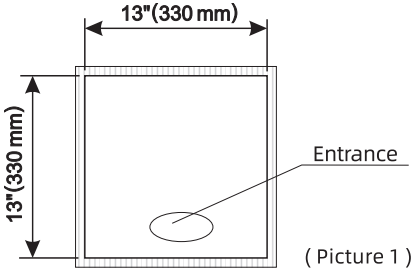
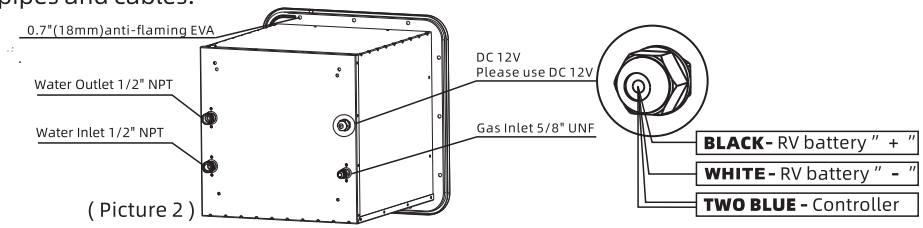
Installation Steps

1.Select a suitable installation location on the RV before installation.
Do not install the water heater along the RV aisle. It shall be installed on the exterior wall of the RV with the exhaust pipe facing outwards from the RV. RV hot water heater shall be installed on a solid, non combustible floor (other than wood flooring) or on a non-combustible frame. If the surrounding of the opening is a combustible material, use a flame-retardant insulating material such as heat-insulating mat or heat-insulating board to completely segregate the back surface of the water heater from the combustible surface.
The minimum thickness of the filling material must be greater than 0.8"(20mm). The housing connection gap behind the water heater should be sealed with a high temperature sealant during installation to isolate it from the inside of the RV. In this way, the burning air does not come from the inside of the RV, but from the outside of the RV. The exhaust gas generated by the combustion is discharged out of the vehicle. **Cut a hole size of 13"x 13"(330x330mm330x330mm).** The opening depth should be sufficient to accommodate the gas pipe, wire, and water pipe when the water heater is pulled out of the hole.
At the bottom or back of the hole, reserve entry space for the gas pipe, water inlet and outlet pipe, power line and other control lines. Sufficient space around the opening perimeter is recommended, usually 1.5 times for easy maintenance and testing(please refer to Picture 1).



(Picture 1)

2. Both cold water inlet and hot water outlet are ½" NPT , a 100 PSI pressure relief valve is needed (relief valve is not included and sold separately) for the hot water outlet. Next, connect your propane gas supply to the 5/8" UNF gas inlet, and make sure to remove the black protective plug from the tip of gas inlet before connecting to your propane gas supply. Then, connect 12V DC power supply to the black and white cables,the black cable is positive, and the white cable is negative. Lastly, connect the remote controller with the two blue cables; no need to differentiate the positive or negative poles in this case.
Note: Please make sure to leave enough extra length of the pipes and cables as a buffer, so that you can easily pull out the water heater without damaging the connected pipes and cables.

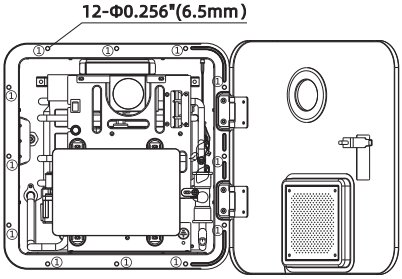


(Picture 2)

WARNING

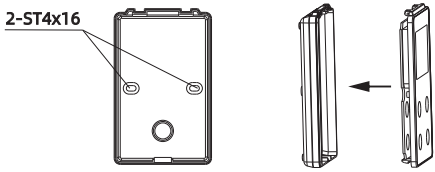
This water heater is designed for RV users. The operating voltage is DC 12V , and the gas source is propane.
Excessive force will damage the water heater's cold water and hot water connections. When installing the gas joint, tighten the joint with two wrenches to avoid damaging the connection joint.

