

Preface

First of all, thank you for your trust and support!

Our company has passed the ISO/TS16949:2009 quality management system certification, ISO14001:2004 environmental management system certification, GB/T20081-2011 occupational health and safety management system certification, with independent import and export rights.

The company has an experienced professional R & D team, combined with the national motor vehicle inspection center and many Beijing colleges to develop this product. Advanced production technology, perfect testing means, good quality, please feel easy to use. You choose the "New High" brand in the car heater. It will bring great convenience to your future travel life. The heating of the product is rapid, extremely low operating cost, convenient and quick maintenance. In the cold winter, the product can improve the comfortable degree of occupant on the road.

Please read this manual carefully, you will get a detailed understanding on the heater structure, principle, basic parameters, installation, fault alarm, work flow and queries. If you have experience with other types of heaters, the advantage of this heater is obvious.

Notes: Before using the heater, you need to choose the mode. Press the rotary switch for three times during the shutdown state to choose “F00” and then turn on the heater.

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1. Summary

FJH-2/2 and FJH-5/2 heater is a kind of volatile and atomizing air heater, which is relatively independent of the engine system. Using 24V DC power supply, fully automatic process control. Light diesel fuel can start and operation in the environment of -40°C normally .Heater breathe fresh air at ambient temperature, and the use of the heat generated by the combustion of diesel, which is heated by a heat exchanger to warm air, blown to where it is needed.

The heater has the advantages of compact structure, light weight, high thermal efficiency, saving fuel, convenient installation. Applicable to all kinds of heavy trucks, vans, engineering machinery, agricultural vehicles, cars, ships, special vehicle cab heating and windshield defrosting.

This series of air diesel heaters with the thermostat function can be set at any degree of temperature from 1 degree to 45 degrees. The heater will start working when the environment temperature is 2 degrees lower than the set temperature and stop working when the environment temperature is 2 degrees higher than the environment temperature so that the environment temperature always stay at the set temperature.

2. Main technical parameters

Model	FJH-2/2		FJH-5/2	
	High-grade	low-grade	High-grade	low-grade
Heat flow (KW)	2	1.5	5	3
Fuel consumption(L/h)	0.27	0.18	0.51	0.31
Hot air displacement (m ³ /h)	105	80	185	140
Power consumption(w)	34	20	55	30

Applied voltage limit	30V	30V over voltage protection response time 20s	
Applicable voltage limit	18V	The response time of under voltage protection 20s	
Ambient temperature	-40°C-70°C		
Boundary dimension	305*115*122	370*140*150	

3. Description of working principle

After the heater turned on, the motor drives the rotation of the combustion air fan, sucked combustion air from the outdoors;

Electromagnetic pump sucks the fuel from the tank out through the pipe to the combustion chamber ;

The fuel and combustion air in the combustion chamber are mixed into combustible gas mixture, ignited by a glow plug. The exhaust gas gets back to the exhaust port to discharge through the heat exchanger cavity.

The cold air suction fan for inhalation is at the other end of the motor. Through the heat exchanger outside the upper and lower cover, a heat exchanging channel is formed by heating the air.

Heater flow and rhythm are implemented through the MCU fully automatic process control and electrical systems.

Heaters' Advantages:

(1) Without starting the engine to warm-up for the car in advance, allowing you to open the door in the winter can enjoy the warmth of home.

(2) Warming up is more convenient, has the equivalent of a lorry warm library.

(3) Solving the problem of cleaning the snow and the fog on window.

