

## 3 Installation



### WARNING

- This product is not suitable for DIY installation.
- Installation and maintenance must be carried out by a qualified person, service company or gas water heater suppliers, otherwise our company will not be responsible for any accidents caused by improper installation or maintenance.
- Improper installation, commissioning, modification or maintenance may lead to property damage, personnel injury or death.

1. The national Fuel Gas Code, ANSI Z223.1/NFPA 54;
2. CSA B149.1, Natural Gas and Propane Installation Code;
3. Applicable provisions of the local building code.



### WARNING

Please keep any parts removed from this model inaccessible to children to avoid injury.



### WARNING

**Sharp edges can cause cuts and injury!**  
Always wear protective gloves to avoid injuries from sharp edges during installation work and while handling the appliance.



### 3.1 Installation Instructions



### WARNING

- Observe all installation material in accordance with governing codes and ordinances.
- Failure to follow instructions will result in serious injury, property damage, or death.

**The installation must conform to one or more of the followings, as applicable.**

1. Local codes or, in the absence of local codes, the National Fuel Gas Code, ANSI Z223.1/NFPA 54, and/or CSA B149.1, Natural Gas and Propane Installation Code;
2. Local codes or, in the absence of local codes, Recreational Vehicles, NFPA 1192, and/or CAN/CSA-Z240 RV Series;
3. Local codes or, in the absence of local codes, with the National Electrical Code, ANSI/NFPA 70, and/or the CSA C22.1, Canadian Electrical Code, Part 1.

The appliance must be isolated from the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psi (3.5 kPa).

**Provisions for adequate combustion and ventilation air in accordance with one of the followings:**

**The following instructions are applicable to the RV gas water heater. If you have any queries about a particular installation or application, please consult our company or authorized partners for installation and maintenance issues.**

- The water heater must be properly installed to ensure the air flow is free of obstruction at any time when the air inlet louvers and exhaust pipes are in place.
- During any stress test of the system, the device should be disconnected from the air supply piping system.
- Do not install this product under a hanging structure. It should be installed in a firm position.
- This product should be installed in any place where the door will not cover or block flue gas exhaust pipe. If this condition is not allowed, please ensure a minimum of 6 inches gap between the water heater vent and the door when the door is opened.
- The water heater can be installed in the trailer or under the retractable awning, but the awning must be well ventilated.
- The water heater must be installed upright, otherwise it will affect the normal operation of the water heater.

- When the water heater is installed, it should be reliably grounded.
- Clean the dirt in the pipe before the inlet pipe connecting to the outlet pipe.
- A suitable assembled filter should be installed at the back of the water pump for filtration, without which our company will not claim any warranty.
- Check for gas and water leakage after installation, make sure the machine is safe to operate.
- The minimum distance from the smoke outlet to the flammable surface should be > 20 inches (500 mm).
- The normal operation gas pressure range of the water heater is maximum inlet pressure cannot exceed 13" w.c. (3.3 kPa) and the minimum pressure cannot be lower than 8" w.c. (1.99 kPa). The water heater will not operate normally when out of range.

### 3.2 RV Water Heater Installation Check List

- After receiving the RV tankless water heater, please check whether your gas supply is as required by the RV water heater, which is stated in the specifications.
- After opening the product box, please check whether any damages in the water heater body, and screw threads.
- Open the RV Water Heater's front door, and take out the Digital Controller which is put inside the chamber of the water heater, next to the exhaust vent.
- Check whether the exhaust vent is clogged or blocked, clean up if anything.
- Check whether the gas pressure meets the requirements stated in the specifications. Check whether the water pressure meets the requirements stated in the specifications.
- Check whether the power supply is 12V DC (Direct Current).
- Connect your 12V DC Power Supply to the white and black cables in the back per instruction: Black cable is positive, white cable is negative. Also connect the Digital Controller to the two Blue cables in the back, it's unnecessary to differentiate the positive and negative cables for the Digital Controller.
- Connect your cold water pipe to the water inlet, hot water pipe to the water outlet, and gas supply to the gas inlet per the labels on the back of the water heater.
- Check whether the gas pipe fittings are fully sealed, make sure there are no gas leaks. Check whether Washers/Teflon Tapes are correctly used in the water pipe fittings, and make sure there are no water leaks.
- Make sure to use the original Digital Controller that match with the water heater. Otherwise EC errors will occur.
- For the first time using the water heater, it is normal that it may take 2~3 times to turning the water heater on and off before igniting successfully, as the air residing in the gas pipes needs to be evacuated so that the gas pipes can then be filled with propane gas.

