

AG Series Electric Heaters



Auxiliary Electric Heat

Installation, Operation &
Maintenance Instructions
97B0005N04

Revised: July 1, 2023

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Overview

The AG Series Auxiliary Electric Heat mounts internally on QE, VE, TE, and TS upflow (Figure 1b) or downflow units and all TAH units (Figure 1a). It mounts directly to the blower outlet of QE, VE, TE, and TS horizontal units (Figure 6) and on all TZ units (Figure 4). Note the model compatibility Table 1. Horizontal units are rated for zero clearance at the unit and 1" clearance for first three feet of duct, vertical units rated for zero clearance for both unit and duct. Downflow units can not be located directly over a discharge register. The discharge plenum must be constructed from non combustible material. The AG electric heat contains a relay control board which activates the elements directly via an internally wired low voltage harness. Low voltage signals (W1 and W2) are staged from the control of the unit.

QE, VE, TE, and TS Vertical Upflow or Downflow and TAH Installation - Internal

1. Disconnect power to the unit.
 2. Remove blower access panel(s) from the unit and control box cover from the electric heater.
 3. Remove blower mounting bolts and drop blower assembly as shown in figure 2. Removal of electrical wiring should not be necessary.
 4. Position the electric heater as illustrated in figure 3 with its control box facing the front access panel of the unit. Attach heater to unit using the support pins on the back and bolts on the front.
- The electric heater air inlet dimensions should match the unit blower outlet, installer should stop and refer to the unit/heater compatibility chart later in this instruction or consult factory if they do not match.*
5. Re-install blower assembly on to electric heater using pins and bolts as before. Check blower electrical wiring for proper connection and remedy any pinched wire(s) or contact with sharp edges.
 6. Route the low voltage control harness through one of the 'pie' bushings in the heater control box and plug on to the P1 connector.
 7. Install power conduit through the unit cabinet as shown in figure 5 and attach directly to the electric heater control box. See figures 7a-c.
 8. Replace all covers and panels, heater installation is complete. Proceed to wiring and setup.

