FOR YOUR SAFETY
If you smell gas:

1. **Open windows.**
2. **DO NOT try to light any appliance.**
3. **DO NOT use electrical switches.**
4. **DO NOT use any telephone in your building.**
5. **Extinguish any open flame.**
6. **Leave the building.**
7. **Immediately call your local gas supplier after leaving the building. Follow the gas supplier's instructions.**
8. **If you cannot reach your gas supplier, call the Fire Department.**

⚠ WARNING

Fire Hazard

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

Some objects can catch fire or explode when placed close to heater.

Failure to follow these instructions can result in death, injury or property damage.

ROBERTS GORDON

GordonRay® BH

The Economical Unitary Infrared Heater

Installation, Operation & Service Manual

BH-40 BH-125
BH-60 BH-140
BH-80 BH-150
BH-100 BH-175
BH-115 BH-200

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can result in death, injury or property damage. Read the Installation, Operation and Service Manual thoroughly before installing or servicing this equipment.

Installation must be done by a contractor qualified in the installation and service of gas-fired heating equipment or your gas supplier.

Installer

Please take the time to read and understand these instructions prior to any installation. Installer must give a copy of this manual to the owner.

Owner

Keep this manual in a safe place in order to provide your serviceman with necessary information.

Roberts-Gordon LLC
1250 William Street
P.O. Box 44
Buffalo, New York 14240-0044
Telephone: 716.852.4400
Fax: 716.852.0854
Toll Free: 800.828.7450

www.rg-inc.com
www.radiantheaters.com

P/N 170101NA Rev. K 03/09

TABLE OF CONTENTS

Printed in U.S.A.

TABLE OF FIGURES

LIST OF TABLES

SECTION 1: HEATER SAFETY

Your Safety is Important to Us!
This symbol is used throughout the manual to notify you of possible fire, electrical or burn hazards. Please pay special attention when reading and following the warnings in these sections.

Installation, service and annual inspection of heater must be done by a contractor qualified in the installation and service of gas-fired heating equipment.

Read this manual carefully before installation, operation or service of this equipment.

This heater is designed for heating nonresidential indoor spaces. Do not install in residential spaces. These instructions, the layout drawing, local codes and ordinances, and applicable standards that apply to gas piping, electrical wiring, venting, etc. must be thoroughly understood before proceeding with the installation. Protective gear is to be worn during installation, operation and service. Thin sheet metal parts, such as the reflector portion of the heater and the various venting components, have sharp edges. To prevent injury, the use of work gloves is recommended. The use of gloves will also prevent the transfer of body oils from the hands to the surface of the reflector.

Before installation, check that local distribution conditions, nature of gas and pressure, and adjustment of the appliance are compatible.

For additional copies of the GORDONRAY® BH Installation, Operation and Service Manual, please contact Roberts-Gordon LLC.

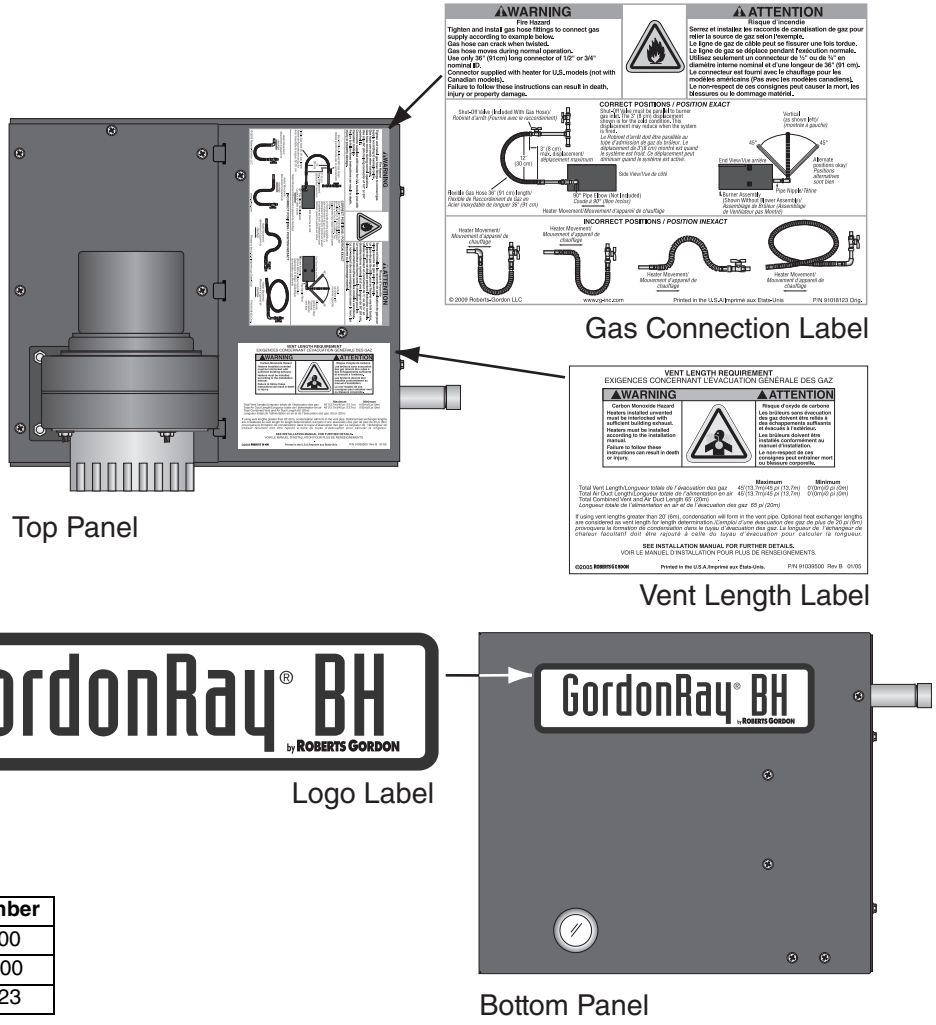
1.1 Manpower Requirements

To prevent personal injury and damage to the heater, two persons will be required for installation.