### 3.3 Prepare for installation

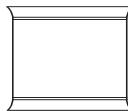
#### ■ Parts included



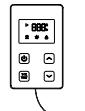
Tankless Water Heater



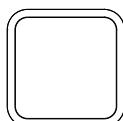
User Manual



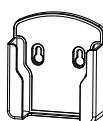
Assembly Kit



Wired Controller



Decorative Frame



Wired Controller Base

#### ■ Tools and Materials needed (Not included)



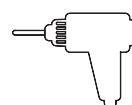
Screw Driver



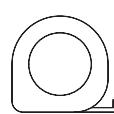
Wrench



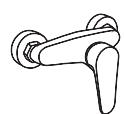
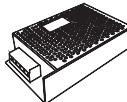
Scissor

Hammer Drill  
with Concrete Bits

Pliers



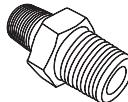
Steel tape

Gas pressure  
RegulatorThermostatic  
Mixing Valve

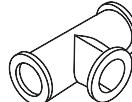
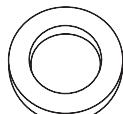
12V DC Power



Soapy Water



Pipe Fittings

Threaded Tee Fitting  
(Middle 3/4" both ends 1/2")

Washers

Electrical Adhesive  
Tape

### 3.4 Installation Position

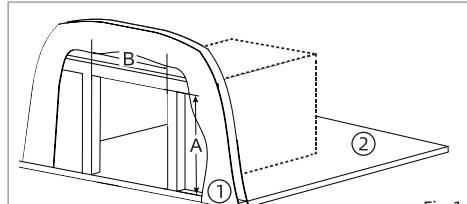
Choose a location to place the appliance, based on the following criteria:

- DO NOT install in the front facing portion of the RV to minimize damaging contamination from road grim, debris and wet roads when traveling.
- DO NOT install the appliance in an outdoor enclosed area.
- DO NOT install the appliance in any location where the exhaust vent may be covered or obstructed when a swing door, bag door, slide out, pop up, etc. is partially or fully extended.
- DO NOT install this appliance on any door or slide out area.
- DO NOT install the appliance where the access door is less than
  - 9" (229 mm) from any opening into the vehicle
  - 36" (914 mm) from any motor driven air intake
  - 36" (914 mm) from any gas tank connection or ventilation.
- Choose a convenient location where supply water, LP gas, and 12V DC is accessible to the back side of the appliance for installation and servicing.
- The water heater is designed to be installed on a flat floor (made of Wood or Linoleum) or a fixed platform.
- It is recommended that the appliance be located in a central location to the hot water loads.
- Choose a location where clearances to combustible surfaces and the appliance are:
  - 1" to top surface.
  - 0" to all other surfaces.



#### NOTICE

To install on a carpeted area, a metal or wood panel that extends at least 3 inches beyond the width and depth of the water heater is required to install under the unit.



① RV Out-wall

② RV Flooring

Dimension	Inches (mm)
A	13" (330 mm)
B	13" (330 mm)



#### NOTICE

The opening for the water heater should be right angle corners.

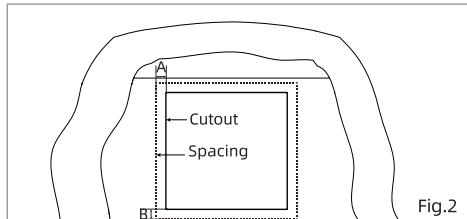
2. Make sure that the front edge of the opening is surrounded by a solid frame to firmly anchor the water heater. If needed, construct the opening by using 1.5" x 1.5" min. wood or aluminum framing.



#### NOTICE

- Fiberglass, filon, and corrugated aluminum (Mesa1") are all acceptable exterior wall siding solutions.
- The exterior wall opening must be the same dimensions with no radius corners.

3. Refer to depth "C" for minimum rear clearances, for such items as cabinets, appliances and utility entry locations.
4. Refer to Fig.2 for adequate spacing from other items on the RV wall to the door assembly.



A

B

13" (330 mm)	13" (330 mm)
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### 3.4.1 Prepare Cutout Opening

1. Create a cutout with the following dimensions A and B of Fig.1.

5. Make sure the appliance is supported by a solid floor or platform with adequate weight-bearing capacity. (Fig.3)

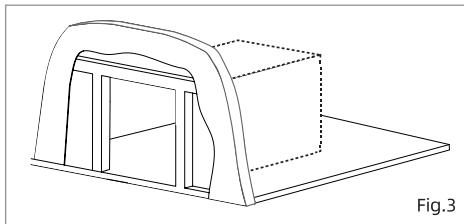


Fig.3

6. If necessary, create a platform to support the water heater. Fig.4 and Fig.5 are some common solutions. Ensure the platform is level front to back, and side to side after securing to the RV.

