

# OPERATING INSTRUCTIONS AND OWNER'S MANUAL

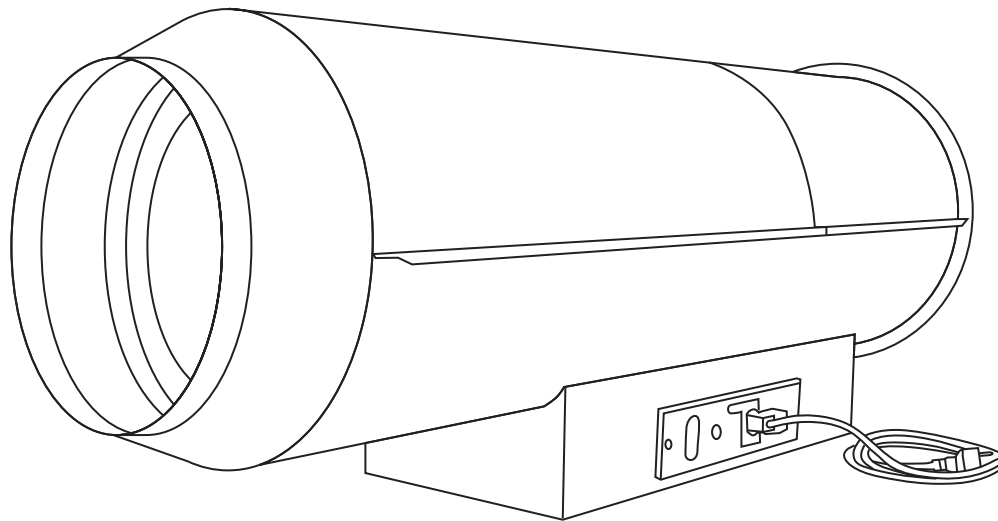
**READ INSTRUCTIONS CAREFULLY:** Read and follow all instructions. Place instructions in a safe place for future reference. Do not allow anyone who has not read these instructions to assemble, light, adjust or operate the heater.

**HEATSTAR  
BY ENERCO**

MODEL

4000IDG

Smoky Mountain Emporium, Ltd  
2186 Pisgah Hwy  
Candler, NC 28715  
828-670-1970  
828-665-2128 Fax  
[www.smgeneralstore.com](http://www.smgeneralstore.com)  
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## NATURAL GAS/LPG FIRED HEATER

**WARNING:** If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Service must be performed by a qualified service agency.

This is a vented portable heater. It uses air (oxygen) from the area in which it is used. Adequate combustion air and ventilation must be provided. Refer to page 5.

**WARNING:**

⚠ YOUR SAFETY IS IMPORTANT TO YOU AND TO OTHERS, SO PLEASE READ THESE INSTRUCTIONS BEFORE YOU OPERATE THIS HEATER.

**GENERAL HAZARD WARNING:**

- ⚠ FAILURE TO COMPLY WITH THE PRECAUTIONS AND INSTRUCTIONS PROVIDED WITH THIS HEATER, CAN RESULT IN DEATH, SERIOUS BODILY INJURY AND PROPERTY LOSS OR DAMAGE FROM HAZARDS OF FIRE, EXPLOSION, BURN, ASPHYXIATION, CARBON MONOXIDE POISONING, AND/OR ELECTRICAL SHOCK.
- ⚠ ONLY PERSONS WHO CAN UNDERSTAND AND FOLLOW THE INSTRUCTIONS SHOULD USE OR SERVICE THIS HEATER.
- ⚠ IF YOU NEED ASSISTANCE OR HEATER INFORMATION SUCH AS AN INSTRUCTIONS MANUAL, LABELS, ETC. CONTACT THE MANUFACTURER.

