



Schaefer HotZone®
HZE Series Electric Spot Heater
High Output Infrared Heater - 1500/3000 Watt

INSTALLATION & OPERATION INSTRUCTIONS

**** HOTZONE® HEATERS MUST BE INSTALLED BY A LICENSED ELECTRICIAN. ****



**HotZone®
Patio Heater**



**HotZone® Universal
Fixed Mount Heater**



HotZone® Portable Heater



**HotZone®
Wall Mount
Heater**



SCHAEFER
Ventilation Equipment

800-779-3267

sales@schaeferfan.com • www.schaeferfan.com

Specifications

Congratulations on purchasing a Schaefer HotZone® Electric Infrared Heater. Unlike forced air heaters, HotZone® heaters warm people and objects, but not the air, with infrared radiation. Your new heater has no moving parts, and should give you many years of maintenance-free comfort.

HotZone® heaters have the patented, lobster eye inspired, compound reflective IRLens™ that focuses and directs the infrared energy into a beam (or a spot). These lenses are lightweight aluminum grids that look like a four-walled honeycomb structure and are capable of magnifying without overheating.

Because HotZone® heaters focus and direct the infrared energy into a beam:

- HotZone® heaters can be installed out of the way of people and equipment.
- The radiant intensity is much less sensitive to distance from the heater (your head doesn't cook while your feet freeze).
- They deliver up to five times as much infrared energy to the spot, compared to a similar powered, unfocused high intensity infrared heater.
- They will raise the surface temperature of a 14 square foot area by 15° with a single 1500 watt heater mounted eight feet above it.
- They will raise the surface temperature of a 25 square foot area by 20° with a single 3000 watt heater mounted ten feet above it.

Plan your installation by identifying the area you want heated and how much temperature increase you need. Imagine the heater as a kind of floodlight and place it so as to cover your target area with enough heat. The temperature increase resulting from the heater "shining" on a target depends on the power of the heater, the distance from the heater to the target and how close the target is to the center of the spot. DO NOT allow the heater to be aimed at a wall or any other combustible material.

The heater unit with fixed mount is ETL certified to UL 2021 (Fixed and Location Dedicated Electric Room Heaters) for installation both indoors and outdoors. The movable mount options are not ETL certified, but include tip switches and other features which make them safe for a variety of applications.

WARNING

The safety of this product can only be guaranteed if these instructions are followed. Please keep them for future reference.

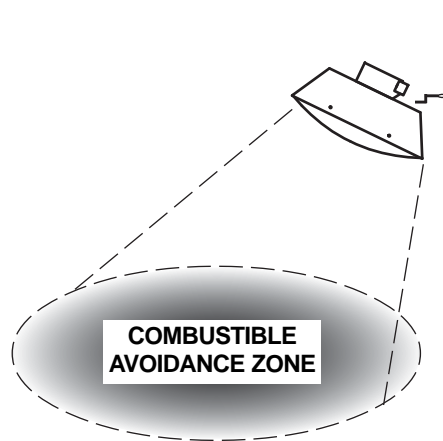
- *Always disconnect the heater from the main electrical supply during installation and/or replacement of the element.*
- *Infrared energy heats people and objects when it is absorbed. Flammable objects placed too close to the heater lens could catch fire.*

POWER SUPPLY All @ 50/60Hz A = current per stage	HZE15	120V = 12.5A		208V = 7.2A	
		240V = 6.3A		277V = 5.4A	
	HZE30	120/240V = 12.5/6.3A		208V = 7.2A	208V-Delta = 4.8A
		240/480V = 6.3A		277V = 5.4A	

Mounting Angle	HZE15		HZE30	
	0°	45°	0°	45°
MINIMUM MOUNTING HEIGHT	72"	72"	72"	72"
MINIMUM DISTANCE TO COMBUSTIBLES (around heater)				
Above	6"	6"	9"	9"
Back	9"	9"	18"	18"
Front	9"	30"	18"	41"
Side	9"	9"	18"	18"
Below (in beam)	48"	48"	66"	66"

