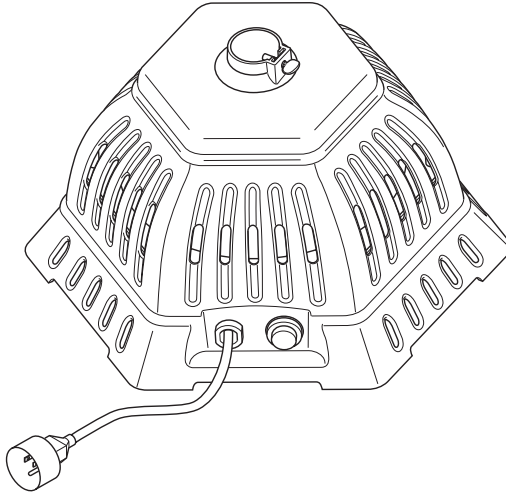


DESA™

HEATING PRODUCTS

OUTDOOR ELECTRIC PATIO TABLE UMBRELLA STAND AND FOOT WARMER SERVICE MANUAL



MODELS PD15EA, PG15EA, PL15EA AND PV15EA
1500 WATT 120V 60HZ 12.5 AMPS

IMPORTANT: Read and understand this manual before assembling, starting or servicing this product. When using electrical products, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons. Keep this manual for future reference.

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Save this manual for future reference.
For more information, visit www.desatech.com

SAFETY INFORMATION

IMPORTANT: Read this manual carefully and completely before trying to assemble, operate or service this product. When using electrical products, the following basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons.

⚠ WARNING: As with most electrical appliances, electrical parts in this product are electrically live even when switch is off.

1. Do not use this product if the power circuit does not have ground fault circuit interrupt (GFCI) protection. GFCI should be wired into the homes electrical circuit by a qualified electrician.
2. This product must be used on a grounded supply circuit.
3. Product must be used on a 15 or 20 amp maximum overcurrent protection circuit.
4. DO NOT use indoors or plug this product into an indoor circuit.
5. Avoid the use of an extension cord. Extension cord may overheat and cause risk of fire. If you must have an extension cord, the cord shall be minimum size of 14 awg and not rated less than 1875 watts. Use only 3 wire cord type (3 prong plug) marked for outdoor use.
6. Do not use 16 or 18 gauge extension cords. Damage to household wiring and/or fire could result.
7. Avoid overheating the cord. DO NOT run cord under outdoor carpeting. DO NOT cover cord with throw rugs, runners or the like. Arrange cord away from traffic area and where it will not be tripped over.
8. Do not run cord through doorways, holes in floors or walls.
9. DO NOT operate product with a damaged cord or plug or after the product malfunctions, has been dropped or damaged in any manner. Return product to service center for examination, electrical or mechanical adjustment or repair.
10. Do not remove, bend or modify any metal prongs or pins of cord.
11. Do not allow the legs of chairs or the table to rest on the power cord.
12. Always unplug product after use.
13. When unplugging, be sure to pull by the plug and not the cord.
14. Keep electrical plug dry and off of wet surfaces.
15. Do not place or store where product can fall or be pulled into swimming pool or body of water. If product falls into water, unplug immediately. DO NOT REACH INTO WATER. If water is above the air intakes (see Figure 3, page 4) or product is totally immersed in water, dispose of heater properly.
16. Do not use near or place where standing water can occur.
17. Do not hose down or pressure wash.
18. For outdoor use only in temperatures above freezing.
19. Use product only for intended outdoor use as described in this manual. Any other use not recommended by the manufacturer may cause fire, electric shock, or injury to persons.
20. Do not operate this product in the rain.
21. Keep combustible and flammable materials, such as gasoline and paint thinner, at least 3 ft (0.9 m) from all sides of the product. DO NOT place combustible liquids above the product. Avoid spilling combustible liquids on the product.
22. This product has hot and arcing or sparking parts inside. Do not use where flammable vapors are present
23. DO NOT insert or allow foreign objects to enter any ventilation or exhaust opening as this may cause an electric shock or fire or damage the product.
24. To prevent a possible fire, DO NOT block air intakes in any manner. DO NOT use on soft surfaces such as grass, wet soil or where openings may become blocked.
25. Do not permanently block air exhaust in any manner.
26. DO NOT locate product on top of carpet.
27. Warn children of the risk of death by electrical shock. Extreme caution is necessary when any product is used by or near children or animals.
28. DO NOT attempt to repair or adjust any electrical or mechanical parts on this unit. Unauthorized repairs or alterations of this product may increase the risk of fire, electrical shock or injury to persons. The inside of the unit contains no user serviceable parts. All servicing should be performed by qualified personnel only.