3.The water heater flange cover is pasted with 0.7"(18mm) wide single-sided adhesive EVA. The flame retardant material shall be flat and connected seamlessly. (Be careful not to be too thick) **Press this product into the opened hole. Secure the water heater to the car body with 12 screws (ST5x25mm)** Air and water should be isolated from the openings to prevent entry into the interior of the RV. (Please refer to Picture 3)



(Picture 3)

4.Choose a convenient location to place the remote controller. The connection between the wire controller and the water heater should be reasonably laid out according to the specific environment. **Fix the bottom controller holder with the two ST4x16 screws provided and place the controller into the holder** (Please refer to Picture 4).

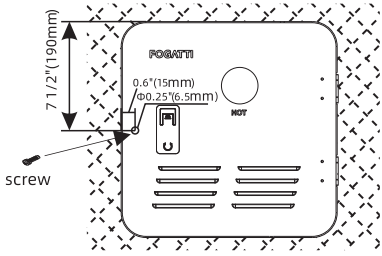


(Picture 4)

● After fixing the screws, please use the insulation strip inside the installation kit to wrap the screw head in case of damaging the wire controller which can cause a short circuit.

● Tips

After finishing the installation and adjusting on the RV, **the door of the water heater should be screwed to prevent from being accidentally opened**. As shown in Picture 5, please drill **Φ0.25"(6.5mm)** in the water heater door lock position and fix the water heater door to the RV with a **M6*25mm** self-tapping screw.



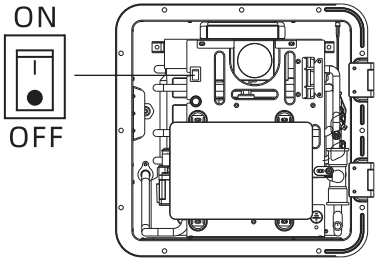
(Picture 5)

Operation Instructions

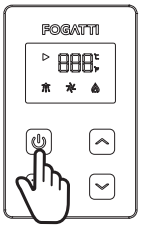
The user shall confirm whether the water heater is installed correctly before the initial use, carefully check that the connections are properly connected and leak free. After verifying, please follow the below steps:

To start the device

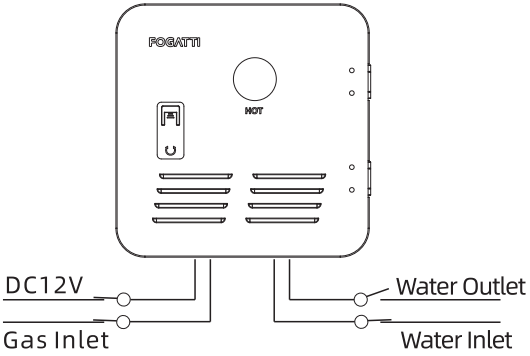
1.Confirm that the power switch to the water heater is turned on;



2.After confirming the power is on, press key " ⏻ " on the wire controller;



3 . Turn on the water inlet valve and gas valve;
4. Turn on the water outlet valve (hot water tap), once the water heater is initiated, hot water will flow out.



WARNING

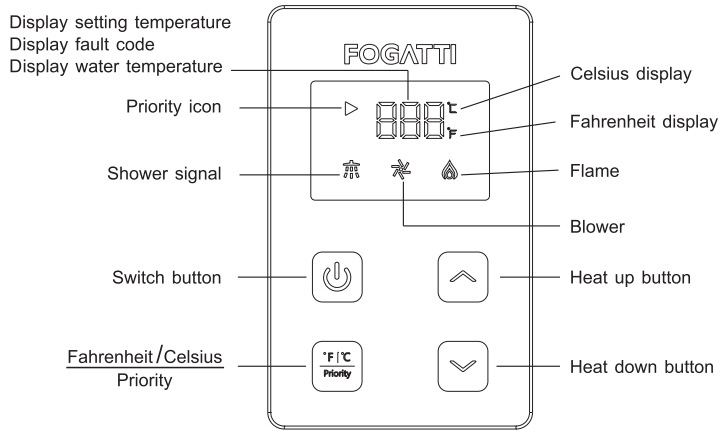
● Minors are not recommended to use the machine alone unless with adults accompany.

