

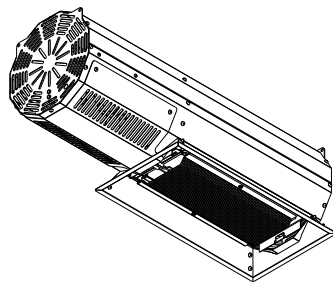
the Habanero

RADIANT PATIO HEATER

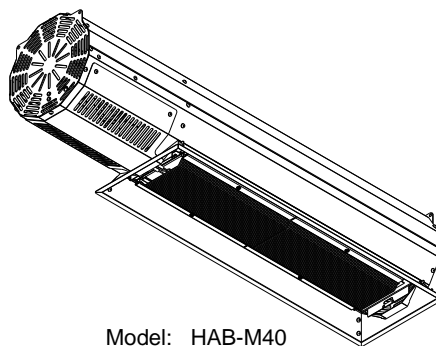
“A PATIO HEATER LIKE NO OTHER”

Series HAB

Manual for Installation, Operation & Maintenance



Model: HAB-M20



Model: HAB-M40

Model: HAB-M50



DANGER

If you smell gas:

1. Shut off gas to heater.
2. Extinguish any open flame.
3. If odour continues, immediately call your gas supplier.



FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapours and liquids in the vicinity of this or any other heater. A propane cylinder not connected for use shall not be stored in the vicinity of this or any other heater.



For Use Indoor/Outdoor Commercial and Outdoor Residential Use Only

* The HABANERO heater has been approved for indoor use in non-residential applications for Natural Gas units ONLY



WARNING: Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this heater.

IMPORTANT

OWNER: Please retain these instructions for future reference.

INSTALLER: The installer or seller must leave these instructions with the owner. Only those who are certified to do so should perform service on these heaters.



WARNING:

California Proposition 65

This heater, its related accessories and by-product of operation, contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



Table Of Contents

CAUTION AND GENERAL SAFETY	3
- SAFETY REQUIREMENTS	3
CODE REQUIREMENTS	4
- INSTALLATION CODES	4
- GAS CODES	4
Gas Supply Lines.....	4
- ELECTRICAL CODES.....	4
SPECIFICATIONS	5
- DIMENSIONAL DETAILS:	5
- GAS AND ELECTRICAL CONNECTIONS:	5
- POWER & GAS SPECIFICATIONS	6
Gas Supply (Natural Gas ONLY).....	6
Electrical Supply.....	6
EQUIPMENT	7
- STANDARD EQUIPMENT INCLUDED:	7
- OPTIONAL EQUIPMENT:	8
INSTALLATION INSTRUCTIONS	10
- CLEARANCE TO COMBUSTIBLES	10
- INSTALLATION SEQUENCE:	12
- CEILING / WALL INSTALLATION	13
Using Optional Standard Ceiling / Wall Mounting Kits.....	13
Using Optional Low Clearance Ceiling Mounting Kit HAB-M20 Only	14
Using Optional Low Clearance Ceiling Mounting Kit HAB-M40 and M50 Only.....	15
Using Optional Low Clearance NON COMBUSTIBLE Ceiling Mounting Kits (all models).....	16
Installing Heater on a NON COMBUSTIBLE WALL (all models).....	16
- ANGLE MOUNTING CONFIGURATIONS:	17
- HAB-M20 INSTALLATION:	18
- HAB-M40 AND M50 INSTALLATION:	20
- GAS CONNECTION / CODE REQUIREMENTS.....	22
- ELECTRICAL CONNECTION / CODE REQUIREMENTS	23
Internal wiring diagram.....	23
External wiring Options. (Manual line switch with Hi-Lo or Two Stage Switch).....	24
- VENTING	25
LIGHTING & SHUTDOWN INSTRUCTIONS	26
- LIGHTING	26
- SHUT DOWN.....	26
MAINTENANCE & TROUBLE SHOOTING	27
- MAINTENANCE	27
- TROUBLE SHOOTING.....	27
PARTS LIST	28
- REPLACEMENT PARTS	28
WARRANTY	29

Caution and General Safety

CAUTION: FIRE OR BURN INJURY HAZARD

- At all times maintain clearance to combustible materials as further specified in this manual. Failure to do so can result in serious fire hazard.
- Never operate heaters in atmosphere containing flammable vapours or combustible dusts.
- This heater is equipped with an electronic and automatic ignition device. Do not attempt to light the burner by hand. Failure to comply can result in a serious fire and personal injury hazard.
- Certain materials, when stored under this heater are subjected to radiant heat can soften, distort or otherwise be damaged, special care should be taken of plastic materials
- Heater surfaces, other than the obvious flame and emitter surfaces, attain elevated temperatures during operation. Do not touch the heater head during operation. Everyone should be alerted to this hazard to avoid burning.
- Children and adults should be alerted to the hazards of high surface temperatures and should stay away to avoid burns or clothing ignition.
- Young children should be strictly supervised when in the area of this heating appliance. Playing or running around the structure should be strictly forbidden.
- Clothing or other flammable materials should not be hung on or near this heater.
- Any guard or other protective device removed for servicing the heater must be replaced prior to operating the heater.
- Installation and repair should be done by a qualified service person. The heater should be inspected before use and at least annually by a qualified service person.

- Safety Requirements

1. Never locate the heater directly below electrical lines, gas lines or sprinkler systems.
NOTE: Sprinkler head heat fuse link performance may alter with age.
2. Do not locate heater too close to vinyl or plastic wall coverings. These materials may discolour or soften well before they reach combustible limits.
3. The heater requires a minimum clearance from combustible materials. See the Clearance to Combustible Materials section for specific requirements.
4. Always allow room for maintenance purposes.
5. The heater aspirates air for combustion. Do not locate heater where there are severe draft conditions or airflow restrictions to the burner.

- Installation Codes

Installations must comply with local building codes, or in their absence, the latest edition of the national regulations and procedures as listed below.

- Gas Codes

Heaters must be installed only for use with the type of gas appearing on the rating plate. The installation must conform with local codes or, in the absence of local codes, with the *National Fuel Gas Code, ANSI Z223.1/NFPA 54* in the US, *Natural Gas and Propane Installation Code, CSA B149.1*, or *Propane Storage and Handling Code B149.2* in Canada.

This heater maybe approved for either indoor or outdoor installation. Not for use in residential dwellings, refer to Rating plate.

Note: A residential dwelling is a domicile intended for use by one or more persons and that includes one or more areas, such as those used for cooking, eating, living, sleeping, or a sanitary facility. A residential dwelling does not include an attached and detached garage, workshop, or outdoors.

Gas Supply Lines

Gas supply pipe sizing must be in accordance with the National Fuel Gas Code, ANSI Z223.1/NFPA 54 in the US and CAN/CGA B149.1 and B149.2 *Installation Codes* in Canada.

- Electrical Codes

All heaters must be electrically grounded in accordance with local codes or, in the absence of local codes, with the *National Electric Code, ANSI/NFPA 70*, or the *Canadian Electric Code, CSA C22.1*.

WARNING!

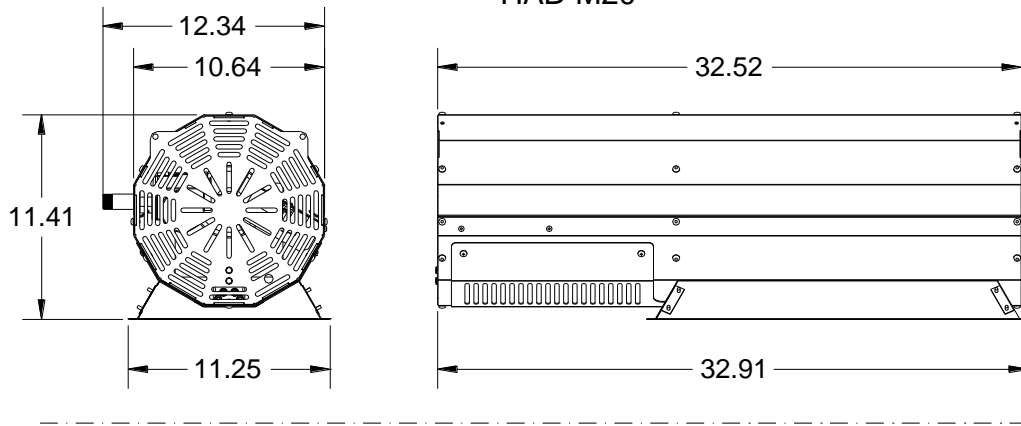
This heater is NOT approved for any indoor Residential application. If in doubt of your application consult with your local fire marshal or gas authority having jurisdiction. Indoor spaces include but are not limited to attached garages, solariums, living quarters etc.

Specifications

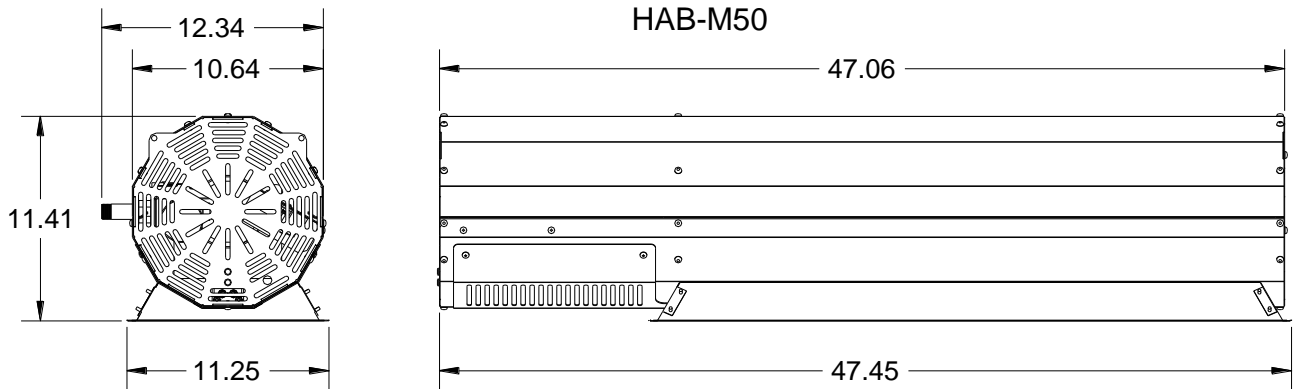
- Dimensional Details:

Note: All dimensions are in inches.

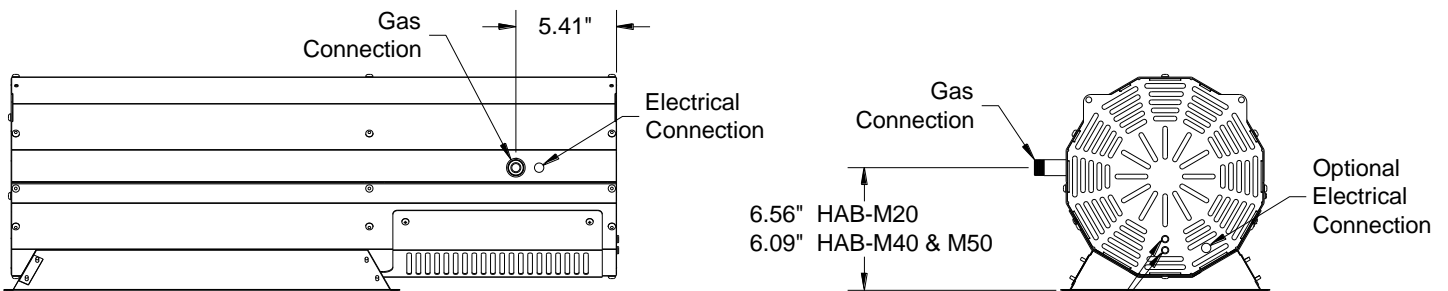
Model:
HAB-M20



Model:
HAB-M40
HAB-M50



- Gas and Electrical Connections:



Note:
Connections shown
for all Models

Important

Installation or repair should only be done by a qualified service person. The heater should be inspected before use and at least annually by a qualified service person.