SAFETY INFORMATION

Continued

29. Use only in accordance with the local ordinances and codes.
30. This product is not to be used as the sole support for an umbrella. Umbrella must be supported by a table.
31. Do not use or install umbrella into product at temperatures below freezing. A damaged product could result in the risk of fire, electric shock and injury to persons.
32. Do not use this at any elevation above floor level. Do not place on a table.
33. Locate product so "ON" light can be easily seen 10 ft (3.05 m) around and 5 ft (1.52 m) above.
34. If a table cloth is used on the table above the product, secure it to prevent movement due to wind.
35. Do not use in temperatures above 75° F (28.9° C). Nuisance tripping of manual reset thermal protector can occur.
36. Take precautions to prevent spilling drinks on product.
37. If the product will not operate, see specific instructions in *Troubleshooting*, page 6.
38. Save these instructions for future reference.

This product contains and/or generates chemicals known to the state of California to cause cancer or birth defects or other reproductive harm.

PRE-OPERATING INSTRUCTIONS

GROUND FAULT INTERRUPTER

- Since 1971 the National Electric Code (NEC) has required Ground Fault Circuit Interrupter devices on all outdoor circuits.
- If your residence was built before 1971, check with a qualified electrician to determine if a Ground Fault Circuit Interrupter protector exists.
- Do not use this product if the circuit does not have a GFCI protection.
- Do not plug this product into an indoor circuit.
- Typical accepted GFCI devices are shown in Figure 1.
- Avoid the use of an extension cord. Extension cord may overheat and cause risk of fire. If you must have an extension cord, the cord shall be minimum size of 14 awg and not rated less than 1875 watts. Use only 3 wire cord type (3 prong plug) marked for outdoor use.

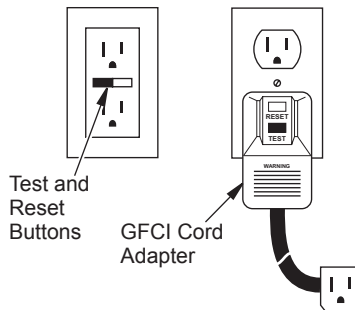


Figure 1 - GFCI Options

PLUG ADAPTER

IMPORTANT: This product must be used on a grounded supply circuit.

An adapter as shown in Figure 2 is available for connecting three-prong grounding type plugs to two-slot receptacles. The green grounding lug extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box.

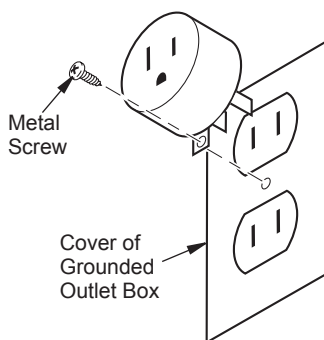


Figure 2 - Plug Adapter

GENERAL INFORMATION

ARRANGEMENT OF MANUAL

This manual contains information and service procedures to assist the service technician in understanding and correcting problems on DESA Heating Products Umbrella Stand and Electric Foot Warmer. The first section of the manual contains basic information concerning the operation of the different components in the heater. This information should be reviewed by service personnel to provide a basic understanding of how the components function in the working system. The *Troubleshooting* section of this manual is intended to provide a quick reference concerning conditions which result in customer complaints. These procedures will help the service technician quickly diagnose a malfunctioning heater. The illustrations in this manual may not necessarily depict the actual heater model and are intended for reference ONLY.