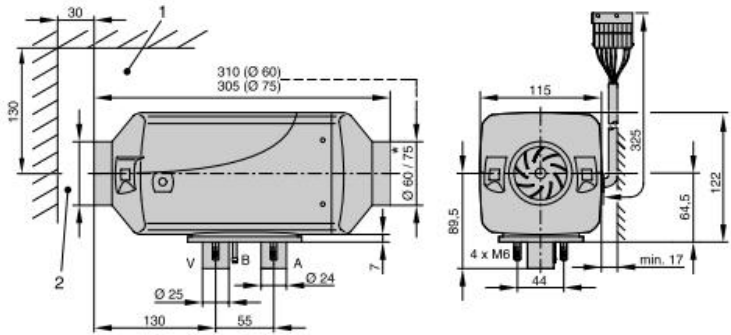
(4) Environmental protection products, low emission and low fuel consumption;

(5) The service life is long, an investment, benefit for a lifetime.

(6) Compact structure, easy to install. Easy maintenance, replacement of the vehicle can be disassembled to the new car.

4. Installation and system arrangement

Heater configuration



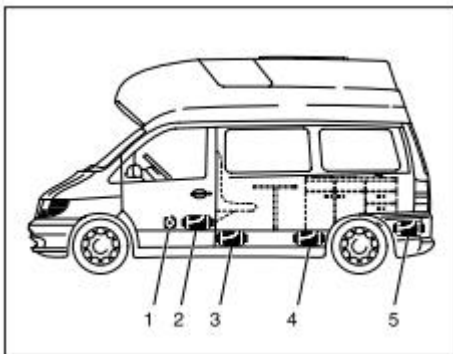
Installation location selection

Note: the heater does not allow for the accumulation of dust, flammable, and confined space, garage and so on.

Heater is not suitable for continuous heating of space (such as bedroom heating).

The installation location of the touring car

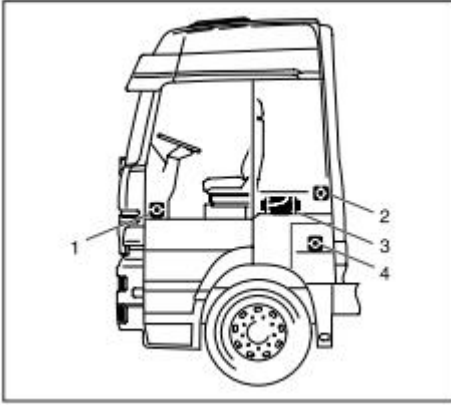
In the touring car, the heater installed in the main room or luggage. If you can not install in a vehicle passenger compartment or the trunk, the heater can also be fixed to the vehicle to prevent splashing water at the bottom surface.



1. The heater is located in front of the driver's seat
2. The heater is located between the driver's seat and the driver's seat.
3. The heater is located under the bottom
4. The heater is located in the living room
5. The heater is located in the trunk

The installation position in the truck (only diesel heaters)

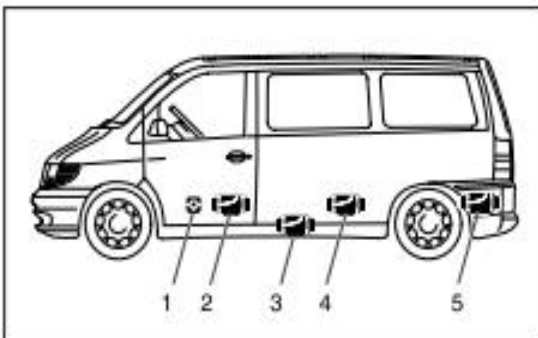
In the truck, the heater is installed in the driving room mostly. If the driver can not be installed in the cab, the heater can also be installed in the tool box or the loading box.



1. The heater is located in the driver's vice seat at the foot
2. The heater is located in the rear wall of the cab
3. The heater is located in the driver's seat back
4. The heater is located in the toolbox

The installation position of car / limousine

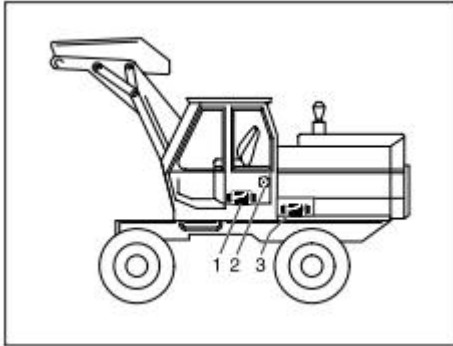
In the car / limousine, the heater is installed in the passenger compartment or trunk of the vehicle mostly. If not installed in the passenger compartment of the vehicle or the luggage, also can be fixed on the vehicle heater to prevent splashing water under the bottom surface.