1.2 Safety Labels and Their Placement

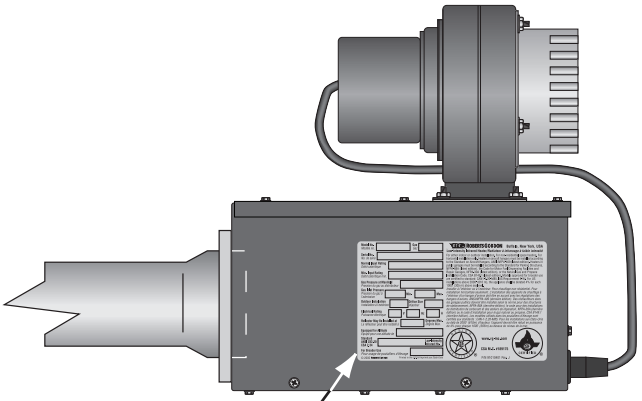
Product safety signs or labels should be replaced by the product user when they are no longer legible. Please contact Roberts-Gordon or your ROBERTS GORDON® independent distributor to obtain replacement signs or labels. *See Page 1, Figure 1through Page 2, Figure 2*.

FIGURE 1: Top and Bottom Panel Label Placement

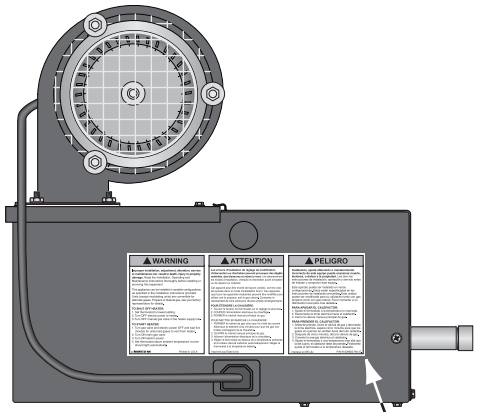


Description	Part Number
Logo Label	91031100
Vent Length Label	91039500
Gas Connection Label	91018123

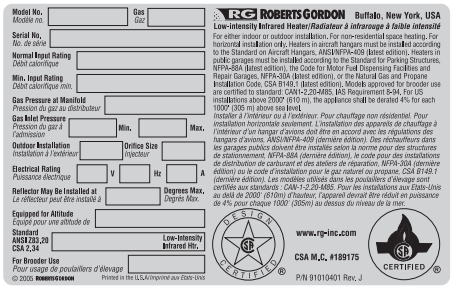
FIGURE 2: Side and Back Panel Label Placement



