



INSTALLATION INSTRUCTIONS

accessories and kits for high intensity infrared
model MHR

ACCESSORY PARABOLIC REFLECTOR EXTENSION



TABLE OF CONTENTS

Natural to LP Gas Conversion Kits.....	2-3
High Altitude Conversion Kits.....	2-3
Two Stage Microprocessor Room Thermostat.....	4-5
Stainless Steel Gas Connector with Shut Off Valve..	6
Chain Mounting Kit.....	7
Heat Shield – MHR30 through 60.....	8-9
Heat Shield – MHR70 through 100.....	10-11
Wire Re-Radiating Grid.....	12
Protective Screen.....	13
Parabolic Reflector Extension.....	14-15



WARNING

Gas supply shall be shut-off and the electrical power disconnected before proceeding with the conversion. Failure to do so could result in fire, explosion, electrical shock, or the unit starting suddenly resulting in injury.

IMPORTANT

1. The use of this manual is specifically intended for a qualified installation and service agency. All installation and service of these kits must be performed by a qualified installation and service agency.
2. These instructions must also be used in conjunction with the Installation and Service manual originally shipped with the appliance being converted, in addition to any other accompanying component supplier literature.

MODEL MHR HIGH INTENSITY INFRARED ACCESSORIES & KITS

Natural to Propane Gas Conversion Kits

Model MHR units with direct spark ignition (Control Codes 47, 48, 97, 98, 38, and 88) can be converted from Natural Gas operation to Propane (LP) Gas operation with a field installed kit. Table 2.1 indicates the combinations available. Each kit comes with:

- A Conversion Checklist to instruct the installer how to make the conversion (see following page)
- A Serial Plate sticker to identify that the unit has been converted
- An appropriately sized orifice(s)
- An orifice wrench

Note that a regulator spring kit is not required; the valve can be adjusted to 10" W.C. manifold pressure as supplied.

Table 2.1 – Natural to LP Gas Field Conversion Kits

Gas Control Type:	Single Stage				Two Stage		
Convert from Natural Rating:	30 or 60	100	120 or 160	120 or 160	100/50	150/100	200/100
To Propane Rating:	50	90	120	160	90/45	120/80	160/80
Kit Item Code	54287	54288	54289	54290	54288	54289	54291
Kit Description	50L	90L	120L	160L	90L	120L	160L/80L
Orifice Size	1.8mm	1.8mm	#50	1.8mm	1.8mm	#50	1.8mm
Orifice Qty Used	1	2	3	3	2	3	4

Example: To convert an MHR 60 S 47 to be suitable for use on propane gas, Kit Item Code 54287 from Table 2.1 is used to convert the size 60 to a size 50 for use with propane.

High Altitude Conversion Kits

Model MHR units with direct spark ignition (Control Codes 47, 48, 97, 98, 38, and 88) can be converted for use at elevations up to 7000 feet above sea level with a field installed kit. Table 2.2 indicates the combinations available. Each kit comes with:

- A Conversion Checklist to instruct the installer how to make the conversion (see following page)
- A Serial Plate sticker to identify that the unit has been converted
- An appropriately sized orifice(s)
- An orifice wrench

Table 2.2 - High Altitude Field Conversion Kits ①②

Elevation Above Sea Level (feet)		Natural	Propane					
		All MBH	50	90	120	160 (single stage)	160/80	
4001-5000	Kit Item Code	No Kit Required	No Kit Required			54293	54292	54293
	Kit Description					H51	H50	H51
	Orifice Size					#51	#50	#51
	Orifice Qty Used					3	3	4
5001-6000	Kit Item Code	No Kit Required	54292	54292	54294	54293	54294	
	Kit Description		H50	H50	H52	H51	H52	
	Orifice Size		#50	#50	#52	#51	#52	
	Orifice Qty Used		1	2	3	3	4	
6001-7000	Kit Item Code	No Kit Required	54293	54293	54295	54294	54295	
	Kit Description		H51	H51	H1/16	H52	H1/16	
	Orifice Size		#51	#51	1/16"	#52	1/16"	
	Orifice Qty Used		12	2	3	3	4	

① No kit required for elevations up to 4000 feet above sea level.

② If converting from natural to propane AND high altitude at the same time, only the high altitude kit for propane from Table 2.2 is required.

Example: To convert a 100MBH natural gas unit for propane operation at 6000 feet, select Item Code 54292 from Table 2.2 for a 90MBH propane unit at 6000 feet.

MODEL MHR HIGH INTENSITY INFRARED ACCESSORIES & KITS

Form No.HALP-120/24-CONVLIST

High Altitude LP/Propane CONVERSION CHECK LIST

120 VOLT OR 24 VOLT DIRECT SPARK SYSTEMS
HIGH INTENSITY (CERAMIC SURFACE) INFRARED HEATER

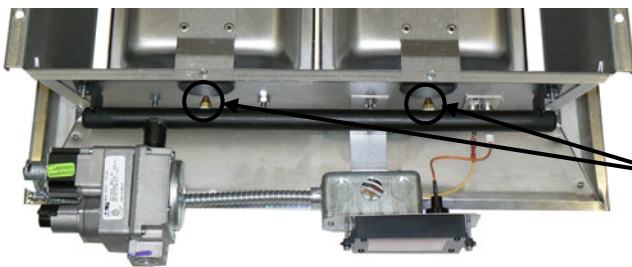
Read This First: When repairing or converting a high intensity infrared heater, any substitution used in place of factory approved parts or components will void CSA International (A.G.A. / CGA) certification and all warranties. Failure to comply with this procedure could result in unsafe operation, personal injury, property damage, and/or death.

The installing contractor, or person, must be familiar with all the various installation requirements and is personally liable and responsible for this conversion and the unit's compliance with all applicable codes.

To maintain CSA International (A.G.A. / CGA) certification and the warranty, the attached Heater Certification Form must be signed and dated by the individual who performed the conversion. It must be returned, immediately, to the Customer Service Department before the units are placed back into operation.

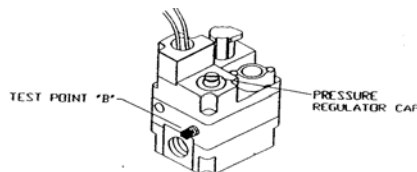
Before Attempting Any Conversion: **1)** Check that you have all the necessary factory approved components, and **2)** as a safety precaution, shut off and securely lock out the gas and electrical supplies.

- Turn Off Electrical and Gas Supply.



