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October, 2023

# INSTALLATION AND SERVICE MANUAL

## Residential Electric Unit Heater

### Model AMP



## FOR YOUR SAFETY

The use and storage of gasoline or other flammable vapors and liquids in open containers in the vicinity of this appliance is hazardous.

### ⚠ WARNING

Improper installation, adjustment, alteration, service, or maintenance can cause property damage, injury, or death, and could cause exposure to substances which have been determined by various state agencies to cause cancer, birth defects, or other reproductive harm. Read the installation, operating, and maintenance instructions thoroughly before installing or servicing this equipment.

### Inspection on Arrival

1. Inspect unit upon arrival. In case of damage, report it immediately to transportation company and your local Modine sales representative.
2. Check rating plate on unit to verify that power supply and motor specification requirements meets available electric power at the point of installation.
3. Inspect unit upon arrival for conformance with description of product ordered (including specifications where applicable).

### General Information

Installation and wiring of these electric unit heaters must conform to all applicable local codes and the National Electric Code. Wiring of these electric unit heaters should only be performed by a qualified electrician.

### IMPORTANT

The use of this manual is specifically intended for a qualified installation and service agency. All installation and service of these units must be performed by a qualified installation and service agency.

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# SPECIAL PRECAUTIONS / IMPORTANT INSTRUCTIONS

## SPECIAL PRECAUTIONS / IMPORTANT INSTRUCTIONS

THE INSTALLATION AND MAINTENANCE INSTRUCTIONS IN THIS MANUAL MUST BE FOLLOWED TO PROVIDE SAFE, EFFICIENT AND TROUBLE-FREE OPERATION. IN ADDITION, PARTICULAR CARE MUST BE EXERCISED REGARDING THE SPECIAL PRECAUTIONS LISTED BELOW. FAILURE TO PROPERLY ADDRESS THESE CRITICAL AREAS COULD RESULT IN PROPERTY DAMAGE OR LOSS, PERSONAL INJURY, OR DEATH. THESE INSTRUCTIONS ARE SUBJECT TO ANY MORE RESTRICTIVE LOCAL OR NATIONAL CODES.

### HAZARD INTENSITY LEVELS

1. **DANGER:** Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.
2. **WARNING:** Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.
3. **CAUTION:** Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.
4. **IMPORTANT:** Indicates a situation which, if not avoided, MAY result in a potential safety concern.

## DANGER

Appliances must not be installed where they may be exposed to a potentially explosive or flammable atmosphere.

## WARNING

1. Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage.
2. All appliances must be wired strictly in accordance with wiring diagram furnished with the appliance. Any wiring different from the wiring diagram could result in a hazard to persons and property.
3. Ensure that the supply voltage to the appliance, as indicated on the serial plate, is not 5% greater than rated voltage.
4. When servicing or repairing this equipment, use only factory-approved service replacement parts. A complete replacement parts list may be obtained by contacting Modine Manufacturing Company. Refer to the rating plate on the appliance for complete appliance model number, serial number, and company address. Any substitution of parts or controls not approved by the factory will be at the owner's risk.
5. Do not operate any heater if it malfunctions. Disconnect power at service panel and have heater inspected by a qualified installation and service agency.
6. Do not insert or allow foreign objects to enter any intake or exhaust opening.
7. Use this heater only as described in this manual.
8. Components of the heater are hot when in use. To avoid burn, do not let bare skin touch hot surfaces.
9. Extreme caution is necessary when any heater is used by or near children or invalids and whenever the heater is left operating and unattended.
10. The heater must be installed properly before use.

## CAUTION

1. All literature shipped with this unit should be kept for future use for servicing or service diagnostics. Do not discard any literature shipped with this unit.
2. Be sure no obstructions block air intake or discharge of the appliance.
3. Do not install appliance in outdoor, wet or moist locations.
4. Do not install appliance outdoors.
5. Clearances to combustible materials are critical. Be sure to follow all listed requirements. See Table 3.1.
6. The bottom of the appliance must be at least - 6ft from the finished floor in the USA and 8ft in Canada.
7. Do not attach duct work, air filters, or polytubes to any appliance.
8. Ensure that the supply voltage to the appliance, as indicated on the serial plate, is not 5% less than the rated voltage.
9. Do not reuse any electrical component which has been wet. Such component must be replaced.
10. When servicing or repairing this equipment, use only factory approved service replacement parts. A complete replacement parts list may be obtained by contacting Modine Manufacturing Company. Parts not approved by the factory will be at the owner's risk.
11. Do not operate any heater if it malfunctions. Disconnect power at service panel and have heater inspected by a qualified installation and service agency.
12. Do not reuse any electrical component which has been wet. Such component must be replaced.
13. **SAVE THESE INSTRUCTIONS.**

## IMPORTANT

1. To check most of the Possible Remedies in the troubleshooting guide listed in Table 8.1, refer to the applicable sections of the manual.
2. Start-up and adjustment procedures must be performed by a qualified service agent.

