

GordonRay® BH

The Economical, Unitary Infrared Heater Submittal: BH Series



Job: _____
 Location: _____
 Engineer: _____
 Gas Specs: _____
 Date: _____

QTY.	_____	MODEL NO. BH	_____	UNIT INPUT	_____	BTU/HR
QTY.	_____	MODEL NO. BH	_____	UNIT INPUT	_____	BTU/HR
QTY.	_____	MODEL NO. BH	_____	UNIT INPUT	_____	BTU/HR
QTY.	_____	MODEL NO. BH	_____	UNIT INPUT	_____	BTU/HR
		TOTAL INPUT	_____	BTU/HR	_____	

Important

Before installation and operation of heating equipment, read and understand the Installation, Operation and Service Manual.

Applications, engineering and detailed guidance on systems design, installation and product performance is available upon request.
 ROBERTS GORDON® products are to be installed only in accordance with local laws, codes and regulations, and only by a contractor qualified in the installation and service of gas-fired heating equipment.



Roberts-Gordon
 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

Roberts-Gordon
 76 Main Street West, Unit 10
 Grimsby, Ontario L3M 1R6
 Canada
 Telephone: 905.945.5403
 Fax: 905.945.0511

Quality in Any Language™

www.rg-inc.com

TABLE OF CONTENTS

STANDARD PARTS LIST.....	1	Elbow Installation (continued)	20
Contents of BH-Series Burner Carton	1	Reflector Joint Installation.....	20
Contents of Core and Extension Packages.....	1	Reflector Joint Detail.....	21
GENERAL SPECIFICATIONS	2	REFLECTOR SIDE EXTENSION	22
Material Specification	2	Bracket Installation.....	22
Reflectors	2	Side Reflector Installation	22
Heater Specifications.....	2	LOWER CLEARANCE SHIELD INSTALLATION.....	23
Ignition	2	Shield Support Strap Assembly.....	23
Suspension Specifications.....	2	TWO-FOOT DECORATIVE GRILLE INSTALLATION..	23
Controls Specifications	2	Grille Installation	23
Gas Pressure at Manifold	2	Frame Shield Installation	24
Pipe Connection.....	2	Reflector Side Extension Installation	24
Dimensions.....	2	ONE-FOOT DECORATIVE GRILLE INSTALLATION..	25
Gas Inlet Pressure	2	One-Foot Decorative Grille Bracket.....	25
Electrical Rating (all models)	2	Decorative Grille	25
CLEARANCES TO COMBUSTIBLES	3	Joint Piece and Reinforcement.....	25
Standard Reflector.....	3	End Piece and Reflector End Cap	26
One Side Reflector	3	90° Elbow.....	26
Two Side Reflectors	3	PROTECTIVE GRILLE INSTALLATION.....	27
45° Tilt Reflector	4	Silicone Cap Installation.....	27
U-Tube, Standard Reflector.....	4	Grille End Cap Installation	27
U-Tube, Full 45°	4	Grille Installation	27
U-Tube, Opposite 45° Reflector	5	VENTING.....	28
2-Foot Deco Grille, 1-Foot Deco Grille and Protective Grille	5	Horizontal Ventilation 4" (10 cm) Pipe	28
Lower Clearance Shield	5	Vertical Ventilation 4" (10 cm) Pipe.....	28
Venting	6	Common Sidewall Venting.....	29
BH-SERIES ASSEMBLY OVERVIEW.....	7	Common Vertical Venting	30
Major Component Descriptions	7	OUTSIDE COMBUSTION AIR SUPPLY	31
BH-Series Linear Assembly Overview	8	Vertical Outside Air Supply for Single Heater Installation.....	31
HEATER INSTALLATION.....	9	Horizontal Outside Air Supply for Single Heater Installation.....	31
Critical Hanger Placement.....	9	Vertical Outside Air Supply for Double Heater Installation.....	32
BH-Series Linear Layout Overview	10	Horizontal Outside Air Supply for Double Heater Installation.....	32
BH-Series Linear Layout Overview (Continued).....	11	GAS PIPING.....	33
Burner Tube Installation	11	Gas Connection with Stainless Steel Flex Connector.....	33
Tube Clamp Package Installation.....	12	WIRING.....	34
Coupling and Tube Assembly	12	Line Voltage Thermostat Wiring.....	34
Coupling and Tube Assembly (Continued).....	13	Low Voltage Thermostat Wiring.....	35
Turbulator Installation	14	BH-Series Internal Wiring	36
Reflector Installation	14	BH-Series Ladder Diagram.....	36
Reflector, U-Clip and Reflector Support Installation	15	Electrical Connection to the Burner	37
Burner Installation.....	16	INTERNAL BURNER DIAGRAM.....	38
OPTIONAL HEATER ACCESSORIES.....	17	THE ROBERTS GORDON® GORDONRAY® BH LIMITED WARRANTY	39
BH-Series U-Tube Assembly Overview	17		
BH-Series U-Tube Layout Overviews	18		
BH-Series U-Tube Layout Overviews (Continued) ..	19		
Elbow Package Configuration	20		
Elbow Installation.....	20		

© 2004 **ROBERTS GORDON**

All rights reserved. No part of this work covered by the copyrights herein may be reproduced or copied in any form or by any means - graphic, electronic, or mechanical, including photocopying, recording, taping or information storage and retrieval systems - without the written permission of Roberts-Gordon.

STANDARD PARTS LIST**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
071XXXX	BH-Series 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 Manual	1	1	1	1	1	1	1	1	1	1
91201708	Pipe Nipple (Black) 1/2" x 4"	1	1	1	1	1	1	1	1	1	1
94273914	Hex Head Bolt 5/16 - 18	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 Gas Connector Assembly, 1/2" NPT	1	1	1	1	1	1	-	-	-	-
91412203	Flexible Gas Connector Assembly, 3/4" NPT	-	-	-	-	-	-	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	Keys 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	-	-	-	-	-	-	-	-	-

Contents of Core and Extension Packages

Part No.	Description	Core Packages								Extension Packages							
		Hot Rolled				Aluminized				Hot Rolled				Aluminized			
		20' (6 m)	30' (9 m)	40' (12 m)		10' (3 m)	20' (6 m)	30' (9 m)	40' (12 m)	10' (3 m)	20' (6 m)	30' (9 m)	40' (12 m)	10' (3 m)	20' (6 m)	30' (9 m)	40' (12 m)
91409300	Tube, Hot Rolled Steel, 10' (3m)	1	2	3		-	-	-	-	1	2	3	4	-	-	-	-
91409408	Tube, HT Aluminized, 10' (3m)	-	-	-		-	1	2	3	-	-	-	-	1	2	3	4
03051101	Burner Tube, ALUMI-THERM® Steel, 10' (3m)	1	1	1		-	1	1	1	-	-	-	-	-	-	-	-
03051601	Burner Tube, HT ALUMI-THERM® Steel, 10' (3m)	-	-	-		1	-	-	-	-	-	-	-	-	-	-	-
01312700	Coupling Assembly	1	2	3		-	1	2	3	1	2	3	4	1	2	3	4
02750303	Standard Reflector, 8' (3.5m)	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

GENERAL SPECIFICATIONS**Material Specification
Reflectors**

.024 Aluminum

**Heater Specifications
Ignition**

Fully automatic spark ignition with safety shut-off.

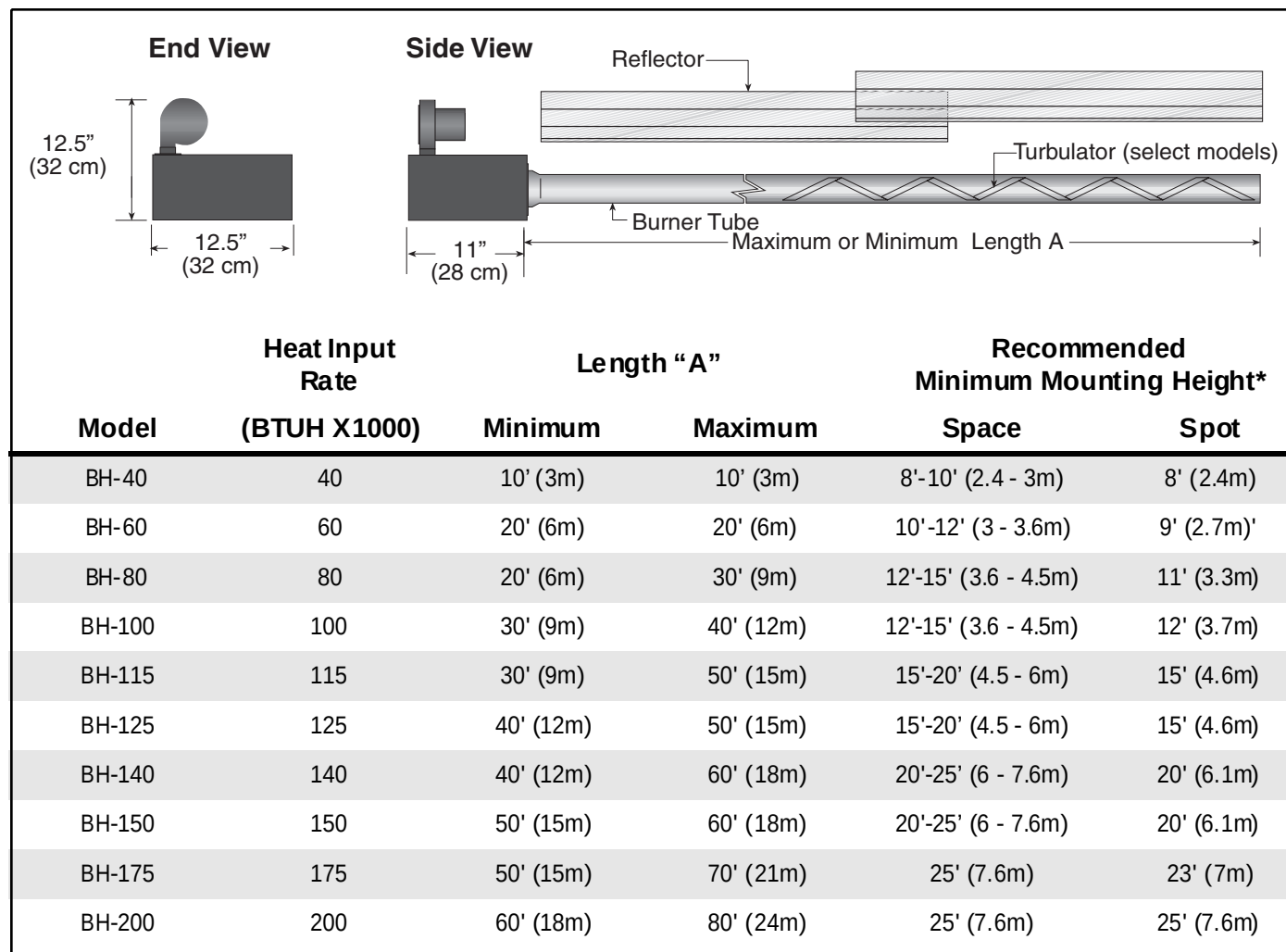
Suspension Specifications

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

Controls Specifications

Time switches, thermostats, etc. can be wired into the electrical supply. External controls supplied as an optional extra.

General Specifications for BH-Series heaters are as follows:

**Gas Pressure at Manifold:**

Natural Gas: 3.5" w.c.

LP Gas: 10.5" w.c.

Pipe Connection:

1/2" NPT (for BH-40, 60, 80, 100, 115 & 125)

3/4" NPT (for BH- 140, 150, 175 & 200)

Dimensions:

Vent Connection Size: 4" (10 cm)

Outside Air Connection Size: 4" (10 cm)

Refer to figure above for dimensional information.

Gas Inlet Pressure:

Natural Gas:

for BH-40, 60, 80, 100,

115, 125, 140, 150

for BH-175, 200

4.6" w.c. Minimum

5.0" w.c. Minimum

14.0" w.c. Maximum

LP Gas:

11.0" w.c. Minimum

14.0" w.c. Maximum

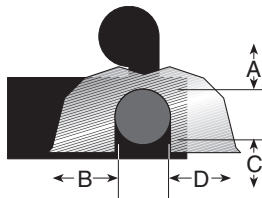
Electrical Rating (all models):

120V - 60 Hz., 1.0 Amp

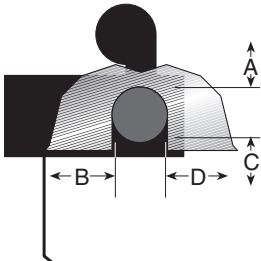
CLEARANCES TO COMBUSTIBLES

- 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.
 3. "-" indicates an unapproved application. Roberts-Gordon prohibits the installation of this heater for all unapproved applications.

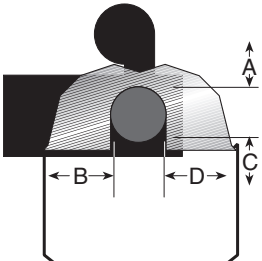
Standard Reflector

	Model	(inches)				(centimeters)			
		A	B	C	D	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

One Side Reflector

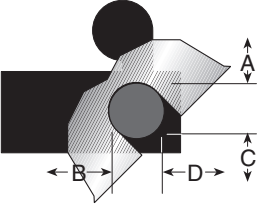
	Model	(inches)				(centimeters)			
		A	B	C	D	A	B	C	D
	BH-40	6	9	52	44	16	23	133	112
	BH-60	6	9	62	47	16	23	158	120
	BH-80	6	9	69	54	16	23	176	138
	BH-100	6	9	76	59	16	23	194	150
	BH-115/125	6	9	82	65	16	23	209	166
	BH-140/150	6	9	85	69	16	23	216	176
	BH-175/200	8	9	88	73	21	23	224	186

Two Side Reflectors

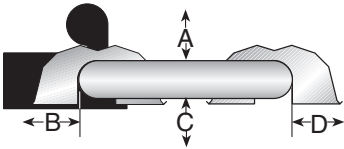
	Model	(inches)				(centimeters)			
		A	B	C	D	A	B	C	D
	BH-40	6	15	52	15	16	39	133	39
	BH-60	6	23	65	23	16	59	166	59
	BH-80	6	25	71	25	16	64	181	64
	BH-100	6	27	77	27	16	69	196	69
	BH-115/125	6	32	83	32	16	82	211	82
	BH-140/150	6	35	87	35	16	89	221	89
	BH-175/200	8	40	91	40	21	102	232	102

- 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.
 3. "-" indicates an unapproved application. Roberts-Gordon prohibits the installation of this heater for all unapproved applications.

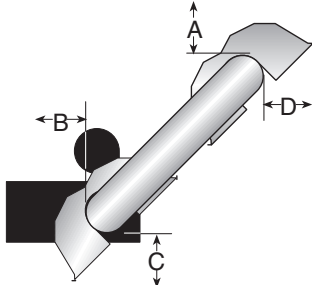
45° Tilt Reflector

	Model	(inches)				(centimeters)			
		A	B	C	D	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

U-Tube, Standard Reflector

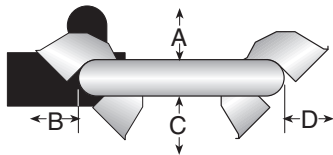
	Model	(inches)				(centimeters)			
		A	B	C	D	A	B	C	D
	BH-40	-	-	-	-	-	-	-	-
	BH-60	6	35	62	30	16	89	158	77
	BH-80	6	38	68	37	16	97	173	94
	BH-100	6	40	75	39	16	102	191	100
	BH-115/125	6	46	78	43	16	117	199	110
	BH-140/150	6	50	83	47	16	127	211	120
	BH-175/200	8	54	87	51	21	138	221	130

U-Tube, Full 45°

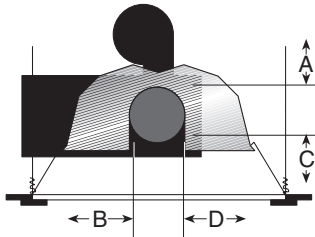
	Model	(inches)				(centimeters)			
		A	B	C	D	A	B	C	D
	BH-40	-	-	-	-	-	-	-	-
	BH-60	8	8	59	42	21	21	150	107
	BH-80	8	8	65	46	21	21	166	117
	BH-100	8	8	73	52	21	21	186	133
	BH-115/125	8	8	77	61	21	21	196	155
	BH-140/150	8	8	83	66	21	21	211	168
	BH-175/200	8	8	85	70	21	21	216	178

- 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.
 3. "-" indicates an unapproved application. Roberts-Gordon prohibits the installation of this heater for all unapproved applications.

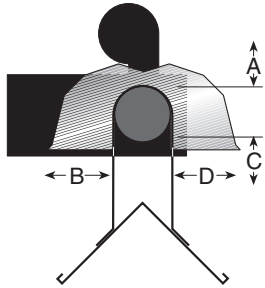
U-Tube, Opposite 45° Reflector

	Model	(inches)				(centimeters)			
		A	B	C	D	A	B	C	D
	BH-40	-	-	-	-	-	-	-	-
	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

2-Foot Deco Grille, 1-Foot Deco Grille and Protective Grille

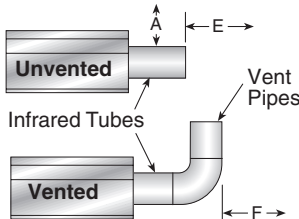
	Model	(inches)				(centimeters)			
		A	B	C	D	A	B	C	D
	BH-40	6	27	52	27	16	69	133	69
	BH-60	6	35	62	35	16	89	158	89
	BH-80	6	38	65	38	16	97	166	97
	BH-100	6	40	70	40	16	102	178	102
	BH-115/125	6	46	76	46	16	117	194	117
	BH-140/150	6	50	79	50	16	127	201	127
	BH-175/200	8	52	82	52	21	133	209	133

Lower Clearance Shield*

	Model	(inches)				(centimeters)			
		A	B	C	D	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	-	-	-	-	-	-	-	-

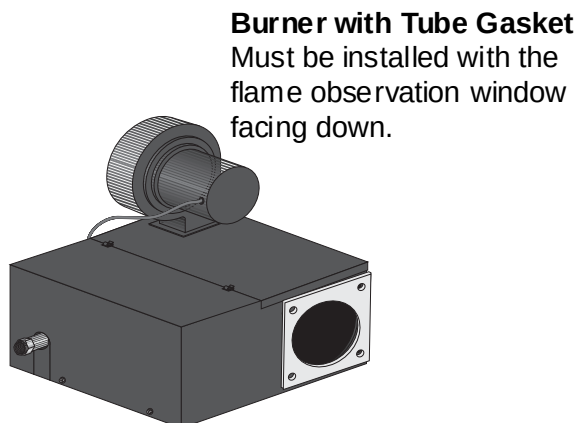
*When installed in the first 20' (6 m).

- 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.
 3. "-" indicates an unapproved application. Roberts-Gordon prohibits the installation of this heater for all unapproved applications.

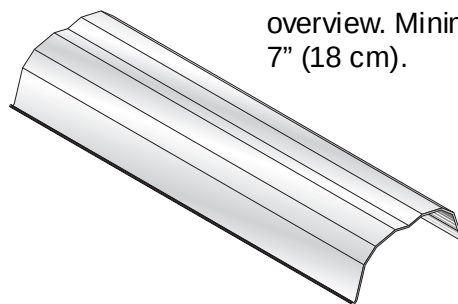
Venting							
	Model	(inches)			(centimeters)		
		A	E	F	A	E	F
	BH-40	14	18	18	36	46	46
	BH-60	14	18	18	36	46	46
	BH-80	20	24	18	51	61	46
	BH-100	20	24	18	51	61	46
	BH-115/125	20	24	18	51	61	46
	BH-140/150	20	30	18	51	77	46
	BH-175/200	20	30	18	51	77	46

BH-SERIES ASSEMBLY OVERVIEW

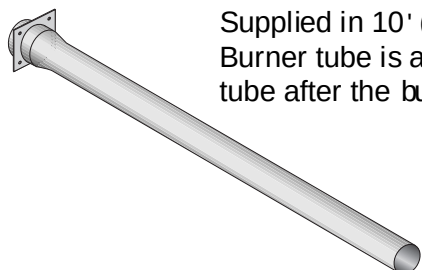
Major Component Descriptions



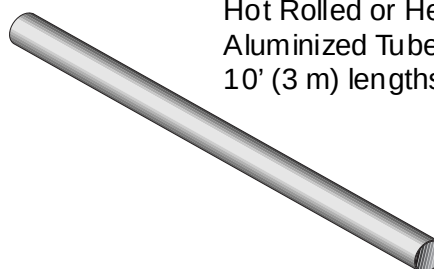
Burner with Tube Gasket
Must be installed with the flame observation window facing down.



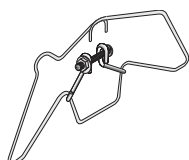
Reflector (Aluminum or Stainless Steel)
Alternate overlap as shown on overview. Minimum overlap is 7" (18 cm).



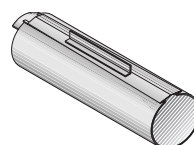
Burner Tube
Supplied in 10' (3 m) lengths. Burner tube is always the first tube after the burner.



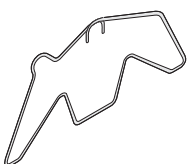
Tube
Hot Rolled or Heat Treated Aluminized Tube supplied in 10' (3 m) lengths.



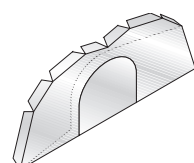
Tube and Reflector Hanger with Clamp Package
Position this hanger no more than 4" (10 cm) away from the burner.



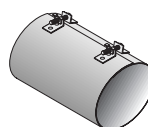
Coupling Assembly with Lock



Tube and Reflector Hanger
Suspend system from these hangers.



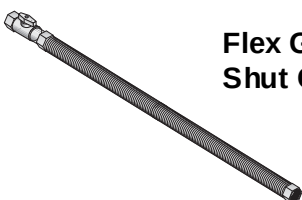
Reflector End Cap
Punch out center section to accommodate heat exchanger tube.



