General
COMPONENTS

THE
WOLF
SERIES

Air & Water
HEATER

MANUAL
model 6000

6000W

120V
240V

Introducing The Wolf Series.

Quiet and efficient Air & Water Heater with new high-tech variable speed and low-noise fans.

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TABLE OF CONTENTS

PREFACE

Thank you for purchasing Wolf series 6000AW Combi Heater. This service manual describes installation and operation procedures, maintenance recommendations and troubleshooting tips. Please read carefully before using the product to enjoy your comfort in a safe and efficient manner.

When installed through authorized dealers, this product is subject to two-year factory limited warranty. For terms and conditions of the warranty please contact your local dealer.

For operating instructions please refer to the Timer Manual.

1. PRODUCT INFORMATION

1.1 Ordering Information

SKU #	DESCRIPTION
GC6182	12VDC COMBI HEATER, 120VAC, DIESEL
GC6187	12VDC COMBI HEATER, 240VAC, DIESEL
GC6183	12VDC COMBI HATER, 120VAC, PROPANE
GC6188	12VDC COMBI HATER, 240VAC, PROPANE

1.2 Areas of Application

Wolf series 6000AW Combi Heater is designed for use in motor homes and recreational vehicles (RV).

RV

1.3 Technical Specifications

	Diesel	Propane
Rated DC Voltage	DC12V	DC12V
Operating Voltage Range	DC10.5V～16V	DC10.5V～16V
Short-term Maximum Power	8-10A	5.6A
Average Power Consumption	1.8-4A	1.3A
Fuel Heat Power (W)	2000-5000	2000-6000
Fuel Consumption (g/h)	220-550	160-480
Propane Max Pressure	-	30mbar
Quiescent current	1mA	1mA
Supply Air Volume m3/h	287max	287max
Water Tank Capacity	10L	10L
Maximum Water Pressure	2.8bar	2.8bar
Maximum System Pressure	4.5bar	4.5bar
Rated Electric Supply Voltage	120/240V	120/240V
Electrical Heater Power **@240VAC** **@120VAC**	 900W/1800W 720W/ 1440W	 900W/ 1800W 720W/ 1440W
AC Current @240VAC **@120VAC**	4A -8A 6A-12A	4A -8A 6A-12A
Operating Temperature	-25℃～+40℃	-25℃～+40℃
Operating Altitude	≤1500m	≤1500m
Weight (Kg)	15.6Kg（without water）	
Dimensions (mm)	510×450×300	
Protection level	IP21	

1.4 Safety Precautions

Combustion exhaust fumes may be toxic. Do not install exhaust outlet near doors or windows. Do not operate the heater if exhaust/intake lines are damaged. Do not repair damaged lines - replace with new ones;

⚠ Do not place heat-sensitive objects near the heater, as the heater warms up during operation.

⚠ Compartment and space around the heater must not be used as storage.

⚠ Do not operate the heater with empty water tank for extended periods of time.

⚠ Empty the water tank if the heater is not in use, and as a part of winterization process. Heater will fail if the water inside freezes.

⚠ Stop using the device immediately if you smell gas, fuel or see smoke. Do not attempt repairs yourself. Always seek professional help.

2. INSTALLATION

Typical installation of the heater is shown in Figure 1:

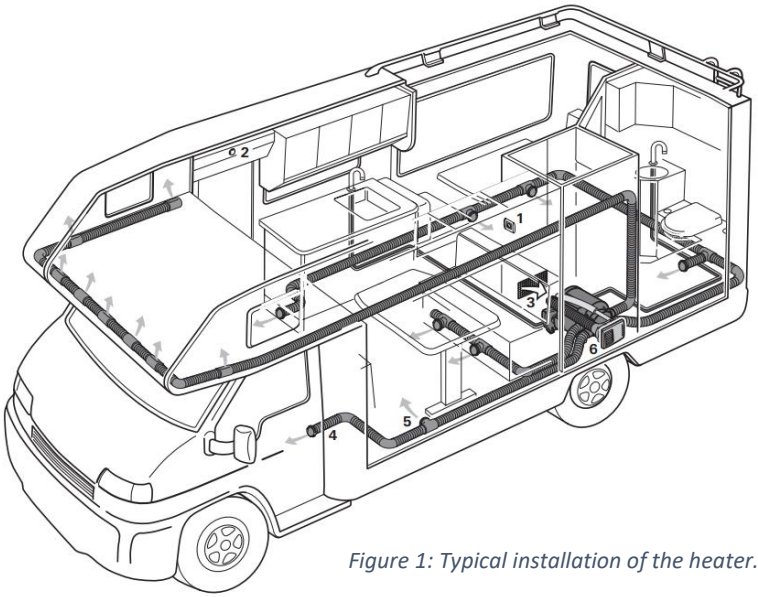

Figure 1: Typical installation of the heater.