# INSTALLATION

## ! DANGER

Appliances must not be installed where they may be exposed to a potentially explosive or flammable atmosphere.

## ! CAUTION

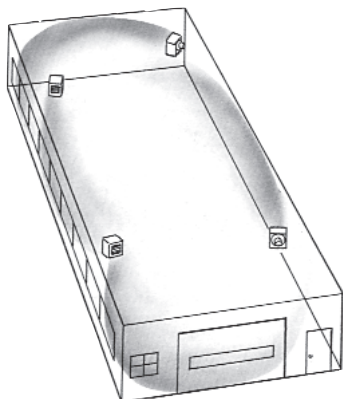
1. Be sure no obstructions block air intake or discharge of the appliance.
2. Do not install appliance in outdoor, wet, or moist locations.

In locating units, consider general space-heating requirements of the area. Unit heaters should be located so they discharge air nearly parallel to exposed walls. Arrange units so they do not blow directly at occupants. Interference of air streams by columns, beams, partitions, or other obstructions should be avoided as much as possible.

In multiple unit installations, arrange units so that each supports the air stream of the next unit, thus creating circulatory air movement in the area. See Figure 3.1. A large portion of the heated air should be directed toward the side of the building exposed to prevailing winds.

Height at which unit heaters are installed is critical. Maximum suggested mounting heights for all units are listed in Table 7.1. The maximum suggested mounting height for any unit is that height above which the unit will not effectively deliver heated air to the floor. The maximum suggested mounting heights should not be exceeded in order to assure maximum comfort. It is critical that the unit has adequate clearance from combustible materials as listed in Table 3.1.

**Figure 3.1 - Typical Unit Locations**



**Table 3.1 - Clearance to Combustibles**

Unit Side	Clearance to Combustible Material
Top	1"
Sides	1"
Bottom	12" min for adequate air flow
Rear	12" min / 18" preferred for servicability
Front	Avoid obstructions as much as possible.

## UNIT MOUNTING

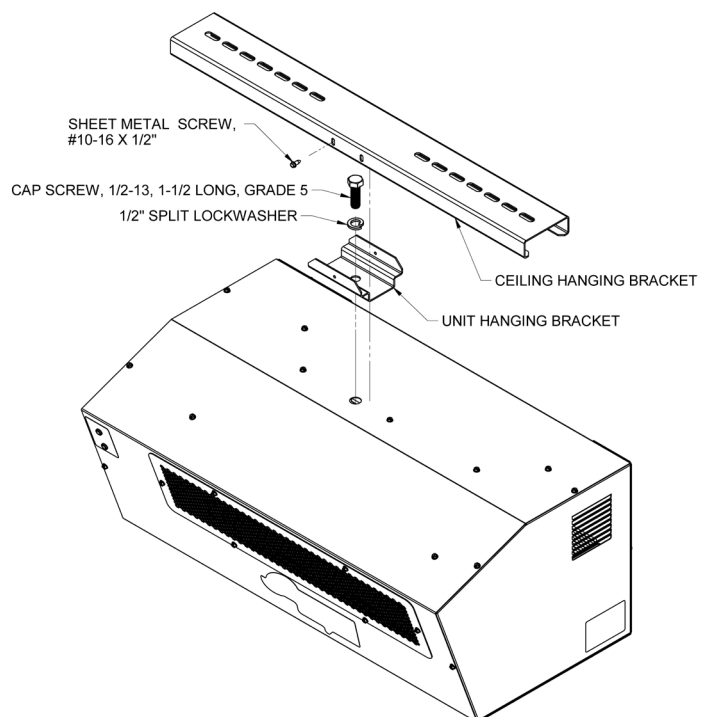
For best performance do not install the unit heater above the maximum suggested mounting height shown in Table 7.1. The bottom of the unit must be unobstructed, and may not be used on a shelf or platform. The unit is provided with a mounting rail, hanging bracket, and hardware to install in a ceiling-mounted application, shown in Figure 3.2. Be sure the means of suspension is adequate to support the weight of the unit (see table 7.1 for unit weights). For proper operation, the unit must be installed in a level horizontal position.

### Standard ceiling mounting (Figure 3.2):

Secure the mounting rail to the ceiling joists or truss, using 1/4" lag screws with minimum 1/2"OD washers furnished by the installer. **Insure clearance for unit installation and removal.** The mounting rail is slotted to accommodate joists on 16" or 24" centerlines, and can be installed across joists or on the same joist depending on desired unit position and access.

One tapped hole (1/2"-13) is provided in the top of the casing for unit heater suspension. A hanging bracket is supplied with the unit, and should be installed with the provided 1/2" -13 x 1-1/2" cap screw and lock washer. This bolt should be secured to the unit to a minimum of 24 ft-lbs of torque. This bracket can be installed at an angle if required for insertion to the mounting rail. Once installed, slide the hanging bracket into the mounting rail, and secure from the front with the provided #10-16 screw to prevent movement of the heater in the rail, see Figure 3.2.