**WARNING:**

⚠ NOT FOR HOME OR RECREATIONAL VEHICLE USE

**WARNING:**

⚠ FIRE, BURN, INHALATION, AND EXPLOSION HAZARD. KEEP SOLID COMBUSTIBLES, SUCH AS BUILDING MATERIALS, PAPER OR CARDBOARD, A SAFE DISTANCE AWAY FROM THE HEATER AS RECOMMENDED BY THE INSTRUCTIONS NEVER USE THE HEATER IN SPACES WHICH DO OR MAY CONTAIN VOLATILE OR AIRBORNE COMBUSTIBLES, OR PRODUCTS SUCH AS GASOLINE, SOLVENTS, PAINT THINNER, DUST PARTICLES OR UNKNOWN CHEMICALS.

**WARNING:**

⚠ **The State of California requires the following warning:** COMBUSTION BY-PRODUCTS PRODUCED WHEN USING THIS PRODUCT CONTAIN CARBON MONOXIDE, A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS (OR OTHER REPRODUCTIVE HARM).

**WARNING:**

**READ THE INSTRUCTIONS GIVEN IN THIS MANUAL BEFORE USING THE APPLIANCE.**

- THE ELECTRICAL SYSTEM TO WHICH THE APPLIANCE IS CONNECTED MUST COMPLY WITH ALL SAFETY REGULATIONS IN FORCE. A RESIDUAL CURRENT CIRCUIT BREAKER MUST BE PROVIDED ON THE MAIN DISTRIBUTION BOARD.
- UNPLUG THE HEATER BEFORE ATTEMPTING ANY SERVICE OR MAINTENANCE.
- ALWAYS CHECK THE POWER SUPPLY CABLE BEFORE USE. IT MUST NOT BE BENT, CRUSHED, OR ANYWAY DAMAGED.
- THE POWER SUPPLY CABLE MUST BE REPLACED ONLY BY QUALIFIED PERSONNEL.
- ONLY USE AN ORIGINAL H07RN-F POWER CABLE WITH WATERPROOF PLUG.
- DO NOT TOUCH THE EXHAUST GAS OUTLET. DANGER OF BURNS!

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## IMPORTANT

Before using the heater, read and understand all instructions and follow them carefully. The manufacturer is not responsible for damages to goods or persons due to improper use of units.


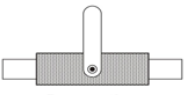
## GENERAL RECOMMENDATIONS

This indirect-fired heater runs on natural gas or L.P.G. and is fitted with a flue to take the fumes away through the chimney.

Prior to shipping, the heater is configured for either natural gas or LP, labeled on the gas selector valve for the correct fuel type and given a complete functional test. To change the type of gas, follow the detailed instructions indicated in section "CHANGING TYPE OF GAS".

Always follow local ordinances and codes when using this heater:

- Read and follow this owner's manual before using the heater.
- Use only in places free of flammable vapors or high dust content.
- Never use heater in immediate proximity of flammable materials (the minimum distance must be 6 ft.).
- Make sure fire fighting equipment is readily available.
- Make sure sufficient fresh outside air is provided according to the heater requirements. Direct combustion heaters should only be used in well vented areas in order to avoid carbon monoxide poisoning.
- The heater is installed near a chimney to take away the fumes (see "Ventilation" on page 5) and connected to an electrical switchboard.
- When the heater is connected to a flue pipe, the flue pipe shall terminate in a vertical section at least 3 feet long and sufficient draft shall be created to assure safe and proper operation of the heater.
- Never block air inlet (rear) or air outlet (front).
- In case of very low temperatures add kerosene to the heating oil.
- Make sure heater is always under surveillance and keep children and animals away from it;
- Before starting the heater always check free rotation of ventilator fan.
- Indirect fired units only can be connected to air ducts to distribute warm air, with respect to the max. static pressure declared (see "TECHNICAL SPECIFICATION" sheet).
- Unplug heater when not in use.