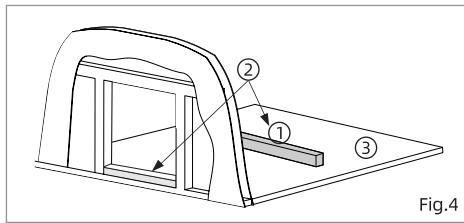


Fig.4

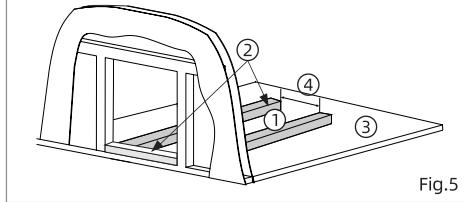
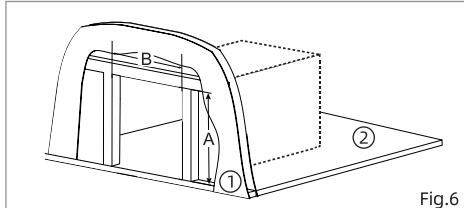


Fig.5

- ① Wooden Mat      ③ Flooring
- ② Flush Platform    ④ 6"-8" (152~203 mm)

### 3.4.2 Existing Cutout

1. Determine your existing cut-out. (Fig.6)



- ① RV Out-wall      ② RV Flooring

Dimension	Inches (mm)
A	13" (330 mm)
B	13" (330 mm)

## 3.5 Prepare Utilities

Refer to 3.5.1 Gas Plumbing, 3.5.2 Electrical Wiring, 3.5.3 Water Plumbing for a connection diagram.

### 3.5.1 Gas Plumbing

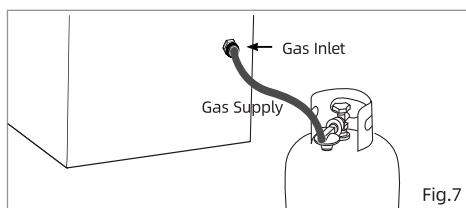


Fig.7



#### DANGER

Follow all applicable codes, regulations and instruction material when performing service work Failure to follow instruction will result in product damage, serious injury or death.

- Fuel entering the appliance must be in gas phase, liquid phase must not be used and will result in damage to the product.
- The gas line must terminate with a 5/8" flared female compression fitting to connect with the rear gas connector of the appliance.
- A non-metallic flexible gas hose must be rated for 149 °F (65 °C). Anchor appropriately to prevent fatigue and failure from wear edges.
- Make sure that the operating pressure of the gas supply corresponds to the operating pressure of the appliance 11~14 in-wc (27.4~34.9 mbar).

1. Locate entry point for the plumbing to service the rear of the appliance. Ensure entry point is not in the footprint space of the appliance. (Fig.1)

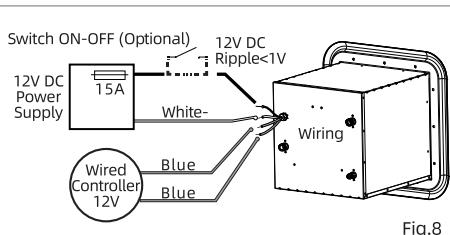
2. Feed gas line into proximity, leave enough length to flex into position so that when connected no kinks are created.

**NOTICE**

An approved semi-flexible metallic pipe is acceptable to connect as an extension from the gas line to the appliance.

3. Terminate gas line with fittings to connect to the appliance.

### 3.5.2 Electrical Wiring

**WARNING: ELECTRICAL SHOCK HAZARD**

- Disconnect all power before performing any work.
- Always use a certified and proven 12V isolated power supply, that is properly grounded to the RV. Power errors can lead to controller damage.
- Follow all applicable codes, regulations and instruction materials when performing service work. Failure to follow instruction could result in serious injury or death.
- Wiring connected to or in proximity of the appliance must be rated for 140 °F (60 °C) minimum.
- Use only insulated terminals for all electrical connections.
- The appliance requires a power source that can adequately provide 10~17V DC to function properly.

1. Select a distribution branch greater than 3A, preferably 15 amp, to provide nominal 12V to the appliance from the distribution panel.

**NOTE:** The appliance has a built in 10A fuse, serviceable from the front of the product. The appliance can be on a dedicated or shared branch circuit with the same or higher rating.