**Figure 3.2 - Standard Ceiling Mount**



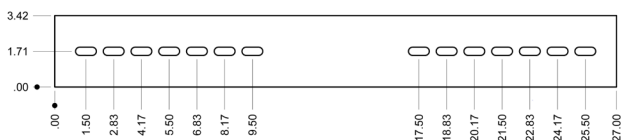
# INSTALLATION

## Ceiling suspension by threaded rod (Figure 4.2):

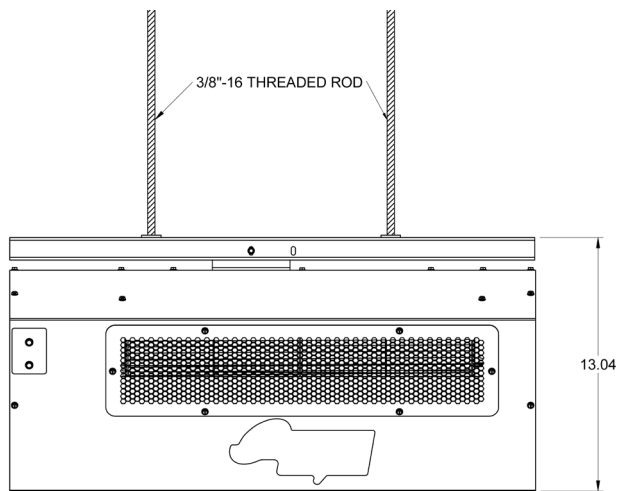
The unit can also be hung with threaded rod utilizing the same mounting brackets. Refer to Figure 4.1. Two 3/8" rods should be secured to an appropriate field-provided structural member such as a steel angle or channel. The rods should be spaced a minimum of 16" apart, equally located from the center line of the bracket. The threaded rods should be secured with washers and lock nuts, lock washers and nuts, or a washer with a double nut arrangement (all field-provided). The mounting rail should be level after securing the rods. The hanging bracket can then be installed on the unit and slid and secured into the rail as defined in the standard ceiling mounting section.

**Figure 4.1 - Mounting Bracket Detail**

3.5" angle, mounting brackets are slotted to accommodate joist on 16" or 24" centerlines.



**Figure 4.2 - Threaded Rod Mount**

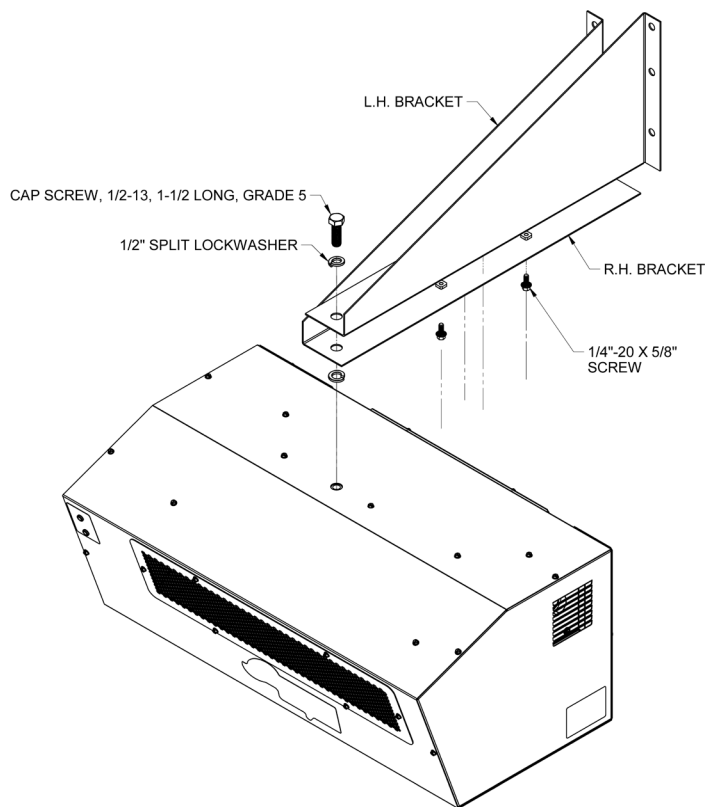


## Wall-Mounting Bracket (Figure 4.3)

For installations where ceiling suspension is not feasible, a wall-mounting bracket kit is available as a factory provided accessory kit. The bracket has a built-in wall clearance, and provides a convenient wall mounting method. The one-point suspension permits swiveling the unit prior to securing to orient the heater in the most effective air direction.