DIAMETER OF COMBUSTIBLE AVOIDANCE ZONE (below heater)

Distance from lens	HZE15	HZE30
12"	26"	32"
24"	36"	42"
36"	46"	52"
48"	56"	62"
60"		72"
72"		82"



*** IMPORTANT INSTRUCTIONS ***

When using electrical appliances, basic precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons, including the following:

1. Read all instructions before assembling, installing and using this heater.
2. This heater is hot when in use. To avoid burns, do not let bare skin touch hot surfaces. If provided, use handles when moving this heater. Keep combustible materials, such as furniture, pillows, bedding, paper, clothes and curtains at least 48" (1500 watt) / 66" (3000 watt) from the front of the heater and keep them away from the sides and rear. ***Do not install closer than the minimum clearances to any surface.***
3. Extreme caution is necessary when any heater is used by or near children or persons that may not have reasonable judgement around appliances. The heater should not be left unattended while operating.
4. Always unplug heater when not in use.
5. Do not operate any heater with a damaged cord or plug or after the heater malfunctions, has been dropped or damaged in any manner. Return heater to dealer for examination, electrical or mechanical adjustment, or repair.
6. This heater is not intended for use in bathrooms, laundry areas and similar indoor locations. Never locate heater where it may fall into a bathtub or other water container.
7. Do not run cord under carpeting. Do not cover cord with throw rugs, runners or similar coverings. Arrange cord away from traffic area and where it will not be tripped over.
8. To disconnect heater, turn control OFF (if provided), then remove plug from outlet.
9. Connect to properly grounded outlet only. The heater should *always* be connected to a grounded circuit. If a GFCI socket is not available, GFCI adapters can be purchased locally. Heater must be installed according to NEC and all local electrical codes. Be sure the electrical supply is adequate for the heater (voltage/amps/phase) while allowing for line losses. Use supply wires suitable for 90° C.
10. Do not insert or allow foreign objects to enter the heater or block any ventilation openings as this may cause an electric shock or fire, or damage the heater. Do not cover or obstruct the heater while operating.
11. A heater has hot and/or arcing and/or sparking parts inside. Do not use it in areas where gasoline, paint, flammable liquids or highly combustible dusts are used or stored.
12. Use this heater only as described in this manual. Any other use not recommended by the manufacturer may cause fire, electric shock, or injury to persons.
13. Do not use an extension cord with this heater.
14. If the unit is installed in proximity of tents or awnings, please be sure that recommended installation heights and clearances are respected, and that the heater is not in direct contact with the tent or awning material.
15. Allow for user angle and directional adjustment, if possible, as heating requirements change. The optimal mounting angle is between directly down and 45°. Comfort is best obtained with the heater off to one side and angled at 35°. Install heaters so that items in the infrared beam do not overheat.
16. Burned-out elements cannot be repaired and must be replaced. The element can be replaced by the user; please follow the instructions provided. ***Always disconnect the heater from the main electrical supply during installation and/or replacement of the heater element.***

*** SAVE THESE INSTRUCTIONS ***

Installation Notes cont'd

**** HOTZONE® HEATERS MUST BE INSTALLED BY A LICENSED ELECTRICIAN. ****

For an effective and efficient heating solution, some or all of the following heater controls can be utilized: on/off switches, power controllers (dimmers), timers and thermostats. Contact your local licensed electrician or your Schaefer HotZone® dealer for recommendations and assistance.

CAUTION

**** DO NOT USE THIS HEATER FOR APPLICATIONS FOR WHICH IT IS NOT INTENDED ****

HotZone® heaters are intended for heating people or objects from a distance in excess of the minimum distance to combustibles. Use of the heater for applications such as paint drying or equipment heating from a short distance where infrared energy will reflect back toward the heater will overheat the element, causing early element failure and negating the warranty.

