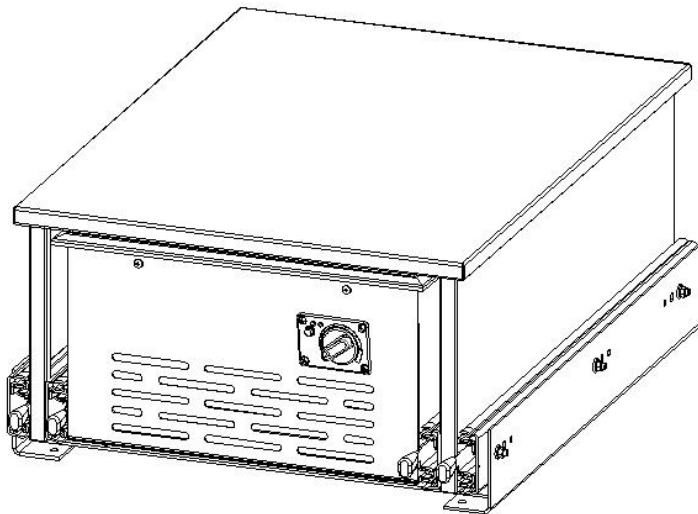


# Fuel stove and air integrated parking heater

Technical Description, Installation, Operation and Maintenance Instructions

Idle cooking is forbidden



**Production Type**

**Order No.**

**Diesel DC12V**

**4F400212C41**

Jan. 25th,2022

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## **Thank you for using the parking heater**

This manual describes the technical description, installation, operation and maintenance instructions for the parking heater. To ensure the correct use of the heater please read this manual carefully before installation and use. Please keep it properly after reading it. For review.

### **Note:**

- The contents of this manual are subject to change without prior notice, but the instructions are guaranteed to be consistent with the products purchased.
- We try our best to express the problems that users should know through the instructions. If you have questions or find something wrong, please contact us directly.
- When the user unpacks for the first time, check the main unit and accessories against the packing list. If you find any problems, please contact the dealer immediately.
- If there is a problem in use, please contact the company's marketing department or our authorized customer service station. We will be happy to help you.

**Please carefully save the after-sales service warranty sheet and provide feedback as required. This sheet is the only valid proof of after-sales service.**

### **Note:**

**Must be installed and used in accordance with the requirements of the manual to ensure long-term use of the product!**

# 1.Application

Air and stove heater (hereinafter referred to as the fuel stove) is an integrated stove, heating air as one of the special RV fuel stove.The stoves can also be used for cooking in the wild, such as on ships.

# 2. Main Technical Data

Rated Voltage	DC12V
Short-term Maximum Power	8~10A
Average Power Consumption	0.45~0.65A
Heat Power	900~1800W
Heat Power	Diesel
Fuel Consumption	110~192ml/h
Quiescent current	1mA
Warm Air Delivery	-25℃~+35℃
Working Environment Temperature	≤5000m
Heater Weight	23kg
Dimensions	696×431×223mm

Table 1

# 3. Function

This fuel stove is a safe diesel stove with no open flame.The fuel stove is not allowed to be used during running.

--Cooking mode

Adjust the heating power by controlling the switch to cook and heat various kinds of food

# 4. Safety instructions

Safe working environment

-- The danger of toxic fumes.If the vehicle is parked in a closed room, in an enclosed space (such as a garage, repair shop), the exhaust gas from the fuel stove can be toxic.Therefore, in the enclosed space to turn off the fuel supply of the fuel stove, through the control switch to turn off the fuel stove.

-- Thermosensitive objects (e.g., spray cans) or

flammable materials/liquids should not be stored in the same compartment as the equipment because, in some cases, the area may be affected by high temperatures.

-- At all times, keep exhaust pipe and combustion air inlet free from contamination (slush, ice, leaves, etc.).

Obligations of the operator/owner

It is the owner's responsibility to operate the equipment correctly.

The fuel system must comply with the technical and administrative regulations of the state.Must abide by national legislation and regulations.

Safe operation

-- Make sure the interior is well ventilated.When the burner is turned on, there may be some smoke or odor due to dust or dirt.Especially if the equipment has not been used for a long time.

-- The integrity and tight fit of the intake and exhaust pipes must be checked periodically, especially at the end of a long journey.

Do not spray water directly into the exhaust hood while cleaning the vehicle.

# 5. Installation

Typical installation diagram of fuel stoves figure 1.