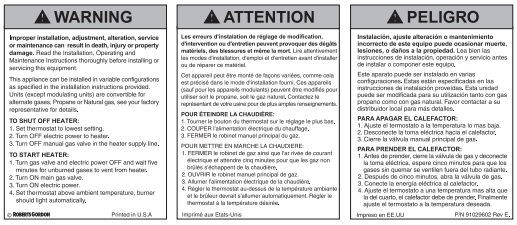
Side Panel



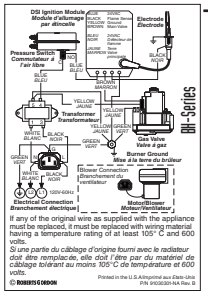
Back Panel



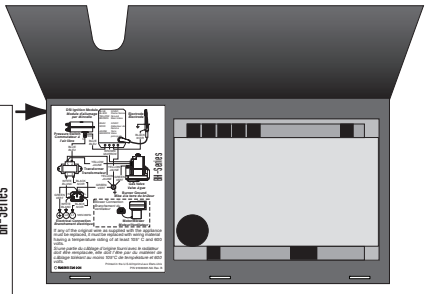
Rating Plate Label



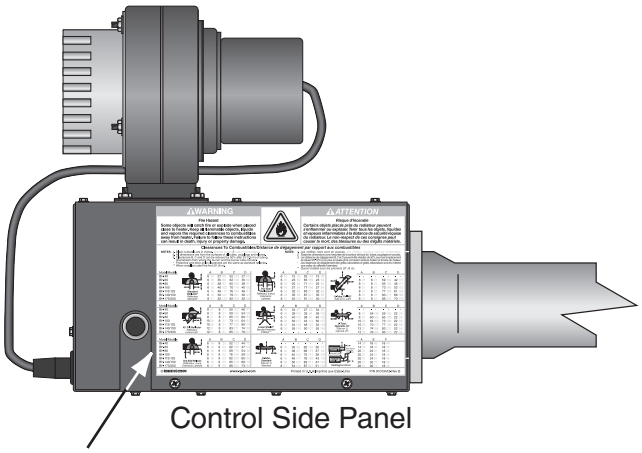
Lighting Instruction Plate Label



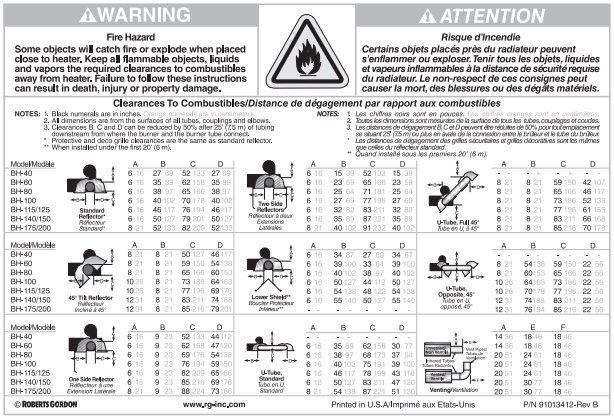
Wiring Label



Control Door (Inside)



Control Side Panel



Clearances to Combustibles Label

Description	Part Number
Rating Plate Label	91010401
Lighting Instruction Plate Label	91029602
Wiring Label	91030301
Clearances to Combustibles Label	91013412
Thermostat Connection Label (not shown)	91037902

SECTION 2: INSTALLER RESPONSIBILITY

The installer is responsible for the following:

- To install the heater, as well as the gas and electrical supplies, in accordance with applicable specifications and codes. Roberts-Gordon LLC recommends the installer contact a local Building Inspector or Fire Marshal for guidance.
- To use the information given in a layout drawing and in the manual together with the cited codes and regulations to perform the installation.
- To install the heater in accordance with the clearances to combustibles.
- To furnish all needed materials not furnished as standard equipment.
- To plan location of supports.
- To provide access on all sides for burner servicing and removal.
- To provide the owner with a copy of this Installation, Operation and Service Manual.
- To never use heater as a support for a ladder or other access equipment and never hang or suspend anything from heater.
- To ensure there is adequate air circulation around the heater and to supply air for combustion, ventilation and distribution in accordance with local codes.
- To safely and adequately install heater using materials with a minimal working load of 75 lbs (33 kg).
- To ensure the heater is placed in an approved application.

2.1 Wall Tag

A laminated wall tag is available for the heater as a permanent reminder of the safety instructions and the importance of the required clearances to combustibles. Please contact Roberts-Gordon or your ROBERTS GORDON® independent distributor to obtain the wall tag. Affix the tag by peeling off the backing of the adhesive strips on the rear surface and position the tag on a wall near the heater (e.g. thermostat or ROBERTS GORDON® Controller).

A copy of the wall tag (P/N 91037912) is illustrated on the back cover. For an immediate solution, you may affix this copy on the wall near the heater.

Know your model number and installed configuration. Model number and installed configuration are found on the burner and in the Installation, Operation and Service Manual. *See Page 5, Figure 3 through Page 8, Figure 12*. Write the proper clearance dimensions in permanent ink according to your model number and configuration in the open spaces on the tag.

2.2 Corrosive Chemicals

⚠ CAUTION

Product Damage Hazard

Do not use heater in area containing corrosive chemicals.

Refer to appropriate Material Safety Data Sheets (MSDS).

Failure to follow these instructions can result in product damage.

Roberts-Gordon LLC cannot be responsible for ensuring that all appropriate safety measures are undertaken prior to installation; this is entirely the responsibility of the installer. It is essential that the contractor, the sub-contractor, or the owner identifies the presence of combustible materials, corrosive chemicals or halogenated hydrocarbons* anywhere in the premises.

** **Halogenated Hydrocarbons** are a family of chemical compounds characterized by the presence of halogen elements (fluorine, chlorine, bromine, etc.). These compounds are frequently used in refrigerants, cleaning agents, solvents, etc. If these compounds enter the air supply of the burner, the life span of the heater components will be greatly reduced. An outside air supply must be provided to the burners whenever the presence of these compounds is suspected. Warranty will be invalid if the heater is exposed to halogenated hydrocarbons.*

2.3 National Standards and Applicable Codes

All appliances must be installed in accordance with the latest revision of the applicable standards and national codes. This refers also to the electric, gas and venting installation. Note: Additional standards for installations in public garages, aircraft hangars, etc. may be applicable.

SECTION 3: CLEARANCES TO COMBUSTIBLES

3.1 Required Clearances to Combustibles

Clearances are the required distances that combustible objects must be away from the heater to prevent serious fire hazards. Combustibles are materials that may catch on fire and include common items such as wood, paper, rubber, fabric, etc.

Maintain clearances to combustibles at all times for safety.

Clearances for all heater models are located on the burner of the heater and *on Page 5, Figure 3 through Page 8, Figure 12* in this manual. Check the clearances on each burner for the model heater being installed to make sure the product is suitable for your application and the clearances are maintained. Read and follow the safety guidelines below:

- Keep gasoline or other combustible materials including flammable objects, liquids, dust or vapors away from this heater or any other appliance.
- The stated clearances to combustibles represents a surface temperature of 90° F (32° C) above room temperature. Building materials with a low heat tolerance (such as plastics, vinyl siding, canvas, tri-ply, etc) may be subject to degradation at lower temperatures. It is the installer's responsibility to assure that adjacent materials are protected from degradation.
- Maintain clearances from heat sensitive equipment and workstations.
- Maintain clearances from vehicles parked below the heater.
- Maintain clearances from swinging and overhead doors, overhead cranes, vehicle lifts, partitions, storage racks, hoists, building construction, etc.
- In locations used for the storage of combustible materials, signs must be posted to specify the maximum permissible stacking height to maintain required clearances from the heater to the combustibles. Signs must be posted adjacent to the heater thermostat. In the absence of a thermostat, signs must be posted in a conspicuous location.
- Consult local Fire Marshal, Fire Insurance Carrier or other authorities for approval of proposed installation when there is a possibility of exposure to combustible airborne materials or vapors.
- Hang heater in accordance to the minimum suspension requirements *on Page 14, Figure 14*.