30,000 TO 60,000 BTUH has 1 orifice
70,000 TO 100,000 BTUH has 2 orifices
110,000 TO 150,000 BTUH has 3 orifices
160,000 TO 200,000 BTUH has 4 orifices

- Remove existing gas orifice(s) from the gas manifold assembly.
- Clean the manifold pipe threads of any remaining Teflon tape.
- Install replacement gas orifice(s).
- Locate existing serial plate and attach new serial plate sticker below it.
- CHECK:** Propane gas line pressure at the heater **MUST** be between 11.0" W.C. and 14.0" W.C. Connect gas and electric supplies, and turn the heater "ON".
- Remove plug at Test Point "B" and install a WATER or RED OIL MANOMETER (not a dial gauge).
- ALL** other LP/Propane burning equipment in the building must be operating at maximum capacity. Remove gas pressure regulator cap from the gas valve. Adjust the gas pressure regulator to 10.0"W. C. Replace the regulator cap. Turn the unit "OFF". Remove MANOMETER and reinstall plug at Test Point "B".
- After conversion is completed, perform a leak test with a soap and water solution on all gas connections. Proceed with operating instructions in the installation manual.



MODEL MHR HIGH INTENSITY INFRARED ACCESSORIES & KITS

INFRA-RED HEATER 2-STAGE MICROPROCESSOR THERMOSTAT

(PART NUMBER: 0002-42-156)

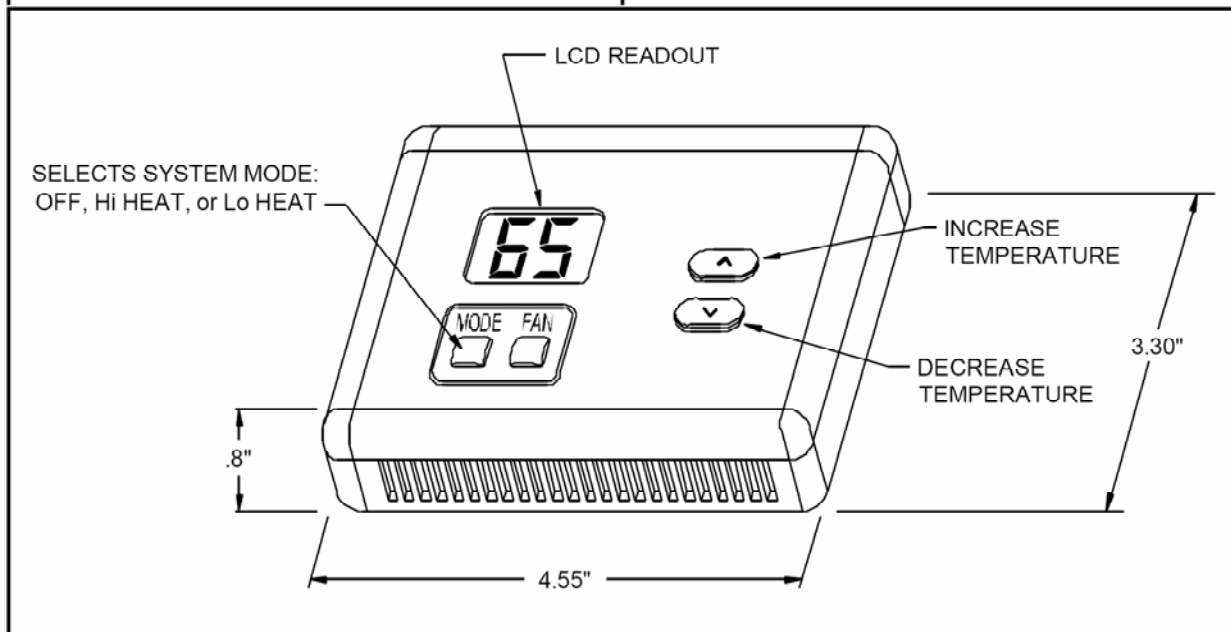
This specially customized 2-stage microprocessor thermostat is a sophisticated wall mounted, low-voltage thermostat control ideally suited for controlling the operation of a 2-stage gas-fired high-intensity infra-red heater(s). Batteries are not required; temperature and mode settings are preserved with the power off.

SPECIAL FEATURES

- Microprocessor-based technology
- 24 volt operation will permit most wiring to be completed without using conduit (consult local codes)
- Single setpoint operation
- Push-button operation for selecting temperature setpoints and operating modes
- Wiring to wall mounted base plate
- Adjustable anticipator settings
- Digital display of temperature in °F or °C
- Offset adjustment for room temperature
- Mercury-free construction
- Battery-free operation (non-volatile memory)
- Multi-stage operation
- Accurate thermistor-based temperature sensing

