MW Series

Installation Manual

Overhead Medium Wave Electric Infrared Heater

1, 2, and 3 Lamp Units





AWARNING



All persons involved with the installation, operation, and maintenance of the heater system must read and understand all the information in this manual.

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

INSTALLER: Presen	t this manual to the end user.
Keep these instructions	in a clean and dry place for future reference
Model#:	Serial #:
	(located on rating label)

LIOMW-Rev. 34613 Print: 1X-12/17 (DRP) Replaces: LIOMW-1c-01/17 (DRP)

Contents

.0 Safety	3
Safety Symbols	
Applications	
Model Number Designation Chart	
Available Models and Operational Specifications	
Clearances to Combustibles	
Safety Labels and Their Locations	
Standards, Certifications, and Government Regulations	
.0 Installation	9
Design	10
Heater Mounting	
Lamp Installation	13
Outdoor Application	
Electrical Wiring	
3.0 Maintenance	16
Troubleshooting Guide	
Heater Assembly Components	
Parts List	
.0 Limited Warranty	20

1.0 Safety

AWARNING



Improper installation, adjustment, alteration, service, or maintenance can cause property damage, serious injury, or death. Read and understand the installation, operating, and maintenance instructions thoroughly before installing or servicing this equipment. Only trained, qualified personnel with proper electrical experience may install or service this equipment.

Safety Symbols

Safety is the most important consideration during installation, operation, and maintenance of the infrared heater. You will see the following symbols and signal words when there is a hazard related to safety or property damage.

A WARNING

Warning indicates a potentially hazardous situation which, if not avoided, could result in death or injury.

A CAUTION

Caution indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Notice indicates a potentially hazardous situation which, if not avoided, could result in property damage.

Applications

Commercial / Industrial (Indoors & Outdoors)

Infrared heaters are designed and certified for use in industrial and commercial buildings such as warehouses, manufacturing plants, aircraft hangars, and vehicle maintenance shops. For maximum safety, the building must be evaluated for potential hazards before installing the heater system. A critical safety factor to consider before installation is the clearances to combustibles.

Outdoor Residential Only

This heater is **NOT** approved for use in an indoor residential application. This includes, but is not limited to, attached garages, living quarters, solariums, etcetera. Consult the local fire marshal and/or insurance provider if unsure of your application.

AWARNING



Not For Residential Use.

Installation of this infrared heater system in residential indoor spaces, RV's, mobile homes, etc. may result in property damage, fire, serious injury, or death.

Model Number Designation Chart

Series	Material Type	Lamp Qty.	Voltage Code	Lamp Wattage Code
NAMA 0.4		1	A= 120 VAC	07=750
MW-24 MW-33	W-33 or	2	B= 208 VAC C= 240 VAC	12=1250
MW-46		_	G= 480 VAC	20=2000
	3	H= 575 VAC	30=3000	

Model Configuration Examples: MW-24B1-C07, or MW-46S2-G20

Available Models and Operational Specifications

Series	Lamp Qty.	Voltage; Phase	Amperes	Total Wattage	BTU/h
		120; 1ph	6.25		2,559
	1	208; 1ph	3.6	750	
		240; 1ph	3.1		
		120; 1ph	12.5		
MW-24	2	208; 1ph	7.2	1,500	5,118
		240; 1ph	6.2		
		120; 1 or 3ph	18.7		
	3	208; 1 or 3ph	10.8	2,250	7,677
		240; 1 or 3ph	9.3		
		120; 1ph	10.4		
	1	208; 1ph	6.0	1,250	4,265
		240; 1ph	5.2		
		120; 1ph	20.8		
MW-33	2	208; 1ph	12.0	2,500	8,530
		240; 1ph	10.4		
	3	120; 1 or 3ph	27.0		12,796
		208; 1 or 3ph	15.6	3,750	
		240; 1 or 3ph	13.5		
	1	120; 1ph	16.6		
		208; 1ph	9.6	2,000	6,824
		240; 1ph	8.3	2,000	0,024
		480; 1ph	4.2		
		575; 1ph	5.2	3,000	10,236
		208; 1ph	19.2		
MW-46	2	240; 1ph	16.6	4,000	13,649
		480; 1ph	8.3		
		575; 1ph	10.4	6,000	20,473
	3	208; 1 or 3ph	28.8		
		240; 1 or 3ph	25.0	6,000	20,473
		480; 1 or 3ph	12.5		
		575; 1 or 3ph	15.6	9,000	30,709

Clearances to Combustibles

A WARNING



Placement of explosive objects, flammable objects, liquids, and vapors close to the heater may result in explosion, fire, property damage, serious injury, or death. Do not store or use explosive objects, liquids, or vapors in the vicinity of the heater.



