



INSTALLATION INSTRUCTIONS

AVADAMP1

Motorized Ventilation Air Damper and Controller for MHP and MCE Units

This manual must be left with the homeowner for future reference.



This is a safety alert symbol and should never be ignored. When you see this symbol on labels or in manuals, be alert to the potential for personal injury or death.

⚠ WARNING

The MagicPak® unit must be installed with approved wall sleeve and louver accessories for safe operation. Improper installations could result in property damage, personal injury, or death.

The Motorized Ventilation Air Damper and Controller manage the introduction of outdoor ventilation air through an MHP or MCE series MagicPak unit. The damper opens in response to thermostat signals. The programmable controller monitors and manages ventilation air quantity to assist with meeting outdoor ventilation air requirements.

IMPORTANT: The quantity and conditions of outdoor ventilation air being introduced must be accounted for in the load calculations for the unit installation.

⚠ WARNING

Adequate safety precautions should be taken to protect personnel. Improper installations could result in property damage, personal injury, or death.

Shipping and Packing List

Item	Qty
Damper Assembly	1
Ventilation Controller with Installation and User Guide	1
Wire Harness	1
Adapter Wire	1
Strain Relief Fitting	1
Wire Tie (Arrowhead)	1
Screw (#10 x 1/2")	1
Label (Filter / Wiring Diagram)	1
Kit Instructions	1

⚠ CAUTION

Only qualified technicians may install this service item.

Manufactured By
Allied Air Enterprises LLC
A Lennox International, Inc. Company
215 Metropolitan Drive
West Columbia, SC 29170



(P) 508068-01

Unit indoor blower motor amp draws range from 0.4 A to 2.5 A, depending on model, blower CFM, and unit external static. Depending on the relay applied, the blower wire may need to be wrapped multiple times through the relay's sensing opening. The lowest blower CFM for an installation (typically continuous fan operation) will have the lowest amp draw. Testing relay operation on an application's lowest blower CFM will determine the minimum number of wraps required to trigger the relay.

IMPORTANT: The quantity and conditions of outdoor ventilation air being introduced must be accounted for in the load calculations for the unit installation. See Figure 1.

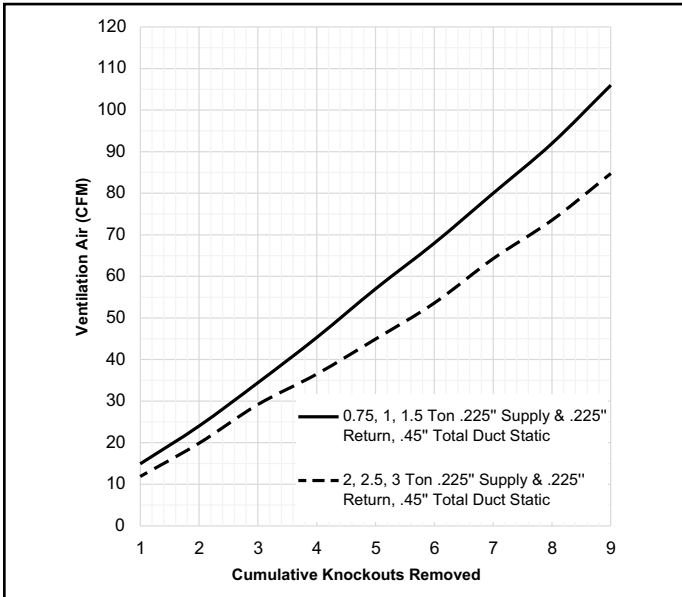


Figure 1.