● Remote Controller Instructions:

1.The controller emits a buzzer sound "Beep" when the power is turned on. The display shows the gas source code, and this code will remain for 3 seconds before going off. The controller's indicator light is on and the back light of the power switch button is lighted.
2.After pressing the power button, the fan, shower, flame and water temperatures are displayed in real time according to the operating status
3.Set the temperature to the temperature you required, the set temperature will flash for 5 times, then it will automatically switch to display the current water temperature
4.Press "°F|℃ Priority" to switch between Celsius and Fahrenheit (degree).
5.In the event of a fault alarm, the display will show the error code;
6.The buzzer sound "Beep" occurs when the system is powered on or is operating effectively. When fault occurs in the system, the buzzer sound "Beep, Beep, Beep" is sounded continuously for 10 times, with an interval of one second between each sound.
7.After using the water heater, please press "⏻ " to turn off the heater (water and gas supply should be turned off at the same time).

● Steps to Setting Water Temperature:

1.The setting range of the outlet water temperature of this machine is 95°F-123°F (35°C - 51°C); Outlet water temperature is designed not to exceed 123°F (51°C).
2.Each time you press the "^" key, the temperature will increase by 1 °C. See following Fahrenheit and Celsius comparison table for reference.
3.Each time you press the "v " key, the temperature will increase by 1 °C. See following Fahrenheit and Celsius comparison table for reference.
Celcius Degree and Fahrenheit Degree Comparison (Please refer to Table 1)



95°F (35°C)
96°F (36°C)
98°F (37°C)
100°F (38°C)
102°F (39°C)
104°F (40°C)
105°F (41°C)
107°F (42°C)
109°F (43°C)
111°F (44°C)
113°F (45°C)
114°F (46°C)
116°F (47°C)
118°F (48°C)
120°F (49°C)
122°F (50°C)
123°F (51°C)

(Table 1)

WARNING

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this and any other appliance.

Fault Assessment and Troubleshooting

Fault handling: When the water heater fails, the display panel will show the error code, and the buzzer will sound the alarm "Beep, Beep, Beep" continuously for 10 times. Please follow the table below for the corresponding troubleshooting.