1. The heater is located in front of the driver's seat
2. The heater is located between the driver's seat and the driver's seat.
3. The heater is located under the bottom
4. The heater is located under the rear seat
5. The heater is located in the trunk

The installation position of the driving room of the excavator (only diesel heaters)

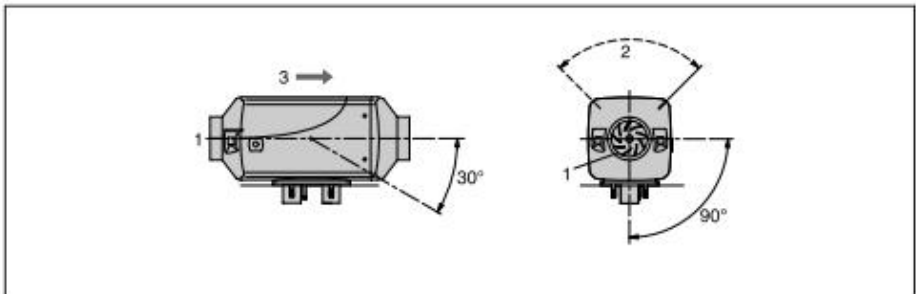
In the excavator, the heater is installed in the driving room mostly. If the heater can not be installed in the cab, it can also be installed in the driving outdoor loading box.



1. The heater is located in the driver's seat of the box
2. The heater is located in the rear wall of the cab
3. The heater is located in the protection box

Permissible installation angle

As shown in the figure, the heater is usually installed at the normal angle. Depending on the installation conditions, according to the view, you can install the heater is tilted up to 30 degrees (flow direction downwards!) or around the long axis of its own rotation up to 90 degrees (exhaust casing horizontal, glow plug pointing upward!)



1. Heated air intake port (fan wheel)
2. Spark plug location
3. Flow direction

Installation of air hose

1. Laying air hose and hot air outlet, cannot damage the human body and heat sensitive components because of radiation exposure and hot air blowing straight .

2. A wind adjustment window is installed at the hot air outlet side.

3. The air duct must not be extrusion.

4. If you do not install the air hose at the air intake side and the outlet side , the grid must be installed to prevent injuries.

The combustion air circulation and exhaust emissions

1. The exhaust pipe must be extended out of the driving room, always remain open, the hole on the pipe must be sealed. avoiding the waste air inlet and combustion air inhalation.

2. Exhaust pipe shall not be in the direction of drive.

3. Exhaust pipe keeps away from temperature sensitive devices, especially plastic pipes, wires, brake hoses and so on.

4. The combustion air suction from the outside of the vehicle must not on the direction of travel. Prohibiting exhaust gas two times in the heater.

Installation and arrangement of fuel supply system

1. The oil pipe from the electromagnetic pump to the heater should be arranged in a straight or oblique direction as far as possible. Stay away from heat and rotating parts, and keep enough heat insulation distance to cross the components.

2. The pipeline connection must be firmly connected and sealed, and the tubing should be fixed every 0.5 meters. In case of oil pipeline vibration caused by the interval of oil, resulting in poor combustion, etc.

3. Only allowing a sharp blade cutting oil and oil supply pipe and hose, to make neat incision and no squashed and no burr.

4. Generally should be equipped with a separate oil tank, oil tank installed on the joint, can be directly connected with the oil pipe.

