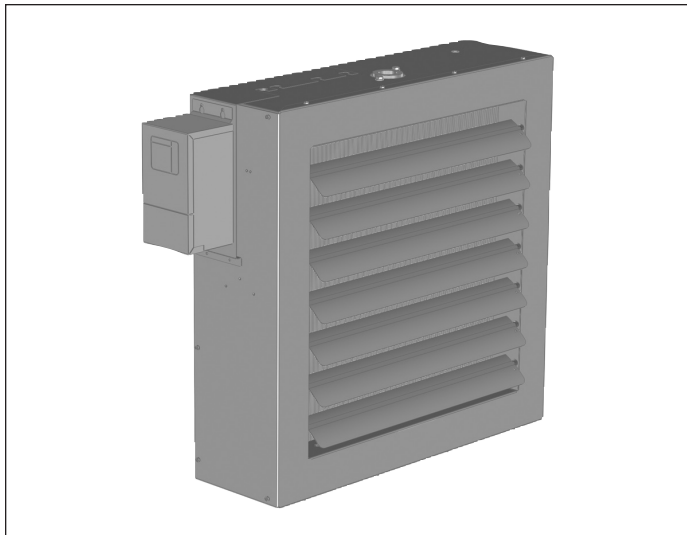


INSTALLATION

Step Down Transformer Kit

models HSB/HC, V/VN, PT/PTN, WTC/WSC, WVC/WVN, WPC/WPN
manufactured after September 1, 2005



! 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) Any original factory wiring that requires replacement must be replaced with wiring material having a temperature rating of at least 105°C.
- 4) Ensure that the supply voltage to the appliance, as indicated on the serial plate, is not 5% greater than rated voltage.

Special Precautions

- 1) Installation of wiring must conform with local building codes, or in the absence of local codes, 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) Disconnect supply voltage.
- 3) Verify electrical system supply voltage to ensure it matches the accessory transformer primary voltage rating.
- 4) Verify that the unit heater supply voltage listed on the serial plate is 115 Volts, 60 Hertz, 1 Phase.
- 5) Verify that the accessory transformer is correctly sized for the unit type, size, and supply voltage. The accessory item codes and kVA sizes are shown in Table 1.1.

! CAUTION

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

Table 1.1
Transformer Accessory Item Codes and Ratings

Model	Size	Supply Voltage					
		200V/60Hz/ 1 or 3 phase		230/460V/ 60Hz/3 phase		575V/60Hz/ 3 phase	
		Item Code	kVA	Item Code	kVA	Item Code	kVA
HSB/HC, WTC/WSC	18-63	48094	0.50	48099	0.25	48108	0.25
	86-121			48100	0.50	48109	0.50
	165-193	48095	1.00	48101	0.75	48110	0.75
	258-340			48102	1.00	48111	1.00
V/VN, WVC/WVN	42-59	48096	0.50	48103	0.25	48112	0.25
	78-139			48104	0.50	48113	0.50
	161-212	48097	1.00	48105	0.75	48114	0.75
	247-333			48106	1.00	48115	1.00
PT/PTN, WPC/WPN	279-333	48098	1.00	48107	1.00	48116	1.00

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. These manuals may contain excerpts from component supplier literature adapted for Modine products. Any accompanying component supplier literature is for general information.

Transformer to Mounting Bracket Installation

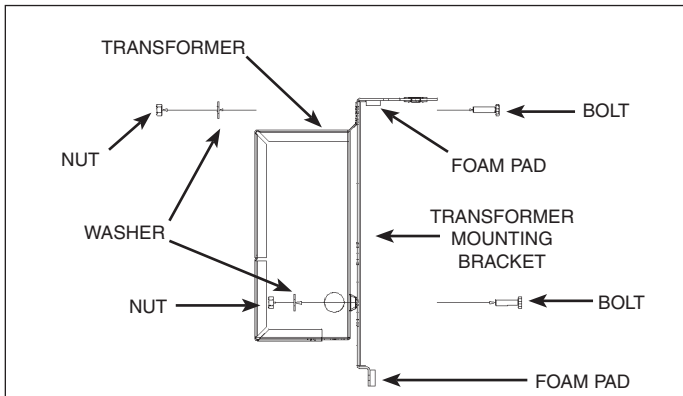
- Review Table 2.1 to identify if the transformer accessory requires a factory supplied bracket to mount the transformer to the unit heater (on some models, the transformer mounts directly to the heater without the use of an extra bracket). If a bracket is not required, skip to the section titled, “Mounting the Transformer Accessory to the Unit Heater”.