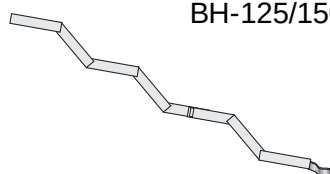
Vent Adapter



Reflector Support Strap & Wire Form

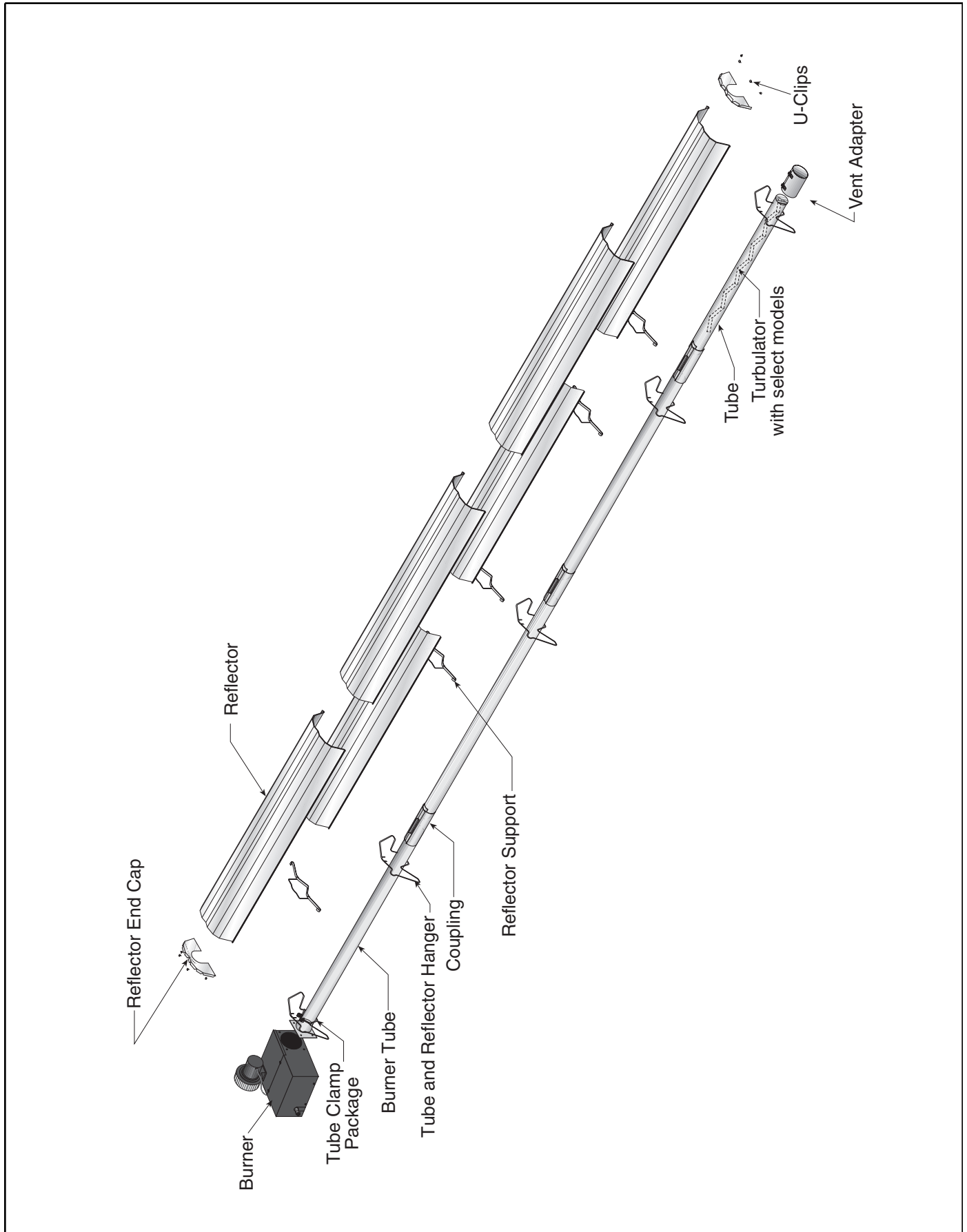


Flex Gas Line with Shut Off Cock



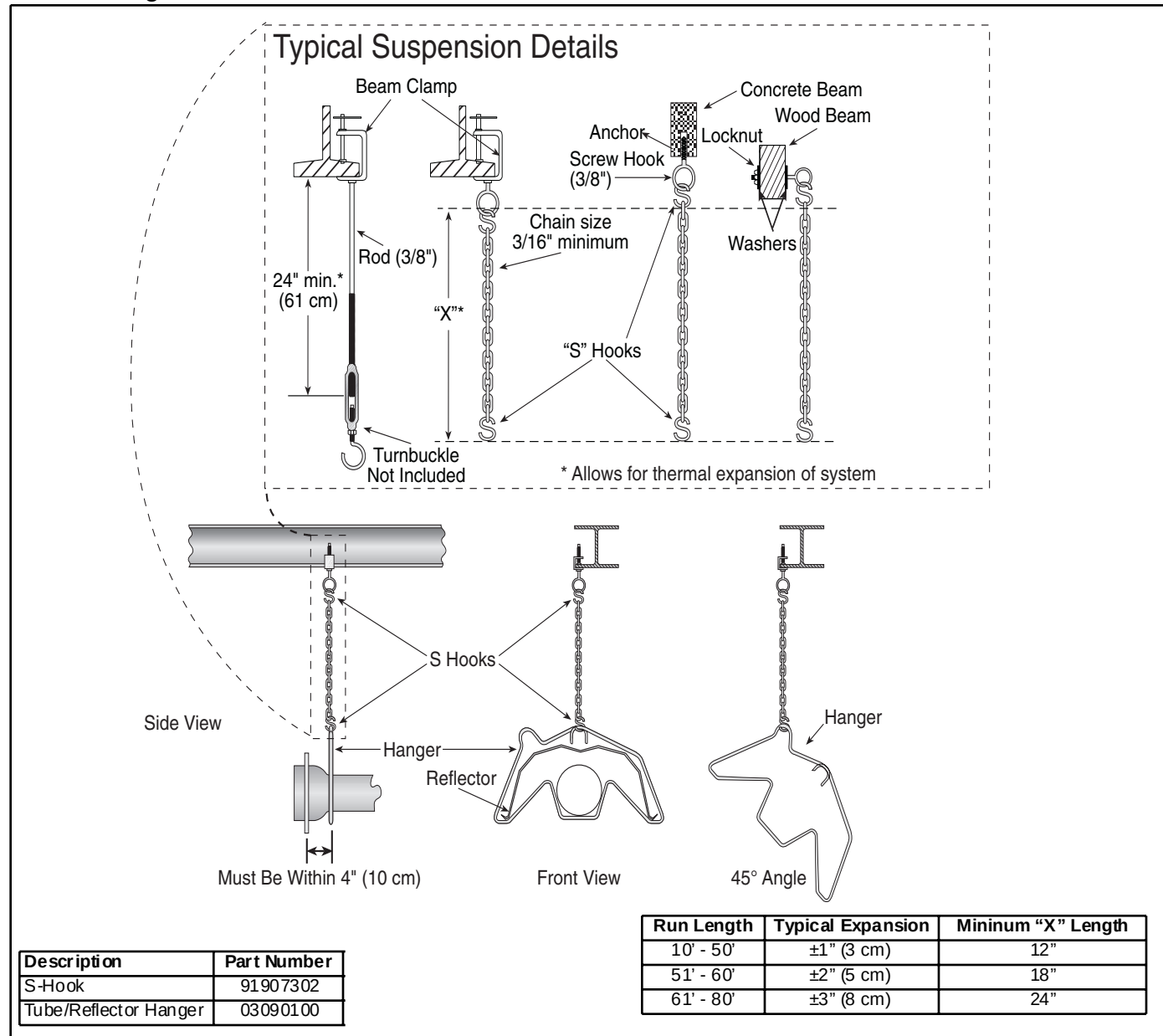
Turbulator
Turbulator must be installed in the last standard section of tube. Turbulator is not required on the BH-125/150/175/200.

BH-Series Linear Assembly Overview



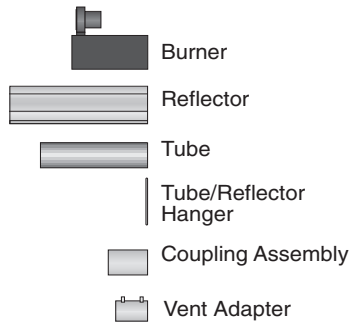
HEATER INSTALLATION

Critical Hanger Placement



BH-Series Linear Layout Overview

LEGEND



a = 14" (36 cm)
reflector width (not shown)

b = 2" (5 cm)
end cap to burner

c = 2" (5 cm)
end cap to hanger

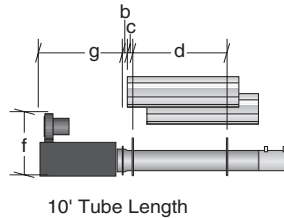
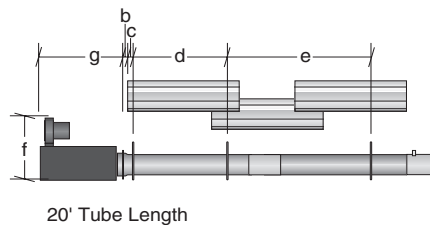
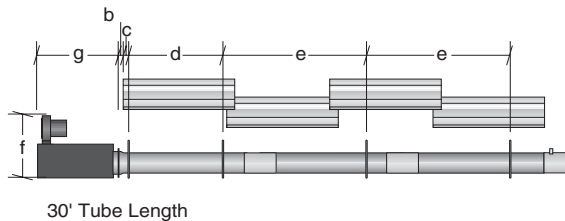
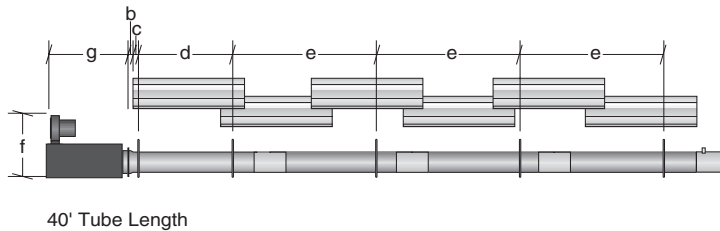
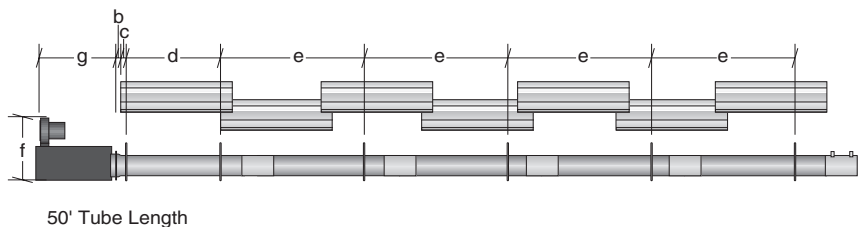
d = 7'6" (229 cm)
distance first hanger

e = 10' (305 cm)
distance between hangers

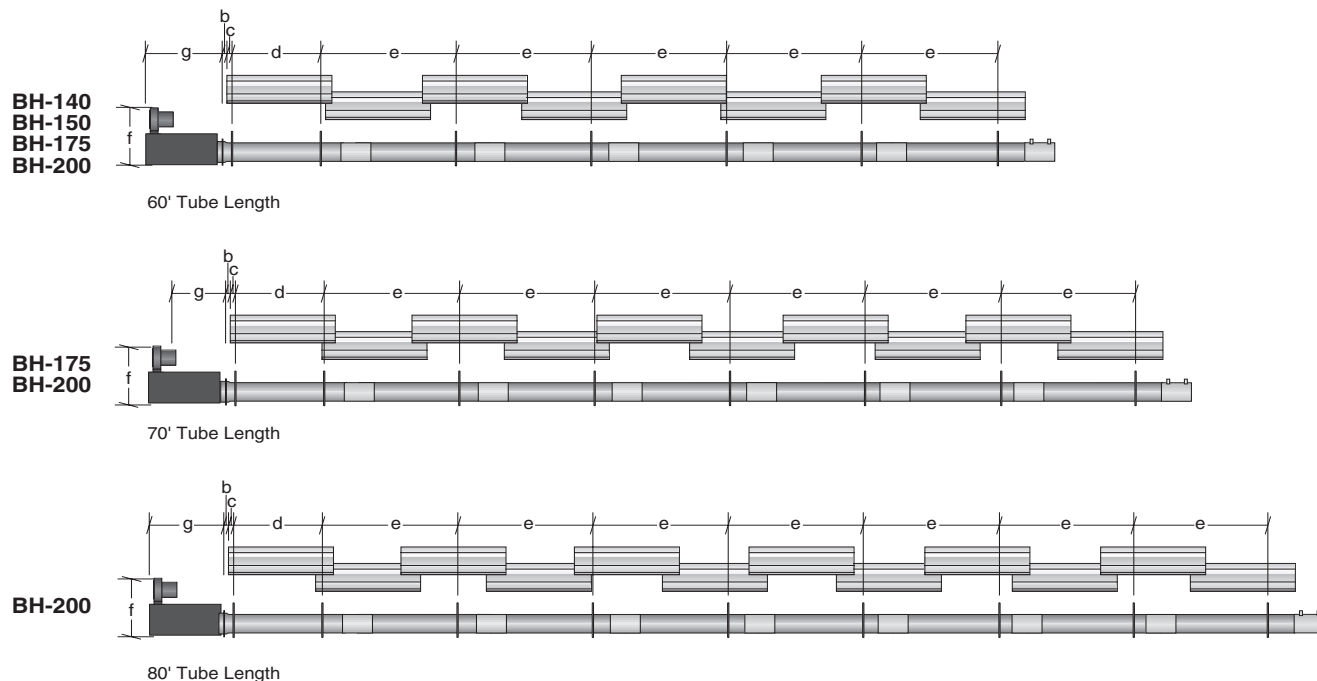
f = 12.5" (32 cm)
burner height

g = 11" (28 cm)
burner length

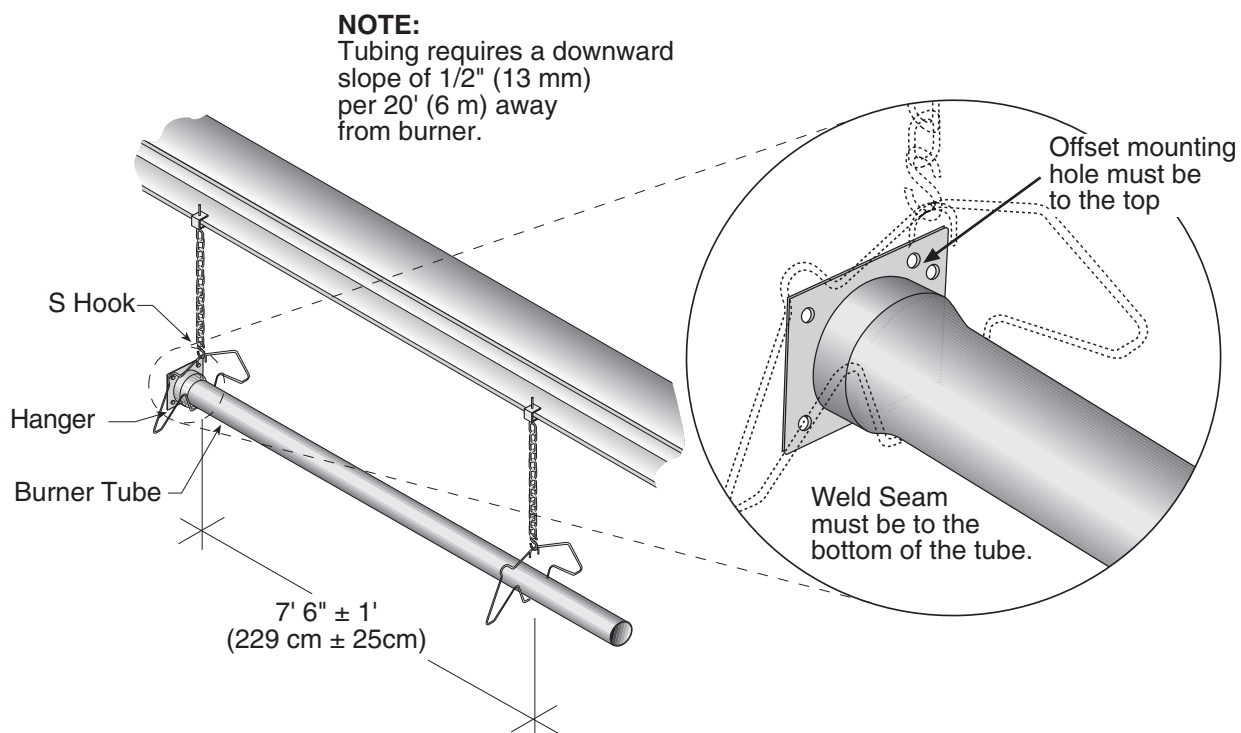
BH-40

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

BH-Series Linear Layout Overview (Continued)

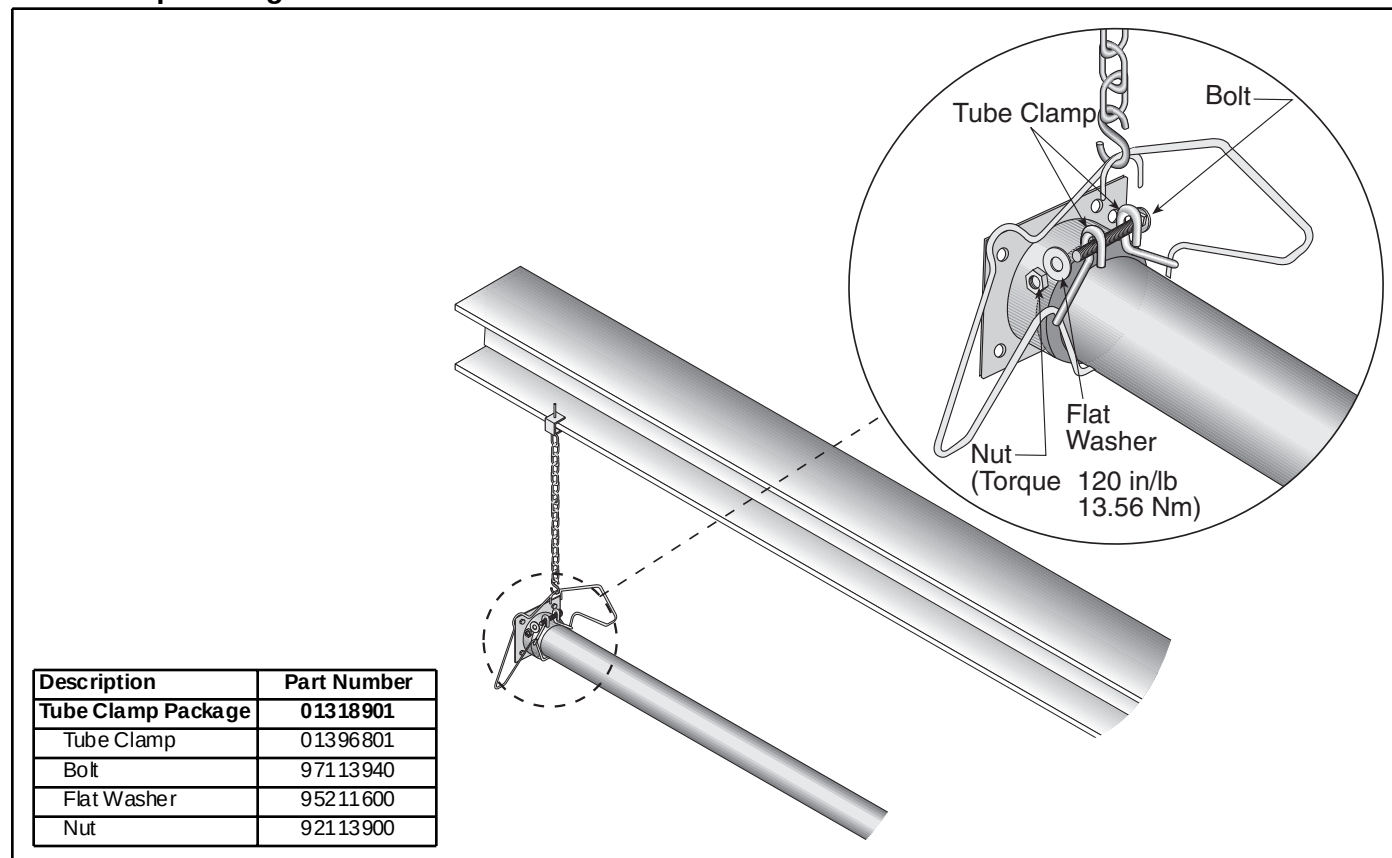


Burner Tube Installation

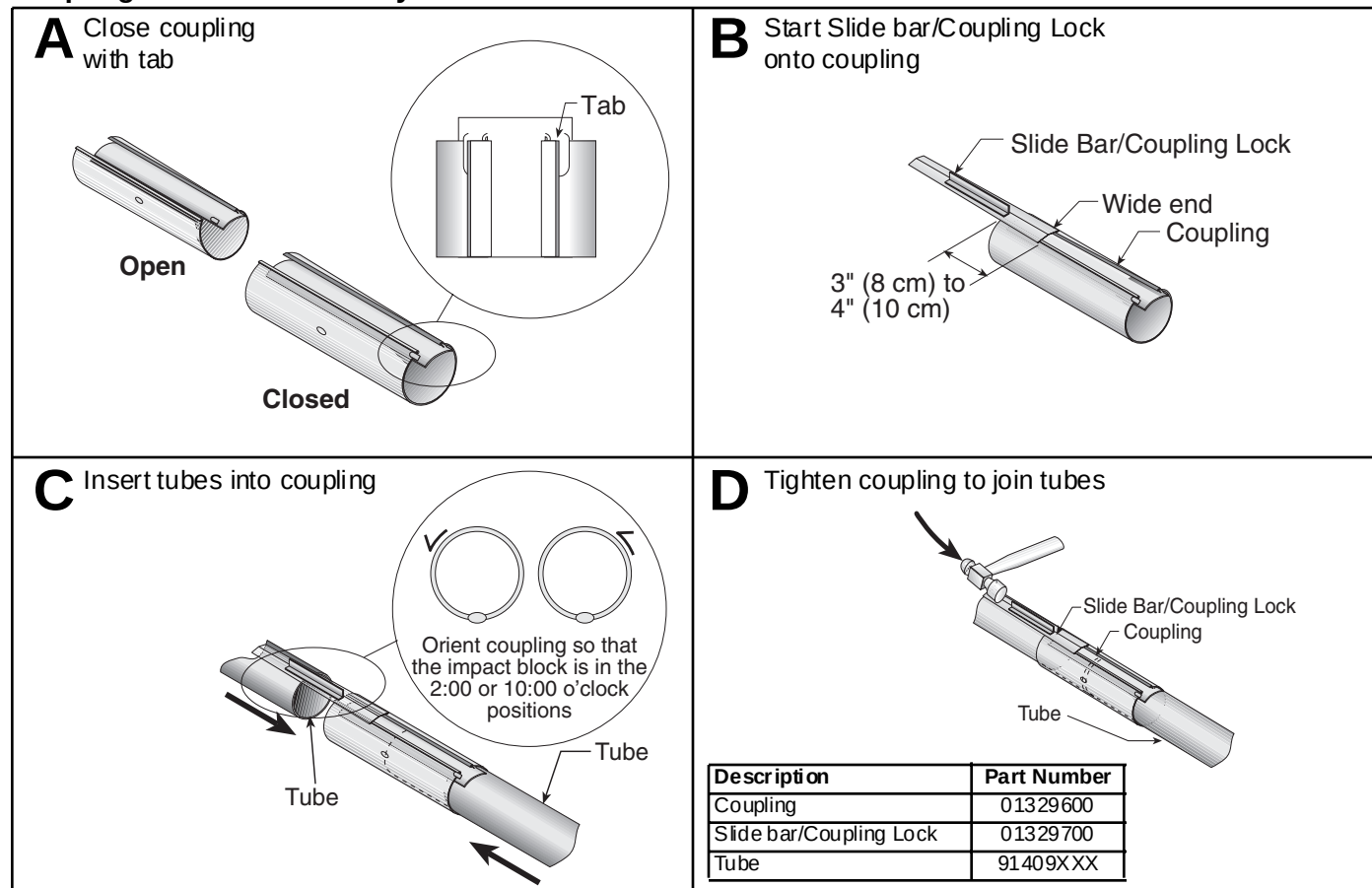


Description	Part Number
Burner Tube	03051XXX
S-Hook	91907302
Tube/Reflector Hanger	03090100

