



INSTALLATION AND SERVICE MANUAL

electric unit heaters

model HER



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.

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! 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.

IMPORTANT

The use of this manual is specifically intended for a qualified installation and service agency. A qualified installation and service agency must perform all installation and service of these appliances.

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.

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 ventilation or exhaust opening.
7. Use this heater only as described in this manual.
8. The heater is hot when in use. To avoid burns, do not let bare skin touch hot surfaces.

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 outdoors.
4. Do not install appliance closer than 12 inches to combustible materials in any direction.
5. The bottom of the appliance for HER 30-50: must be at least - 6ft USA & 8ft Canada, HER 75-250: - 8ft.
6. Do not attach duct work, air filters, or polytubes to any appliance.
7. Ensure that the supply voltage to the appliance, as indicated on the serial plate, is not 5% less than the rated voltage.
8. Do not reuse any electrical component which has been wet. Such component must be replaced.
9. **SAVE THESE INSTRUCTIONS**

IMPORTANT

To check most of the Possible Remedies in the trouble-shooting guide listed in Table 6, refer to the applicable sections of the manual.

SI (METRIC) CONVERSION FACTORS

Table 1

To Convert	Multiply By	To Obtain
"W.C.	0.24	kPa
psig	6.893	kPa
°F	(°F-32) x 0.555	°C
inches	25.4	mm
feet	0.305	meters
CFM	0.028	m ³ /min

To Convert	Multiply By	To Obtain
CFH	1.699	m ³ /min
Btu/ft ³	0.0374	mJ/m ³
pound	0.453	kg
Btu/hr	0.000293	kW/hr
gallons	3.785	liters
psig	27.7	"W.C.

INSTALLATION

UNIT LOCATION

! DANGER

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

! CAUTION

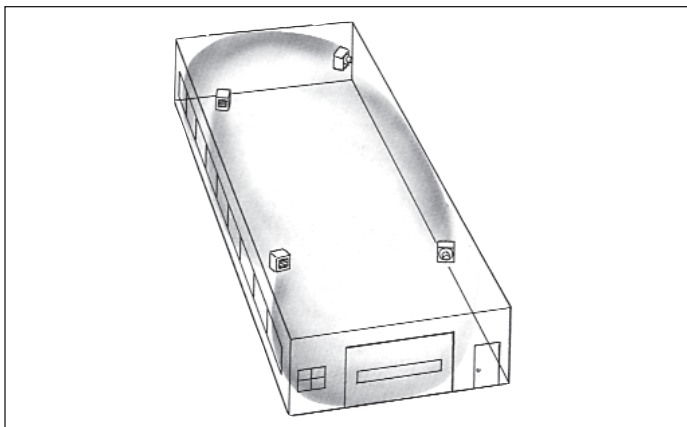
1. Be sure no obstructions block air intake or discharge of the appliance.
2. Do not install appliance outdoor, wet, or moist locations.

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 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 mounting heights for all units are listed in Table 4. The maximum mounting height for any unit is that height above which the unit will not deliver heated air to the floor. The maximum mounting heights must not be exceeded in order to assure maximum comfort.

Figure 1 - Typical Unit Locations



UNIT MOUNTING

! CAUTION

1. Do not install appliance closer than 12 inches to combustible materials in any direction.
2. The bottom of the appliance for HER 30-50: must be at least - 6ft USA & 8ft Canada, HER 75-250: - 8ft..
3. Do not attach duct work, air filters, or polytubes to any appliance.

It is recommended that adequate service access in excess of 18 inches be provided for the motor and fan.

Be sure the means of suspension is adequate to support the weight of the unit (**see note**). Clearances to combustibles as specified above must be strictly maintained. Do not install unit

heater above the maximum mounting height shown in Table 4 or below HER 30-50: - 6ft USA, 8ft Canada & HER 75-250: - 8ft. Two tapped holes (3/8" - 16) in the top of the unit are provided for unit heater suspension. Suspension can be made with threaded rods, pipes, or ceiling hanger brackets furnished by others. See Figure 8 for hanger hole locations and Figure 3 for suspension methods.

NOTE: A pipe hanger adapter kit, shown in Figure 3 is available as an accessory from Modine, or can be self-fabricated. Kit consists of two drilled 3/4" I.P.S. pipe caps and two 3/8" - 16 x 1-3/4" capscrews to facilitate threaded-pipe suspension. One kit is required for mounting each unit.