TECHNICAL SPECIFICATIONS			HS 4000IDG
Heat input		[kBTU/h]	380
Air flow		[cfm]	3,250
Heat output		[kBTU/h]	328.7
Natural Gas	Supply pressure	[in WC]	min 7' w.c. max 10" w.c.
	Burner pressure	[in WC]	6.40
	Fuel consumption	[CFH]	355.97
	Position of gas selector value	 Natural Gas Position	
LPG	Supply pressure	[in WC]	min 8' w.c. max 13' w.c.
	Burner pressure	[in WC]	7
	Fuel consumption	[CFH]	133.89
	Position of gas selector value	 Propane Gas Position	
Power supply	Phase		1
	Voltage	[V]	120
	Frequency	[Hz]	60
Electric consumption		[W]	1400
		[A]	13.0
Adjustment of combustion air flap		[N]	3.0
Ring Nozzle		[in]	N. 12 holes x 0.106"
Gas inlet connection thread		[psi]	3/4" HPT
Flue		[in]	5.91
Static pressure		[in]	0.60
Compulsory flue draft		[in]	0.05
Maximum air temperature		[°F]	250
Base unit	Dimensions, L x W x H	[in]	72.3 x 31.6 x 30.4
	Weight	[lb]	306
Packaging	Dimensions, L x W x H	[in]	74.1 x 26.0 x 35.83
	Weight	[lb]	361

## INSTALLATION

### **⚠ WARNING**

- All the operations described in this paragraph must be performed by professional and skilled personnel

When equipped for Natural Gas, the installation shall conform with local codes or, in the absence of local codes, with the National Fuel Gas Code ANSI Z223.1/NFPA 54 and the Natural Gas and Propane Installation Code, CSA B149.1.”

When equipped for propane

- The installation must conform with local codes or, in the absence of local codes, with the Standard for the Storage and Handling of Liquefied Petroleum Gases, ANSI/NFPA 58 and the Natural Gas and Propane Installation Code, CSA B149.1.
- Heater shall not be directed toward any propane/gas container within 6 m (20 feet)
- Size and capacity of gas cylinders shall be properly dimensioned according to the gas flow in Tab.1
- The cylinder supply system shall be arranged to provide for vapor withdrawal from the operating cylinder
- After having connected to gas cylinder, open the supply tap and check the supply pipe and fittings for gas leaks. Only use foam soap or an approved leak detector.
- The gas shall be turned off at the propane supply cylinder(s) when the heater is not in use.
- When the heater is to be stored indoors, the connection between the propane supply cylinder(s) and the heater must be disconnected and the cylinders removed from the heater and stored in accordance with Standard for the Storage and Handling of Liquefied Petroleum Gases, ANSI/NFPA 58 and CSA B149.1, Natural Gas and Propane Installation Code.

**⚠ WARNING** Never use free flames to detect gas leaks

## ELECTRICAL CONNECTIONS

**⚠ WARNING** The power line of the generator must feature an earth lead and a residual current circuit breaker. The supply cable must be connected to a switchboard with sectioning switch.

Every heater is supplied along with the safety and control devices which are indispensable to the correct functioning of the unit being already electrically connected.

**⚠ WARNING** Electrical grounding shall be in compliance with the National Electrical Code ANSI/NFPA 70 or the CSA C22.1 Canadian Electrical Code, Part I.

The following operations must now be carried out:

- Plug in the power cord having read the rating plate that specify electric supply characteristics.
- Connect accessories such as the room thermostat or clock to the unit’s control panel with the thermostat receptacle.

Having completed all these operations check carefully that all electrical connections correspond to the wiring diagram. When the heater is first turned on you must check that the fan does not use more current than the maximum permitted limit.

## GAS LINE CONNECTIONS

The connection to the gas feed pipe, whose sizes must correspond to the kind of system to be made, must be carried out by placing the “gas ramp” as indicated in Fig. 2: the gas pipe (1), the interception tap (2) and the anti-vibration joint (3) are not supplied with the heater and they must be arranged by the person in charge of installation.

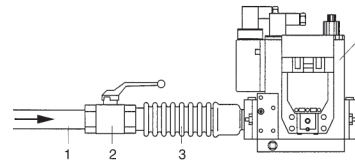


Fig. 2

## STARTUP

The heater is supplied after a complete functional test and it’s therefore prearranged for one of the gas (natural or L.P.G.) indicated in Tab. I: an adhesive label applied on the gas selector valve (13) indicates the working gas (usually it’s natural gas). Should it necessary to change the kind of gas (from natural gas to L.P.G or vice-versa) follow the detailed instructions indicated in section “CHANGING TYPE OF GAS”.