Tube Clamp Package Installation

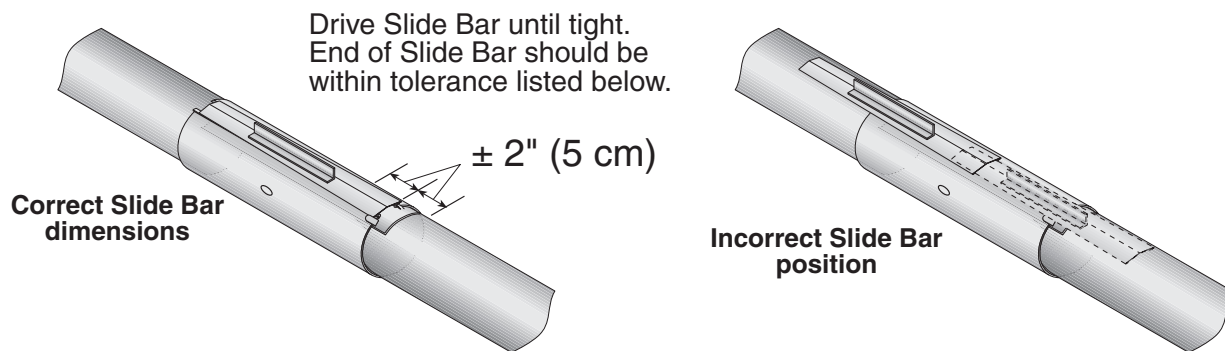


Coupling and Tube Assembly



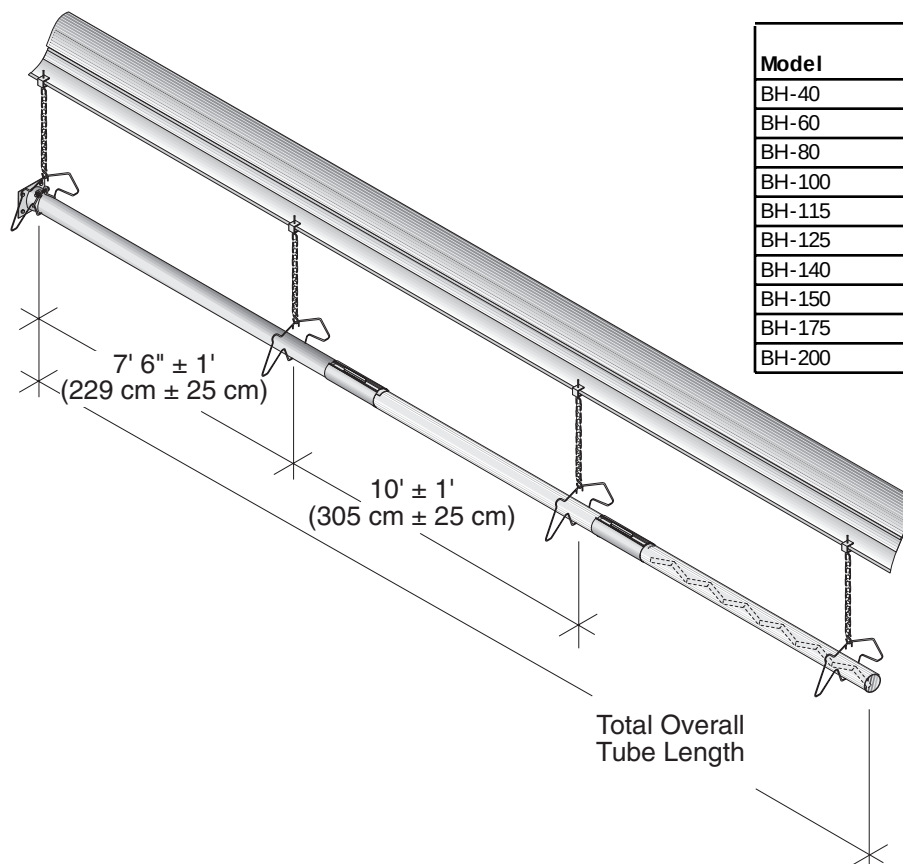
Coupling and Tube Assembly (Continued)

Tighten slide bar as shown below



- Repeat A - D until all tubes are assembled.

Coupling and Tube Assembly (Continued)



Model	Tube Length	
	Minimum	Maximum
BH-40	10' (3 m)	10' (3 m)
BH-60	20' (6 m)	20' (6 m)
BH-80	20' (6 m)	30' (9 m)
BH-100	30' (9 m)	40' (12 m)
BH-115	30' (9 m)	50' (15 m)
BH-125	40' (12 m)	50' (15 m)
BH-140	40' (12 m)	60' (18 m)
BH-150	50' (15 m)	60' (18 m)
BH-175	50' (15 m)	70' (21 m)
BH-200	60' (18 m)	80' (24 m)

Turbulator Installation

Turbulator must be installed in the last standard section of tube. Turbulator is not required on the BH-125/150/175/200.

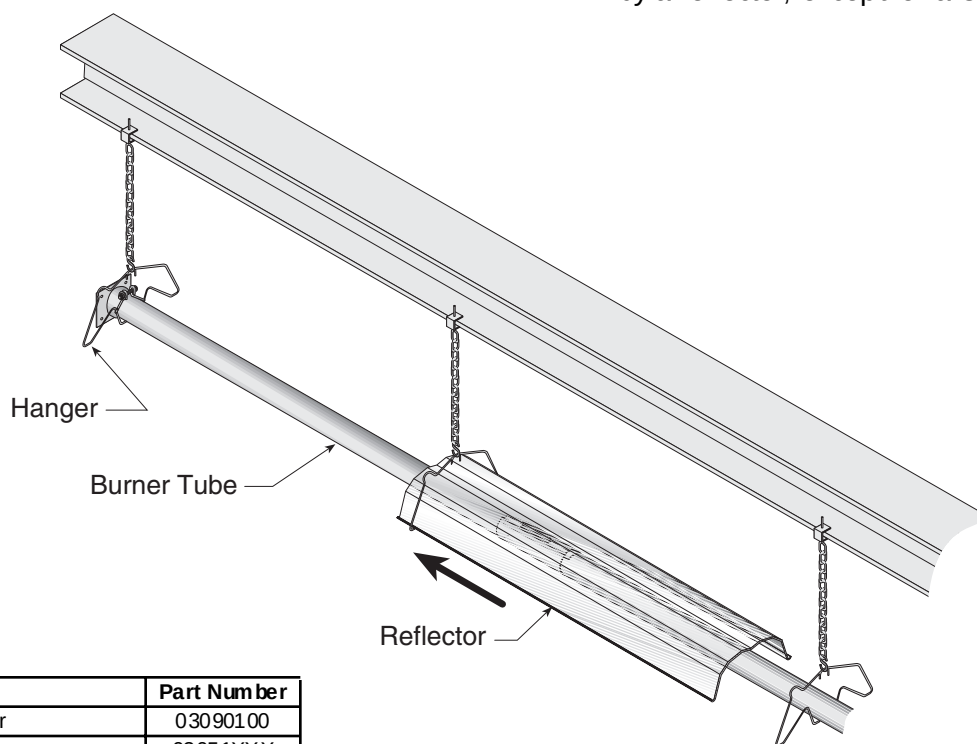
Model	Tube Section
BH-40	1st 10' Section
BH-60	2nd 10' Section
BH-80	2nd 10' Section
BH-100	3rd 10' Section
BH-115	3rd 10' Section
BH-125	N/A
BH-140	4th 10' Section
BH-150	N/A
BH-175	N/A
BH-200	N/A

Description	Part Number
Turbulator Adapter	03051503
Turbulator 2.5' Section	03051504
Tube	91409XXX

Fold tab around outside of tube nearest to the vent to hold turbulator in place. Where a vent sleeve is used, do not fold tab.

Reflector Installation

NOTE: All tube surfaces must be covered by a reflector, except for a U-Tube.



Description	Part Number
Tube/ Reflector Hanger	03090100
Burner Tube	03051XXX
Reflector	02750303

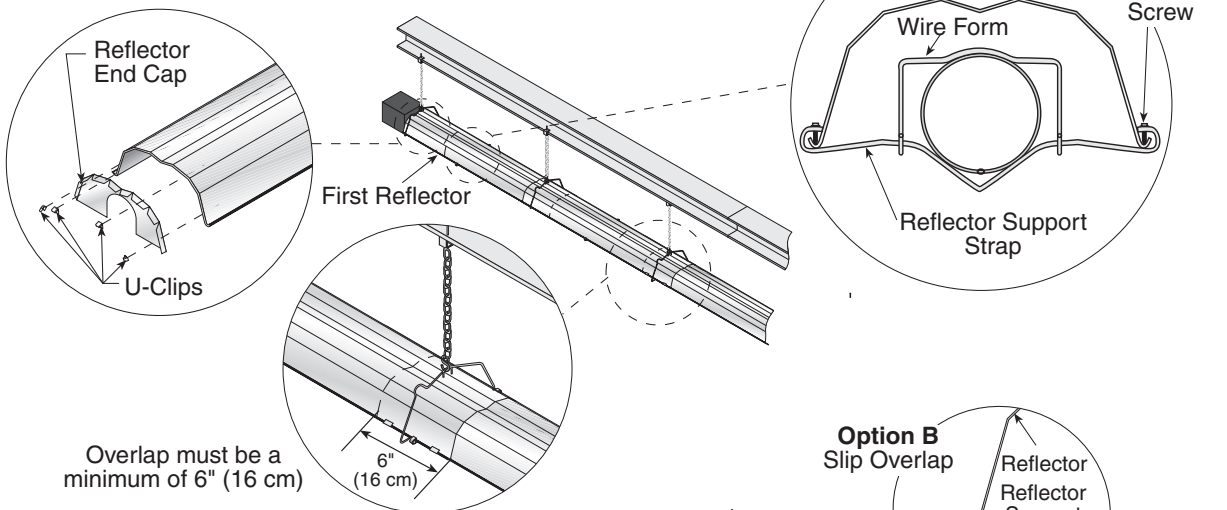
Reflector, U-Clip and Reflector Support Installation

The pictorial drawings of the heater construction in this section are schematic only and provide a general guideline of where hangers, reflector supports and U-clips are to be installed.

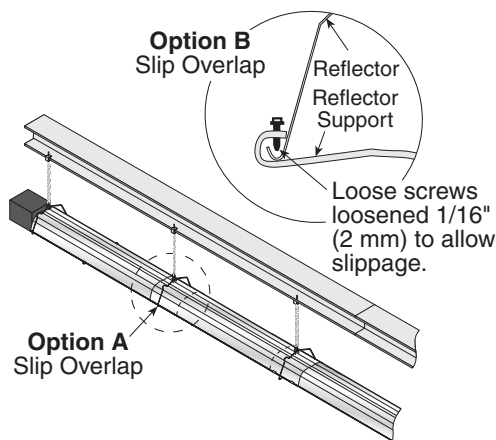
To ensure proper expansion and contraction movement of the reflectors, a combination of U-clips and reflector supports are used. The positioning of reflec-

tor supports and U-clips depend on the individual installation. Use either pop rivets or sheet metal screws instead of u-clips when installing end caps and joint pieces in areas where impact and high wind may be a factor. The following rules must be observed.

1. The first reflector after the burner must be affixed in the middle of the reflector with a reflector support and tight screws.

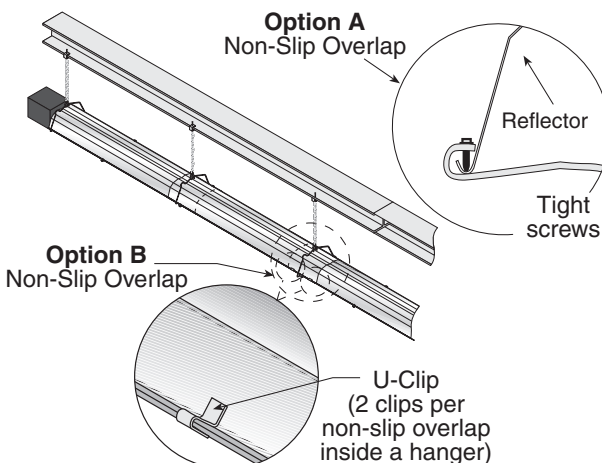


2. The overlap at the first and second reflector is a slip overlap. Thereafter, every third reflector joint is a slip overlap. A slip overlap is achieved by either:
 - a.) both reflectors lay inside a hanger. (no reflector support needed).
 - b.) using a reflector support with loose screws at the reflector overlap.

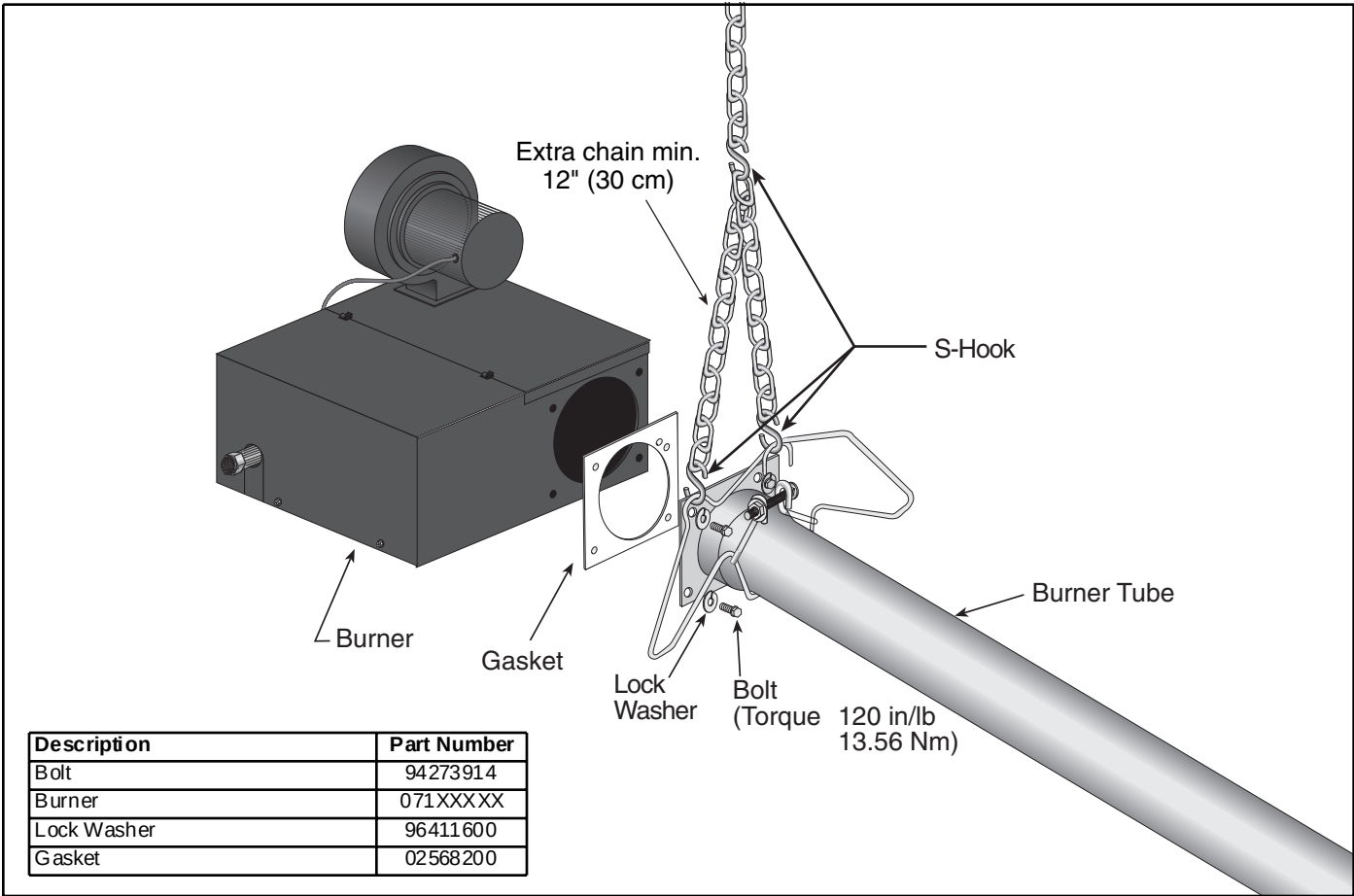


3. The remaining reflector overlaps require a non-slip overlap connection. To affix the reflectors together in a non-slip overlap either:
 - a.) use reflector support and tight screws.
 - b.) if both reflectors lay inside a hanger, u-clips or sheet metal screws may be used.

This section of three reflectors joined together must be affixed to the tube with at least one reflector support with tight screws.

