Are there any noted physical defects with these failed low limit thermostats? If so, please send back intact samples of failed parts for analysis using the RGA procedure outlined at www.magicaire.com

NOTE: When installing or packaging, please do not cut or crimp capillary tube.

Diagnostics:

Remove front right side panel with 5/32" hex tool and front coil baffle.

If the low limit switch is outside of an alarm condition, check for continuity between terminals 2 and 3. These contacts should be closed. Likewise, check continuity between terminals 1 and 2 as these contacts should be open, except during alarm conditions. If the contacts close and open as out-lined above, the control scheme should be reviewed for the low limit safety condition settings. If contacts do not open and close as expected, replace.



Unit Ventilator Start-up Report and Warranty Registration Form

Self-Contained Unit Ventilator Warranty Registration Form must be completed and returned within 10 days

of start up to comply with the terms of warranty. Forms should be emails to techsupport@magicaire.com.

Job Name	City
Sales Order #	Unit Tag
Model Number	Serial Number
Installer	Quantity of Units
Supply Voltage	Nameplate Rating

Unit Check

Yes

No

•Does electrical service correspond to unit nameplate?

•Are all electrical power connections tight?

•Does all field wiring conform to unit wiring diagram? Does VFD

power wiring, fuse block wiring, and disconnect wiring conform?

•Is Unit installed per IOM (level, cabinet pait condition, etc)?

•Is the condensate disposal system operating correctly?

•Are bearing locking screws on fan shaft tight?

•Are dampers operating properly?

•Is the filter clean?

Piping Check

Yes

No

•Is unit piping correct and insulated to prevent condensation?

•Are the control valve packages piped correctly?

•Are valve packages properly insulated?

•Are there any leaks detected?

Outdoor Air Damper Diagnostics Sheet

Possible Causes of OA damper binding:

1. The outdoor air damper actuator may not be preloaded correctly. Please see this video for details on how to correct:
<https://www.youtube.com/watch?v=OqtPYGI-Is4#action=share>
2. A flat plate is mounted to the side of the Coil section to allow mounting of the outdoor air damper actuator. The mounting plate may have been made wrong or mis-installed, thus causing binding. The plate has slots for the mounting it to the coil section – as designed, the hole in the plate should be centered on the shaft as the mounting screws are installed. Can the plate be moved to eliminate the binding issue?
3. Damper actuator installed incorrectly. If the shaft is not true, the actuator should be able to move back and forth on post of the anti-rotation strap. If the actuator is pressed hard against the shaft and the anti-rotation pin forced to the bottom of the mounting notch, the actuator cannot float and this can bind the damper. Is the actuator allowed to float in its present condition?
4. The damper could be assembled incorrectly. There is a long blade that should be facing the room and a short blade that faces the outdoor air. Should the damper be installed backwards, the long blade will jam and not allow the outdoor air damper to fully open or close.
5. The damper shaft may be bent so severely that it is contacting the hole in the mounting plate; however, this is not a known issue either. Please report the shaft condition.

Please see the Magic Aire website for OA Damper Section Installation & Removal Procedure:

http://www.magicaire.com/wp-content/uploads/2014/01/UV_Service-Instructions_OA-Section-Installation-and-Removal.pdf

ECM Motor Diagnostic Sheet

Type Problem reported:

ECM Motor: 1. Will not run. 2. Runs but at reduced speed. 3. Runs but wont change speed.
4. Runs and manually changes speeds but will not automatically change speed.

Diagnostics and Suggestions:

For expedited assistance and to find the root cause of the problem, please fill in as much information as possible:

Serial Number of unit with problem:

Motor HP:

ECM Motor Program (From sticker on Cap End of Motor)

Unit Voltage:

Diagnostics and Suggestions:

The motor is programmable that uses torque control and when bearing drag is excessive, the motor cannot reach stable operation. This is more prominent at the lower speeds. In this condition the motor senses the problem and halts operation. It then re-starts the fans. If the bearing drag is excessive, the motor may fail to start.

1. Oil the end bearing (sleeve bearing - see maintenance section for more details) and run the fan at medium or high speed for 10-15 minutes to allow the oil to work into the sleeve (If present, not all models have end bearings).
2. The next most common cause is the use of the wrong ECM program or wrong speed tap setting on the speed board. Confirm that the yellow (EC5) wire from the ECM is connected to the LOW terminal of the speed been replaced, it could have been replaced with an incorrect program.

Note, the motor must be installed in order to function properly. Bench testing will not allow proper operation of the motor.

If problems continue, replace the motor.