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2.1 Heater Placement

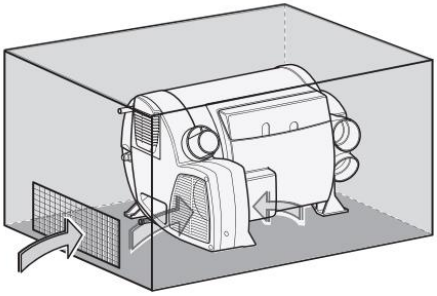


Figure 2: Heater Placement

Heater should be installed in a separate compartment, with intake air opening of at least 25”^{2}, or 5” x 5”.

Allow enough room around the heater for easy access and duct routing. The minimum required compartment size is 22”W * 20”D *14”H.

2.2 Combustion Air Line Routing

Combustion air flue should be installed on the side wall of the vehicle.

Exhaust line is passing inside the intake line.

Total length of intake/exhaust should be not less than 60cm or 2 feet, and not longer than 100cm or 3 feet.

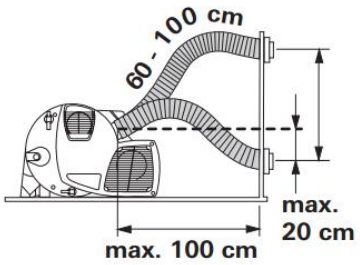


Figure 3: Exhaust & Intake Installation

Flue should not be lower than 20cm (8”) below combustion air connection on the heater.

2.3 Combustion Air Line Installation

Drill a hole with diameter of 83mm (3 ¼”).

Place a seal (Fig.4-8) on the outside of the vehicle. Pay attention to the mark “Top” on the front of the fitting.

After the fitting is secured to the wall with screws, install the cover.

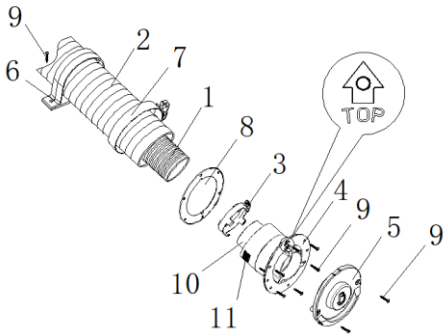


Figure 4: Combustion Air Flue Installation

Slide exhaust line (Fig.4-1) onto the exhaust fitting (Fig.4-10) and secure it with the clamp (Fig.4-3).

Slide intake duct onto the intake fitting (Fig.4-11) and secure it with the clamp (Fig.4-7).

Secure both lines with the strap (Fig.4-6).

Slide exhaust line (Fig.5-1) onto the exhaust port (Fig.5-2) on the heater, secure it with the clamp (Fig.5-3).

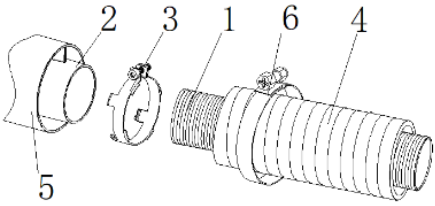


Figure 5: Heater Exhaust Connection

Slide intake line (Fig.5-4) onto the intake port (Fig.5-5) of the heater and secure it with the clamp (Fig.5-6).

Make sure your exhaust and intake lines are not too tight and no too loose to avoid raddle during operation.

2.4 Supply Air Line Installation

Warm air is supplied to the inside if the vehicle through four 60mm ports. All four ports should be routed to prevent closed loop circulation of air inside heater compartment. If one or two ports are not being employed – they should be sealed.
Always choose to seal off only lower ports of the heater.