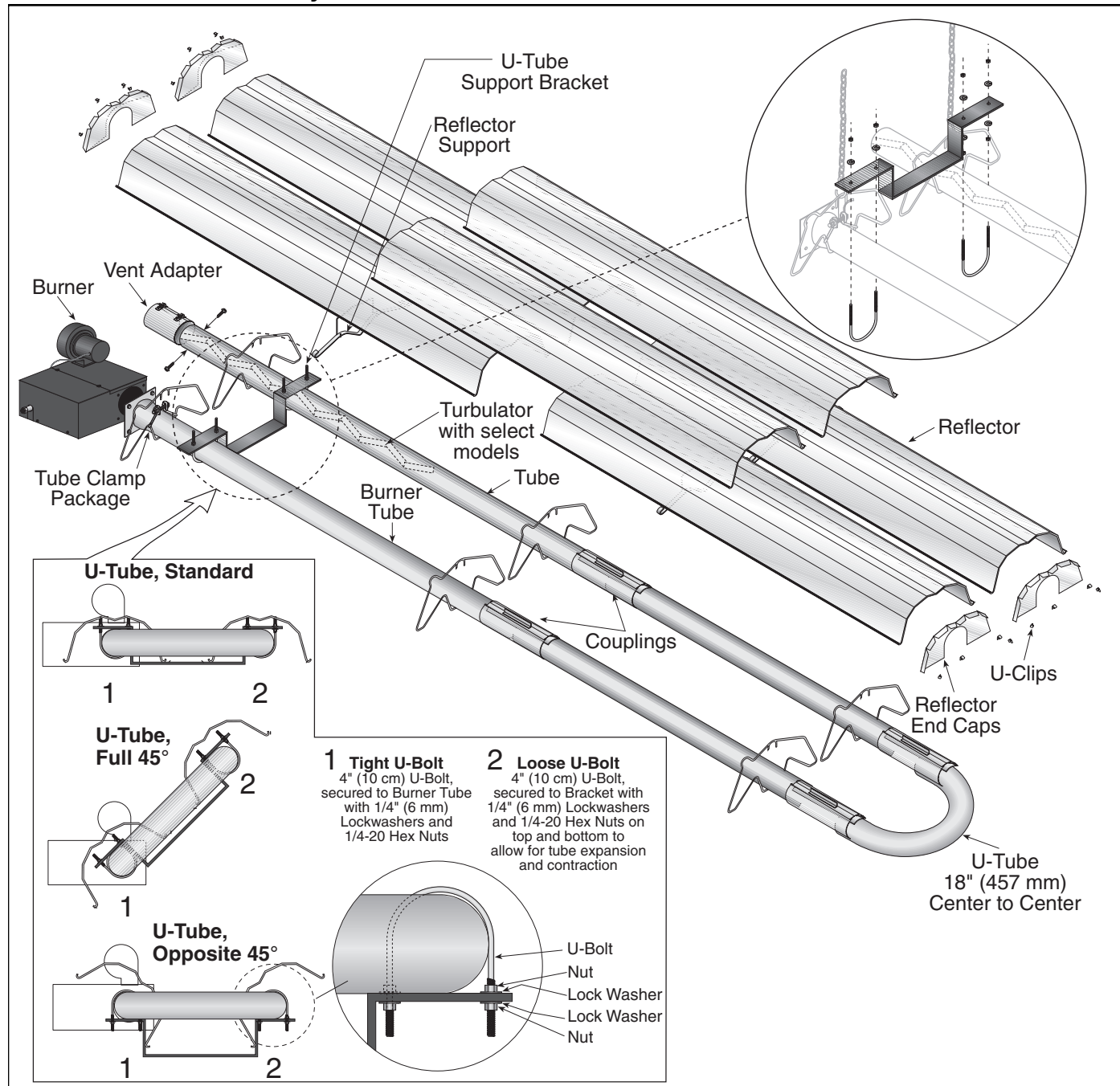


Burner Installation



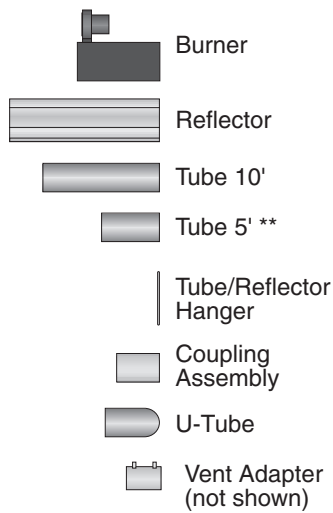
OPTIONAL HEATER ACCESSORIES

BH-Series U-Tube Assembly Overview



BH-Series U-Tube Layout Overviews

LEGEND



a = 14" (36 cm)
reflector width (not shown)

b = 2" (5 cm)
end cap to burner

c = 2" (5 cm)
end cap to hanger

d = 7'6" (229 cm)
distance first hanger

e = 10' (305 cm)
distance between hangers

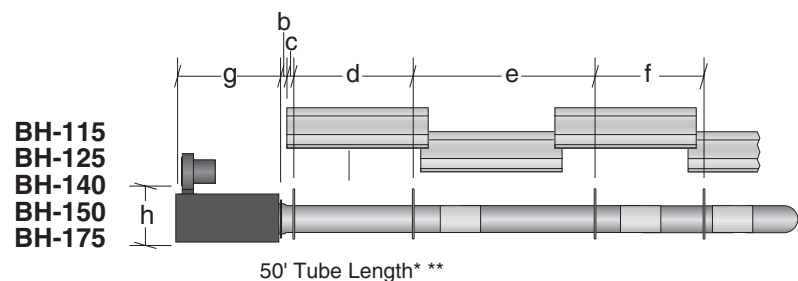
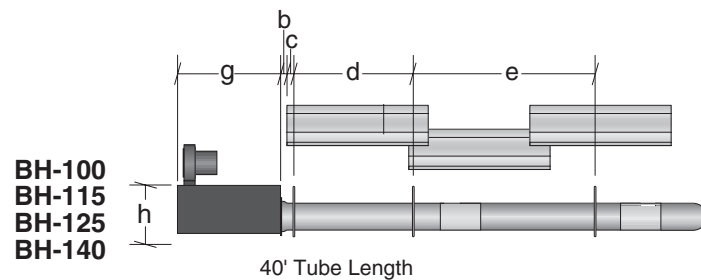
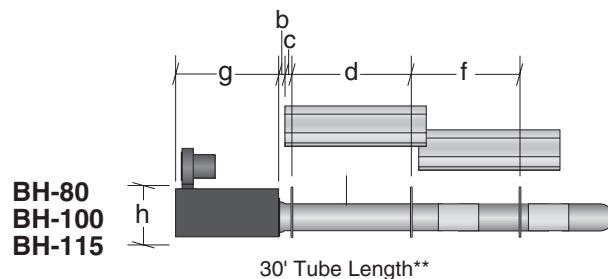
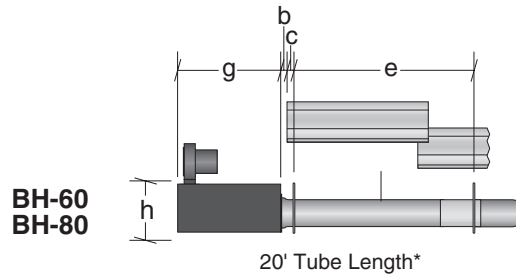
f = 5' (153 cm)
distance between last full tube
hanger and half tube hanger

g = 12.5" (32 cm) burner length

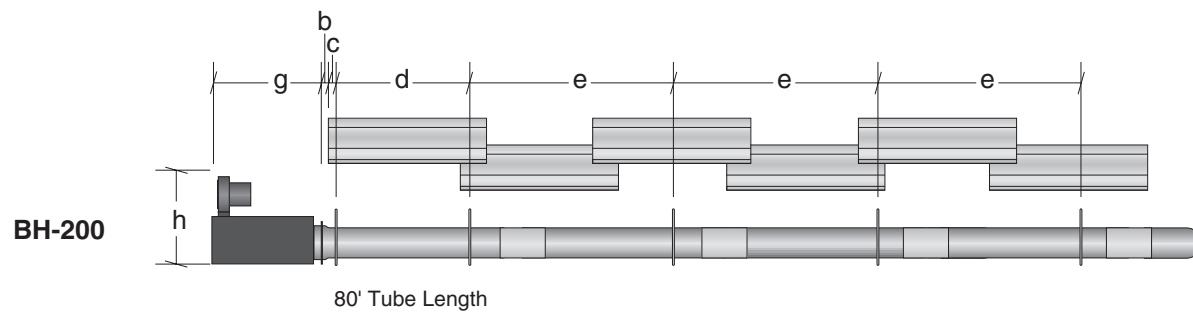
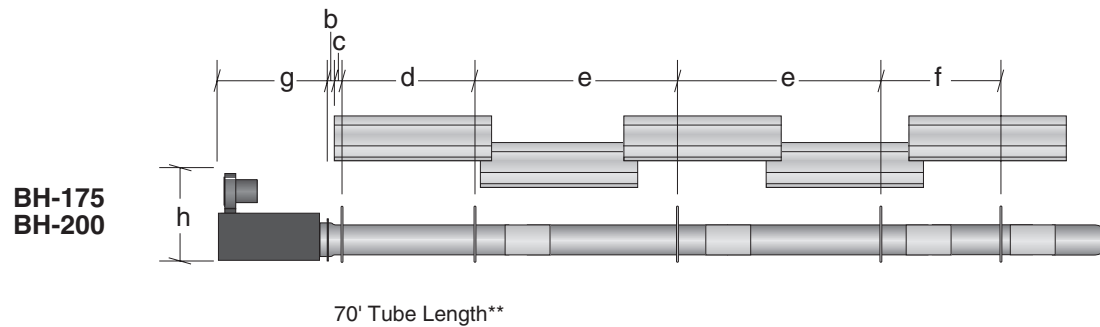
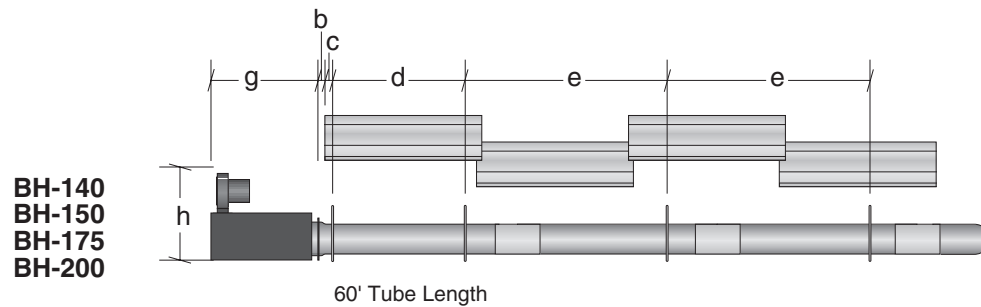
h = 11" (28 cm) burner height

* Require the last **reflector**
before the U-Tube to be cut in
half for use on both sides.

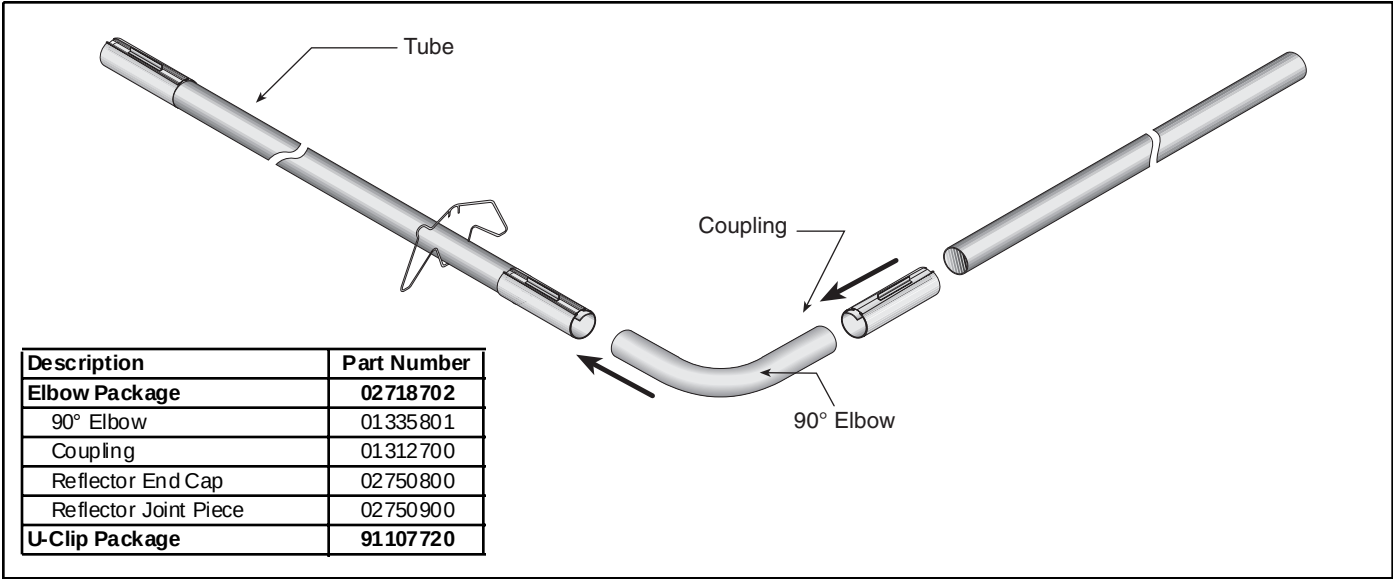
** Require the last **tube** before
the U-Tube to be cut in half for
use on both sides.



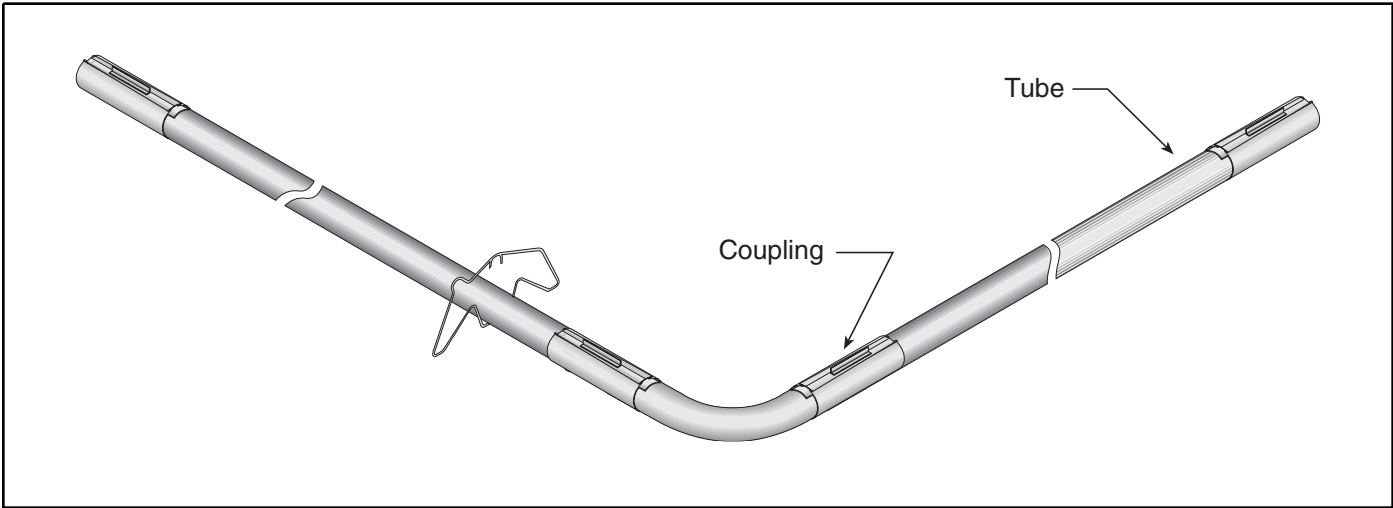
BH-Series U-Tube Layout Overviews (Continued)



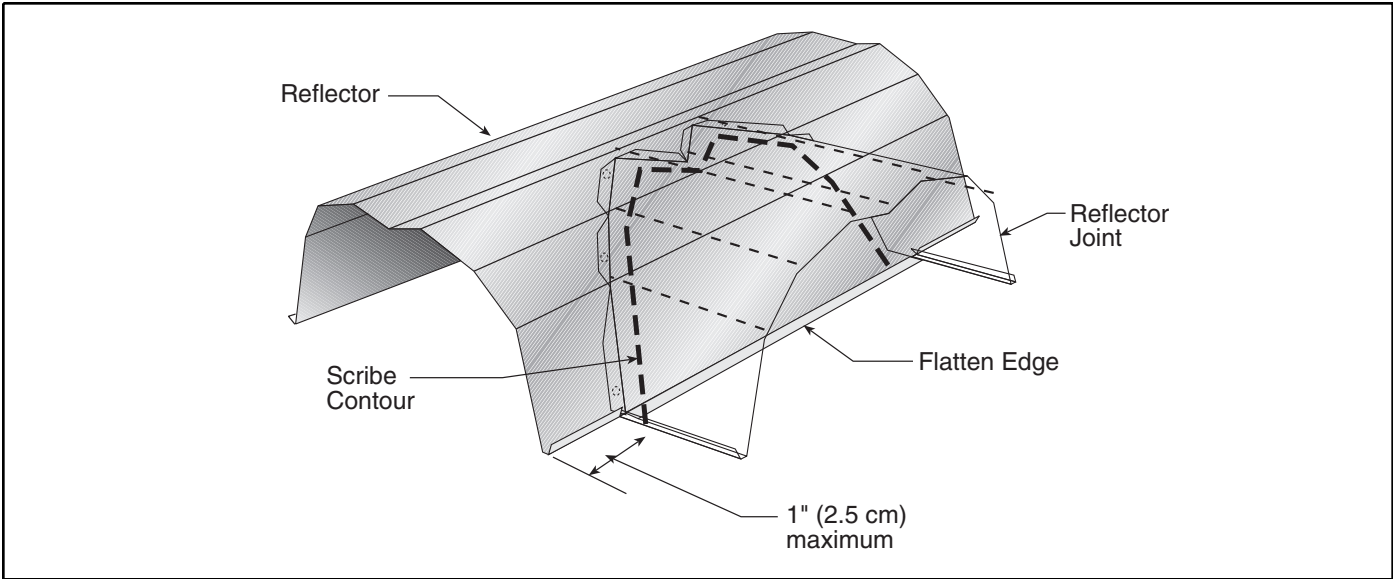
Elbow Package Configuration
Elbow Installation



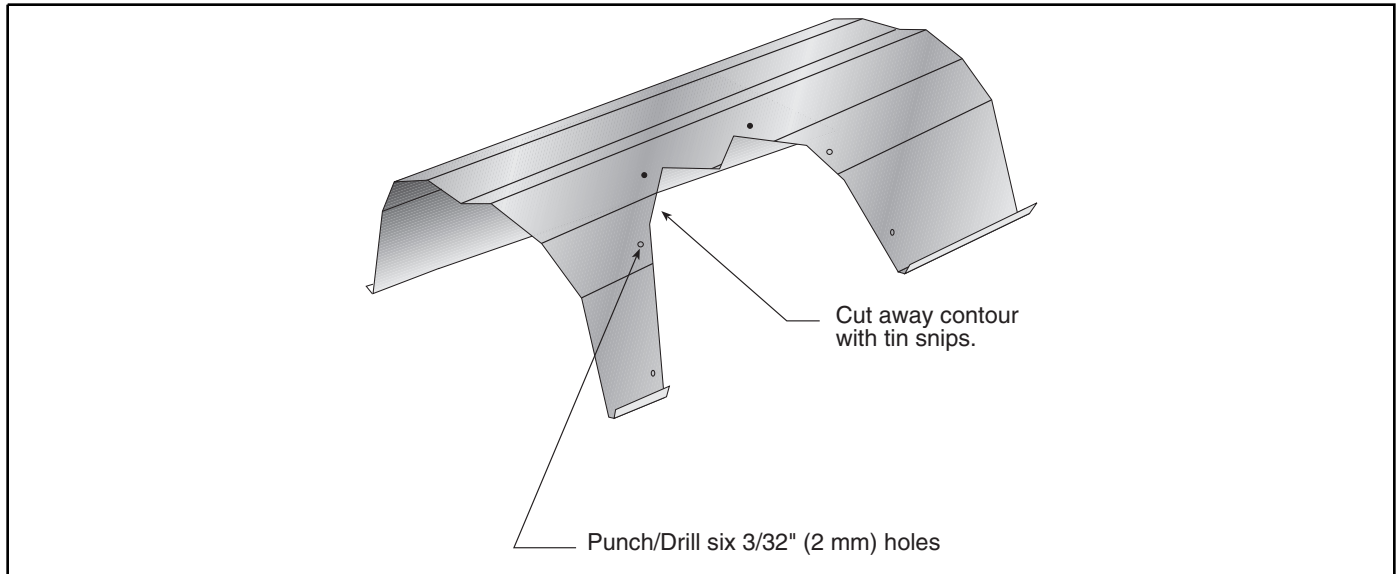
Elbow Installation (continued)