Failure to comply with the published clearances to combustibles could result in personal injury, death, and/or property damage.



The outside surfaces of the heater are hot during operation and after operation. If contact is made, permanent skin damage may occur. Do not move, handle, or service the unit during operation or while hot.

A CAUTION



Signs shall be posted specifying the maximum permissible stacking height in order to maintain clearances to combustibles.

Hazards Include:

For maximum safety the building must be evaluated for hazards before installing the heater system. Examples include, but are not limited to:

- · Gas and electrical lines
- Combustible and explosive materials
- Chemical storage areas
- Areas of high chemical fume concentrations
- Provisions for accessibility to the heater
- Adequate clearances around air openings
- Vehicle parking areas

- Vehicles with lifts or cranes
- · Storage areas with stacked materials
- Lights
- Sprinkler heads
- · Overhead doors and tracks
- Dirty, contaminated environment

A critical safety factor to consider before installation is the clearances to combustibles. **Clearance to combustibles** is defined as *the minimum distance you must have between the indicated surface and the combustible item*. Considerations must also be made for moving objects around the infrared heater. The following is a partial list of items to maintain clearances from:

Combustible Items Include:

- Wood
- Paper
- Fabric
- Chemicals
- · Wall or roof insulation
- Plastics

Moving Objects Include:

- Overhead doors
- · Vehicles on lifts
- Cranes
- Hoists
- Car wash equipment

When installing the infrared heater system, the minimum clearances to combustibles must be maintained. These distances are shown in Chart 1.1 and on the heater. If you are unsure of the potential hazards, consult your local fire marshal, fire insurance carrier, or other qualified authorities on the installation of infrared heaters for approval of the proposed installation.

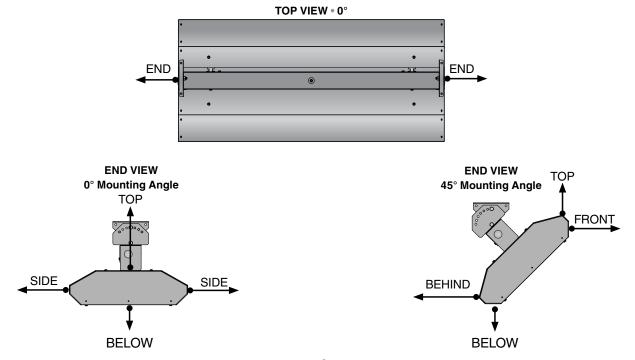
Chart 1.1 • Clearances to Combustibles in Inches (see Figure 1.1)

Wattage	Mounting ⁻	s	ide ——			
Range	Angle	Front	Behind*	End	Тор	Below
750 to	0°	24	24	24	6	40
1,600	45°	40	24	24	10	40
2,000 to	0°	24	24	24	6	46
2,500	45°	46	24	24	10	46
3,000 to	0°	24	24	24	6	56
3,200	45°	56	24	24	10	56
3,650 to	0°	24	24	24	6	62
3,800	45°	62	24	24	10	62
4,000 to	0°	24	24	24	6	72
4,800	45°	72	24	24	10	72
5,000 to	0°	24	24	24	6	84
7,600	45°	84	24	24	10	84
9,000 to	0°	24	24	24	6	96
11,400	45°	96	24	24	10	96

^{*}A minimum clearance of **36 inches** must be maintained from behind another heater.

NOTE: Ensure that building materials with a low heat tolerance (i.e, awnings, fabrics, plastics, sprinklers, insulation, etc.) are protected against degradation. This may require the heater to be mounted at a distance in excess of the published clearances to combustibles. Contact the material manufacturer for specific details.