Ventilation Air (CFM) *						
Cumulative Knockouts Removed	Total External Static Pressure (supply + return) **					
	0.1	0.2	0.3	0.4	0.5	
0.75, 1.0, 1.5 TON	# 1 Only	7	9	12	15	18
	#1 thru #2	10	15	20	24	28
	#1 thru #3	12	18	25	32	38
	#1 thru #4	18	28	36	45	54
	#1 thru #5	23	35	46	57	69
	#1 thru #6	27	41	54	67	80
	#1 thru #7	32	48	63	78	93
	#1 thru #8	37	55	73	90	107
	#1 thru #9	41	61	80	100	118
2.0, 2.5, 3.0 TON	# 1 Only	21	20	19	17	16
	#1 thru #2	28	27	25	24	22
	#1 thru #3	35	33	32	30	28
	#1 thru #4	45	42	40	38	35
	#1 thru #5	55	52	49	46	43
	#1 thru #6	66	62	59	55	52
	#1 thru #7	79	75	71	66	62
	#1 thru #8	91	86	81	76	71
	#1 thru #9	105	99	94	88	82

* Assumes proper speed tap adjustments to maintain nominal supply air CFM
 ** Assumes equal supply and return static pressures

Table 1.

Installation

- Turn OFF electrical power to unit.

NOTE: Some units have dual circuit power supplies. Confirm both circuits are OFF.
- Remove Filter Compartment Access and Blower Compartment Access Panels (see Figure 2).
- Remove Filter Retainer and factory installed Indoor Air Filter.
- Locate Ventilation Air Chase within Filter Compartment.
- Remove Chase Cover Plates (see Figure 2):
 - Remove Knockout Plate (4 screws / locations A, B, C, D; see Figure 3).
 - Remove Seal Plate.
 - Open individual openings in Knockout Plate based on desired Ventilation Air as outlined in Table 1.
 - Reinstall Knockout Plate using 2 screws in location B and C (see Figure 3). Leave front and rear screws removed.