TECHNICAL SERVICE DEPARTMENT

The Technical Service Department, located in Bowling Green, Kentucky, is committed to assisting our Authorized Service Centers to increase their service knowledge so that they can provide prompt, efficient service. This Service Manual covers the majority of problems that are associated with the heaters. However, as with any product, certain problems can arise which have not been covered. If such problems arise, please call the Technical Service Department's number, 1-866-672-6040 or visit our website at www.desatech.com, to address these technical problem areas. If you need assistance for ordering parts, billing questions, etc. you should contact 1-866-672-6040.

SERVICE PREPARATION

A clean work area at the start of each job is essential for efficient service work. Heaters which are extremely dirty should be cleaned prior to service. Cleaning will occasionally uncover the problem area. Tools needed for the job should be obtained before work is started. Delays resulting from locating tools result in lost time and wages.

Use caution and common sense when working on a heater. Always remember that electrical parts can result in potential shock. Heater parts are hot during operation, which could result in burns.

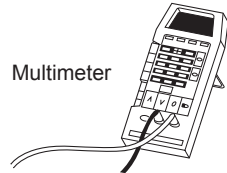
TOOLS REQUIRED

In addition to common hand tools, the service shop should have the following tools and instruments for proper repairing of the heaters. These

instruments will be referred to throughout this manual.

<u>INSTRUMENT</u>	<u>RANGE</u>
1/4" Nut Driver	N/A
3/16" Nut Driver	N/A
11/32" Nut Driver	N/A
1/8" Allen Wrench	N/A
3/4" Open end wrench	N/A
Torque Wrench	N/A
Multimeter*	0-250 VAC/0-200 Ohm

*Available at most electronic stores.



PRODUCT IDENTIFICATION

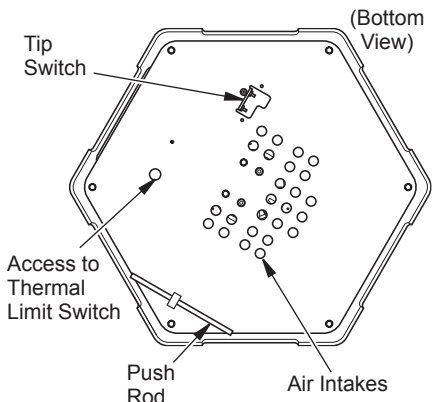
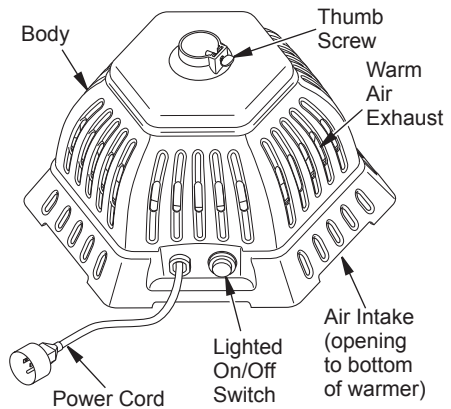


Figure 3 - Umbrella Stand Warmer

INSTALLATION

1. Locate product under outdoor patio table on hard, level, dry surface. Post of tip over switch must be on solid surface for product to work. Listen for the “click”. See Figure 3 for switch location.
2. Slowly lower umbrella pole into product. Do not drop pole, it may damage product.
3. Tighten thumb screw of product to secure pole. Pole will be approximately 7 inches higher than if used without this product.
4. Make sure the product is in the OFF position before plugging into a grounded GFCI protected 120V 60 HZ outlet.
5. Avoid overloading your circuit by not using other high wattage products in the same outlet. At 1500 watts, this unit draw 12.5 Amps.

OPERATION

IMPORTANT: Review and understand the warnings in the *Safety Information* section, page 2. They are needed to safely operate this product. Follow all local ordinances and codes when using this product.

1. Push lighted ON/OFF switch.
2. The power light will remain lit during operation.
3. Stay back from product until all water or debris has blown clear.
4. Product will warm in a few minutes.