Figure 1a: Typical air handler installation

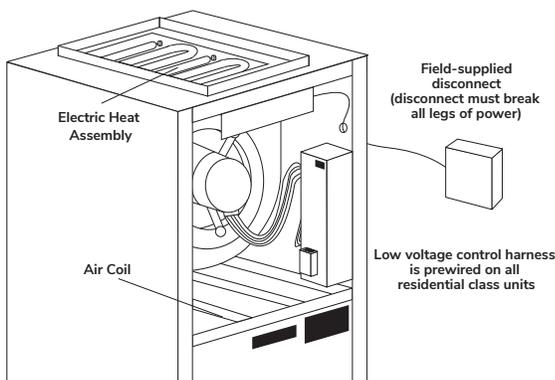


Figure 1b: Typical vertical unit installation

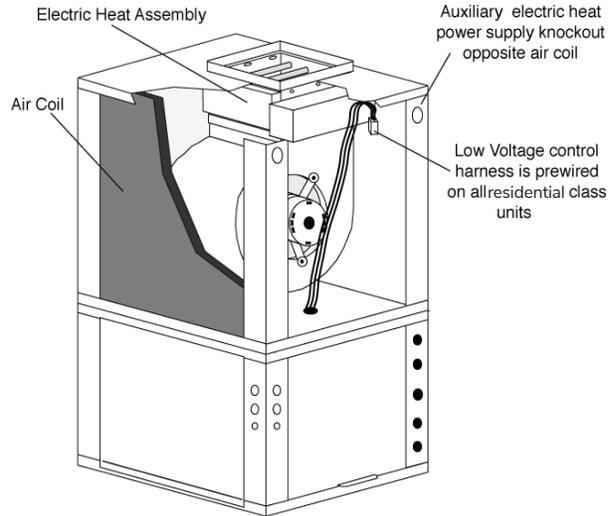


Figure 2: Blower removal

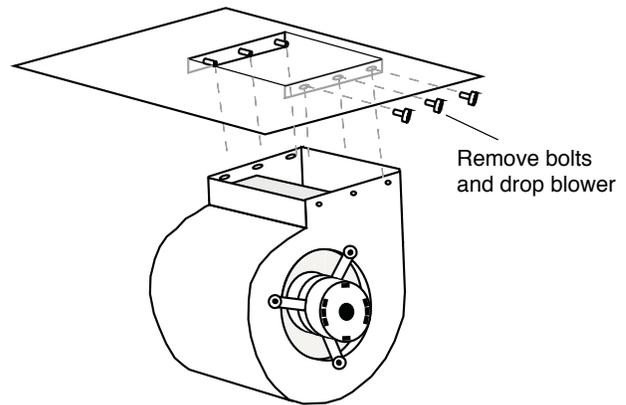
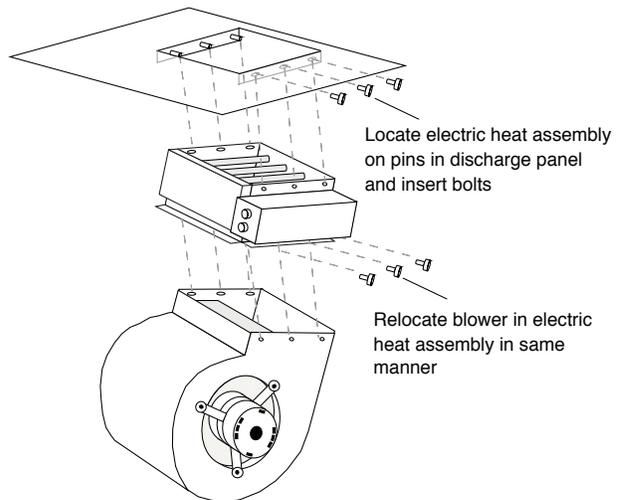


Figure 3: AG electric heat mounting and blower re-installation



TZ Vertical Installation-External

1. Disconnect power to the unit.
2. Remove blower access panel(s) from the unit and control box and element covers from the electric heater.
3. Locate remove and discard blower discharge flanges from the unit but save the screws. Flanges will be packaged loose inside the blower compartment of vertical upflow units. TZ036 and 042 units require a transition bracket between the cabinet top and the electric heater. This bracket is packaged inside the blower compartment for field installation.
4. Position the electric heater as illustrated herein. Heater control box should be facing the front access panel of vertical units.

The electric heater air inlet dimensions should match the unit air outlet, installer should stop and refer to the unit/heater compatibility chart later in this instruction or consult factory if they do not match.

5. Use the saved blower flange screws to attach the heater by its flanges to the unit panel except do not fasten flange on control box side.
6. Use aluminum tape (not provided) to seal all four heater flanges to the blower panel.
7. Locate and route the low voltage control harness through the top panel knockout(s). Seal the penetration 'air tight'. This harness is factory installed on all TZ units (wire-tied to the fan housing).
8. Route the control harness through one of the 'pie' bushings in the heater control box and plug on to the P1 connector.
9. Install power conduit and attach directly to the electric heater control box. See figures 7a-c.
10. Replace all covers and panels, heater installation is complete. Proceed to wiring and setup.

Figure 4:

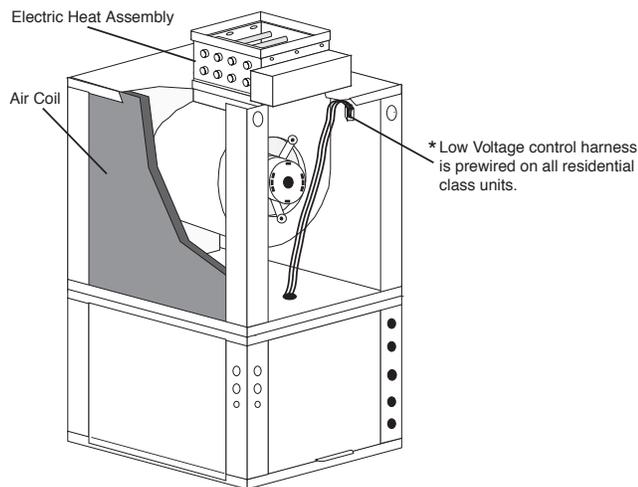
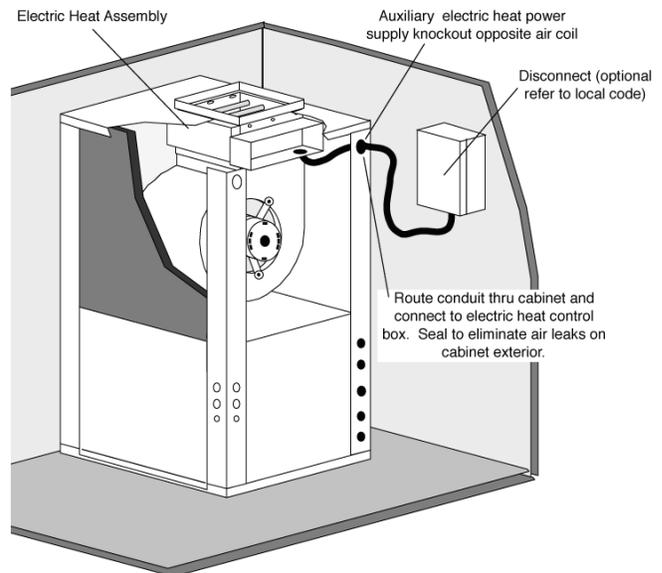


Figure 5:



QE, VE, TE, and TS Horizontal Installation-External

1. Disconnect power to the unit.
2. Remove blower access panel from the unit and control box and element covers from the electric heater.
3. Remove and discard blower discharge flanges from the unit but save the screws. TZ036 and 042 units require a transition bracket between the cabinet panel and the electric heater. This bracket is packaged inside the blower compartment for field installation.
4. Position the electric heater as illustrated herein. Notice that the discharge air opening is off centered in the blower panel. The electric heater must be positioned so that its control box is located vertically over the wide side of this panel.

The electric heater air inlet dimensions should match the unit air outlet, installer should stop and refer to the unit/heater compatibility chart later in this instruction or consult factory if they do not match.

5. Use the saved blower flange screws to attach the heater by its flanges to the unit panel except do not fasten flange on control box side.
6. Use aluminum tape (not provided) to seal all four heater flanges to the blower panel.
7. Locate and route the low voltage control harness through one of the unit corner post or blower panel knockout(s). Seal the penetration 'air tight'. This harness is factory installed and wire-tied to the fan housing.
8. Route the control harness through one of the 'pie' bushings in the heater control box and plug on to the P1 connector.
9. Install power conduit and attach directly to the electric heater control box.
10. Replace all covers and panels, heater installation is complete. Proceed to wiring and setup.