SPECIFICATIONS

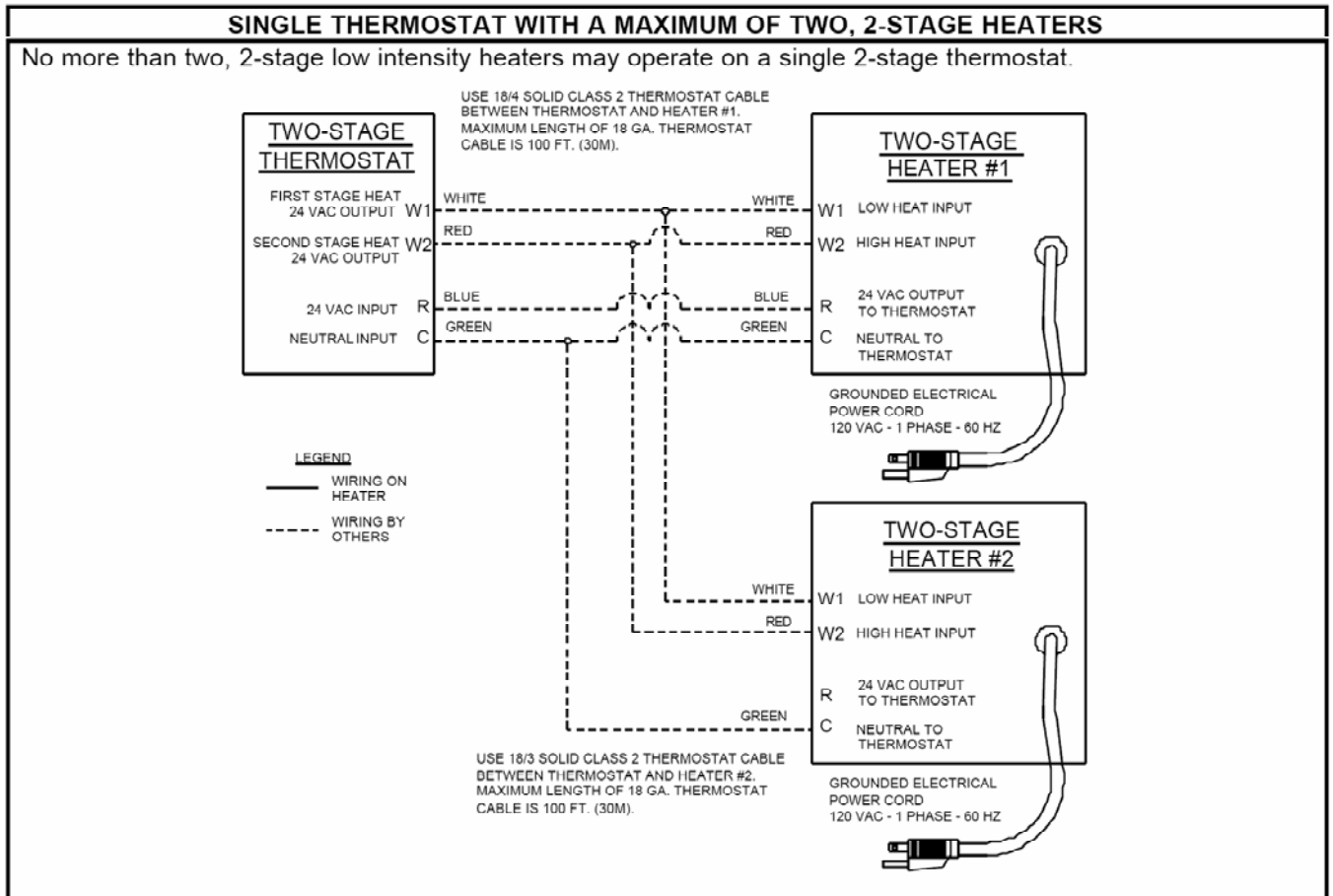
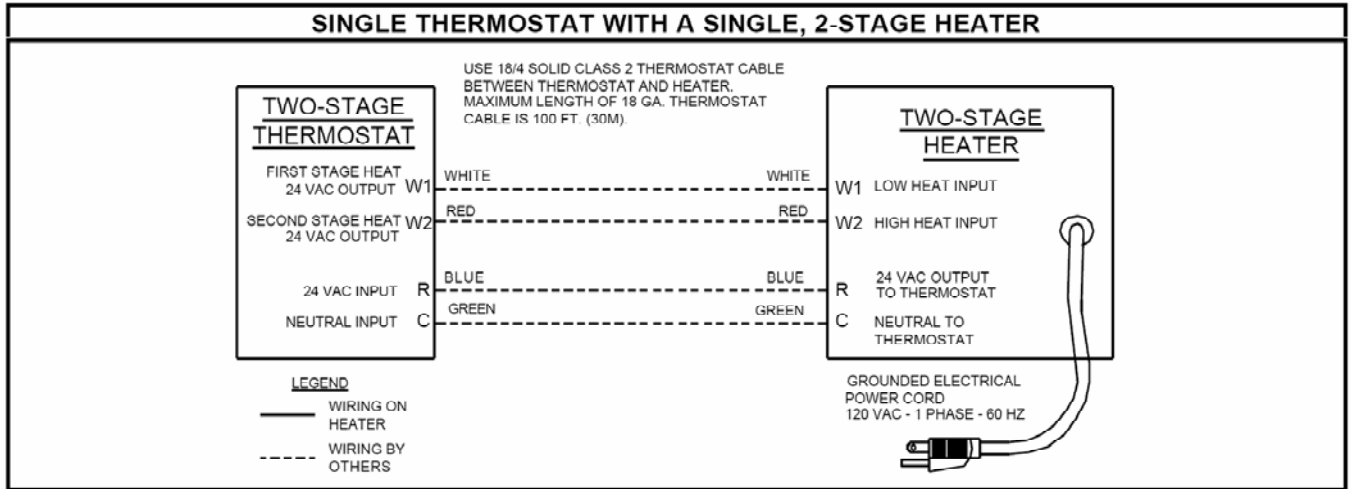
- 24 volt nominal (18 to 30 VAC) @ 50/60Hz.
- #18 AWG wire screw terminals
- Temperature sensing $\pm 2.0^{\circ}\text{F}$
- 'W' and 'W2' output-max. load: 1.0 amps @ 24 VAC
- Two digit LCD display with 5 annunciator icons legible over a $\pm 15^{\circ}$ horizontal or vertical viewing angle from a line orthogonal to the center of the LCD
- Operating temperature: 32°F to 104°F
0°C to 40°C
- 10% to 95% rel. humidity - non-condensing
- Vibration resistant from 5g sinusoidal acceleration, 10 to 150 Hz.
- Tactile-feel momentary push-button switches rated for 100,000 operations
- Non-volatile memory maintains installer setup configuration



MODEL MHR HIGH INTENSITY INFRARED ACCESSORIES & KITS

INFRA-RED HEATER 2-STAGE MICROPROCESSOR THERMOSTAT

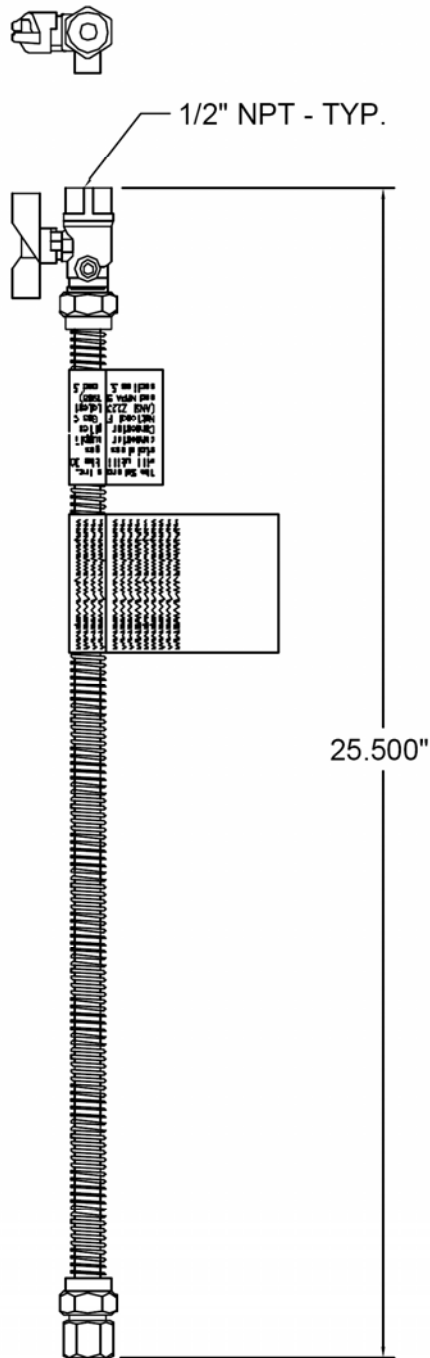
(WIRING SCHEMATICS)



STANDARD FLEX CONNECTOR

PART # 0002-10-046

DORMONT 30-3239-24 GAS CONNECTOR
FLEXIBLE TUBE MATERIAL: STAINLESS STEEL



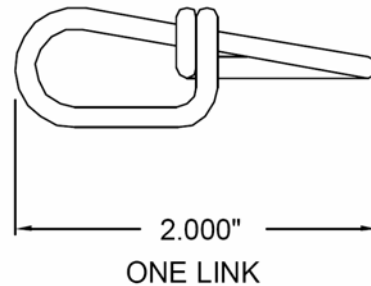
CHAIN MOUNTING KIT
(PRE-ASSEMBLED FOR 0°-30° MOUNTING)
PART # CH-30 DM

CH-30 DM INCLUDES :

- (2) 3-FOOT LENGTHS OF 1/0 DOUBLE LOOP CHAIN WITH A #5 S-HOOK FASTENED ON EACH END.
- (2) 6-LINKS OF 1/0 DOUBLE LOOP CHAIN WITH A #5 S-HOOK FASTENED ON EACH END.