Only when the heater has been prearranged according to the proper working gas it will be possible to carry out the following operations:

- Leak away some gas from the feed pipe;
- Check that the pipe is gas proof;
- Open the gas stopcock and start the hot air generator;

## CHANGING TYPE OF GAS

This operation may be carried out several times during the working life of the machine and not only at initial startup. Therefore, first of all check the adhesive label attached to the gas selector valve (13) in Fig. (1) to establish the original category of the gas and then consult Tab. I to identify the supply pressure, the working pressure, the using conditions of manual valve.

To change kind of gas it is necessary (Fig. 3):

- to remove the sticker on the gas selector valve stating the gas used at that time,
- to remove the screw under the sticker and turn the manual handle on the correct side according to the condition described in Tab.I and by following instruction:

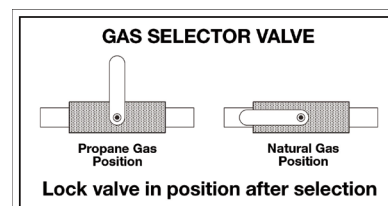


Fig. 3

- After having moved the handle into the opposite position, put again the fixing screw and a new sticker on it, stating the gas which has to be used (a number of different stickers are supplied with the machine)

**⚠ WARNING** Burner pressure shall not be adjusted: the heater is ready to run on the new gas

Should it necessary to check the burner pressure:

- connect a manometer to the pressure port (14) ,
- carry out the pressure reading on the manometer and turn the pressure regulator (15) if necessary to obtain the correct burner pressure value indicated in Tab. I

## OPERATING INSTRUCTIONS

### SWITCHING ON

- Make sure switch (8) is on “0”;
- Power the heater by means of the sectioning switch on the switchboard;
- If the unit is operated manually turn the switch (8) to
- The burner starts up, the combustion chamber heats up and then the fan starts;
- If the unit operates automatically set the room thermostat at the desired level and turn the control knob (8) to : the heater will now start and stop automatically.
- If after these operations, the generator does not work, refer to the “FAULTS, CAUSES AND REMEDIES” paragraph and find the cause.

### TURNING OFF

- In manual operation turn control knob (8) to “0” or turn off control in automatic operation.
- After switching off the machine, a post ventilation time is electronically set by a control flame box to lower the combustion chamber temperature (usually post ventilation lasts for 90 sec).

**⚠ WARNING** Finally, close the gas supply stopcock and turn of the sectioning switch (Fig. 1).

## VENTILATION

To obtain the ventilation effect only, simply turn the switch (8) to the position marked by the symbol to start the machine. To stop it, turn the switch to “O”/OFF (Fig. 1).

## TRANSPORT AND HANDLING

The heater can be raised and hung up using the four anchor holes on the casing.

**⚠ WARNING** Before moving the unit:

- Stop the machine as indicated in the “STOP” paragraph;
- Disengage the power supply by removing the plug from the power socket;
- Fully unscrew the fitting connecting the gas hose pipe to the heater;
- Wait for the heater to cool down.

## MAINTENANCE

To regulate operation of the unit, the fans, combustion chamber, the burner must be periodically cleaned.

**⚠ WARNING** Before performing any maintenance operation:

- Stop the machine as indicated in the “STOP” paragraph;
- Disengage the power supply by removing the plug from the power socket;
- Close the gas supply stopcock;
- Wait for the heater to cool down.

During cleaning any foreign bodies must be removed from the fan suction grille.

**⚠ WARNING** Do not direct jets of compressed air towards the air pressure points near the main fan: the air pressure switch could be permanently damaged.