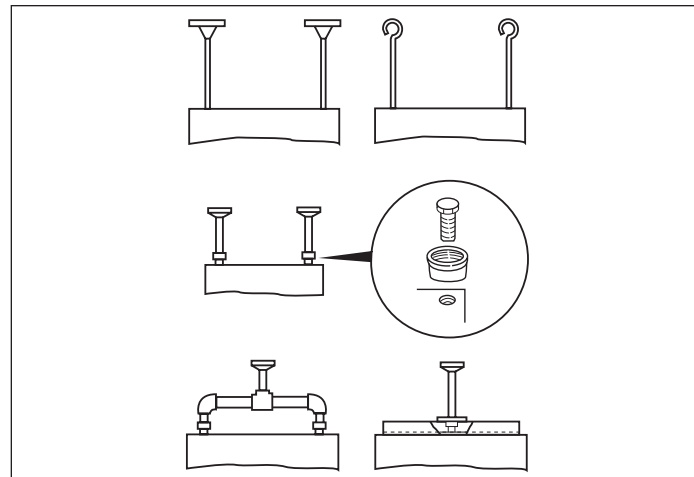
Wall-Mounting Bracket

For easier installation of Model HER electric unit heaters, where ceiling suspension is not feasible, a wall-mounting bracket kit is available. The bracket saves installation time, has a built-in wall clearance, and provides an inexpensive and convenient wall mounting method. The one-point suspension, shown in Figure 2, permits swiveling the unit 90 degrees horizontally for most effective air direction. Refer to separate bulletin furnished with the kit for bracket assembly and installation. Refer to Table 4 for maximum mounting height. Minimum mounting height is HER 30-50: - 6ft USA, 8ft Canada & HER 75-250: - 8ft.

Figure 2 - Typical Unit Locations



Figure 3 - Ceiling Suspension Methods



INSTALLATION

Electrical Connections

⚠ WARNING

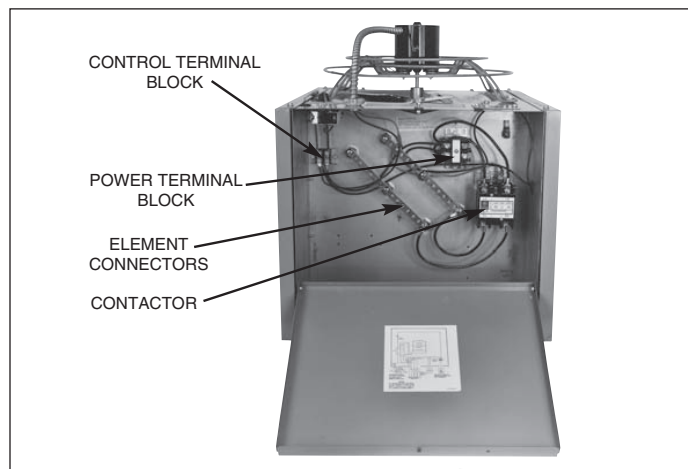
1. Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage.
2. All appliances must be wired strictly in accordance with wiring diagram furnished with the appliance. Any wiring different from the wiring diagram could result in a hazard to persons and property.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

⚠ CAUTION

1. Ensure that the supply voltage to the appliance, as indicated on the serial plate, is not 5% less than the 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 in the bottom control compartment access panel and the other is supplied in the literature packet. Refer to this diagram for all wiring connections. Refer to Figure 4.
3. Make sure all multi-voltage components (motors, transformers, etc.) are wired in accordance with the power supply voltage.
4. The power supply to the unit must be protected with a fused or circuit breaker switch.

Figure 4 - Control Panel Viewed from Unit Bottom



5. 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.
6. External electrical service connections that must be installed include:
 - a. Supply power connection (208, 240, 480 or 600 volts).
 - b. Connection of thermostats, or any other accessory control devices that may be supplied.
7. Additional electrical wiring details are as follows:
 1. Control wiring should be No. 14 AWG (American Wire Gauge).
 2. All 480/600 volt units have built-in transformers and fuses.
 3. All contactor coils are rated at 208-240 volts.
 4. Fuse blocks with fuses are factory installed on all 480/600 volt three-phase units to protect motor and transformer.
 5. Models HER200 and HER250 with 208- or 240-volt three phase power supply have two contactors.