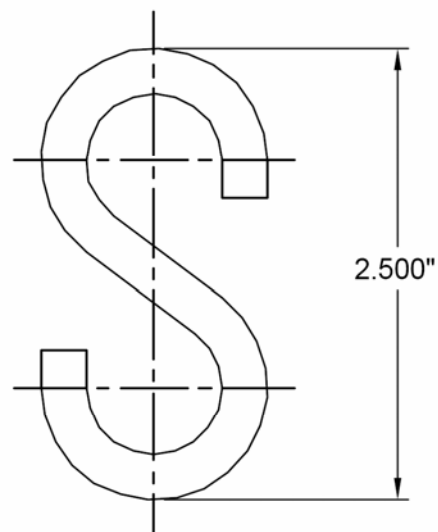
1/0 DOUBLE LOOP CHAIN (P/N: 0002-42-071)

TRADE SIZE NO.: 1/0
WIRE GAUGE: 11
MATERIAL DIA.: 0.120"
LENGTH PER 100 LINKS: 178"
WEIGHT PER 100 FT.: 12 LBS.
WORKING LOAD LIMIT: 200 LBS.

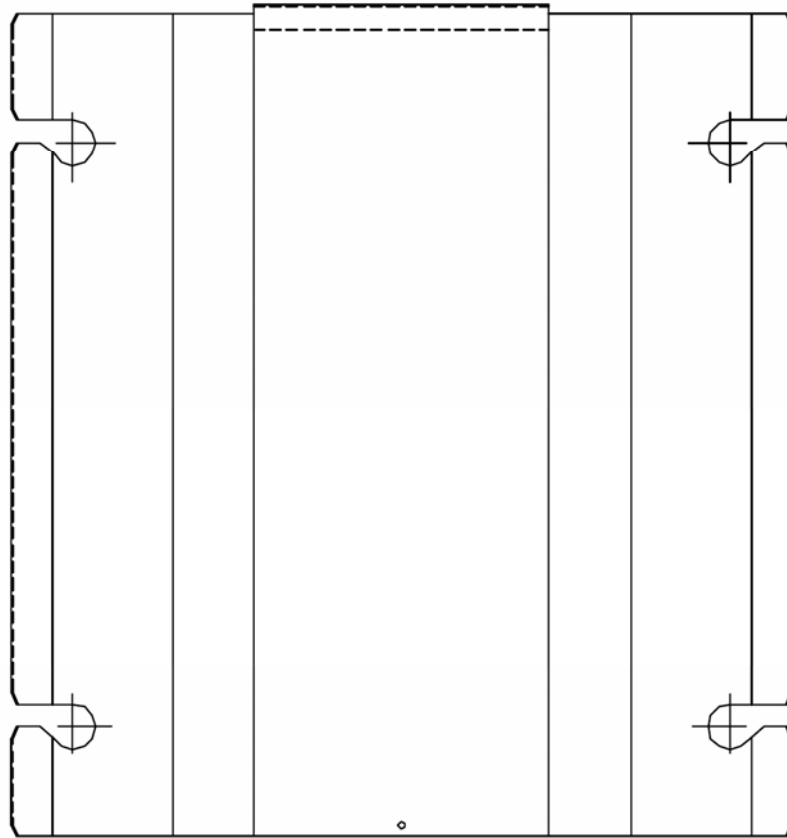


#5 S-HOOK (P/N: 132010)

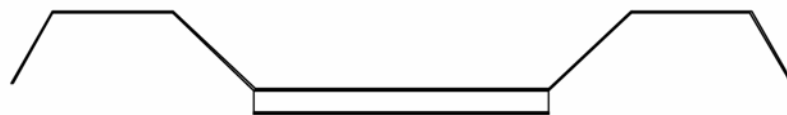
TRADE SIZE NO.: #5
MATERIAL DIA.: 0.25"
MAXIMUM LOAD: 70 LBS.



HEAT SHIELD
FOR 30 THRU 60 MBTUH MODELS
PART #: 00K1-10-505



TOP VIEW



FRONT VIEW

This item requires some field assembly.

MODEL MHR HIGH INTENSITY INFRARED ACCESSORIES & KITS

ARRANGEMENT (KILOWATTS) MBTUH	HORIZONTAL 30 - 60 (8.8 - 17.6)	VERTICAL 30 - 60 (8.8 - 17.6)
WITH HEAT DEFLECTOR CEILING 0°-30° ANGLE	34" (86cm)	34" (86cm)
BELOW HEATER STANDARD REFLECTOR	80" (203cm)	80" (203cm)
BELOW HEATER PARABOLIC REFLECTOR	110" (279cm)	110" (279cm)

CLEARANCE TO COMBUSTIBLES FOR ACCESSORIES
 When accessories are utilized with the heater, these clearances supercede.

CEILING
REAR
HEAT DEFLECTOR
IGNITOR OR PILOT IN THIS CORNER
BELOW
HORIZONTAL CONTROL ARRANGEMENT

CEILING
REAR
HEAT DEFLECTOR
BELOW
VERTICAL CONTROL ARRANGEMENT

INSTALLATION INSTRUCTIONS

1. REMOVE BURNER MOUNTING SCREW FROM HEATER.
2. PLACE HEAT DEFLECTOR ON TOP OF HEATER AND SLIDE CLIP END UNDER BURNER SUPPORT BRACKET AS SHOWN IN DETAIL 'A'.
3. LINE UP HOLE IN HEAT DEFLECTOR WITH BURNER MOUNTING HOLE AT CONTROL END OF HEATER AND FASTEN WITH BURNER MOUNTING SCREW.

WARNING

30,000 THROUGH 60,000 BTUH HEATERS USING HEAT DEFLECTOR CAN ONLY BE INSTALLED USING THE MINIMUM CLEARANCE TO COMBUSTIBLES AS INDICATED ON THE TABLE. CHECK THE MODEL NUMBER ON THE HEATER SERIAL PLATE TO DETERMINE WHICH MINIMUM CLEARANCES APPLY. FAILURE TO DO SO VOIDS CSA DESIGN CERTIFICATION AND ALL WARRANTIES.