Figure 6: Typical Horizontal Installation

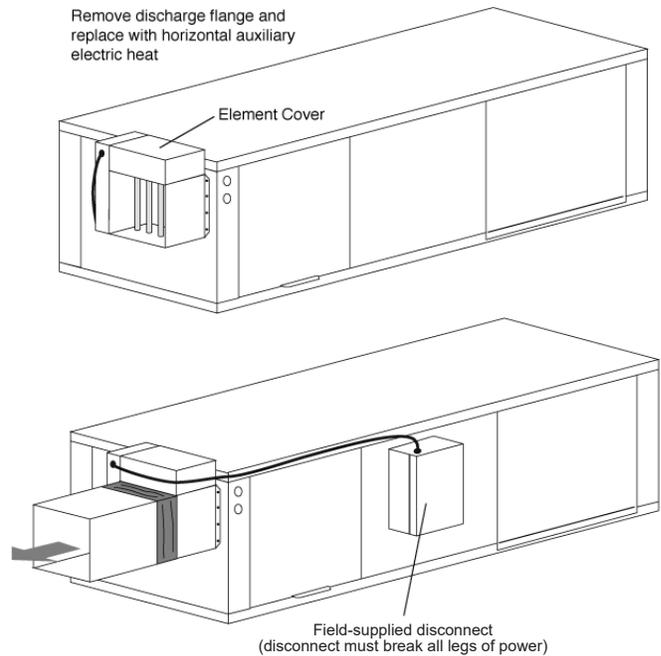


Figure 7a: Power Wiring, Dual Circuits, 15, 20kw

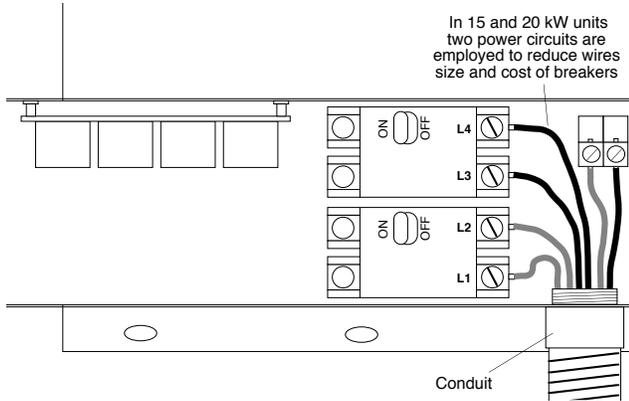
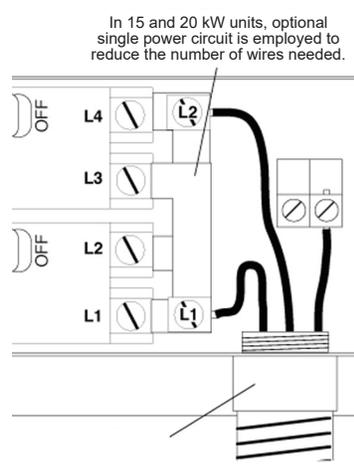


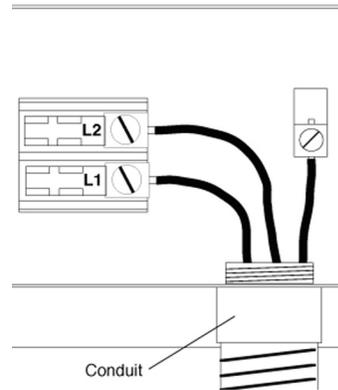
Figure 7b: Power Wiring, Single Circuit, 12, 15, 20kw



Wiring and Setup (all models)

1. Install power wiring and connect to power block or circuit breakers. In 15 or 20kW models two power circuits may be used to reduce wiring and breaker costs as in Figure 7a. If a single circuit supply is desired, install the optional single circuit accessory kit (P/N 16B0002N02), as shown in Figure 7b, that can be obtained from your distributor.
2. Ensure unit airflow setting is above minimum airflow rating for the electric heat model from Table 1.
3. Check heat staging for the application. Table 4 contained later in this IOM shows the factory default staging and the alternate field selectable staging where applicable. Staging changes are made by dip switch settings. See figure 8. These are identified as either ER1, ER2, ER3 or ER4 depending on the heater size.
4. Mark the appropriate box of the electric heat model installed on the additional serial plate on the exterior of the unit.
5. Turn on the power to the unit and the auxiliary electric heat.

Figure 7c: Power Wiring, 4, 5, 8, and 10kw

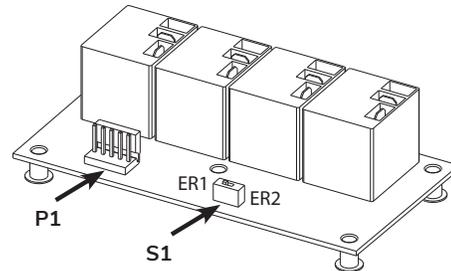


Auxiliary Electric Heat Start-up

Put thermostat in emergency heat mode (or jumper t-stat input R to W and R to G) and setpoint to high setting. 'Touch-jumper' the test pins of the CXM2 or DXM2.5 into test mode to reduce time delays. Unit will require 15-20 seconds before engaging emergency heat mode stage 1 (W1) and then another 15-20 seconds to engage stage 2 (W2) when in 'Test mode'. Verify proper electric heat operation.