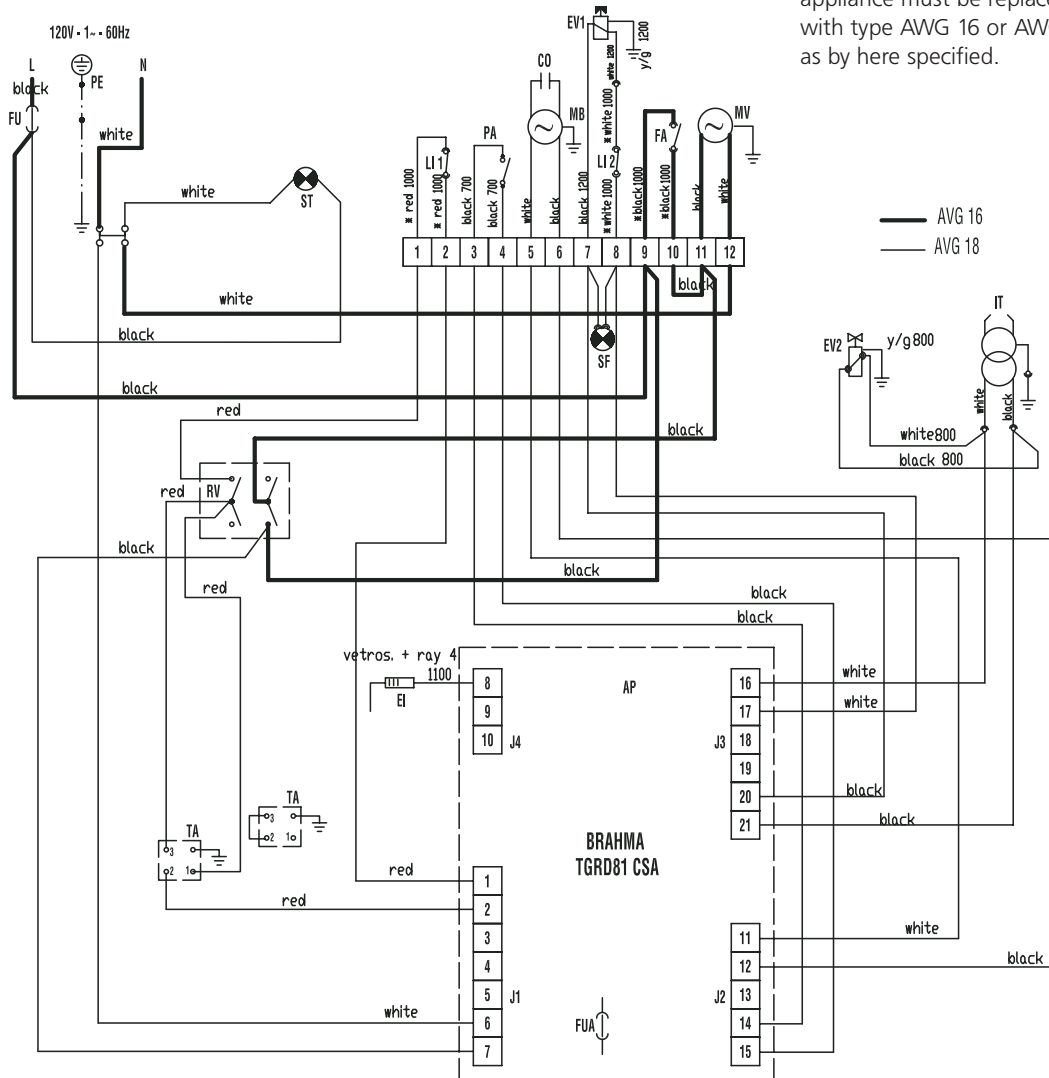
## TROUBLESHOOTING

TROUBLE	CAUSE	SOLUTION
The heater fails to start	No power supply	Check power specifications Check power connections Check fuse
	Main switch in wrong position	Select correct position
	Faulty operation of room thermostat	Check thermostat position Check thermostat operation
	Air pressure switch tripped due to fan malfunction	Check that the suction and the flow grills are unobstructed Check that the fan is running freely Check the electric motor and the condenser and, if faulty, replace them
	Air pressure switch tripped due to pressure switch malfunction	Replace the pressure switch
The heater stops and the warning light (1) comes on	The ionisation electrode does not detect a flame	Remove the flame sensor and clean it
	Safety thermostat tripped due to the combustion chamber overheating	Check that the suction and the flow grills are unobstructed Check that the room is well ventilated Check that the hot air can escape freely Check that the gas flow or pressure are not excessive
	Control unit tripped due to irregular burner operation	Contact Service Assistance
	Faulty electronic control unit	Check the unit and if necessary replace it.
	Faulty thermostat	Check the thermostat and if necessary replace it
The heater stops and then starts again	Burner thermostat tripped	Air distribution ducts too long or with insufficient diameter
Fan noise or vibrations	Foreign bodies on fan blades	Remove foreign bodies
	Little air circulation	Eliminate all possible obstacles to proper air flow