⚠ WARNING

Fire Hazard

Keep all flammable objects, liquids and vapors the minimum required clearances to combustibles away from heater.

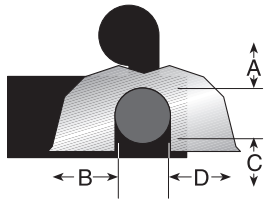
Some objects will catch fire or explode when placed close to heater.

Failure to follow these instructions can result in death, injury or property damage.

- If the radiant tubes must pass through the building structure, be sure that adequate sleeving and fire stop is installed to prevent scorching and/or fire hazard.

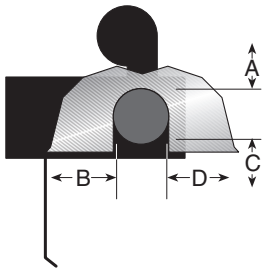
NOTE: 1. All dimensions are from the surfaces of all tubes, couplings and elbows.
2. Clearances B, C and D can be reduced by 50% after 25' (7.5 m) of tubing downstream from where the burner and burner tube connect.

FIGURE 3: Standard Reflector



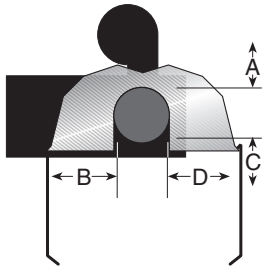
Model	(inches) A	B	C	D	(centimeters) A	B	C	D
BH-40	6	27	52	27	16	69	133	69
BH-60	6	35	62	35	16	89	158	89
BH-80	6	38	65	38	16	97	166	97
BH-100	6	40	70	40	16	102	178	102
BH-115/125	6	46	76	46	16	117	194	117
BH-140/150	6	50	79	50	16	127	201	127
BH-175/200	8	52	82	52	21	133	209	133

FIGURE 4: One Side Reflector



Model	(inches) A	B	C	D	(centimeters) A	B	C	D
BH-40	6	9	52	44	16	23	133	112
BH-60	6	9	62	47	16	23	158	120
BH-80	6	9	69	54	16	23	176	138
BH-100	6	9	76	59	16	23	194	150
BH-115/125	6	9	82	65	16	23	209	166
BH-140/150	6	9	85	69	16	23	216	176
BH-175/200	8	9	88	73	21	23	224	186

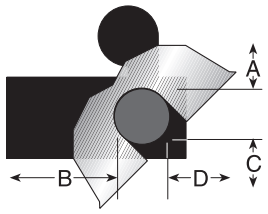
FIGURE 5: Two Side Reflectors



Model	(inches) A	B	C	D	(centimeters) A	B	C	D
BH-40	6	15	52	15	16	39	133	39
BH-60	6	23	65	23	16	59	166	59
BH-80	6	25	71	25	16	64	181	64
BH-100	6	27	77	27	16	69	196	69
BH-115/125	6	32	83	32	16	82	211	82
BH-140/150	6	35	87	35	16	89	221	89
BH-175/200	8	40	91	40	21	102	232	102

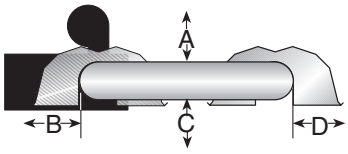
NOTE: 1. All dimensions are from the surfaces of all tubes, couplings and elbows.
2. Clearances B, C and D can be reduced by 50% after 25' (7.5 m) of tubing downstream from where the burner and burner tube connect.

FIGURE 6: 45° Tilt Reflector



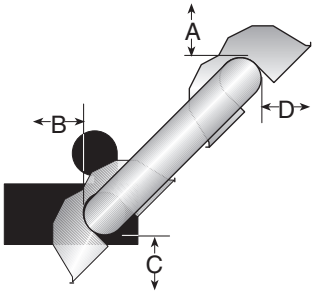
Model	(inches) A	B	C	D	(centimeters) A	B	C	D
BH-40	8	8	50	46	21	21	127	117
BH-60	8	8	59	54	21	21	150	138
BH-80	8	8	65	60	21	21	166	153
BH-100	10	8	73	64	26	21	186	163
BH-115/125	10	8	77	69	26	21	196	176
BH-140/150	12	8	83	74	31	21	211	188
BH-175/200	12	8	85	79	31	21	216	201

FIGURE 7: U-Tube, Standard Reflector



Model	(inches) A	B	C	D	(centimeters) A	B	C	D
BH-40	- UNAPPROVED -				- UNAPPROVED -			
BH-60	6	35	62	30	16	89	158	77
BH-80	6	38	68	37	16	97	173	94
BH-100	6	40	75	39	16	102	191	100
BH-115/125	6	46	78	43	16	117	199	110
BH-140/150	6	50	83	47	16	127	211	120
BH-175/200	8	54	87	51	21	138	221	130