★ Must be authorized by the company's professional installation, maintenance!

The Company shall not be liable for any of the following ACTS:

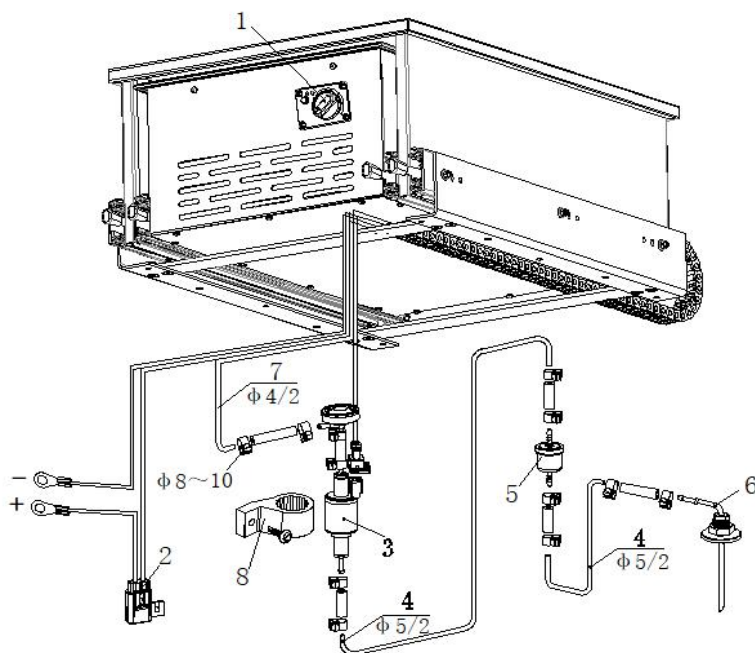
-- Refitting fuel stoves and accessories.

-- Modification of exhaust pipe path and accessories.

-- Do not follow the operation installation instructions.

-- Do not use our special accessories.

--Overheat damage caused by idle burning or dry boiler burning.



**Fig. 1**

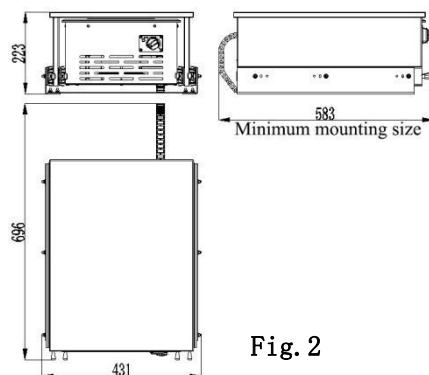
1-Control switch 2-Fuse holder 3-fuel pump 4-Fuel pipe (blue: fuel tank to fuel pump) 5-Fuel filter 6-Fuel suction pipe 7-Fuel pipe (white: heater to fuel pump) 8-Fuel pump connector

### **Schematic diagram of fuel stove Installation.**

As shown in figure 2.

Fuel stoves should be installed horizontally, with an inclination Angle of no more than 5° at an upright level. If the fuel range is tilted too much during operation (up to several hours), the equipment may not be damaged, but will affect the combustion effect, the burner is not up to optimal performance.

All 10 fixing bolts should be installed when the fuel stove is pulled, 10 screw fixing holes are exposed, to ensure that the fuel stove bracket is firmly fixed to the car body.



**Fig. 2**

Ensure that the installation position is free from unreliable factors such as debris that may cause the control switch to be accidentally touched and lead to the starting and heating. When the fuel stove is working, the temperature of exhaust pipe is very high. When installing, it must be kept away from hot objects such as plastic parts of the car body and properly fixed.

Exhaust gases from combustion must be released into the atmosphere and must be kept out of the vehicle. Prevent the risk of poisoning caused by exhaust gas from combustion. And the pipeline through the outer wall or the bottom hole of the vehicle must be able to seal to prevent tail gas into the vehicle.

Exhaust fireproof cap is easy to freeze during the use of winter, so check whether it is unobstructed regularly.

No coating should be added to the surface of the fuel stove.

**Warning: Failure to comply with the above requirements may result in fire.**

#### Fuel system connection

The fuel is extracted from the vehicle fuel tank, and the fuel is transported and adjusted through a special fuel pump (provided by the manufacturer). Fuel is not allowed to be extracted from the vehicle engine's return system or downstream of the vehicle's internal delivery pump. Please install using fuel hoses and piping within the delivery range.