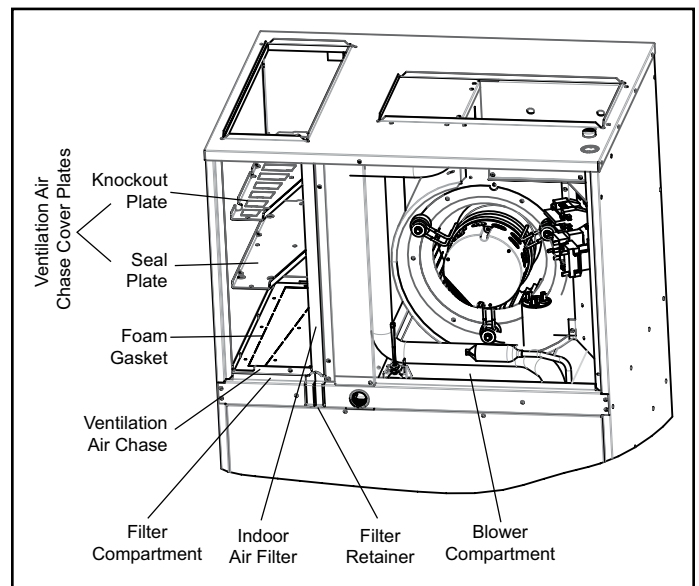


Figure 2. Access Panel & Ventilation Chase Cover Plate Removal

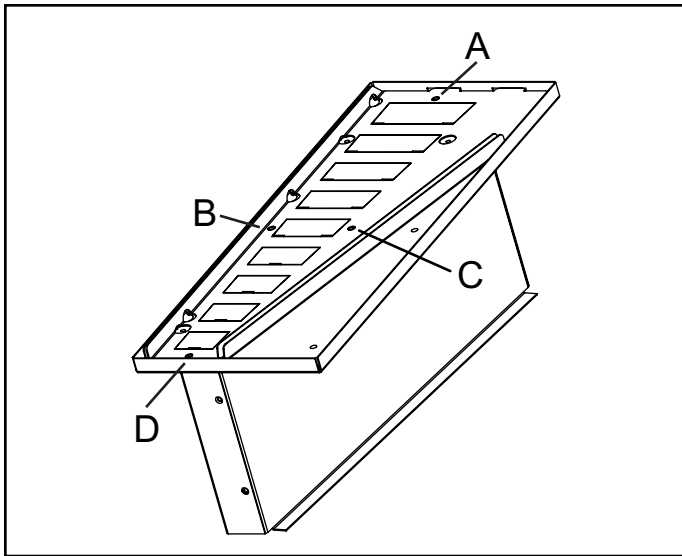


Figure 3. Chase Assembly

6. Install Damper (see Figure 4).
 - a. Guide alignment tabs into slots at rear of chase.
 - b. Lower Damper into position and secure Front Face Plate with provided screw.

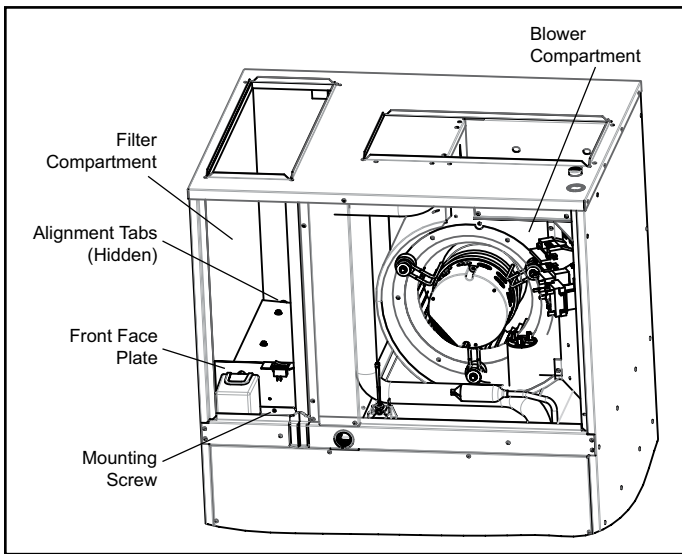


Figure 4. Ventilation Air Damper Installation

7. Remove Knockout from Indoor Coil End Sheet using a flat blade screwdriver (see Figure 5).
8. Install Wire Harness.
 - a. Carefully route Wire Harness through Indoor Coil End Sheet Knockout, with stripped leads towards Blower Compartment and terminated leads towards Filter Compartment.
 - b. Connect the terminated lead ends of the Wire Harness to Damper Motor and ON/OFF Switch (see Figure 5 and Figure 6).

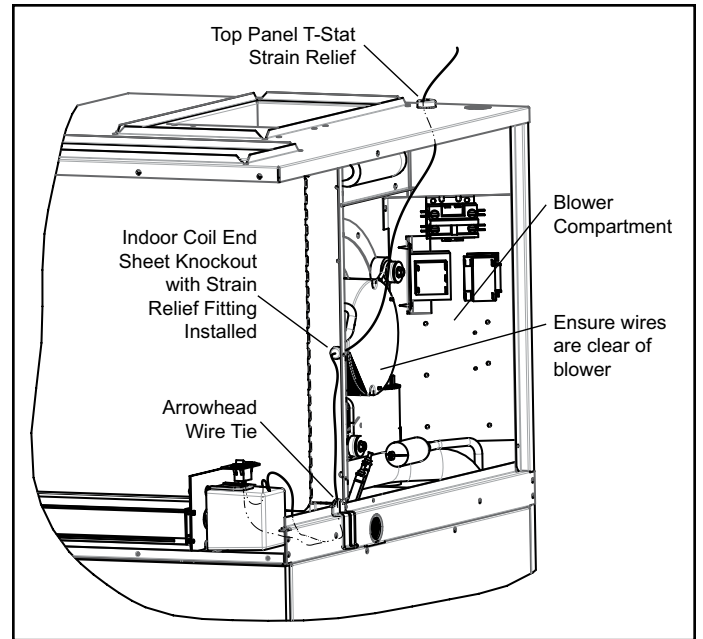


Figure 5. Route Wiring

- c. Route wiring along bottom of Filter Compartment to avoid interference with Filter removal / installation.
- d. Install provided Arrowhead Wire Tie and Strain Relief Fitting and secure wiring (see Figure 5).
- e. Route stripped lead ends of Wire Harness through strain relief fitting in unit top panel (along with thermostat wiring). Ensure wires will not interfere with blower operation (apply field provided wire ties as necessary).