INSTALLATION OF HEAT DEFLECTOR

TO 30,000 THROUGH 60,000 BTUH (8.8 - 17.6 KW) HEATERS ONLY

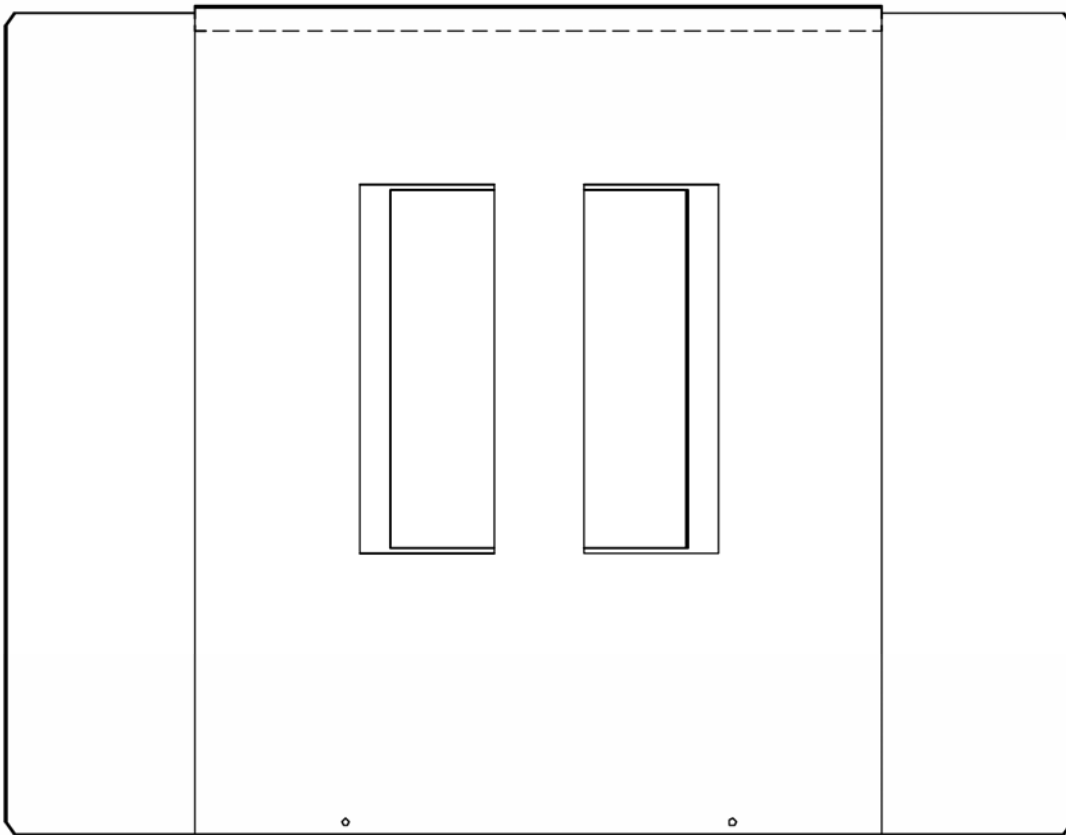
KIT# 00K1-10-505

REV. NONE DATE 2007-11-19 DRAWING A-00K1-10-507

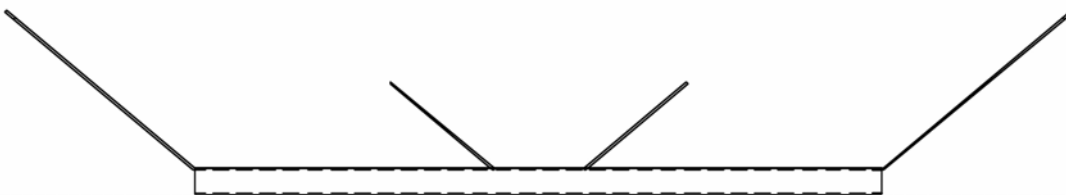
HEAT DEFLECTOR
BURNER MOUNTING SCREW
BURNER SUPPORT BRACKET
SLIDE UNDER BURNER SUPPORT BRACKET (SEE DETAIL 'A')
RIGHT SIDE VIEW

BACK VIEW

HEAT SHIELD
FOR 70 THRU 100 MBTUH MODELS
PART #: 00K2-10-005-1



TOP VIEW



FRONT VIEW

This item requires some field assembly.

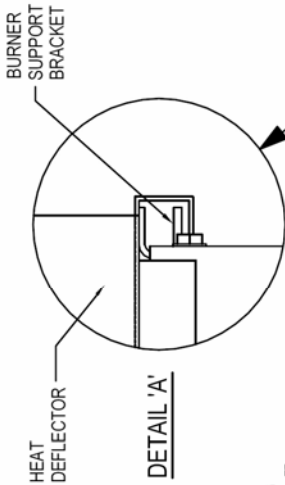
MODEL MHR HIGH INTENSITY INFRARED ACCESSORIES & KITS

INSTALLATION INSTRUCTIONS

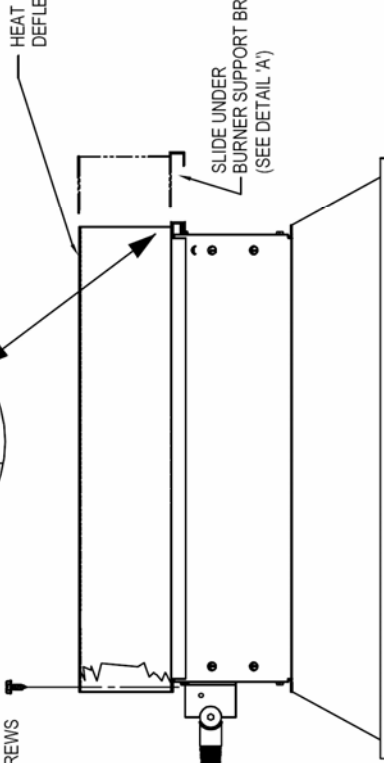
1. REMOVE THE TWO BURNER MOUNTING SCREWS FROM HEATER.
2. PLACE HEAT DEFLECTOR ON TOP OF HEATER AND SLIDE CLIP END UNDER BURNER SUPPORT BRACKETS AS SHOWN IN DETAIL 'A'.
3. LINE UP HOLE IN HEAT DEFLECTOR WITH BURNER MOUNTING HOLES AT CONTROL END OF HEATER AND FASTEN WITH BURNER MOUNTING SCREWS.