CLEANING

DURING SEASON CARE

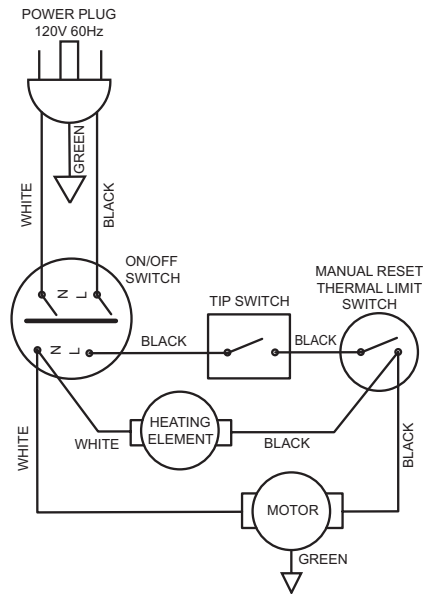
Always unplug the product before moving or cleaning.

1. Do not disassemble. Carefully wipe the exterior of unit with a soft, damp cloth.
2. After cleaning, be sure to completely dry the unit with a cloth or towel.

AFTER SEASON CARE

Store product indoors in a dry location. No maintenance is required for this product.

WIRING DIAGRAM



SAFETY REQUIREMENTS

This service manual is intended for use by individuals with an adequate knowledge of electrical and mechanical skills. Attempts to repair this heater by individuals without those skills can result in personal injury, as well as property damage

CAUTIONS

1. Before servicing, disconnect the heater from the electrical power source by removing the electrical plug from the wall receptacle.

Note: When certain tests require electrical power to be applied, connect electrical power only for the time necessary to complete the test.

2. Do not bypass safety devices except when instructed to do so during troubleshooting procedures.
3. If replacement parts are necessary, do not substitute with non-factory parts (use only factory authorized replacement parts).
4. Make sure all electrical connections are secure and correct prior to connecting heater to a grounded electrical power source.

ALL SYSTEMS WORKING TOGETHER

There are three basic systems within the heater, the heating system, air system and safety system.

A tubular heating element (A) warms the surrounding air.

A fan (B) on one end of a motor (C) draws air into the product. This air is directed over the heating element to create warm heated air out.

An over temperature switch (D) shuts the heater off in the abnormal event a motor were to fail.

A tip over switch (E) shuts the heater off in the event the product is tipped over.

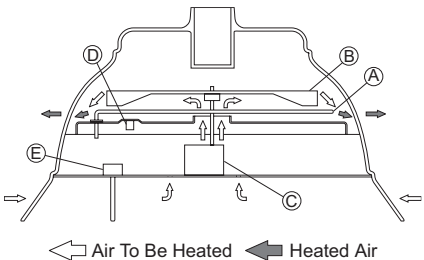


Figure 4 - System Operation

INSPECTION

Check for damage in the following ways:

1. Examine exterior of plastic shroud and inside pole receiver for cracks. Replace shroud if cracks are found.
2. Examine cover of on/off switch for cracks. Replace switch if cracks are found.

TROUBLESHOOTING

CAUTION: Risk of electric shock.

If your product fails to operate:

1. Make sure the electrical outlet GFCI or circuit breaker and extension cord is working.
2. Check for operation of tip switch. The ON/OFF switch light can be on but the tip switch OFF. Move product until a "click" is heard. To prevent damage of tip switch post, do not slide product.
3. Look for obstructions around fan. If you find an obstruction, turn the product OFF and UNPLUG THE PRODUCT. Have the product serviced by a qualified individual.
4. Check for tripped thermal protector. Motor and heating element do not operate. Wait 10 minutes for product to cool. Push reset button. See *Thermal Limit Switch* below.

THERMAL LIMIT SWITCH

If product is used in temperatures below 75° F (28.9° C), the limit switch should not require resetting unless there is a malfunction. If a malfunction does occur, have the product serviced by an authorized service center.

Resetting Thermal Limit Switch

1. Unplug product.
2. Allow product to cool.
3. Turn product upside down.
4. Remove plug on bottom.
5. Insert provided plastic push rod through hole and guide to small red button on thermal limit switch (see Figure 5). A flashlight will improve visibility.
6. Lightly push red button to reset switch.