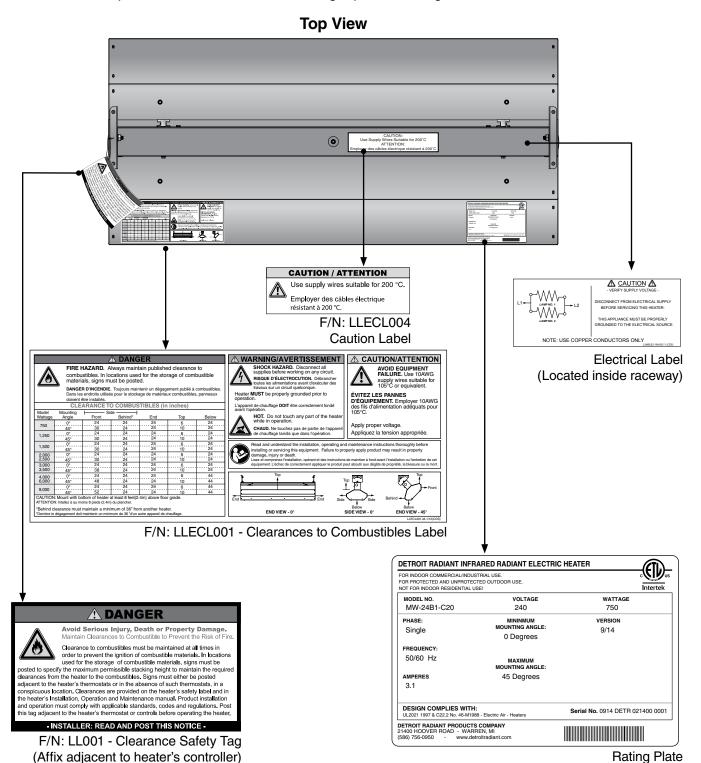
Figure 1.1 • Clearances to Combustibles



Safety Labels and Their Locations

It is important to provide warnings to alert individuals to potential hazards and safety actions. Signs should state the hazards for the particular application and be legible to the building occupants. Consult the factory or a factory representative for additional information on signage compliance.

Safety warning labels must be maintained on the infrared heater. Illustrations of the safety labels and their locations are pictured below. When no longer legible, they must be replaced. Contact either your local distributor or the product manufacturer for obtaining replacement signs or labels.



Standards, Certifications, and Government Regulations

Installation of this infrared heater must comply with all applicable local, state, and national specifications, regulations, and building codes. Contact the local building inspector and/or fire marshal for guidance.

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

United States: Refer to National Electrical Code®, ANSI/NFPA 70 (latest edition).

Wiring must conform to the latest edition of National Electrical

Code®, local ordinances, and any special diagrams from the manufacturer.

Canada: Refer to Canadian Electrical Code CSA C22.1 Part 1 (latest edition).

Detroit Radiant Products Company units comply or are certified by one or more of the following organizations or standards:

- CSA 22.2 #46 M1988
- UL 2021 Edition 3

2.0 Installation

A WARNING



Read and understand the installation, operating, and maintenance instructions thoroughly before installing or servicing this equipment.

Design

To ensure a safe, properly designed heating system, a layout should be developed for the correct placement of the infrared heater(s).

Aside from safety factors such as clearances to combustibles (see Chart 1.1 on page 6), consideration should also be given to factors such as the environment (e.g., cold/drafty, average, protected), heat coverage (sq. ft.) needed, heater centers, the distance behind a person or work station(s), etcetera. Also, the effective infrared surface temperature of a person or object may be diminished with wind above 5 mph. Wind barrier(s) may be required. Most importantly, clearances to combustibles **must** always be maintained! Refer to hazards on page 5.

When positioning the heaters, keep in mind combustible materials, lights, sprinkler heads, overhead doors, storage area with stacked materials, gas and electrical lines, parked vehicles, cranes, etcetera. Refer to Page 6 for minimum clearances to verify that a safe installation exists.

This installation manual, along with national, state, provincial, and local codes, address these issues. It is critical that you read, understand, and follow all guidelines and instructions. Always inspect and evaluate the mounting conditions, application, and wiring.

When heated, materials high in hydrocarbons (solvents, paint thinner, mineral spirits, formaldehydes, etc.) can evaporate and/or degrade. This may result in odors or fumes being emitted into the environment. To correct this problem, clean the area and/or introduce additional ventilation. Heaters installed and serviced in accordance with the installation manual do not emit foul odors into the environment.

IMPORTANT: Fire sprinkler heads must be located at an appropriate distance from the heater to avoid an inadvertent discharge. This distance may exceed the published clearances to combustibles. Certain applications may require the use of high temperature sprinkler heads or relocation of the heaters.

