

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

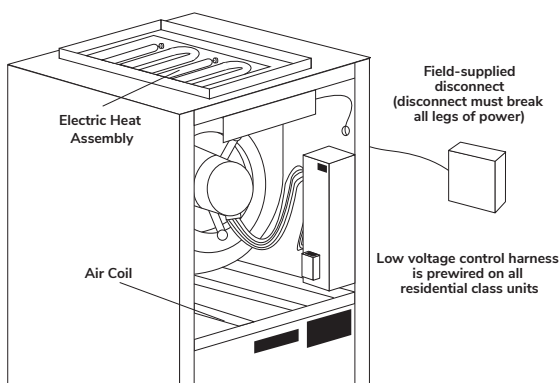


Figure 1b: Typical vertical unit installation

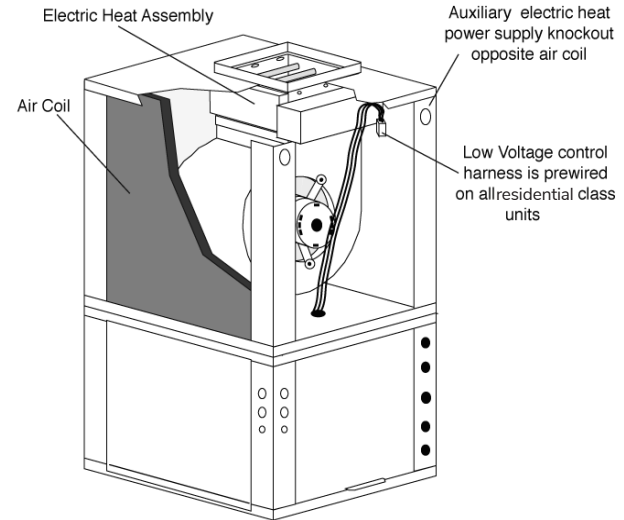


Figure 2: Blower removal

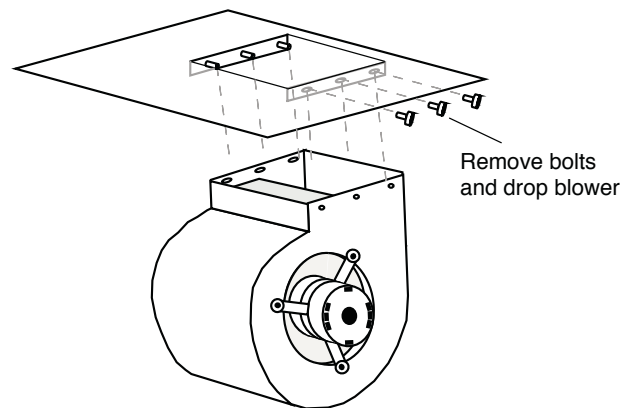
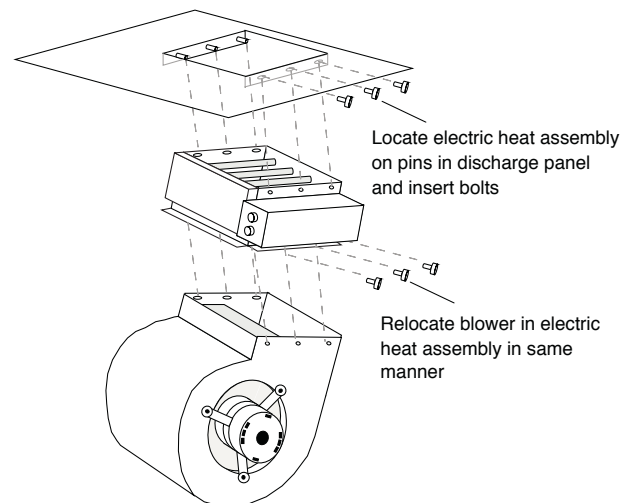


Figure 3: AG electric heat mounting and blower re-installation



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:

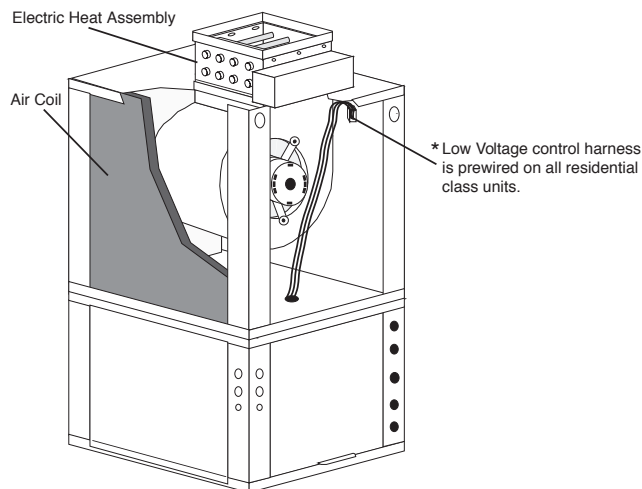
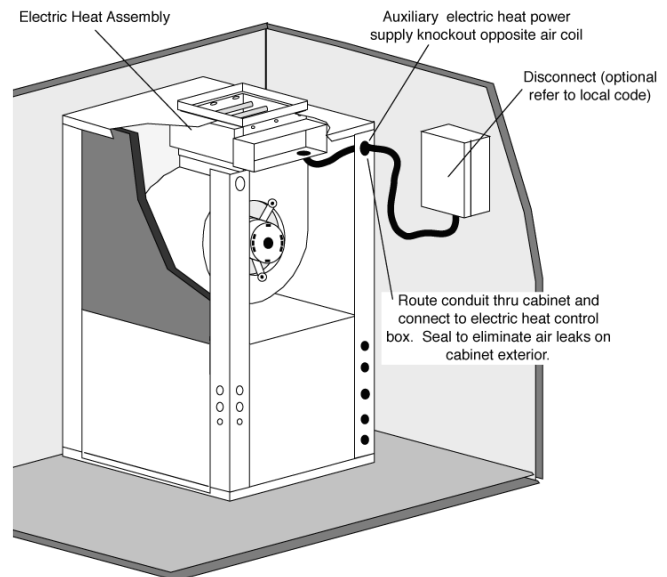


Figure 5:



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

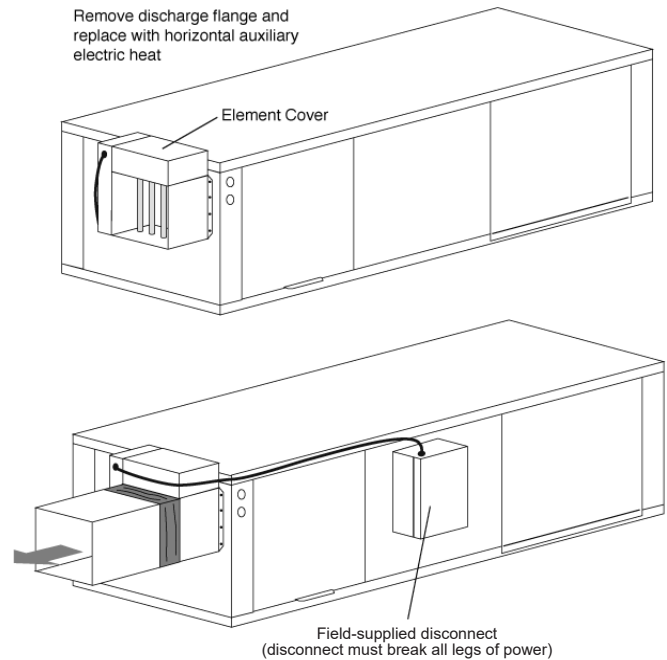


Figure 7a: Power Wiring, Dual Circuits, 15, 20kw

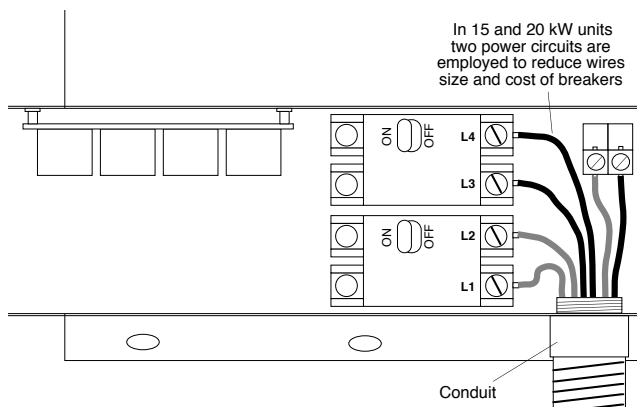
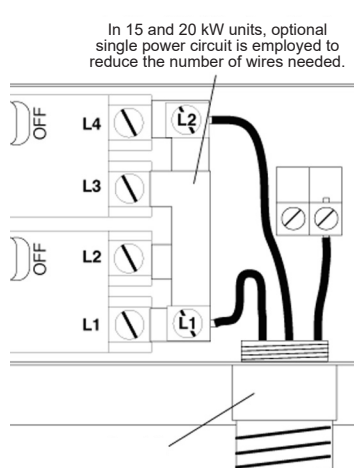


Figure 7b: Power Wiring, Single Circuit, 12, 15, 20kw



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

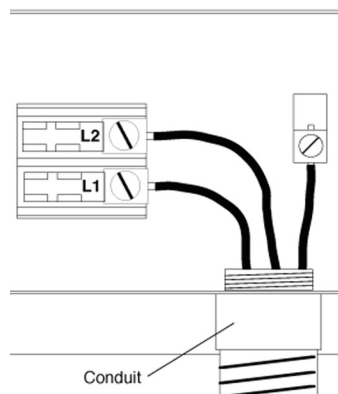
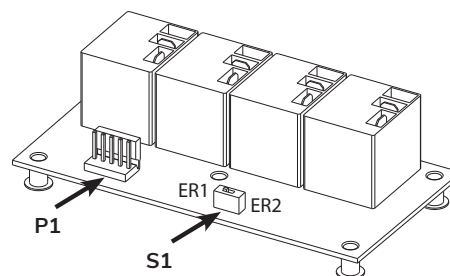
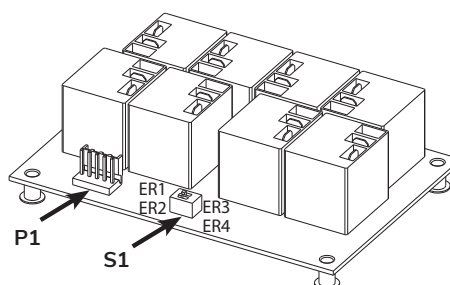


Figure 8: Staging Dip Switches

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



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



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.