CAUTION

**** DO NOT USE THIS HEATER AS A PORTABLE HEATER ****

HotZone® heaters are designed, listed and approved as fixed and location-dedicated heaters. If the heater is used as a portable heater there is a great risk of fire and/or heater damage if the heater is placed too close to combustibles or if the heater tips over.

The Schaefer HotZone® electric heater can be wall- or ceiling-mounted from an existing or new electrical junction box utilizing the universal mounting kit.

The angle adjustment assembly on the back of the heater can be reversed to minimize the torque on the assembly and allow the heater to be aimed as desired. Typically, the assembly should be in the middle of the back of the heater for downward facing ceiling mounting, and toward the bottom and forward on the heater for downward through horizontal facing wall mounting (see page 5).

Be sure you are supplying the correct voltage to the heater, allowing for line losses. The heater's voltage requirements are marked on its shipping box and on its ETL certification label. *Too much voltage will burn the heater element out immediately. Too little voltage or inadequate current capacity will cause the heater element to run cool, and can cause the supply circuit to overheat dangerously.*

Always be sure the supply voltage is turned off to the junction box before starting installation.

After the heater is installed and power is turned on, the element should begin glowing within 20 to 30 seconds and glow a uniform red-orange color within two to three minutes. *If it begins glowing more quickly or glows very brightly, turn the heater off immediately and re-check the supply voltage.*

The heater will smell very hot for the first few minutes of operation, then will stop emitting an odor.

If the position of the heater needs to be adjusted after it is attached to the mount, be very careful. **DO NOT GRAB THE HEATER HEAD AND TWIST!** Adjustment up and down requires loosening of the adjustment screws (see page 5). The heater itself cannot be adjusted from side to side.

Do not touch or allow any person or object to come in contact with the heater during operation as shell temperature will reach about 190° F.

ANGLE ADJUSTMENT

The angle adjustment assembly on the back of the heater is designed for mounting flexibility, but the correct configuration should be determined before the heater is attached to the mount.

The angle adjustment assembly has approximately 40 degrees of motion, which allows the heater to be aimed at the desired target. It can also be reversed for additional range of motion, and to reduce the amount of torque the heater exerts on the assembly.

- Heaters to be mounted on the wall should have the assembly attached below the center of the heater (standard configuration - Figure 1).
- Heaters to be mounted on the universal ceiling mount and aimed sideways should have the assembly attached above the center of the heater (standard configuration, heater mounted "upside down" - Figure 2).
- Heaters to be mounted on the universal ceiling mount and aimed down should have the assembly attached in the center of the heater (**assembly needs to be reversed** - Figure 3).

REVERSING THE ANGLE ADJUSTMENT ASSEMBLY

Save all hardware for re-use!

1. Remove the two cap screws from the back of the heater, which are holding the louvered element tray in place.
2. Slide the element tray out of the heater. Pull the high temperature element wires through the hole in the angle adjustment assembly to free the element.
3. Remove the two allen screws that attach one end of the curved mounting plate to the heater.
4. Remove the two allen screws that secure the other end of the curved mounting plate, internal ring clamps and angle adjustment assembly to the heater. Detach the ground wire as well.
5. Reverse the orientation of the curved mounting plate and angle adjustment assembly.
6. Re-attach the curved mounting plate, ring clamps and angle adjustment assembly to the heater. Re-attach the ground wire.
7. Feed the high temperature element wires through the angle adjustment assembly and slide the element tray back into the heater. Fasten the element tray to the heater.