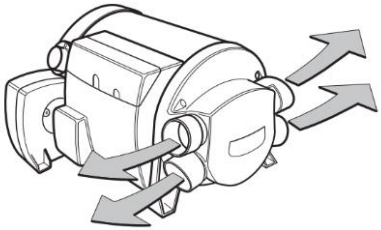
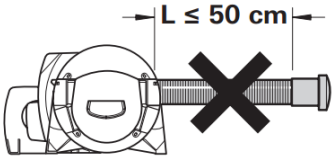
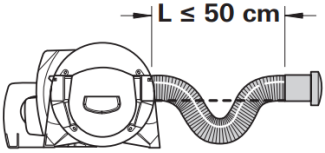


Figure 6: Warm Air Outlets

If you need to take a sharp turn out of the heater, a 90-degree elbow should be used.



Avoid short straight runs of 50cm (20”) or less.



If a short run is necessary – goose neck the duct.

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2.5 Fuel Line Installation (Diesel Models)

Diesel-fired heaters could be connected to the fuel tank of the vehicle, or to the auxiliary 10L fuel tank.

Do not tap into pressurized fuel lines of the vehicle when connecting to the main fuel tank.

Only parts provided with the heater should be used in installation. Do not extend fuel lines or use different fuel pump.

Maximum length of fuel line between the tank and the pump should not exceed 2 meters (6 feet).

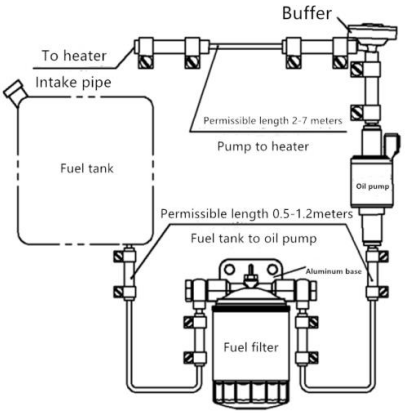

Figure 7: Fuel System Setup

Maximum length of fuel line between the pump and the heater should not exceed 6 meters (18 feet).

Observe elevation requirements displayed on Fig.8.

Fuel pump should be installed at an angle to the ground. It is not recommended to secure the pump parallel to the ground.

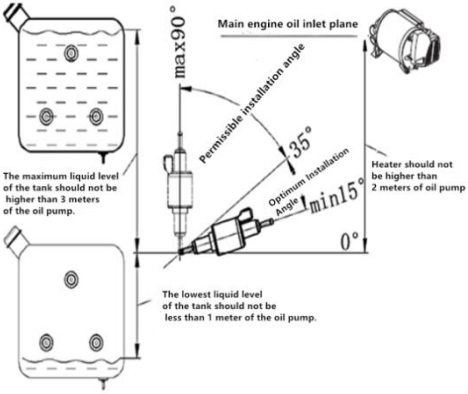

Figure 8: Fuel Pump Placement

2.6 Water System Connection

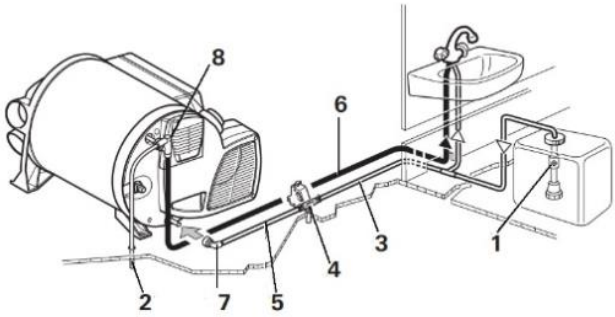

Figure 9: Water System

Water line pressure should not exceed 2.8bar. If system pressure is higher – a pressure regulator should be used.

Anti-freeze valve (Fig.9-4) should be used to drain the water and protect the tank from freezing.

Pressure relief valve (Fig.9-8) with drain line (Fig.9-2) should be used to protect the system from excessive pressure.

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2.7 Room Temperature Sensor Installation

Room temperature sensor is installed on the wall, away from sources of heat and direct sunlight, at a height of about 4-5 feet from the floor. This will ensure the best temperature reading.

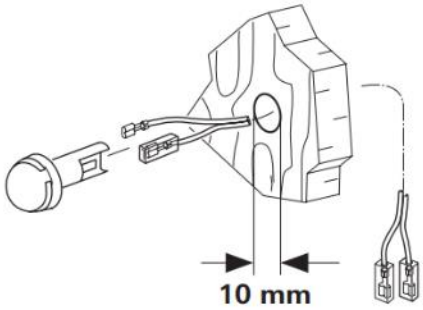

Figure 10: Room Sensor

Avoid installing the sensor on perimeter walls of the vehicle.

Drill a 10mm (3/8”) hole to install the sensor.

2.8 LCD Controller Installation

When choosing the location of LCD controller, make sure the cable provided is long enough to reach the heater.

The cutout size is 3 9/16”H * 2 15/16”W.

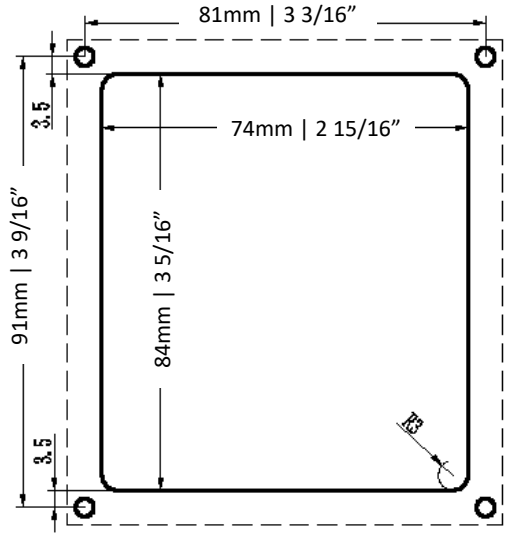

Figure 11: LCD Controller Cutout

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2.9 Electrical Connections

All electrical connections, except AC, are terminated in special compartment of the heater (Fig.12).

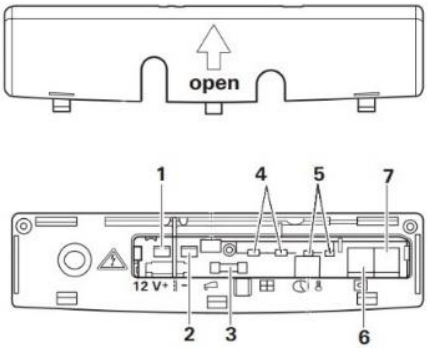


Figure 12: Electrical Connections

1 - +12VDC; 2 - GND; 3 – 12VDC fuse;
4 – window switch; 5 – room sensor;
6/7 – LCD controller

After all connections are made, wires should be bundled and secured with zip-ties. Leave a little slack, do not put any strain on the wires as they may break loose. Reinstall the cover after you are done.

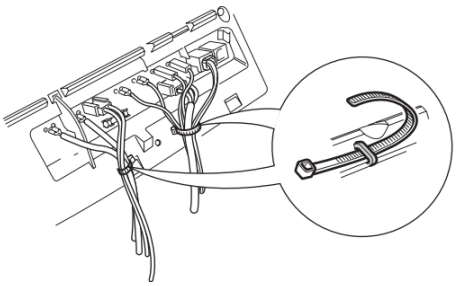
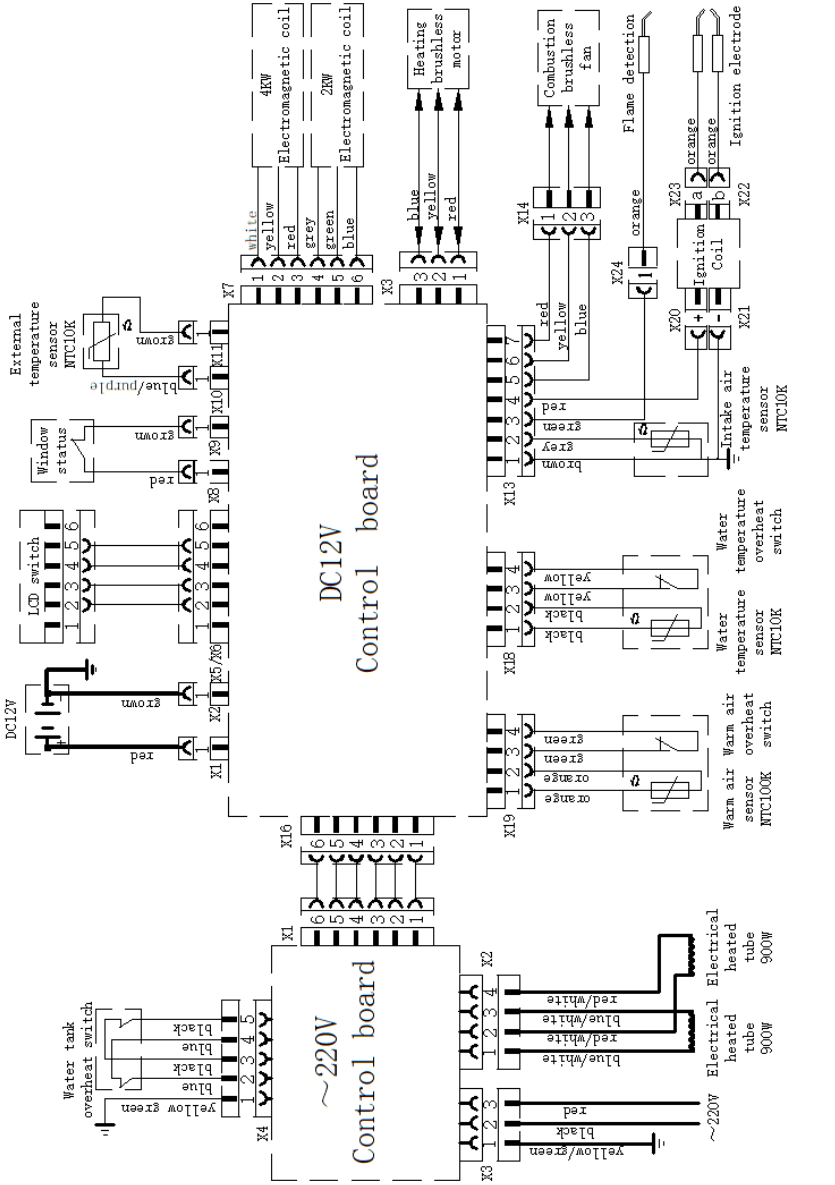


Figure 13: Securing the wires

3. ELECTRICAL DIAGRAM



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4. HEATER KIT COMPONENTS

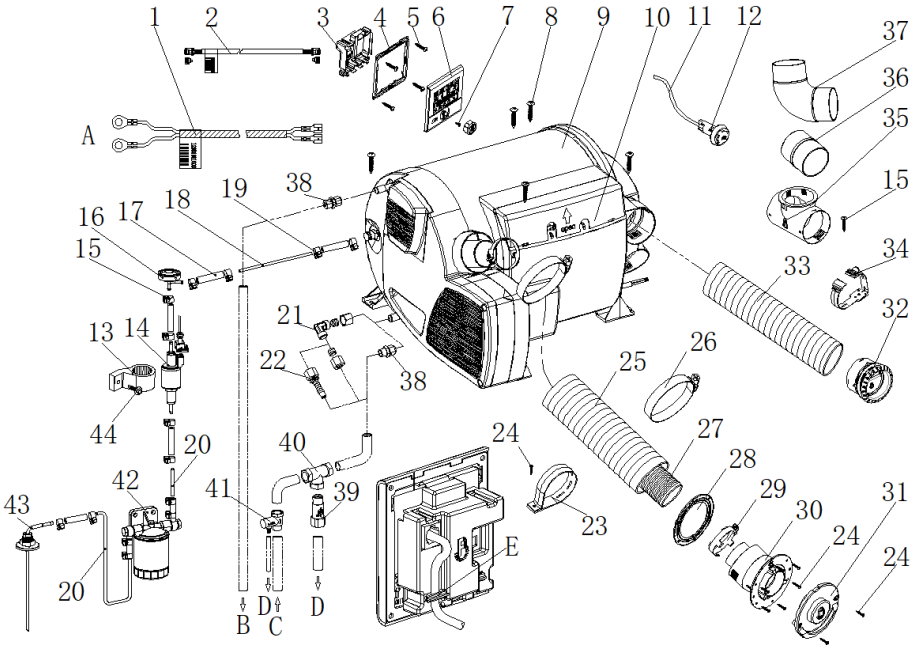

Figure 14: Heater Kit Components

(1)12V Power cord; (2) LCD controller cable; (3) LCD back cover; (4) LCD mounting bracket; (5) Screw M3*10; (6) LCD controller; (7) Countersink screw M3*6; (8) Screw ST5*25; (9) Heater; (10) Electrical cover; (11) Room temp sensor lead wire; (12) Room temp sensor; (13) Fuel pump mount; (14) Fuel pump; (15) Fuel line clamp (ϕ9-11mm); (16) Fuel damper; (17) Fuel line connector; (18) Fuel line (clear, from heater to fuel pump); (19) Fuel line clamp (ϕ8-10mm); (20) Fuel line (blue, from fuel tank to fuel pump); (21) ϕ10mm Steel (water) line elbow fitting; (22) Hose fitting; (23) Combustion intake duct strap; (24) Screw ST3.5×25; (25) Intake duct; (26) Ring clamp; (27) Exhaust duct; (28) Flue seal; (29) Exhaust clamp; (30) Combustion air flue; (31) Flue cover; (32) Air grille; (33) Air ducting; (34) Ducting strap; (35) ϕ60mm union tee; (36) ϕ60mm straight coupling; (37) ϕ60mm elbow; (38) G1/2-ϕ10mm fitting (39) Anti-freeze valve; (40) G1/2 union tee; (41) Pressure relief valve; (42) Fuel filter; (43) Fuel pickup; (44) Screw ST5*30.

(A) 12VDC battery connection; (B) Hot water supply line; (C) Water system connection; (D) Water drain; (E) LCD cable strap;

5. HEATER FAULT CODES

Fault Code	Fault Description	Remedy
10	Overvoltage	Check vehicle power supply
11	Undervoltage	Check vehicle power supply
21	Warm air outlet temperature sensor disconnected	Check the sensor
22	Warm air outlet temperature sensor short circuit	Check the sensor
23	Water temperature sensor disconnected	Check the sensor
24	Water temperature sensor short circuit	Check the sensor
25	External temperature sensor disconnected	Check the sensor
26	External temperature sensor short circuit	Check the sensor
27	Combustion support temperature sensor disconnected	Check the sensor
28	Combustion temperature sensor short circuit	Check the sensor
31	Combustion failure	Check gas/fuel supply Check combustion inlet and outlet Check the ignition coil, ignition electrode, flame sensor
32	Combustion failure	Check gas/fuel supply Check combustion inlet and outlet Check the flame sensor
33	Flame sensor fault	Check flame sensor wire Check the flame sensor
41	Warm air outlet overheat	Check whether air outlet is blocked
42	Warm air overheat switch protection	Check air outlet Check warm air overheat switch
43	Water overheat	Check if the tank is full Check if the sensor is in good condition Check whether air outlet is blocked

Fault Code	Fault Description	Remedy
44	Warm air overheat switch protection	Check whether air outlet is blocked Check warm air overheat switch
45	Overheating fault	Check air outlet Check temperature sensor Check warm air sensor
51	Communication fault	Check cable between controller and heater
61	Fuel pump fault	Check fuel pump connection and wiring Replace fuel pump Replace motherboard
62	Fuel pump short circuit	Check fuel pump connection and wiring Replace fuel pump Replace motherboard
63	Glow plug open	Check the power supply voltage Check the resistance of the plug at room temperature (0.2/12V) Cleaning up Carbon Accumulation Replace motherboard
65	Glow plug drive fault	Replace motherboard
71	Gas valve failure	Check gas valve coil and wiring
72	Gas valve power failure	Replace motherboard
81	Combustion fan disconnected	Check combustion fan
82	Combustion fan boot failure	Check fan wires Check air blower
83	Combustion blower speed too low	Check blower motor
84	Supply air blower motor disconnected	Check air blower motor
85	Supply air blower motor boot failure	Check the blower motor wires Check blower motor
86	Supply air blower speed too low	Check air blower and motor
110	Window alarm	Check window switch and interlock cable
120	Low voltage alarm	Recommended charging
169	CPU reset due to loss of power	Check connections, upsize wire gauge
220	120/240V Connection lost	Check circuit breaker

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