A CAUTION

Fire sprinkler systems containing propylene glycol, antifreeze, or other potentially flammable substances shall not be used in conjunction with this heater without careful consideration for, and avoidance of, inadvertent discharge hazards. For further information consult CSA or NFPA codes. Always observe applicable provincial, state, and local codes.

2.0 Installation • Design MW Series

Chart 2.1 • Basic Heating Application Chart

Series	Lamp Qty.	Recommended Mounting Height (Ft.)* [Dim. A]	Recommended Distance Between Heaters (Ft.) [Dim. B]	Approx. Square Foot Coverage	Approximate Watts per Square Foot
	1	7 to 9	2 to 7	200	4
MW-24	2	7 to 9	3 to 9	200	8
	3	8 to 10	4 to 11	300	8
	1	7 to 9	3 to 9	200	6
MW-33	2	8 to 10	4 to 11	300	8
	3	8 to 10	5 to 13	300	11
	1	8 to 10	4 to 11	300	7 to 10
MW-46	2	10 to 14	5 to 13	500	8 to 12
	3	10 to 15	6 to 15	500	12 to 18

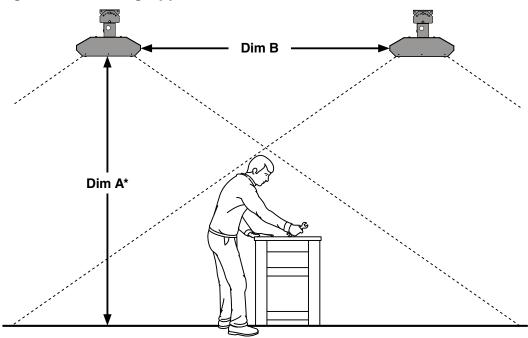
^{*}Clearances to combustibles published in this manual and on safety labels must be maintained at all times. Factory recommended mounting heights are listed as a guideline. If infrared heaters are mounted too low or too high, they may result in discomfort or lack of heat.

Chart 2.2 • Estimating Required Load

Type of Building	Watts Req. per Square Foot at Floor Level		
Insulated	10		
Uninsulated	16		
Outdoor Sheltered	25 to 30		
Outdoor Unsheltered	30 to 45		

When comfort heating people, two heaters should be used to heat both sides of the individual. Heater installation shall comply with all IOPM, NEC, ANSI/NFPA-70, CEC, and local restrictions.

Figure 2.1 • Heating Application



Heater Mounting

A WARNING



Improper suspension of the infrared heater may result in collapse and being crushed. Always suspend from a permanent part of the building structure that can support the total force and weight of the heater.



Failure to maintain minimum clearances to combustibles may result in fire and/or explosion, property damage, serious injury, or death. Always maintain minimum clearances and post signs or provided tags (F/N: LL01) adjacent to heaters controller. Signs should state the hazards for the particular application and be legible to the building occupants. Consult the factory or a factory representative for additional information on signage compliance.

The heater can be suspended with chains or rigid threaded rod. Local codes, or conditions that would cause the unit to move (e.g., wind drafts, blowers, crane rails, etc.), may require rigid threaded rod. Consult all applicable codes before installation.

The heater must be level from side to side and may be 0° to 45° on horizontal. Refer to figures 2.2 and 2.3.

Figure 2.2 • Heater Dimensions

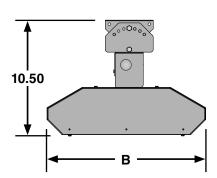


Chart 2.3 • Physical Dimensions (inches)

Model No.	Α	В	С
MW-24-X1	23.50	9.25	24.00
MW-24-X2	23.50	15.00	24.00
MW-24-X3	23.50	20.75	24.00
MW-33-X1	32.50	9.25	33.00
MW-33-X2	32.50	15.00	33.00
MW-33-X3	32.50	20.75	33.00
MW-46-X1	45.50	9.25	46.00
MW-46-X2	45.50	15.00	46.00
MW-46-X3	45.50	20.75	46.00