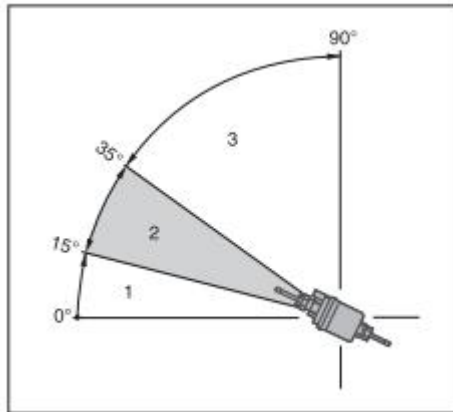
5. Electromagnetic pump installed to keep the oil side up, preferred installation angle between 15 ° to 35 °.

Note: the bottom of the oil pipeline is provided with a filtering net, and the filtering net and the bottom of the oil pipe are provided with enough oil absorbing

space.

Dose pump installation angle

When installing a dose oil pump, always pay attention to the upward pressure on the pressure side. Allow each mounting angle greater than 15 degrees, but give priority to the installation angle between 15 and 35.



- (1) Don't allow to select the angle between 0°- 15°
- (2) Preferred the angle between 15°-35°.
- (3) Allows the selection of the angle between 35°- 90°.

Permissible suction and pressure height of dose pump

Automotive fuel tank to dose pump pressure height: a = the longest 1000 mm.

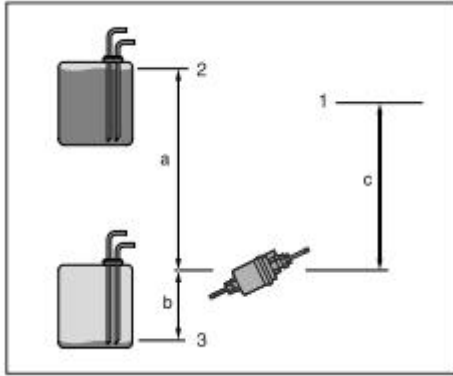
Suction height of car fuel tank without pressure:

Diesel oil, b=the longest 500mm.

When the oil is formed under the pressure of the car fuel tank suction height (the tank cap in the valve there are 0.03 Pa pressure):

b=the highest 400mm.

Dose pump to heater pressure altitude: c =the highest 2000 mm.



- (1) Connector on heater
- (2) Maximum oil pressure height
- (3) Minimum fuel content

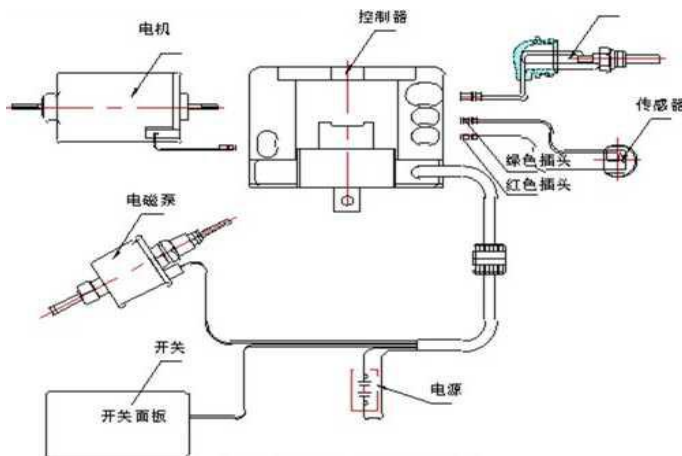
Heater circuit arrangement

The power line of the heater is directly connected to the battery or the general switch of the power source, and is not controlled by other switches. So that even if the car can not start, the heater can also work.

Pay attention to the insulation of the wire. Avoid: scratches, bends, clamps or heat affected. Dirt and water are not allowed to enter.

Must be non corrosive and firmly implement electrical connection and grounding.