Fuel fuel shall conform to national standards Gb19147-2013 for vehicle diesel standard.

In winter, the fuel should meet the requirements of low temperature, and no biofuel should be used.

#### Fuel line system

##### Installation of fuel line

The pipeline must be supplied with this machine fitting, namely nylon fuel pipe with good light resistance and thermal stability. Permissible length of fuel line: the maximum length of fuel line on the inlet side is

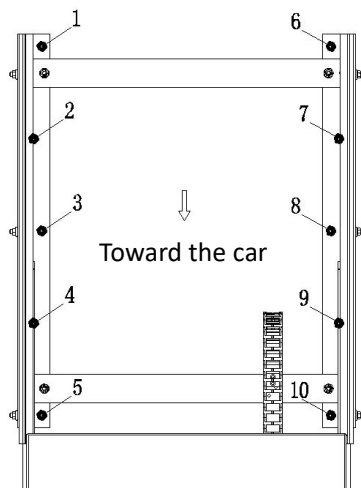


Fig. 3

2m, and the maximum length of the pressure side is 6m. As shown in figure 4.

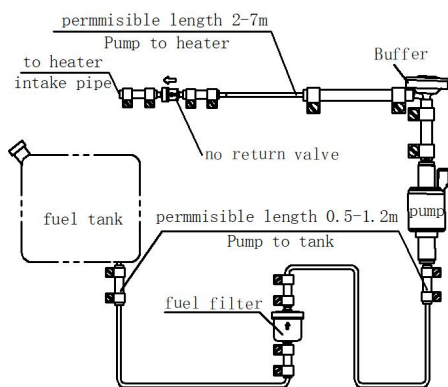


Fig. 4

#### Safety code for fuel lines

Be sure to use a hose cutter or a sharp tool to cut the fuel hose and piping to a certain length. The cut area cannot be compressed and must be free of burrs. Fuel lines must be firmly connected to prevent damage and/or noise due to vibration (approximately 50 cm is recommended between connection points). Fuel lines must be protected against mechanical damage. The laying of fuel pipeline will not

adversely affect the stability of vehicle rotation and engine operation. Protect fuel carrying parts from high temperatures that may affect operation (use suitable fiberglass lined aluminum thermal protective hoses). Do not install or fix fuel line near heater or exhaust line of vehicle engine. If the lines are crossed, keep sufficient distance from the hot parts -- if necessary, provide a thermal radiation shield. The tubing should be installed in a way that prevents flying stones from hitting, away from hot parts of the vehicle, and protective devices should be installed if necessary.

### Installation of fuel pump

The fuel pump shall be fixed with the fuel pump fixed jacket (rubber). The fuel outlet of the fuel pump should tilt upward, and its installation Angle should be selected within the range of  $15^{\circ} \sim 35^{\circ}$  (As shown in Fig. 5). When conditions permit, the tubing between the fuel pump and the heater should rise gradually. To prevent the fuel pump from heating (maximum operating temperature  $40^{\circ}\text{C}$ ), do not install near the exhaust pipe.

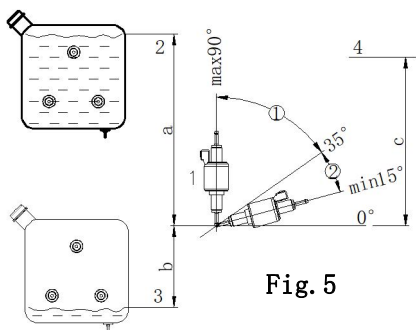


Fig. 5

$a \leq 3\text{m}$   $b \leq 0.5\text{m}$  (Avoid of negative pressure may be produced in sealed fuel tank.

In such case,  $b \leq 0.15\text{m}$ )  $c \leq 2\text{m}$ .

1-Fuel pump 2-Max.fuel level  
3-Min.fuel level 4-Fuel inlet level

① Allowable installation angle

② Optimum installation angle

### Connection between heater and fuel pump

The tubing direction from the fuel pump to the main engine should be as upward as possible. Mark a suitable place on the floor of the vehicle for crossing

The hole where the fuel line and fuel pump are connected to the cable. Before drilling, be sure to check for hidden cables, fuel lines, frame sections, etc. Then seal with underbody protection

The edge of an opening in the floor of a vehicle. In order to prevent the cable between fuel pipe and fuel pump being cut, please add the inlet bushing or the section edge protection material.