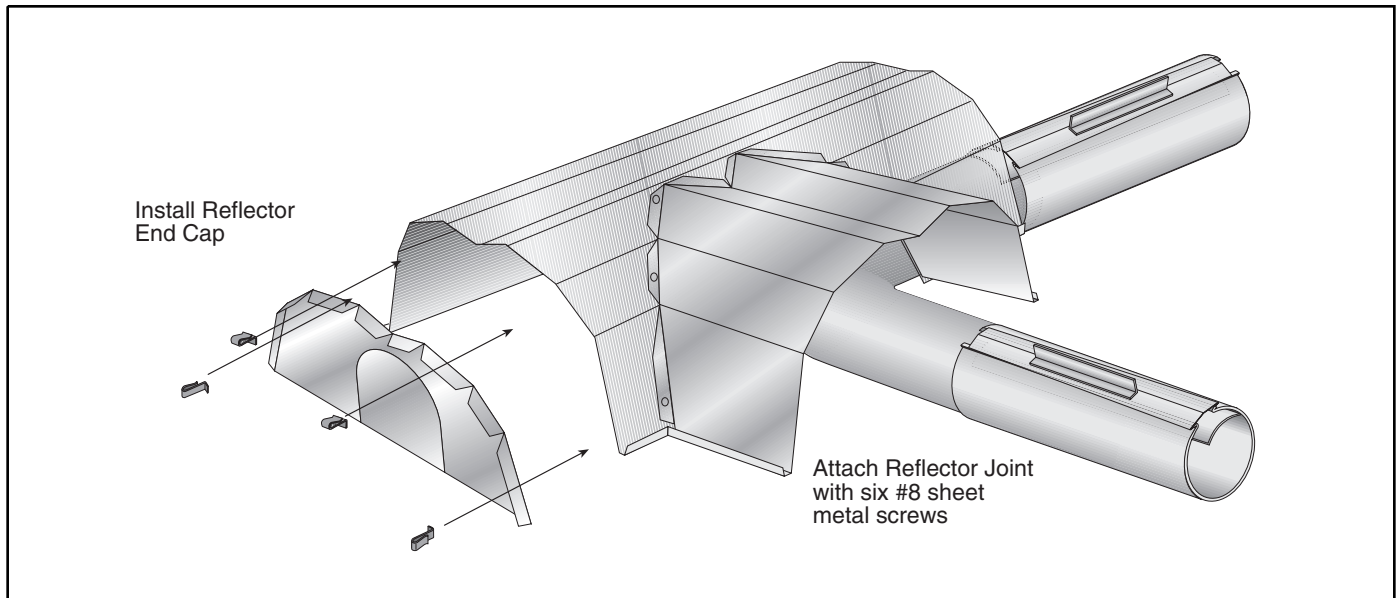
Reflector Joint Installation



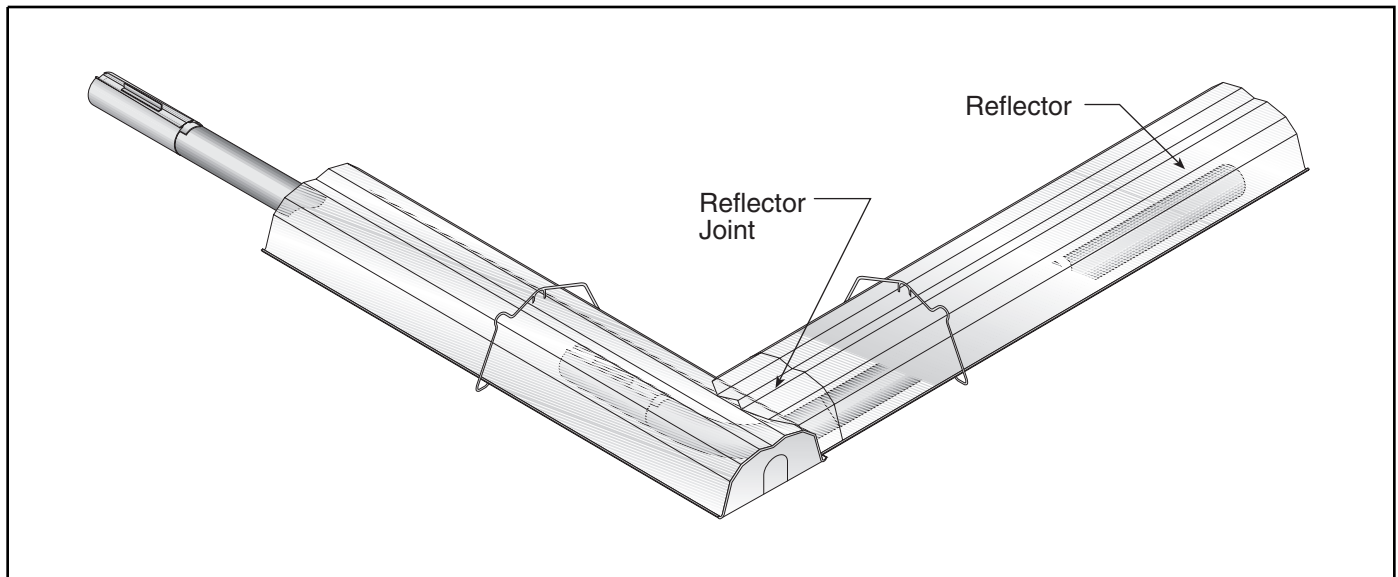
Reflector Joint Installation



Reflector Joint Detail

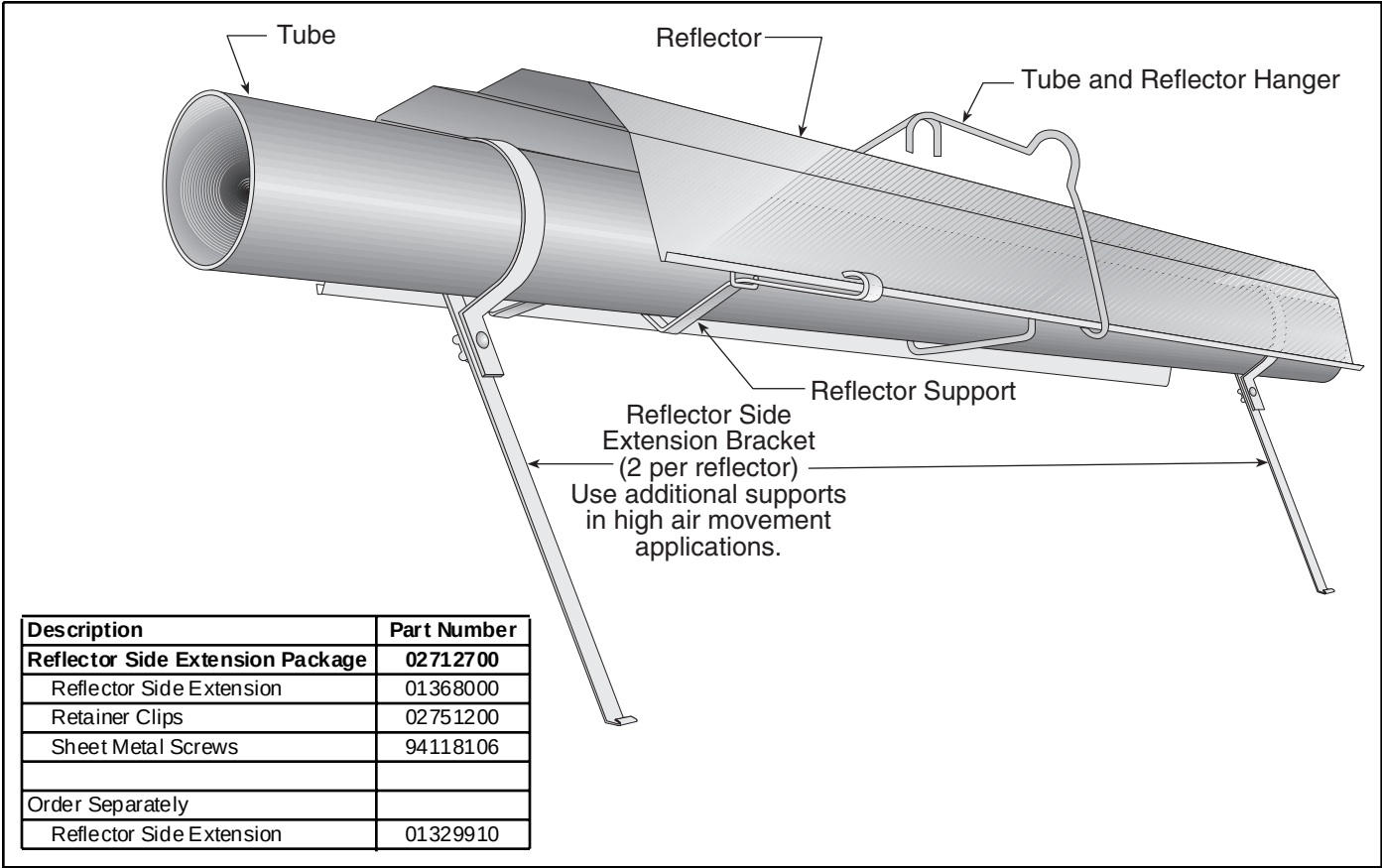


Reflector Joint Detail

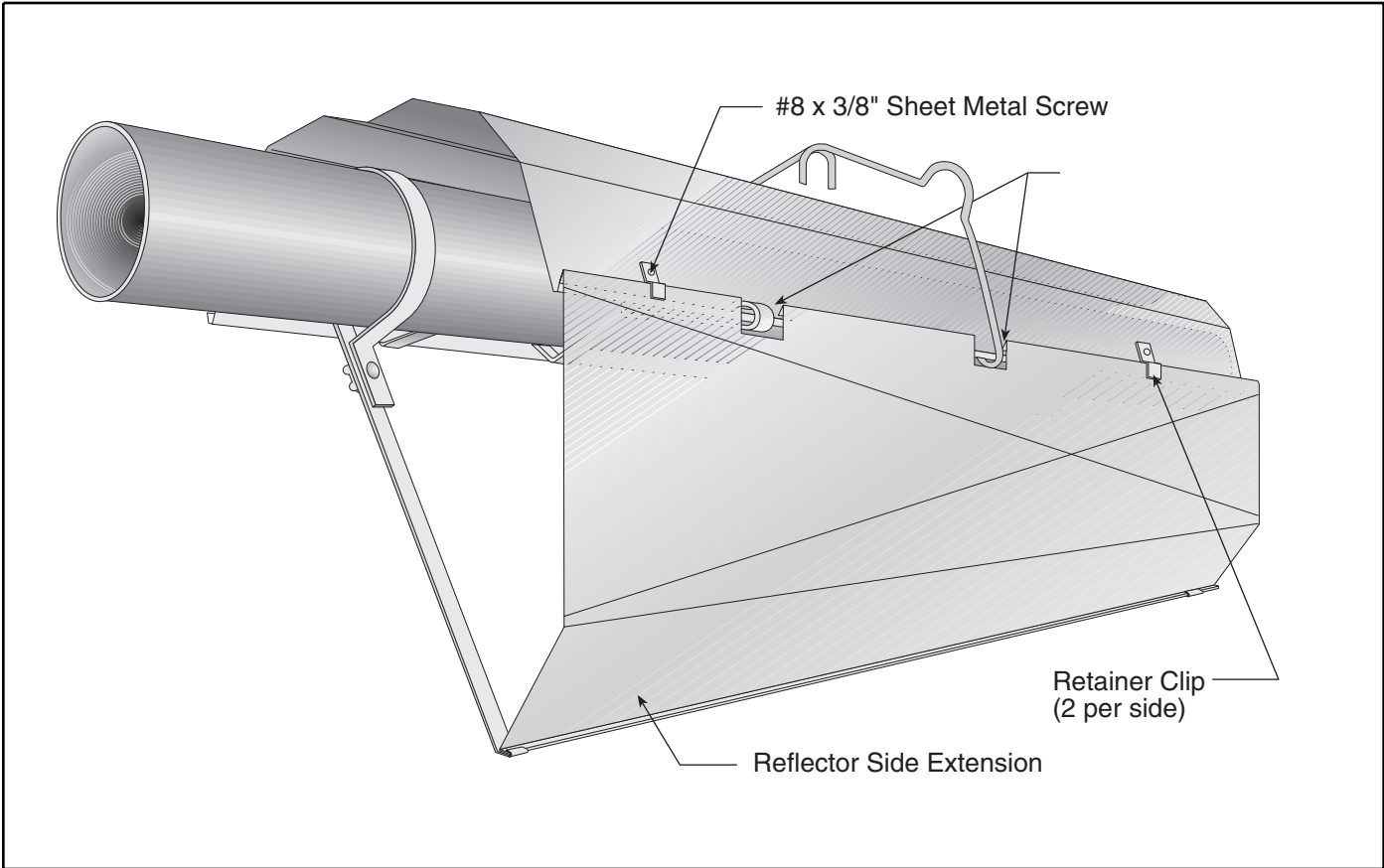


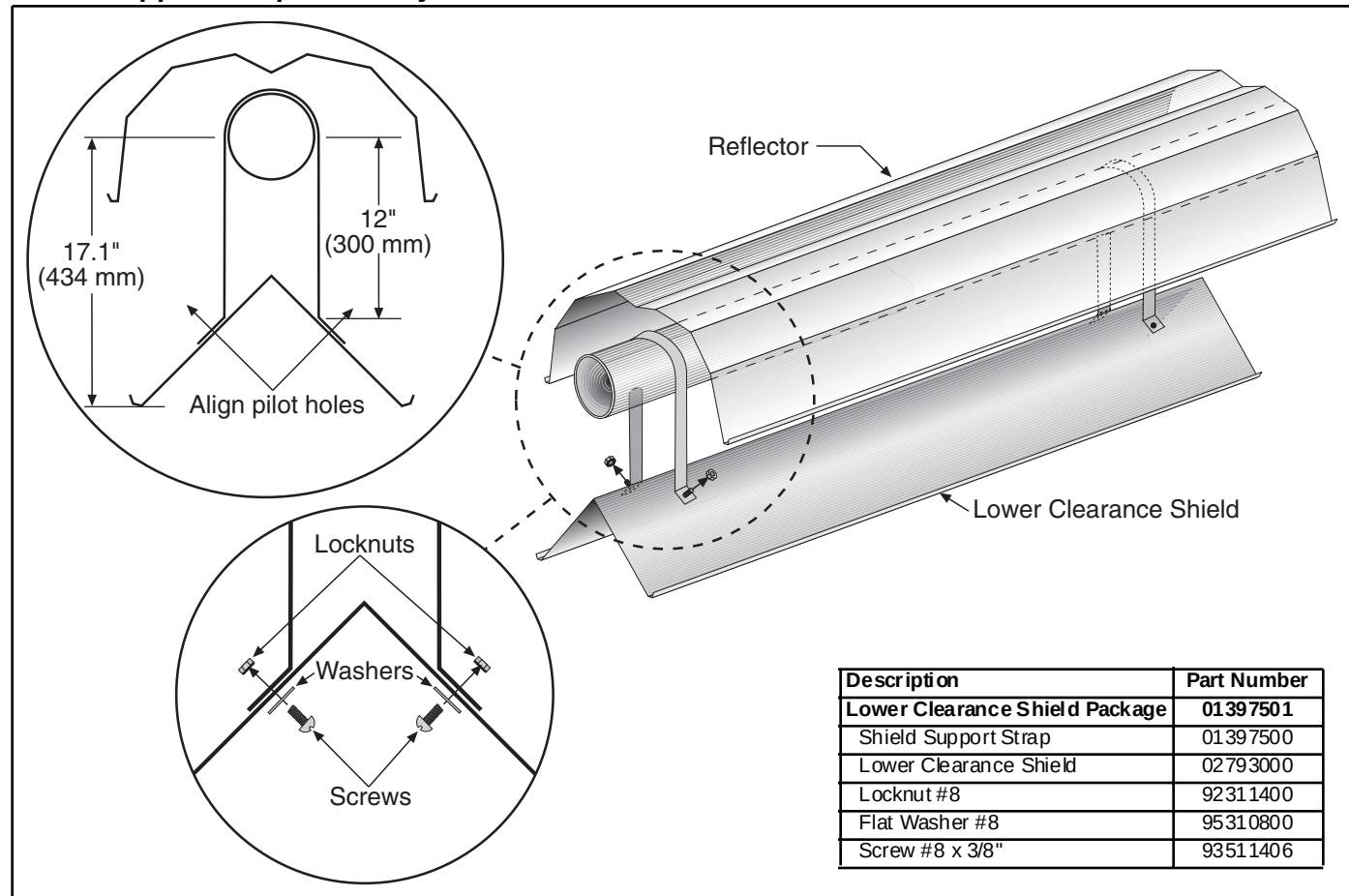
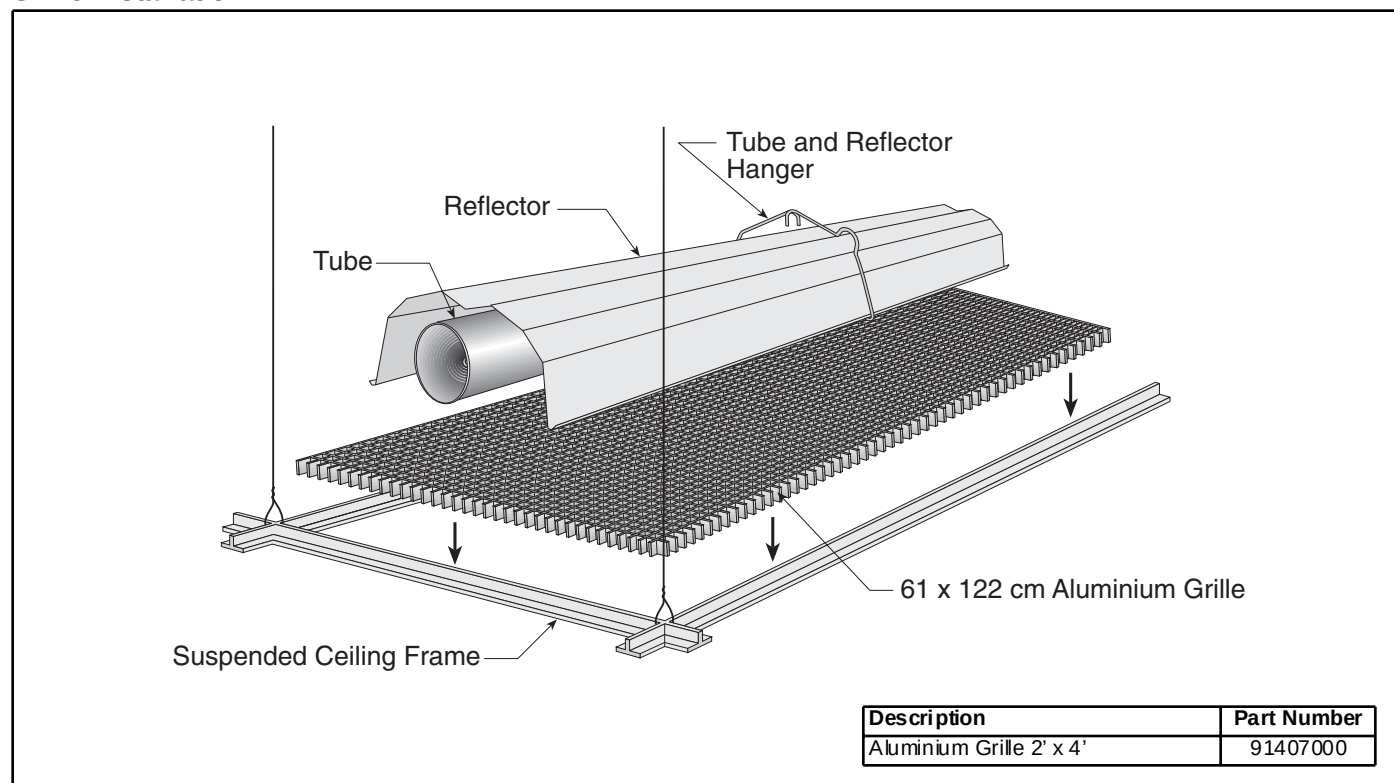
REFLECTOR SIDE EXTENSION

Bracket Installation

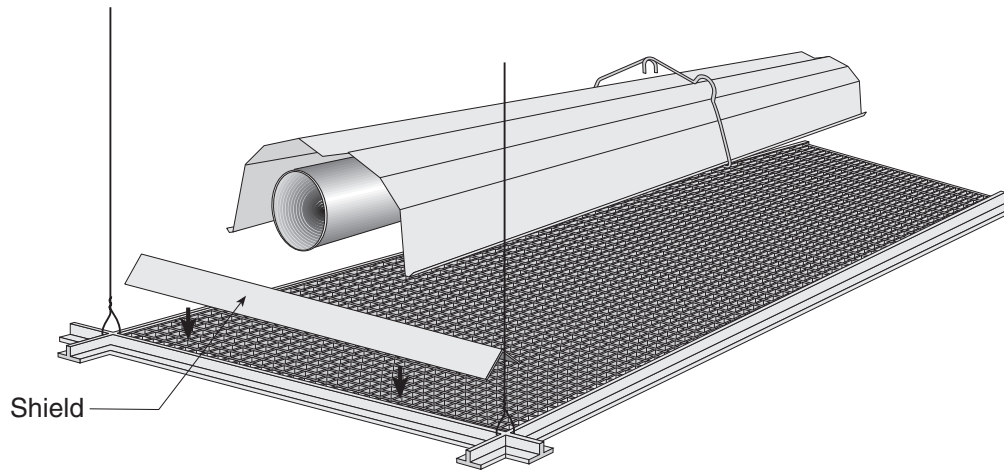


Side Reflector Installation



LOWER CLEARANCE SHIELD INSTALLATION**Shield Support Strap Assembly****TWO-FOOT DECORATIVE GRILLE INSTALLATION****Grille Installation**

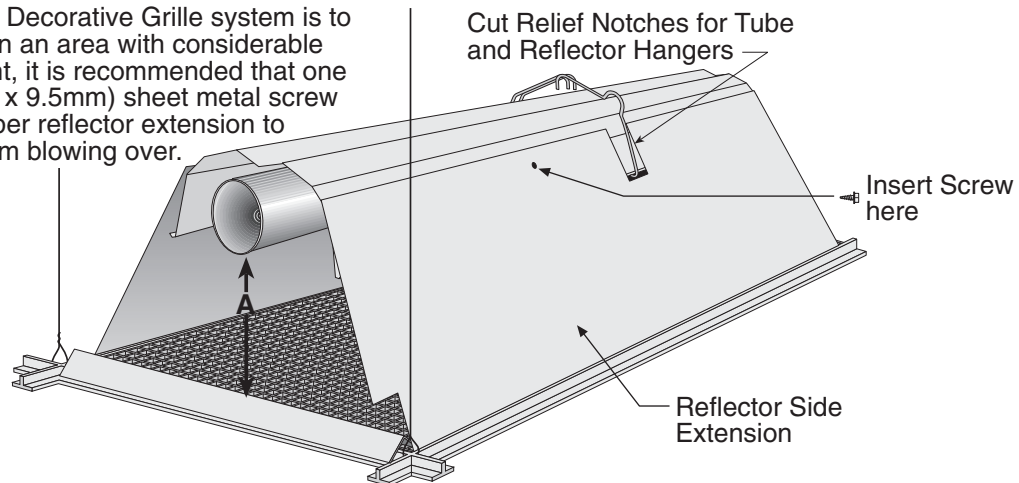
Frame Shield Installation



Description	Part Number
Deco Grille Shield	01365900

Reflector Side Extension Installation

NOTE: If the Decorative Grille system is to be installed in an area with considerable air movement, it is recommended that one #8 x 3/8 (3.9 x 9.5mm) sheet metal screw be installed per reflector extension to prevent it from blowing over.