1. Assemble L.H. side bracket to R.H. side bracket and fasten with 1/4"-20 x 5/8" screws (provided) to weldnuts inside R.H. bracket.
2. Secure the mounting bracket to the wall using 1/4" lag screws with minimum 1/2"OD washers furnished by the installer.
3. Raise the unit into position and fasten to the wall bracket with one 1/2" -13 x 1-1/2" cap screw and lock washer (provided). Swivel unit to desired position before tightening capscrew.

**Figure 4.3 Wall-Mounting Bracket**



# INSTALLATION

## Electrical Connections

### ⚠ WARNING

1. Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage.
2. All appliances must be wired strictly in accordance with wiring diagram furnished with the appliance. Any wiring different from the wiring diagram could result in a hazard to persons and property.
3. Ensure that the supply voltage to the appliance, as indicated on the serial plate, is not 5% greater than rated voltage.

### ⚠ CAUTION

Ensure that the supply voltage to the appliance, as indicated on the serial plate, is not 5% greater than rated voltage

1. Installation of wiring must conform with local building codes, or in the absence of local codes, with the National Electric Code ANSI/NFPA 70 - Latest Edition. Unit must be electrically grounded in conformance to this code. In Canada, wiring must comply with CSA C22.1, Part 1, Electrical Code.
2. Two copies of the unit wiring diagram are provided with each unit. One is located inside the control panel access door and the other is supplied in the literature packet. Refer to this diagram for all wiring connections.
3. The power supply to the unit must be protected with a fused or circuit breaker switch.
4. The power supply must be within 5% of the voltage rating and each phase must be balanced within 2% of each other. If not, advise the utility company.
5. External electrical service connections that must be installed include:
  - a. Supply power connection (208-240 volts). Remove the two screws holding the control panel access cover. The heater is provided with a 7/8" hole on the right side of the access panel for use with 1/2" conduit, or a 1-1/8" knockout for 3/4" conduit. Appropriate conduit and fittings

must be provided for safe installation. Allow for approximately 6" of wire inside the unit for connections. Connect the power supply wire to the terminals of the power distribution block marked L1 and L2. Torque terminal screw to 40 in-lbs. Connect the power supply ground wire to the termination. Torque screw to 40 in-lbs.

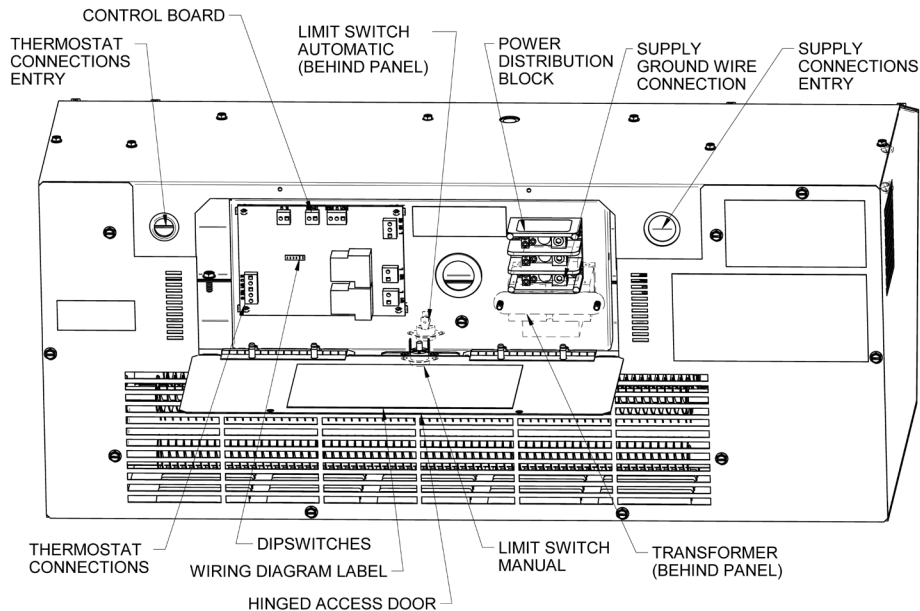
- b. Connection of thermostats, or any other accessory control devices that may be supplied (24 volts). A split grommet is located on the left side of the back panel to pass the thermostat cable through. Wire thermostat leads to the appropriate corresponding thermostat terminal blocks on the left side of control board. If the thermostat is single-stage (W only), or the unit is a AMP057 model, wire the W signal to the W1 terminal of the control board.
6. On the control board, there is a bank of dipswitches that allow for modified operation based on application. Set control board dipswitches to desired function if different than standard. See Figure 5.1 and Table 5.1.