The heater and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of ½ psig (3.5 kPa)

The heater must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than ½ psig (3.5 kPa)

- Power & Gas Specifications

Gas Supply (Natural Gas ONLY)

	HAB-M20	HAB-M40	HAB-M50
Rated Input			
High Fire Rate	20,000	40,000	50,000
Low Fire Rate	15,000	32,000	42,000
Inlet Pressure			
Maximum	14.0" W.C.	14.0" W.C.	14.0" W.C.
Minimum	7.0" W.C	7.0" W.C	7.0" W.C
Manifold Pressure			
Maximum	6.2" W.C.	6.3" W.C.	6.3" W.C.
Minimum	3.0" W.C.	4.5" W.C.	4.5" W.C.
Inlet Connection	½" Male NPT		

Electrical Supply

Alternating current AC, voltage; 24 V, 60 Hz with L, N and Ground (GND).

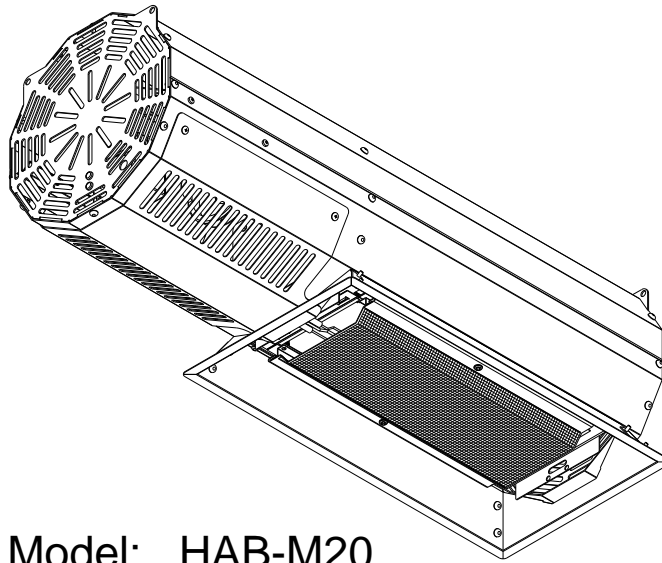
Note: 24V transformer not supplied.

High Altitude Installation

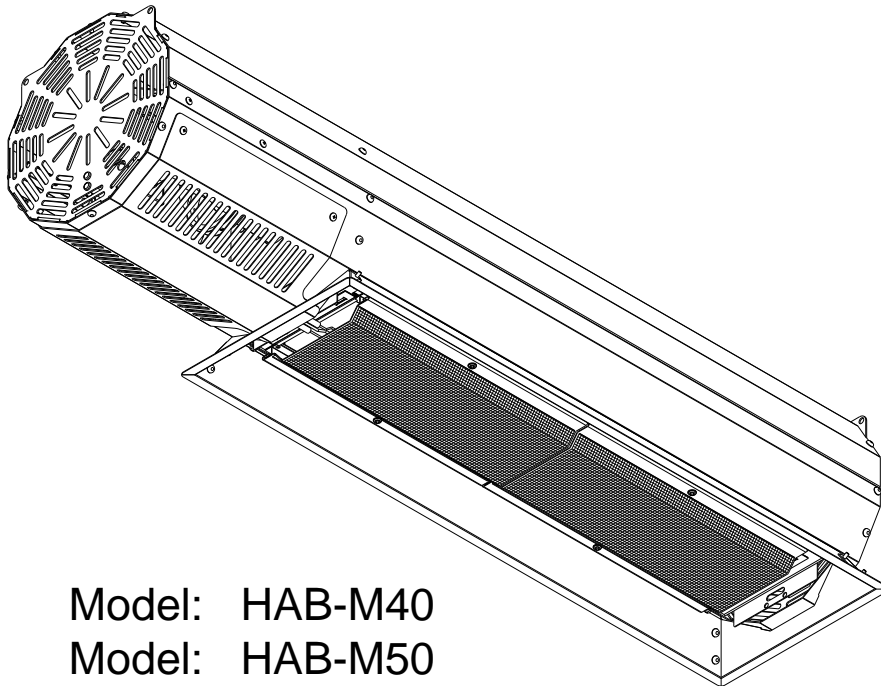
When installing this heater over 4500 ft. above sea level in Canada, the heater must be properly de-rated and installed according to local codes. In the absence of local codes, the heater must be de-rated in accordance with the most recent CSA -B149 code. In the United States for installations over 2000ft above sea level the heater must be installed in accordance with the Current National Fuel Gas Code, ANSI Z223.1/NFPA 54 (the heater shall be de-rated 4 percent for each 1000 ft of elevation above sea level).

Equipment

- **Standard Equipment Included:**



Model: HAB-M20



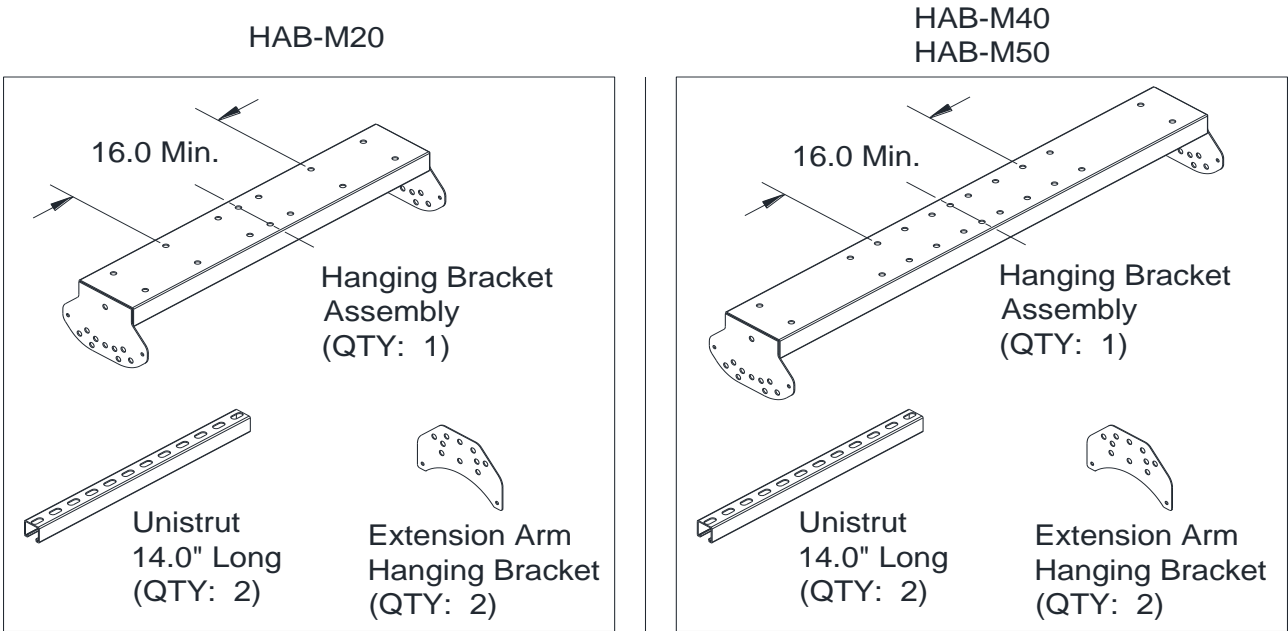
Model: HAB-M40

Model: HAB-M50

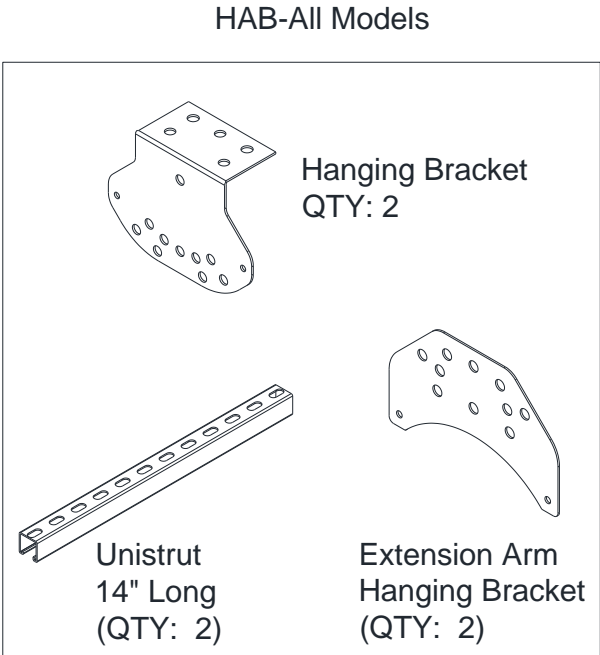
- **Optional Equipment:**

- The following bolts are **approved** for installing this heater with the hanging brackets.
- 3/8" X 3" long Lag Bolts (minimum 4 per heater) with minimum 16.0" mounting spacing on centres.
 - 3/8" X 3" Anchor Bolts (minimum 4 per heater) with minimum 16.0" mounting spacing on centres.

Optional Ultimate Ceiling / Wall Mounting Kits



Standard Ceiling/Wall Mounting Kits

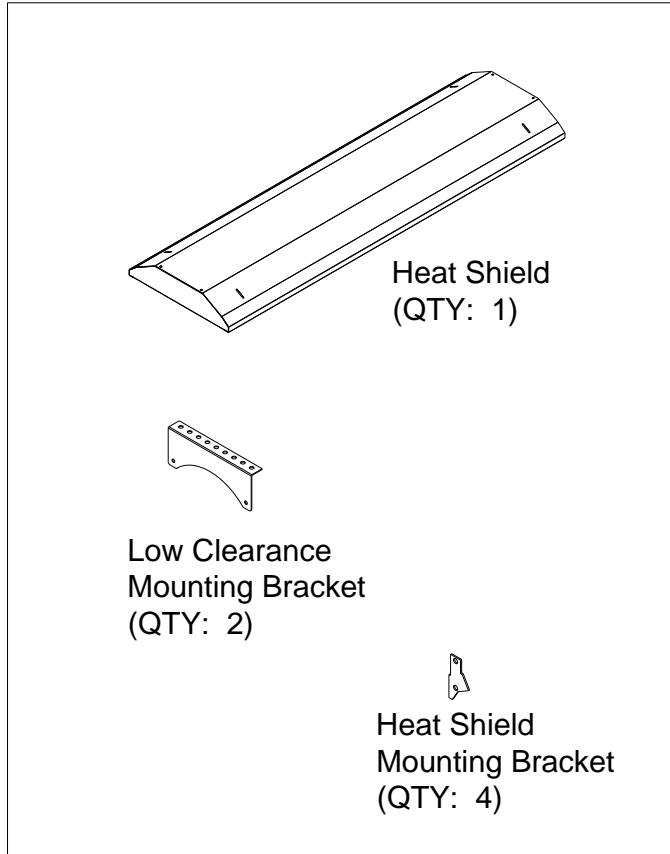


Equipment

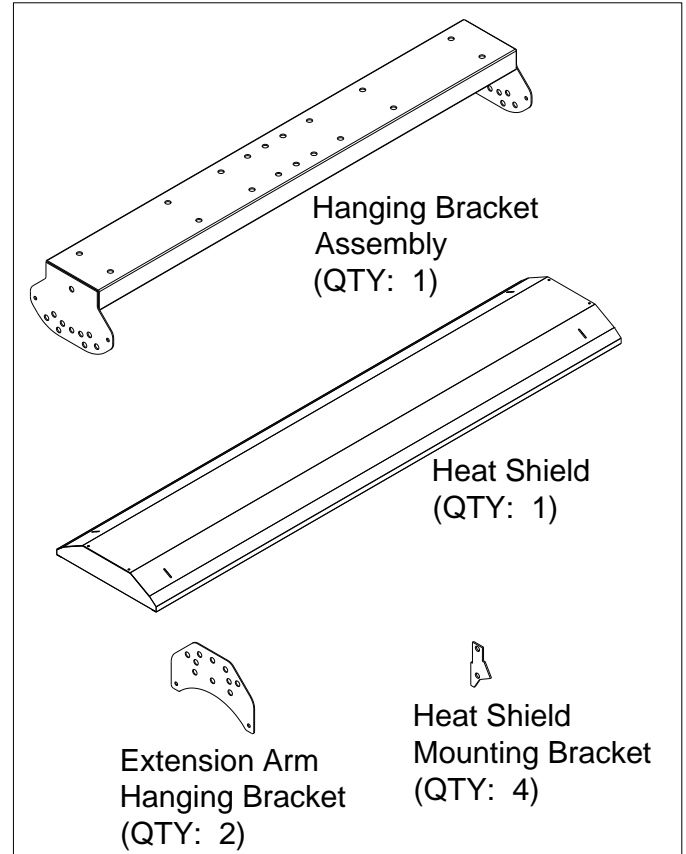
Optional Equipment continued:

Optional Low Clearance Ceiling Mounting Kits

HAB-M20

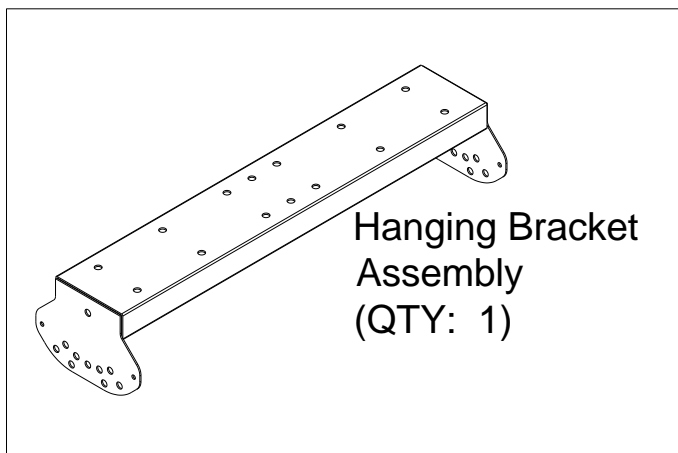


HAB-M40
HAB-M50

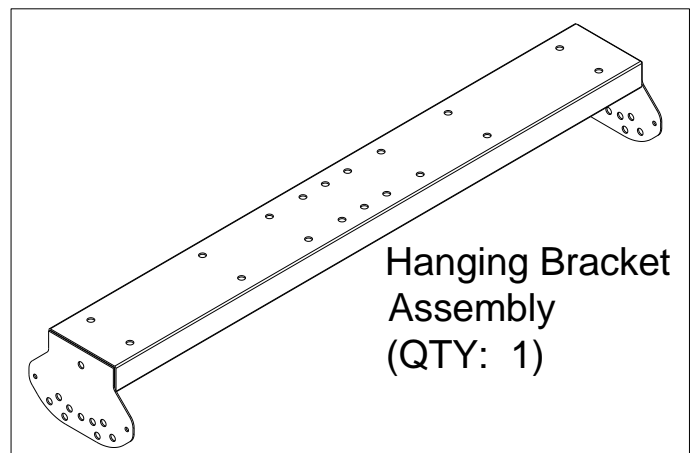


Optional Low Clearance **NON COMBUSTIBLE** Ceiling Mounting Kits

HAB-M20



HAB-M40
HAB-M50



- Clearance to Combustibles

A general clearance of 18” (0.5 m) in every direction is recommended for servicing only around each Burner, also to ensure adequate air flow in and around the Heating System.

The stated clearance to combustibles represents a surface temperature of 90°F (50°C) above room temperature. Building materials with low heat tolerance (**such as plastics, vinyl siding, canvas, tri-ply, etc...**) maybe subject to degradation at lower temperatures. **It is the installer’s responsibility to assure that adjacent materials are protected from degradation.**

In addition to this it is very important to observe the minimum clearance to combustibles at all times to avoid any possibility of property damage or personal injury.

Table below lists the minimum clearance to combustible materials for various installation configurations. Additional clearance may be required for glass, painted surfaces and other materials which maybe damaged by radiant or convective heat.

Combustible materials are considered to be wood, compressed paper, plant fibres, plastics, Plexiglas or other materials capable of being ignited and burned. Such materials shall be considered combustible even though flame-proofed, fire-retardant treated or plastered.

Note with an ambient temperature of 70°F the surface temperatures at the clearance distances listed below could reach 160°F, Care should be taken with placement of plastic or vinyl in the proximity of the heater as they tend to distort and soften at these temperatures.

Adequate clearance to sprinkler heads must be maintained.

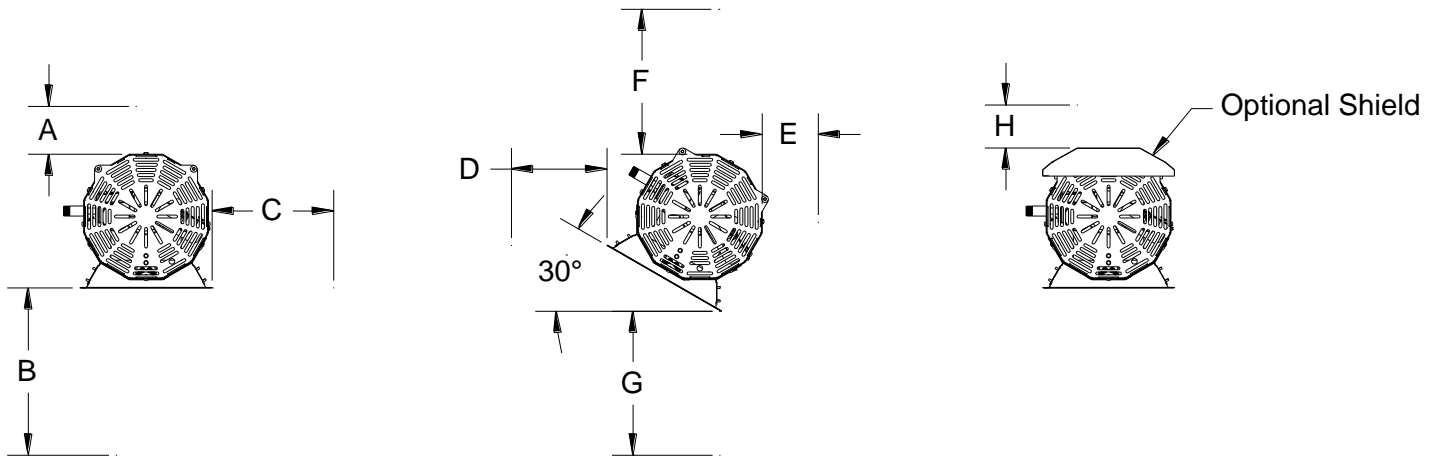
NOTE: Sprinkler head heat fuse link performance may alter with age.

NOTE: Some materials deteriorate or soften at sustained temperatures below 160°F. Consult material manufacturer for recommendations

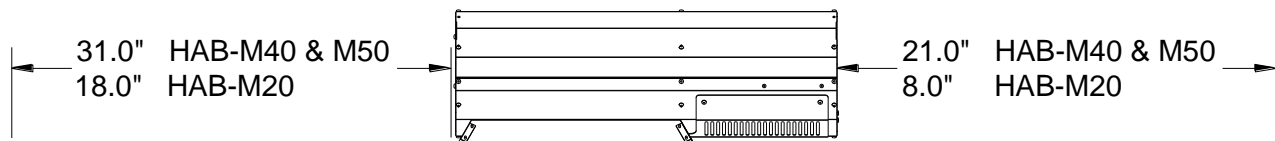
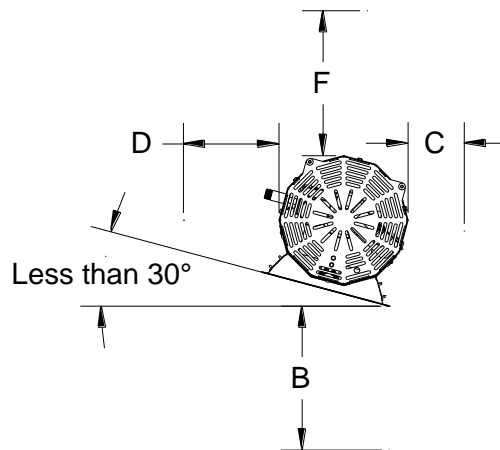
Installation Instructions

Clearance to Combustibles Table

Model #	Dim A	Dim B	Dim C	Dim D	Dim E	Dim F	Dim G	Dim H
HAB-M20	9	47	17	29	8.5	9	38	3
HAB-M40	13	75	34	48	10	16	66	9
HAB-M50	13	75	34	48	10	16	66	9



Less than 30° mounting angle



Dimensions in inches

Installation Instructions

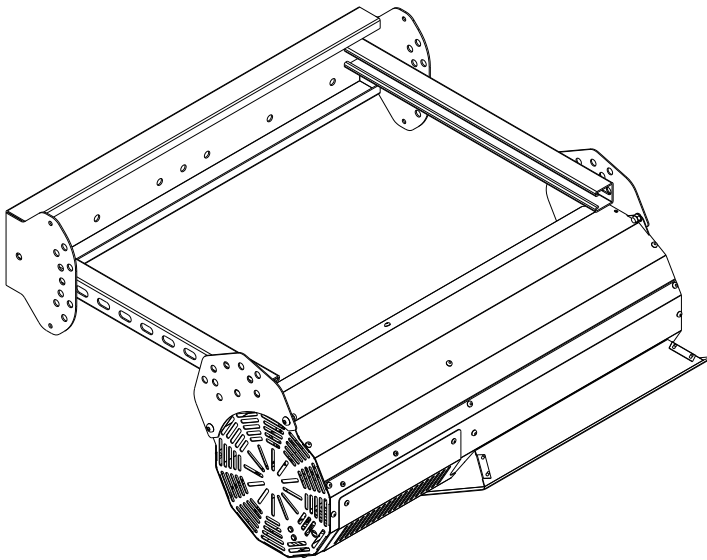
- Installation Sequence:

The Habanero can be mounted either horizontally or at an incline of up to 30° as shown in the clearance to combustibles table (previous section). A review of the job site will usually indicate a logical installation location and order. However, time and expense can be saved if installation is begun at the most critical dimension, watching for interference from overhead beams etc. Figure below provides a general overview of the components utilized in the installation, as well as their general relationship.

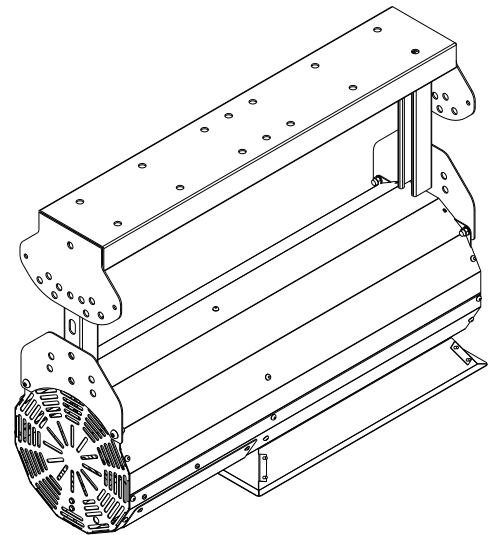
Caution: In areas where seismic forces are present extra / additional bracing may be required.