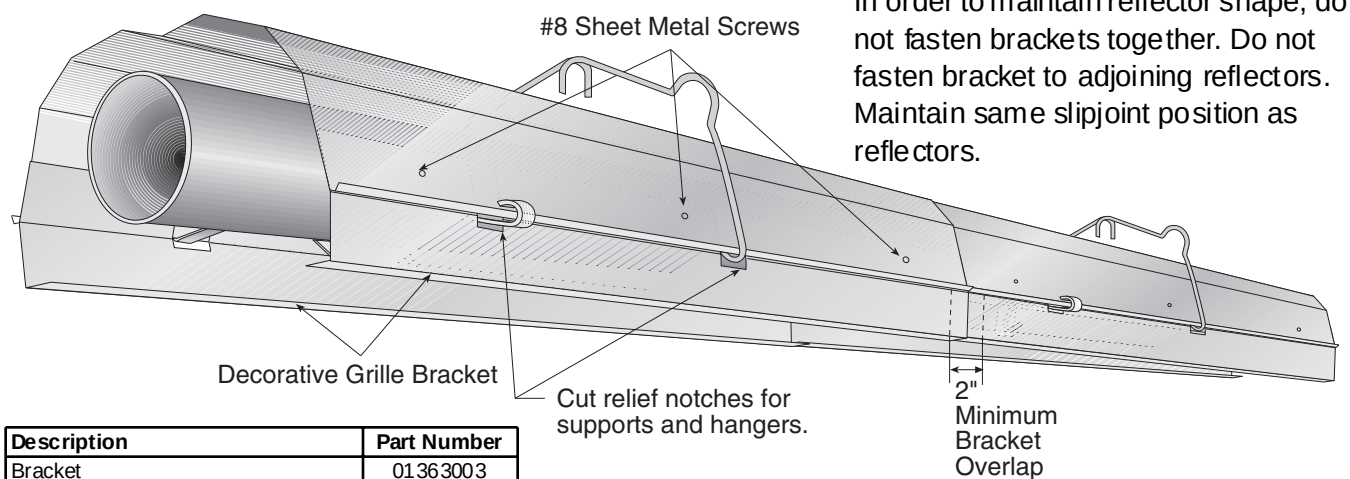


Distance "A"		Extension	
Minimum	Maximum	Part No.	Width
2" (4 cm)	6" (15 cm)	01370408	8" (20 cm)
6" (15 cm)	10" (26 cm)	01370412	12" (30 cm)
10" (26 cm)	14" (37 cm)	01370416	16" (40 cm)

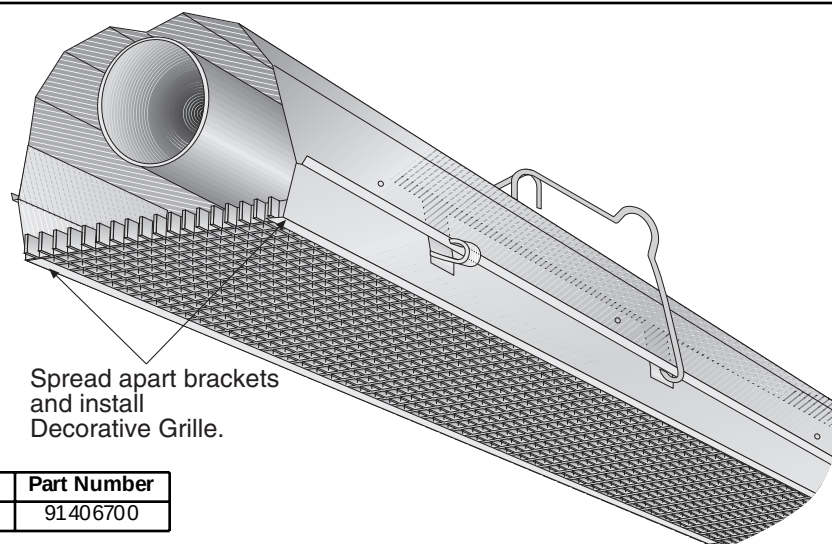
Description	Part Number
Reflector Side Extension	01370412

ONE-FOOT DECORATIVE GRILLE INSTALLATION

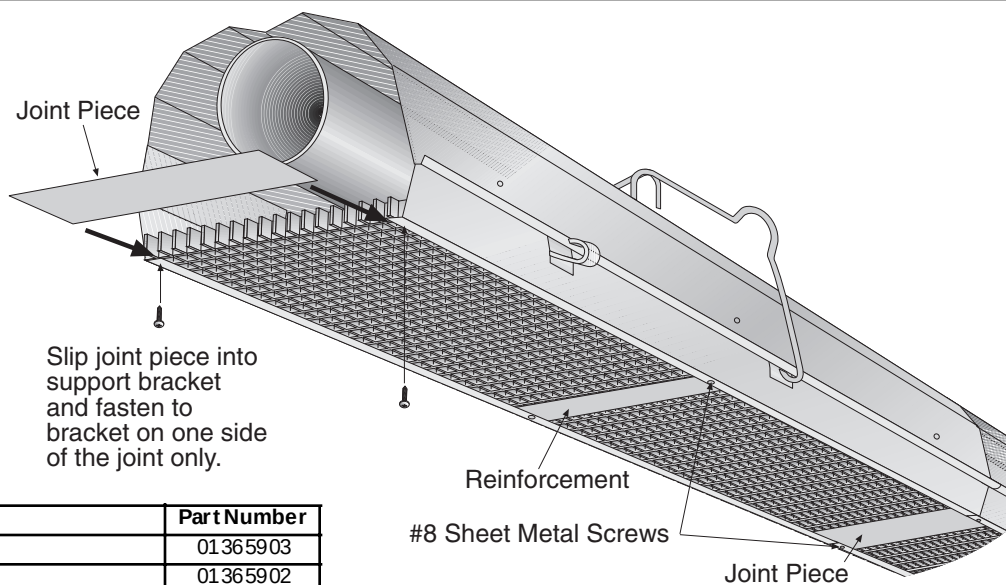
One-Foot Decorative Grille Bracket



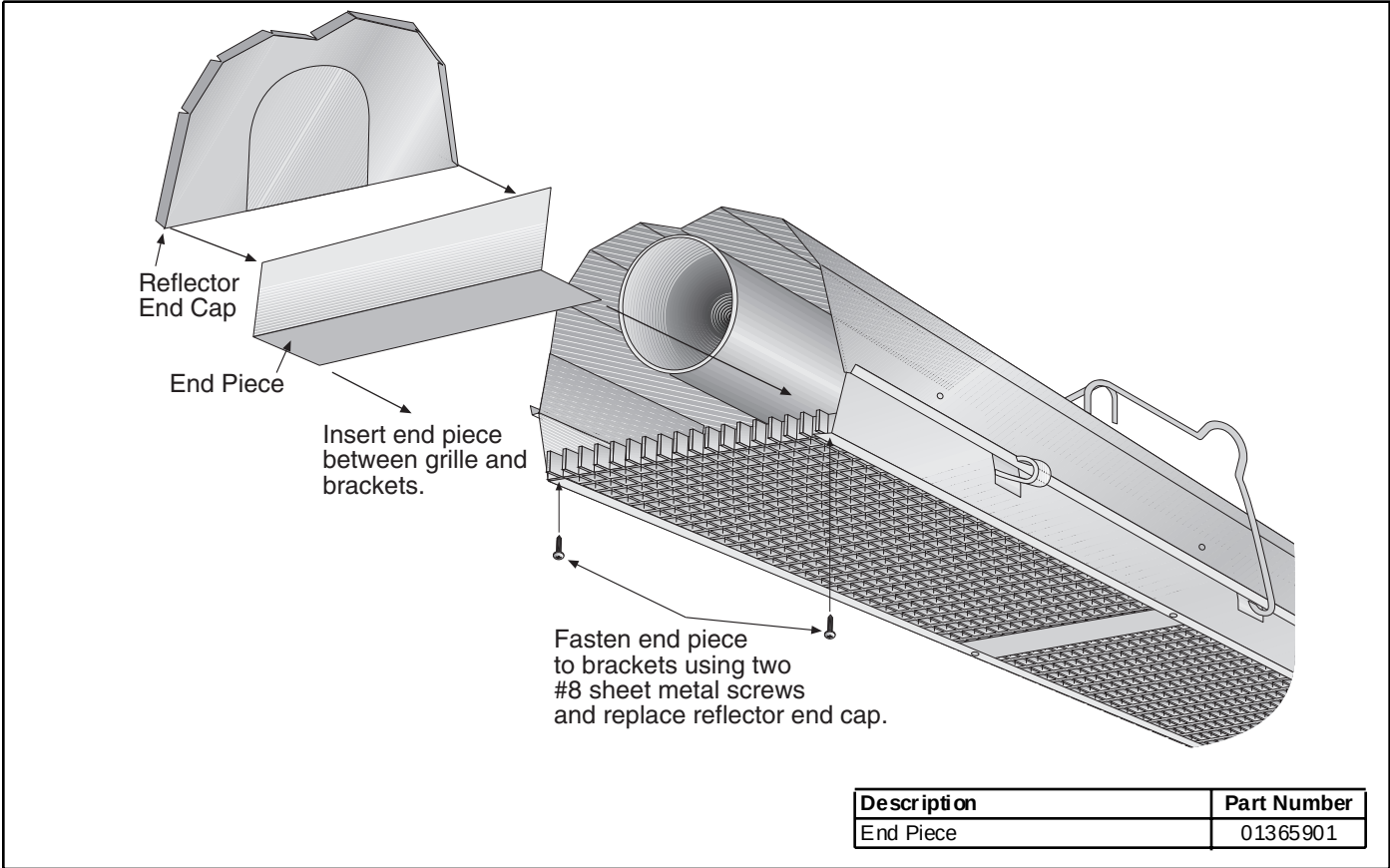
Decorative Grille



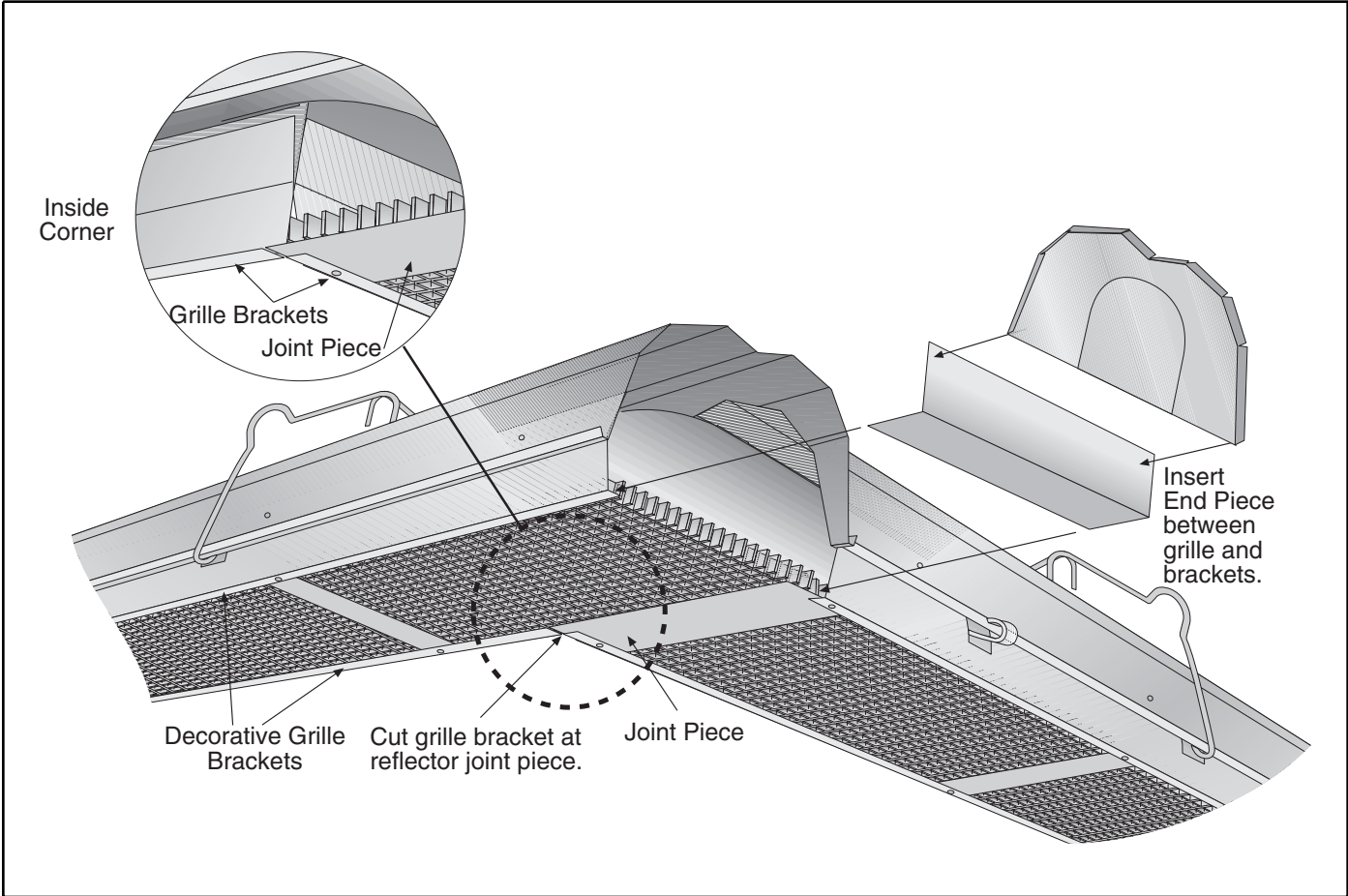
Joint Piece and Reinforcement



End Piece and Reflector End Cap

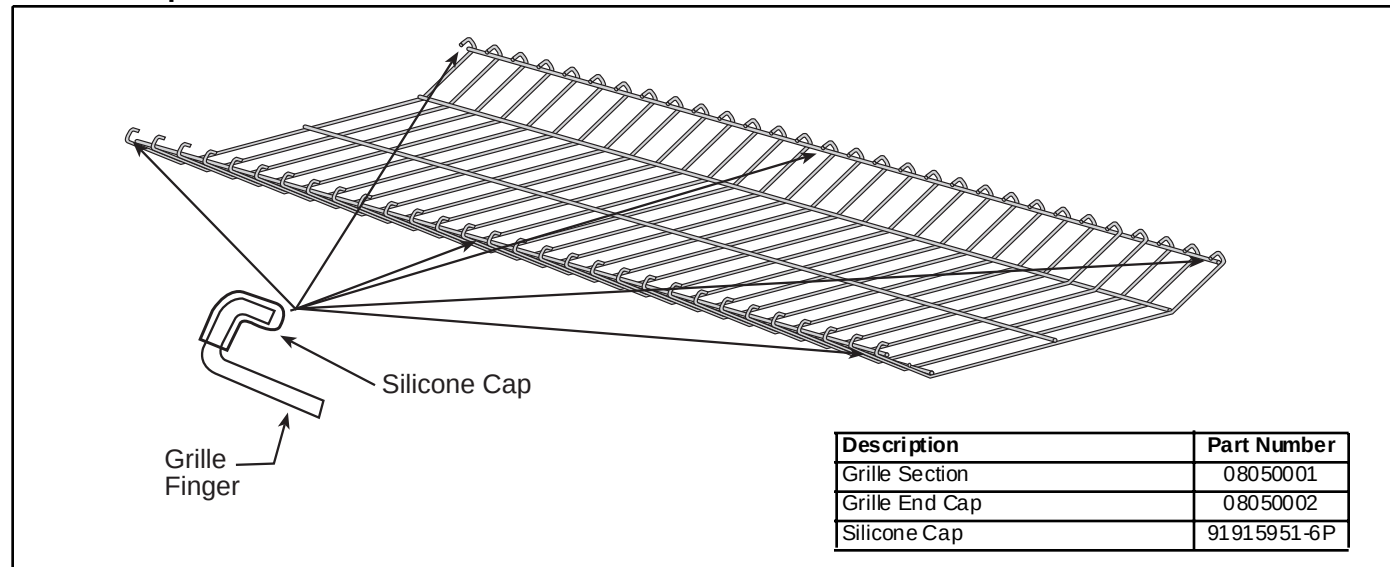


90° Elbow

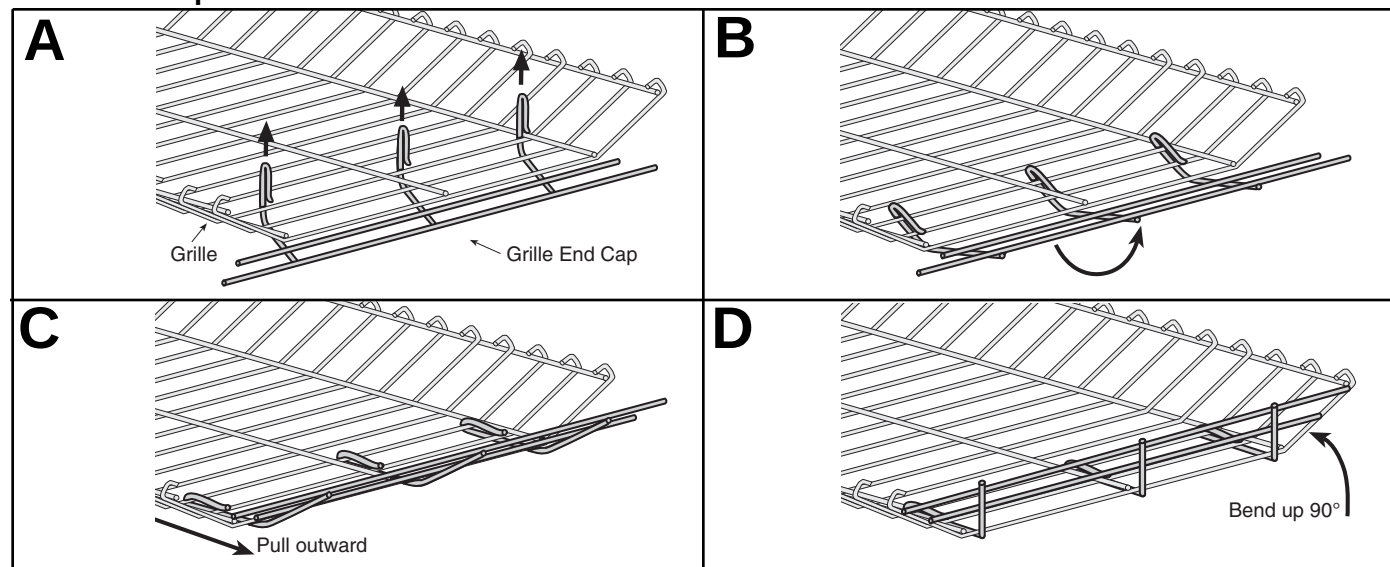


PROTECTIVE GRILLE INSTALLATION

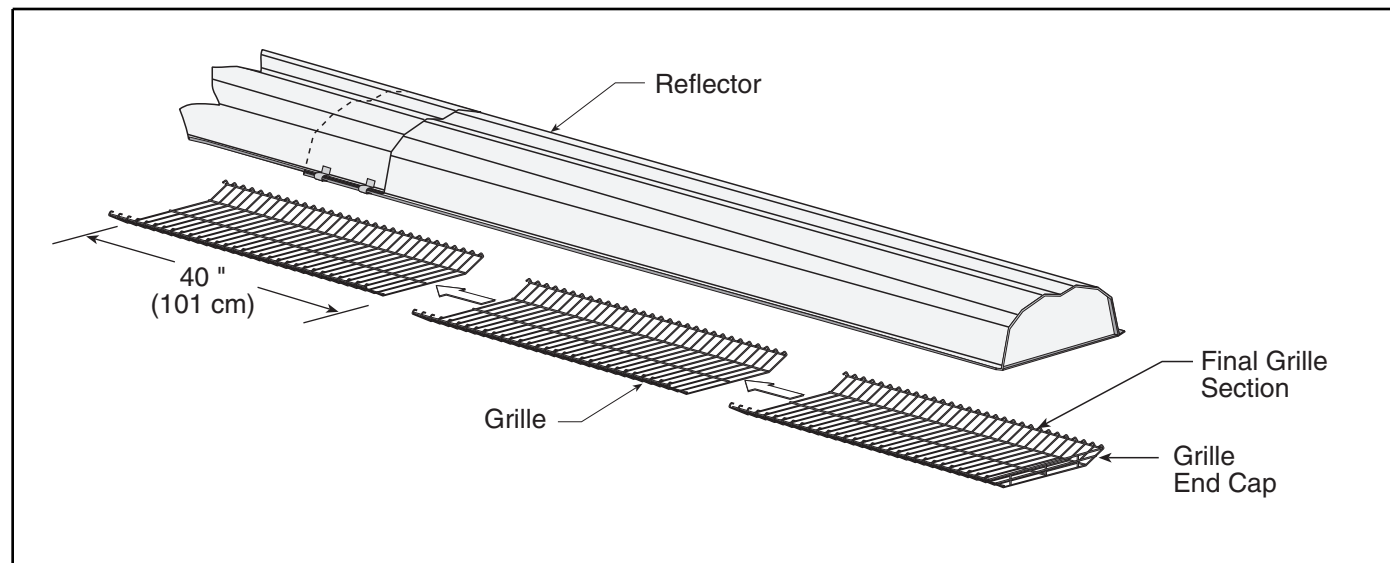
Silicone Cap Installation

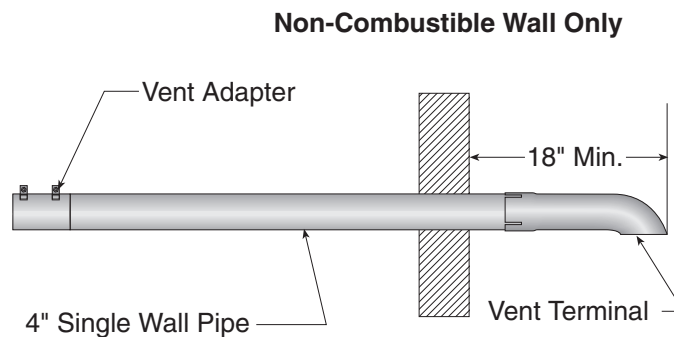
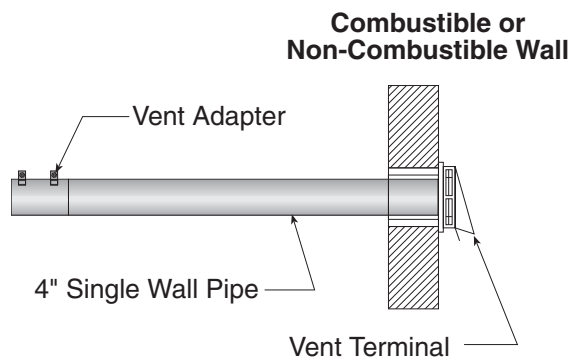