Tubing should be tied in an appropriate place for fixation, and the binding spacing should not be greater than 50cm.

The connection between fuel pipe and fuel pump, main engine and fuel tank (fuel extractor) should use the fuel pipe joint provided by this machine and tighten with the fuel pipe clip. Prevent bubbles from forming at the junction (Figure 6).

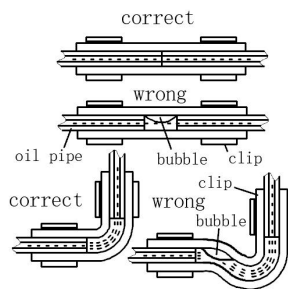


Fig. 6

Installation of fuel suction pipe (Fig.7)

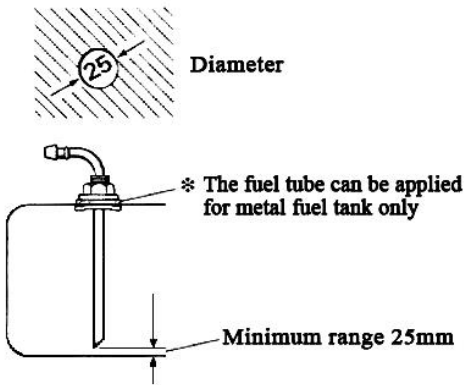


Fig. 7

Used when drawing fuel from the vehicle's own tank.During installation, the 25±0.2 hole size of the installation hole on the fuel tank (or fuel tank cover) shall be noted, with neat edges and smooth surroundings to ensure a good seal between the fuel suction tubing seat.The distance between the lower mouth of the suction pipe and the bottom of the fuel tank should be 30-40mm, which can not only ensure the full absorption of fuel fuel, but also prevent the impurities deposited at the bottom of the fuel tank from being inhaled.

Mounting control switch

The fuel stoves must be operated by special rotary switches.See related instructions for details.

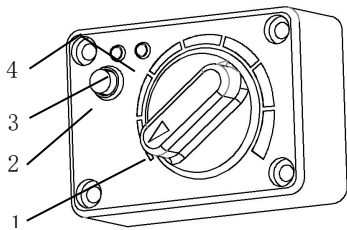


Fig 8

- 1- Control knob
- 2- Cooking button
- 3- Cooking indicator (red)
- 4-Air conditioning indicator (green)

Insert the control switch cable plug into the corresponding position as shown in Figure 4. The red and green light at the same time on and off after power on .

If the red and green lights do not respond when power on, the knob switch may not be connected or the main power supply is not connected.The communication between the heater and the knob switch is defective if the red and green light flickers 10s when the power is on.

**This heater does not have air conditioning mode.**

Electrical connection

Lay electric wire to avoid chafing.If there are sharp edges, such as metal panels for threading, use lead bushing or edge protection.

Connector cables shall not attach to or touch metal surfaces, exhaust pipes or hot air pipes.

DC12V power supply

The electrical wiring, switches and control equipment for the fuel stoves must be located in a location that will not adversely affect their operation under normal operating conditions. The fuel stove circuit has reverse polarity protection.If the controller is not connected with the correct polarity, the LED indicator will not work.

To ensure optimal power supply, the fuel stove must be connected to a fusible (20A) The length and cross-sectional area of the power line shall ensure that the allowable voltage drop is not greater than 0.5V and 1.0V when the voltage is 12V and 24V. It is recommended to configure the power cord according to the following table.