The angle adjustment assembly is adjustable up and down. Be sure to loosen the allen screws before moving the heater, and then tighten them just enough to hold the unit in place. (Figure 4) **Overtightening can bend the frame and damage the unit.**

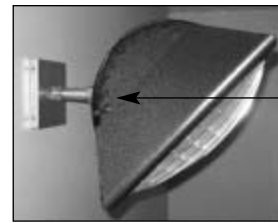


Figure 1

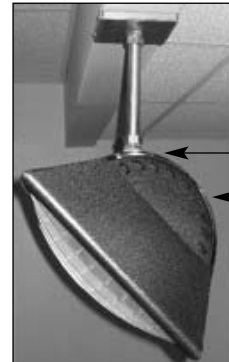
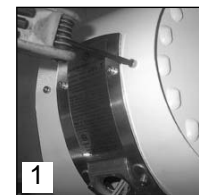
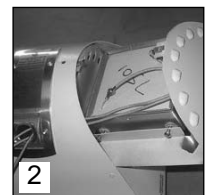


Figure 2

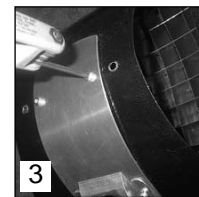
Figure 3



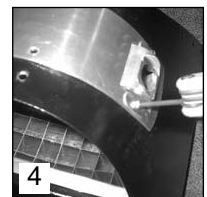
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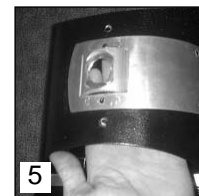
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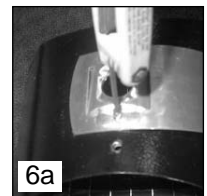
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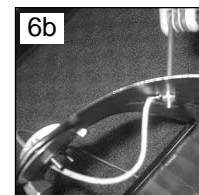
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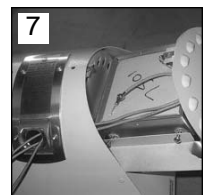
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6a



6b



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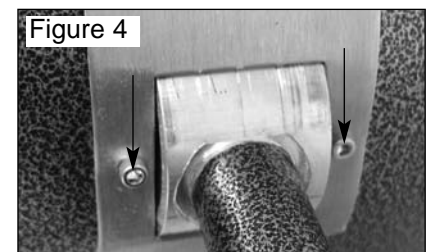


Figure 4

Maintenance & Troubleshooting

MAINTENANCE

- The heater body can be washed with gentle detergent and a soft wash cloth. **Do not use a pressure washer.** With an air hose regulated to 30 psi, blow off any dust and dirt from in front of the heater that has accumulated on the reflective surfaces of the heater and reflective lens. A vacuum cleaner can be used as well. Accumulated dirt will degrade performance.
- Blow off or vacuum any accumulated dirt on the vent holes of the heater and make sure they are not bent such that the vent area is reduced.
- When not installed or in use, store the heater in a dry, dust-free place and be sure the lens-assembly is protected from any possible damage.
- The heater lens is manufactured from thin aluminum and is easily bent and damaged. Heater performance deteriorates when the lens is bent or damaged. In most cases the lens can be bent back into shape by hand or with pliers. If the lens cannot be repaired, it can be replaced.
- If the heater is turned on when wet it may steam and sizzle a bit but this will subside as it dries.

TO CHANGE THE COLOR OF THE HEATER

- The outer housing of the heater can be spray painted with high-temp metal paint. **DO NOT** paint the bare aluminum lens or inside surfaces. (The bare aluminum reflects 100% of the infrared heat; paint absorbs infrared and will cause the unit to overheat. ***This will void the warranty.***)

TROUBLESHOOTING

At full power and after two to three minutes of warm-up time, the heater element should glow a warm orange color, similar to the color of coals in a hot fire.

If the element does not warm up at all:

- Is the service power on at the circuit breaker?
- Is there a switch or dimmer in the circuit? Is the switch on?
- Is the heater connected to the appropriate power source (plug or junction box)?
- Is the element in working condition? Burned out elements normally have visible burn marks on the face of the element. If there is no evidence of damage, and you still suspect the element, turn off the power at the circuit breaker, disconnect the service power and check element resistance. It should be between 10 and 50 ohms, depending on the element.
- Are the high temperature leads connected to the element? Turn off the power at the circuit breaker. Remove the element from the heater housing and check the connections at the back of the element.