If heater still not working properly, please revert to nearest authorized dealer.

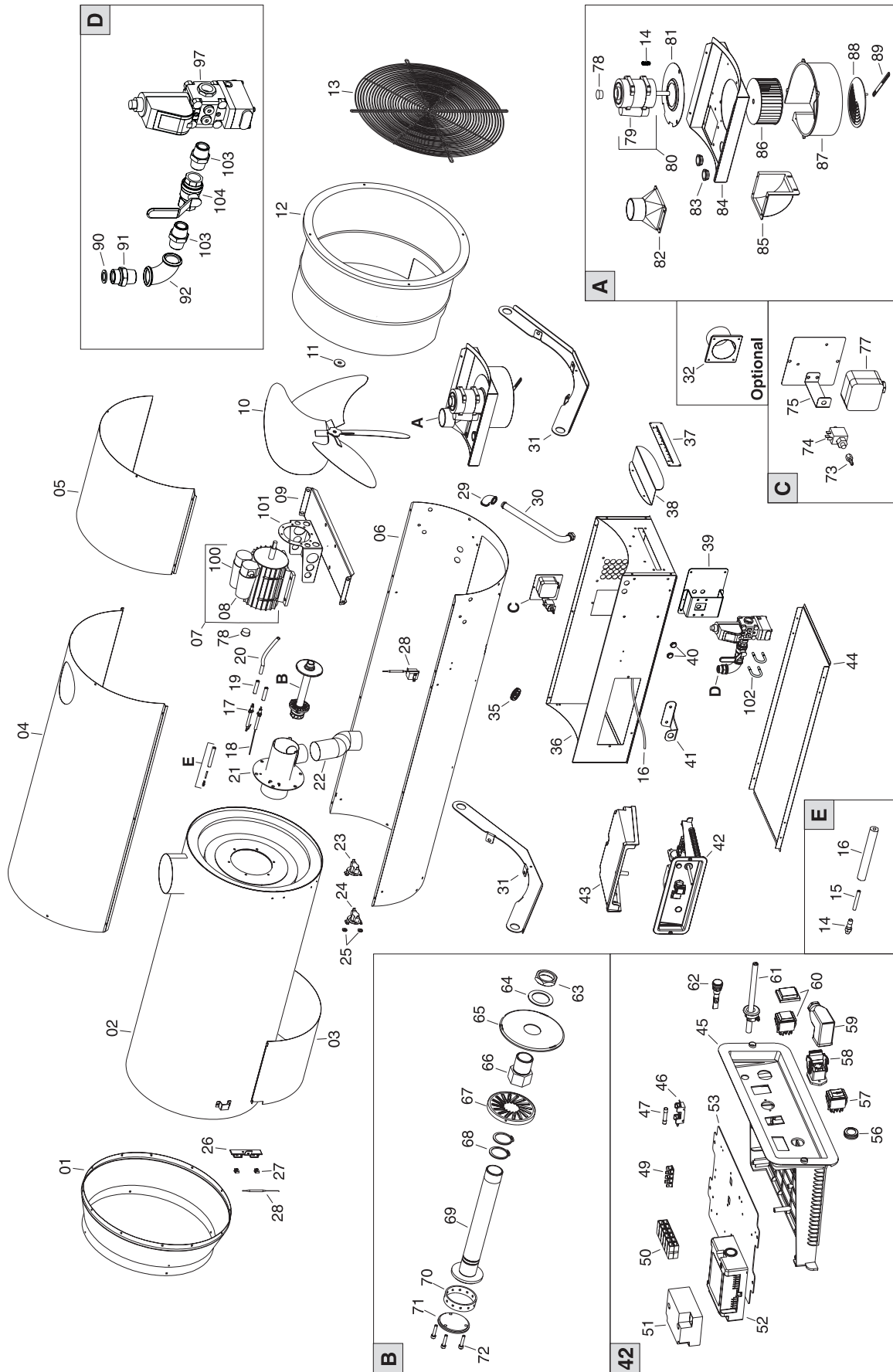
# WIRING DIAGRAM 4000IDG SERIES MODELS

If any of the original wire as supplied with the appliance must be replaced, it must be replaced with type AWG 16 or AWG 18 wire or its equivalent as by here specified.



AP	CONTROL BOX	EV2	SOLENOID VALVE II° Stage
TA	ROOM THERMOSTAT PLUG	RV	CONTROL
ST	ELECTRIC PILOT LAMP	FA	FAN THERMOSTAT
FU	FUSE	LF	ANTI-JAMMING FILTER
LI1	OVERHEAT THERMOSTAT	IT	TRANSFORMER H.V.
EV1	SOLENOID VALVE I° Stage	LI2	OVERHEAT SAFETY THERMOSTAT, LI2
MB	BURNER MOTOR	SF	FLAME LAMP
CO	CONDENSER	PA	AIR PRESSURE SWITCH
MV	FAN MOTOR	EI	IONISATION PROBE
FUA	FUSE		

# 4000IDG Series Indirect-Fired Heater



## 4000IDG Series Indirect-Fired Portable Heater Parts List

1	G06185-9010	Outlet cone
2	G06290	Combustion chamber
3	G06187	Combustion chamber support
4	G06188-9010	Upper body
5	G06189-9010	Cover inspection
6	G06291-9010	Lower body
7	E10695-110	Motor 750W with condenser
8	E11242	Condenser 50 µF
9	G06191	Motor flange