General Diagnostics	Yes	No
Are all electrical power connections tight and match wiring diagram?		
Do fans turn freely?		
Are all three coupling set screws tight?		
Are the middle bearing set screws tight?		
Has the sleeve bearing been properly lubricated?		
Is there excessive noise or vibration?		
Controls - M172		
Does the unit start and perform per sequence of operation as stated in Control Guide?		
Are there any flashing lights on the M172 controller?		

⚠ WARNING

Hazardous Service Procedures!

The maintenance and troubleshooting procedures recommended in this section of the manual could result in exposure to electrical, mechanical or other potential safety hazards. Always refer to the safety warnings provided throughout this manual concerning these procedures. When possible, disconnect all electrical power including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. When necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks. Failure to follow all of the recommended safety warnings provided, could result in death or serious injury.

General Diagnostic Form

Please provide the information below to allow us to better assist with any unit performance questions.

Unit Serial Number	
Wiring Diagram Numbers	

Full description of problem and duration (insert information and/or pictures below):

Additionally, pictures sent to the factory would expedite the troubleshooting process (if the issue is visual).

Email this form to techsupport@magicaire.com

Please indicate the time and day to schedule a Conference : _____

 **WARNING**

Hazardous Service Procedures!
The maintenance and troubleshooting procedures recommended in this section of the manual could result in exposure to electrical, mechanical or other potential safety hazards. Always refer to the safety warnings provided throughout this manual concerning these procedures. When possible, disconnect all electrical power including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. When necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks. Failure to follow all of the recommended safety warnings provided, could result in death or serious injury.

Controls Diagnostic Form

Please provide the information below to allow us to better assist with any unit performance questions.

Unit Serial Number	
Wiring Diagram Numbers	
M172 Controller Program Number	
ECM Motor Program	

For Networking diagnostics, please also provide a topology drawing of the installation and a Wireshark capture.

Additionally, pictures sent to the factory would expedite the troubleshooting process (if the issue is visual).

Email this form to techsupport@magicaire.com

Please indicate the time and day to schedule a Conference : _____

 **WARNING**

Hazardous Service Procedures!
The maintenance and troubleshooting procedures recommended in this section of the manual could result in exposure to electrical, mechanical or other potential safety hazards. Always refer to the safety warnings provided throughout this manual concerning these procedures. When possible, disconnect all electrical power including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. When necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks. Failure to follow all of the recommended safety warnings provided, could result in death or serious injury.

DX System Diagnostic Form

Please provide the information below to allow us to better assist with any unit performance questions.

Unit Serial Number	
Wiring Diagram Numbers	
Suction pressure	
Head pressure	
Indoor air temp	
Discharge air temp	
Outdoor air temp	
Superheat	
Subcooling	
Alarm History	

Circle each symptom:

DX System Superheat & Subcooling Trouble Scenarios						
Underlying Cause	Symptoms					
	Superheat	Subcooling	Suction Pressure	Indoor TD	Head Pressure	Compressor current draw
LOW CHARGE	High	Low	Low	Low	Low	Low
OVER CHARGE	Low	High	High	Normal	High	High
LOW INDOOR AIR FLOW	Low	High to Normal	Low	High	Low to Normal	Not much effect
MILD LOW OUTDOOR AIR FLOW (NA for SWB)	Low	Low	High	Normal	High	Normal to high
SEVERE LOW OUTDOOR AIR FLOW(NA FOR SWB))	High	Low	High	Low	High	High
MILD RESTRICTION (charge)	High	Normal to High	Low	Low	Normal to low	Low
MILD RESTRICTION*	Normal	High	Normal	Normal	High	Low
SEVERE RESTRICTION*	High	High	Low	Low	High	High

* - This assumes excess charge weight of refrigerant in the system.

Note: Low charge symptoms may include low superheat if there is flashing in the liquid line causing improper TXV operation.

⚠ WARNING

Hazardous Service Procedures!

The maintenance and troubleshooting procedures recommended in this section of the manual could result in exposure to electrical, mechanical or other potential safety hazards. Always refer to the safety warnings provided throughout this manual concerning these procedures. When possible, disconnect all electrical power including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. When necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks. Failure to follow all of the recommended safety warnings provided, could result in death or serious injury.

⚠ WARNING

Hazard of Explosion and Deadly Gases!

Never solder, braze or weld on refrigerant lines or any unit components that are above atmospheric pressure or where refrigerant may be present. Always remove refrigerant by following the guidelines established by the EPA Federal Clean Air Act or other state or local codes as appropriate. After refrigerant removal, use dry nitrogen to bring system back to atmospheric pressure before opening system for repairs. Mixtures of refrigerants and air under pressure may become combustible in the presence of an ignition source leading to an explosion. Excessive heat from soldering, brazing or welding with refrigerant vapors present can form highly toxic gases and extremely corrosive acids. Failure to follow all proper safe refrigerant handling practices could result in death or serious injury.

Notes