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

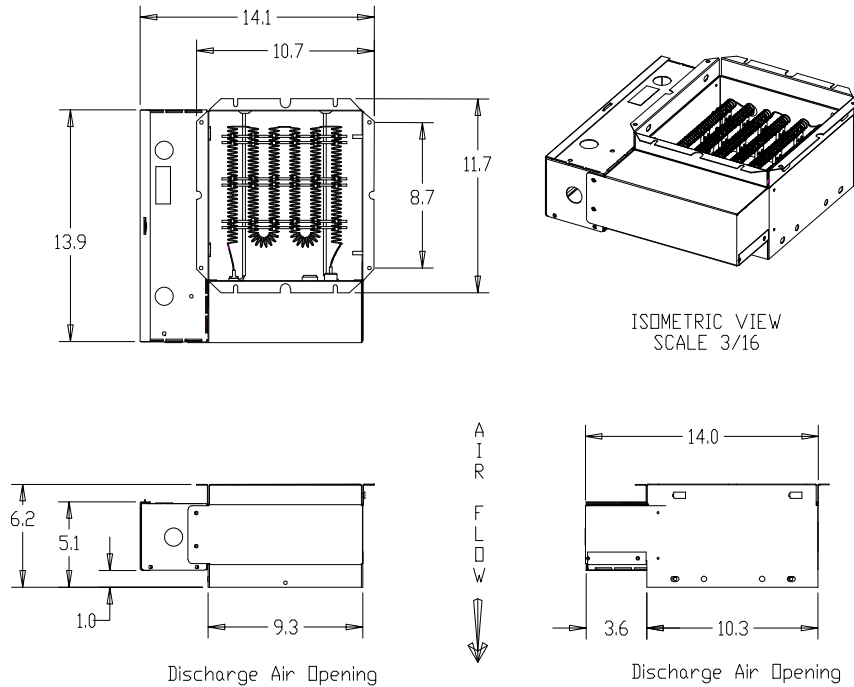
All models 12kW or larger feature internal circuit breakers

Table 4: AG Electric Heat Staging Options

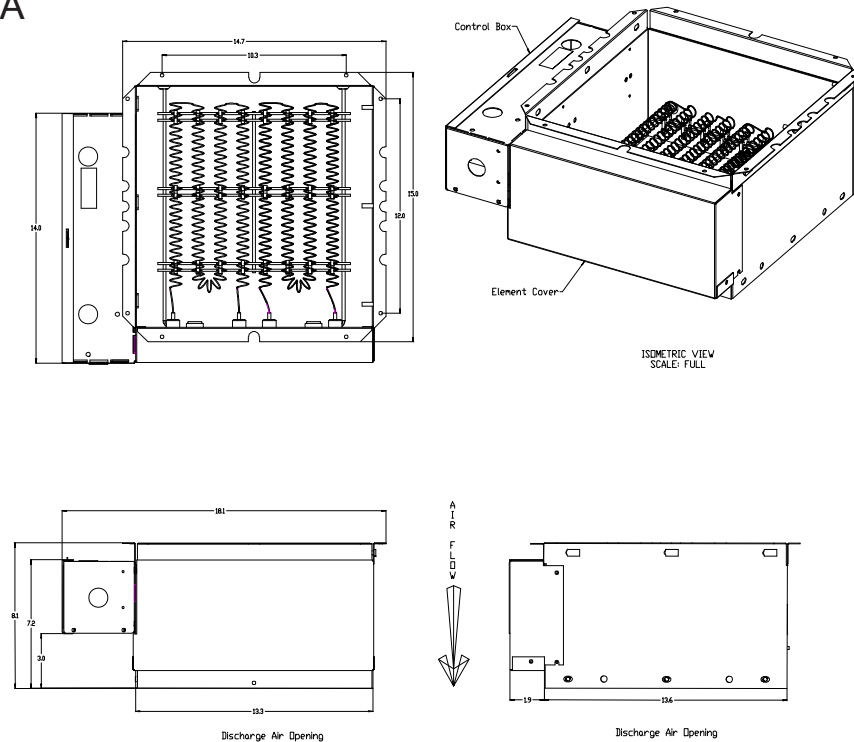
Heater Model	Staging	Factory Setting			Alternate Setting		
	kW	Dip Position	Stage 1 kW	Stage 2 kW	Dip Position	Stage 1 kW	Stage 2 kW
AGM4	4	ER1	4				
AGM5	5	ER1	5				
AGM8	4 or 8	ER1	4	4	ER2	8	
AGM10, AGL10	5 or 10	ER1	5	5	ER2	10	
AGM12	4, 8, or 12	ER1, ER4	4	8	ER3, ER4	8	4
AGL15	5, 10 or 15	ER1, ER4	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 Affect Your Legal Rights And Should Be Read Carefully In Its Entirety.