Caution: The heater must have a minimum clearance of 8 feet below, but less than 8 feet hanging application can be considered as long as it meets local codes and minimum clearance to combustibles.

Wall or Wood Post
Hanging Option



Ceiling Hanging
Option



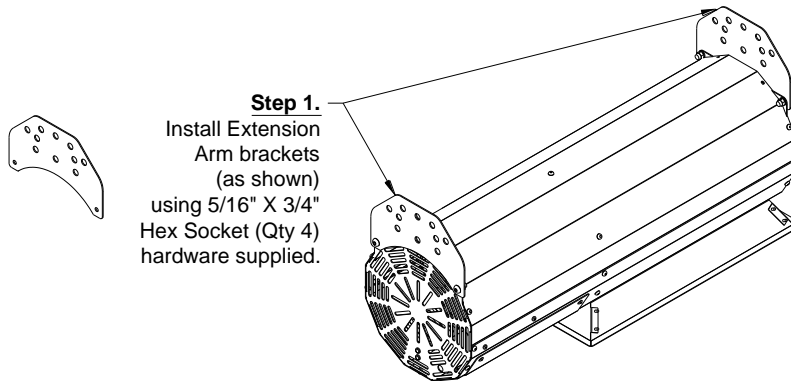
Installation Instructions

- Ceiling / Wall Installation

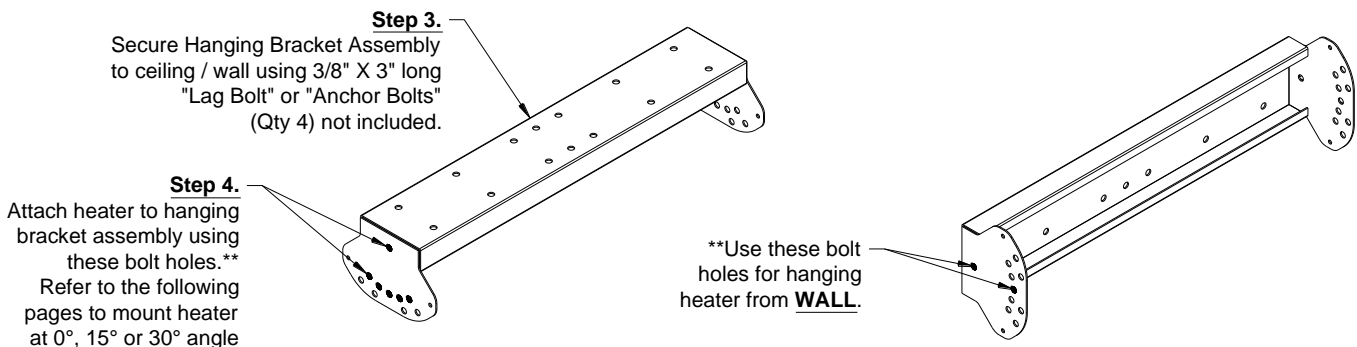
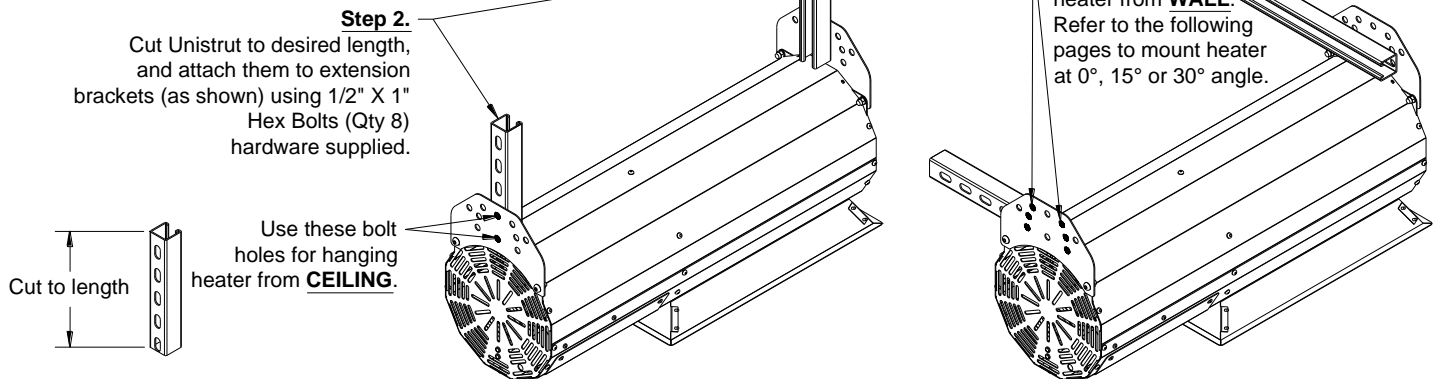
Using Optional Standard Ceiling / Wall Mounting Kits

The mounting kits have provision for **0°, 15° and 30° mounting angles** using the optional mounting brackets. Figure below shows the possible angle configurations to install at desired angle.

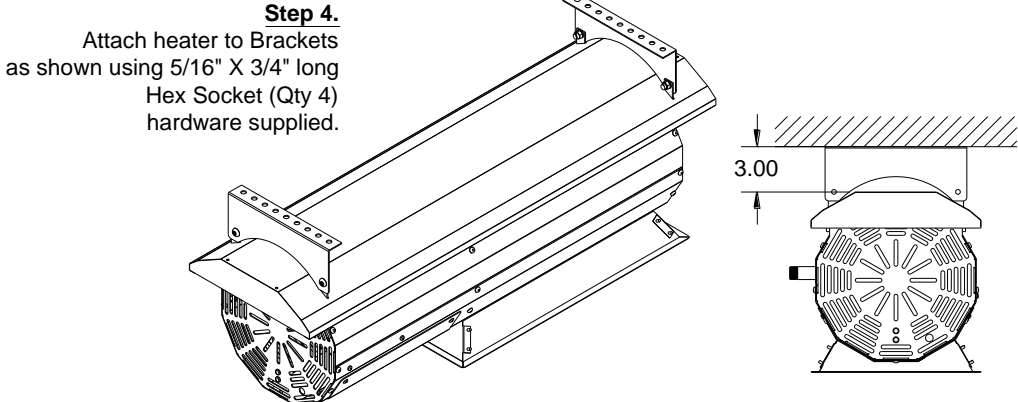
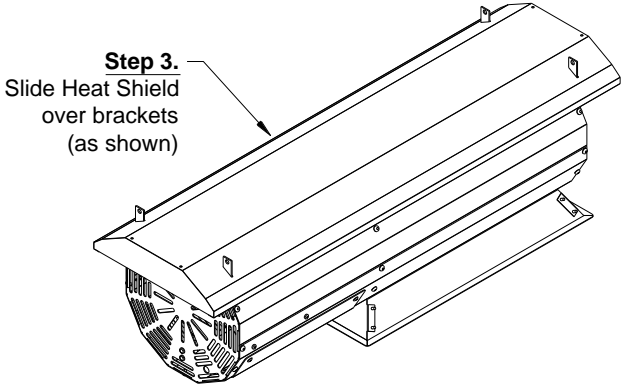
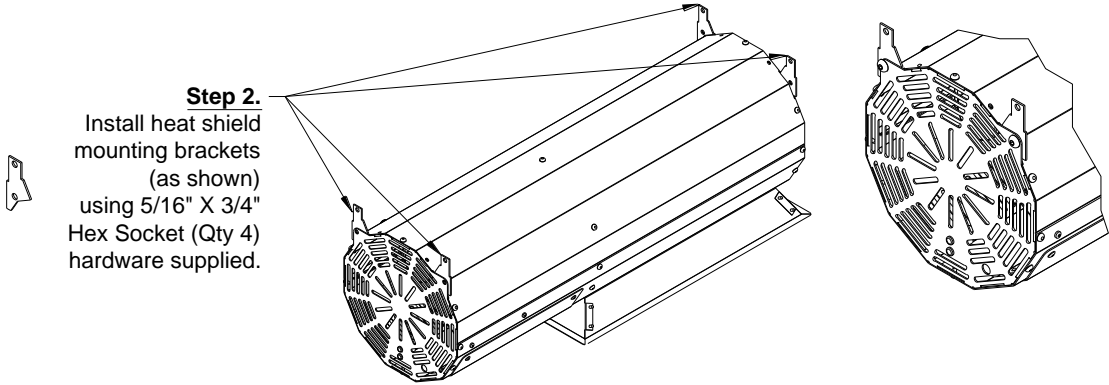
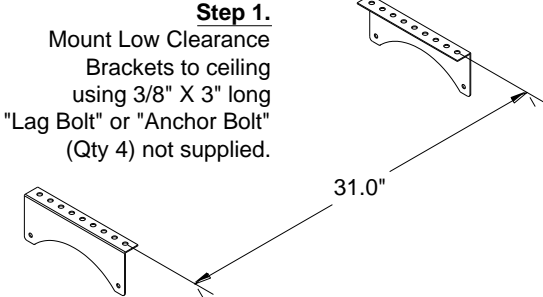
Ceiling Installation for HAB-M20, HAB-M40 and HAB-M50.



Note:
Minimum clearances to combustibles must be maintained as per clearance to combustibles table when cutting Unistrut.



Using Optional Low Clearance Ceiling Mounting Kit HAB-M20 Only

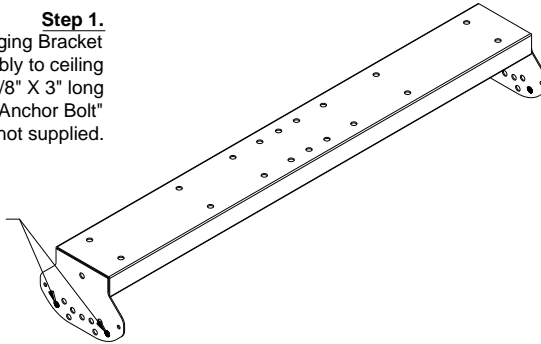


Installation Instructions

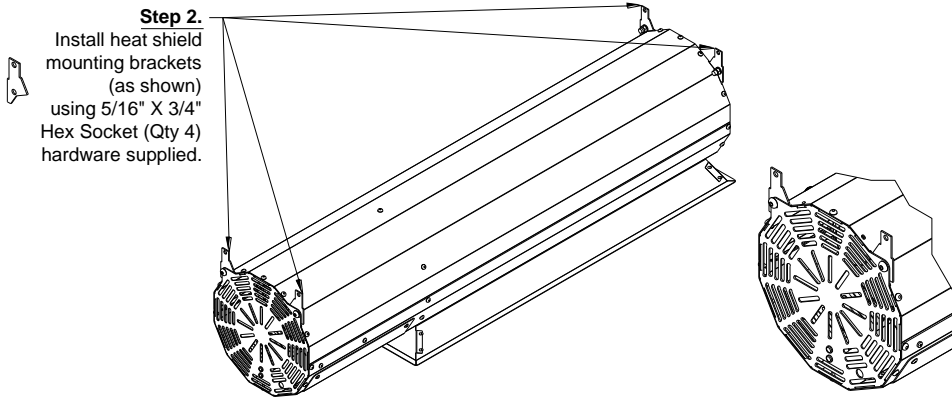
Using Optional Low Clearance Ceiling Mounting Kit HAB-M40 and M50 Only

Step 1.
Mount Hanging Bracket Assembly to ceiling using 3/8" X 3" long "Lag Bolt" or "Anchor Bolt" (Qty 4) not supplied.