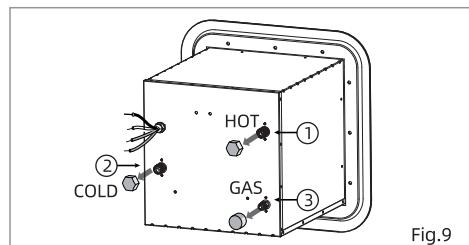
**Optional:** A power switch can be placed in the living quarters for convenience, but not required as a switch is located externally on

the appliance. If the switch is fused, make sure it is rated for at least 3amps. See Fig.8 for reference.

2. Locate entry point for the wiring to service the rear of the appliance. Ensure entry point is not in the footprint space of the appliance (Fig.1) Make sure any edges are protected to prevent wire abrasion from occurring.
3. Determine the appropriate wire gauge (AWG) for the 12V power supply length. Ensure enough wire is available to make adequate connection.
  - 16AWG max. 40 feet (12 m)
  - 14AWG max. 66 feet (20 m)
4. Feed wire from power source to the entry point. Make connection to the power source.

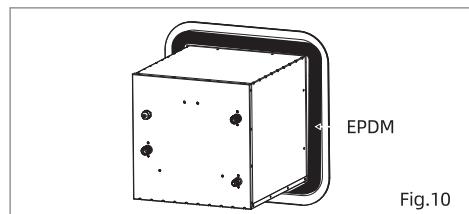
### 3.6 Prepare Water Heater

1. Take the water heater out of its packaging by grasping the metal sides of the housing and lifting upward until fully removed from the box.
2. Remove protective caps for COLD, HOT water connector and GAS connector from back side. (Fig.9)



- (1) Hot water connector      (3) Gas connector  
 (2) Cold water connector

3. Attach the waterproof sealing strip (EPDM) provided with the accessory package, around the entire backside flange area and holes. (Fig.10)



### 3.7 Prepare Water Heater Door

1. The door of the rv water heater is fixed to the mounting flange by a latch. You need to rotate the door lock to open the door.
2. Remove the access door from the box, separate the components.

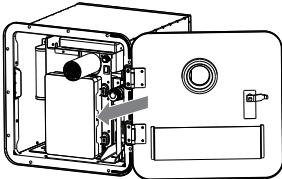


Fig.11

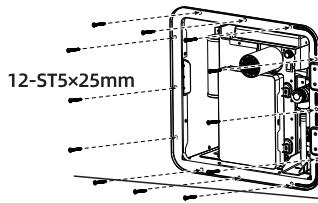


Fig.13



#### NOTICE

Ensure the butyl tape completes a tight seal between the RV siding and appliance flange. If gaps exist, remove the appliance and apply a double layer of butyl tape.

### 3.8 Water Heater Installation

1. Position the water heater and decorative frame carefully into the frame opening, evenly space the flange to the exterior wall of the RV. (Fig.12)

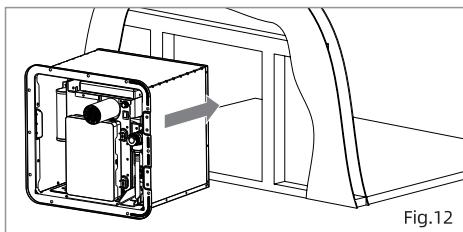


Fig.12



#### NOTICE

Ensure area beneath and behind the appliance is clean without debris and obstruction. Carefully slide the appliance across the floor to prevent linoleum damage.

2. The water heater flange cover is pasted with waterproof sealing strip EPDM. (Fig.10)

The flame retardant material shall be flat and connected seamlessly. Press this product into the opened hole. Secure the water heater to the car body with 12 screws (ST5x25 mm) Air and water should be isolated from the openings to prevent entry into the interior of the RV. (Fig.13)

3. Apply a liberal amount of sealant around the door frame to fill any gaps to the RV wall. (Fig.14) Wipe any excess sealant.