If the element barely glows:

- Is the heater on a dimmer? Is the dimmer turned full on and operating correctly?
- Is the heater connected to the correct line voltage (under load condition) for its element type? 120V models must be plugged into an outlet that provides 120V. If the outlet provides less than 120V the element will not operate correctly.
- Is the element wired correctly, and are all connections intact? Note: three phase devices where one leg is disconnected will operate with reduced output.

If the element glows a bright orange-white and heats up very quickly:

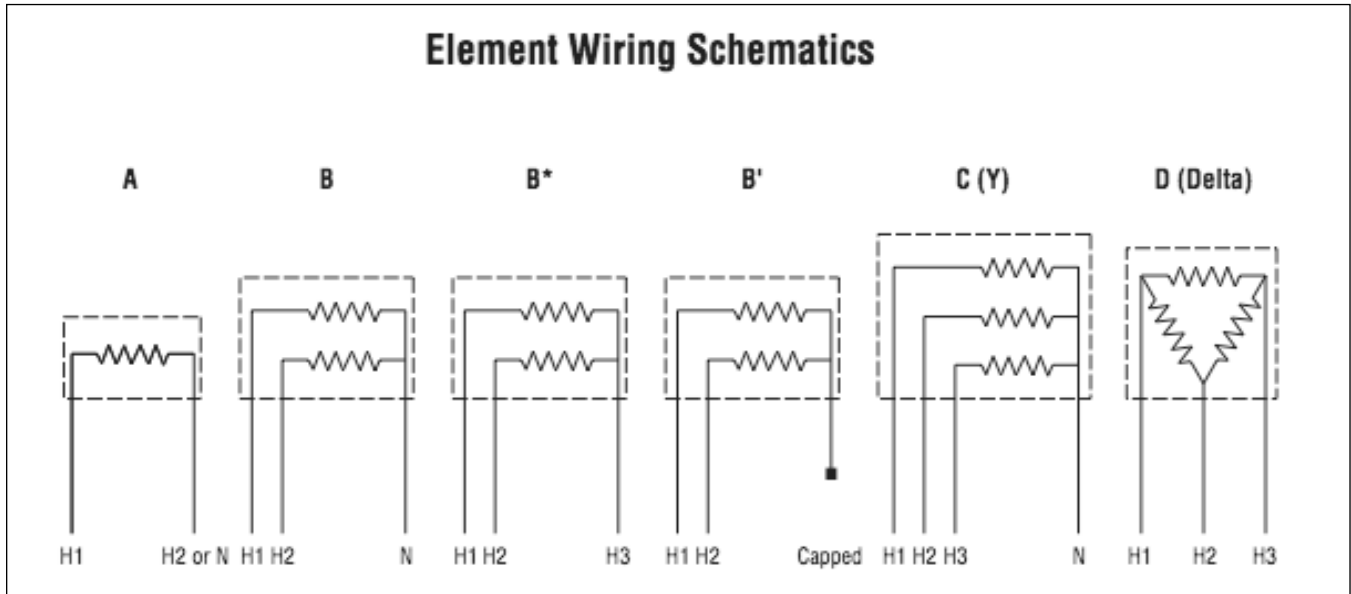
- ***The heater is receiving too much power and will burn out very quickly if it is not turned off.***
- Is the heater wired correctly for its element type?
- Is the element damaged? A short circuit between adjacent coils will cause some coils to go dark and some coils to overheat. Damaged elements cannot be repaired and must be replaced.