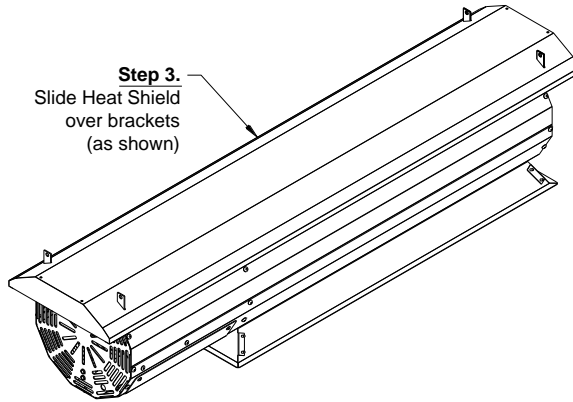
Use these two bolt holes to attach bracket to extension arm refer to **step 4.**



Step 2.
Install heat shield mounting brackets (as shown) using 5/16" X 3/4" Hex Socket (Qty 4) hardware supplied.

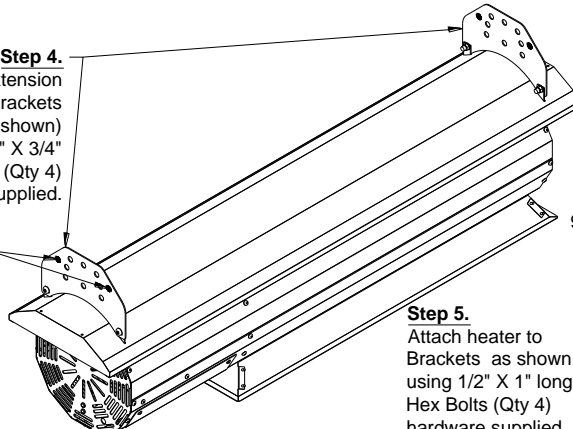


Step 3.
Slide Heat Shield over brackets (as shown)

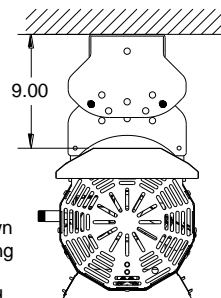


Step 4.
Install Extension Arm brackets (as shown) using 5/16" X 3/4" Hex Socket (Qty 4) hardware supplied.

Use these two bolt holes to attach heater to Hanging bracket assembly in **step 1.**

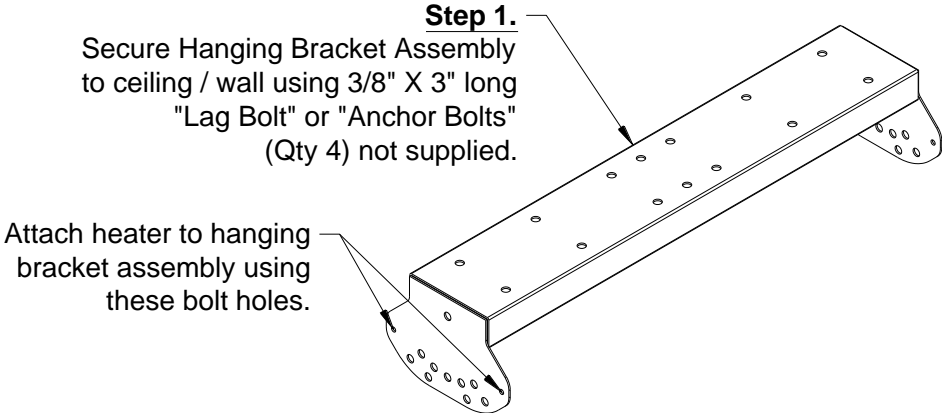


Step 5.
Attach heater to Brackets as shown using 1/2" X 1" long Hex Bolts (Qty 4) hardware supplied.

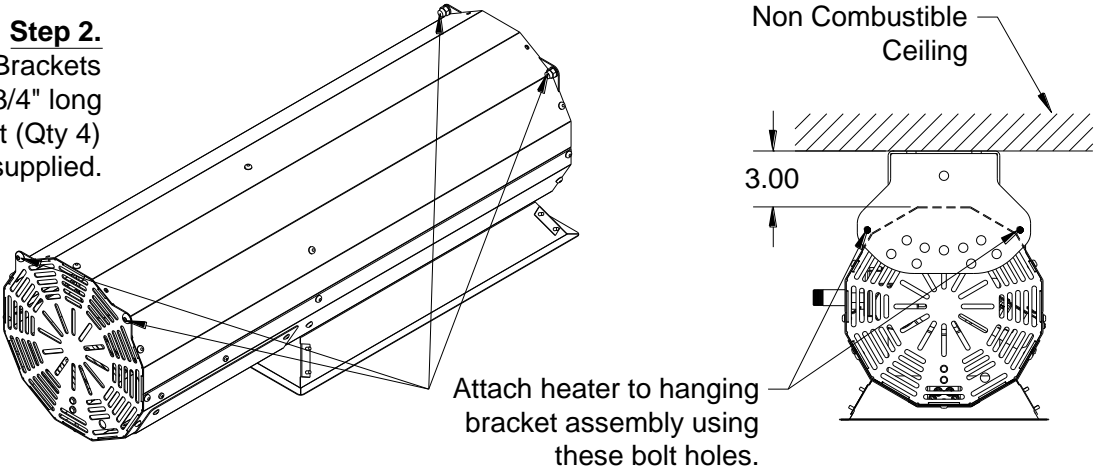


Installation Instructions

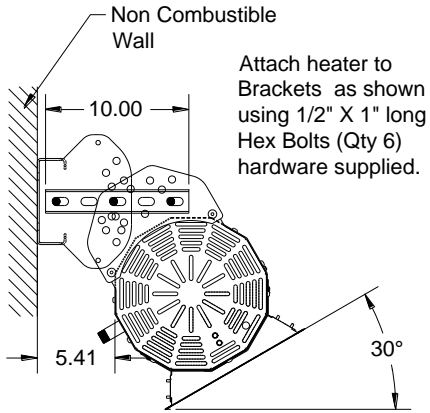
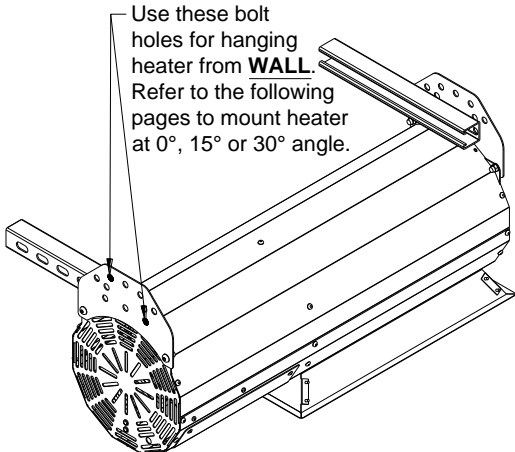
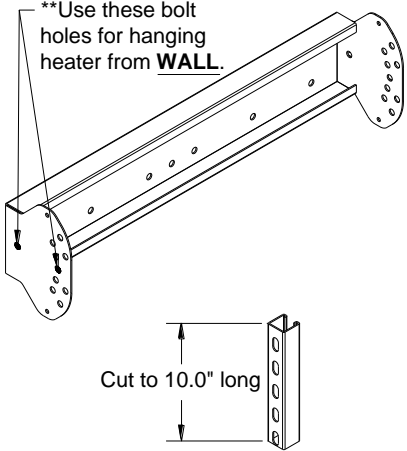
Using Optional Low Clearance NON COMBUSTIBLE Ceiling Mounting Kits (all models).



Step 2.
Attach heater to Brackets as shown using 5/16" X 3/4" long Hex Socket (Qty 4) hardware supplied.



Installing Heater on a NON COMBUSTIBLE WALL (all models).

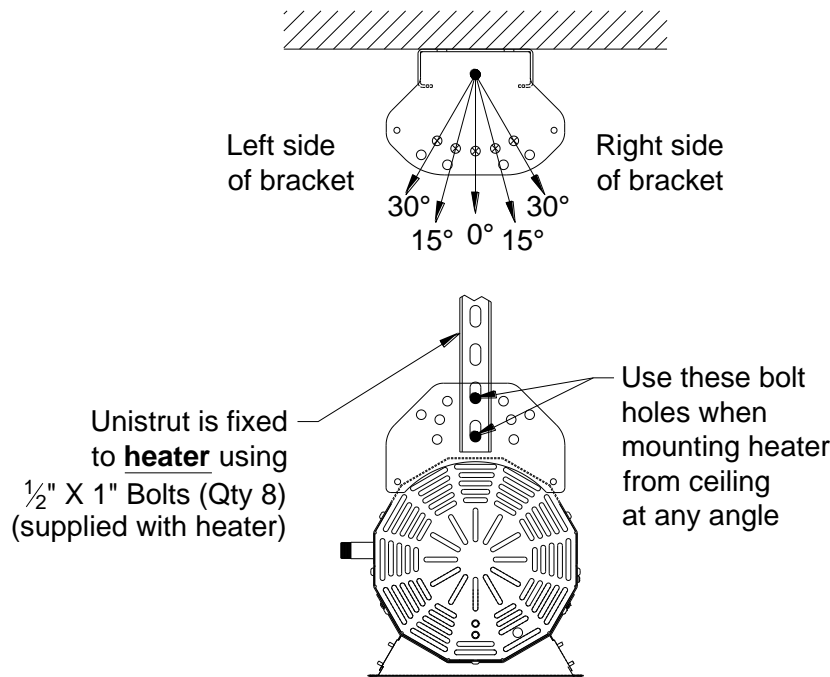


Installation Instructions

- Angle Mounting Configurations:

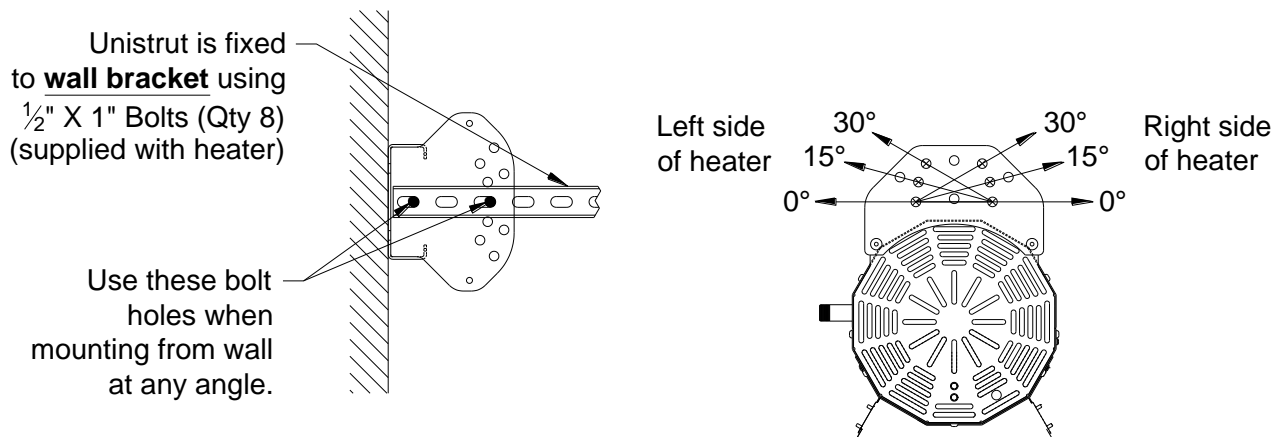
The mounting kits have provision for **0°, 15° and 30° mounting angles** using the optional mounting brackets. Figure below shows the possible angle configurations to install at desired angle.

Ceiling Mount / Hanging Configuration



Note:
Other clearances must be maintained as per clearance to combustibles table.