5. Schematic diagram of connection of electrical control unit



6. Description of workflow and status

1. Press the start button for one second, switching indicator light (buzzer to boot), heater start controller detects the voltage of power supply, spark plugs, electromagnetic pump, ignition sensor, if abnormal, the indicating light gives fault alarm. 3 seconds later the spark to start preheating, the motor rotating speed, about one minute after electromagnetic pump suction, start the ignition, the motor speed increased gradually. About a minute and a half later turn off the spark plug, after another 1 minute motor gets maximum speed, the heater begins the normal working condition.

2. How to set the temperature?

Press the “ON” button and then rotate to change the set temperature. The controller will accommodate in accordance with the difference between the set temperature and the cabin temperature so as to give the thermal control. When the ambient temperature reaches the set temperature, the heater automatically transfers to the low-grade.

3. Long press the stop button for three seconds, the heater transfers into shutdown mode, blowing cold combustion chamber at low-speed, until the temperature is lower than the set temperature.

4. If the heater does not fire within 90 seconds, then re-ignite once more. If it doesn't again, it is regarded as a failure.

5. If the flame goes out in the combustion process, the heater re-ignite once again.

6. Heater overheating, the automatic shutdown alarm.

7. If the heater voltage is out of range, it will result in abnormal shutdown.

8. Panel switch gear adjustment

The corresponding controller with panel switch is used in temperature regulation, Panel marked with the temperature adjustment range of 1-45 ° C, the user can set temperature according to their own need, controller according to the ambient temperature and set temperature automatically adjust.

Notes: Before using the heater, you need to choose the mode. Press the rotary switch for three times during the shutdown state to choose “F00” and then turn on the heater.

9. The Function of the Timer

(1) To Correct the Timer

Before using the heater, one must choose the mode. During the shutdown state, press the rocker switch once to start the timer. Press the rocker switch twice during the shutdown state and then you can see the current clock time. At this time, one can change the time of the timer by rotating. If one rotates for one time, there is a change of one minute. At this time, please just set the correct timer. If the battery is lost after the heater comes out of the factory, it will not affect the working of the timer.

(2) How to Set the Time of the Timer

During the state of the clock display, press the rotary switch only once to show the current time of the timer. Rotate at this time. If there is a change of 10 minutes after one rotation, one can change the time of the timer at this time. After a pause of 5 minutes with no rotation, the screen will show the current time of the timer.

(3) How to Delete the Timer

During the state of the clock display, press the rotary switch only once to show the current time of the timer. At this time, one just needs to rotate the “minute” to “70” to delete the set of the timer.

7. Matters needing attention

1. The circuit of each plug connection is reliable, the battery voltage conforms to the use request, the fuse is in good condition.

2. The air inlet, air outlet, exhaust pipe, the combustion air pipe flow, no damage, no leakage, no ice residue, sludge blockage.

3. Oil circuit without leakage, the oil level in the tank is sufficient. The fuel should not be too thick or too sticky.

4. The first time use in winter, if there is smoke for a long time, or unusual burning noises or a clear fuel smell or electrical / electronic parts overheat, the heater must be switched off for inspection.

5. The first use after a new installation or maintenance, it will success after probably at least 2 or 3 times of ignition, since there's no oil in the pipeline as well as the pipeline is long.

6. The heater must be turned off 10 minutes prevent damage or danger on the other parts from hot combustion chamber.

7. Vehicle crossing areas where temperature span is very large, should be timely to empty and replace the fuel grade.

Note: do not use gasoline as fuel.

8. Breakdown and maintenance

1, General fault judgment:

A. First installation, fuse breaks

Inspection: Check whether power lines connect in a wrong way.

Red line connects to anode, black line connects to cathode. If not, check whether there is short circuit anywhere else.

B. Start but no reaction

Inspection: the power supply voltage, fuse, each wiring plug is loose or rot sleeve, including internal heater plug.

B. No oil

Inspection: Tank oil level, grade of oil, if oil around loose, leaks, clogged.. Whether the electromagnetic chestnut is a voltage, whether the work.