**Table 5.1 - Dipswitch settings**

Dipswitch Number	Dipswitch Position	
	Off (default)	On
1	AMP057 UNUSED	AMP057 UNUSED
	AMP090 - Enables unit for 2-stage thermostat.	AMP090 - Enables unit for single stage thermostat. Unit will start in low stage and call for high stage if after running for 10 minutes it doesn't meet call for heat.
2	On a fan-only (G) call, unit will run at low speed.	On a fan-only (G) call, unit will run at high speed.
3	Unused	Unused
4 <sup>①</sup>	On a low-stage heat (W/W1) call, unit will run at low fan speed.	On a low-stage heat (W/W1) call, unit will run at high fan speed.
5	Unused	Unused
6	Unused	Unused

<sup>①</sup> Enabling high fan speed at low stage will allow the unit to have the Airflow, Air Throw, and Max Mounting Height shown for the AMP090 in table 7.1. Air temp rise for the AM057 performance table 7.1 will be reduced by 10°F.

**Figure 5.1 - Control Board**



# OPERATION

## ⚠ WARNING

The heater must be properly installed before use.

## IMPORTANT

Start-up and adjustment procedures must be performed by a qualified service agency.

### Prior to Operation

Although this unit has been inspected and tested at the factory, the following procedures should be performed to assure proper on-site operation:

1. Check all electrical connections to be sure they are secure, and in accordance with the wiring diagram.
2. Check firmness of unit suspension. Tighten all fasteners, if necessary.

### Safety Devices

The overheat controls, mounted on the bottom of the control section (See Figure 6.1), will interrupt power to the unit contactor in the event of overheating. The limit nearest the fan scroll is a single-pole, single-throw switch, with an automatic reset. The limit nearest the control panel opening is a single-pole, single-throw switch, with a manual reset. If either of these limits is tripped, the red overheat alarm indicator on the front of the unit will illuminate (See Figure 6.2). During this state, power to the elements will be disrupted, but the controls will permit the motor to continue operation and cool the heater. **The overheat controls should operate only when something is wrong with the unit or space temperature. When this control operates, correct the difficulty immediately or serious and permanent damage may result.** If the Overheat Alarm indicator light is illuminated, it is recommended that the unit be disconnected from power at the breaker until the unit can be inspected and the issue resolved. Do not continue to use heater if it repeatedly overheats to cycle the safety thermal limit.

The motor for the blower wheel has internal thermal overload protection. If for any reason the motor overheats, the thermal protector will shut it off. The motor will restart automatically when it has cooled. In the event of a complete motor failure, the manual limit will trip and prevent the elements from heating/cycling. Following motor servicing/replacement, the manual reset button must be pressed to reset the switch prior to the elements functioning again.

### Initial Start-Up

1. Set thermostat above room temperature.
2. Turn on power to the unit.
3. Run the unit through several cycles by raising and lowering the thermostat setting to assure proper sequence of operation.

### Operating Sequence

The operation of this electric unit heater is governed by a microprocessor control board which is controlled by a thermostat. The board completes the electric circuit to the heating elements when the thermostat “calls” for heat. The green ‘Heating Mode’ indicator light on the front of the unit will illuminate when this occurs. The fan motor is also activated shortly after the thermostat “calls” for heat. When the thermostat is satisfied, the control board opens the circuit to the heating elements. There is a cooldown period where the fan will continue to operate after the elements are de-energized to dissipate the remaining heat from the elements before fully shutting off.

Figure 6.1 - Control Board

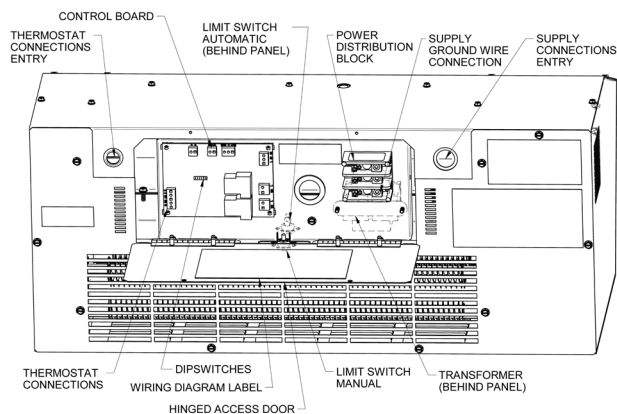
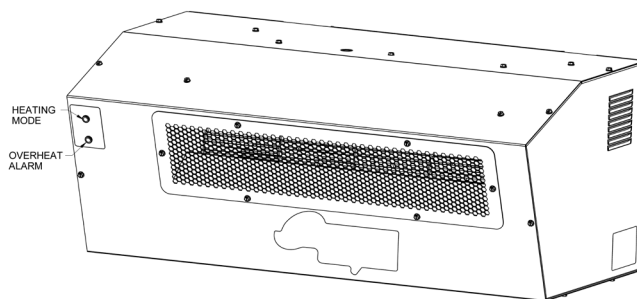


Figure 6.2 - Indicator Lights



# DIMENSIONAL / PERFORMANCE DATA

Figure 7.1 - Unit Dimensions (inches)