Figure 8: Staging Dip Switches

For AGM/L 4, 5, 8, 10kW.



For AGM/L 12, 15, and 20kW.

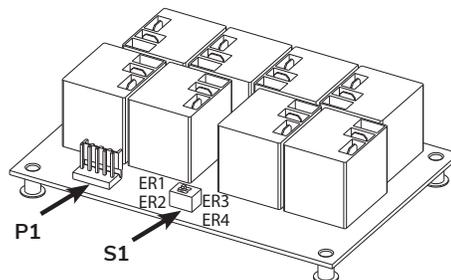


Table 1: AG Compatibility

Auxiliary Electric Heat Model	QE, VE, TS, TE Models				TZ Models			TAH Models			kW Rating		Btuh Rating		Minimum CFM Required	
	018	024 - 030, 0930	036 - 038	042-072, 1860	024	030-042	048-060	Auxiliary Electric Heat Model*	026	038	049-064	240V	208V	240V		208V
AGM4ABG								AGM4CBG				3.8	2.9	13000	9900	500
AGM5ABG								AGM5CBG				4.8	3.6	16300	12300	500
AGM8ABG								AGM8CBG				7.6	5.7	25900	19400	650
AGM10ABG								AGM10CBG				9.6	7.2	32700	24600	650
AGM12ABG												11.4	8.6	38900	29200	750
AGL10ABG								AGL10CBG				9.6	7.2	32700	24600	1300
AGL15ABG								AGL15CBG				14.4	10.8	49100	36900	1350
AGL20ABG								AGL20CBG				19.2	14.4	65500	49200	1350

Black area denotes compatibility

Table 2: AG Electric Heat Electrical Data - TAH

Unit Model	Head Kit Model	Supply	Heater Amps 240	Heater Amps 208	Blower FLA	Minimum Circuit Amps		Maximum Breaker Size	
						240 V	208 V	240 V	208 V
TAH026	AGM4CBG	SINGLE	15.8	13.9	4.2	24	22	25	25
	AGM5CBG	SINGLE	20	17.3	4.2	29	26	30	30
	AGM8CBG	SINGLE	31.7	27.4	4.2	44	38	45	40
	AGM10CBG	SINGLE	40	34.6	4.2	54	47	60	50
TAH038	AGL10CBG	SINGLE	40	34.6	4.2	54	47	60	50
	AGL15CBG	DUAL- L1/L2	40	34.6	0	50	43	50	45
		DUAL- L3/L4	20	17.3	4.2	29	26	35	30
TAH048-060	AGL10CBG	SINGLE	40	34.6	7.5	58	51	60	60
	AGL15CBG	DUAL- L1/L2	40	34.6	0.0	50	43	50	45
		DUAL- L3/L4	20	17.3	7.5	33	29	35	30
	AGL20CBG	DUAL- L1/L2	40	34.6	0.0	50	43	50	45
		DUAL- L3/L4	40	34.6	7.5	58	51	60	60

All heaters rated single phase 208/240V 60Hz
 All Fuses UL Class K general purpose
 All models 15kW or larger feature internal circuit breakers