Subject to the terms and conditions below, ClimateMaster, Inc. ("CM") extends a limited warranty ("Limited Warranty") for Residential Glass heating and cooling equipment manufactured or sold by CM ("Products") that was purchased on or after May 1, 2010 (this would generally include CM Units with serial numbers beginning with "N19" and "N18"), and installed in a one or two family residential dwelling for personal, household or family purposes in the United States of America or Canada. ("Application"). To be free from defects and workmanship under normal use and maintenance. If you are unsure if this Limited Warranty applies to a Product, you have purchased, contact CM at the phone number or address reflected below.

This Limited Warranty DOES NOT cover commercial applications of the Products. Commercial applications include any application other than installation in a one or two family residential dwelling for personal, household or family purposes. Refer to ClimateMaster Commercial Limited Express Warranty for details. Full copies are available for download at ClimateMaster.com.

This Limited Warranty provides a complete statement of CM's responsibilities to purchasers of the Products, is intended to provide an express or written warranty of any kind and does not form a part of the basis of the bargain. Further, no such statement shall operate to extend, alter or modify the scope or terms of this Limited Warranty.

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, OR MERCHANTABILITY OF THE PRODUCTS FOR ANY PARTICULAR PURPOSE.

TERM: This Limited Warranty shall commence on the earliest to occur of the following dates: (i) proof of date of first occupancy; (ii) proof of date of start-up of the Product by a qualified and trained HVAC contractor; or (iii) six (6) months from the shipment date of the Product from CM. If Items (i) or (ii) are not available ("Warranty Inception Date"), The Limited Warranty shall extend as follows:

- Costs of Repair or Replacement of Covered Product Parts**
- (1) Ten (10) years from the Warranty Inception Date for air conditioning, heating and/or heat pump units built or sold by CM, when installed with CM Units;
 - (2) Ten (10) years from the Warranty Inception Date for thermostats, auxiliary electric heaters, water storage tanks, and geothermal pumping modules built or sold by CM, when installed with CM Units;
 - (3) One (1) year from the date of shipment from CM for any other accessories or parts built or sold by CM, when installed with CM Units; and
 - (4) Ninety (90) days from the date of shipment from CM for all repair or replacement parts that are not supplied under this warranty.
- Costs of Labor to Install/Repair or Replace Covered Product Parts**
- (1) Five (5) years from the Warranty Inception Date for CM Units;
 - (2) Five years from the Warranty Inception Date for thermostats, auxiliary electric heaters, water storage tanks, and geothermal pumping modules built or sold by CM, when installed with CM Units.

This Limited Warranty does not cover labor costs for installation of other accessories or parts built or sold by CM or any repaired or replacement parts that are not supplied under this Limited Warranty.

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(s). 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 and send it to the CM-recognized distributor dealer or service organization, LOB, 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 Term, this Limited Express Warranty covers the (i) the cost of repair or replacement of any covered Product or Product parts; and (ii) the cost of labor incurred by CM authorized service personnel in connection with the installation of a repaired or replaced covered Product or Product part.

If a Product part is not available, CM will, at its option, provide a free suitable substitute part or provide, credit in the amount of the factory selling price for a new suitable substitute part to be used 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 then existing labor allowance schedule provided by CM's Warranty Department. And labor costs are not covered by this Limited Warranty to the extent they (i) exceed the amount allowed under the allowance schedule; (ii) are not specifically provided for in the allowance schedule; (iii) are not performed by CM authorized service personnel; (iv) are not covered by the CM's warranty; or (v) are not covered by the CM's warranty.