Table 2.1
Transformer Accessory Mounting Method

Model	Size	Item Code	Mount	Supply Voltage			
				200V/60Hz/ 1 or 3 phase	230/460V/ 60Hz/3 phase	575V/60Hz/ 3 phase	Mount
HSB/HC, WTC/ WSC	18-63	48094	Bracket	48099	Direct	48108	Direct
	86-121			48100	Bracket	48109	Bracket
	165-193	48095	Bracket	48101	Bracket	48110	Bracket
	258-340			48102	48111		
V/VN, WVC/ WVN	42-59	48096	Bracket	48103	Direct	48112	Direct
	78-139			48104	Bracket	48113	Bracket
	161-212	48097	Direct	48105	Direct	48114	Direct
	247-333			48106	48115		
PT/PTN, WPC/WPN	279-333	48098	Bracket	48107	Bracket	48116	Bracket

- Mount the Transformer to the mounting bracket using the ¼”-20 cap screws and ¼” nuts provided. Cap screws must be inserted from the back of the mounting bracket and into the transformer mounting holes as shown in Figure 1.1.

Figure 1.1
Transformer to Mounting Bracket Installation

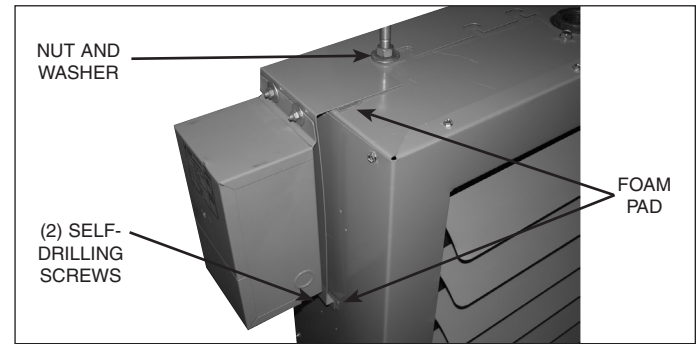


Mounting the Transformer Accessory to the Unit Heater

For HSB/HC, WTC/WSC Models Bracket Mount:

- Mount the transformer/mounting bracket assembly on the left side of the unit heater (as viewed from the front, air blowing toward you) by slipping the bracket over the unit-mounting rod. Tighten the unit mounting rod jam nut onto the transformer mounting bracket (see Figure 2.1).
- Insert the foam pad between the bottom of the mounting bracket and the unit heater side panel as shown in Figure 2.1. Use two #10-24x½” self-drilling screws to fasten the transformer mounting bracket to the unit heater side panel, using the side panel screw locating dimples.

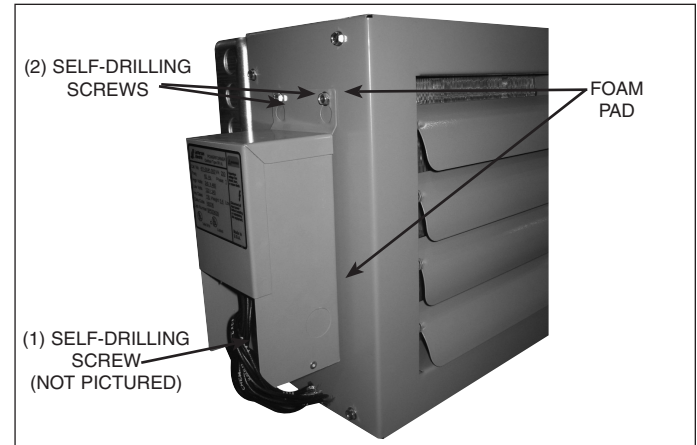
Figure 2.1
HSB/HC, WTC/WSC Model Bracket Mounted Transformer



For HSB/HC, WTC/WSC Models Direct Mount:

- Insert the foam pad between the integral top transformer mounting bracket and the unit heater side panel as shown in Figure 2.2. Use two #10-24x½” self-drilling screws to fasten the transformer to the unit heater side panel, using the side panel screw locating dimples.
- Insert the foam pad between the back of the transformer j-box and the unit heater side panel as shown in Figure 2.2. From within the transformer j-box, use one #10-24x½” self-drilling screw to fasten the transformer to the unit heater side panel, using the side panel screw locating dimples.