Wall Mount / Hanging Configuration



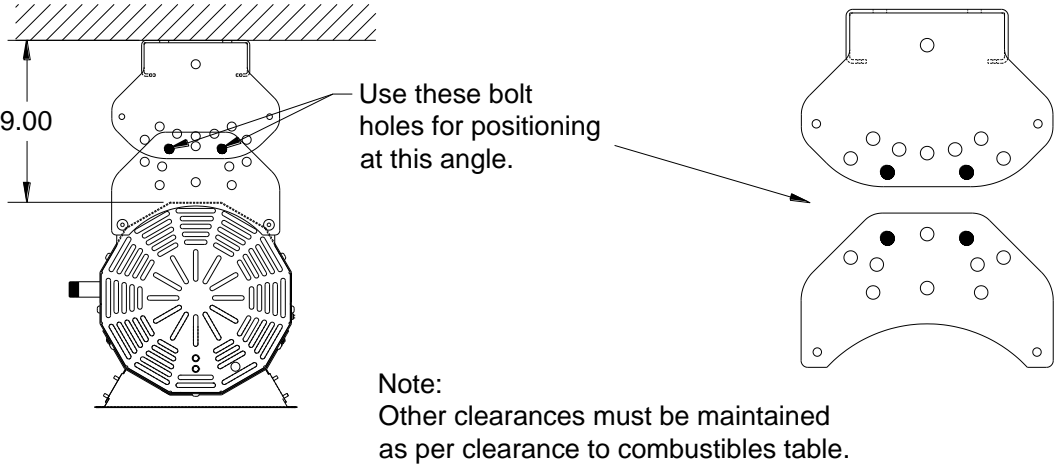
Note:
Other clearances must be maintained as per clearance to combustibles table.

- HAB-M20 Installation:

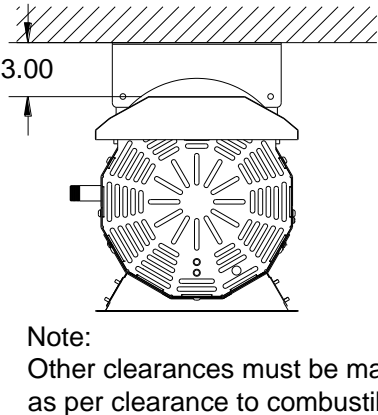
Mounting heater at 0° from horizon.

The figure below shows the minimum mounting distances to achieve the clearance to combustibles.

Minimum Ceiling Mount Distance



Minimum Ceiling Mount Distance using Optional Shield



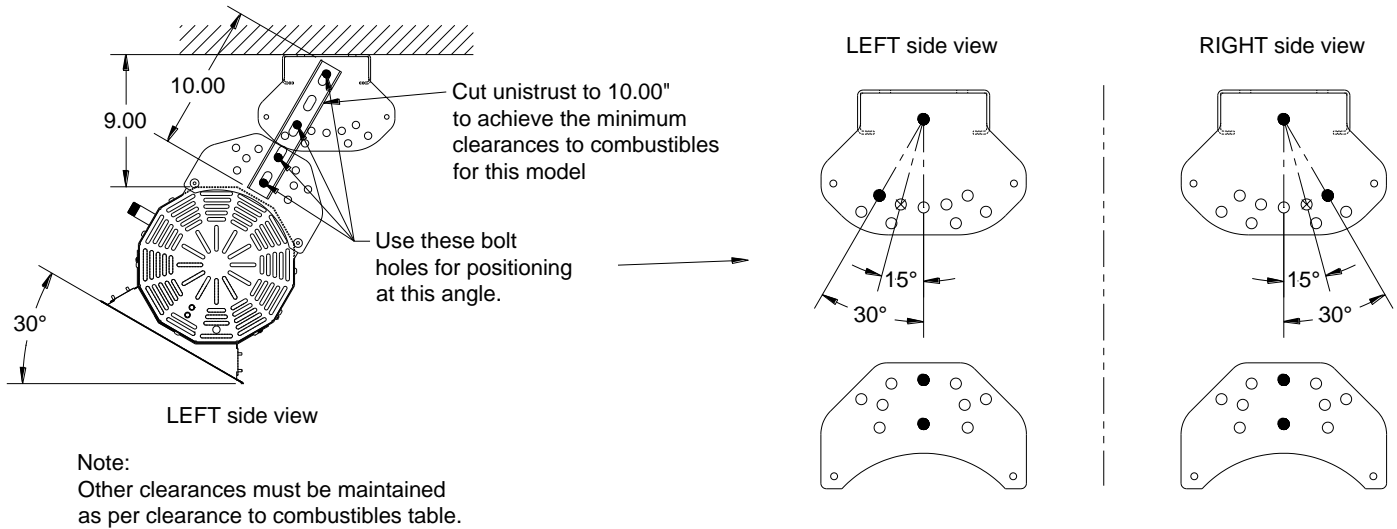
Installation Instructions

HAB-M20 Installation continued:

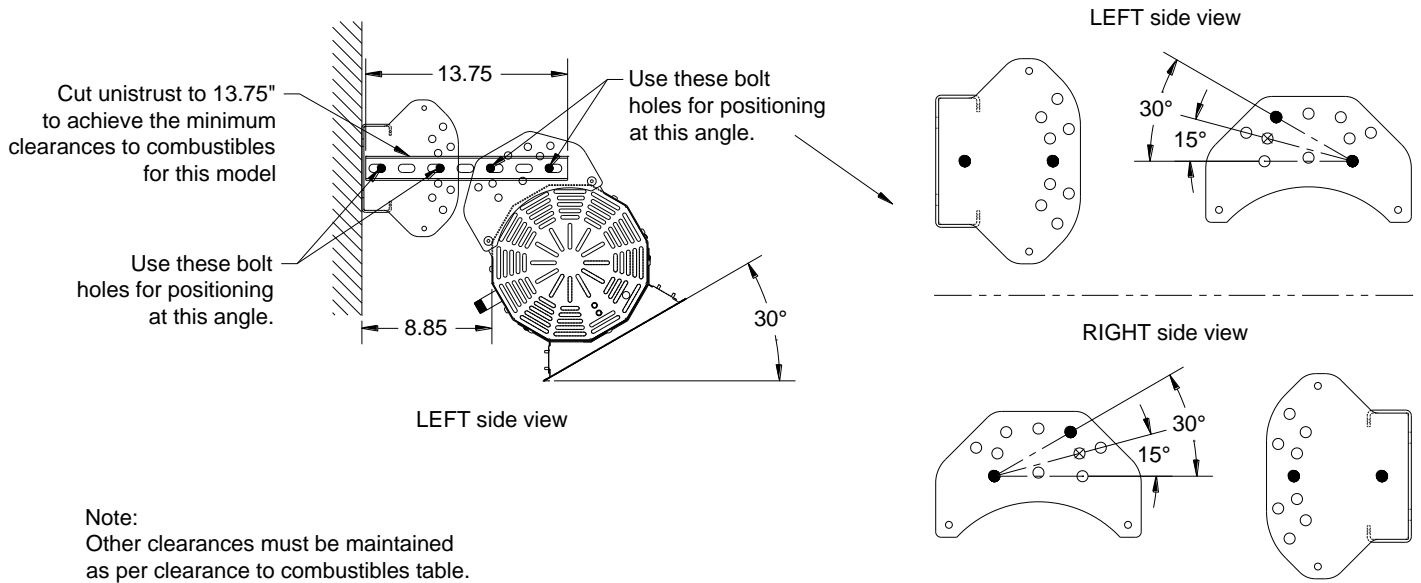
Mounting heater at 30° from horizon.

The figure below shows the minimum mounting distances to achieve the clearance to combustibles.

Minimum Ceiling Mount Distance



Minimum Wall Mount Distance



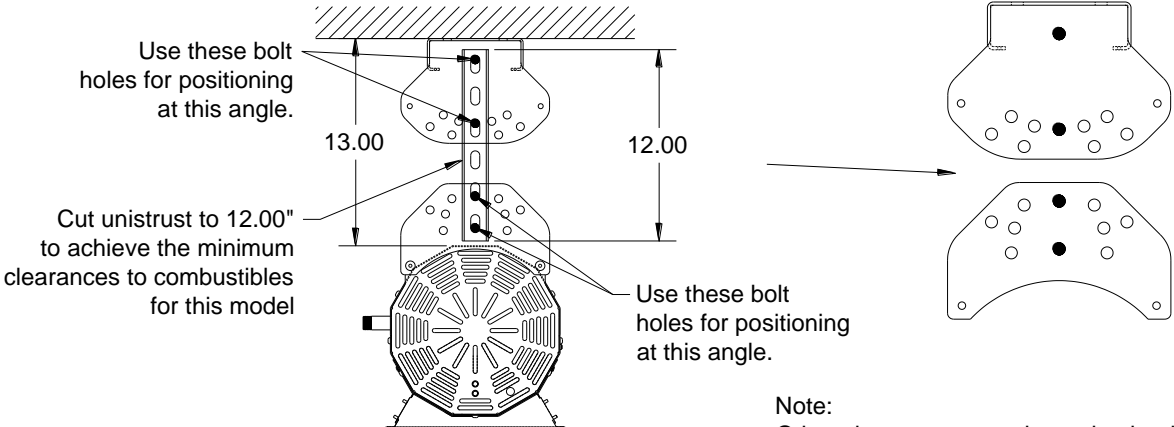
Note: When assembling hanging brackets the maximum angle the heater can be at is 30° from horizon.

- HAB-M40 and M50 Installation:

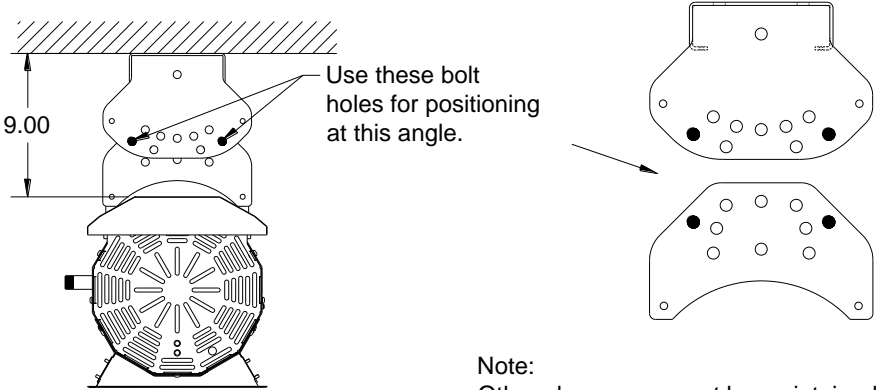
Mounting heater at 0° from horizon.

The figure below shows the minimum mounting distances to achieve the clearance to combustibles.