WHAT IS NOT COVERED: This Limited Warranty does not cover and does not apply to, (1) air filters, coils, refrigerant, fluid, oil, or (2) Products replaced after initial installation. (3) any portion or component of any system that is not supplied by CM, regardless of the cause of the failure of such portion or component. (4) Products on which the unit identification tags or labels, or rating labels, have been removed or destroyed. (5) Products on which payment to CM, or to the owner's seller or installing contractor, is in default. (6) Products which have not been installed and maintained by a qualified and trained HVAC contractor. (7) Products installed in violation of applicable building codes or regulations including but not limited to wiring or voltage conditions. (8) Products subjected to accident, misuse, negligence, abuse, fire, flood, freezing, lightning, unauthorized alteration, misapplication, contaminated or corrosive air or liquid supply, operation at abnormal air or liquid temperatures or flow rates, or overloading of the refrigerant circuit by compressed pressure. (9) mold, fungus or the extent damage. (10) corrosion or abrasion of the Product. (11) products supplied by others. (12) Products that have been operated in a manner contrary to CM's printed instructions. (13) Products which have insufficient performance as a result of improper system design, sizing or the improper application, installation, or use of CM's products. (14) electricity or fuel costs, or any increases or unrealized savings in same, for any reason whatsoever; or (15) operating any water storage tanks when they are empty or partially empty (i.e. dry firing), at temperature exceeding the maximum setting of the operating or high limit controls, at pressures greater than those shown on the rating label, with non-potable water, with alteration or attachment (including energy saving devices) not specifically authorized in writing by CM, or without the pre-circulation of water CM may require written documentation showing compliance with the above limitations.

In connection with repair or replacement of covered Product parts, CM is not responsible for: (1) the costs of any fluids, refrigerant or system components supplied by others, or associated labor to repair or replace the same, which is incurred as a result of repair or replacement of a covered Product part; (2) the costs of labor, refrigerant, materials or service incurred in diagnosis and removal of a covered Product part subject to repair or replacement under this Limited Warranty; (3) shipping costs incurred in sending a claimed defective part from the installation site to CM; (4) shipping costs to return a claimed defective part from CM to the installation site if the part is not covered by this Limited Warranty; (5) removal or disposal costs associated with the repair or replacement of covered Product Parts; or (6) the costs of normal maintenance.

OTHER WARRANTY LIMITATIONS: This Limited Warranty is given in lieu of all other warranties express or implied, in law or in fact. It, notwithstanding the disclaimer contained herein, it is determined that other warranties apply, any such warranty, including without limitation any express warranties or any implied warranties of fitness for particular purpose and merchantability, shall be limited in time to the Term of this Limited Warranty.

LIMITATION OF REMEDIES: In the event of a breach of the Limited Warranty, a claimant's remedies will be limited to repair or replacement of a part or unit, or to furnish a new or rebuilt part or unit in exchange for the part or unit which has failed. If after written notice to CM's factory in Oklahoma City, Oklahoma of each defect, malfunction or other failure, the remedy fails of its essential purpose, CM shall refund the purchase price paid to CM in exchange for the return of the sold goods. Said refund shall be the maximum liability of CM. This REMEDY IS THE SOLE AND EXCLUSIVE REMEDY OF THE BUYER OR THEIR PURCHASER AGAINST CM FOR ANY ACTION FOR BREACH OF CONTRACT, BREACH OF ANY WARRANTY, BREACH OF INFRINGEMENT, OR FOR CM'S NEGLIGENCE OR STRICT LIABILITY. NO ACTION ARISING OUT OF OR ANY CLAIMED BREACH OF THIS LIMITED WARRANTY MAY BE BROUGHT MORE THAN ONE (1) YEAR AFTER THE CAUSE OF ACTION HAS AROSEN.

LIMITATION OF LIABILITY: CM shall have no liability for any damages if CM's performance is delayed for any reason or is prevented to any extent by any war, civil unrest, government restrictions or restrictions, strikes, or work stoppages, fire, flood, accident, shortages of transportation, fuel, material, or labor, or of God or of any other reason beyond the sole control of CM.

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OBTAINING WARRANTY PERFORMANCE: Normally, the dealer or service organization who installed the products will provide warranty performance for the owner. Should the installer be unavailable, contact CM's recognized distributor, dealer or service organization. If assistance is required in obtaining warranty performance, write or call:

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Rev: 3/20
Part No.: RPS51

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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