Grille End Cap Installation

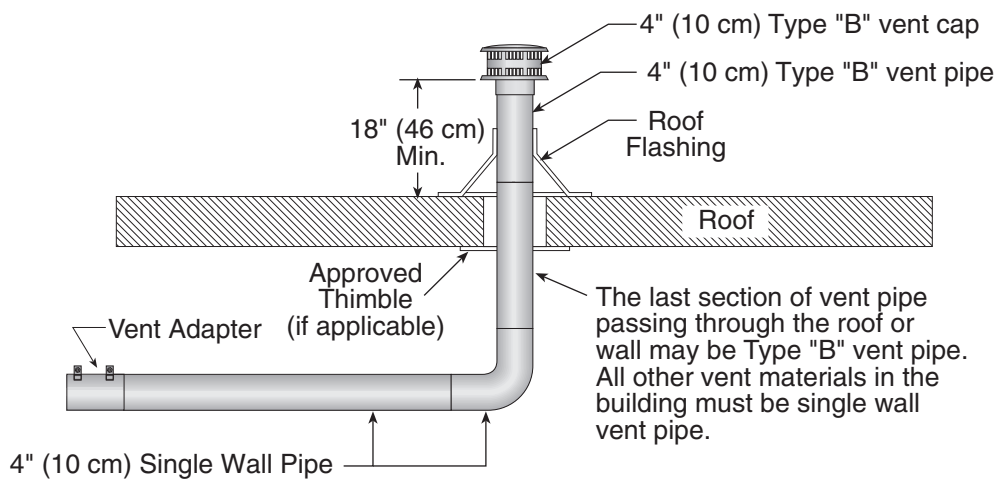


Grille Installation



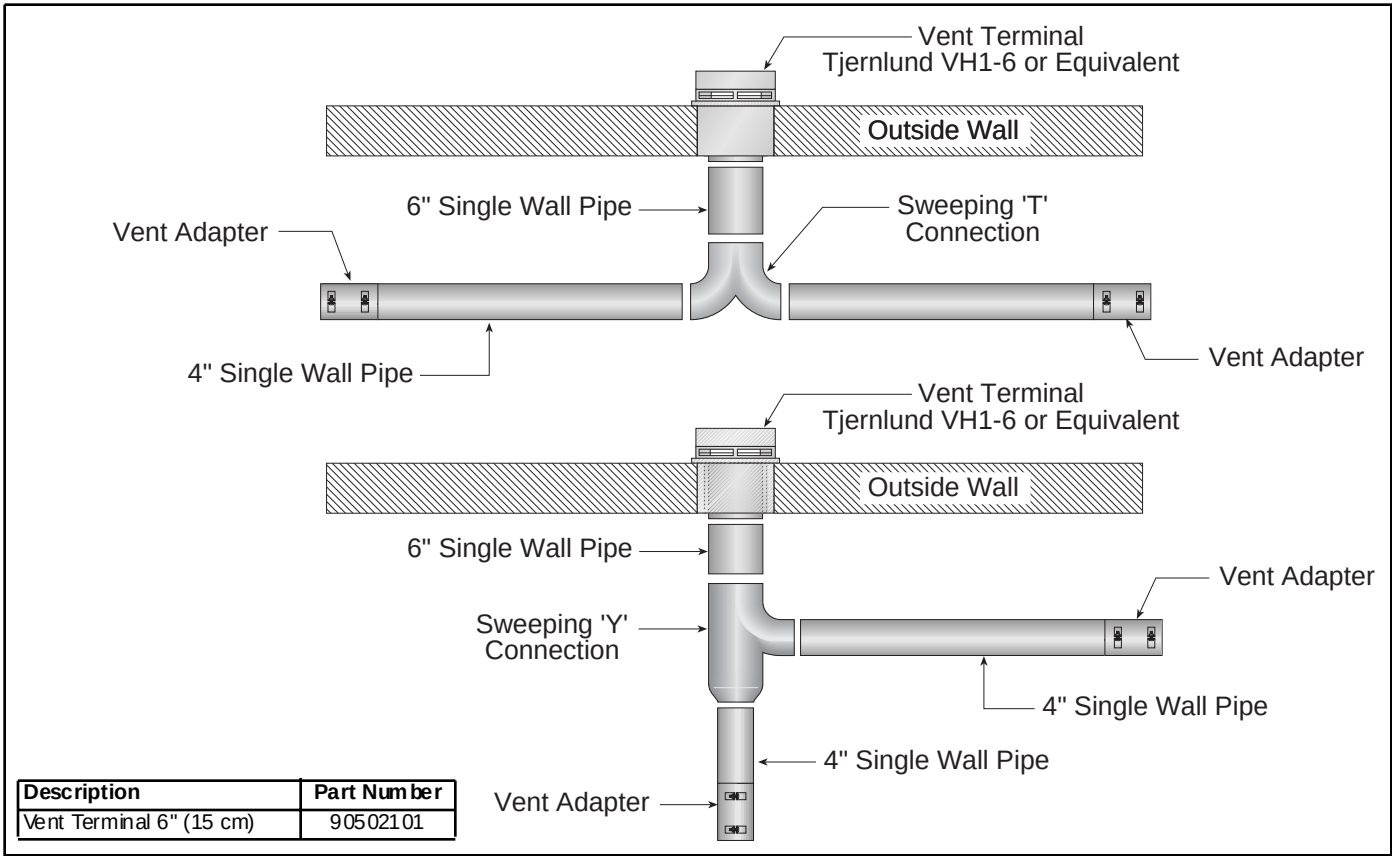
VENTING**Horizontal Ventilation 4" (10 cm) Pipe**

Description	Part Number
Vent Terminal (Comb. Wall)	90502100
Vent Terminal (Non-Comb Wall)	02537801-XX
Wall Thimble	90505600

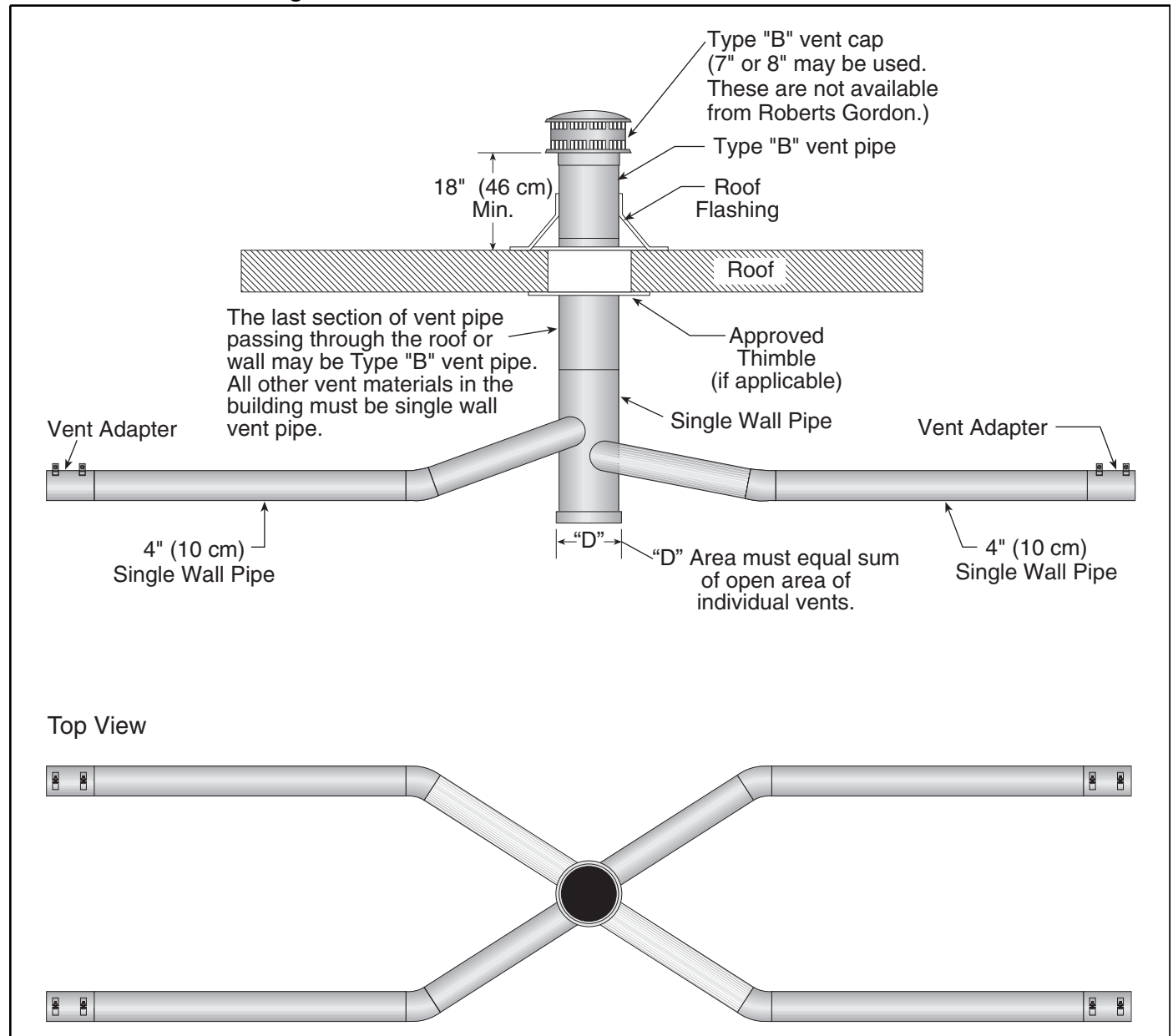
Vertical Ventilation 4" (10 cm) Pipe

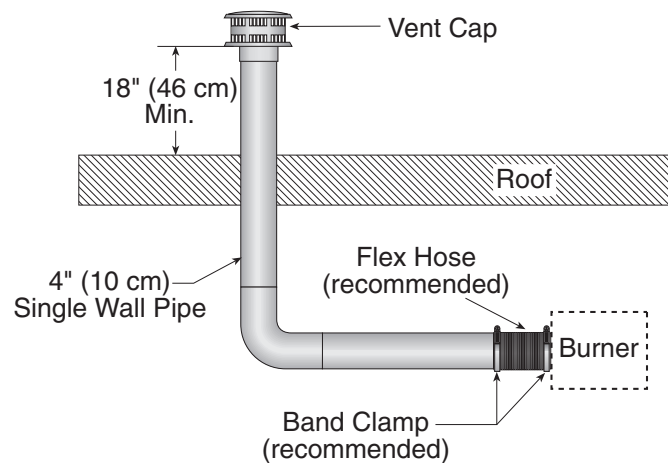
Description	Part Number
Vent Cap 4" (10 cm)	90502300

Common Sidewall Venting

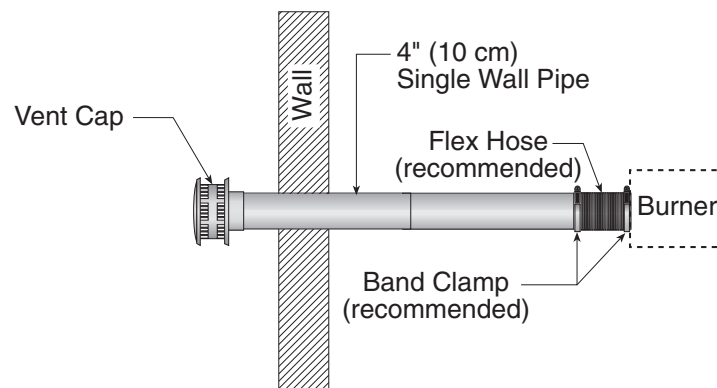


Common Vertical Venting



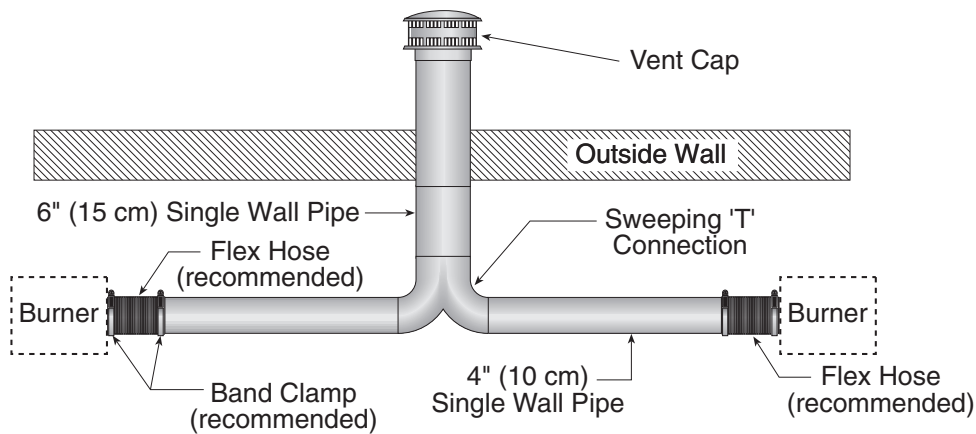
OUTSIDE COMBUSTION AIR SUPPLY**Vertical Outside Air Supply for Single Heater Installation**

Description	Part Number
Vent Cap 4" (10 cm)	90502300

Horizontal Outside Air Supply for Single Heater Installation

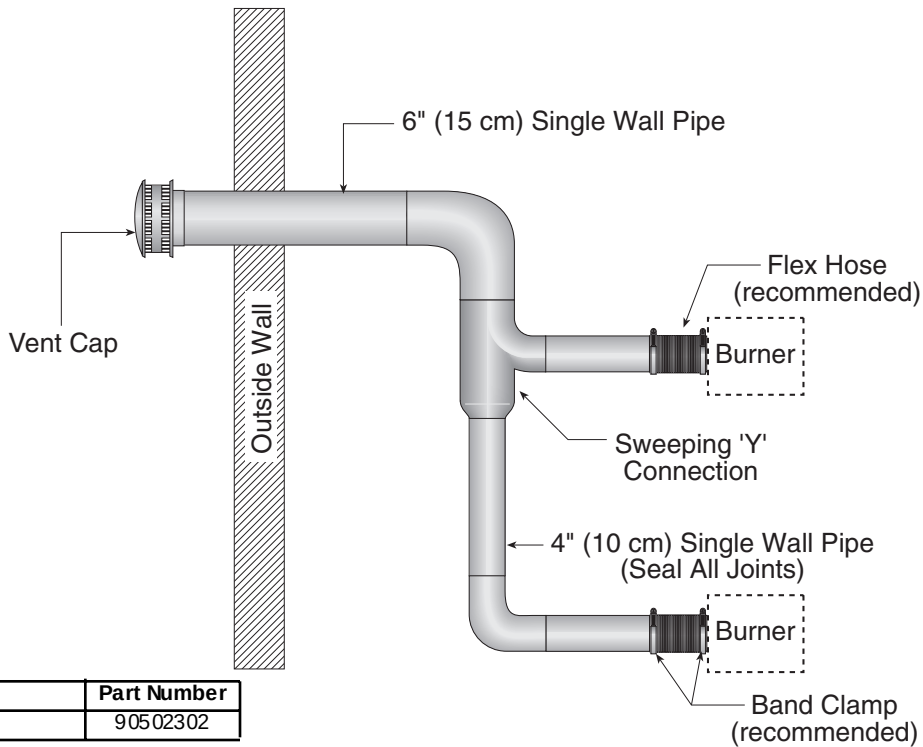
Description	Part Number
Vent Cap 4" (10 cm)	90502300

Vertical Outside Air Supply for Double Heater Installation



Description	Part Number
Vent Cap 6" (15 cm)	90502302

Horizontal Outside Air Supply for Double Heater Installation



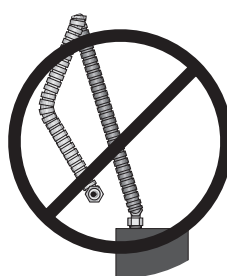
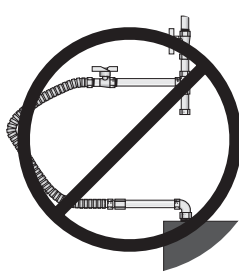
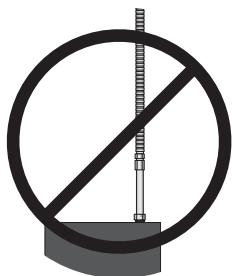
Description	Part Number
Vent Cap 6" (15 cm)	90502302

GAS PIPING

⚠ WARNING

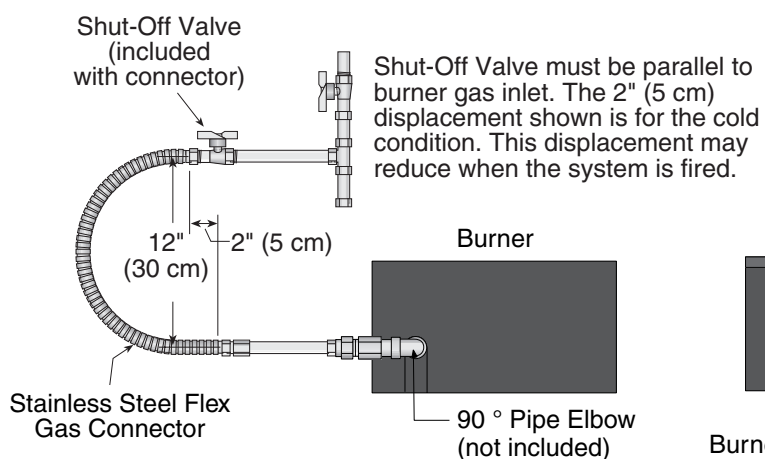
Fire Hazard Tighten gas line fittings to connect gas supply as shown below. Flex gas line can crack when twisted. Gas line moves during normal operation. Failure to follow these instructions can result in death, injury or property damage.

Gas Connection with Stainless Steel Flex Connector

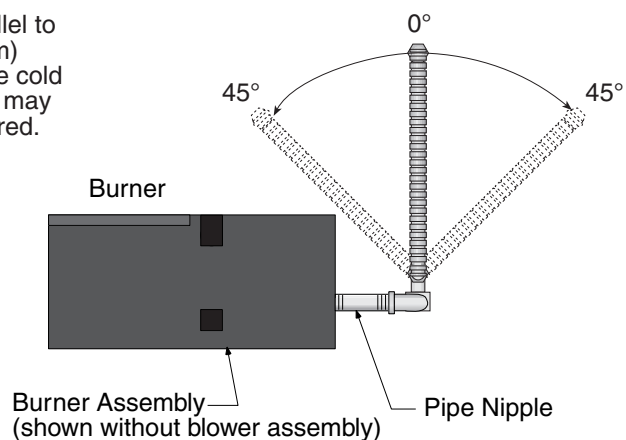


Hold gas nipple securely with pipe wrench when attaching the flex gas connector.

Failure to follow these instructions can result in product damage.



Shut-Off Valve must be parallel to burner gas inlet. The 2" (5 cm) displacement shown is for the cold condition. This displacement may reduce when the system is fired.



Description	Part Number
1/2" Flex Gas Line	91412200
3/4" Flex Gas Line	91412203

WIRING

⚠ WARNING



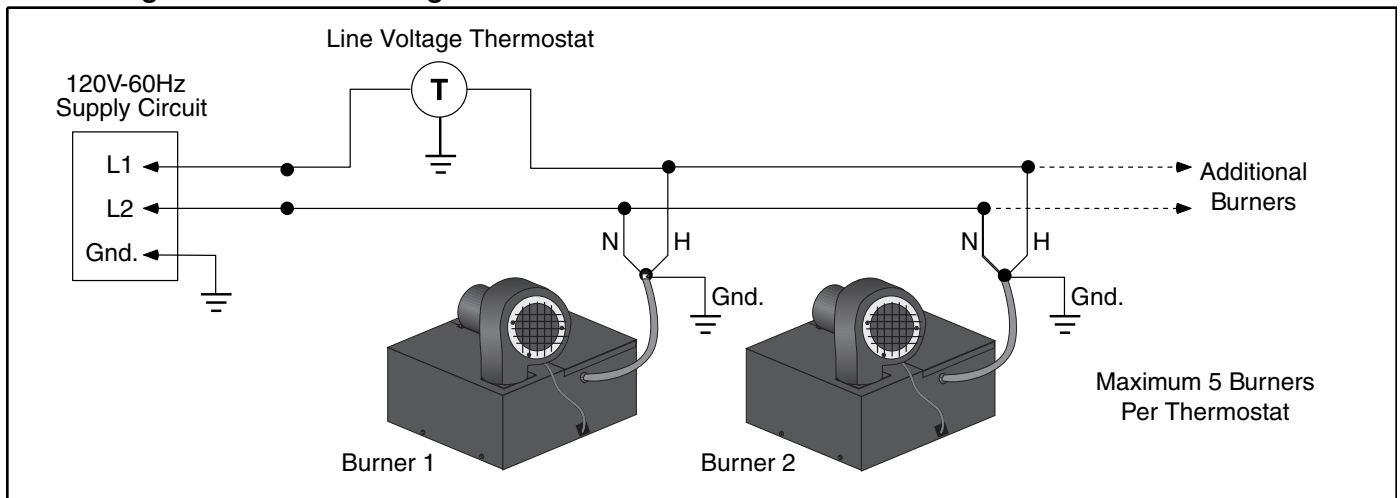
Electrical Shock Hazard

Disconnect electrical power and gas supply before servicing.

This appliance must be connected to a properly grounded electrical source.

Failure to follow these instructions can result in death or electrical shock.

Line Voltage Thermostat Wiring



⚠ WARNING**Electrical Shock Hazard**

Disconnect electrical power and gas supply before servicing.

This appliance must be connected to a properly grounded electrical source.