Replacement Heater Elements

Element		Heater	Power (W)	No. of Stages	No. of Wires	Schem.	Voltage (V)	Alt. Schem.	Voltage (V)
7501	HZRE15120C	HZE15120	1500	1	2	A	120		
7503	HZRE15208C	HZE15208	1500	1	2	A	208		
7504	HZRE15240C	HZE15240	1500	1	2	A	240		
7505	HZRE15277C	HZE15277	1500	1	2	A	277		
75301	HZRE30120/240C	HZE30120/240	3000	2	3	B	120	B'	240
75302	HZRE30208C	HZE30208	3000	2	3	B*	208		
75304	HZRE30208DC	HZE30208D	3000	3	3	D	208		
75305	HZRE30240/480C	HZE30240/480	3000	2	3	B*	240	B'	480
75309	HZRE30480C	HZE30480	3000	2	3	B'	480	B*	240

Notes:

- All heaters have a ground wire attached to the heater shell (not the element).
- Alternate connections for dual service elements are under "Alternate Schematic".
- Schematics with an asterisk (i.e., B*) connect to a common hot wire, not "N" (neutral).
- Schematics with an apostrophe (i.e., B') require the "N" (neutral) to be capped.
- Heater elements and wiring schematics that allow high/low staging are shaded.



Element Replacement

HEATER ELEMENT

The heating element operates at approximately 1800° F. The element is resistant to thermal and mechanical shock, and is appropriate for use in both wet and dry locations. (Figure 5)

The element has an expected life of 2000 hours. When an element burns out, it cannot be repaired and must be replaced. For replacement, have your heater model number available and call your dealer or Schaefer Ventilation to order the correct element.

Replacement high-temperature lead wires must be capable of handling 1000° F and have stainless steel terminals.

To replace the element:

Always disconnect the heater from the main electrical supply during installation and/or replacement of the heater element.

1. Turn off power supply to the heater.
2. Carefully remove the heater from the mount and disconnect the power supply. The original white high-temperature lead wires should be coming out through the mounting stub. (Figure 6)

**** Be sure to save all hardware for re-use! ****

3. Place the heater on a level, flat surface. Be careful not to bend the lens (lay the heater on a soft or padded surface, such as a folded towel or bubble wrap).
4. Remove the two allen screws that hold the element frame in place. (Figure 7)
5. Carefully slide the element frame out to one side. Notice the high temp wires are being pulled through the mounting stub; feed them out as they are pulled by the frame. (Figure 6 and Figure 8)

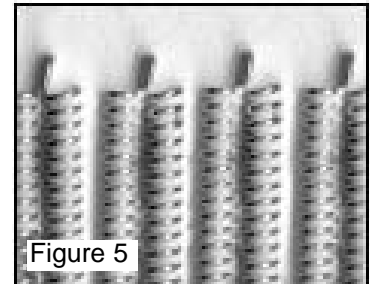


Figure 5

Figure 6 - High-temp lead wires exit mounting stub.

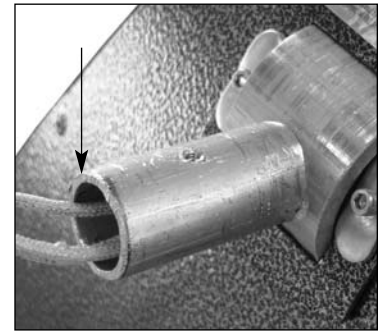


Figure 7 - Two allen screws hold element frame in housing.

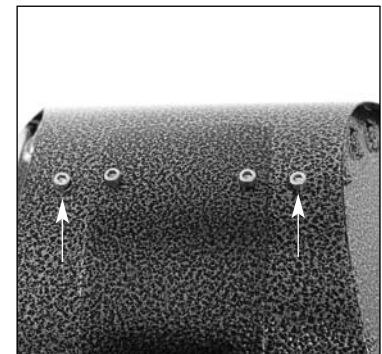


Figure 8 - Element in frame slides in/out of housing.