Figure 2.2
HSB/HC, WTC/WSC Model Direct Mounted Transformer



For V/VN, PT/PTN, WVC/WVN, WPC/WPN Models Bracket Mount:

- The transformer/mounting bracket assembly is mounted on the top of the casing for V/VN, WVC/WVN models and the back of the casing for PT/PTN, WPC/WPN models. The top for V/VN, WVC/WVN and back for PT/PTN, WPC/WPN is identified as the casing side opposite the side of leaving airflow with the fan guard.
- Insert one foam pad between the bottom of the mounting bracket and the unit heater casing panel as shown in Figure 3.1. Insert the remaining foam pad between the mounting foot of the bracket and the unit heater casing panel, as indicated in Figure 3.1 (but not shown). On PT/PTN, WPC/WPN units, use two 5/16” nuts with lock washers to fasten the transformer mounting bracket to the existing threaded studs on the unit heater. See Figure 3.2.
- On V/VN, WVC/WVN units, use three #10-24x½” self-drilling screws to fasten the transformer bracket to the unit heater casing panel. See Figure 3.1. On PT/PTN, WPC/WPN units, use two #10-24x½” self-drilling screws to fasten the transformer bracket to the unit heater casing. See Figure 3.2.

Figure 3.1
V/VN, WVC/WVN Model Bracket Mounted Transformer

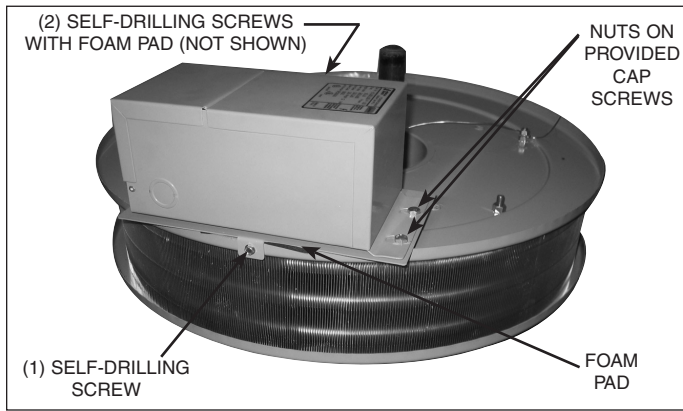
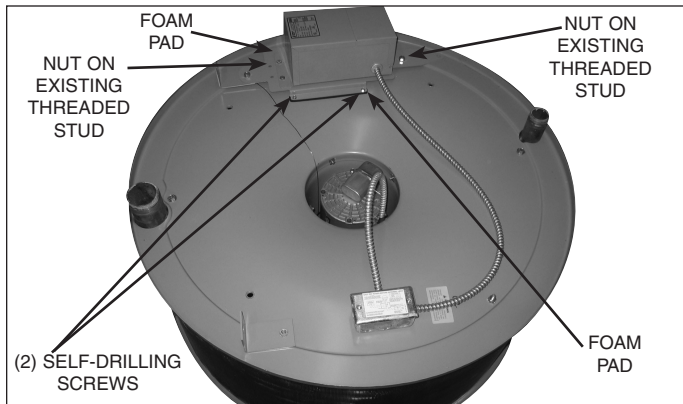