Plus cable + minus cable	cross section
<8m	2.5mm2
8~12m	4mm2
12~16m	6mm2

## Wiring diagram

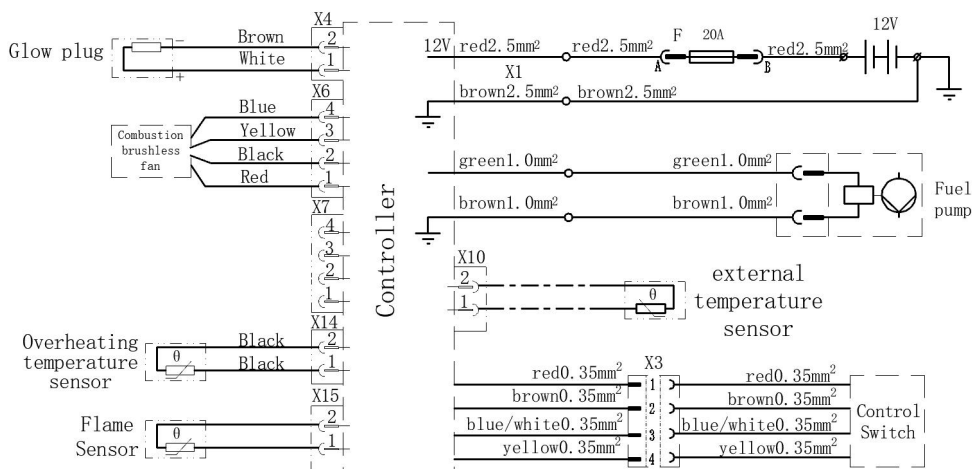


Fig. 9

## 7. Operation instructions

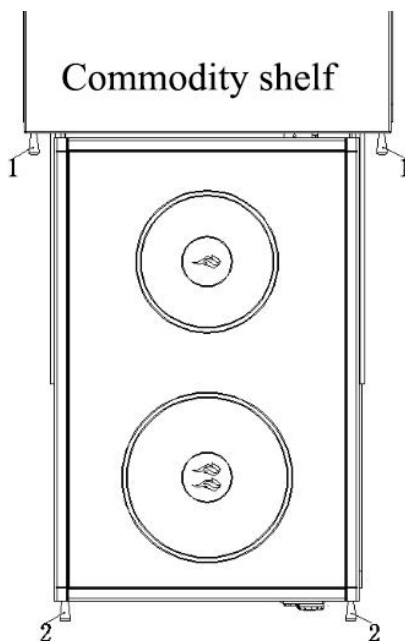
Pull out and lock the fuel cooker by pressing the two-stage pull handle (Fig. 10-1,2) respectively.

When pressing the slideway lock to pull out the stove, stop pressing immediately after the lock is opened to prevent the stove from falling off. Do not touch the switch when pushing and pulling the stove to prevent the accident of starting the equipment.

Do not place other items around the stove, to prevent from the accident due to the items touching the button switch.

Operate with a special knob switch.

If **cooking function** is needed, long press the function button over 2S and the cooking function will start. The fuel stove began to work when cooking indicator light turns red after a few seconds, adjust the control knob after Igniting and burning steadily, power range between 900W ~ (1600W) 2200W. Set the power scale from 1 to 7 In cooking mode and increase the knob scale from left to right.





The fuel stove needs more than 5 minutes from startup to stable combustion.

**Pay attention not to touch the surface of the stove when it is working to prevent scald!**

The fuel stove needs more than 5 minutes from startup to stable combustion.

#### **Turn off fuel stoves**

The fuel stove can be turned off through long press the cooking button for more than 2S when the fuel stove is in normal operation.

Fuel stove stops supplying fuel for heating after the corresponding indicator light goes off. After the burner is turned off, the combustion fan and heating fan will continue to operate for several minutes to reduce the temperature of the furnace and body.

Push it slightly hard when the stove is took back, to ensure that the lock block of the slide is locked tightly to prevent equipment damage in driving!

## **8. Fault**

### General fault handling

During the use of the fuel stove, it may not start normally or shut off by itself after starting and be in the state of failure lock. At this point, you can turn off the fuel stove more than 5S to restart by pressing cooking button.

Fuel stoves may cause circuit faults due to the following reasons: joint corrosion, poor contact, wrong insertion, wire or fuse corrosion, battery pile corrosion, etc., pay attention to the use of inspection, maintenance, prevent these phenomena occur.

When the following situations occur, they can be handled and eliminated by the user:

- The fuel stove does not start and the control switch indicator light does not light after starting up, the reason is open fuse or wiring error; In addition, check whether the plug on the control switch lead is properly connected to the host.

### **Fail-lock status**

The fault of the fuel stove is shown by the corresponding cycle flicker on the control switch. Each cycle includes a 3s long snuff and several flashes at intervals of 0.5s. The number of flickers that occur between two long extinguishment intervals indicates the type of fault.

Press the function button to exit the fault locking state.

The troubleshooting methods can be listed in Table 2.