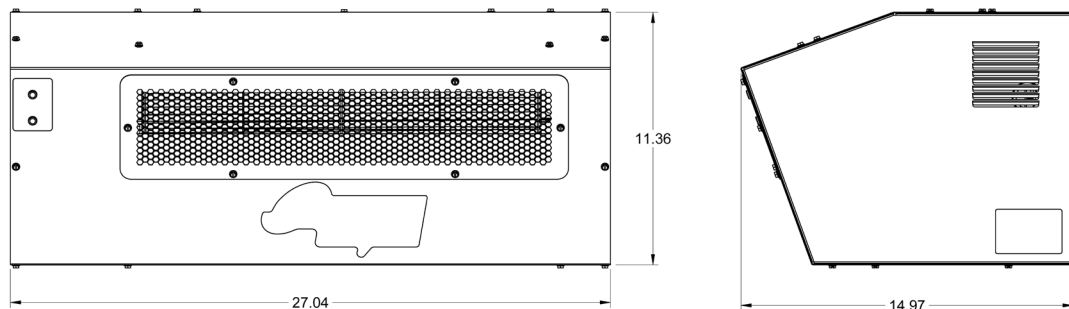


Table 7.1 - Performance Data / Mounting Height

Model Size	Voltage	Heating Capacity		Airflow		Temp Rise		Heat Throw		Suggested Max. Height		Weight
		kw	BTU/HR	CFM	m <sup>3</sup> hr	°F	°C	ft	m	ft	m	lbs
AMP057 <sup>①</sup>	240V	5.7	19,437	425	722	42.3	23.5	20	6.1	8	2.4	48
	208V	4.3	14,578			31.8	17.6			8	2.4	
AMP090	240V	9.0	30,690	550	934	51.7	28.7	26	7.9	10	3	52
	208V	6.8	23,018			38.8	21.5			10	3	

① Capacity, airflow, temperature rise and throw values also correspond to low stage of AMP090

# GENERAL MAINTENANCE / TROUBLESHOOTING

## CAUTION

1. When servicing or repairing this equipment, use only factory approved service replacement parts. A complete replacement parts list may be obtained by contacting Modine Manufacturing Company. Parts not approved by the factory will be at the owner's risk.
2. Do not operate any heater if it malfunctions. Disconnect power at service panel and have heater inspected by a qualified installation and service agency.
3. Do not reuse any electrical component which has been wet. Such component must be replaced.

Replacement parts can be obtained from Modine by submitting the model number, power code, control code and serial number shown on the rating plate attached to the unit, along with a description of the part.

## Routine Unit Maintenance

Under average conditions, it is recommended that unit heaters be serviced at least once a year and checked out prior to the heating season. In excessively dirty atmospheres, service should be performed more often.

1. Disconnect power supply to the unit before performing any of the following maintenance or inspection procedures & allow heating elements of heater to cool.
2. Check all components and wiring inside the unit for firm connections and/or wear.

NOTE: To check most of the Possible Remedies in the trouble-shooting guide listed in Table 8.1, refer to the applicable sections of the manual.

3. Verify unit mounting is secure, and tighten any hardware that seems loose.
4. Fan motor is permanently lubricated for normal operation. Under severe conditions, lubricate with non-detergent SAE 20 motor oil.
5. Routine cleaning of the unit casing and outlet screen is recommended to remove dirt, grease, or corrosive substances that may damage the finish. Rusted or corroded spots on the outlet screen or casing should be sanded and repainted.
6. Check entire electrical system before every heating season.

**Table 8.1 - Troubleshooting**

PROBLEM	POSSIBLE CAUSE(S)	REMEDY
<b>Unit does not operate</b>	<ol style="list-style-type: none"> <li>1. Electric circuit in open position.</li> <li>2. Tripped breaker or fuse of circuit.</li> <li>3. Defective or incorrect wiring.</li> <li>4. Defective thermostat or switch.</li> <li>5. Defective or burned out control transformer</li> <li>6. Defective control board</li> </ol>	<ol style="list-style-type: none"> <li>1.                             <ol style="list-style-type: none"> <li>a. Turn on switch or thermostat</li> <li>b. Move thermostat to higher setting.</li> <li>c. Replace fuse or reset disconnect</li> </ol> </li> <li>2. Replace fuses or reset breaker</li> <li>3. Check wiring and connections. Refer to diagram inside control panel.</li> <li>4. Check continuity with volt-ohmmeter. Replace defective part if necessary.</li> <li>5. Check secondary voltage with voltmeter. Replace if necessary.</li> <li>6. Replace if necessary</li> </ol>
<b>Fan operates but element does not heat</b>	<ol style="list-style-type: none"> <li>1. Power interrupted by overheat control.</li> <li>2. Unit receiving fan only call.</li> <li>3. Defective or incorrect wiring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Defective limit control. Check wiring and connections. Check continuity through control. Replace if necessary.</li> <li>2. Check thermostat settings, wiring and connections.</li> <li>3. Check all wiring and connections. See diagram inside access panel.</li> </ol>
<b>Elements heat but fan does not operate</b>	<ol style="list-style-type: none"> <li>1. Blown motor fuse</li> <li>2. Fan motor failure</li> <li>3. Summer-winter switch defective or improperly wired.</li> <li>4. Defective or incorrect wiring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check fuse on control board, replace if necessary</li> <li>2.                             <ol style="list-style-type: none"> <li>a. Check for loose electrical connections. Check wiring with diagram in control compartment.</li> <li>b. Repair or replace defective motor.</li> <li>c. Voltage too high or too low. Check voltage with voltmeter.</li> </ol> </li> <li>3. Check for continuity with volt-ohmmeter. Replace if necessary.</li> <li>4. Check all wiring and connections. See diagram inside control compartment.</li> </ol>
<b>Insufficient heat</b>	<ol style="list-style-type: none"> <li>1. Too few units or under sized unit(s) for heat loss.</li> <li>2. Unit(s) mounted too high.</li> <li>3. Airflow too low.</li> <li>4. Burned out element.</li> </ol>	<ol style="list-style-type: none"> <li>1. Add more units or increase size of unit(s)</li> <li>2. Lower unit(s)</li> <li>3. Check motor rpm against nameplate rating. Replace motor if speed is too slow</li> <li>4. Disconnect internal wiring and check individual element resistance with ohmmeter (50.5 ohms +/- 5%).</li> </ol>