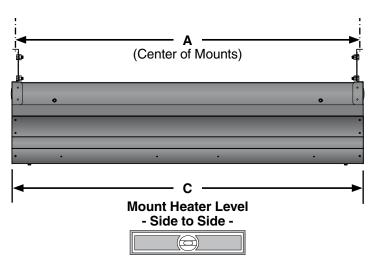
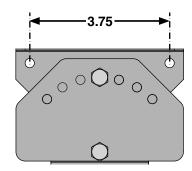


Figure 2.3 • Mounting Centers



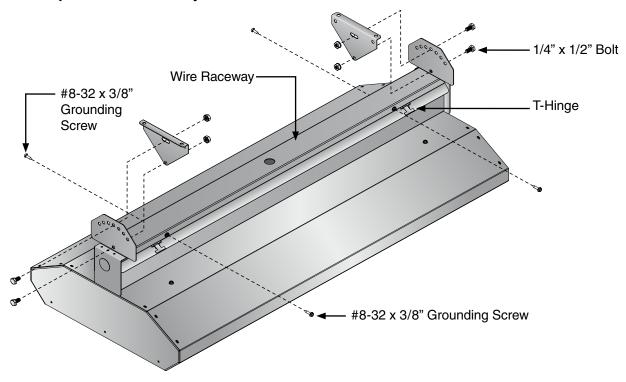
Top Channel Assembly

• Attach the mounting brackets to the top wire raceway. On each end, place (1) 1/4" x 1/2" bolt through the bottom hole of the mounting bracket and through the bottom hole of the top wire raceway. Place (1) 1/4" lock nut on each bolt. Do not tighten completely. Refer to figure 2.4.

NOTE: The mounting brackets are **NOT** required for chain suspension.

- 2 Adjust wire raceway to desired mounting angle
- 3 On each side, place (1) 1/4" x 1/2" bolt through slot in the mounting bracket and the hole in the top wire raceway. Place (1) 1/4" lock nut on each bolt and tighten.
- 4 Tighten lock nuts from Step 1.
- **6** Hook heater body into mounted wire raceway. Unit will hang freely by the "T" hinge, leaving both hands free to wire unit. Refer to figure 2.4.
- 6 Run supplied high temperature wires out to field supplied junction box. DO NOT make connections inside the wire raceway
- Close wire raceway using the (4) #8-32 x 3/8" grounding screws provided in hardware pack.

Figure 2.4 • Top Channel Assembly



Lamp Installation

A CAUTION

Disconnect power prior to installing or replacing supplied quartz lamp(s). The elements can and should be installed prior to mounting the heater.

- Remove the service access panels and open lamp retainers.
- 2 Position heating elements in "U" slots at the ends of the reflector.
- 3 Close lamp retainers to secure the heating element in the slot (see Figure 2.5).
 NOTE: Avoid handling the quartz glass as much as possible. Quartz glass should be wiped off with alcohol using a clean cloth.
- 4 Reinstall service access panels using sheet metal screws as removed in Step 1.

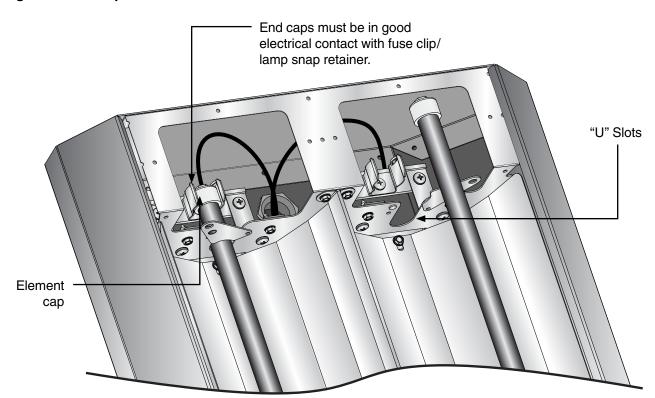


Figure 2.5 • Lamp Installation

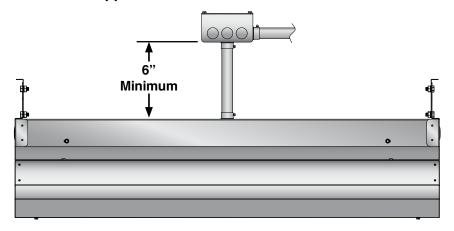
NOTE: MW series heaters are designed for use with quartz lamp infrared heating elements only. They are NOT intended to be used with straight metal rod heating elements. Replace lamps with parts from Detroit Radiant Products Company only!