Element Replacement cont'd

6. Lay the element frame as flat as possible next to the heater (still attached by the lead wires). (Figure 9)
7. Disconnect the lead wires from the ring terminals on the used element. **Do not lose the hardware!** (Figure 10)
8. Loosen the four screws that hold the element in the frame. Remove the used element. **Be careful not to knock off or puncture the four insulating pads on the element wrap.** (Figure 9)
9. Remove the single screw that holds the element wrap in place. Remove the old element from the wrap and replace with same model of new element. Be sure to replace the screw.
10. Lay the new element into the frame. Center it and then tighten the four screws to hold it in place. **Be careful not to knock off or puncture the four insulating pads on the element wrap.**
11. Attach the high-temperature lead wires using the hardware that was removed from the used element. Follow the appropriate wiring schematic on page 7. (Figure 9)
12. Carefully slide the element frame back into the heater. The lead wires must be carefully pulled back through the mounting stub as the element is slid into place (leaving them loose in the heater housing can cause them to overheat). (Figure 6)
13. Replace the two allen screws that hold the element frame in place. (Figure 7)
14. Using a resistance meter, check for element continuity and shorts to ground. The resistance from a hot lead to ground should be several mega-ohms, and the resistance between hot leads should be between 10 and 50 ohms, depending on the element.
15. Re-attach the heater to the mount using the hardware removed in Step 2. Connect the heater to electrical supply and test for operation.

Figure 9 - Element in frame with lead wires connected.

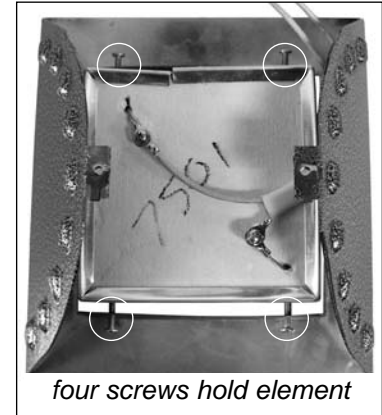


Figure 10 - Lead wires disconnected from element.



Tools required:

#2 Phillips head screwdriver

Tools required to attach universal mounting plate to junction box



This mount requires the heater to be attached to a junction box in the ceiling or wall.

Choose a location that meets or exceeds the minimum distance to combustibles on all sides and in front of the heater. Mount the heater at least 72" above the ground.

The heater does NOT include hardware for attaching the mount to the ceiling or wall.

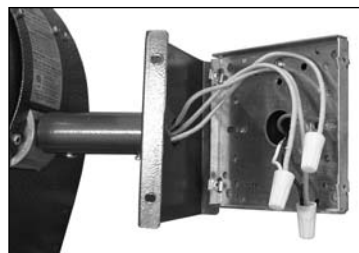
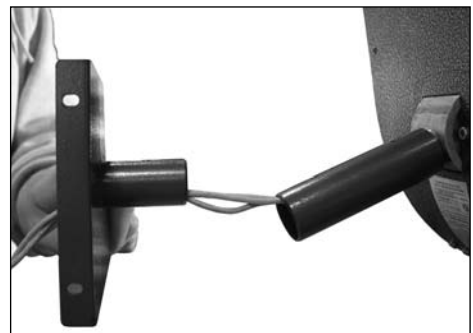
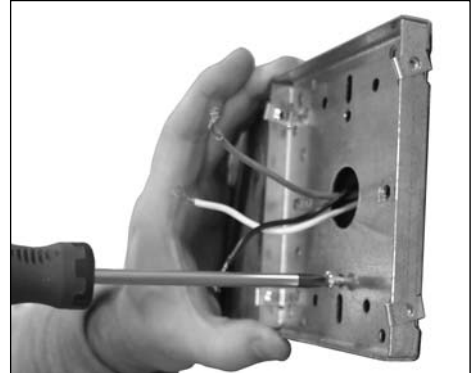
1. Turn off supply voltage to the junction box at the panel.
2. Thread the supply wires through the hole in the center of the universal mounting plate. Orient the universal mounting plate so the four cover plate mounting holes are on the sides, not the top and bottom. Attach the universal mounting plate to the junction box with appropriate user-supplied screws. For additional support, secure the mounting plate to the ceiling or wall using appropriate screws (not provided) at the corners of the universal mounting plate.