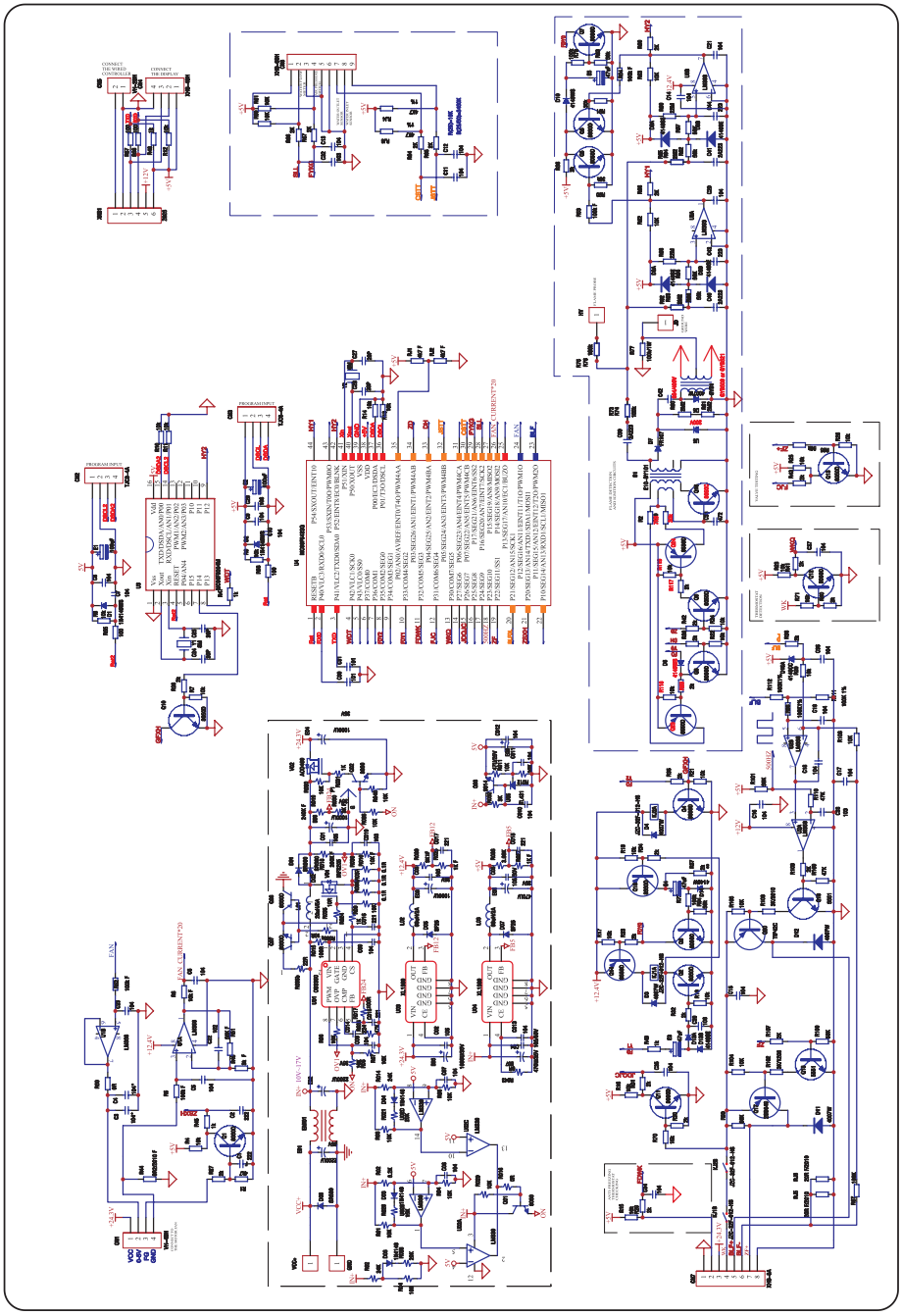
Error Code	Fault description and troubleshooting step
E0	The outlet temperature probe is open or shorted. Please check or change the outlet temperature probe connection.
E1	Ignition failure, no ignition or accidental flameout during operation. Please check whether the gas is supplied normally and continue using when it has been checked to be normal.
E2	Before ignition, a flame signal was detected, and the beeping alarm prompted a failure.Clear the fault after power failure is necessary.
E3	The thermostat malfunctions, and the temperature control is detected to fail during operation or start up of the water heater. Check the temperature controller connection or could have been due to over temperature of the water.
E4	The inlet temperature probe is faulty or the inlet temperature probe is open or shorted. Please check or change the outlet temperature probe connection.
E5	Fan failure, no fan signal detected during start-up or water heater operation.
E6	Over-heating failure. The display will show error code when the water temperature maintains above 176°F (80°C) for more than 3 seconds. Please check whether the water supply pressure is too low.
E7	Before normal combustion, the main valve opens or shorts; the proportional valve opens. During normal combustion, the main valve opens or shorts; the proportional valve opens.
E8	Wind pressure switch failure, when the power is turned on for 5 seconds, the wind pressure switch closes or the wind pressure is continuously disconnected for 2 seconds.
E9	Pseudo-fire fault, when the start-up ignition detected a flame signal, buzzer alarm.
En	Water heater set timer timeout ("En" is set to open).

Fault alarm release and reset method.
If the above code appears, please check whether water or gas is normal, press the on/off switch on the remote controller to power off or to restart the gas heater. (When the on/off button is pressed 5 times within 15 seconds, the machine will lock down automatically, even with no error code. You can either wait for 15 minutes or restart the machine by the switch or controller for immediate restart.) If after executing the above operations and it still cannot return to normal use, please inform the after-sales service personnel.