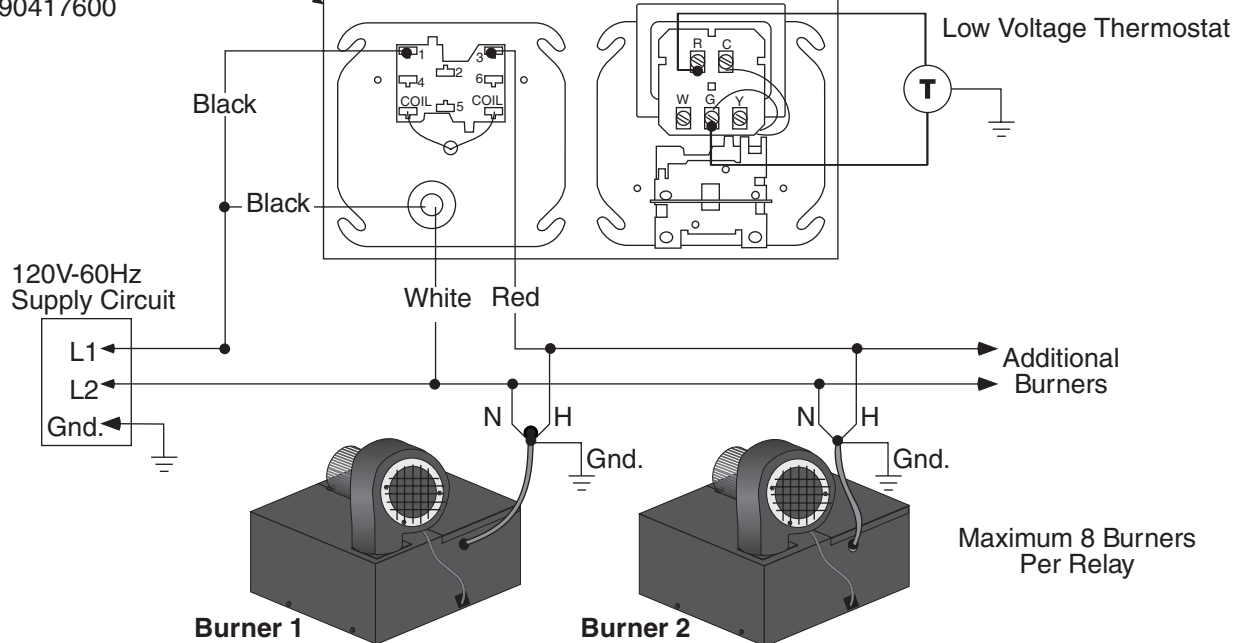
Failure to follow these instructions can result in death or electrical shock.

Low Voltage Thermostat Wiring

SPDT Transformer Relay
P/N 90417600

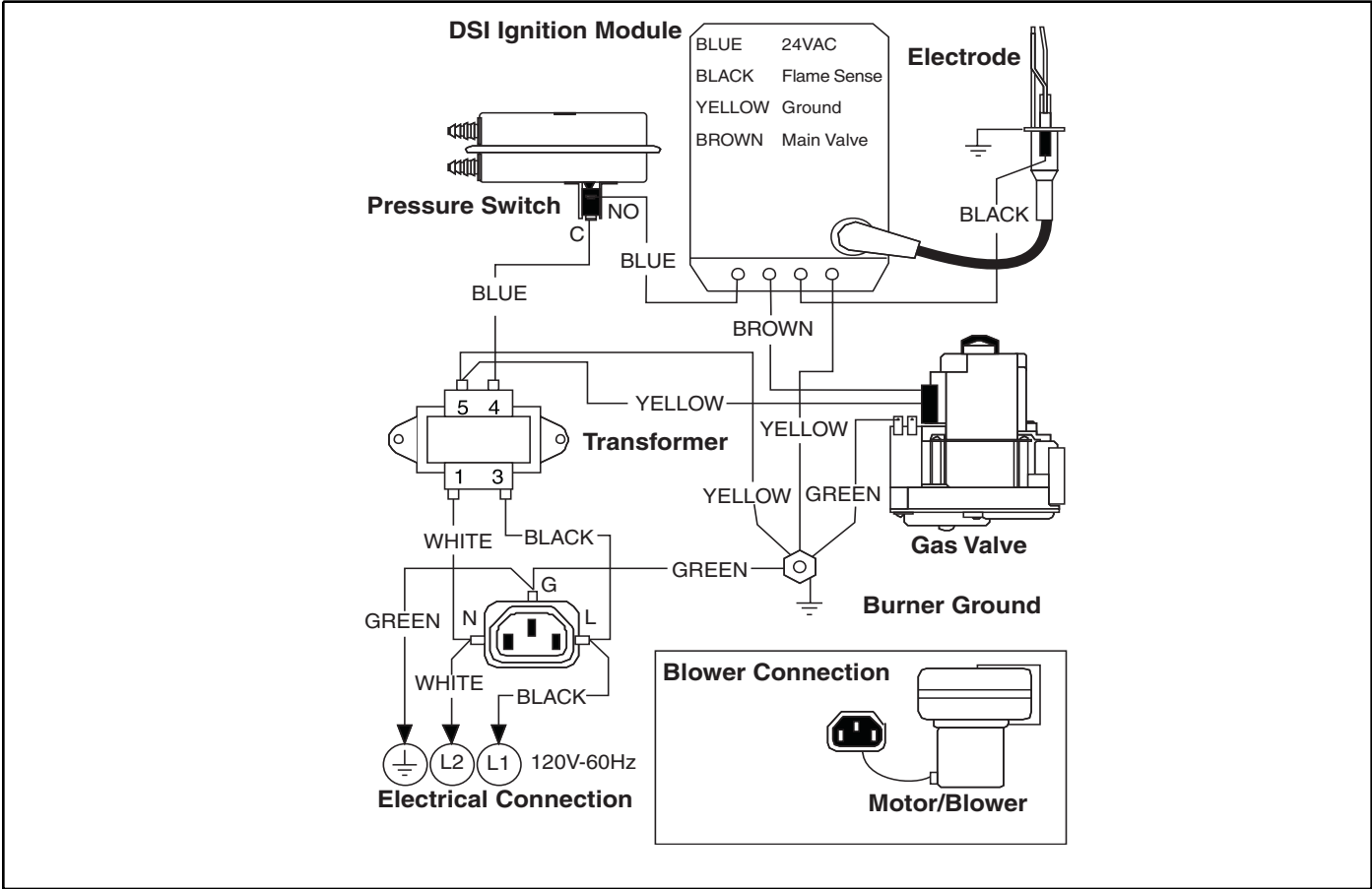
FRONT VIEW

BACK VIEW

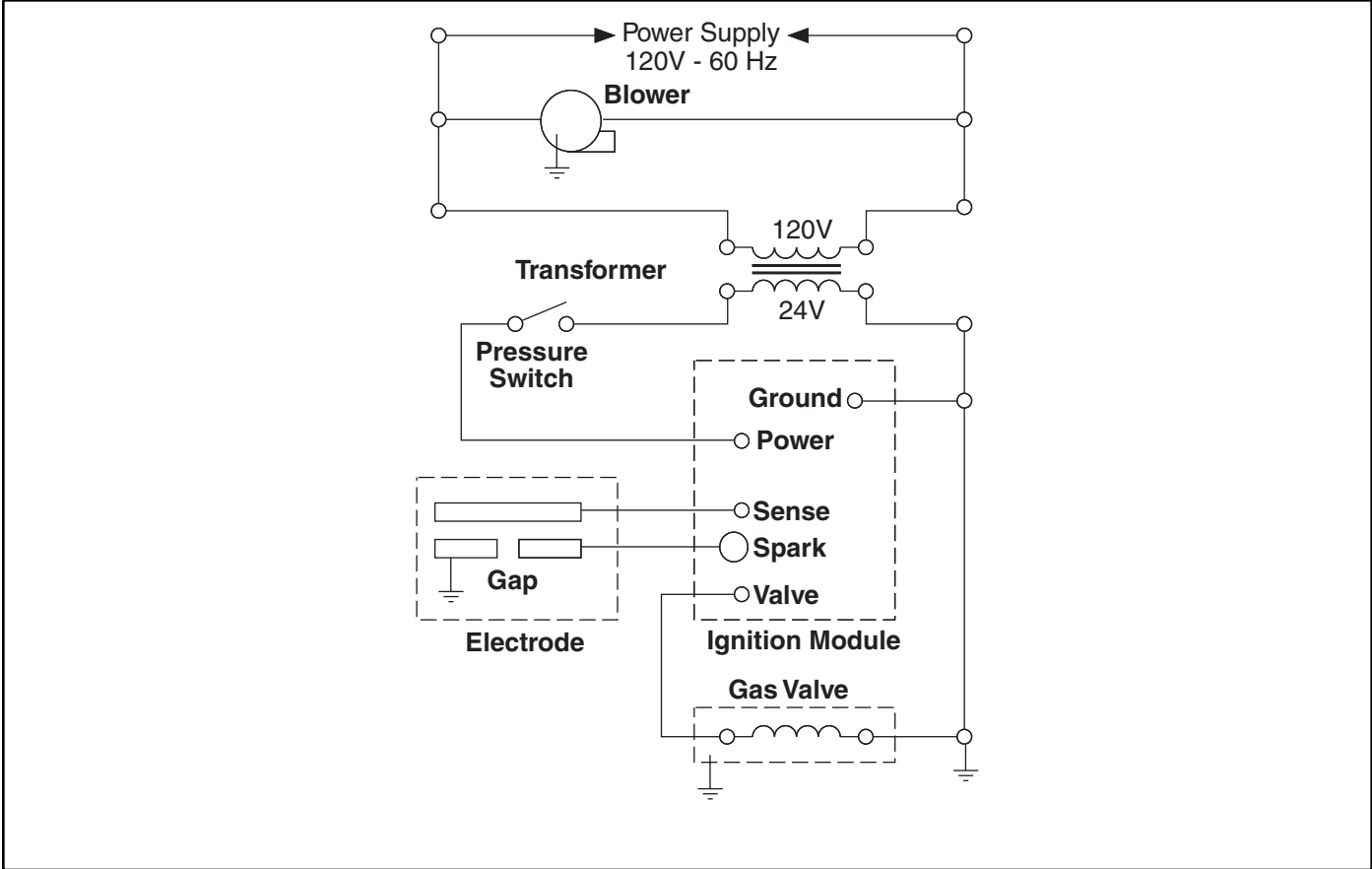


Description	Part Number
SPDT Transformer Relay	90417600
Low Voltage Thermostat	90425100

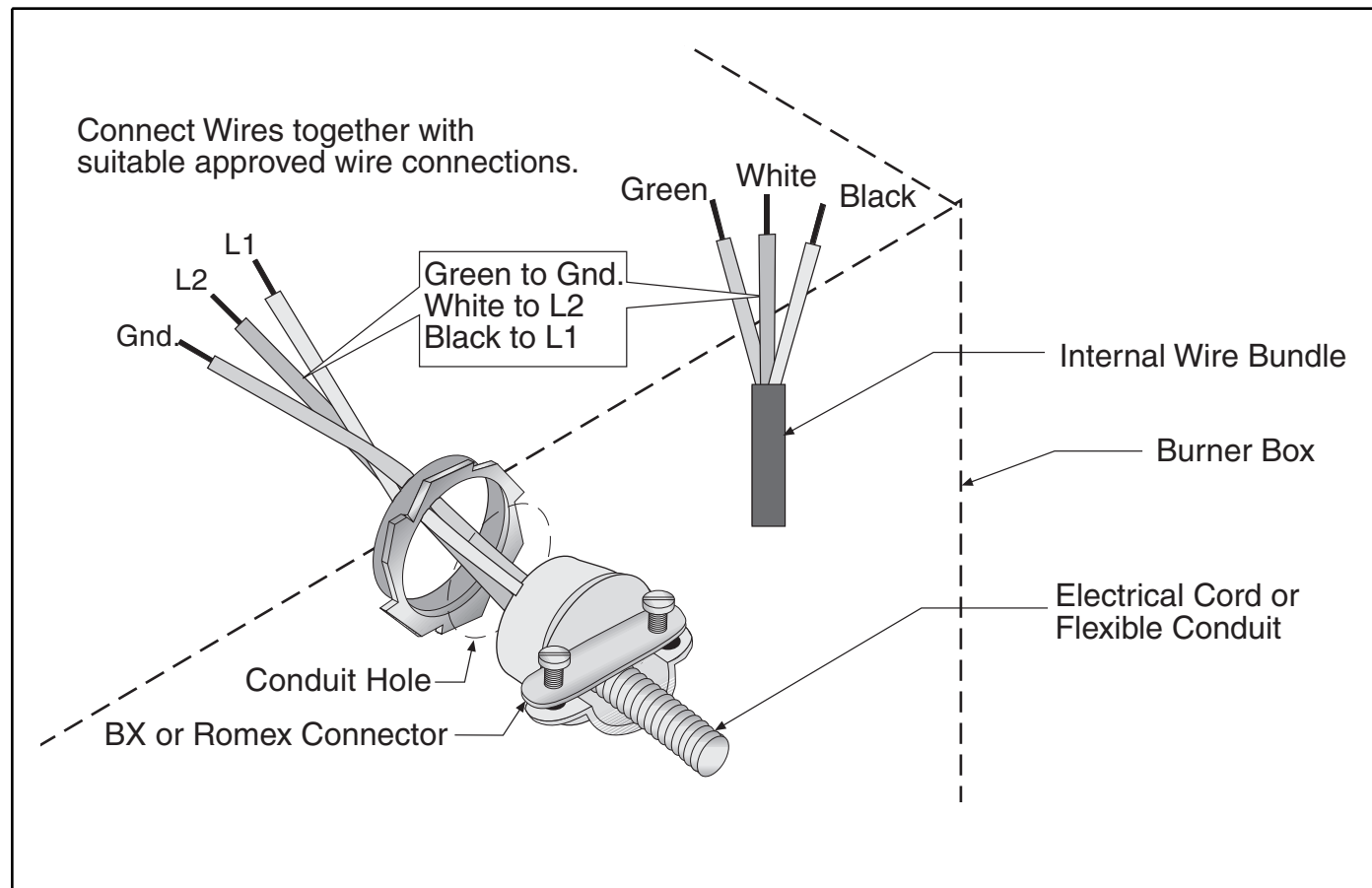
BH-Series Internal Wiring



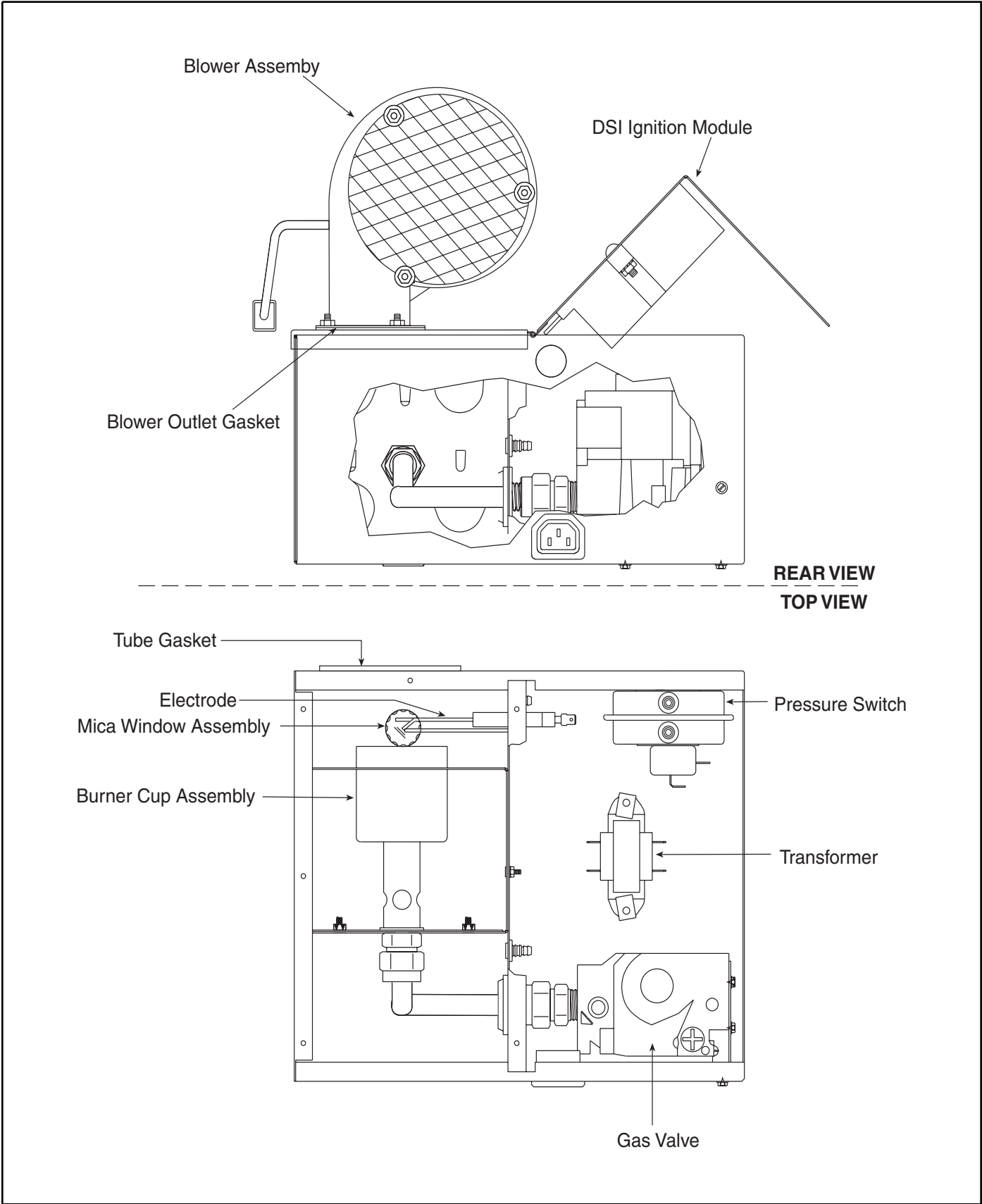
BH-Series Ladder Diagram



Electrical Connection to the Burner



INTERNAL BURNER DIAGRAM



THE ROBERTS GORDON® GORDONRAY® BH LIMITED WARRANTY

ROBERTS-GORDON WILL PAY FOR:

Within 42 months from date of shipment from Roberts-Gordon, replacement parts will be provided free of charge for any part of the controller which fails due to a manufacturing or material defect.

Roberts-Gordon will require the part in question to be returned to the factory. Roberts-Gordon will, at its sole discretion, repair or replace after determining the nature of the defect and disposition of part in question.

ROBERTS GORDON® Replacement Parts are warranted for a period of 18 months from date of shipment from Roberts-Gordon or the remaining ROBERTS GORDON® GORDONRAY® BH warranty.

ROBERTS-GORDON WILL NOT PAY FOR:

Service trips, service calls and labor charges.

Shipment of replacement parts.

Claims where the total price of the goods have not been paid.

Damage due to:

- Improper installation, operation or maintenance.
- Misuse, abuse, neglect, or modification of the ROBERTS GORDON® GORDONRAY® BH in any way.
- Use of the ROBERTS GORDON® GORDONRAY® BH for other than its intended purpose.
- Incorrect gas or electrical supply, accident, fire, floods, acts of God, war, terrorism, or other casualty.
- Improper service, use of replacement parts or accessories not specified by Roberts-Gordon.
- Failure to install or maintain the ROBERTS GORDON® GORDONRAY® BH as directed in the Installation, Operation and Service manual.
- Relocation of the ROBERTS GORDON® GORDONRAY® BH after initial installation
- The use of the ROBERTS GORDON® GORDONRAY® BH in a corrosive atmosphere containing contaminants.
- The use of the ROBERTS GORDON® GORDONRAY® BH in the vicinity of a combustible or explosive material.
- Any defect in the ROBERTS GORDON® GORDONRAY® BH arising from a drawing, design, or specification supplied by or on behalf of the consumer.
- Damage incurred during shipment. Claim must be filed with carrier.

WARRANTY IS VOID IF:

The ROBERTS GORDON® GORDONRAY® BH is not installed by an contractor qualified in the installation and service of gas-fired heating equipment.

You cannot prove original purchase date and required annual maintenance history.

The data plate and/or serial number are removed, defaced, modified or altered in any way.

The ownership of the ROBERTS GORDON® GORDONRAY® BH is moved or transferred. This warranty is nontransferable.

Roberts-Gordon is not permitted to inspect the damaged controller and/or component parts.

READ YOUR INSTALLATION, OPERATION AND SERVICE MANUAL

If you have questions about your controller, contact your installing professional. Should you need Replacement Parts or have additional questions, call or write Roberts-Gordon:

U.S.A.

1250 William Street
P.O. Box 44
Buffalo, New York 14240-0044
716.852.4400

Canada

76 Main Street West, Unit 10
Grimsby, Ontario L3M 1R6
905.945.5403

On the web at: www.rg-inc.com

Roberts-Gordon's liability, and your exclusive remedy, under this warranty or any implied warranty (including the implied warranties of merchantability and fitness for a particular purpose) is limited to providing replacement parts during the term of this warranty.

Some jurisdictions do not allow limitations on how long an implied warranty lasts, so this limitation may not apply to you. There are no rights, warranties or conditions, expressed or implied, statutory or otherwise, other than those contained in this warranty.

Roberts-Gordon shall in no event be responsible for incidental or consequential damages or incur liability for damages in excess of the amount paid by you for the ROBERTS GORDON® GORDONRAY® BH. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from jurisdiction to jurisdiction.

Roberts-Gordon shall not be responsible for failure to perform under the terms of this warranty if caused by circumstances out of its control, including but not limited to war, fire, flood, strike, government or court orders, acts of God, terrorism, unavailability of supplies, parts or power. No person is authorized to assume for Roberts-Gordon any other warranty, obligation or liability.

LIMITATIONS ON AUTHORITY OF REPRESENTATIVES:

No representative of Roberts-Gordon, other than an Executive Officer, has authority to change or extend these provisions. Changes or extensions shall be binding only if confirmed in writing by Roberts-Gordon's duly authorized Executive Officer.