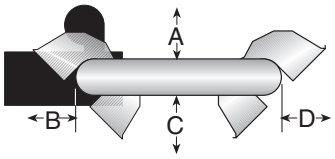
FIGURE 8: U-Tube, 45°



Model	(inches) A	B	C	D	(centimeters) A	B	C	D
BH-40	- UNAPPROVED -				- UNAPPROVED -			
BH-60	8	8	59	42	21	21	150	107
BH-80	8	8	65	46	21	21	166	117
BH-100	8	8	73	52	21	21	186	133
BH-115/125	8	8	77	61	21	21	196	155
BH-140/150	8	8	83	66	21	21	211	168
BH-175/200	8	8	85	70	21	21	216	178

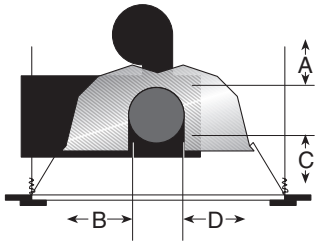
NOTE: 1. All dimensions are from the surfaces of all tubes, couplings and elbows.
2. Clearances B, C and D can be reduced by 50% after 25' (7.5 m) of tubing downstream from where the burner and burner tube connect.

FIGURE 9: U-Tube, Opposite 45° Reflector



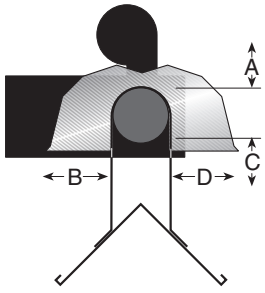
Model	(inches) A	B	C	D	(centimeters) A	B	C	D
BH-40	- UNAPPROVED -				- UNAPPROVED -			
BH-60	8	54	59	22	21	138	150	56
BH-80	8	60	65	22	21	153	166	56
BH-100	10	64	73	22	26	163	186	56
BH-115/125	10	70	77	22	26	178	196	56
BH-140/150	12	74	83	22	31	188	211	56
BH-175/200	12	76	85	22	31	194	216	56

FIGURE 10: 2-Foot Deco Grille and Protective Grille



Model	(inches) A	B	C	D	(centimeters) A	B	C	D
BH-40	6	27	52	27	16	69	133	69
BH-60	6	35	62	35	16	89	158	89
BH-80	6	38	65	38	16	97	166	97
BH-100	6	40	70	40	16	102	178	102
BH-115/125	6	46	76	46	16	117	194	117
BH-140/150	6	50	79	50	16	127	201	127
BH-175/200	8	52	82	52	21	133	209	133

FIGURE 11: Lower Clearance Shield*

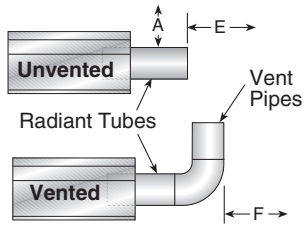


Model	(inches) A	B	C	D	(centimeters) A	B	C	D
BH-40	6	34	27	34	16	87	69	87
BH-60	6	39	33	39	16	100	84	100
BH-80	6	40	38	40	16	102	97	102
BH-100	6	50	44	50	16	127	112	127
BH-115/125	6	54	48	54	16	138	122	138
BH-140/150	6	55	50	55	16	140	127	140
BH-175/200	- UNAPPROVED -				- UNAPPROVED -			

*When installed in the first 10' (3 m).

NOTE: 1. All dimensions are from the surfaces of all tubes, couplings and elbows.
2. Clearances B, C and D can be reduced by 50% after 25' (7.5 m) of tubing downstream from where the burner and burner tube connect.

FIGURE 12: Venting



Model	(inches) A	E	F	(centimeters) A	E	F
BH-40	14	18	18	36	46	46
BH-60	14	18	18	36	46	46
BH-80	20	24	18	51	61	46
BH-100	20	24	18	51	61	46
BH-115/125	20	24	18	51	61	46
BH-140/150	20	30	18	51	77	46
BH-175/200	20	30	18	51	77	46

SECTION 4: NATIONAL STANDARDS AND APPLICABLE CODES

4.1 Gas Codes

The type of gas appearing on the nameplate must be the type of gas used. Installation must comply with national and local codes and requirements of the local gas company.

United States: Refer to National Fuel Gas Code NFPA 54/ANSI Z223.1 - latest revision.

Canada: Refer to Natural Gas and Propane Installation Code CSA B149.1 - latest revision.

4.2 Aircraft Hangars

Installation in aircraft hangars must be in accordance with the following codes:

United States: Refer to Standard for Aircraft Hangars, NFPA 409 - latest revision.

Canada: Refer to Natural Gas and Propane Installation Code CSA B149.1 - latest revision.

In aircraft storage and servicing areas, heaters shall be installed at least 10' (3 m) above the upper surface of wings or of engine enclosures of the highest aircraft which may be housed in the hangar. The measurement shall be made from the wing or engine enclosure (whichever is higher from the floor) to the bottom of the heater.

• In shops, offices and other sections of aircraft hangars communicating with aircraft storage or servicing areas, heaters shall be installed not less than 8' (2.4 m) above the floor.

• Suspended or elevated heaters shall be so located in all spaces of aircraft hangars that they shall not be subject to injury by aircraft, cranes, movable scaffolding or other objects. Provisions shall be made to assure accessibility to suspended heaters for recurrent maintenance purposes.