Summer/Winter Switch

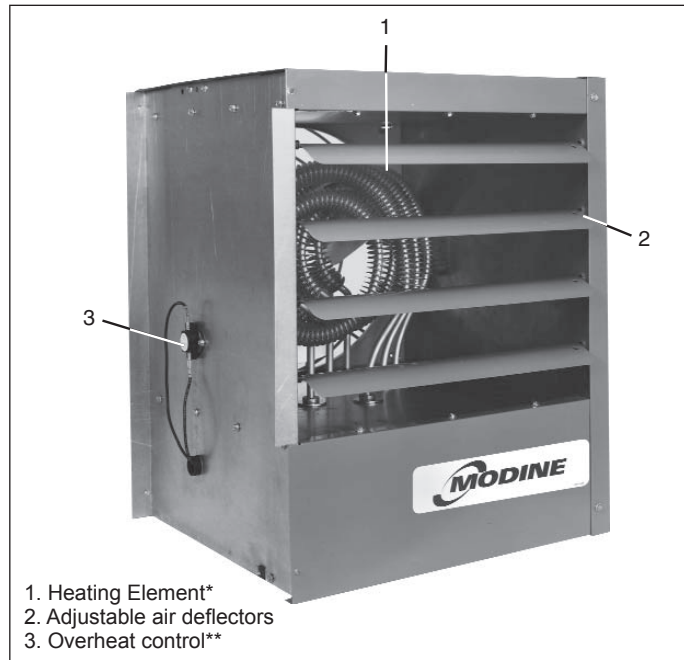
A summer/winter toggle switch kit is available for field installation. In the winter position the thermostat will cycle the fan on and off with the heating elements. In the summer position the fan runs continuously while the heating elements are controlled by the thermostat. Refer to separate bulletin included in the kit for installation and wiring.

Table 2 - Wiring Data

Model Size	Power Code	Supply Voltage	Control Box Volume (cm ³)
30	11	208V/1ph	12,076.84
	12	240V/1ph	
	31	208V/3ph	
	32	240V/3ph	
	33	480V/3ph	
50	34	600V/3ph	
	11	208V/1ph	
	12	240V/1ph	
	31	208V/3ph	
	32	240V/3ph	
75	33	480V/3ph	
	34	600V/3ph	
	11	208V/1ph	
	12	240V/1ph	
	31	208V/3ph	
100	32	240V/3ph	
	33	480V/3ph	
	34	600V/3ph	
	11	208V/1ph	
	12	240V/1ph	
125	31	208V/3ph	
	32	240V/3ph	
	33	480V/3ph	
	34	600V/3ph	
	11	208V/1ph	
150	12	240V/1ph	
	31	208V/3ph	
	32	240V/3ph	
	33	480V/3ph	
	34	600V/3ph	
200	11	208V/1ph	
	12	240V/1ph	
	31	208V/3ph	
	32	240V/3ph	
	33	480V/3ph	
250	34	600V/3ph	
	11	208V/1ph	
	12	240V/1ph	
	31	208V/3ph	
	32	240V/3ph	
	33	480V/3ph	
	34	600V/3ph	

OPERATION

Figure 5 - Exposed Side of Electric Unit Heater



* Heating Elements are flipped in HER 30 and HER 50.

** Overheat Control is located on opposite side for HER 30 and HER 50

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 fan clearance. Fan should not contact casing when spun by hand.
2. Check all electrical connections to be sure they are secure, and in accordance with the wiring diagram.
3. Check firmness of unit suspension. Tighten all fasteners, if necessary.
4. Make sure fuses are installed in units that require them.

Safety Devices

The overheat control, mounted on the right inner side panel for HER 30-50 and left inner side panel for HER 75-250 (See Figure 5), will interrupt power to the unit contactor in the event of overheating. It is a single-pole, single-throw switch, with an automatic reset. **This overheat control will open and not allow the heater's elements to have voltage supplied to them. If this should occur, correct the issue immediately or**

serious and permanent damage may result.

The motor for the circulating air fan 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.

Initial Start-Up

1. Set thermostat above room temperature.
2. Turn on power to the unit.
3. Adjust the air deflector blades for desired heat distribution. All horizontal blades should be kept open a minimum of 45° as measured from vertical.
4. Run the unit through several cycles by raising and lowering the thermostat setting to assure proper sequence of operation.

Operating Sequence

The operation of Modine electric unit heaters is governed by an electrical contactor which is controlled by a thermostat. The contactor completes the electric circuit to the heating elements when the thermostat "calls" for heat. The fan motor is also activated when the thermostat "calls" for heat. When the thermostat is satisfied, the fan motor stops and the contactor opens the circuit to the heating elements.