10	T10267	Fan Ø550 18°
11	M20207	Whell holder Ø 14
12	G06192-9010	Air flap
13	P30151	Inlet grille
14	I31131	Conn. Straight Ø6 M5
15	I40337	Rilsan pipe Ø4x30 mm
16	I40335	Siliconepipe Ø4x8
17	PH.0020201	Ignition electrode
18	PH.0020202	Ionisation electrode
19	I40319	Silicone pipe Ø8x12
20	G02078	H.T. Cable connect. 90°
21	G06280	Blast tube
22	I40804	Air duct L=220 mm
23	E50104	Fan Thermostat
24	E50102	Limit Thermostat
25	M20107	Washer Ø5 x Ø15 x 1,5 mm
26	G06196	Centrifuge air fan
27	M20413	Bulb support
28	E50767	Thermostat TY95A 105 °C Campini
29	I20326	Connection 3/4"FF
30	I39106	Gas tube
31	G06277-9005	Lifting bracket
32	02AC535	Air intake
35	C30376	Cable protection Ø36 mm
36	G06282-9010	Base
37	G06193	Air adjustment panel
38	G06204	Air adjustment protection
39	G06288-9005	Valve support
40	C30323	Cable protection Ø20 mm
41	G06068-9005	Power lead hook
42	G00260	El. componets drawer
43	P50127	Control box cover
44	G06278-9005	Bottompanel
45	G06289	Electr. componets drawer
46	E20508	Fuse holder
47	E10324	Fuse (6x30)25A
49	E20319	Terminal board