Troubleshooting methods of fault lock			
Flash frequency	Fault code	fault handling	Method of troubleshooting
1	31	Start failure	A Check the fuel supply system B. Check whether the combustibles inlet and outlet are blocked C Check the electric plug and flame sensor
2	32	Burner failure	A Check the fuel supply system B. Check whether the combustibles inlet and outlet are blocked C Check the flame sensor
3	10	Overvoltage fault	A Check the vehicle power supply system
	11	Low voltage fault	A Check the vehicle power supply system
4	33	Flame sensor failure	A Check the flame sensor lead B Check the flame sensor
5	51	Communication failure	A Check the connection cable
6	25	Outside temperature sensor broken circuit	A Check whether the sensor is in goo condition
	26	Outside temperature sensor short circuit	A Check whether the sensor is in good condition
7	61	Fuel pump broken circuit	A Check whether the fuel pump lead is damaged B Check whether the fuel pump lead connection is reliable C repair fuel pump D Replace the main board
	62	Fuel pump short circuit	A Check whether the fuel pump lead is damaged B Check whether the fuel pump lead connection is reliable C repair fuel pump D Replace the main board

**Table 2**

Troubleshooting methods of fault lock			
Flash frequency	Fault code	fault handling	Method of troubleshooting
8	81	Combustion fan broken circuit	A Check the combustion fan
	82	Combustion fan failed to start	A. Check the motor lead connection B Check the combustion fan
	83	Fan speed is too low	A Check the combustion fan
9	63	Glow plug broken circuit	A Check the supply voltage B check the glow plug temperature resistance ( $0.2 \Omega / 12 \text{ v}$ ) C. Clean the heating plug for carbon deposition D Replace the main board
	65	Glow plug is not actuate	A Replace the main board
10	84	Fan broken circuit	A Check warm air fan
	85	The heat exchanger fan failed to start.	A Check the warm air fan B Check warm air fan
	86	speed of heat exchanger fan over low	A Check warm air fan
11		Heater cover overheat	A Check whether the sensor is in good condition
12		Short circuit of heater cover temperature sensor	A Check whether the sensor is in good condition
		Broken circuit of heater cover temperature sensor	A Check whether the sensor is in good condition B Check the cable
13		Heater cover temperature overheat	A Incorrect control mode
14		Pneumatic sensor failure	A Replace control switch

**Table 2 continued**

## 7. Notes

### ● First installation

- The first installation of the fuel stove, in order to completely remove the air in the fuel supply system, so that the fuel pipeline filled with fuel, we set a special **pump fuel function**. Knob the switch in the minimum position, press the function button then knob the switch right to the maximum position, and knob the switch left to the minimum position, then the red light is on, knob the switch in the middle position, Both the red light and green light flashes at the same time, and the fuel pump began to pump fuel quickly. Default pump time is 90s. If any key is pressed during the fast fuel pumping, the fast fuel pumping stops.

-- The fuel stoves should be tested before use. Carefully check all connections for leaks and safety during the trial run. In case of smoke emission, abnormal combustion noise or fuel odor, turn off the heater and unplug the fuse so that it cannot operate. After professional maintenance can be used.

The first time you use a fuel stove, it may take a short time

Smell. This is normal in the first few minutes of operation, and it does not mean that the fuel stoves are not functioning properly.

### Maintenance

- During maintenance, an inspection must be conducted by a professional to carry out the following maintenance work:

Check inlet and outlet for contamination and foreign matter.

Clean the outside of the fuel stove.

Check the circuit connector for rust and looseness.

Check the intake and exhaust pipes for obstruction or damage.

### ● Long-term shutdown

-- When the fuel stove is not in use for a long time, it should be operated once every 4 weeks for about 10 minutes each time to prevent failure of mechanical parts such as combustion air fan (fixed).

- When replacing low-temperature fuel, make the fuel stove run for at least 15 minutes and fill the fuel system with new fuel.

### ● Fuel stove use life

-- The heat exchanger for the fuel range shall not be used for more than 10 years. After expiration, it must be replaced by genuine parts and replaced by the fuel stove manufacturer or its authorized agent.

The exhaust pipes from the fuel stoves that discharge combustion gases must be replaced with genuine parts when they have been in use for 10 years.

### ● Other precautions

-- In the process of transportation and storage, the ambient temperature should not exceed -40°C ~ 85°C to prevent damage to electronic components.

- Only authorized customer service stations are allowed to install and repair the heater, and the use of non-original parts is prohibited to avoid risks.

The manufacturer is not responsible for the warranty of heater damage caused by improper installation and operation.

You must turn off the fuel range before refueling.

- When welding the car, first remove the positive power line of the fuel stove from the battery and ground it to prevent damage to the controller.