Factory Installed Options

HER unit heaters may be ordered with the following control options pre-installed at the factory:

Disconnect Switch: A three pole disconnect switch with a rotary dial mounted within an exterior recess on the bottom control compartment access panel. See Figure 6 below.

Low-Voltage Transformer: A 24V transformer mounted in the interior of the control panel compartment to permit connection to a low-voltage thermostat. Red (R wire) and White (W wire) leads from the relay can be connected to field-supplied thermostat wire per included wiring diagram. Any low-voltage thermostat not requiring a C-wire connection is compatible with this option (i.e., mechanical, battery-operated). (Note: heat anticipator should be set for 0.2 amps.)

Thermostat: A line-volt thermostat with adjustment dial and temperature sensing bulb located on the back side of the unit with a temperature set point range of 40 to 100°F and rated at 25A @ 240V as shown in Figure 7.

Figure 6 - Factory Mounted Disconnect Switch



DIMENSIONAL / PERFORMANCE DATA

Figure 7 - Factory Mounted Thermostat



Figure 8 - Dimensions (inches)

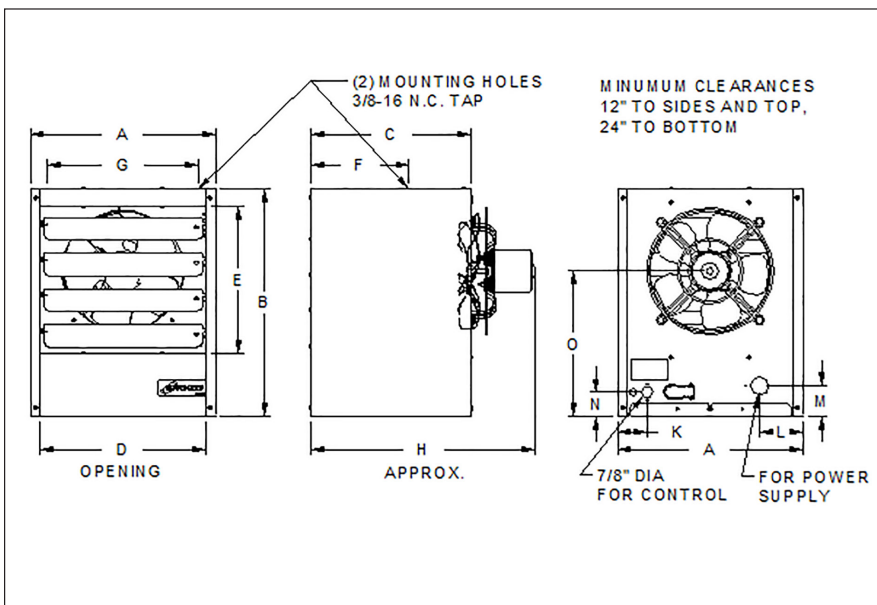


Table 3 -
Outline Dimensions (inches)

Dimension	Model Size			
	30 - 50	75	100 - 150	200 - 250
A	14-1/4	16-7/8	16-7/8	18-7/8
B	17-1/2	20-7/8	20-7/8	24
C	12-1/4	14-3/4	14-3/4	20
D	12-7/8	14-1/2	14-1/2	16-1/2
E	11-3/8	13	13	16
F	7-1/2	8-7/8	9-5/8	12-5/8
G	11-5/8	13-1/2	13-1/2	15-1/2
H	17-1/4	20-1/4	21-1/4	26-1/2
K	2-1/4	2-1/4	2-1/4	3-1/4
L	3-3/8	3-1/4	3-1/4	4-1/4
M	2-3/8	2-1/4	2-1/4	2-1/2
N	1-7/8	2-1/4	2-1/4	2-1/2
O	11-1/8	12-3/4	12-3/4	14-1/2
Fan Dia.	9	12	12	14
Approx. Shipping Wt. (lbs.)*	34	52	74	98

Table 4 - Performance Data

Model Size	Heating Capacity		Air Data *			
	kW	Btu/hr	Inlet Airflow (CFM)	Temp Rise (°F)	Heat Throw (ft.)	Max. Mounting Height (ft.)
30	3	10,200	380	25	12	8
50	5	17,100	380	42	12	8
75	7.5	25,600	530	45	14	8
100	10	34,100	830	38	20	9
125	12.5	42,700	830	48	20	10
150	15	51,200	830	57	20	10
200	20	68,200	1300	49	25	11
250	25	85,300	1300	61	25	12

* With 70°F ambient air, and louvers directed to the floor at 45°.