Table 3: AG Electric Heat Electrical Data -QE, VE, TE, TZ, TS

Auxiliary Electric Heat Model	Supply Circuit	Heater Amps		Minimum Circuit Amps		Maximum Fuse	
		240V	208V	240V	208V	240V	208V
AGM4A	Single	15.8	13.9	19.8	17.4	20	20
AGM5A	Single	20.0	17.3	25.0	21.6	25	25
AGM8A	Single	31.7	27.4	39.6	34.3	40	35
AGM10A	Single	40.0	34.6	50.0	43.3	50	45
AGL10A	Single	40.0	34.6	50.0	43.3	50	45
AGM12A	Single	47.5	41.3	59.4	51.6	60	60
	Dual - L1/L2	31.7	27.4	39.6	34.3	40	35
	Dual - L3/L4	15.8	13.9	19.8	17.4	20	20
AGL15A	Single	60.0	52.0	75.0	65.0	80	70
	Dual - L1/L2	40.0	34.6	50.0	43.3	50	45
	Dual - L3/L4	20.0	17.3	25.0	21.6	25	25
AGL20A	Single	80.0	69.2	100.0	86.5	100	90
	Dual - L1/L2	40.0	34.6	50.0	43.3	50	45
	Dual - L3/L4	40.0	34.6	50.0	43.3	50	45

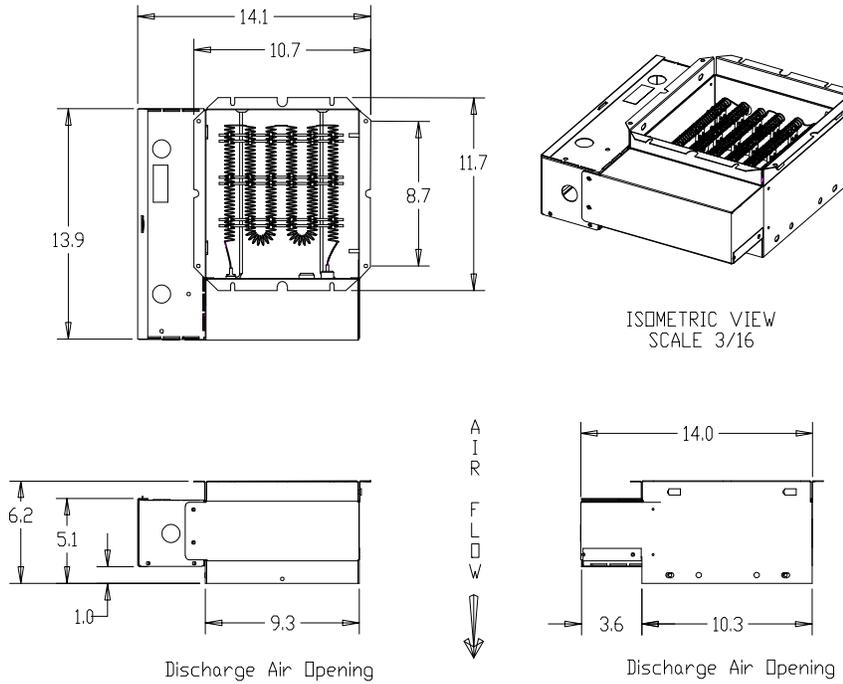
All heaters rated single phase 208/240V 60Hz
 All Fuses UL Class K general purpose
 All models 12kW or larger feature internal circuit breakers