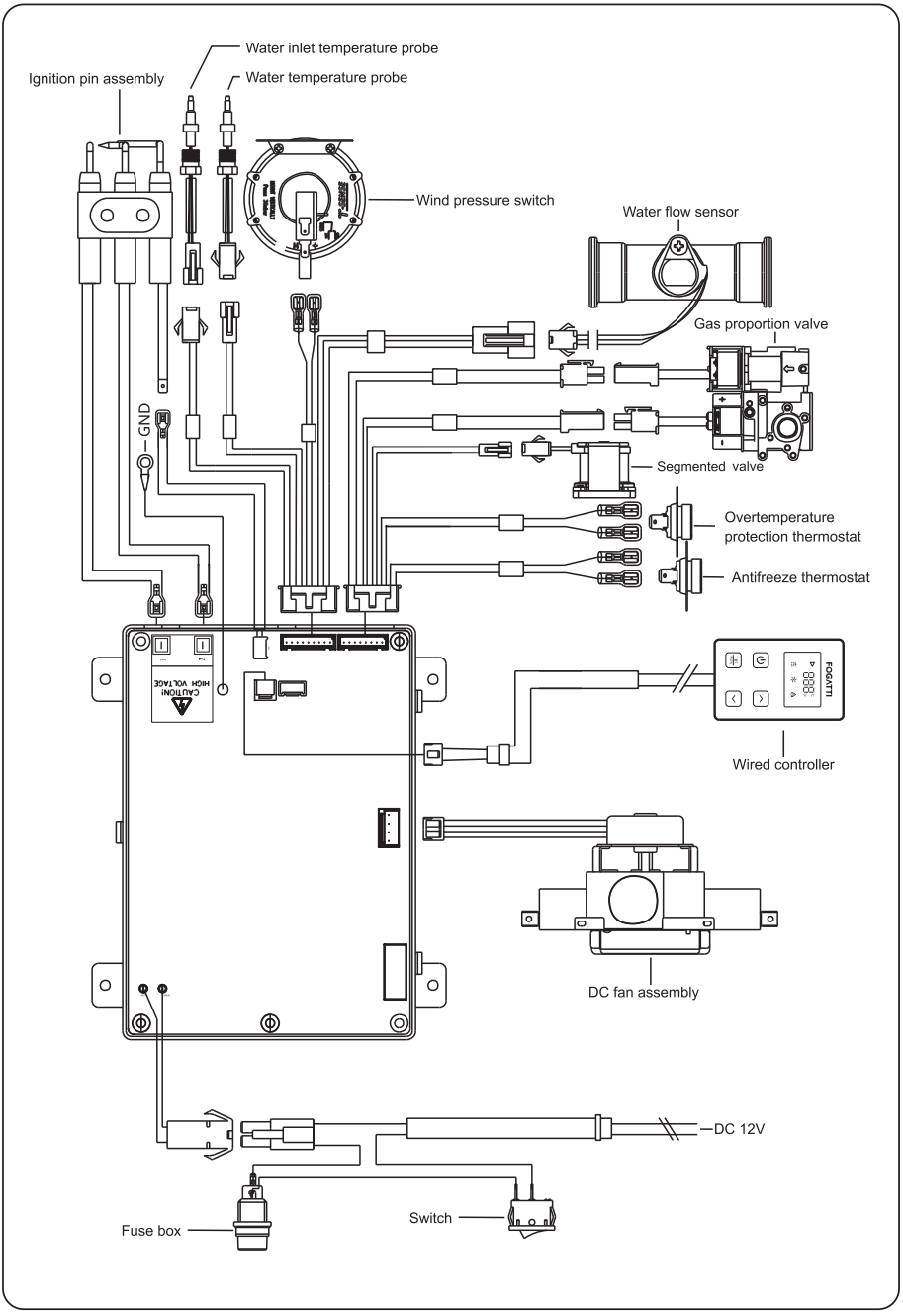
● **Non-defect when the following conditions occur:**