4.3 Public Garages

Installation in garages must be in accordance with the following codes:

United States: Refer to Standard for Parking Structures NFPA 88A - latest revision or the Code for Motor Fuel Dispensing Facilities and Repair Garages, NFPA 30A - latest revision.
Canada: Refer to Natural Gas and Propane Installation Code CSA B149.1 - latest revision.

• Heaters must not be installed less than 8' (2.4 m) above the floor. Minimum clearances to combustibles must be maintained from vehicles parked below the heater.

• When installed over hoists, minimum clearances to combustibles must be maintained from the upper most point of objects on the hoist.

4.4 Electrical

The heater must be electrically grounded in accordance with the following codes:

United States: Refer to National Electrical Code®, NFPA 70 - latest revision. Wiring must conform to the most current National Electrical Code®, local ordinances and any special diagrams furnished.

Canada: Refer to Canadian Electrical Code, CSA C22.1 Part 1 - latest revision.

4.5 Venting

The venting must be installed in accordance with the requirements within this manual and the following codes:

United States: Refer to National Fuel Gas Code NFPA 54/ANSI Z223.1 - latest revision.

Canada: Refer to Natural Gas and Propane Installation Code CSA B149.1 - latest revision.

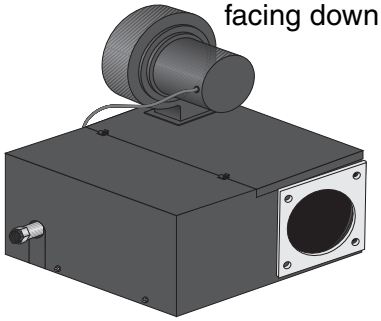
4.6 High Altitude

These heaters are approved for installations up to 2000' (610 m)(US), 4500' (1370 m)(Canada) without modification. Consult factory if US installation is above 2000' (610 m) or Canadian installation is above 4500' (1370 m).

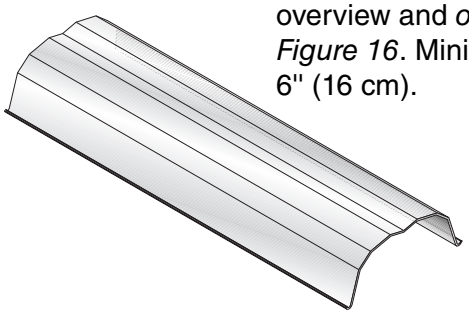
SECTION 5: MAJOR COMPONENTS

FIGURE 13: Major Component Descriptions

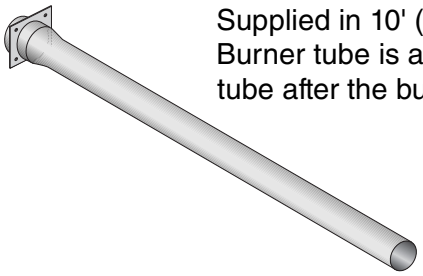
Burner with Tube Gasket
Must be installed with the flame observation window facing down.



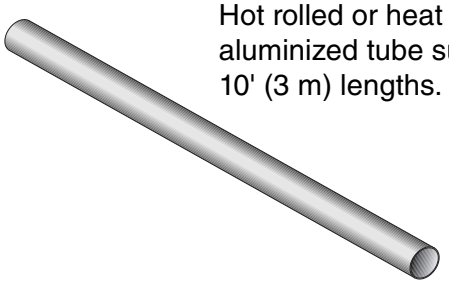
Reflector (Aluminum or Stainless Steel)
Alternate overlap as shown on overview and *on Page 16, Figure 16*. Minimum overlap is 6" (16 cm).

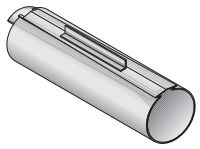


Burner Tube
Supplied in 10' (3 m) lengths. Burner tube is always the first tube after the burner.

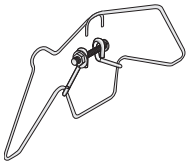


Tube
Hot rolled or heat treated aluminized tube supplied in 10' (3 m) lengths.

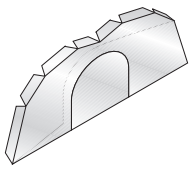




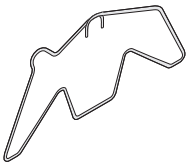
Coupling Assembly with Lock



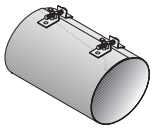
Tube and Reflector Hanger with Clamp Package
Position this hanger no more than 4” (10 cm) away from the burner.



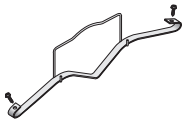
Reflector End Cap
Punch out center section to accommodate tube.



Tube and Reflector Hanger
Suspend system from these hangers.