Table 4: AG Electric Heat Staging Options

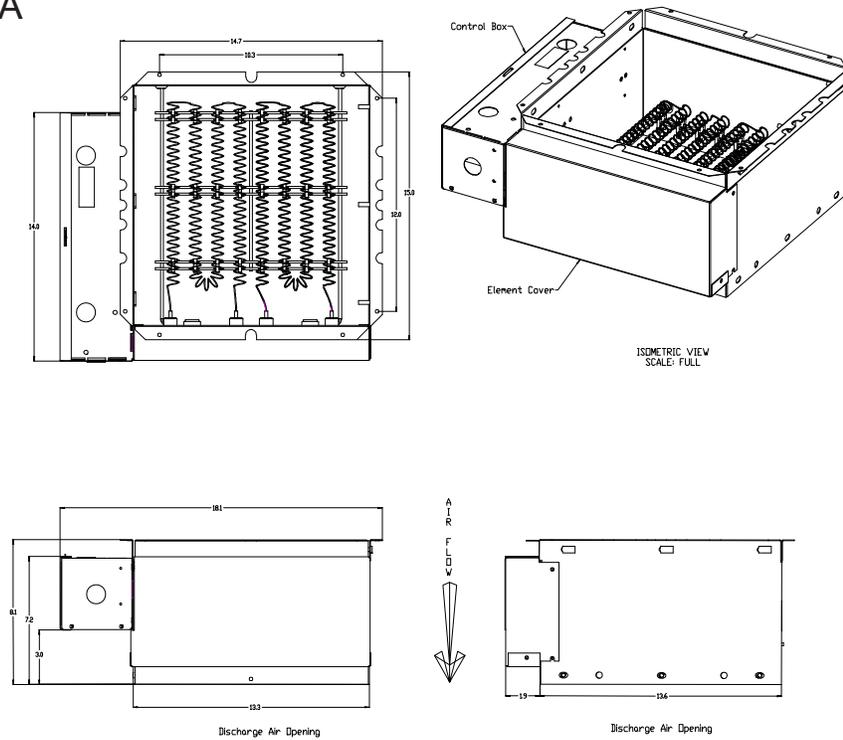
Heater Model	Staging kW	Factory Setting			Alternate Setting		
		Dip Position	Stage 1 kW	Stage 2 kW	Dip Position	Stage 1 kW	Stage 2 kW
AGM4	4	ER1	4				
AGM5	5	ER1	5				
AGM8	4 or 8	ER1	4	4	ER2	8	
AGM10, AGL10	5 or 10	ER1	5	5	ER2	10	
AGM12	4, 8, or 12	ER1, ER4	4	8	ER3, ER4	8	4
AGL15	5, 10 or 15	ER1, ER4	5	10	ER3, ER2	10	5
AGL20	10 or 20	ER3, ER4	10	10			

The maximum recommended air velocity for a supply plenum is 900 fpm. When connecting a plenum to an external supplemental heater, ensure that the air velocity in the plenum does not exceed 900 fpm. Noise and air distribution issues may occur if supply plenum velocities exceed 900 fpm.

AGM4A - 12A



AGL10A - 20A



Warranty



CLIMATE MASTER, INC. LIMITED EXPRESS WARRANTY AND LIMITATION OF LIABILITY AND REMEDIES FOR RESIDENTIAL CLASS PRODUCTS WITH LABOR ALLOWANCE

This Limited Express Warranty And Limitation Of Liability And Remedies Apply To All Products Sold In The United States, Canada, Mexico, And Puerto Rico.

This Limited Express Warranty shall commence on the date of first occupancy of the Product by a qualified and trained HVAC contractor or (iii) six (6) months from the shipment date of the Product from CM. The Limited Express Warranty shall extend as follows:

- (1) Ten (10) years from the date of shipment from CM for any other accessories or parts built or sold by CM, when installed with CM Units
- (2) One (1) year from the date of shipment from CM for all repair or replacement parts that are not supplied under this warranty.
- (3) Five (5) years from the date of shipment from CM for CM Units

EXCEPT AS SPECIFICALLY SET FORTH HEREIN, THERE IS NO EXPRESS WARRANTY AS TO ANY OF CM'S PRODUCTS. CM MAKES NO WARRANTY AGAINST LATENT DEFECTS, OF MERCHANTABILITY OF THE PRODUCTS OR FOR ANY PARTICULAR PURPOSE.

LEGAL: This Limited Warranty shall commence on the date of first occupancy of the Product by a qualified and trained HVAC contractor or (iii) six (6) months from the shipment date of the Product from CM. The Limited Express Warranty shall extend as follows:

- (1) Ten (10) years from the date of shipment from CM for any other accessories or parts built or sold by CM, when installed with CM Units
- (2) One (1) year from the date of shipment from CM for all repair or replacement parts that are not supplied under this warranty.
- (3) Five (5) years from the date of shipment from CM for CM Units

WHO IS COVERED: This Limited Warranty is provided only to the original owner of the one or two family residential dwelling in which the Products are first installed. This Limited Warranty is not transferable. CM reserves the right to request any documentation necessary in its sole discretion to determine the date of purchase and occupancy of the residential dwelling or the date of final installation and start-up of the Product. For the avoidance of any doubt, this Limited Warranty shall not extend to, and shall provide no remedies whatsoever, any distributor or reseller of the Products.