Totally Exposed Outdoor Applications

A CAUTION

For totally exposed outdoor applications (not ceiling protected) ensure connections are made as illustrated in Figure 2.6

Figure 2.6 • Exposed Outdoor Application



NOTE: All conduit, conduit fittings, and junction boxes are field supplied. Must be NEMA Type 4x or equivalent. Heater must be suspended from mounting brackets.

Electrical

A WARNING



Electric Shock

Field wiring to the heater must be connected and grounded in accordance with national, state, provincial, and local codes, and to the guidelines in the this manual. In the United States, refer to the most current revisions to the ANSI/NFPA 70 Standard and in Canada, refer to the most current revisions the CSA C22.1 Part I Standard.

Disconnect power to heater before servicing.

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

This fixture is equipped with high temperature silicone lead wires to make connections to branch circuit. Remove the wire-ties prior to making electrical connections.

Wiring connections should always be through one of the knockouts in the top wire raceway. Wire connections must also be made outside of the top of the wire raceway. Consult the factory or a qualified electrician for details on staging.

Supply wires must be a copper conductor type with a minimum size of 10 AWG.

The heater must be connected to the earthing conductor (green wire) installed by the factory.

Reference top of page 14 for use in totally exposed outdoor applications.

Wiring Diagrams

Figure 2.7 • Wiring Diagram • Units with 1 Lamp



Figure 2.8 • Wiring Diagram • Units with 2 Lamps

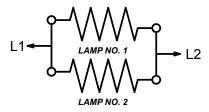
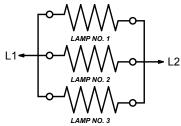


Figure 2.9 • Wiring Diagram • Units with 3 Lamps



Field Wiring

Figure 2.10 • Single Phase Service

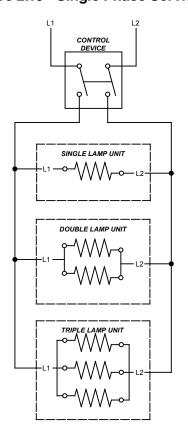
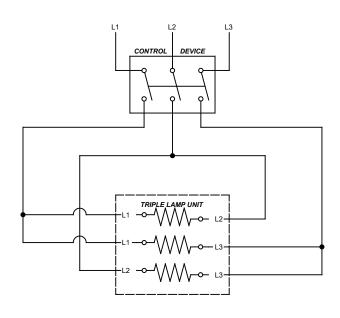


Figure 2.11 • Three Phase Service



3.0 Maintenance

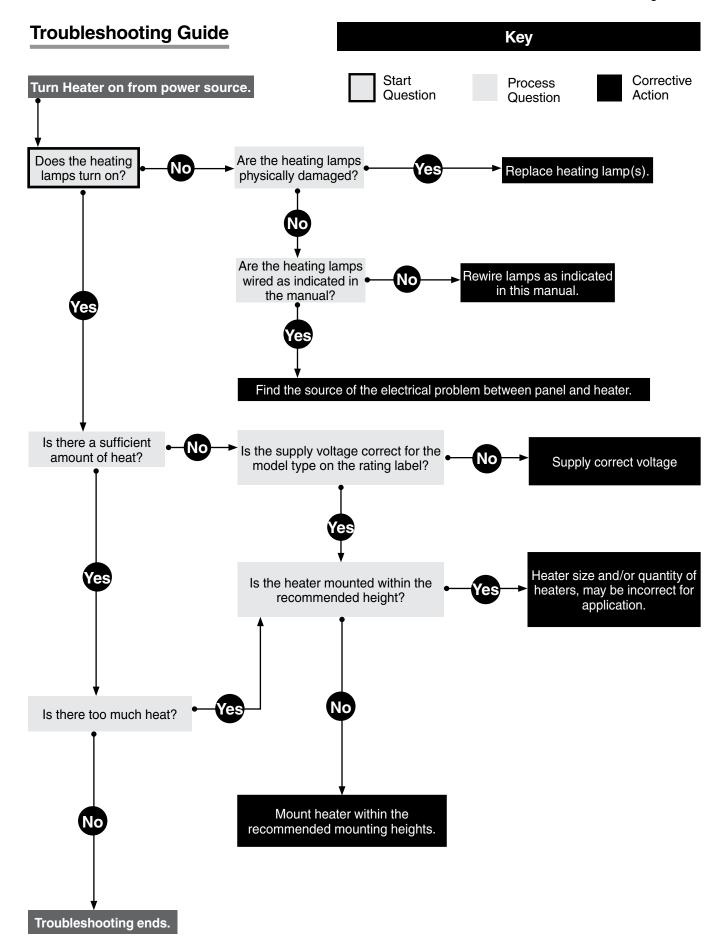
It is recommended that the following become a standard yearly procedure to obtain maximum operating efficiency and trouble free operation.