NOTE: *If the heater is to hang from the ceiling, refer to the Angle Adjustment instructions to reverse the angle adjustment assembly before continuing.*

3. Thread the lead wires from the heater through the appropriate tube (provided - choose the 8" tube for ceiling mount; 4" tube for wall mount) and then through the stub in the cover plate.
4. Secure the tube to the heater stub with a trilobal screw (provided). Secure the tube to the cover plate stub with the remaining trilobal screw.
5. Recruit an assistant to hold the heater. You may need to cut the clips off the ends of the lead wires and strip them to accommodate wire nuts. Use wire nuts to connect the lead wires from the heater to the power supply. Be sure the lead wire with the green label is connected to the green (ground) power supply wire.

6. Lift the heater up to the universal mounting plate and carefully coil the wires and connections into the junction box. Secure the cover plate to it with the four screws (provided). ***Be sure all screws are secure and sufficient to hold the weight of the heater. If any mounting hardware is loose or insufficient the heater may fall.***

7. Turn on the power supply and test operation.



Warranty

Schaefer Ventilation Equipment, LLC Schaefer Limited Warranty Policy

Schaefer Ventilation Equipment, LLC (SVE) provides the following limited warranty from the date of purchase to the original purchaser of our products:

- I. Two-year coverage (unless otherwise indicated below) applies to all products, components and assemblies provided by SVE that prove to be defective in material or workmanship. Any such defective product will be repaired or replaced at SVE's option, with the defective product returned upon approval to SVE, F.O.B Schaefer Ventilation Equipment, LLC, Sauk Rapids, Minnesota.
- II. This warranty does not cover:
 - a. Failure, damage or malfunction as a result of:
 - i. Improper installation or installation not in accordance with installation instructions.
 - ii. Operating conditions that vary from SVE's operating instructions.
 - iii. Misuse, abuse, negligence, alteration, or accident.
 - iv. Transporting the product.
 - v. Improper operation or lack of appropriate or regular maintenance of the product.
 - b. Loss of time, inconvenience, loss of use of the product or other consequential or incidental damages.
 - c. Parts that need replacement due to normal wear and tear.
 - d. Superficial or cosmetic rust or corrosion.
 - e. Any product whose name plate has been removed.

Products with warranty periods that differ from the standard 2-year warranty are as follows:

- | | |
|--|----------|
| • Poly Housings | 25 years |
| • Fiberglass Housings | 15 years |
| • Low-intensity Tube Heater Exchange Tubes | 5 years |
| • K-Series, 2-Stage, Compact and Stainless Steel Tube Heaters | 1 year |
| • Quartz and Zubri Heaters | 1 year |
| • Shutter Motors and Aluminum Riveted Fan Blades | 1 year |
| • HotZone™ Electric Elements | 120 days |
| • Quartz Bulbs | 90 days |
| • Evaporative Cooling Pads | 90 days |
| • Economy Line Fans | 90 days |
| • Any product or part noted as an exception to the standard 2-year warranty in the product's operating manual. | |

SVE reserves the right to add or delete products from this exception list at any time.

THERE ARE NO WARRANTIES OF MERCHANTABILITY OR FITNESS OF USE.

SVE reserves the right to change product design and specification without prior notice or liability.

The above constitutes the sole warranty offered by Schaefer Ventilation Equipment, LLC.

Effective Date: February 1, 2009

All information, illustrations and specifications in these instructions are based on the latest product information available at the time of printing. Product specifications subject to change.



SCHAEFER
Ventilation Equipment

"Quality and Innovation since 1951"

800-779-3267

www.schaeferfan.com