Table 5 - Motor Specifications

Model Size	HP	Voltage	RPM	Motor Type	Bearing Type
30 - 75	1/40	208-230V/60Hz/1ph	1550	Enclosed Air Over, Thermal Overload Protection	Sleeve
100 - 250	1/15		1050		

MODEL NOMENCLATURE

Figure 9 - Nomenclature

HER		100	C	32	01
Model Type					Control Code
HER - Horizontal					01 - No Factory Option
					02 - Factory Mounted Disconnect Switch
					03 - Factory Mounted Line-volt Thermostat
					04 - Factory Mounted 24V Transformer
					05 - Factory Mounted Disconnect Switch and Line-volt Thermostat
					06 - Factory Mounted Disconnect Switch and 24V Transformer
kW Rating				Power Code	
30	-	3.0kW		11	- 208V/1ph
50	-	5.0kW		12	- 240V/1ph
75	-	7.5kW		31	- 208V/3ph
100	-	10.0kW		32	- 240V/3ph
125	-	12.5kW		33	- 480V/3ph
150	-	15.0kW		34	- 600V3ph
200	-	20.0kW			
250	-	25.0kW			
300	-	30.0kW			
400	-	40.0kW			
500	-	50.0kW			
			Internal Sequence		
			C	-	(gray-green)
			D	-	(gray)

GENERAL MAINTENANCE / TROUBLESHOOTING

WARNING

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.

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 element of heater to cool.**
2. Check all components and wiring inside the unit for firm connections and/or wear.

CAUTION

Do not reuse any electrical component which has been wet. Such component must be replaced.

NOTE: To check most of the Possible Remedies in the trouble-shooting guide listed in Table 6, refer to the applicable sections of the manual.

3. Tighten fan guard and motor bracket. Check fan for proper clearance, free rotation, and firm connection to motor shaft. Clean fan blade with detergent or compressed air.
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 louvers is recommended to remove dirt, grease, or corrosive substances that may damage the finish. Rusty or corroded spots on the louvers or casing should be sanded and repainted. To remove, push louvers against retaining coil spring and pull out at opposite tapered end.
6. Check entire electrical system before every heating season.

Table 6 - Troubleshooting

PROBLEM	POSSIBLE CAUSE(S)	REMEDY
Unit does not operate	<ol style="list-style-type: none"> 1. Electric circuit in open position. 2. Blown fuses in control compartment. 3. Defective or incorrect wiring. 4. Defective thermostat or switch. 5. Defective or burned out control transformer. 	<ol style="list-style-type: none"> 1. a. Turn on switch or thermostat. b. Move thermostat to higher setting. c. Replace fuse or reset disconnect switch. 2. Replace fuses. 3. Check wiring and connections. Refer to diagram inside control panel. 4. Check continuity with volt-ohmmeter. Replace defective part if necessary. 5. Check secondary voltage with voltmeter. Replace if necessary.
Fan operates but element does not heat	<ol style="list-style-type: none"> 1. Power interrupted by overheat control. 2. Summer-winter switch in summer position. 3. Defective or incorrect wiring. 4. Blown element fuses on HER200 and HER250 w/208 or 240V-3Ø power supply. 	<ol style="list-style-type: none"> 1. a. Not enough air volume over elements. Louvers must be open at least 45°. b. Check motor rpm against nameplate rating. Replace motor if speed is too slow. c. Defective limit control. Check wiring and connections. Check continuity through control. Replace if necessary. 2. Change switch position. 3. Check all wiring and connections. See diagram inside control compartment. 4. Replace element fuses.
Elements heat but fan does not operate	<ol style="list-style-type: none"> 1. Fan motor failure. 2. Summer-winter switch defective or improperly wired. 3. Defective or incorrect wiring. 	<ol style="list-style-type: none"> 1. a. Check for loose electrical connections. Check wiring with diagram in control compartment. b. Repair or replace burned out defective motor. c. Voltage too high or too low. Check voltage with voltmeter. 2. Check for continuity with volt-ohmmeter. Replace if necessary. 3. Check all wiring and connections. See diagram inside control compartment.
Insufficient heat	<ol style="list-style-type: none"> 1. Too few units for heat loss. 2. Unit mounted too high. 3. Fan operates backwards. 4. Burned out element. 	<ol style="list-style-type: none"> 1. Add more units or increase size of units. 2. Lower units. 3. Repair, replace motor or reverse fan rotation. 4. Disconnect internal wiring and check element resistance with ohmmeter.

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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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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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