CLAIM PROCESS: To make a claim under this warranty, the Product or part must be returned to CM in Oklahoma City, Oklahoma, freight prepaid. The Limited Warranty on any Product or part repaired or replaced under this Limited Warranty, CM will either repair or replace the Product or part and send it to the CM-recognized distributor dealer or service organization. COB: CM, Oklahoma City, Oklahoma, freight prepaid. The Limited Warranty on any Product or part repaired or replaced under this Limited Warranty extends only through the original warranty period.

WHAT IS COVERED: Subject to the terms of this Limited Express Warranty, CM will, at its option, provide a free suitable substitute part or products, credit in the amount of the fair factory selling price for a new suitable substitute part to be provided by the claimant towards the retail purchase price of a new CM product. All labor costs are subject and limited to amounts specifically set forth in the terms existing labor allowance schedule provided by CM. Warranty Department. Annual labor costs are not covered by this Limited Warranty. The extent they: (a) exceed the amount allowed under the allowance schedule; (b) represent a qualified and trained HVAC contractor; (c) are not performed by CM authorized service personnel; (d) are not in accordance with the instructions provided by CM; (e) are not in accordance with the instructions provided by CM; (f) are not in accordance with the instructions provided by CM; (g) are not in accordance with the instructions provided by CM; (h) are not in accordance with the instructions provided by CM; (i) are not in accordance with the instructions provided by CM; (j) are not in accordance with the instructions provided by CM; (k) are not in accordance with the instructions provided by CM; (l) are not in accordance with the instructions provided by CM; (m) are not in accordance with the instructions provided by CM; (n) are not in accordance with the instructions provided by CM; (o) are not in accordance with the instructions provided by CM; (p) are not in accordance with the instructions provided by CM; (q) are not in accordance with the instructions provided by CM; (r) are not in accordance with the instructions provided by CM; (s) are not in accordance with the instructions provided by CM; (t) are not in accordance with the instructions provided by CM; (u) are not in accordance with the instructions provided by CM; (v) are not in accordance with the instructions provided by CM; (w) are not in accordance with the instructions provided by CM; (x) are not in accordance with the instructions provided by CM; (y) are not in accordance with the instructions provided by CM; (z) are not in accordance with the instructions provided by CM.

WHAT IS NOT COVERED: This Limited Warranty does not cover and does not apply to: (1) labor charges, (2) freight charges, (3) electrical charges, (4) gas charges, (5) permits, (6) taxes, (7) insurance, (8) consequential damages, (9) loss of use, (10) loss of income, (11) loss of business, (12) loss of profits, (13) loss of reputation, (14) loss of goodwill, (15) loss of data, (16) loss of information, (17) loss of documents, (18) loss of records, (19) loss of time, (20) loss of opportunity, (21) loss of chance, (22) loss of benefit, (23) loss of advantage, (24) loss of interest, (25) loss of honor, (26) loss of respect, (27) loss of prestige, (28) loss of status, (29) loss of position, (30) loss of rank, (31) loss of title, (32) loss of office, (33) loss of authority, (34) loss of power, (35) loss of influence, (36) loss of credit, (37) loss of confidence, (38) loss of trust, (39) loss of friendship, (40) loss of affection, (41) loss of love, (42) loss of companionship, (43) loss of 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Notes

Revision History

Date	Page #	Description
7 July, 2023	All	Added VE model, updated data tables
11 May, 2019	All	Misc. text edits
2 Dec., 2016	All	Misc. Edits
16 Dec., 2015	8	Add AGM12 to table 3
04 Aug., 2015	9	Updated Illustration Title AGL10A - 20A
09 Feb., 2015	All	Misc Edits
22 Dec., 2014	5	External Installation Instructions Updated
29 Oct., 2014	All	First Published



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