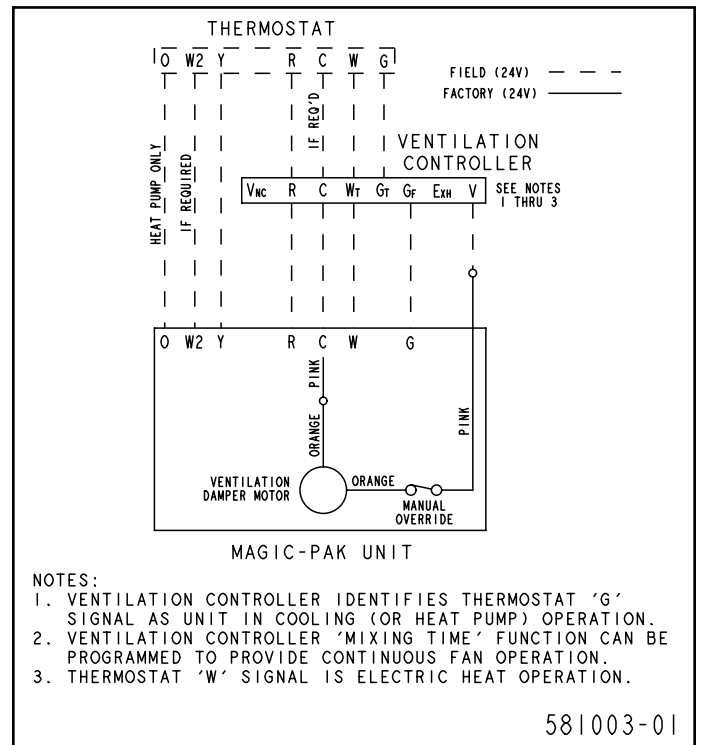


Figure 6. Wiring Diagram

9. Select location and mount for Ventilation Controller. Controller is to be mounted external to the unit.

NOTE: *If Controller is mounted remote from unit (adjacent to thermostat, for example), field-provided wiring between unit and controller is required.*

10. Mount Controller and connect unit and thermostat wiring (see Figure 6).
11. Reinstall Air Filter and Filter Retainer. Factory filter location must be used in order to filter incoming outdoor ventilation air.

NOTE: *If compliance with ASHRAE 62.2 is required, factory provided filter must be replaced with a field-supplied filter with a minimum MERV 6 rating.*

Higher MERV rated filters have greater airflow resistance than the factory installed filter. This increased resistance must be accounted for as additional external static pressure. See Table 2.

If the factory filter is replaced with a higher MERV filter (MERV 6 or 8 for example), the additional static pressure listed below must be added to the measured duct static when consulting blower performance tables.

12. Verify Damper ON/OFF switch is in ON position.
13. Reinstall Filter and Blower Compartment panels.
14. Turn ON unit power.
15. Program Ventilation Controller following instructions provided with controller. Minimum steps include:
 - a. Enter Set Up for Calculated Flow mode by pressing UP arrow within 3 seconds of power up (either unit power up, or remove/replace controller from base).

Indoor Airflow (CFM)	Filter Size				
	20 x 18	20 x 20	22 x 20	22 x 24	22 x 28
< 400	0.03	0.02	---	---	---
400 - 600	0.05	0.05	0.03	0.03	---
600 - 800	0.08	0.06	0.05	0.05	0.03
800 - 1000	---	---	0.07	0.07	0.05
1000 - 1300	---	---	---	---	0.07

Table 2. External Static Pressure Increase Due to Typical 1" MERV 6 or MERV 8 Filters (" w.c.)