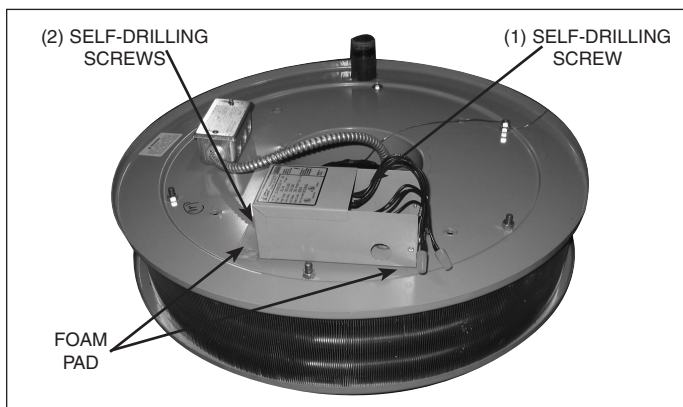
Figure 3.2
PT/PTN, WPC/WPN Bracket Mounted Transformer



For V/VN, WVC/WVN Models Direct Mount:

- 1) Insert the foam pad between the integral top transformer mounting bracket and the top of the casing for V/VN, WVC/WVN models. The top for V/VN, WVC/WVN is identified as the casing side opposite the side of leaving airflow with the fan guard.
- 2) Use two #10-24x1/2" self-drilling screws to fasten the transformer to the unit heater casing panel, using the casing panel screw locating guide holes.
- 3) Insert the foam pad between the back of the transformer j-box and the unit heater casing panel as shown in Figure 3.3. From within the transformer j-box, use one #10-24x1/2" self-drilling screw to fasten the transformer to the unit heater casing panel, using the casing panel screw locating guide hole.

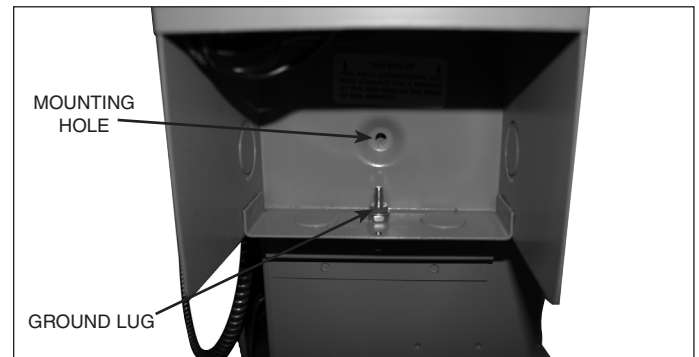
Figure 3.3
V/VN, WVC/WVN Model Direct Mounted Transformer



Wiring the Transformer Accessory to the Unit Heater

- 1) Install the wiring harness (conduit, connectors and wires) between the transformer junction box and the unit heater junction box.
- 2) Connect the wiring harness wiring ends in the unit heater junction box as shown in the unit heater wire diagram for 115V single-phase power.
- 3) Within the transformer junction box, interconnect the transformer secondary leads and wiring harness wiring ends as follows:
 - Transformer wires X1 and X3 are connected to the white harness wire.
 - Transformer wires X2 and X4 are connected to the black harness wire.
- 4) Connect the incoming electrical power feed line to the transformer junction box with an appropriate box connector.
- 5) Within the transformer junction box, connect the incoming electrical power feed circuit ground wire to the transformer grounding lug. See Figure 3.4 for location of the ground lug.

Figure 3.4
Transformer Accessory Ground Lug Location



- 6) Within the transformer junction box, interconnect the transformer primary wires (labeled H1, H2, etc.) and connect the incoming electrical power feed wires as indicated in Table 3.1 for the voltage and transformer manufacturer supplied. The connection charts are also provided on the transformer casing.

Table 3.1
Transformer Accessory Primary Wiring Connections

Primary Voltage	208		240	480	600	
Supplier	Hevi-Duty	Jefferson	All	All	Hevi-Duty	Jefferson
Size	1.0KVA	All	All	All	All	All
Interconnect Primary	H2 to H3	None Required	H1 to H3 H2 to H4	H2 to H3	None Required	
Connect Primary Lines To	H1 & H4	H1 & H2	H1 & H4	H1 & H4	H1 & H2	H1 & H2

- 7) Turn the power supply on to unit. Verify the voltage from the transformer to unit. Also verify that the unit operates as detailed in the unit Installation and Service Manual, 1-550 or AIR1-550 latest edition.