Phenomenon	Reason and handling method
White smoke at exhaust	When the outdoor temperature is too low, the exhausted smoke encounters outdoor cold air and condenses into a white mist.
Hot water flow is too slow or turn into cold water	If the hot water is too little to ignite the water heater, the water will become cold. A minimum water flow of 1 gallon per minute is required to ensure the stable operation of the water heater.
Failure to provide hot water during winter	The water temperature is too low, the water flow exceeds the heating capacity of the water heater. Please adjust the amount of water appropriately.
After 20 minutes or 40 minutes, the water heater suddenly goes out	To prevent oxygen deprivation, some models have 20 or 40-minute timing protection. Please turn off the tap and use it after a while.
After closing the hot water valve, the fan did not stop immediately	The function of delaying the shutdown of the fan is to completely discharge the exhaust gas of the water heater to ensure the safety of the user.
After opening, hot water does not come immediately	On the one hand, the time lag between the hot water valve and machine body may be the reason. On the other hand, the existed cold water within pipeline takes time to be showered out, the longer the pipeline, the longer time it takes.
After the machine is powered on, the remote controller does not respond	Open the door of the water heater door and make sure the switch inside the door is open and the fuse is intact. If the fuse blows, replace with fuse of the same size. (Fuse: 10A 125V)

Electrical Schematics



Product Wiring Diagram



Maintenance

For your comfort and safety, we recommend checking and maintaining the product monthly. Disconnect the power supply and allow the unit to cool down before performing maintenance. Do not disassemble gas passages and safety device during maintenance. As the unit has some electronic components inside, do not open it to avoid contact with any type of liquid.

● Routine inspection:

1.Check the air intake grille, exhaust vent for dust, avoid obstruction.
2.Check the unit for unusual appearance.
3.Check the unit for abnormal noise during operation.
4.Check for water and gas leakage.
5.Check whether the flame is burning normally every month. The flame should appear blue color through the observation window and the combustion is stable. No jitter, no lifted flame, no back draft, etc. If anything abnormal, please contact the service provider to repair
6.When carbon deposits are found, they should be promptly notified to the after-sales service provider for maintenance. The serviceman will remove the burner with the crater facing down, use a bristled brush to remove the carbon deposit, or replace the burner with a new one.

● Maintenance Instruction:

1.Clean the unit regularly. Do not use chemical lotion and volatile solvents to avoid discoloring of the outer shell.
2.Clean the air intake grille, dust filter and exhaust port regularly for better performance, . Not obstructing the flow of combustion and ventilation air
To remove the air intake filter: open the panel, remove four thumbscrews. Clean with water and reinstall back to the same position.
3.Turn off the water inlet, remove water inlet pipe, clean the filter, and reinstall.
4.Drain water from the RV regularly and flush the heat exchanger with an approved detergent. (Please refer to the RV vendor's instructions)
5.Wipe the display with a damp cloth. Do not use gasoline or grease detergents to avoid shape changes.

● Keep the appliance area clean and free from combustible materials, gasoline, and other flammable vapors and liquids.
● Pay attention to the preset temperature. Skin burn may occur when preset temp. is too high.
● Should overheating occur or the gas supply fails to shut off, turn off the manual gas control valve to the appliance.
● Caution: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Check for proper operation after servicing.

Setting minimum heat load:

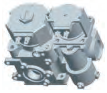
Method#1

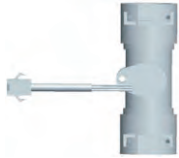
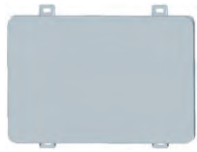
1.Plug in electricity, it will show "0-9" number program code.
2.Press ⌄ for 3 seconds, it will show "PP"
3.Press ⏻ to show FA; Press ⏻ to show specifications: set the value to be 00. Press ⏻ to exit.
4.Press ⌃ to show PH; Press ⌃ to show PL. Then turn on the gas and water. The water heater will run at minimum heat load.
5.After testing above, press ⌃ to switch specifications like PL, dH, FH, FL ..... till it shows "qu", then press ⏻ to save and exit setting.

Method#2

Set the temperature on remote controller to be 95°F (35°C), if the water inlet temperature is high enough to make outlet water temperature higher than 95°F (35°C), it proves that the water heater is running at minimum heat load.

Replacement parts: components

Parts	Photo
Lock	
Gas control valve	
Draught fan assembly	
Burner	
Ignition pin assembly	
Gas inlet assembly	
Water inlet assembly	
The connection pipe of burner and valve	
Remote controller	
FUSE(125V 10A)	

Parts	Photo
Wind pressure switch	
Water flow sensor	
Water Inlet temperature probe	
Water Outlet temperature probe	
Overtempera -ture protection thermostat	
Antifreeze thermostat	
Burner controller	
Water inlet filter	

Drainage and Storage Instruction

If the RV is to be stored during winter, water must be drained from the gas water heater to prevent freezing.

1.As shown in picture 5, the water inlet connector is connected to the water outlet pipe with switch valve by a tee fitting. The water outlet connector is connected to the compressed air with switch valve using a tee fitting. Turn off water inlet A, open water outlet B before draining.

Turn water outlet D, open the compressed air valve C.

Compressed air blows water out of the drain. (Note: Turn off the power and gas valve before draining. Apply compressed air (less than 43.5psi(300kPa)).Close the compressed air valve when the pipe is dry. Blowing water for a long time will cause damage to the internal parts of the water heater.)

2.Turn off the power supply, air supply, and pump on the water system. Turn on the water outlet tap.

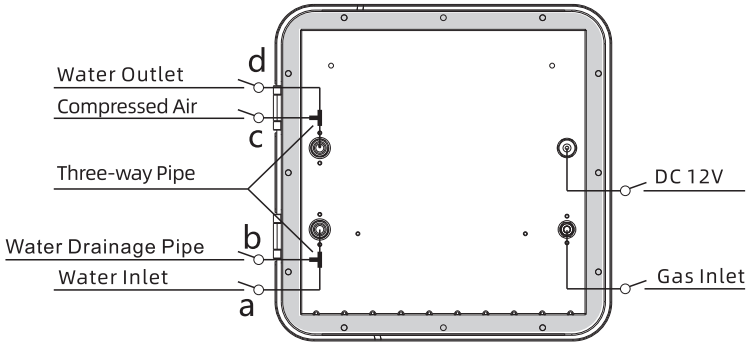
3.Flush the entire water system according to RV manufacturer's instructions.

Note: When the RV water system re-fills with water, start the water heater only after air is purged from the pipe.

Note: Water must drain out of the RV through the pipe.

WARNING

No valve is to be placed between the relief valve and water heater. The discharge from temperature and pressure relief valves shall be conducted to a suitable place and that no reducing coupling or other restrictive instruments to be installed in the discharge line. In addition, the discharge line installed is to allow complete drainage of both the valve and line.



(Picture 5)

Antifreeze System

Water heaters must be protected before travel to a potential freezing environment. Frost damage is not covered by the warranty. The anti-freezing function operation method is:

1.Draining water from the water heater. Applicable when the unit is not in use for long period. (For specific operations, see "Drainage and Storage Instructions")

2.Add antifreeze recommended by the RV manufacturer.

3.Start the antifreeze function to prevent freezing. Turn on the power switch and the gas valve, turn off the water inlet. The water heater will be on antifreeze mode automatically (please ensure enough gas in the RV).

● When the water temperature in the water heater is lower than 43°F ± 2 ° F(6 ± 1 ° C), the remote controller displays "FD", the machine starts the ignition and runs with a certain load. After the whole machine operates for 5 seconds or when the temperature of the water pipe reaches 90°F ± 2 ° F(32 ± 1 ° C) in 2 seconds, the water heater will automatically shut off. After shutting down for 3 minutes, the water heater will check whether the temperature is lower than 43°F ± 2 ° F(6±1 ° C) or when the antifreeze thermostat contact closes to run the heater and this cycle continues.

● In the process of starting the antifreeze function, if a fault occurs, the corresponding fault is reported and the code is displayed. After 15 minutes, the system automatically clears the fault code. If the freeze protection start condition is still met, the antifreeze will start again.

Antifreeze Tips

●When the temperature is below 44.6°F(7°C) while above 32°F(0°C), keep your water heater staying plugged in a 12V DC power supply and supplied with liquid propane gas, the anti-freeze system automatically ignites and heats up to create an inner cycle of hot water, and prevents the water heater from damages. No manual work is needed.

●While if the temperature is below 32°F(0°C), or the machine is not in use for a considerable time, or if there is no electricity in the campground, the water heater must be drained to avoid freezing damages. And here is the process:

1) Turn off the LPG (liquid propane gas) shut-off valve.
2) Power off the RV tankless water heater and unplug the power supply to the machine.
3) Turn off the water supply shut-off valve.
4) Turn on hot water taps in the RV or camper, to release the water and pressure in the pipes.
5) Screw out the drain screw (inside the machine) to drain the water; use a bucket to collect the residual water while draining.
6) It may take more than 10 minutes to drain out the water. Please make sure that water is fully drained from the machine.
7) Securely screw the drain screw back in place and turn off hot water taps and hot water outlet valve.
8) Before you use the RV tankless water heater next time, plug itback in the 12V DC power supply, power on the machine, and then turn on the water supply shut-off valve, the hot water outlet valve, and the LPG (liquid propane gas) valve.

●Please kindly note damages caused by freezing are NOT covered under the RV tankless water heater warranty as the industry standard. Please kindly make sure to take all the measures to protect your RV tankless water heater.

Model and Specification

Product name		InstaShower Plus Series RV Tankless Water Heater	
Model		FS06B1S	FS08B1S
Control instruction		Manually set the water temperature, can be set between 95°F(35°C) and 123°F(51°C)	
Max. /Nominal Heat Input (Btu/hr)		42000	55000
Minimum Heat Input (Btu/hr)		20000	
S version Minimum Heat Input(Btu/hr)		8500	
Orifice Drill Size		0.91mm for LPG	
Max. Inlet Gas Pressure		13"wc (3.23kPa)	
Min. Inlet Gas Pressure		8"wc (1.99kPa)	
Max. Manifold Pressure		3.21" wc (0.8kPa)	5.46" wc (1.36kPa)
Min. Manifold Pressure		0.56" wc (0.14kPa)	
Total Input Current(A)		<10	
Rated Gas Inlet Pressure		LPG 11"WC (2.74kPa)	
Ignition method		Automatic ignition	
Connector Specification	Applicable water pressure	14.5- 116PSI	14.5- 116PSI
	Gas inlet	5/8'' UNF	
	Cold water inlet	1/2"NPT	
	Hot water outlet	1/2"NPT	
Electric supply		DC 12V	
Rated power		30±1W	40±1W
Dimension		15"x15"x14.3"(380mmx380mmx365mm)	
Max. Temperature		123°F(51°C)	

We reserve the right to amend the product without prior notice.

Packing List

Order	Design	Quantity	Remarks
1	Gas water heater	1 piece	
2	Instruction Manual (including warranty card)	1 piece	
3	Controller	1 piece	
4	Screw	12 pieces	ST5x25
5	Screw	2 pieces	ST4x16
6	Insulation strip	1 piece	

Warranty Card

User name		Serial number
Product name		
Product model		
Purchasing date		

Warning! For your safety, please ensure that your installation conditions meet the following requirements: (applies only to water heater products)

● The power supply of the water heater must be reliably grounded and equipped with a leakage protection device to prevent accidental circuit leakage.

● Power outlet, connector may be spilled into the water. Use a splash-proof power outlet and take care of the watertight joints.

● Water heaters should be used on the RV. Do not use indoors. Exhaust gas is discharged outside the vehicle to prevent carbon monoxide poisoning.

● Gas pipelines, the waterway must be reliably installed without leakage. Prevent damage due to leakage.

● The installation of the water heater should comply with local laws and regulations.