- b. Program ventilation airflow amounts using Table 3, and consulting the blower performance tables included in the unit's Installation Instructions. See Figure 7 and steps i through v below as an example.

NOTE: HE = Electric Heat operation

CL = Cooling (or Heat Pump) operation

FA = Fan Only operation

- i. Measure ductwork external static pressure with unit operating in each mode: Electric Heat, Cooling (or Heat Pump), and Continuous Fan.
- ii. Determine indoor airflow using unit's blower performance table. Use model, selected blower speed taps, and external statics measured in each mode. Note: If MERV filter is installed, include increase from Table 2.
- iii. Determine Outdoor Ventilation air for each mode using Table 3 (if between CFMs, use next lowest entry).
- iv. Program controller Ventilation Airflow amounts for each mode as HE, CL, and FA.
- v. If increased Continuous Fan Ventilation Airflow is needed, move Fan Speed to Tap 2 (using adapter wire) and Cool Speed to Tap 3. Repeat steps i. through iv for Cooling and Fan modes to determine new static pressures and airflows.

NOTE: *In some applications, it may be desirable to use Tap 2 (COOL/HP) for Continuous Fan to achieve increased ventilation air during Continuous Fan operation. At the connection to the Indoor Blower speed tap harness, move yellow Cooling/HP wire to use Tap 3 (COOL/HP), and apply adapter wire to connect green Continuous Fan wire to Tap 2 (Cool/HP) (see Figure 8). With this wiring, Continuous Fan operation will provide Tap 2 airflows, and have a 90 second OFF delay.*

- c. Program exhaust airflow (if applicable).
- d. Program required outdoor ventilation airflow.
- e. Program optional Mixing Time (Continuous Fan operation with damper closed).

NOTE: *Other optional Controller features and programming steps are available. Refer to accompanying AirCycler® Installation & User's Guide.*

16. Verify proper operation.
17. Apply Filter Requirements / Wiring Diagram Label to Filter Compartment Access Panel.

Ventilation Air example for 5MHP4-12-181 with representative duct statics:

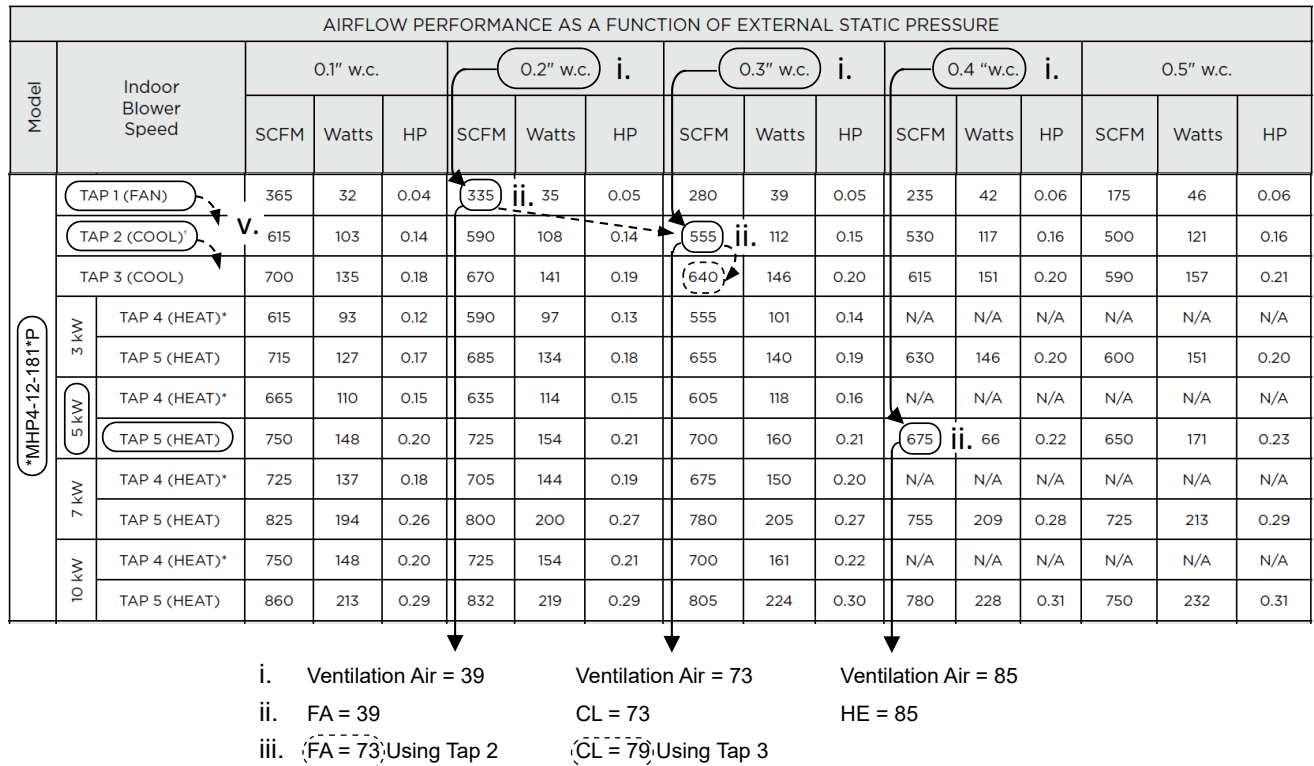


Figure 7.

Indoor Airflow	Outdoor Ventilation Air	Indoor Airflow	Outdoor Ventilation Air
150	18	750	95
200	25	800	100
250	32	850	105
300	39	900	110
350	47	950	115
400	54	1000	120
450	61	1050	125
500	67	1100	129
550	73	1150	133
600	79	1200	137
650	85	1250	140
700	90	1300	142

Table 3. Ventilation Air (CFM)

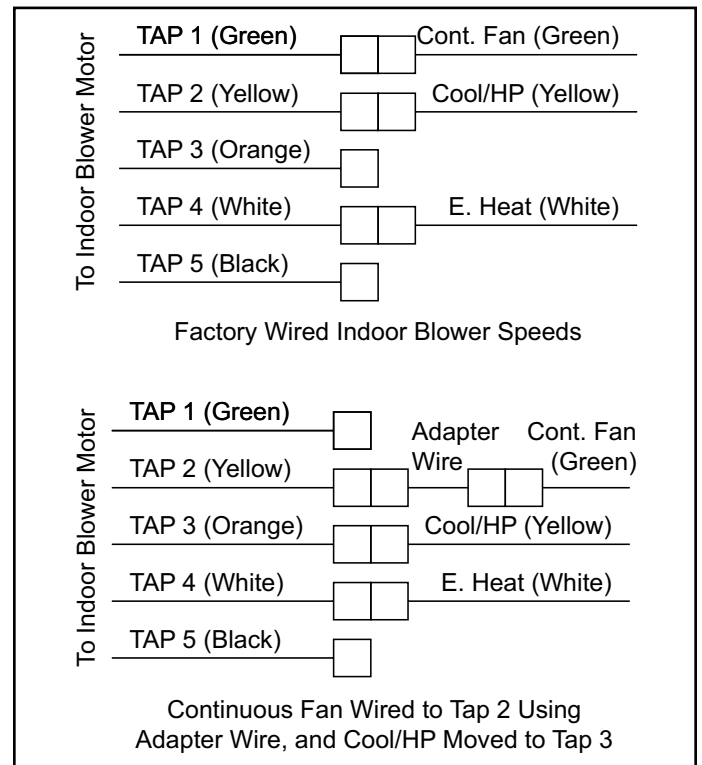


Figure 8. Indoor Blower Speed Tap Harness Connections