50	E20305	Terminal board
51	E10931	Transformer H.T. BRHAMA
52	E40229	Control box BRAHMA TGRD 81-120V
53	G06073	Plate for electrical components
56	E20418	Stop button protection
57	E10102-P	Switch 0 - 1
58	E20640	Thermostat plug 3P+T
59	E20675	Plate plug 90° 3P + T
60	E11032	Lamp
61	E30443	El. wire with plug and cable fastener
62	E11030	Lamp 230V
63	I31040	Nut 3/4"
64	M20130	Washer Ø28 x Ø40 x 2 mm
65	G06284	Burner flange Ø 102mm
66	PH.0020211	Connection 3/4" MF
67	M20315	Seeger ring E28
69	PH.0020205	Gas tube
70	PH.0020210	Diffusion ring - 12 holes Ø2,7 mm
71	I30661	Burner plate
72	M10323/1	Screw TCEI M4x20
73	I31132	Conn. Straight Ø7 1/8" F
74	T30217-115	Solenoid valve VE189HV-115V
75	G06287-9010	Solanoid valve/pressure switches support
77	E50409	Pressure switches DUNGS LGW10A2
78	C30374	Drain plug
79	E11233	Condenser 20 µF
80	E10677-110	Motor 200W with condenser
81	G06200-9010	Support fan and motor
82	C10328	Connection channel
83	C30372	Cable protection Ø35 mm
84	G06201-9010	Support fan and motor
85	C10329	90° elbow connection
86	T10269	Fan AP 170x55 F12,7
87	C10326	Spiral fan
88	G06202	Shutter for air regulation
89	G06203	Air adjustment level
90	I39102	Seal 3/4"
91	I31205-1	Connection 3/4"MM
92	I20326	Connection 3/4"FF
97	T30111	Valve ELSTER VAD1T20N
100	E11229	Condenser 80 µF
101	G06227	Fitting support
102	M20907	Valve support
103	I31204	Connection 3/4"MM
104	T30330-1	Gas selector valve

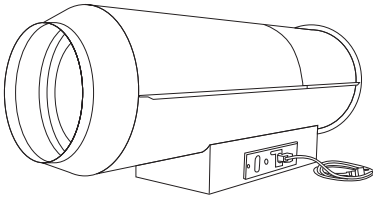
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## WARNING:

USE ONLY MANUFACTURER'S REPLACEMENT PARTS. USE OF ANY OTHER PARTS COULD CAUSE INJURY OR DEATH. REPLACEMENT PARTS ARE ONLY AVAILABLE DIRECT FROM THE FACTORY AND MUST BE INSTALLED BY A QUALIFIED SERVICE AGENCY.

## PARTS ORDERING INFORMATION:

**PURCHASING:** Accessories may be purchased at any Mr. Heater/HeatStar local dealer or direct from the factory

### FOR INFORMATION REGARDING SERVICE

Please call Toll-Free 800-251-0001 • [www.enerco-mrheater.com](http://www.enerco-mrheater.com)

Our office hours are 8:30 AM – 5:00 PM, EST, Monday through Friday.

Email to: [techservice@enerco-mrheater.com](mailto:techservice@enerco-mrheater.com)

Please include the model number, date of purchase, and description of problem in all communication.

## LIMITED WARRANTY

The company warrants this product to be free from imperfections in material or workmanship, under normal and proper use in accordance with instructions of The Company, for a period of one year from the date of delivery to the buyer. The Company, at its option, will repair or replace products returned by the buyer to the factory, transportation prepaid within said one year period and found by the Company to have imperfections in material or workmanship.

If a part is damaged or missing, call our Technical Support Department at 800-251-0001.

Address any Warranty Claims to the Service Department, Enerco Group, Inc., 4560 W. 160TH ST., Cleveland, Ohio 44135. Include your name, address and telephone number and include details concerning the claim. Also, supply us with the purchase date and the name and address of the dealer from whom you purchased our product.

The foregoing is the full extent of the responsibility of the Company. There are no other warranties, express or implied. Specifically there is no warranty of fitness for a particular purpose and there is no warranty of merchantability. In no event shall the Company be liable for delay caused by imperfections, for consequential damages, or for any charges of the expense of any nature incurred without its written consent. The cost of repair or replacement shall be the exclusive remedy for any breach of warranty. There is no warranty against infringement of the like and no implied warranty arising from course of dealing or usage of trade. This warranty will not apply to any product which has been repaired or altered outside of the factory in any respect which in our judgment affects its condition or operation.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Enerco Group, Inc. reserves the right to make changes at any time, without notice or obligation, in colors, specifications, accessories, materials and models.

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