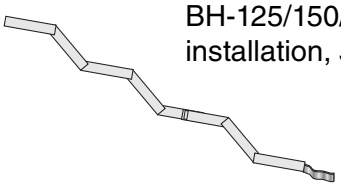


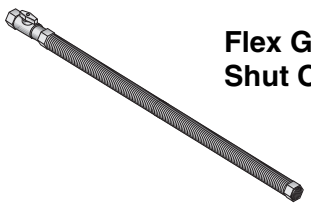
Vent Adapter



Reflector Support Strap & Wire Form

Turbulator
Turbulator must be installed in the last standard section of tube. Turbulator is not required on the BH-125/150/175/200. For installation, *see Page 20, Step 6.4*





Flex Gas Line with Shut Off Cock

5.1 Standard Parts List

Table 1: Contents of BH-Series Burner Carton

Part No.	Description	BH-40	BH-60	BH-80	BH-100	BH-115	BH-125	BH-140	BH-150	BH-175	BH-200
071XXXXX	Burner (Rate and Fuel Varies)	1	1	1	1	1	1	1	1	1	1
90709700	Blower Assembly with Cord	1	1	1	1	1	1	1	1	1	1
02568200	Gasket (Burner to Burner Tube)	1	1	1	1	1	1	1	1	1	1
90709801	Gasket (Blower to Burner)	1	1	1	1	1	1	1	1	1	1
170101NA	Installation, Operation and Service Manual	1	1	1	1	1	1	1	1	1	1
91201708	Pipe Nipple (Black) 1/2" NPT x 4"	1	1	1	1	1	1	1	1	1	1
94273914	Hex Head Bolts 5/16" - 18 Rolok	4	4	4	4	4	4	4	4	4	4
96411600	Split Lock Washer	4	4	4	4	4	4	4	4	4	4
*91412200	Flexible Stainless Steel Gas Hose, 1/2" NPT (US Models Only)	1	1	1	1	1	1	-	-	-	-
*91412204	Flexible Stainless Steel Gas Hose, 3/4" NPT (US Models Only)	-	-	-	-	-	-	1	1	1	1
91907302	S-Hooks	2	2	2	2	2	2	2	2	2	2
91911700	Outside Air Collar	1	1	1	1	1	1	1	1	1	1
94118106	#8 x 3/8 Hex Washer Head (for Outside Air Collar)	3	3	3	3	3	3	3	3	3	3
92311800	Keps Nut	4	4	4	4	4	4	4	4	4	4
03051503	Turbulator Adapter	1	1	1	1	1	-	1	-	-	-
03051504	Turbulator 2.5' (76 cm), Aluminized Steel	2	4	4	1	3	-	1	-	-	-
03051505	Turbulator 2.5' (76 cm), Stainless Steel	1	-	-	-	-	-	-	-	-	-

*Canadian models: Rubber (Type 1) Gas Hoses available as an accessory. *See Page 41*.

Table 2: Contents of Core and Extension Packages

		Core Packages							Extension Packages							
		Hot Rolled			Aluminized				Hot Rolled				Aluminized			
Part No.	Description	20' (6m)	30' (9m)	40' (12m)	10' (3m)	20' (6m)	30' (9m)	40' (12m)	10' (3m)	20' (6m)	30' (9m)	40' (12m)	10' (3m)	20' (6m)	30' (9m)	40' (12m)
91409300	Tube, Hot Rolled Steel, 10' (3 m)	1	2	3	-	-	-	-	1	2	3	4	-	-	-	-
91409408	Tube, HT Aluminized, 10' (3 m)	-	-	-	-	1	2	3	-	-	-	-	1	2	3	4
03051101	Burner Tube, ALUMI-THERM® Steel, 10' (3 m)	-	1	1	-	-	1	1	-	-	-	-	-	-	-	-
03051601	Burner Tube, HT ALUMI-THERM® Steel, 10' (3 m)	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-
01312700	Coupling Assembly	1	2	3	-	1	2	3	1	2	3	4	1	2	3	4
02750303	Standard Reflector, 8' (3.5 m)	3	4	6	2	3	4	6	2	3	4	6	2	3	4	6
02750800	End Cap	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-
03090100	Tube and Reflector Hanger	3	4	5	2	3	4	5	1	2	3	4	1	2	3	4
91907302	S-Hook	3	4	5	2	3	4	5	1	2	3	4	1	2	3	4
03050010	Reflector Support Package (Strap, Wire Form, Screws)	2	3	5	1	2	3	5	2	3	4	6	2	3	4	6
91107720	U-Clip Package	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
90502700	Vent Adapter	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-
01318901	Tube Clamp Package	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-
	Part Number	CP20HRS	CP30HRS	CP40HRS	CP10ALUM	CP20ALUM	CP30ALUM	CP40ALUM	EXP10HRS	EXP20HRS	EXP30HRS	EXP40HRS	EXP10ALUM	EXP20ALUM	EXP30ALUM	EXP40ALUM

Table 3: BH-Series Component Package Guide

Model	Tubing Length	Core Packages	
	Minimum	Standard	Aluminized
BH-40	10' (3 m)	-	CP10ALUM
BH-60	20' (6 m)	CP20HRS	CP20ALUM
BH-80	20' (6 m)	CP20HRS	CP20ALUM
BH-100	30' (9 m)	CP30HRS	CP30ALUM
BH-115	30' (9 m)	CP30HRS	CP30ALUM
BH-125	40' (12 m)	CP40HRS	CP40ALUM
BH-140	40' (12 m)	CP40HRS	CP40ALUM
BH-150	50' (15 m)	CP30HRS + EXP20HRS	CP30ALUM + EXP20ALUM
BH-175	50' (15 m)	CP30HRS + EXP20HRS	CP30ALUM + EXP20ALUM
BH-200	60' (18 m)	CP30HRS + EXP30HRS	CP30ALUM + EXP30ALUM

Additional tubing length may be added to heater. Tubing must be heat-treated, aluminized or porcelain coated. Any additional tubing lengths are considered as vent length for length determination. Maximum venting length for minimum heater length is 45' (13.7 m) total.

SECTION 6: HEATER INSTALLATION

⚠ WARNING

Severe Injury Hazard

Secure burner to burner tube with bolts and lockwashers.