During long periods of non-usage, remove or cover heater with a polyethylene bag and disconnect from power supply. If further service to the heater is desired, contact your representative or the factory.

- 1 Clean reflector surface with a damp cloth.
- **2** Ensure heater is secure on all hanging points.
- Maintain clearance to combustibles at all times. Immediately remove objects in violations of the published clearance to combustibles.
- 4 Check electrical wires and connections for wear or any kind of damage.

Maintenance Log

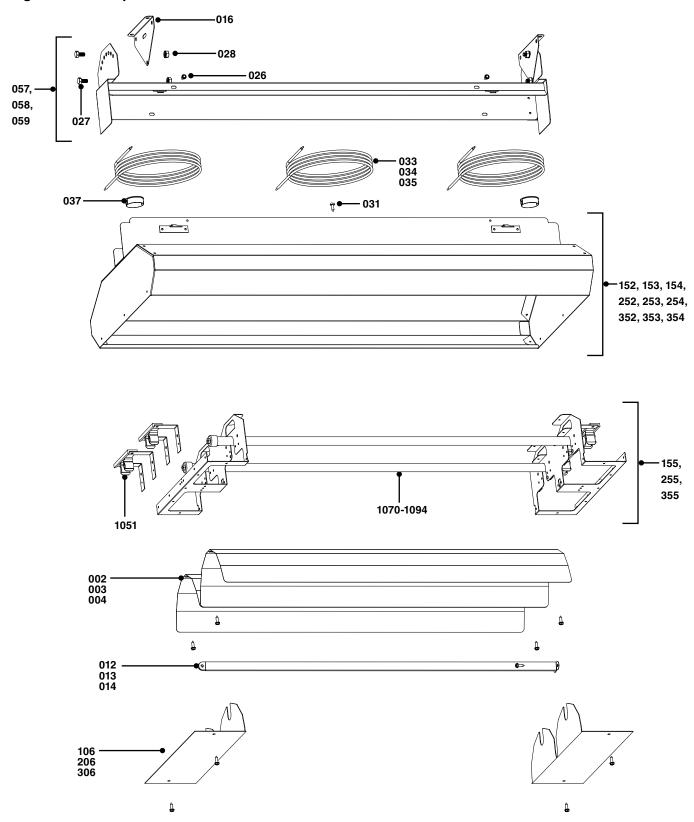
Date	Maintenance Performed	Replacement Parts Required



Heater Assembly Components

For complete information on MW series replacement parts, visit the online replacement parts library at http://www.reverberray.com/partscenter. For discontinued models, consult the factory.