Minimum Ceiling Mount Distance



Minimum Ceiling Mount Distance using Optional Shield



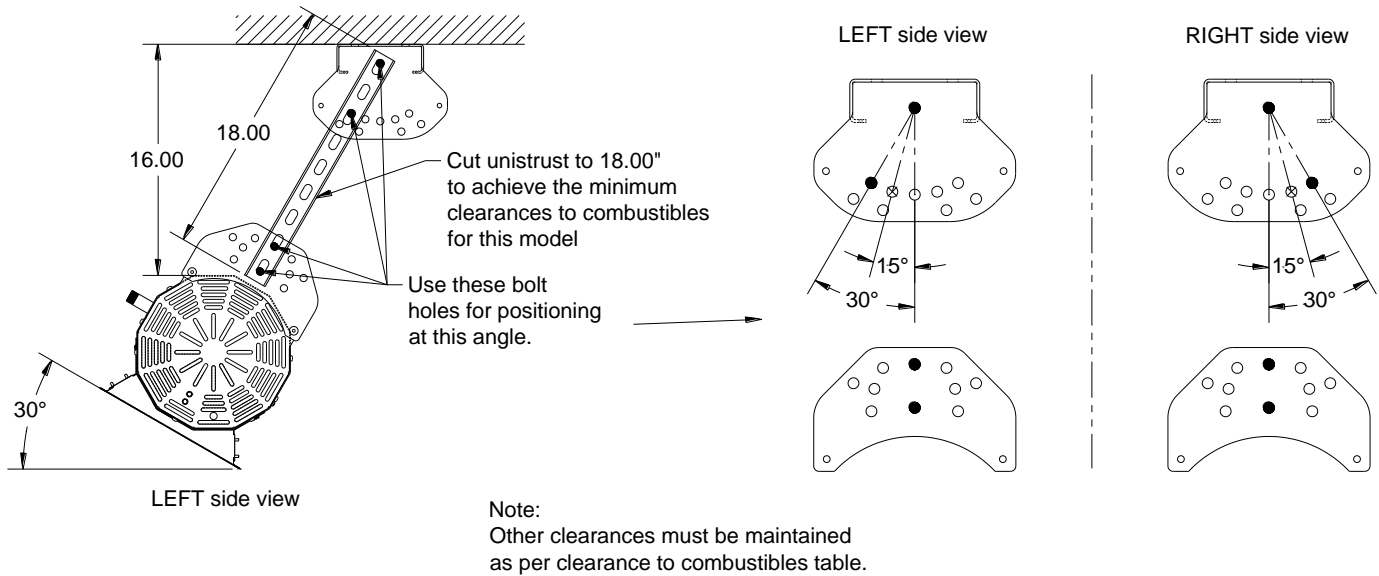
Installation Instructions

HAB-M40 and M50 Installation continued:

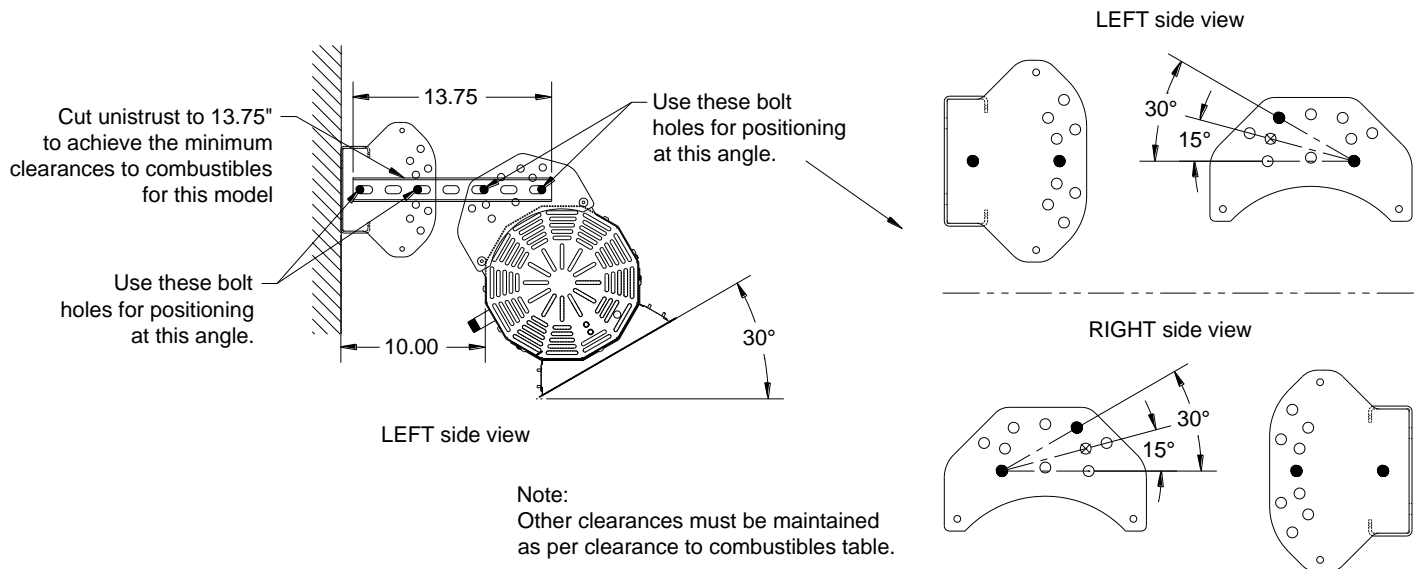
Mounting heater at 30° from horizon.

The figure below shows the minimum mounting distances to achieve the clearance to combustibles.

Minimum Ceiling Mount Distance



Minimum Wall Mount Distance



Note: When assembling hanging brackets the maximum angle the heater can be at is 30° from horizon.

- Gas Connection / Code Requirements

Installation must comply with local building codes and/or, for the USA/National Fuel Gas Code, ANZI Z 223.1 (NFPA 54) and for Canada, CAN/CGA B149.1 and B149.2, National Gas and Propane Installation Code (latest editions).

Do not use high pressure (above ½ psig) to test the gas supply system with the heater connected. Failure to comply can result in damage to the heater.

Check for gas leaks at all connections with appropriate soap solution.

Never connect an unregulated gas supply to the heater.

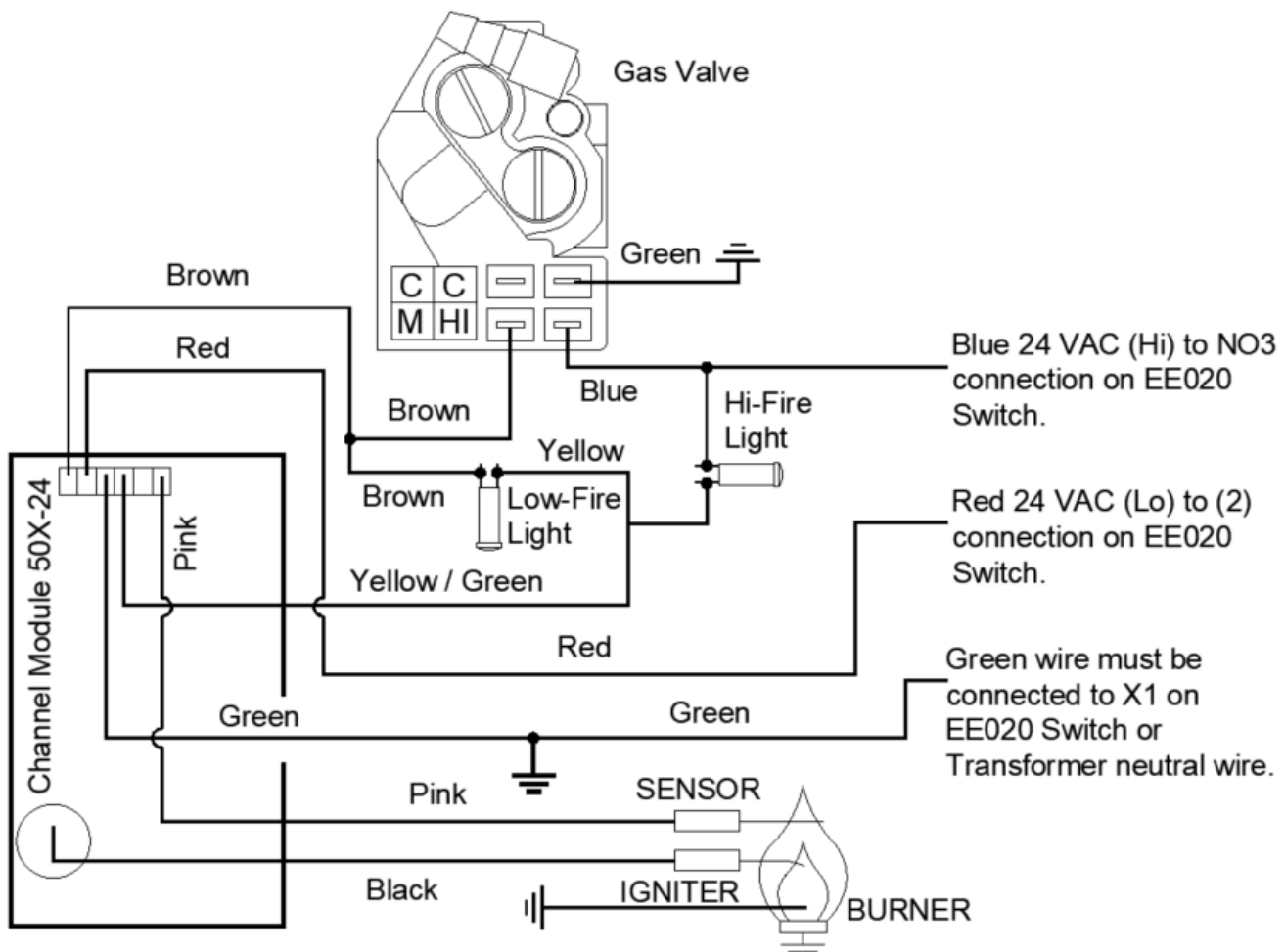
Installation Instructions

- Electrical Connection / Code Requirements

The Habanero Heaters require 24VAC power supply (transformer to be supplied by installer). In all cases, heaters must be electrically grounded in accordance with local codes or in their absence, the *National Electric Code*, ANSI/NFPA 70 in the US, and the *Canadian Electric Code*, CSA C22.1. Heaters may also be controlled with a manual line switch or timer switch in place of the thermostat. Refer to wiring diagrams below for guidance on electrical wiring of heaters.

If any of the original wire as supplied with the heater must be replaced, it must be replaced with wiring having a rating of at least 105°C temperature service and 600 volts capability.

Internal wiring diagram.

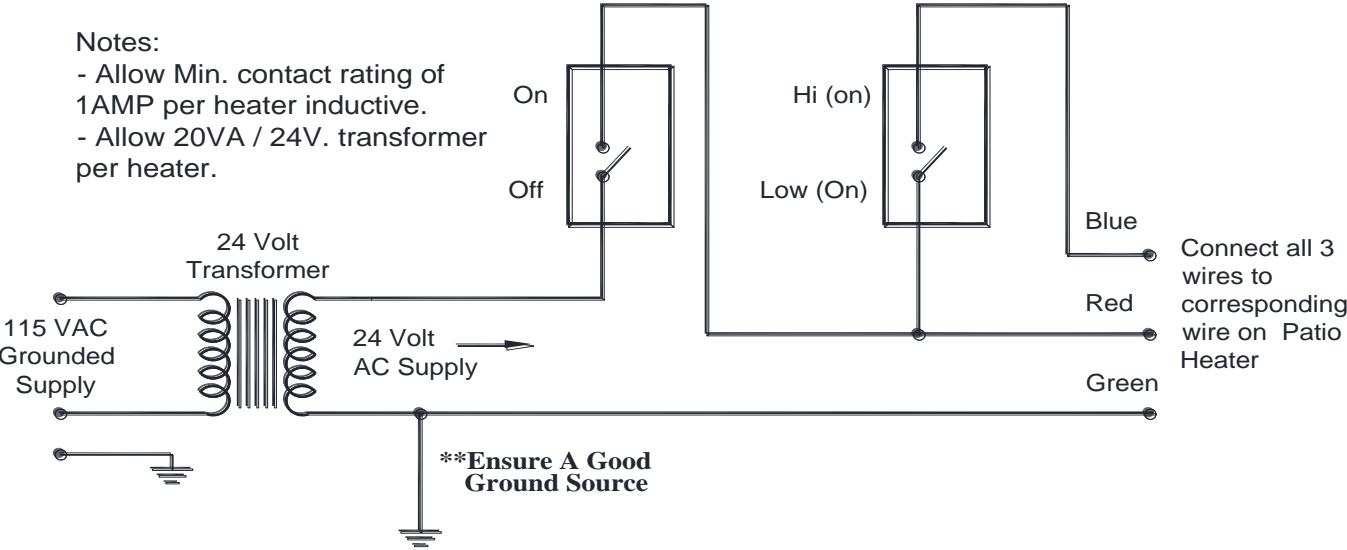


Note:

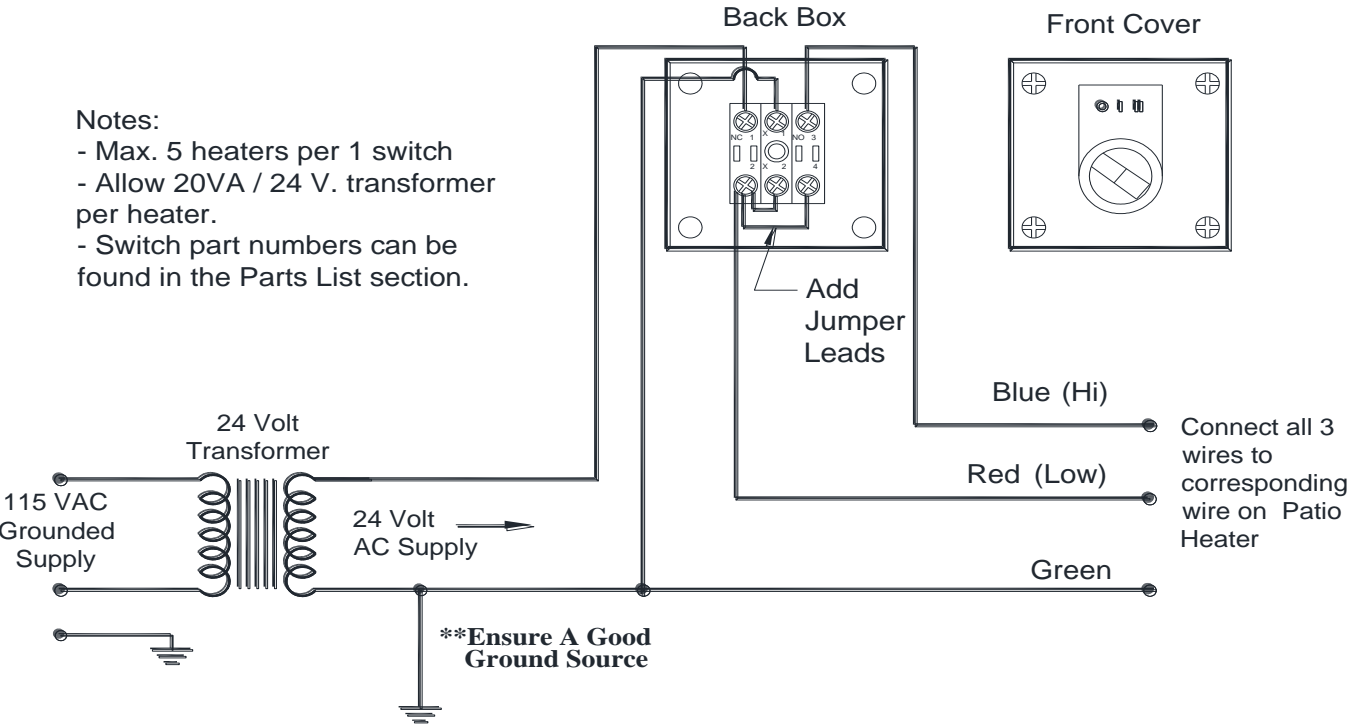
If any of the original wire as supplied with the appliance must be replaced, it must be replaced with wiring material having a temperature rating of at least 105°C.

External wiring Options. (Manual line switch with Hi-Lo or Two Stage Switch)

Manual Line Switch with Hi-LO wiring diagram



Two Stage Switch wiring diagram



Installation Instructions

- Venting

This heater does not require venting.

WARNING!

This heater is NOT approved for any indoor Residential application. If in doubt of your application consult with your local fire marshal or gas authority having jurisdiction. Indoor spaces include but are not limited to attached garages, solariums, living quarters etc.

Lighting & Shutdown Instructions

- Lighting

1. Open manual gas supply valve (ensure gas supply lines have been purged).
2. Turn on switch to energize electric supply.
3. The electronic control module will time begin the ignition period in 3 seconds.
4. The gas valve will open and ignition spark will commence and continue for 20 sec.
5. If flame starts and “is detected”, flame will continue until turned off.
6. If no flame is detected, the gas valve will close after 20 sec. A “wait’ period commences and lasts approximately 5 sec. and a second trial for combustion commences. The electronic control will attempt three trials for ignition before locking out for approximately 1 hour at which time it will automatically try again.

Electronic control of heater can be re-set by de-energizing and re-energizing electric power.

- Shut Down

1. Turn off power to electronic control.
2. For longer periods of shut down, also close manual gas supply valve.

Note:

It is recommended to use a factory recommended “Hi-Lo switch” with this heater.

Maintenance & Trouble Shooting

- Maintenance

For best performance, the certain minimal maintenance procedures should be performed before each heating season:

- A service agency qualified to adjust and repair infrared heaters should be engaged for service other than routine maintenance.
- Before performing any services or maintenance, shut off gas and electrical supply to heater.
- Keep the heater area clear and free from combustible materials, gasoline and other flammable vapours and liquids.
- Do not obstruct the flow of combustion and ventilation air.
- Check condition of burner. Remove any foreign objects or debris from burner.
- Inspect the igniter. Replace igniter if there is excessive wear or erosion, breakage or other defects.
- The reflector sections may be cleaned by wiping with a damp cloth.
- Annually verify hose gas supply in heater post and all connections for gas leaks.

- Trouble Shooting

No Gas Supply at Burner

- Ensure manual shut off valve is in proper position
- Ensure there is pressure and flow at inlet to gas valve.
- Ensure gas valve gets 24v power from control module during ON cycle.

No Spark

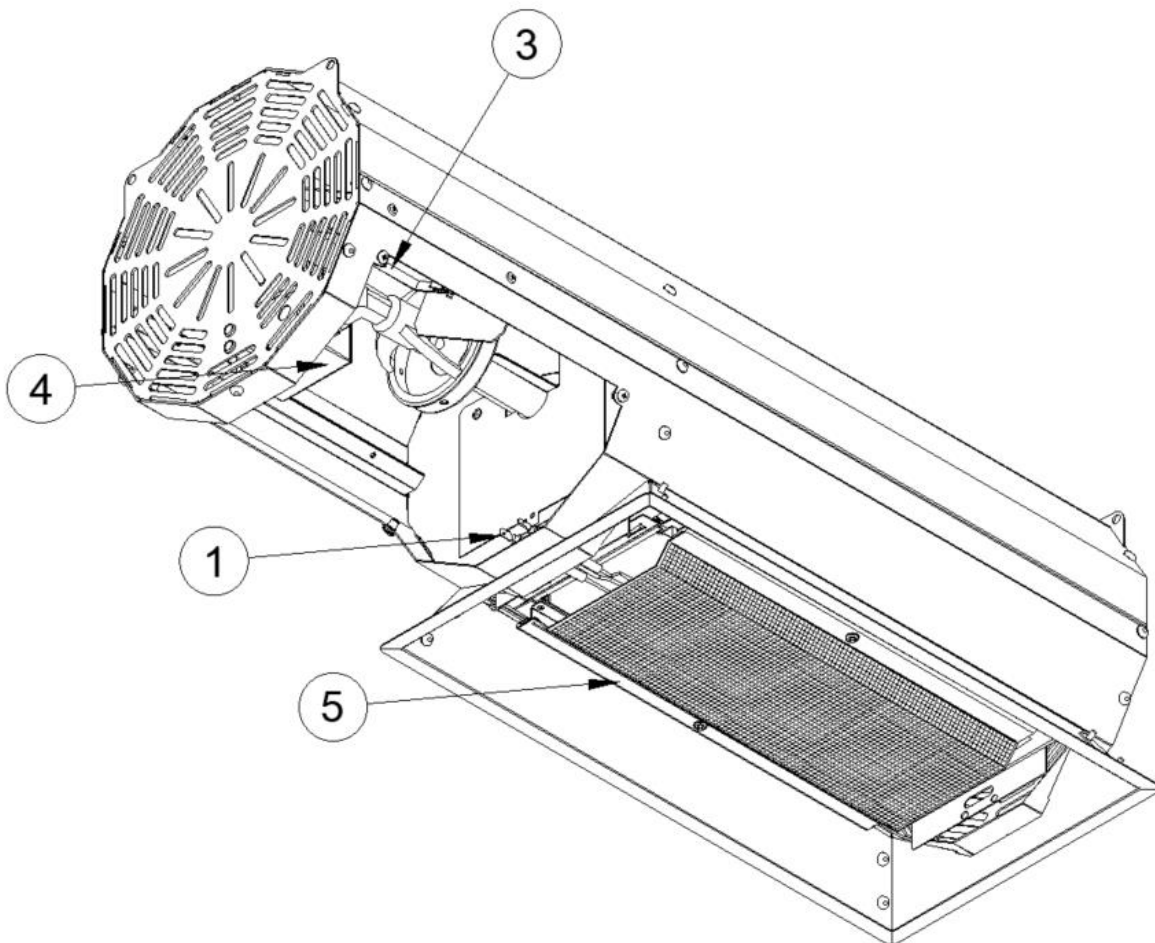
- Ensure control module has 24VAC supply
- Ensure spark electrode assembly is grounded and there are no cracks in ceramic insulator.

Flame Lights but Will Not Stay Lit

- Ensure there is no overpowering wind.
- Ensure sense electrode is not corroded, is not grounded or has a cracked insulator. Electrode position is radially across face of burner.

- Replacement Parts

Item #	Part #	Description
1	HE001 CE052	Spark Electrode Silicone Boot over Electrode Terminal
2*	CE006	Ignition Wire (not shown)
3	EE151 EE009	Electronic Ignition Module (Channel 2021-142, 6 pin) Electronic Ignition Module Kit (Channel 2021-96, 5 pin)
4	HG006 HG007	Gas Valve NAT - HAB20 Gas Valve NAT - HAB40 & HAB50
5	HG003 HG004	Burner Assembly HAB-M20 Burner Assembly HAB-M40 and HAB-M50
6*	SE004 SE009 SE010	20VA 24V Transformer (not supplied) 40VA 24V Transformer (not supplied) 100VA 24V Transformer (not supplied)
7*	EE020	Two Stage Switch



SERIES HAB PATIO HEATER **WARRANTY**

THE MANUFACTURER WARRANTS TO THE ORIGINAL OWNER THAT THE CERAMIC BURNER OF THE PRODUCT WILL BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF 3 YEARS FROM THE DATE OF PURCHASE. ALL OTHER PARTS OF THE PRODUCT WILL HAVE A WARRANTY PERIOD OF 1 YEAR.

The Manufacturer's obligation under this warranty is limited to repair or replacement; FOB its facility, of the defective part. In the case of replacement parts the warranty period shall be the longer of the original warranty or a period of 12 months from the date of purchase. In no event shall the Manufacturer be liable for incidental expense or consequential damages of any kind.

This warranty does not cover any shipping, installation or other costs incurred in the repair or replacement of the product. No materials will be accepted for return without authorization.

This warranty will not apply if, in the judgement of the Manufacturer, the equipment has been improperly installed, unreasonably used, damaged or modified.

This warranty will not apply to damage to the product when used in corrosive atmospheres. No person is authorised to assume for the Manufacturer any other warranty, obligation or liability.

THE REMEDIES PROVIDED FOR IN THE ABOVE EXPRESS WARRANTIES ARE THE SOLE AND EXCLUSIVE REMEDIES. NO OTHER EXPRESS OR IMPLIED WARRANTIES ARE MADE INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE.