

# **INSTRUCTION MANUAL**

## **WITH PARTS LIST**

**MODEL BV-200 VENTED HEATER**



**Master**  
**Division of Koehring Company**

## OPERATING INSTRUCTIONS

### SECTION I INTRODUCTION

#### GENERAL

The purpose of this Instruction Manual is to give users of the Model V-200 Heater a working knowledge of the unit, and to provide instructions for use when the heater requires service. A repair parts list is also included in the rear of this Manual.

The Model V-200 Heater is for use anywhere temporary portable heating is required, and adequate ventilation is available. The unit is designed for many hours of trouble-free operation under rugged conditions. The heater has been tested and fired at the factory before shipment.

#### SPECIFICATIONS

Rating . . . . .	140, 00 BTU
Fuel . . . . .	Kerosene or No. 1 fuel oil
Motor . . . . .	1725 RPM, 115V, 60 cycle single phase
Fan . . . . .	Four-blade, 14 inch diameter
Amperage . . . . .	10 amps (During normal run)
Exhaust stack required	Yes
Fuel tank capacity . . .	13 gal.

### SECTION II OPERATION

#### To Start

To start the space heater, plug the unit into a 115 volt, 60 cycle power outlet. Set the thermostat (Figure 3, Item 28) to the desired setting. The thermostat setting must be above the temperature of the area in which the heater is located. The heater will ignite immediately and provide instant heat.

#### CAUTION

Heater vent must be connected to an exhaust stack and must be at least four (4) feet from any combustible materials.

If plugged into current other than that specified on heater instruction plate, transformer will burn up.

#### Applying Adapter to Service Cord

The heater extension cord is equipped with a three prong plug, and an adapter must be used to connect into a standard receptacle that receives only two prongs. These adapters can be purchased from local

hardware and electrical supply stores. The adapter is equipped with a green lead, with or without a terminal, and must be attached to a ground source. In most instances the receptacle box is grounded, as electrical codes require, and can be used for this purpose. By loosening one of the metal screws that holds the receptacle in the box, the green lead can be inserted between the box and the metal arm of the receptacle and tightened. This procedure grounds the frame of the unit.

#### To Stop

To stop the space heater, set the thermostat to a low temperature. After 90 seconds motor should stop. Unplug the electrical cord from power supply.

#### Extension Cord Wire Sizes

Length of Extension Cord	Wire Size (AWG)
100 feet	12
200 feet	10
300 feet	8
400 feet	6
500 feet	4

### SECTION III

#### MAINTENANCE PROCEDURES

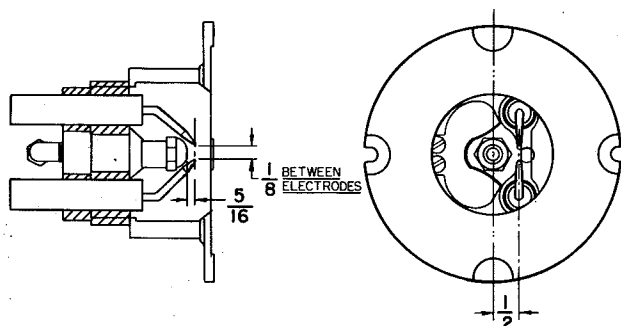


Figure 1. Burner Electrode Settings

#### CLEANING

##### Fuel Tank

Drain and flush after every 150 hours of operation with clean fuel oil.

##### Filter

Clean the fuel filter (Figure 4, Item 32) after each 250-hour operating period. To clean the filter; unscrew the filter can (33) and remove the element. Rinse the bowl in clean kerosene and wipe dry with a clean cloth. Be sure all residual material is removed from the bowl. Install the bowl using a new filter element.

##### Fan

Fan blades must be cleaned twice a season or as needed (every 500 hours of operation). Accumulation of dust and dirt will reduce air supply.

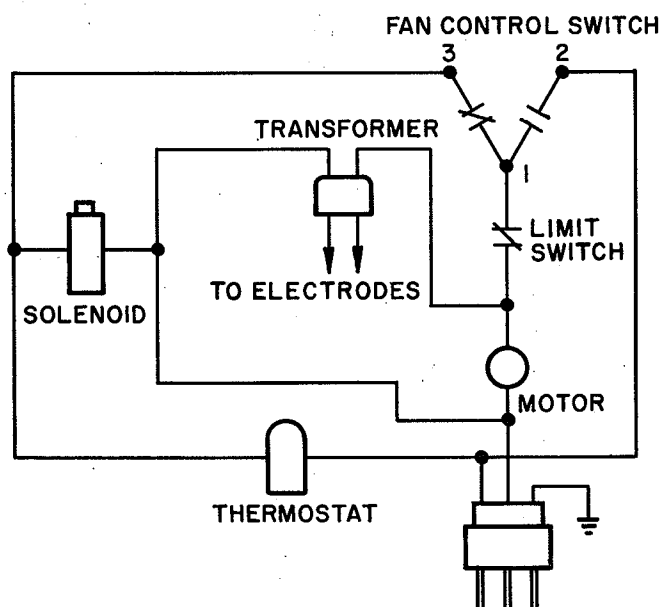
Remove access door (54) and wipe blades with clean cloth. If deposits will not come off readily use kerosene or solvent on tip of cloth. Blades must be dried thoroughly. Replace access door.

##### Burner

To remove burner head assembly (21) for cleaning, remove access door (54) by removing two screws. Disconnect fuel line (40) at both ends and also electrode leads that are attached at back of burner on electrodes. Remove screw (22A) to release burner, and withdraw straight out toward fan.

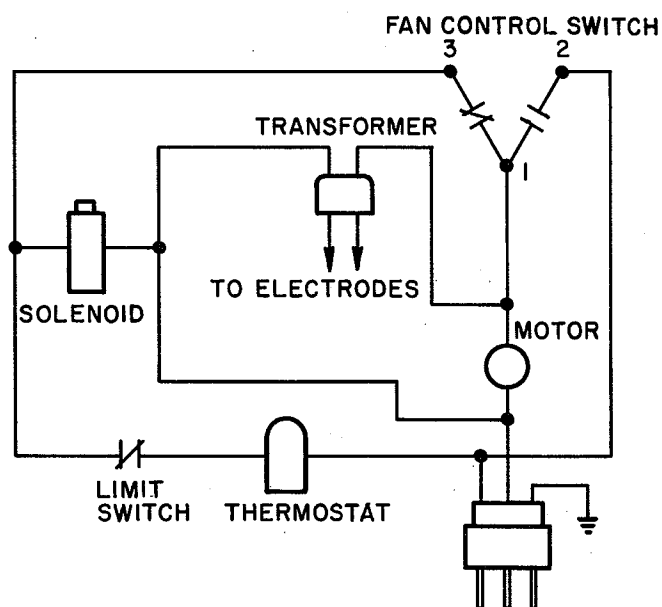
Soak complete burner head in non-flammable liquid cleaning agent (do not use kerosene or fuel oil) for one hour and blow out through both fittings in rear of head. Do not attempt to remove nozzle or open passage with a drill, as you will damage it beyond repair.

Reassemble burner in heater, after checking electrode settings according to manual instructions, Figure 1, making sure burner is snug against combustion chamber backplate. Install and tighten screw (22A). Tighten connections on fuel line securely and electrode leads must be inserted until they snap into place. Replace access door.



USED BEFORE SERIAL NO. 500,000

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USED AFTER SERIAL NO. 500,000

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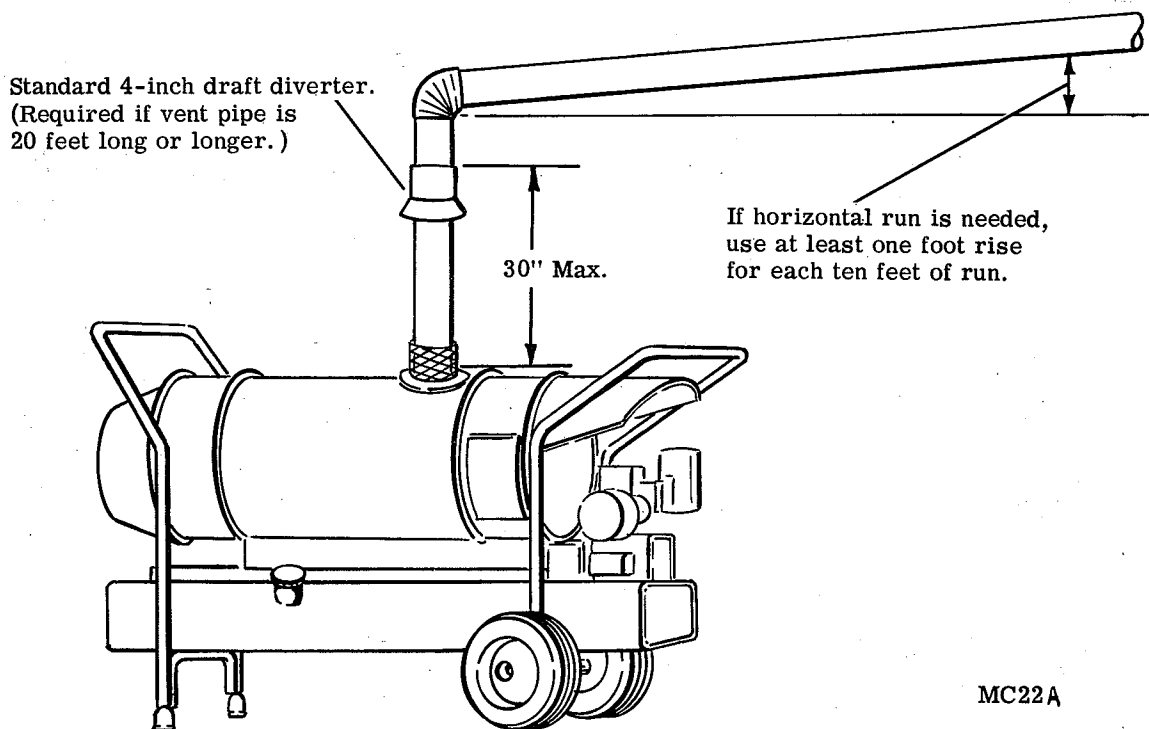
Figure 2. Wiring Diagram For Thermostatically Controlled Heater with Fan Control Unit.

## VENTING INSTRUCTIONS

### V-200 SERIES VENTED HEATERS

Be sure that the heater is vented properly, in order to assure proper combustion. Follow these simple instructions for venting the heater. (Diverter, vent pipe, and fittings are not supplied with the heater, and must be furnished at installation.)

1. If the run of vent pipe (either horizontal, vertical, or combined) is 20 feet or less, it is NOT necessary to use a draft diverter.
2. If the total run of vent pipe is more than 20 feet, use a draft diverter in the pipe. Any standard 4-inch back-draft type draft diverter is satisfactory. Place it a maximum of 30 inches above the heater exhaust outlet.
3. If it is necessary to run the vent pipe in an almost-horizontal direction, be sure that there is at least one foot of rise for every ten feet of run. The more rise (upward slope) the pipe has, the more efficient will be the venting.



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## SECTION IV . . . . PARTS LIST

Figure & Index No.	Part Number	Part Name	Units Per Assy
3-1	M12848	Tie Rod . . . . .	1
-2	M12461-62	Screw, Hex Head . . . . .	4
-3	M12855G1	Front Handle Assembly . . . . .	1
-4	M12461-70	Screw, Hex Head . . . . .	2
-5	M3304-2	Rubber Tip, Handle . . . . .	2
-7	M10908-1	Screw, Hex Head . . . . .	3
-8	M13683	Tech Data and Name . . . . .	1
-9	M10908-27	Screw, Hex Head . . . . .	11
-10	M11242G1	Stack Guard Assembly . . . . .	1
-11	M12858G1	Rear Handle Assembly . . . . .	1
-12	HF5-7	Screw, Hex Head . . . . .	4
-13	WP-5	Washer, Flat . . . . .	4
-14	No number	Outer Shell and Burner Group (See figure 4) . . . . .	-
-15	M3259-4	Transformer . . . . .	1
-16	NLF-3	Nut, Flexloc . . . . .	2
-17	M12096	Support, Pump . . . . .	1
-18	57413	Street Elbow . . . . .	1
-19	M3334G3	Fuel Line Assembly . . . . .	2
-20	M10923G1	Intake and Return Tubes . . . . .	2
-21	M12812G1	Fuel Tank Assembly . . . . .	1
-22	M12818	Axle . . . . .	1
-23	M10911	Spacer . . . . .	2
-24	M10909	Wheel . . . . .	2
-25	WP-10	Washer, Flat . . . . .	2
-26	C5-10	Cotter Pin . . . . .	2
-27	M10908-26	Screw, Hex Head . . . . .	2
-28	M4037-3	Thermostat . . . . .	1
-30	M12790	Bracket, Thermostat . . . . .	1
-32	M8257	Plug, Pipe . . . . .	1
-33	M12461-27	Screw, Hex Head . . . . .	3
-34	NLC-4	Nut, Flexloc . . . . .	4
-34A	NLC-2	Nut, Flexloc . . . . .	4
-34B	WLI-2	Lockwasher . . . . .	2
-34C	M12097	Plate, Stiffener . . . . .	1
-35	M10813G12	Extension Cord Assembly . . . . .	1
-36	NPC-4	Nut, Hex . . . . .	2
-36A	WP-4	Washer, Flat . . . . .	4
-37	NLF-5	Nut, Flexloc . . . . .	4
-38	M12461-64	Screw, Hex Head . . . . .	4
-39	M5837	Cover, Box . . . . .	1
-40	69321-61	Connector . . . . .	4
-41	M3307	Utility Box . . . . .	1
-42	M11450G1	Motor Bracket Assembly . . . . .	1
-43	M3530	Grommet . . . . .	5
-44	M5845G15	Motor to Box Cable Assembly . . . . .	1
-45	M5655G7	Control to Box Cable Assy (Used before Serial No. 500,000) . . . . .	1
-45	M15082G1	Control to Box Cable Assy (Used after Serial No. 500,000) . . . . .	1
-45A	M11084-16	Screw, Hex Head . . . . .	6
-45B	WLE-4	External Lockwasher . . . . .	6
-46	M12661	Cover, Control, Box . . . . .	1
-47	M13675G1	Control Box Assembly Kit . . . . .	1
-48	M9900G31	Jumper Wire Assembly (Not used after Serial No. 500,000). . . . .	1
-48A	NPC-2C	Hex Nut . . . . .	4
-48B	M12301	Spring . . . . .	4
-48C	M12297-1	Collar . . . . .	4
-48D	M12461-18	Screw, Hex Head . . . . .	4
-48E	M12303	Thermostat - Limit . . . . .	1
-48F	M12302	Thermostat - Fan . . . . .	1
-48G	M13042	Spacer . . . . .	2
-48H	M12657G1	Assembly, Control Box . . . . .	1
-49	M3353	Cap, Fuel Tank . . . . .	1
-50	1000576	Grommet . . . . .	3
-51	M12662	Spacer . . . . .	2
-52	M12461-16	Screw, Hex Head . . . . .	2

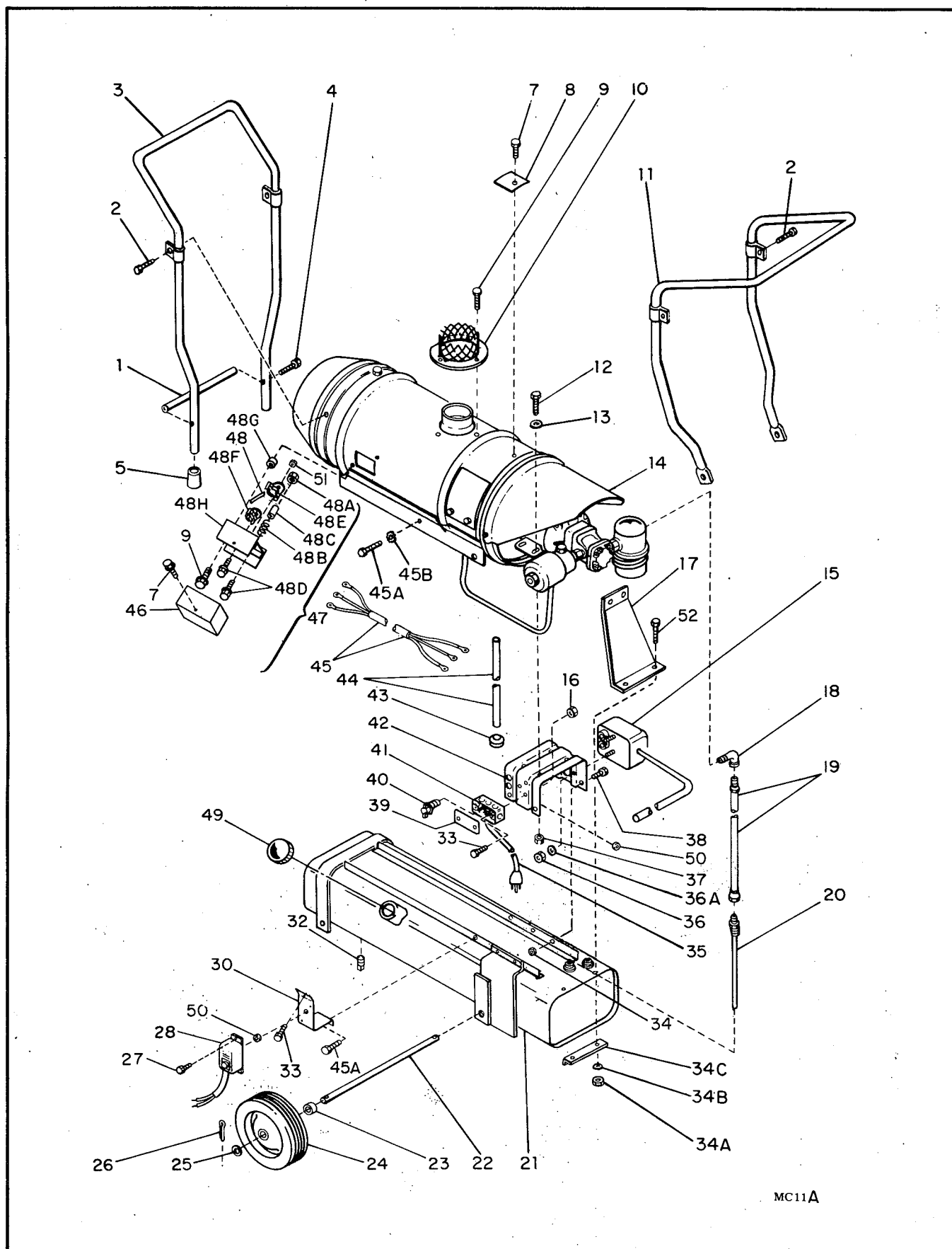