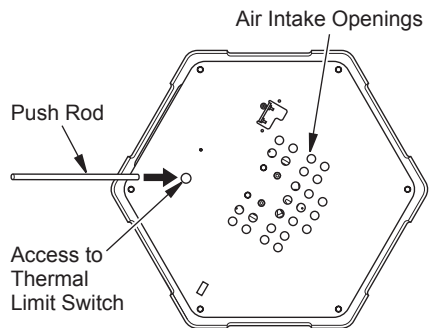


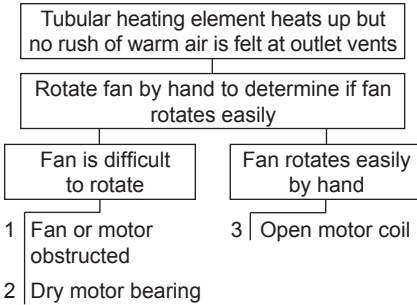
Figure 5 - Resetting Thermal Limit Switch

TROUBLESHOOTING

Continued

7. Replace removed plug in hole. Perform a trial operation.
8. If repeated resetting of the thermal limit switch is required, have the product serviced by an authorized service center.

OBSERVED FAULT



Test Procedure

1. Fan or Motor Obstructed

Remove obstruction. Clean heater.

2. Dry Motor Bearing

If the fan is difficult to turn, then motor bearings are defective. Bearings are permanently lubricated, therefore motor should be replaced.

3. Open Motor Coil

Disconnect motor wires (black and white). Attach the ohmmeter leads to the motor wire terminals. Using the 0 to 200 ohm scale, measure the resistance of the motor coil. If the resistance is not approximately 6.0 to 6.4 ohms at 73° F, the motor is defective and should be replaced.

Note: Resistances may vary due to motor temperature.

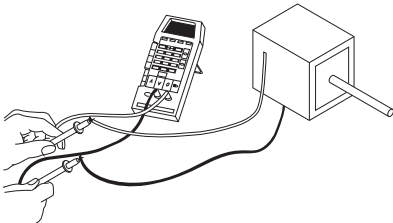
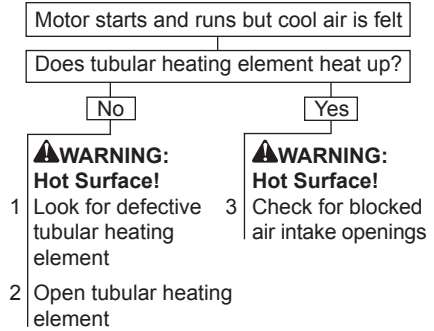


Figure 6 - Testing Motor

OBSERVED FAULT



Test Procedure

1. Look for Defective Tubular Heating Element

After approximately 2 minutes the tubular heating element should glow a dull red when placed in a dark area.

2. Open Tubular Heating Element

Disconnect element wires (black and white). Attach the ohmmeter leads to the element wire terminals. Using the 0 to 200 ohm scale, measure the resistance of the element. If the resistance is not 8.5 to 11 ohms at 73° F the element is defective and should be replaced. **Note:** Resistances may vary due to element temperature.

3. Check for Blocked Air Intake Openings

Check for blockages around vent openings at bottom of heater (see Figure 5, page 6).

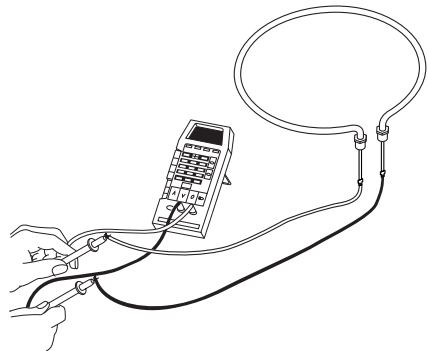


Figure 7 - Testing Heating Element

REASSEMBLY POINTS

Because this is an outdoor product where the control of water is important, the following steps for assembly must be followed.

1. The closed cell foam gasket must seal the hex shaped pan to the inside of the plastic housing (see Figure 8). The seal is to be completely even in the corners of joined parts.
2. The tubular heating element rubber sealing washers must be against the top surface of the steel pan and under the brass flat washers as shown in Figure 9. Nuts on opposite side of pan must be tightened 1/2 turn past finger tight.
3. Apply a SMALL drop of thread locking sealant (rated to 300° F, such as Loctite Thread Locker Blue) to each of the thermal reset switch mounting screws (see Figure 10). Torque screws to 6 to 9 inch-pounds.
4. The tip switch cover must isolate tip switch from metal base as shown in Figure 11.
5. To complete grounding of heater, all ground wires must be fixed with screws as originally assembled by the manufacturer. Additionally, internal tooth washers must be against the steel pan and under nuts as shown in Figure 12, for the tubular heating element.
6. No wires should be seen through openings in bottom of heater (see Figure 13).

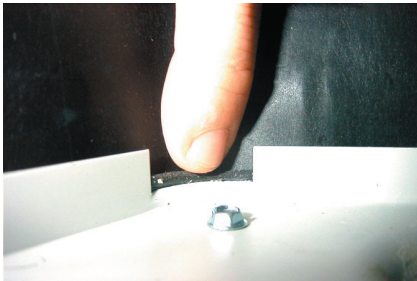


Figure 8 - Foam Gasket

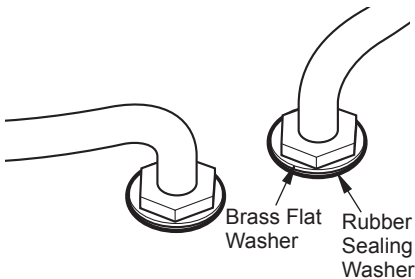


Figure 9 - Tubular Heating Element Sealing Washers

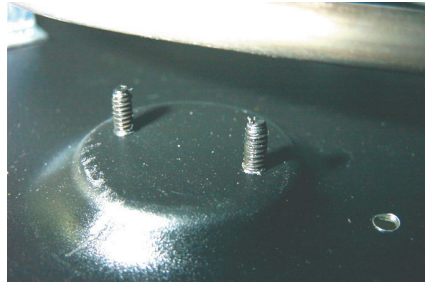


Figure 10 - Thermal Reset Switch Mounting Screws

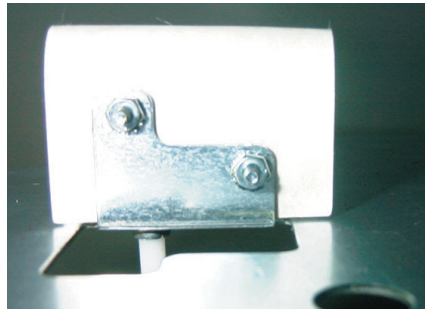


Figure 11 - Tip Switch Cover

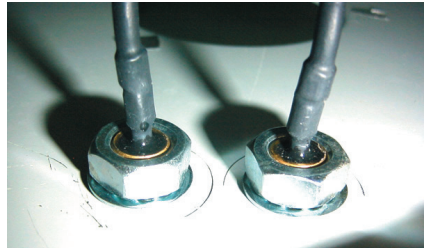


Figure 12 - Grounding of the Tubular Heating Element

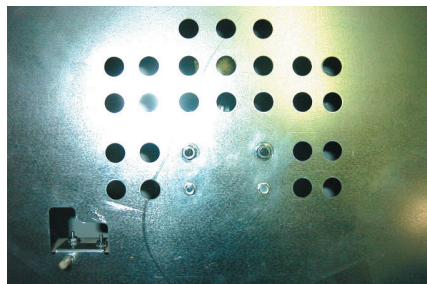


Figure 13 - Air Openings in Bottom of Heater

REASSEMBLY POINTS

Continued

- 7. Tubular heating element must be flush against bracket (see Figure 14). This centers the element to the center hole in metal pan.
- 8. Fan must be located with set screw on back of and on flat of shaft (see Figure 15).
- 9. Heater is equipped with heat reflective tape. If loose or damaged, replace tape as shown in Figures 16 and 17. Tape edge should touch top of louver openings.