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# WARRANTY

This Warranty (the "Warranty") shall apply to Products (as defined below) sold by Modine Manufacturing Company, a Wisconsin corporation ("Seller") to you ("Buyer").

Seller hereby warrants that during the Applicable Warranty Period (as defined below) its Products shall be free from defects in material and factory workmanship under normal use and service, subject to the EXCLUSIONS described below and according to the terms outlined in this Warranty.

If Seller receives written notice of a breach of this Warranty prior to the end of the Applicable Warranty Period (which such notice shall include the model and serial numbers of the Product, as well as the date and a reasonably detailed description of the Product's alleged failure), Buyer shall with Seller's prior written approval, return the applicable Product or component thereof to Seller with shipping charges prepaid; if upon examination by Seller such Product or component thereof is disclosed to have been defective, then Seller will, without charge to Buyer, at Seller's option, either repair the Product, replace defective parts in the Product, or offer an entire replacement unit of the Product; provided that the warranty period for a Product that has been repaired or provided with replacement parts shall not extend beyond the original Applicable Warranty Period, nor shall any replacement parts provided for a Product be under any warranty beyond the original Applicable Warranty Period for the Product; similarly, if Seller provides an entire replacement unit of the Product, the warranty period for the replacement unit is limited to the remainder of the original Applicable Warranty Period. Seller shall have no responsibility for installation, service, field labor, shipping, handling, or other costs or charges, except as expressly provided in this Warranty. Buyer shall have no remedy hereunder for any defective part returned without proper written authorization from Seller, as described above.

For purposes of this Warranty and subject to the exclusions described below, the term "Products" shall mean parts or equipment manufactured by Seller, sold to Buyer pursuant to a purchase contract between Buyer and Seller (most often initiated by a purchase order issued by Buyer and accepted by Seller), and expressly described in such contract. The term "Products" shall not include third-party parts or equipment furnished by Seller, except that, to the extent assignable, Seller will assign to Buyer the benefits (together with all limitations and exclusions) of the third-party manufacturer's warranty for such parts or equipment. This Warranty extends only to the original purchase contract between Buyer and Seller and is nontransferable, except that this Warranty may be assigned to an Authorized End User (as defined below). All replaced parts or equipment shall become Seller's property. For purposes of this Warranty, the term "Applicable Warranty Period" shall mean the warranty period set forth in the table below for each type or class of Product described on the table; provided that, when the Product is to be used as a component part of equipment manufactured by Buyer, the Applicable Warranty Period shall be limited to one (1) year after the date of shipment from Seller, notwithstanding anything in the table below to the contrary. For purposes of this Warranty, the term "Authorized End User" shall mean any third-party that purchases the Product directly or indirectly from Buyer for the Authorized End User's own use upon the first installation of the Product and not for resale.

BUYER HEREBY ACKNOWLEDGES THAT ITS REMEDIES FOR BREACH OF THIS WARRANTY, EXCLUSIVE OF ALL OTHER REMEDIES PROVIDED BY LAW, ARE LIMITED AS DESCRIBED ABOVE.

EXCLUSIONS AND LIMITATIONS: This Warranty is subject to the following exclusions and limitations:

The term "Products" shall not include and this Warranty shall not apply to any of the following items: refrigerant gas, belts, filters, fuses and other items consumed or worn out by normal wear and tear.