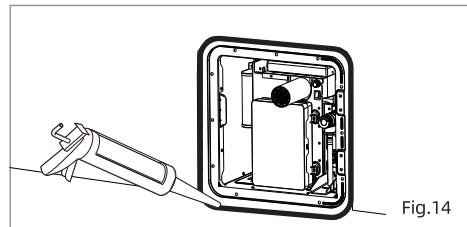


Fig.14

4. Install the water heater door (Fig.15)

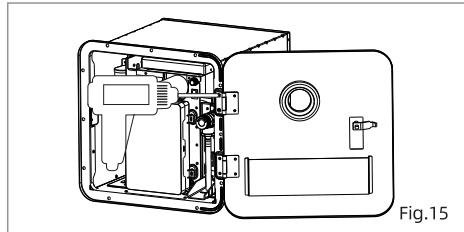
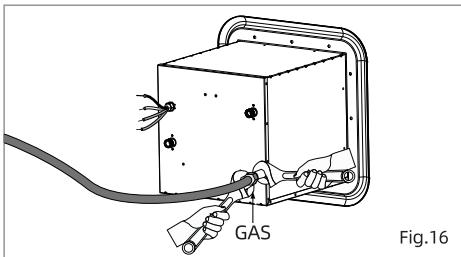


Fig.15

#### 3.8.1 Gas Connection

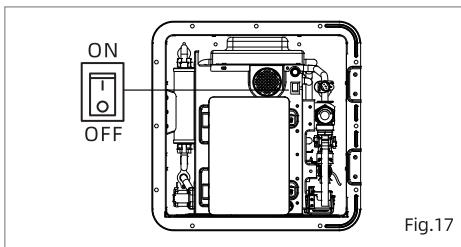
1. Connect the gas service line to the 5/8" LP gas flared fitting on the back of the appliance. Use two wrenches to tighten the compression fitting. Avoid damaging the unit by over tightening.

Check whether the gas pipe fittings are fully sealed, make sure there are no gas leaks.



### 3.8.2 Electrical Connection

- Set the power switch in front of the water heater to the "OFF" position.



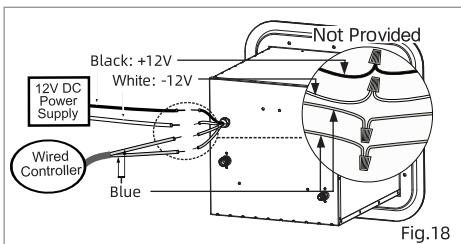
- Connect the power supply wires (on rear of water heater- white and black wire) to the appropriate nominal 12V DC power source connection. (Fig.18)

\* The black wire is positive (+) and the white wire is negative (-).



#### WARNING

The 12V DC power supply must be connected. If the power supply is not connected correctly, the water heater will not start and the controller will be damaged, which may result in serious injury or death.



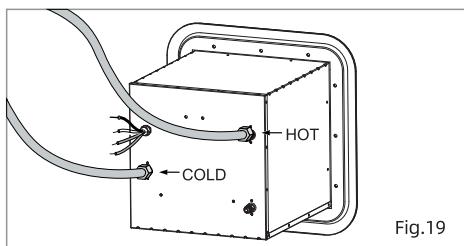
- Connect the wall controller wires (2 blue wires on the appliance). (Fig.18)

\* Polarity does not matter, the wires can be connected to either blue wires.

### 3.8.3 Water Connection

- Connect both HOT and COLD water lines to the appropriate ½" NPT fittings.

Check whether Washers/Teflon Tapes are correctly used in the water pipe fittings, and make sure there are no water leaks.



#### NOTICE

- DO NOT over tighten connection fittings.
- For new installations, it is advisable to flush the water system of debris before connecting to the appliance.
- If the cold water and hot water are connected in reverse, the water heater will not start and cannot produce hot water, which may damage the equipment.

### Bypass Tips

#### Possible problems in bypass waterway installation:

- The product cannot be started;
- The water temperature is not high enough to reach the set temperature.

If there is a similar bypass water installation situation, you can choose the following solution:

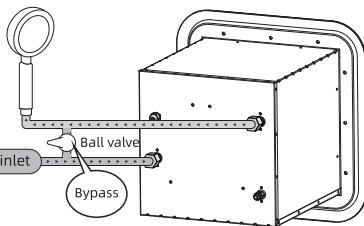
- Adjust the bypass water ball valve to reduce or close the water flow;
- Remove the bypass waterway pipeline.

## 4 Operation

### 4.1 Operation Instructions

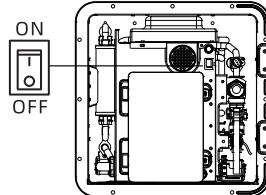
The user shall confirm whether the water heater is installed correctly before the initial use, carefully check that the connections are properly connected and leak free. After verifying, please follow the steps below:

Fig.20



#### To start the device

1. Confirm that the power switch to the water heater is turned on, turn the latch to close the door.

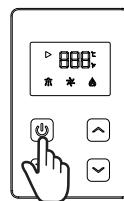


2-ST4x16mm



Fig.21

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.