Hang heater with materials with a minimum working load of 75 lbs (33 kg).

Failure to follow these instructions can result in death, injury or property damage.

⚠ WARNING

Cut/Pinch Hazard

Wear protective gear during installation, operation and service.

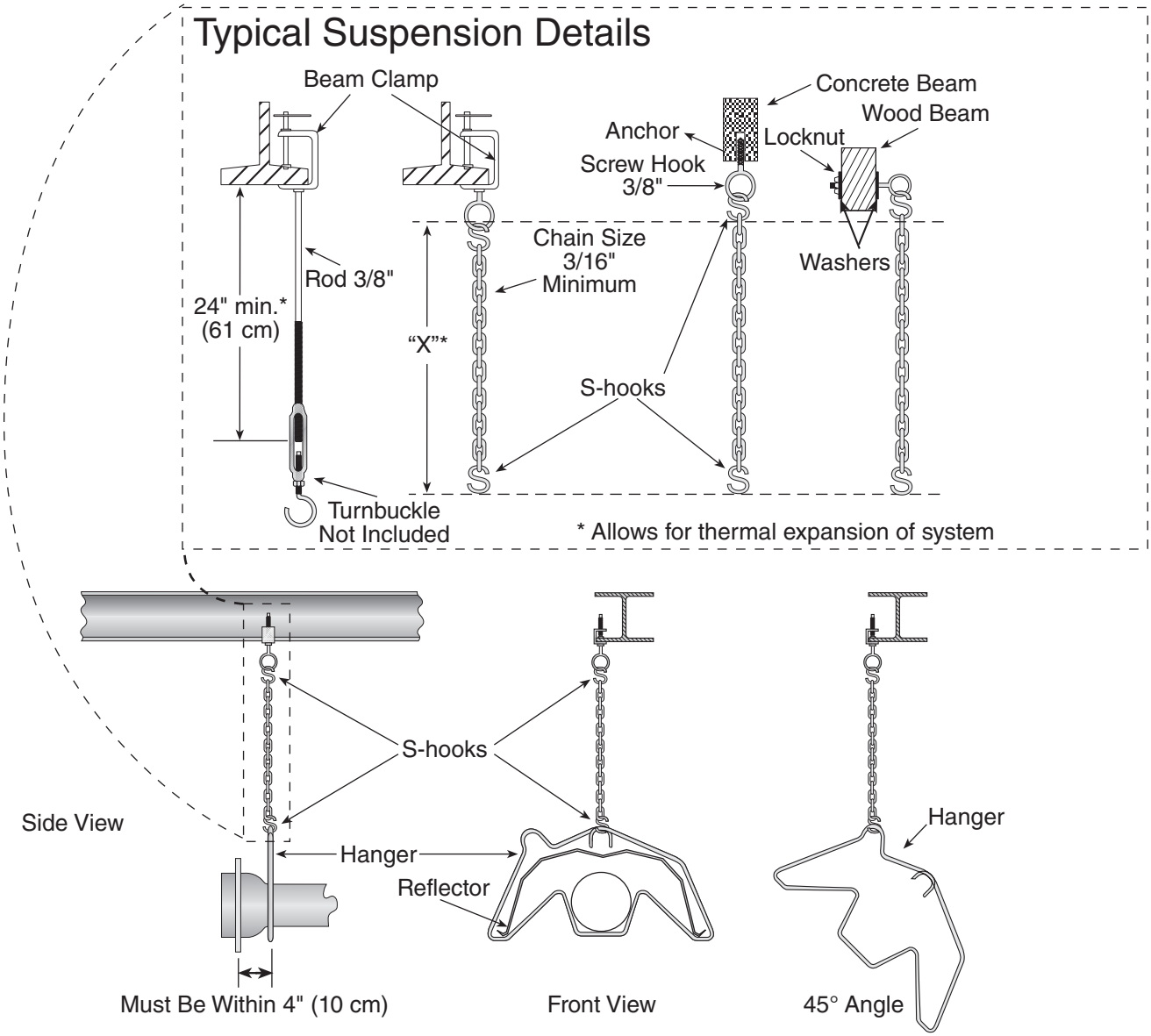
Edges are sharp.

Failure to follow these instructions can result in injury.

To ensure your safety and comply with the terms of the warranty, all units must be installed in accordance with these instructions.
The gas or the electrical supply lines must not be used to support the heater.
Do not locate the gas or electric supply lines directly over the path of the flue products from the heater.
The heater must be installed in a location that it is readily accessible for servicing.
The heaters must be installed with clearances to combustibles as indicated on the rating plate and in this instruction manual.
The minimum and maximum gas inlet pressures must be maintained as indicated on the rating plate.
Typical installation configurations are shown *on Page 14, Figure 14*.

Expansion and contraction of the tube dictates that the minimum suspension lengths must be maintained. *See table on Page 14, Figure 14*.

FIGURE 14: Critical Hanger Placement



Description	Part Number
S-Hook	91907302
Tube/Reflector Hanger	03090100

Run Length	Typical Expansion	Minimum "X" Length
10' (3 m) - 50' (15.2 m)	±1" (3 cm)	12" (30.5 cm)
51' (15.5 m) - 60' (18.3 m)	±2" (5 cm)	18" (45.7 cm)
61' (18.6 m) - 80' (24.4 m)	±3" (8 cm)	24" (61 cm)