WARNING

70,000 THROUGH 100,000 BTUH HEATERS USING HEAT DEFLECTOR CAN ONLY BE INSTALLED USING THE MINIMUM CLEARANCE TO COMBUSTIBLES AS INDICATED ON THE TABLE. CHECK THE MODEL NUMBER ON THE HEATER SERIAL PLATE TO DETERMINE WHICH MINIMUM CLEARANCES APPLY. FAILURE TO DO SO VOIDS CSA DESIGN CERTIFICATION AND ALL WARRANTIES.

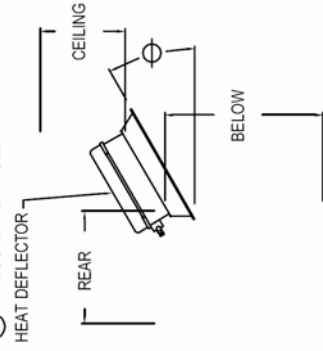


TWO BURNER MOUNTING SCREWS



RIGHT SIDE VIEW

⊙ = MOUNTING ANGLE



MINIMUM CLEARANCE TO COMBUSTIBLES FOR ACCESSORIES

When accessories are utilized with the heater, these clearances supercede.

MBTUH (KILOWATTS)	70 - 100 (20.5 - 29.3)
WITH HEAT DEFLECTOR CEILING 0°-30° ANGLE	38" (97cm)
BELOW HEATER STANDARD REFLECTOR	105" (267cm)
BELOW HEATER PARABOLIC REFLECTOR	135" (343cm)

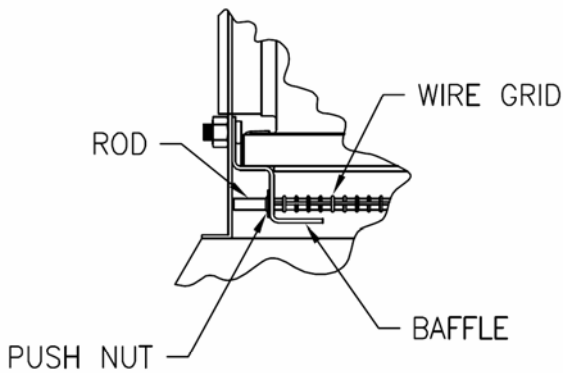
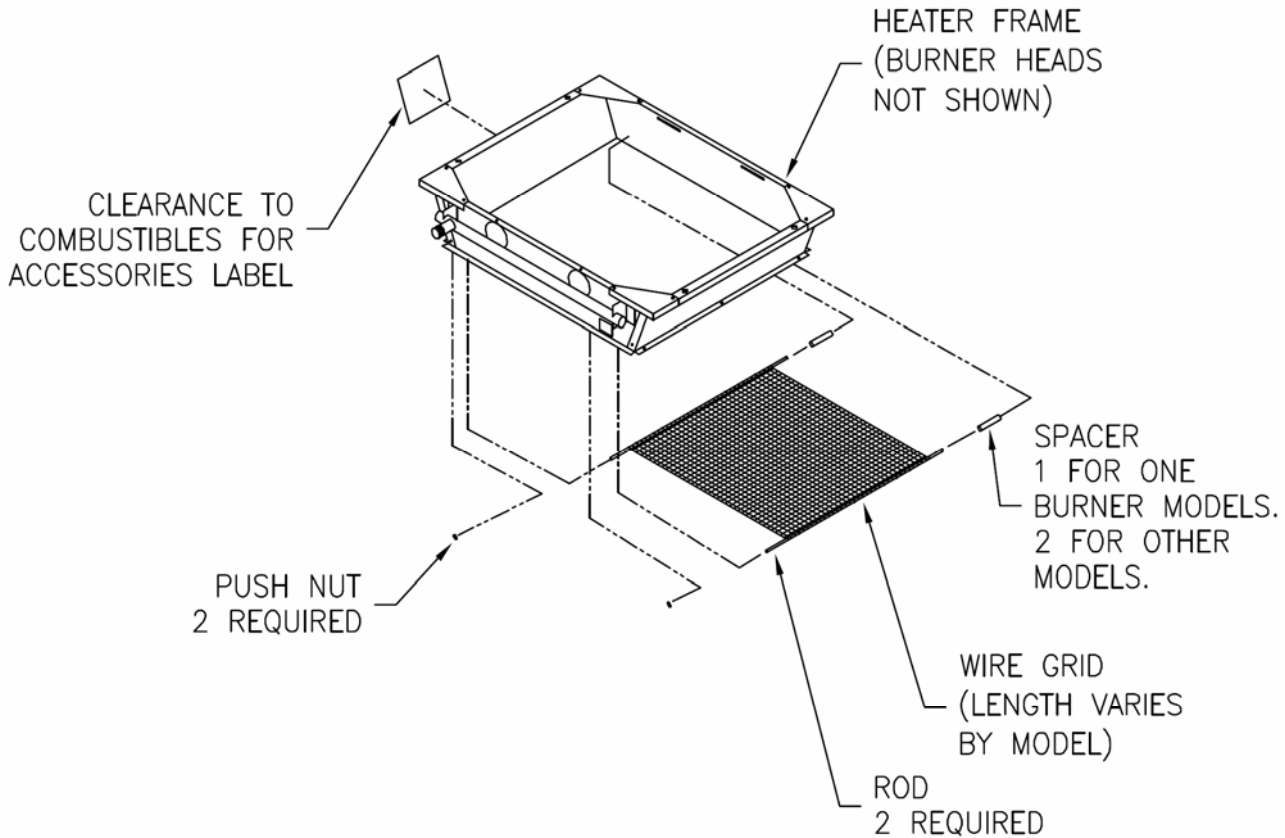
INSTALLATION OF HEAT DEFLECTOR TO 70,000 THROUGH 100,000 BTUH (20.5 - 29.3 KW) HEATERS ONLY

KIT# 00K2-10-005-1

SCALE NONE DATE 2007-11-20 DRAWING A-00K2-10-528 REV 0

HIGH INTENSITY GAS-FIRED INFRARED HEATERS

WIRE GRID INSTALLATION



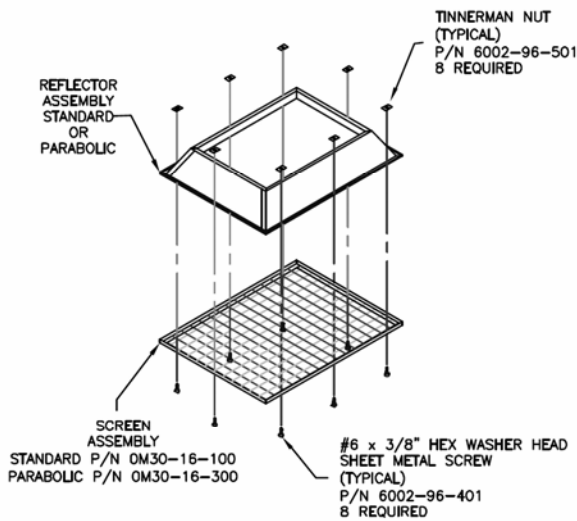
CSA DESIGN CERTIFIED FOR:
60, 100, 150, AND 200 MBTUH
NATURAL GAS HEATERS AND
50, 90, 120, AND 160 MBTUH
LP/PROPANE GAS HEATERS
MOUNTED AT 30 DEGREES ONLY.