Figure 3.1 • Components



Parts List

Chart 3.1 • General Parts List

Part No.	Description	Part No.	Description
EL-002	Gold Anodized Reflector, 24 Inch Model	EL-1078	Lamp; 3ft, 120V, 1,250W
EL-003	Gold Anodized Reflector, 33 Inch Model	EL-1080	Lamp; 3ft, 280V, 1,250W
EL-004	Gold Anodized Reflector, 46 Inch Model	EL-1082	Lamp; 3ft, 240V, 1,250W
EL-012	Gold Anodized Reflector Channel, 24 Inch Model	EL-1086	Lamp; 4ft, 120V, 2,000W
EL-013	Gold Anodized Reflector Channel, 33 Inch Model	EL-1088	Lamp; 4ft, 208V, 2,000W
EL-014	Gold Anodized Reflector Channel, 46 Inch Model	EL-1090	Lamp; 4ft, 240V, 2,000W
EL-016 ¹	Mounting Brackets	EL-1092	Lamp; 4ft, 480V, 2,000W
EL-026	#10 Hex head with Star Washer, Self Threading, Fine	EL-1094	Lamp; 4ft, 575V, 3,000W
LL-020	threads 3/8		Single Lamp Model Parts List
EL-027	1/4 - 20 x 1/2 inch bolt for bracket	EL-106 ¹	Service Access Panel, Single Lamp
EL-028	1/4-20 Nut	EL-1521	Single Lamp Shell Assembly, 24 Inches
EL-029	1/4 Split lock washer	EL-1531	Single Lamp Shell Assembly, 33 Inches
EL-030	Stainless Steel Rivet	EL-1541	Single Lamp Shell Assembly, 46 Inches
EL-031	Green Ground Screw	EL-155	Single Lamp Chassis Assembly
EL-033	Wire, length for 33, 12 Gauge		Double Lamp Model Parts List
EL-034	Wire, Length for 24 12 Gauge	EL-2061	Service Access Panel, Double Lamp
EL-035	Wire, length for 46 12 Gauge	EL-2521	Double Lamp Shell Assembly, 24 Inches
EL-036	Snap-on Fork Terminal for connector	EL-2531	Double Lamp Shell Assembly, 33 Inches
EL-037	Wire Bushing, 2201	EL-2541	Double Lamp Shell Assembly, 46 Inches
EL-0571	Wire Raceway Cover Assembly, 24 Inch Model	EL-255	Double Lamp Chassis Assembly
EL-058 ¹	Wire Raceway Cover Assembly, 33 Inch Model		Triple Lamp Model Parts List
EL-059 ¹	Wire Raceway Cover Assembly, 46 Inch Model	EL-3061	Service Access Panel, Triple Lamp
EL-1051	Lamp Clip Assembly	EL-3521	Triple Lamp Shell Assembly, 24 Inches
EL-1070	Lamp; 2ft, 120V, 750W	EL-3531	Triple Lamp Shell Assembly, 33 Inches
EL-1072	Lamp; 2ft, 208V, 750W	EL-3541	Triple Lamp Shell Assembly, 46 Inches
EL-1074	Lamp; 2ft, 240V, 750W	EL-355	Triple Lamp Chassis Assembly

¹ Specify [B] Black or [S] Stainless Steel finish.

Visit our online parts reference library at store.reverberray.com for further part related technical data.

4.0 Limited Warranty MW Series

4.0 Limited Warranty

One-Year Limited Warranty. Detroit Radiant Products Company (hereinafter referred to as the Company) warrants to the original purchaser or original user that all Detroit Radiant Products Company sold by it and all parts thereof are free from defects in material or workmanship under normal use and service. The Company's sole obligation under this warranty shall be limited to furnishing replacement parts, F.O.B. Warren, Michigan, for 12 months from the date of initial installation of the heater, but not to exceed 18 months from the date of shipment by the Company of the heaters, for any parts which the Company's examination shall disclose to its satisfaction to be defective. Defective parts are to be returned to the Company, transportation charges prepaid.

General Conditions. The warranties set out in this certificate are the exclusive remedy of the original owner or user in lieu of all other warranties written, oral or implied (including any warranty of merchantability or fitness for the purpose) and all other obligations or liabilities on the part of the Company, and the Company neither assumes nor authorizes any person to assume for it any other obligation or liabilities on the part of the Company, and the Company neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the sale, installation or use of the heater or any parts thereof.

The Company will not be responsible for labor charges for the analysis of a defective condition in the heater or for the installation of replacement parts. The warranties provided herein will not apply if the input of the heater exceeds the rated input at time of manufacturing or if the heater in the judgment of the Company has been subjected to misuse, excessive dust, improper conversion, negligence, accident, corrosive atmospheres, excessive thermal shock, excessive vibration, physical damage to the heater, alterations by unauthorized service personnel, operation contrary to the Company's instructions or if the serial number has been altered, defaced, or removed. The Company shall not be liable for any default or delay in the performance of these warranties caused by contingency beyond its control, including war, government restriction or restraints, strikes, fire, flood, short or reduced supply of raw materials, or parts.

The warranties herein shall be null and void if the heater is not installed by a competent heating contractor and/ or if the heater is not installed according to Company instructions, normal industry practices and/or if the heater is not maintained and repaired according to Company's instructions. Normal product degradation and wear (rust, oxidation, etc.) does not constitute a material defect and applicable warranty claim.

Written permission is required for the return of any parts or equipment and any such return must be made on the basis of transportation charges prepaid. Shipment may be refused unless prior written permission is obtained and goods returned prepaid.