C. Motor operate normally, but not the ignition electromagnetic chestnut oil

Inspection: Is there an electric fan input voltage, the glow plug is open circuit.

D. exhaust port has visible smoke

Inspection: the combustion air inlet, exhaust port is open, check and disassemble the combustion chamber carbon is too much.

E. Overheat alarm

Inspection: the outlet is blocked, the temperature sensor is faulty, whether the electromagnetic pump matching.

2. Fault condition:

If the heater fails, a buzzer or two red and blue lantern fault to tweet or manner of flashing alternately instructions. Please refer to the fault indicator for inspection.

2. Troubleshooting

NO.	Fault code number	Fault analysis	Trouble shooting
1	E 01 Buzzer gives alarms and the heater stops blowing	Co exceeding the limit	Check whether there is good ventilation.
2	E 02	Failure to monitor the rotational speed of the motor fan	Check whether the motor is blocked
3	E 03	Over-high temperature of the body	Check whether the air inlet or outlet is blocked.
4	E 04	Over-high or over-low supply voltage	Check whether the voltage is higher than 32V or whether it is lower than 18V
5	E 07	Two times of failure of ignition	<ol style="list-style-type: none"> 1. try at pressing the "ON" button several times 2. If the motor rotates, please check whether there is enough injection of fuel from the fuel pump 3. If the fuel supply is in a normal state, please check the glow plug. Use the multi-meter to test the resistance of the glow plug. The normal range should be between 1-5 Ω 4. Take into consideration the carbon accumulation

6	E 08	Correspondence failure	<ol style="list-style-type: none"> 1. Press the “ON” button several times 2. Check whether the wire of the control panel is firmly connected 3. If the heater can release heat normally, take into account whether the LCD screen controller has been damaged 4. If the heater cannot release heat normally, please check whether the ECU is damaged 5. When the code appears in the screen, the heater works normally. It will not affect its use. However, it cannot give the thermostat control
7	2 dh	Indicating the second time of failure of ignition	Check whether there is enough fuel. If the fuel supply is normal, please wait for the second time of ignition.

9.Packing list

No.	Name	Specifications	Quantity	Remarks
1	Heater assembly		1	
2	Harness assembly		1	
3	Nylon tubing	$\phi 4 \times 1L=8M$	1	
4	Rubber tubing	$\phi 4/\phi 9.5L=300m$ m	1	
5	Switch panel		1	
6	Electromagnetic pump		1	
7	Oil joint assembly		1	Belt filter
8	Air inlet hose	L=700mm	1	With clamp
9	Exhaust pipe	L=600mm	1	
10	Outlet hose	$\phi 90(\phi 60)L=700$ mm	1	
11	Out air conditioning window		1	
12	M6 nut		4	
13	$\phi 6$ flat pad		4	
14	$\phi 6$ Spring washer		4	
15	screw		4	
16	Electromagnetic pump card sleeve		1	
17	P type clamp		2	
18	Hose clamps	$\phi 20-\phi 30$	2	Connecting the sub smoke
19	Hose clamps	$\phi 50-$ $\phi 70(\phi 80-\phi 100)$	2	For outlet air hose connection
20	Plastic fuel tank	25L	1	Matching
21	muffler		1	Matching
22	Hose clamps	$\phi 6- \phi 10$	8	For tubing connection

**Parking heater warranty card (copy)
warranty card**

Product signal: FJH-2/2□
FJH-5/2□
Factory number: _____
Customer name: _____
Address: _____
Telephone: _____
Fax: _____
Mobile phone: _____
Mailbox: _____
Purchase date: _____
Dealer name: _____
Customer feedback:

Parking heater after sale

Product signal: FJH-2/2□
FJH-5/2□
Factory number: _____
Customer name: _____
Address: _____
Telephone: _____
Fax: _____
Mobile phone: _____
Mailbox: _____
Purchase date: _____
Dealer name: _____
Customer feedback:

please
tear
off
the
original
along
the
dotted
line
to
return
to
our