MODEL MHR HIGH INTENSITY INFRARED ACCESSORIES & KITS

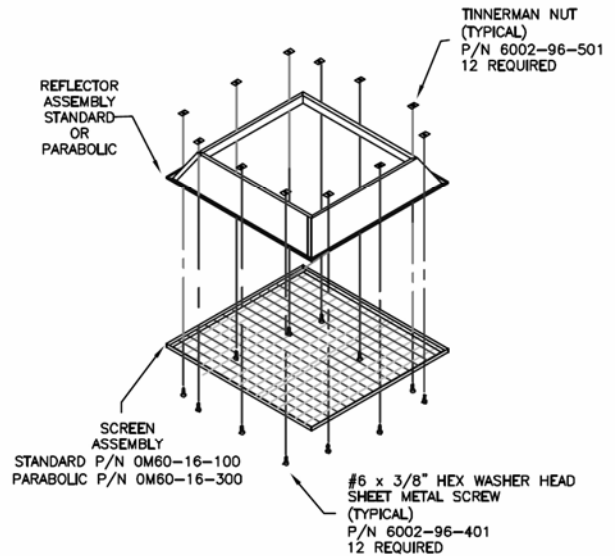
HIGH INTENSITY GAS-FIRED INFRARED HEATERS

PROTECTIVE SCREEN INSTALLATION

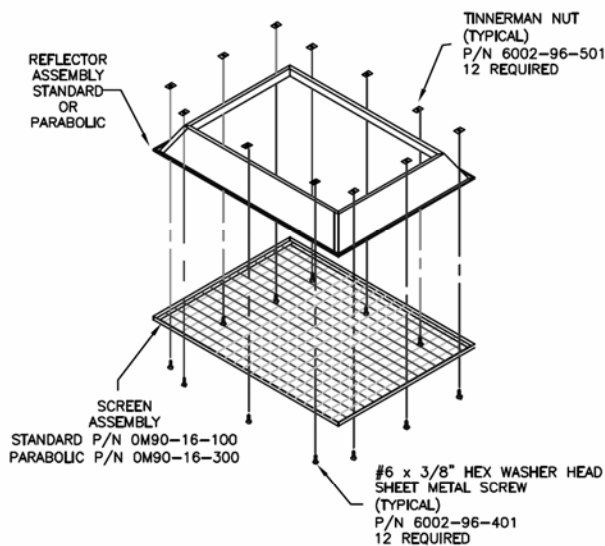
ONE BURNER HEATER 30 THRU 60 MBTUH



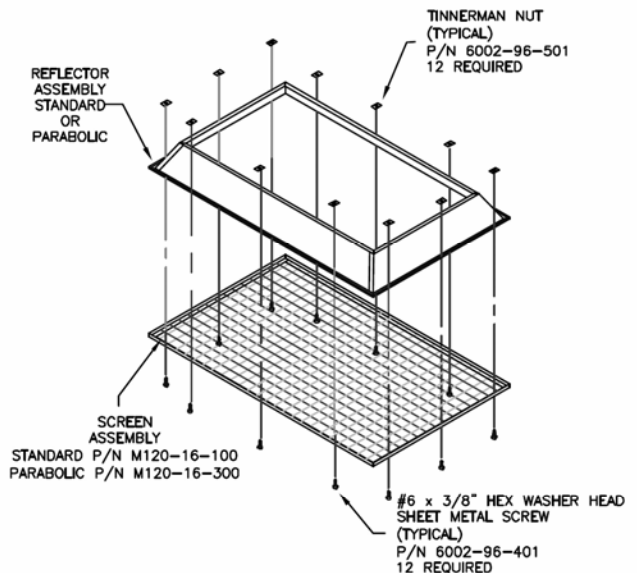
TWO BURNER HEATER 70 THRU 100 MBTUH



THREE BURNER HEATER 110 THRU 160 MBTUH



FOUR BURNER HEATER 175 THRU 200 MBTUH



A-000K-10-741 REV. 2
2-17-2000 DJB

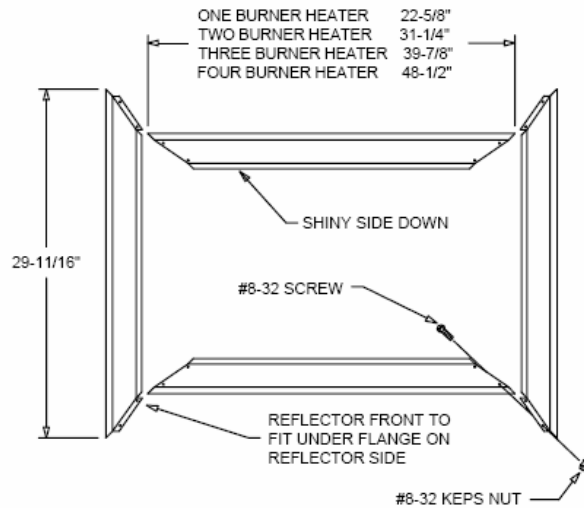
1 GEN REV 2007-11-01 PN
2 GEN REV 2007-11-14 PN