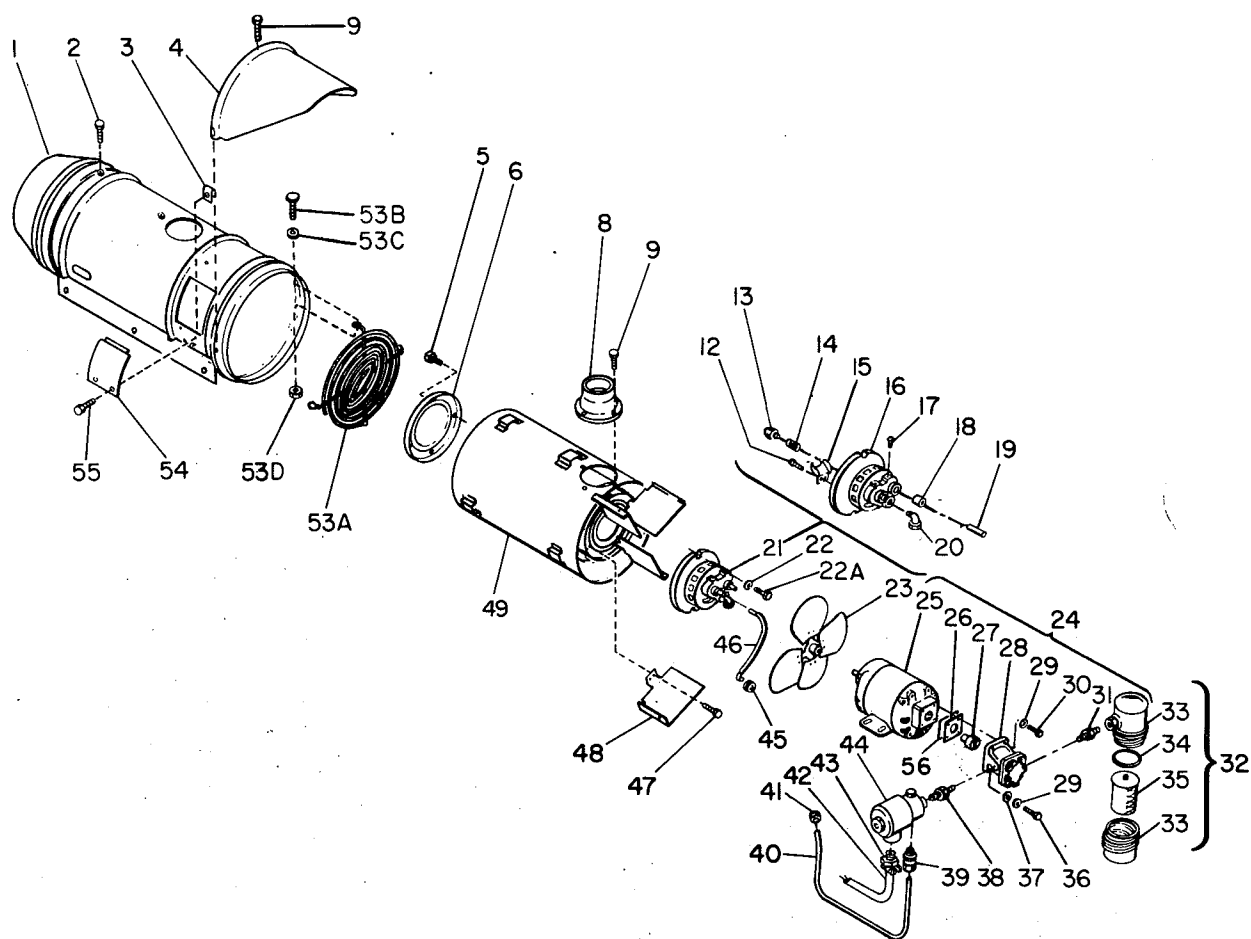


Figure 3. Heater Exploded View

Figure & Index No.	Part Number	Part Name	Unit Per Assy
4-1	M12860G1	Outer Shell Assembly	1
-2	M12461-27	Screw, Hex Head	6
-3	M11271-5	Nut, Tinnerman	2
-4	M10871	Cowl	1
-5	M11523-51	Screw, Rd Head	4
-6	M13674	Combustion Chamber Front Head	1
-8	M10851	Exhaust Casting	1
-9	M10908-27	Screw, Hex Head	8
-12	RC1-2	Screw, Rd Head	2
-13	M3107	Nozzle	1
-14	M4274	Spring	1
-15	M3978	Air Deflector	1
-16	M3853G1	Burner Body and Bushing Assembly	1
-17	HF-3-3	Screw, Hex Head, 10-32 x 3/8	2
-18	M9788	Electrode Bushing	2
-19	M3981	Electrode	2
-20	M2294	Fitting, Compression Tube	1
-21	M9107G4	Burner Head Assembly	1
-22	WP-2	Washer, Flat	2
-22A	M12461-16	Screw, Hex Head, 8-32 x 5/8	2
-23	M11230-1	Fan (*)	1
-24	M11251G1	Motor Package Assembly	1
-25	M3342	Motor (*)	1
-26	M3547	Gasket	1
-27	M3473	Coupling	1
-28	M11138-7	Pump	1
-29	WLI-5	Lockwasher	4
-30	HC5-6	Screw, Hex Head, 5/16-18 x 3/4	2
-31	M10953	Nipple, Reducing	1
-32	M3973	Filter Assembly	1
-33	M4307	Filter Can (Replacement)	1
-34	M3301-2	Filter Gasket (Replacement)	1
-35	M3301	Filter Element (Replacement)	1
-36	HC5-7	Screw, Hex Head	2
-37	WP-5	Washer, Flat	2
-38	M3297	Nipple, Reducing	1
-39	1000513	Fitting	1
-40	M11248	Fuel Line	1
-41	M3530	Grommet, 7/8	1
-42	M3486-3	Tubing, Varnished	1
-43	1001349	Connector	4
-44	M3974-1	Solenoid Valve	1
-45	1000576	Grommet, 1/2	2
-46	M10816G9	Electrode Lead Assembly	2
-47	M11084-40	Screw, Hex Head	2
-48	M11239	Deflector, Fin	1
-49	M13175G1	Combustion Chamber and Heat Exchanger Assembly	1
-53A	M11268	Fan Guard	1
-53B	M12461-27	Screw, Hex Head	2
-53C	WLI-3	Internal Lockwasher	2
-53D	NLF-3	Nut, Flexloc	2
-54	M8988G3	Access Door Assembly	1
-55	M11084-40	Screw	2
-56	M8234	Spacer	1
	M12846	Wiring Diagram	1
	M5374	Tag, "Please Read"	1
	M4950	Decal, Caution	1
	M11276	Decal, Master	1
	M11754	Decal, Mass. Approval (When Req.)	1
	M5620	Operating Instructions	1

(\*) Fans and Motors now supplied with keyways.

May be used interchangeably with former parts; no change in part numbers.



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Figure 4. Outer Shell and Burner Group



## WARRANTY

Manufacturer warrants each new Product made by Manufacturer to be free from defects in material and workmanship, its obligation and liability under this Warranty being expressly limited to repairing or, at Manufacturer's option, replacing free of charge at its factory any part proving defective under normal use and service within ninety days of operation after date of delivery to a customer as attested by Distributor. Parts claimed to be defective and for which repair or replacement is desired shall be, if requested by Manufacturer, returned transportation prepaid to Manufacturer's factory for inspection. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE, AND THE OBLIGATION AND LIABILITY OF MANUFACTURER UNDER THIS WARRANTY SHALL NOT INCLUDE ANY TRANSPORTATION OR OTHER CHARGES OR THE COST OF INSTALLATION OR ANY LIABILITY FOR DIRECT, INDIRECT OR CONSEQUENTIAL DAMAGES OR DELAY RESULTING FROM THE DEFECT. Any operation beyond rated capacity or the improper use or application of Product or the substitution upon it of parts not approved by Manufacturer or any alteration or repair by others in such manner as, in Manufacturer's judgment, to affect the Product materially and adversely shall void this Warranty. No representative of Manufacturer is authorized to change this Warranty in any way, and no attempt, effort or promise to repair Products of Manufacturer either by Manufacturer or by any representative of Manufacturer at any time shall change or extend this Warranty in any way. This Warranty covers only new and unused Products Manufactured by Manufacturer. Products manufactured by others are covered only by such warranties as are extended to Manufacturer by its suppliers.

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In accordance with our established policy of constant improvement, we reserve the right to amend these specifications at any time without notice. THE ONLY WARRANTY APPLICABLE IS OUR STANDARD WRITTEN WARRANTY. WE MAKE NO OTHER WARRANTY, EXPRESSED OR IMPLIED, AND PARTICULARLY MAKE NO WARRANTY OF SUITABILITY FOR ANY PARTICULAR PURPOSE.



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