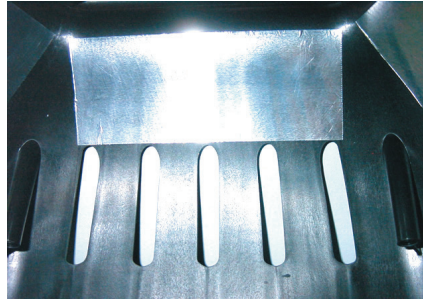


Figure 16 - Reflective Tape and Louvers

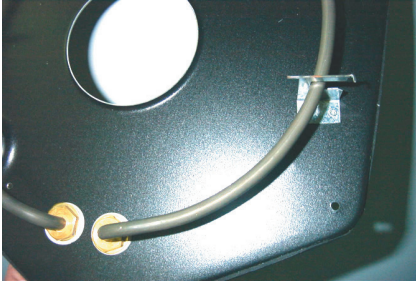


Figure 14 - Heating Element and Bracket

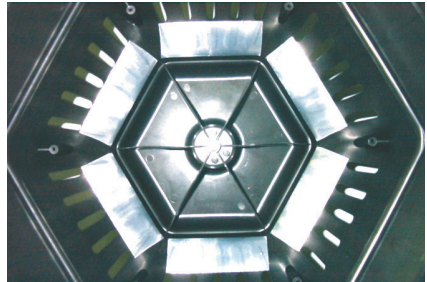


Figure 17 - Reflective Tape on All Louvers

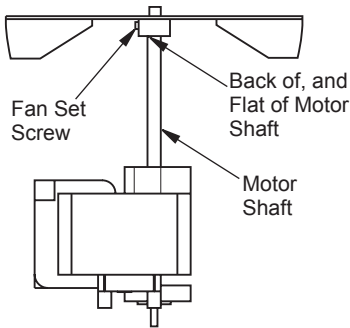
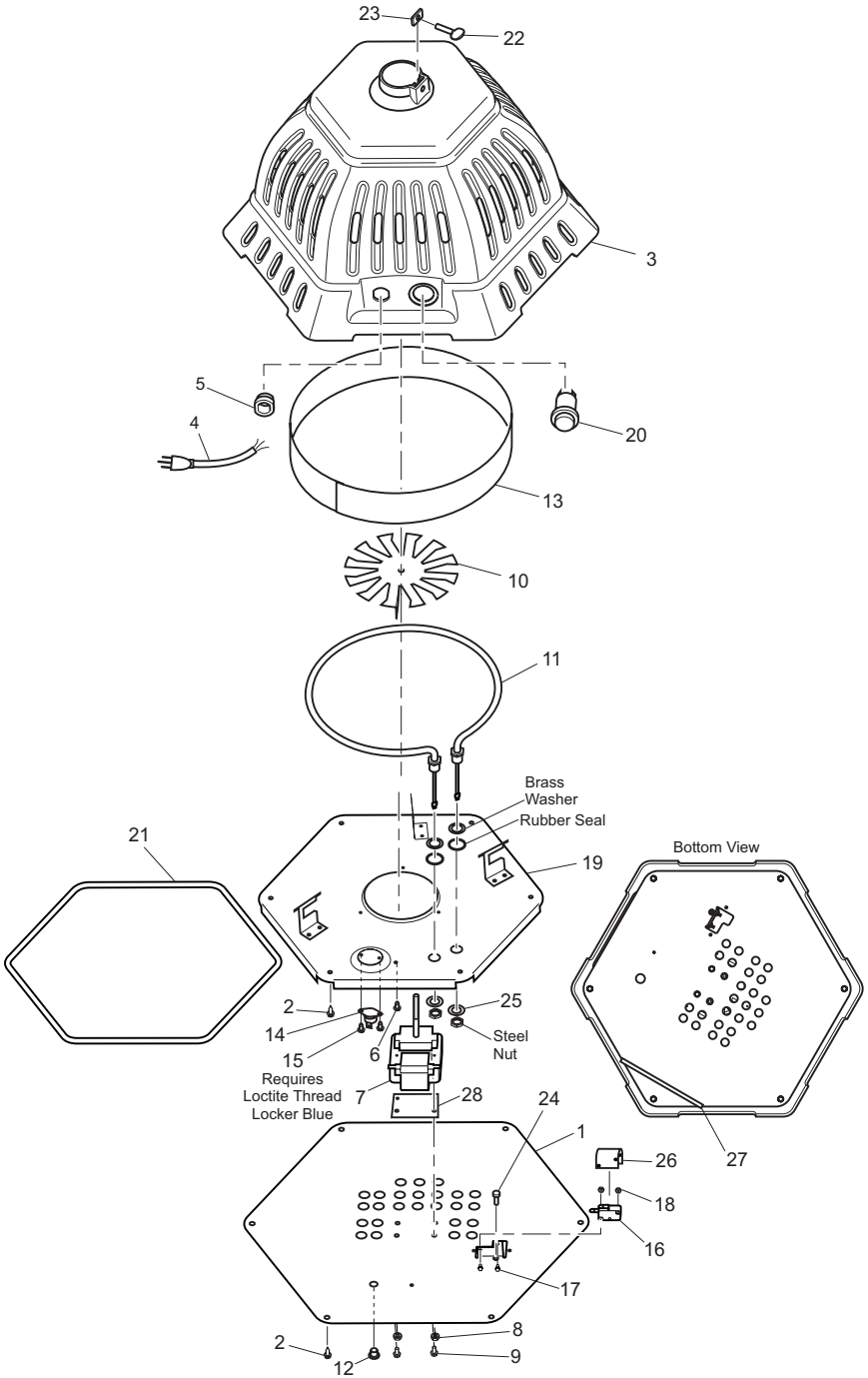


Figure 15 - Fan and Motor

ILLUSTRATED PARTS BREAKDOWN



PARTS LIST

This list contains replaceable parts used in your product. When ordering parts, be sure to provide the correct model and serial numbers (from the identification decal), then the part number and description of the desired part.

KEY NO.	PART NUMBER	DESCRIPTION	QTY.
1	113560-01	Galvanized Steel Base	1
2	M11084-39	Screw, #8-18 x 1/2" Hex Head	12
3	113053-01	Plastic Umbrella Body	1
4	113152-01	Power Cord	1
5	113570-01	Bushing, Power Cord Strain Relief	1
6	M10908-14	Screw #8-32 x 3/8" Hex Head	2
7	113562-01	Motor, "C" Frame	1
8	097384-02	Nut, Captive Washer #8-32	2
9	M12461-14	Screw, #8-32 x 3/8" Hex Head	2
10	113563-01	Fan	1
11	113059-01	Element, 1500 Watt Heating	1
12	103457-01	Button Plug	1
13	114679-01	Screen Guard Kit	1
14	114025-01	Manual Reset Limit Switch	1
15	M10908-2	Screw, #6-32 x 3/8" Hex Head	2
16	107729-01	Tip Switch	1
17	097968-07	Screw, #4-40 x 3/4" Hex Head	2
18	097384-04	Captive Washer Nut	2
19	**	Mounting Pan Kit	1
20	113558-01	On/Off Switch	1
21	097785-10	Gasket Seal	1
22	113578-01	Thumb Screw, 1/4 - 20 x 1	1
23	113577-01	Nut, 1/4-20 Weld	1
24	113200-01	Tip Switch Actuator	1
25	WLI-8	Lock Tooth Washer	2
26	114024-01	Tip Switch Cover	1
27	114030-01	Push Rod	1
28	113251-02	Rubber Motor Mount	1
PARTS AVAILABLE - NOT SHOWN			
	113579-01	Black Wire Assembly 14 AWG, 6.5"	1
	113579-02	Green Wire Assembly 14 AWG	2
	113579-03	Black Wire Assembly 14 AWG, 9.5"	1
	098303-02	Motor Ground Wire Screw, #6-20 x 5/16" Hex Head	1
	113613-01	Identification Decal	1
	113611-01	Cord Tag	1
	114966-02	Warning Decal	1
	115498-01	Heat Reflective Tape, 2 x 4.5"	6

**Not a field replaceable part.

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