MODEL MHR HIGH INTENSITY INFRARED ACCESSORIES & KITS

HIGH INTENSITY GAS-FIRED INFRARED HEATERS

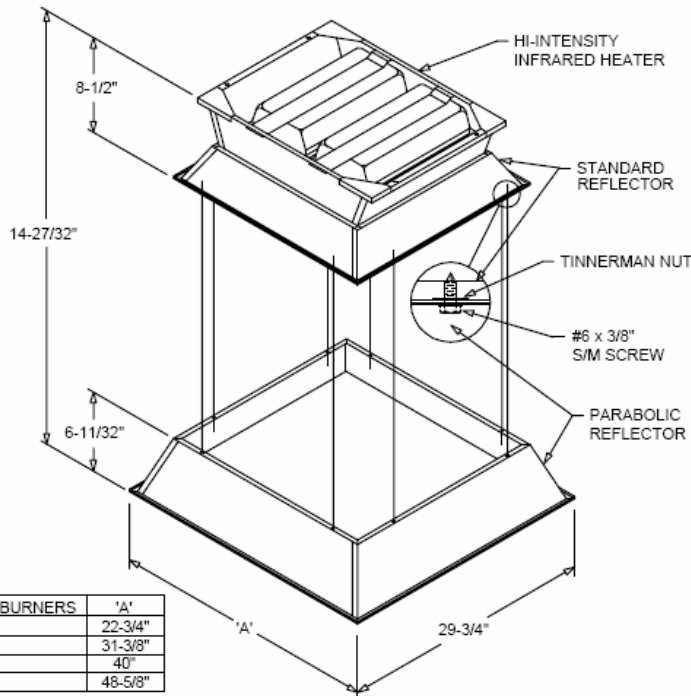
PARABOLIC REFLECTOR ASSEMBLY & INSTALLATION

ASSEMBLY TOP VIEW



HARDWARE	QUANTITY			
	1	2	3	4
NUMBER OF BURNERS →	1	2	3	4
#6 x 3/8" HEX WASHER HEAD S/M SCREW	6	8	12	14
C-12003-017-4 TINNEMAN NUT	6	8	12	14
#8-32 x 1/2" TRUSS HEAD SCREW	8	8	8	8
#8-32 KEPS NUT	8	8	8	8

INSTALLATION



NUMBER OF BURNERS	'A'
1	22-3/4"
2	31-3/8"
3	40"
4	48-5/8"

000K-10-757 REV. 0
2007-11-14 PN

Note: Please see page 15 of this document and model MHR Installation and Service Manual for changes to Recommended Mounting Heights and Minimum Clearance to Combustible Materials when the Parabolic Reflector Extension is installed.

MODEL MHR HIGH INTENSITY INFRARED ACCESSORIES & KITS

Table 15.1 – Changes to Recommended Mounting Height (feet)

Model	Standard Reflector		Changes To →	Parabolic Reflector	
	0° Angle	30° Angle		0° Angle	30° Angle
MHR 30	11.0 – 13.0	10.0 – 12.0		-	-
MHR 50	13.5 – 15.5	12.5 – 14.5		15.5 – 18.5	14.0 – 17.0
MHR 60	14.5 – 16.5	13.0 – 15.0		16.0 – 20.0	15.0 – 18.0
MHR 90	16.0 – 18.5	14.5 – 17.0		19.5 – 22.5	17.5 – 20.5
MHR100	17.0 – 19.5	15.0 – 17.5		20.5 – 23.5	18.5 – 21.5
MHR120	17.5 – 21.0	15.5 – 18.5		21.5 – 25.0	20.0 – 23.0
MHR150	18.5 – 22.5	16.5 – 20.0		24.0 – 27.5	21.5 – 24.5
MHR160	19.0 – 23.0	17.0 – 20.5		25.0 – 28.5	22.5 – 25.5
MHR200	20.5 – 25.0	18.5 – 22.5		27.0 – 31.0	24.5 – 28.0

**Table 15.2
Changes to Bottom Minimum Required Clearance to Combustible Materials (inches)**

Model	Standard Reflector	Changes To →	Parabolic Reflector
MHR 30	80	Changes To →	110
MHR 50			
MHR 60			
MHR 90	105		135
MHR100			
MHR120			
MHR150	125		165
MHR160			
MHR200			
MHR160	140	180	
MHR200			

Figure 15.1 – Heat Spread Width and Length (refer to Table 15.3)

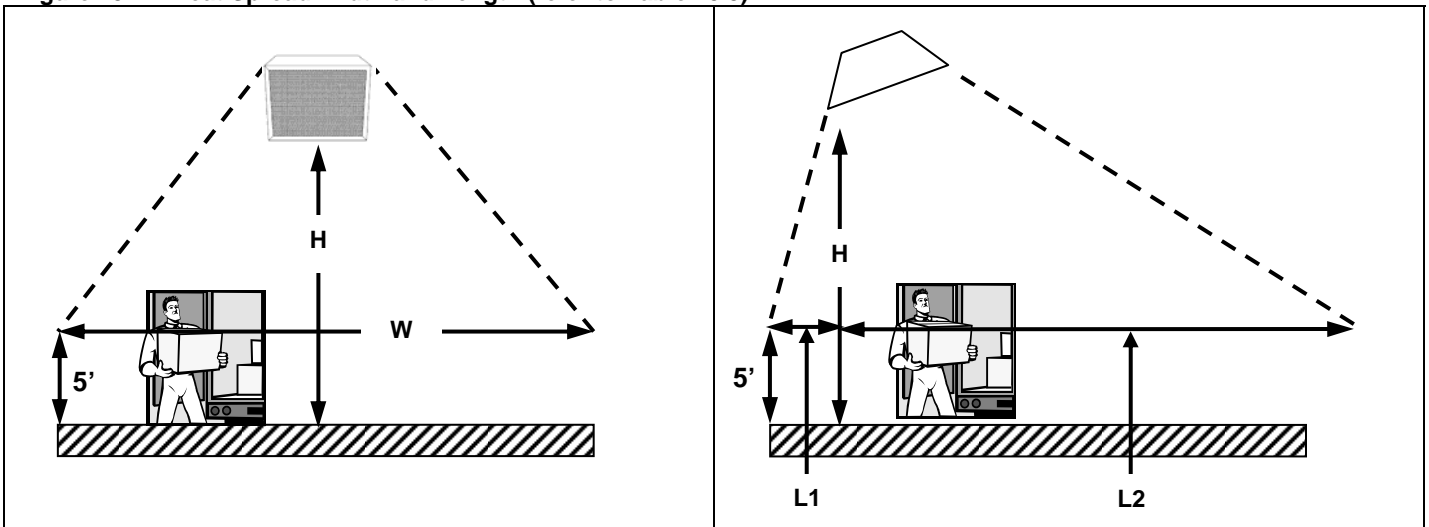


Table 15.3 – Heat Spread Width and Length (refer to Figure 15.1)

Reflector Type	Mounting Angle	Spread Width, W	Spread Length, L1	Spread Length, L2
Standard	0°	$W = 2 \times (H - 5)$	$L1 = 1.0 \times (H - 5)$	$L2 = 1.0 \times (H - 5)$
	30°		$L1 = 0.2 \times (H - 5)$	$L2 = 4.0 \times (H - 5)$
Parabolic Extension	0°	$W = 1 \times (H - 5)$	$L1 = 0.5 \times (H - 5)$	$L2 = 0.5 \times (H - 5)$
	30°		$L1 = 0.1 \times (H - 5)$	$L2 = 1.3 \times (H - 5)$

Modine Manufacturing Company has a continuous product improvement program,
and therefore reserves the right to change design and specifications without notice.

Commercial Products Group • Modine Manufacturing Company • 1500 DeKoven Avenue • Racine, Wisconsin, USA 53403-2552
Phone: 1.800.828.4328 (HEAT) • www.modine.com © Modine Manufacturing Company 2008