In addition, this Warranty shall not apply to:

- (1) Products or components thereof that are damaged or adversely affected by conditions beyond Seller's control, including but not limited to polluted or contaminated or foreign matter contained in the air or water utilized for heat exchanger (condenser) cooling or if the failure of the part is caused by improper air or water supply, or improper or incorrect sizing of power supply;
- (2) Any Products or components thereof which have been repaired or altered outside the factory of Seller in any way, or otherwise subject to unauthorized repairs or alterations, so as, in the judgment of Seller, to affect the Product's durability or performance;
- (3) Materials or labor of any kind not furnished by Seller, or any charges for any such labor or materials, whether such labor, materials or charges thereon are due to replacement of parts, adjustments, repairs, or any other work done by any party other than Seller;
- (4) Labor or other costs incurred for diagnosing, repairing, removing, installing, shipping, servicing, or handling of either defective or replacement parts;
- (5) Any Products removed from their original location for reinstallation in another location;
- (6) Any Products or components thereof which have been operated, maintained, or serviced contrary to Seller's written installation, operation, and/or servicing instructions or owner's manual;
- (7) Damages resulting from operation with an inadequate or interrupted supply of air or water;
- (8) Any Products or components thereof which have been subjected to misuse, negligence, faulty installation, improper servicing, accident, excessive thermal shock, excessive humidity, physical damage, impact, abrasion, improper operation, or other operating conditions in excess of or contrary to those for which such equipment was designed;
- (9) With respect to gas-fired or oil-fired units, any Products or components thereof if the input to the Product exceeds the rated input (as indicated on the Product's serial plate) by more than five percent (5%);
- (10) Any Products or components thereof which, in the judgment of Seller, have been installed in a corrosive atmosphere, marine, or coastal application, subjected to corrosive fluids or gases, or damaged or adversely affected by the effects of the physical or chemical properties of water or steam or other liquids or gases used in the Products or any component thereof;
- (11) Damage or failure to start resulting from improper voltage conditions, blown fuses, open circuit breakers, or other

inadequacy or interruption of electrical service or fuel supply; or  
 (12) Any Products or components thereof from which the serial number has been altered, defaced or removed.

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OR LIMITED. Without limiting the foregoing, Seller makes no and specifically disclaims all representations and/or warranties that the Products will detect the presence of, or eliminate, prevent, treat, or mitigate the spread, transmission, or outbreak of any pathogen, disease, virus, or other contagion, including but not limited to COVID 19.

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**OPTIONAL SUPPLEMENTAL WARRANTY**

Buyer may purchase from Seller a supplemental warranty with respect to Products which shall extend the Applicable Warranty Period as set forth in the express terms and conditions described in the supplemental warranty agreement. Such supplemental warranty terms may include an additional four (4) years on certain compressors, an additional five (5) years "all parts" warranty, an additional four (4) or nine (9) years on certain heat exchangers, and/or such additional supplemental warranty terms as Seller chooses to make available to its customers from time to time.

COMPONENT	APPLICABLE MODELS		APPLICABLE WARRANTY PERIOD (WHICHEVER OCCURS FIRST)	
			Time from Date of First Beneficial Use by Buyer or Authorized End User	Time from Date of Shipment from Seller
Heat Exchangers and/or Coils	Gas Fired Unit Heaters with Tubular Style Heat Exchangers (e.g. HD, HDS, PTX, BTX, etc)	Aluminized or Stainless Steel	10 YEARS	126 MONTHS
	Gas Fired Unit Heaters with Clam-Shell Style Heat Exchangers (e.g. PDP, BDP, etc.)	Aluminized Steel (not in high-humidity applications)	10 YEARS (must be Stainless Steel in high-humidity applications)	126 MONTHS
		Aluminized Steel (in high-humidity applications)	1 YEAR	18 MONTHS
		Stainless Steel	10 YEARS	126 MONTHS
	Low Intensity Infrared Units		5 YEARS	66 MONTHS
	Indoor and Outdoor Duct Furnaces and System Units, Steam/Hot Water Units, Oil-Fired Units, Electric Units, Cassettes, Vertical Unit Ventilators, Geothermal Units		1 YEAR	18 MONTHS
Burners and Elements	Low Intensity Infrared Units		2 YEARS	30 MONTHS
	High Intensity Infrared and Electric Infrared Units		1 YEAR	18 MONTHS
Compressors	Condensing Units for Cassettes		5 YEARS	66 MONTHS
	Vertical Unit Ventilators, Geothermal Units		1 YEAR	18 MONTHS
Sheet Metal Parts	All Products		1 YEAR	18 MONTHS
Components, excluding Heat Exchangers, Coils, Condensers, Burners, Sheet Metal	All Products		2 YEARS	30 MONTHS

As Modine Manufacturing Company has a continuous product improvement program, it reserves the right to change design and specifications without notice.



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**Modine Manufacturing Company**  
 1500 DeKoven Avenue  
 Racine, WI 53403  
 Phone: 1.800.828.4328 (HEAT)  
 www.modinehvac.com