3 Installation

3.1 Installation Instructions

RV such as slide out, pop-up etc. always insure that the appliance cannot be operated by setting the thermostat to the positive "OFF" position and shutting off all electrical and gas supply to the appliance. Never operate furnace with vent covered.

CAUTION
The gas interface of the machine is fixed. If you need to change the gas intake direction, please add an external joint to change the gas intake direction. Do not forcibly change the gas interface, which may cause damage to the machine, gas leakage, and cause life danger.

WARNING
Hold manifold firmly when installing the gas pipe to prevent any force from being inserted on the valve and to prevent any leaks from developing. Be sure to check all fittings for leaks including the inlet and outlet on the valve before reinstalling furnace into cabinet. Correct all leaks immediately. NOTE: The furnace must be in operation to properly check for leaks.

NOTICE
- These furnaces must be installed and vented as described in this manual so that the negative pressure created by the air circulating (return air) fan cannot affect the combustion air intake or venting of any other appliance. It is imperative that the products of combustion be properly vented to the atmosphere and that all combustion air supplied to burner be drawn from the outside atmosphere. (See Installing Vent Assembly.)
- Do not install the furnace with the vent facing toward the forward end of the coach.

IMPORTANT: If this furnace is to be connected to a common duct system also serving a cooling unit, a manual or automatic damper is required to prevent any cold conditioned air from circulating back into the furnace. Cold air passing over the furnace combustion chamber during the operation of the cooling unit can result in the formation of condensation inside the furnace combustion chamber. This condensation may promote corrosion and premature failure of the combustion chamber.

NOTICE
These furnaces shall be installed so the electrical components are protected from water.

These furnaces are design certified for propane/LP gas only. Do not attempt to convert to natural gas.

Gas supply pressure for purposes of input adjustment:
Minimum - 11" W.C.* Maximum - 13" W.C.
(W.C. - Water Column).

In the U.S.A., the installation of the furnace must be in accordance with local codes and regulations. In the absence of local codes and regulations, refer to the latest edition of:

1. Standard for Recreational Vehicles NFPA 1192.
2. National Fuel Gas Code ANSI Z223.1.
3. Furnace must be electrically grounded in accordance with the latest edition of the National Electrical Code NFPA 70.

In Canada, the furnace must be installed in accordance with:

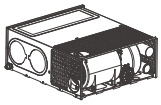
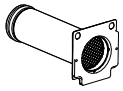
1. Standard CSA Z240.0.2-08 Recreational Vehicles.
2. CSA Standard Z240.6.2-08 C22.2 NO.148-08 Electrical Requirements for Recreational Vehicles.
3. Standard Z240.4.2-08 Installation Requirements for Propane Appliances and Equipment in Recreational Vehicles.
4. CAN/CGA-B149 Installation Codes.
5. Any applicable local codes and regulations.

This unit is equipped with an electric igniter device.

Location and Installation- Locate the furnace near lengthwise center of the coach. Choose a location for installation out of the way of wires, pipes, etc. which might interfere with the installation. Adhere to the minimum clearances from cabinet to combustible construction as listed in the installation manual for your specific furnace model. Secure furnace cabinet to the floor of the coach using the holes provided in the furnace cabinet.

3.2 Prepare for installation

■ Package parts included(Varies by SKU*)

No.	Photo	Name		RF02580N	RF030A0N	RF035A0N	RF035B0N
1		RV Furnace	×1	√	√	√	√
2		Vent cap	×1	√	√	√	√
3		Wired controller	×1	√	√		
		Smart Corded Thermostat	×1			√	√
4		Wired Controller Holder	×1	√	√	√	
5		Exhaust tube	×1	√	√	√	√
6		Air intake tube	×1	√	√	√	√
7		Installation and operation manual	×1	√	√	√	√
8		Quick installation guide	×1	√	√	√	
9		Operation guide	×1	√	√	√	√
10		Mounting brackets	×2	√	√	√	√
11		L-shaped mounting bracket	×2	√	√	√	√
12		Hook mounting bracket	×1	√	√	√	√
13		ST5x25 Screw (includes 7 stainless-steel Screw)	×19	√	√	√	√
14		ST4×16 Screw	×2	√	√	√	√
15		M4×18 screw	×7	√	√	√	√
16		M4 screw	×4	√	√	√	√
17		Wire connector cap	×2	√	√	√	√

*Note:
Please check your specific SKU to verify the included parts.

■ **Required tools (Not included)**


Screwdriver


Wrench

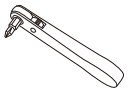

Scissor


Hammer


Pliers

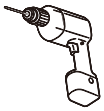

Steel tape


Sealant


Right angle screwdriver


Duct adapter


Saber saw


Electric or hand drill

3.3 Installation Method

WARNING
Extension tubes cannot be used. If you try to extend the vent, it will result in improper installation which could cause unsafe furnace operation.

There are three (3) methods described below for installing the furnace. Regardless of the method you choose, we require an opening be provided in the exterior of the trailer or motor home for free, unobstructed removal of the furnace. This exterior, removable panel or wall section of the trailer or motor home must be a minimum of 17-3/4" x 8".

It is important that adequate return air be provided to assure normal heating and operation of the furnace. Failure to provide the minimum return air will cause erratic furnace cycling. Refer to the chart shown below for minimum return air requirements.

Model	Return Air Requirements Minimum Free (unobstructed) Area
ALL MODELS	55 Sq. In.

Table 1

NOTICE
- Return air must be from within the living area of the coach.
- RV's that have a wall of separation to a cargo area (Toy Box) to transport internal combustion engine vehicles must not have return air openings from this area.

A. Installation directly against outer panel of coach

Maximum wall thickness for this type installation is 2".

1. Locate the furnace near lengthwise center of the coach.
2. Choose a location for installation out of the way of wires, pipes, etc., which might interfere with the installation. Adhere to the minimum clearances from the cabinet to combustible construction as listed in Table 2. Refer to Figure 4 for illustration of furnace clearances.
3. When an appliance is installed directly on carpeting, tile or other combustible material, other than wood flooring, the appliance shall be installed on a metal or wood panel extending the full width and depth of the appliance. If preferred, the carpeting, tile or combustible materials, other than wood may be cut away the full length and depth of the appliance plus the appliance minimum clearances to combustibles. (See Table 2.)
4. Cut an opening through the inner wall. This will allow the rear of the furnace to be installed against the outer panel of the coach.
5. Locate center lines for exhaust and intake, as shown in Figure 1.
6. Cut two 2-1/4" diameter holes through the outer panel of the coach (See Figure 1). Can utilize a cutting template to create holes.
7. Put furnace in place, making sure that rear of the furnace cabinet is as close to outer panel of the coach as possible and still assure proper vent tube overlap. (See Installing Vent Assembly.)
8. Use screws to mount the furnace in the RV floor (Refer to "3.4 Fixed Furnace").
9. Be sure furnace is secured within furnace cabinet. (See Figure 2).
10. Install vent assembly. (See instructions for installing vent.)

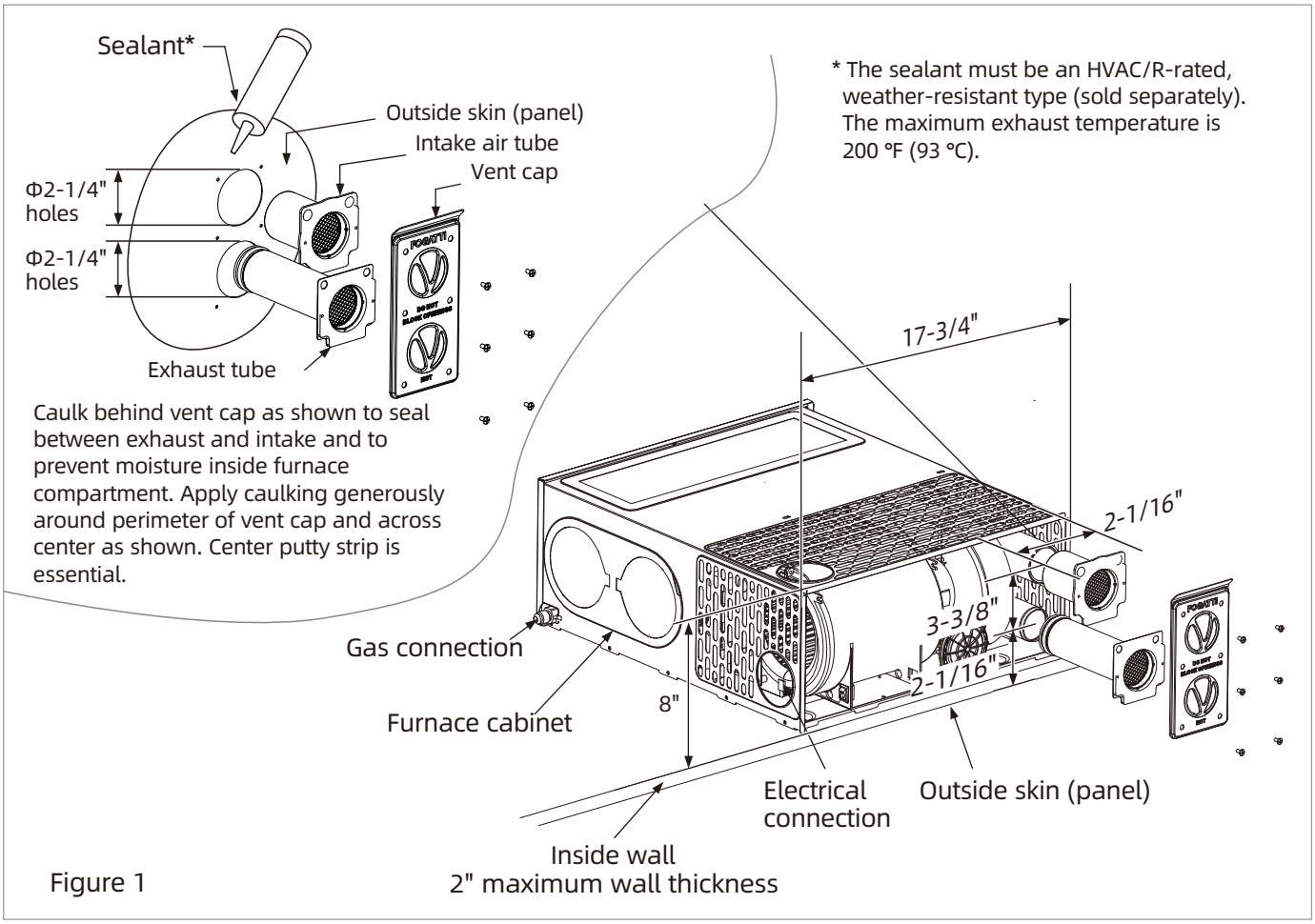
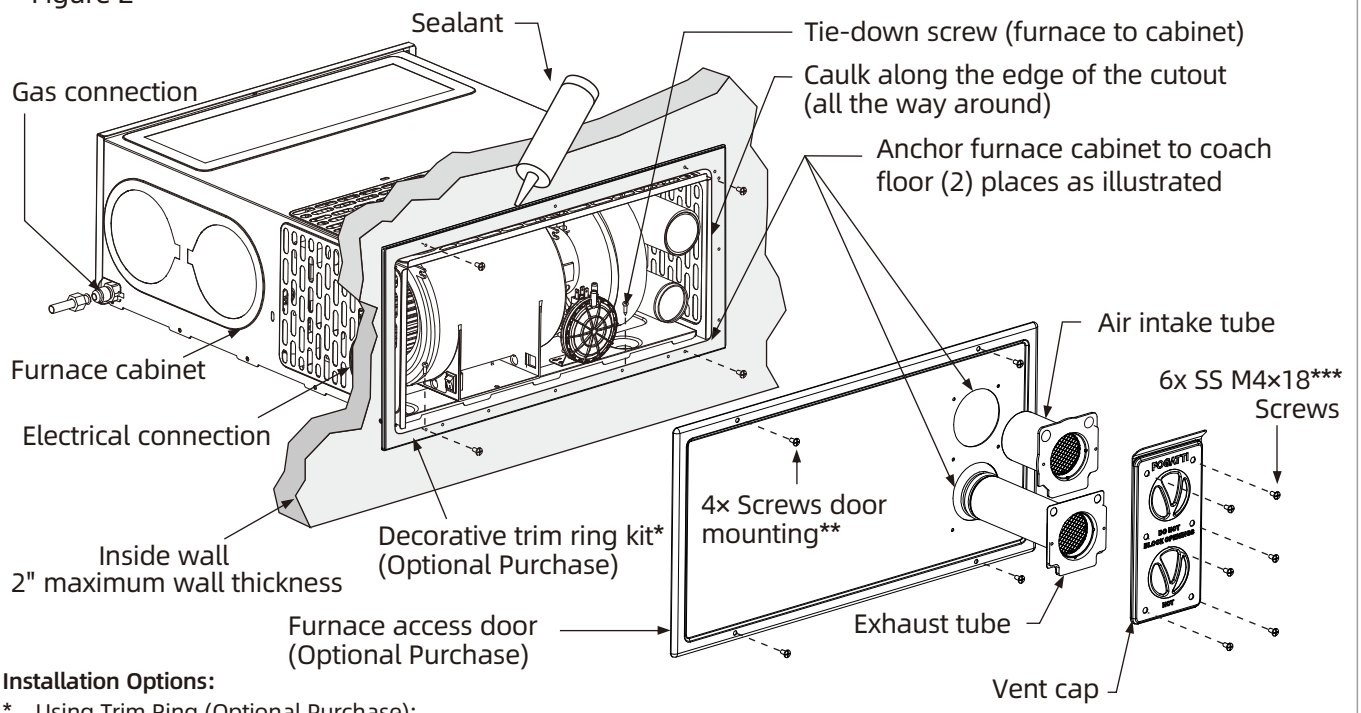


Figure 1

Figure 2



Installation Options:

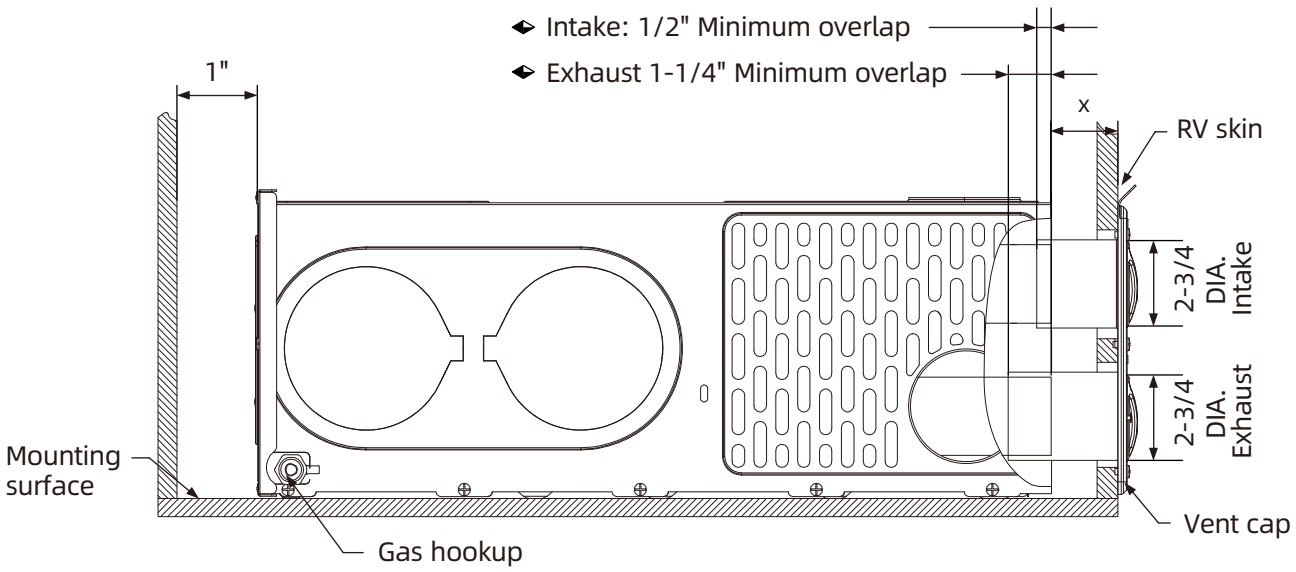
* Using Trim Ring (Optional Purchase):

** Secure the trim ring to the wall using 16x ST5x25 screws. Apply sealant around the edge of the trim ring. Secure the access door to the installed trim ring using 4x SS ST5x25 screws.

*** Without Trim Ring or doorless installation:
Secure the access door/vent cap directly to the RV wall using SS ST5x25 screws instead.

B. Installation not against outer panel or skin and "x" dimension greater than ½"

Maximum wall thickness for this type installation is 2".



Never: Install the exhaust tube with less than 1-1/4 overlap, or the intake tube with less than 1/2" overlap.

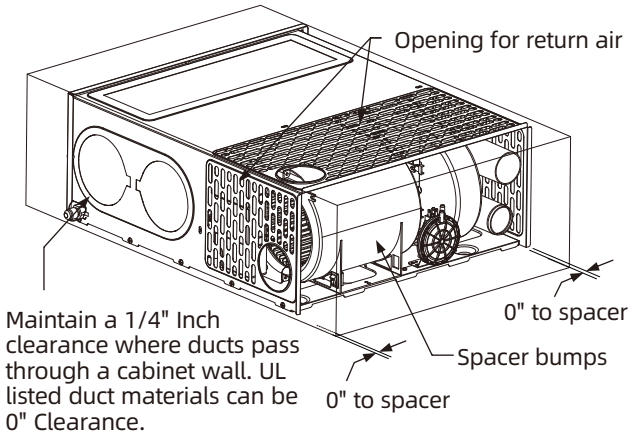
★ Standard vent assembly furnished with furnace. Special extension tubes, if needed, must be ordered separately. Extension kits come with complete installation instructions.

Figure 3

1. Locate the furnace near lengthwise center of the coach.
2. Choose a location for installation out of the way of wires, pipes, etc, which might interfere with the installation. Adhere to the minimum clearances from cabinet to combustible construction as listed in Table 2. Refer to Figure 4 for illustration of furnace clearances.
3. When an appliance is installed directly on carpeting, tile or other combustible material, other than wood flooring, the appliance shall be installed on a metal or wood panel extending the full width and depth of the appliance. If preferred, the carpeting, tile or combustible materials, other than wood may be cut away the full length and depth of the appliance plus the appliance minimum clearances to combustible. (See Table 2.)
4. Determine "X" dimension as shown in Figure 3. The tubes supplied with the furnace will accommodate an installation range for "X" from 1/2". If "X" dimension is greater than 2", then special vent tubes must be ordered.

WARNING
Do not alter, cut, or otherwise modify the vent tubes as supplied. Doing so could result in inadequate intake of combustion air or improper venting of furnace exhaust.

5. After determining "X" dimension, complete the furnace installation as follows:
6. Locate center lines for exhaust and intake tubes as shown in Figure 1.
7. Cut two 2-3/4" diameter holes through the outer panel or outer skin (See Figure 3). Can utilize a cutting template to create holes.
8. Put furnace in place, making sure that rear of furnace cabinet is as close to inner wall section of the coach as possible and still assure proper vent tube overlap. (See Installing Vent Assembly.)
9. Use screws to mount the furnace in the RV floor (Refer to "3.4 Fixed Furnace").
10. Slide furnace into cabinet. Be sure furnace is secured within furnace cabinet (See Figure 2.)
11. Install vent assembly. (See instructions for installing vent.)



The total, free, unobstructed return air opening to the furnace must not be less than the minimum specified in table 1.

Figure 4

C. Installation Using The Furnace Access Door Supplied (See Figure 2)

1. Locate the furnace near lengthwise center of coach.
2. Choose a location for installation out of the way of wires, pipes, etc., which might interfere with the installation. Adhere to the minimum clearances from the cabinet to combustible construction as listed in Table 2. Refer to Figure 4 for illustration of furnace clearances.
3. When an appliance is installed directly on carpeting, tile or other combustible material, other than wood flooring, the appliance shall be installed on a metal or wood panel extending the full width and depth of the appliance. If preferred, the carpeting, tile or combustible maters, other than wood may be cut away the full length and depth of the appliance plus the appliance minimum clearances to combustibles. (See Table 2.)
4. After furnace location has been determined, cut an opening 17-3/4" x 8" through the inner coach wall and the outer wall (skin) of the coach.
5. Caulk around opening as illustrated. Apply generously. The purpose of the caulking is to seal the back side of the door frame and the coach skin water tight.
6. Secure frame to outer wall (skin) through the holes in the frame. Screws should be used. (See Figure 2.)

   NOTE: Do not place screws into the holes required for mounting the door.
7. Slide furnace in place. The back of the furnace should be installed against or as close as possible to the flange on the door frame. (See illustration.) The furnace must maintain 1/2" overlap on the intake and 1-1/4" overlap on the exhaust.
8. Use screws to mount the furnace in the RV floor (Refer to "3.4 Fixed Furnace").
9. Slide furnace into cabinet. Be sure furnace is secured within furnace cabinet. (See Figure 2.)
10. Position furnace access door over the frame. Secure the door to the coach skin. Be sure the coach skin is of sufficient strength to keep furnace access door in place and insure a tight seal. It may be necessary to build a wood or metal frame around the opening in order to provide adequate strength for securing door.

CAUTION
The screws provided with the door may not be of sufficient length and size for all applications and it may be necessary for the installer to substitute screws in order to adequately secure the furnace access door.

11. Install vent assembly. (See instructions for installing vent.)

Model	Front	Left Side	Right Side	Top	Bottom	Back	Exhaust and Intake Tube
ALL MODELS	1"	0"	0"	0"	0"	0"	3/8"

-NOTE-
0" Means to spacer bumps
Clearance from ducts to combustible material - 1/4" (see figure 4)

Table 2

3.4 Fixed Furnace

A. Attach using screws

Front

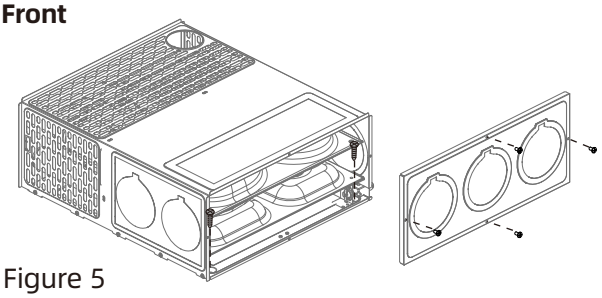


Figure 5

Back

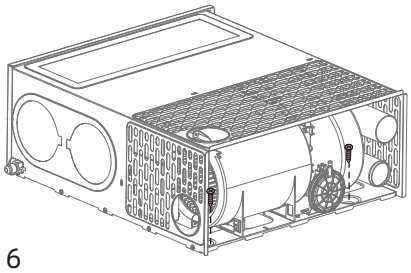


Figure 6

- Removing the front cover screws to open the front cover and reveal the mounting holes for your stove.
- Use the provided screws to firmly attach the furnace to your RV. It's advised to use four ST5×25 screws for a secure fit.

NOTICE
For any installation that isn't horizontal, using the mounting bracket is a must. (see B)

B. Secure with a mounting bracket

Horizontal Installation

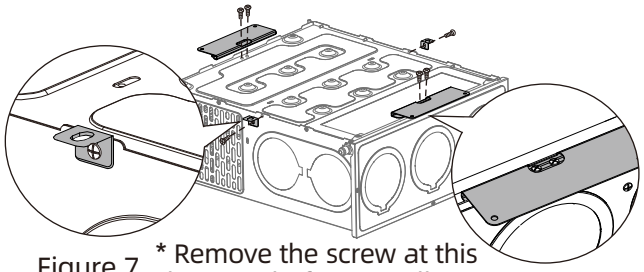


Figure 7 * Remove the screw at this location before installing.

Vertical Installation

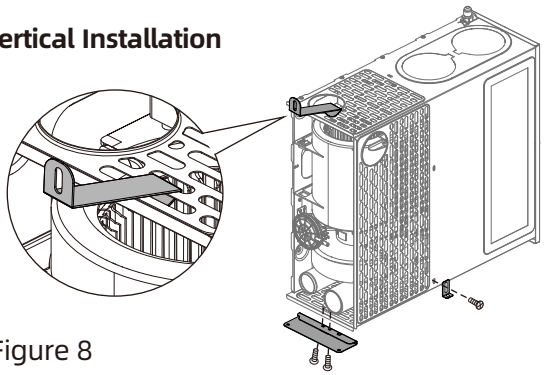


Figure 8

1. Fix the bracket to the furnace according to the installation position. The two mounting brackets are attached using four M4 screws. The hook mounting bracket hooks onto the grille when installed vertically.

Horizontal Installation

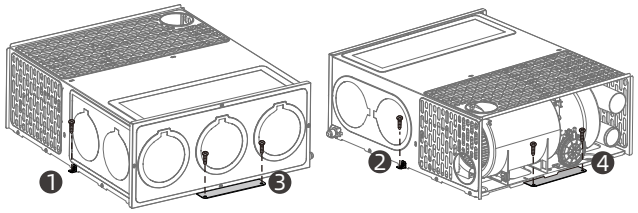


Figure 9 *❹ If installing without access door, skip this step.

Vertical Installation

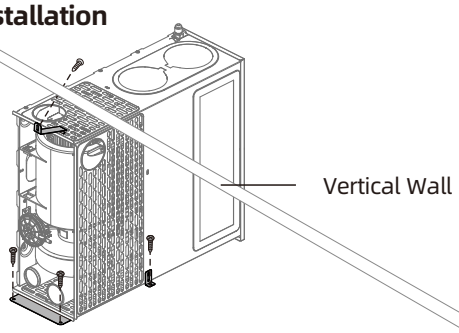


Figure 10

2. Secure the furnace to the RV floor using the the ST5×25 screws provided.

3.5 Installing Vent Assembly

The vent outlet must be installed so it is in the same atmospheric pressure zone as the combustion air intake. The exhaust and intake tubes must be installed from the outside, pass through the RV skin and slide onto the furnace exhaust and intake.

WARNING

- Discard the vent assembly that came with the furnace. The vent cap assembly supplied with the vertical mounting kit must be used. Recommends all vents be installed using the rain shield supplied.
- Do not alter the vent assembly supplied with this furnace. Any modifications will result in improper installation which could cause unsafe furnace operation.

CAUTION

- Combustion air must not be drawn from the living area. All air for combustion must be drawn from the outside atmosphere. All exhaust gases must be vented to the outside atmosphere - never inside the RV.
- Therefore, it is essential to insure that the vent cap and tube assemblies are properly installed.

1. Apply caulking to RV skin behind vent cap. Apply caulking generously around perimeter of vent cap and across center as shown.
2. Insert intake tube through RV skin and slide it onto the furnace intake (See Figure 3.) Minimum tube overlap of 1/2" is required.
3. Insert vent cap exhaust tube through RV skin and slide it onto the furnace exhaust (See Figure 3.) Minimum tube overlap of 1-1/4" is required.

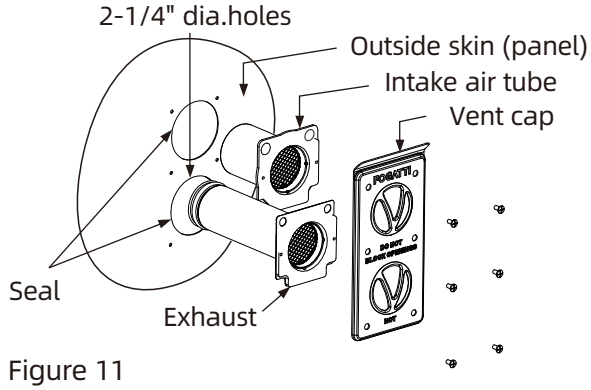


Figure 11

NOTICE

Caulk behind vent cap as shown to seal between exhaust and intake and to prevent moisture inside furnace compartment. Apply caulking generously around perimeter of vent cap and across center as shown. Center putty strip is essential.

4. Attach vent cap assembly to outer skin of RV with the six (6) screws provided.

   Do not install vent assembly upside down.

3.6 Connecting Gas Supply

CAUTION

The gas interface of the machine is fixed. If you need to change the gas intake direction, please add an external joint to change the gas intake direction. Do not forcibly change the gas interface, which may cause damage to the machine, gas leakage, and cause life danger.

WARNING

Hold manifold firmly when installing the gas pipe to prevent any force from being inserted on the valve and to prevent any leaks from developing. Be sure to check all fittings for leaks including the inlet and outlet on the valve before reinstalling furnace into cabinet. Correct all leaks immediately. NOTE: The furnace must be in operation to properly check for leaks.

Connect the gas supply to the furnace at the manifold, following the suggestions outlined below. It will be necessary to hold the flare fitting on the furnace manifold when connecting or loosening gas line.

NOTICE

The compound used on threaded joints must be resistant to liquefied petroleum (LP) gas.

NOTICE
The appliance must be disconnected from the gas supply piping system during any pressure testing of that system at test pressure in excess of 1/2 PSIG.

The appliance must be isolated from the gas supply piping during any pressure testing of the gas supply piping system at test pressure equal to or less than 1/2 PSIG.

1. A 3/8" male flare connection is provided for gas line hookup. Some standards may require the use of a manual shut off valve in the gas line external to the furnace cabinet.

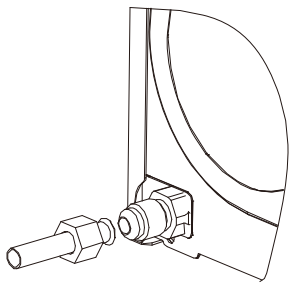


Figure 12

2. In order to maintain a check of gas supplied pressure to the furnace, advises the installer to provide the 1/8" NPT plug tap for test gauge connection immediately upstream of the gas supply connection to the furnace and that it be readily accessible.
3. After the furnace has been connected to the gas supply, all joints must be checked for leaks.

WARNING
Never check for leaks with an open flame. Turn on the gas and apply soapy water to all joints to see if bubbles are formed.

3.7 Connecting Electrical Supply

CAUTION
This furnace is designed for negative ground 12 volt D.C. system only. Do not attempt to alter the furnace for a positive ground system or connect the furnace directly to 115 volts A.C. Damage to furnace component parts will occur. Connect only to a protected circuit fused for not more than 20 amps.

Be sure all wiring to the furnace is of heavy enough gauge to keep the voltage drop through it to a minimum and to provide enough power for start-up surge. No. 12 gauge wire is recommended. If any of the original wire that is supplied with the appliance must be replaced, it must be replaced with type 105° C or its equivalent.

Power supply connections are to be on the right side of the furnace. The wires are color coded, red for positive (+) and black for negative (-). This polarity must be observed so the furnace motor will run the proper direction of rotation to insure correct air delivery. (See wiring diagram.)

If the furnace power supply is to be from a converter, we recommend that the converter system used to power the furnace be wired in parallel with the battery.

This will serve two purposes:

1. Provide a constant voltage supply to the furnace.
2. Filter any A.C. spikes or volt surges.

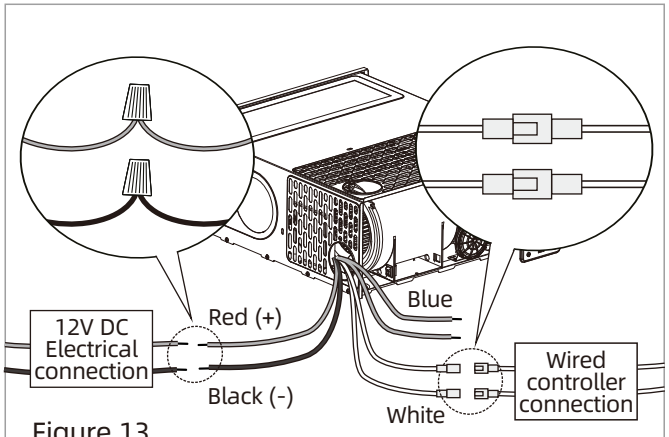


Figure 13

NOTICE
The furnace is equipped with a wired electronic thermostat for smart features, using a quick-connect coupling. A blue wire on the right side of the furnace is provided for connecting a different or older thermostat. Do not use both thermostats simultaneously. If you choose to use another thermostat, please consult with the manufacturer for further details.

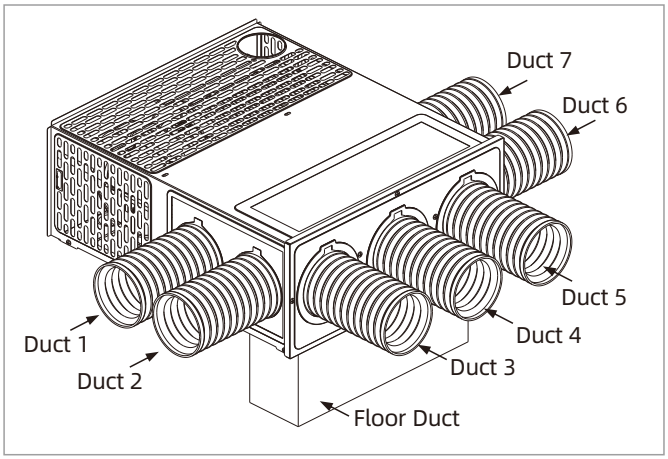
3.8 Installation for Ducting System

3.8.1 Required Ducts

To ensure the proper operation of the furnace, the required ducts are followed.

Model	4" Round Ducts	Horizontal Floor Duct	Vertical Floor Duct
RF025	36 in^2 (3 ducts min.)	56 in^2 (4" x 14")	53 in^2 (5-$^{13}/_{16}$" x 9-$^{13}/_{16}$")
RF030*	48 in^2 (3 ducts min.)	56 in^2 (4" x 14")	53 in^2 (5-$^{13}/_{16}$" x 9-$^{13}/_{16}$")
RF035*			

3.8.2 Identifying Duct Locations

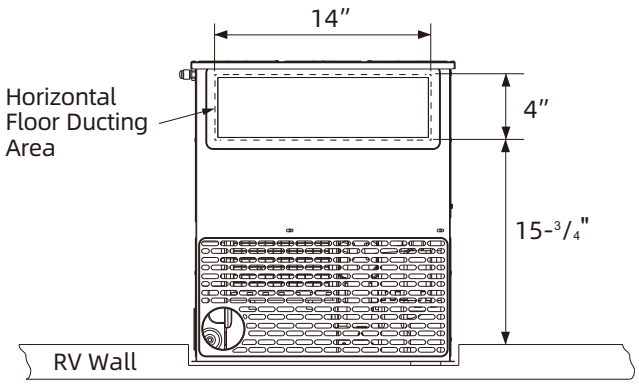


3.8.3 Versatile Floor Ducting Installation Options

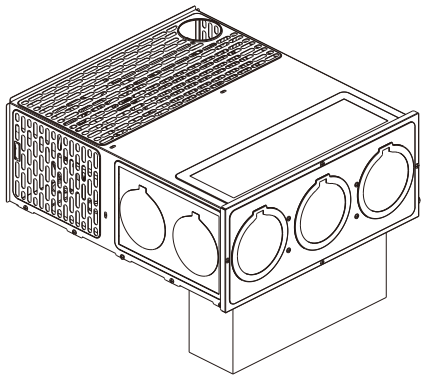
The furnace supports versatile installation with either floor ducting or bottom-discharge configurations, adaptable to both horizontal and vertical orientations as needed:

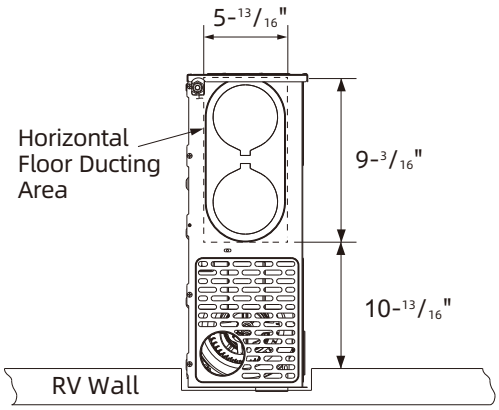
Installation Steps

1. Cut an opening in the RV floor for the floor discharge system.
2. Remove the bottom side discharge plate to enable floor ducting installation.
3. Securely seal the furnace to a hard ducting system using UL-approved foil tape, or opt for a high-temperature gasket (sold separately, not included) rated for a minimum temperature of 300 °F.
4. Position the furnace into the floor opening and seal around the edges to ensure a complete airtight fit.

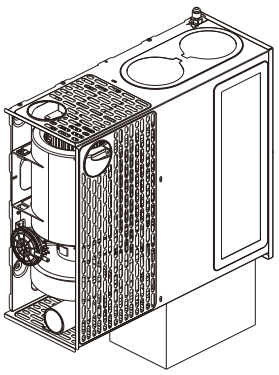


Top View - Horizontal Orientation



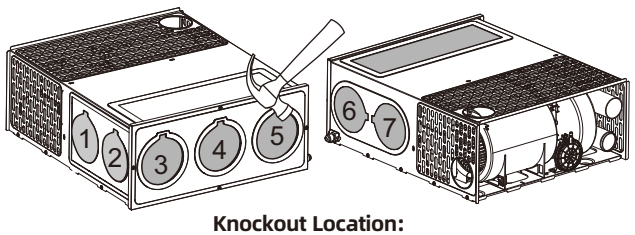


Top View - Vertical Orientation



3.8.4 Connecting Ducts to Furnace

4" Round Ducts installations:



Knockout Location:
- For 2 ducts installations: use #3 + #4.
- For 3 ducts: use #3 + #4 + #5.
- For 4 ducts: use #3 + #4 + #5 + #2 (horizontal) or #3 + #4 + #5 + #7(vertical).
- For 5 ducts: use #3 + #4 + #5 + #2 + #7.

Figure 14

- Use a hammer to remove the knockout plates from the desired outlets. Note: the edges of the knockout location may have sharp burrs that can easily cut your hands.

NOTICE
Knockout plates removal based on heat output (to prevent overheating) to meet minimum duct requirements.

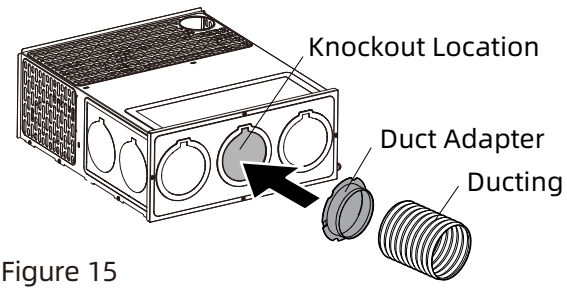


Figure 15

- Install the duct adapters (not provided) by inserting the flange over the casing hole and turning the duct adapter 90° to lock the tab into the casing slot.
- Securely attach the ducting (not provided) to the duct adapter. If using screws, ensure they are no longer than 1/2".

The following duct requirements must be followed in order to assure proper operation of the furnace:

A. The minimum open duct areas listed below must be maintained throughout entire duct system including through register:

Model	Side ducts			Floor Duct
	Min. Open Duct Area	Min No. Ducts Used	Duct Size	Min. Open Duct Area
RF030	36 SQ. IN.	3 ducts	4"	56 SQ. IN

* This refers to the minimum requirement for 35K and 30K BTU models, low-output models may require only 2 ducts.

NOTICE
Ducts terminating in a dead air space (like holding tank compartments or cargo areas (Toy Boxes) with no means for return air recirculation should not be counted in the required duct area. Also ducts 2" in diameter or smaller should not be counted in the required duct area.

B. No outlet register is to be placed within 18" of the return air opening. Any register installed at 18" should never be toward the return air opening. If a register is installed on a wall 90 degrees to the return air, it can be less than 18".

C. Make the duct connections at the furnace cabinet tight. Loose connections will result in overheating of the component parts on the furnace and a reduction of the heated air flow through the duct system.

D. Avoid making any sharp turns in the duct system. Sharp turns will increase the static pressure in the plenum area and could cause the furnace to cycle.

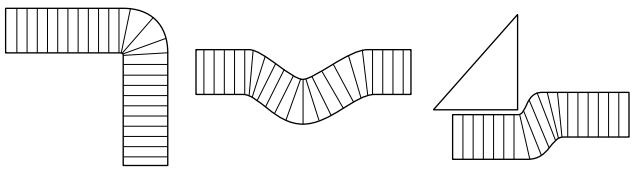


Figure 16 Not recommended

E. Avoid making a lot of turns in the duct system. The straighter the duct system, the better the performance of the furnace.

F. Maintain a minimum of 1/4" clearance where ducts pass through any combustible construction, such as coach cabinetry. (See Figure 4) NOTE: UL listed duct materials can be 0" clearance.

G. Do not install air boosters in the duct system. Such devices will cause the furnace to cycle on limit and to have erratic wind pressure switch operation.

NOTICE
After installation of the furnace and duct system is completed, adjustments must be made to obtain a temperature rise within the range specified on the Rating Plate.

3.9 Wired Controller (Thermostat) Installation

The wired controller should be mounted on an interior wall about4.5 feet above the floor. Pick a spot that's not affected by heatfrom other sources.

First, connect the controller's wiring to the white wires on the rightside of the furnace. (See wiring diagram.)

If your controller has a holder:
Secure the holder to the wall using the two provided ST4x16 mmscrews. Then, simply snap the controller into the holder.(Figure 17.1)

If your controller does not have a holder:
Mount the controller directly to the wall with the two provided ST4x16 mm screws, and apply the provided insulating film over the screw holes.(Figure 17.2)

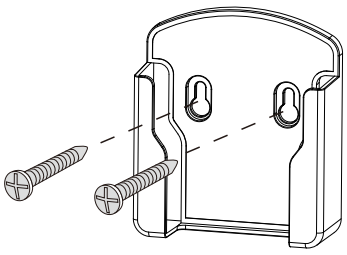


Figure 17.1

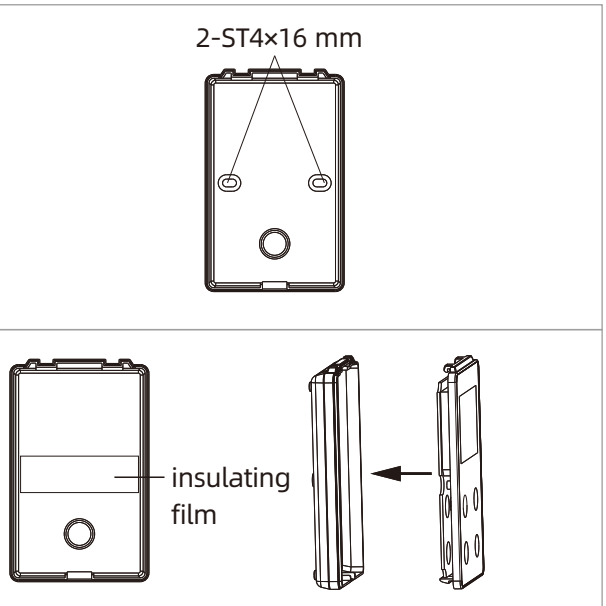


Figure 17.2

3.10 Preventive Maintenance

WARNING
If the user of this appliance fails to maintain it in the condition in which it was shipped from the factory or if the appliance is not used solely for its intended purpose or if appliance is not maintained in accordance with the instructions in this manual, then the risk of a fire and/or the production of carbon monoxide exists which can cause personal injury, property damage or loss of life.

CAUTION
Label all wires before disconnecting for servicing. Proper polarity must be observed so the furnace motor will run with the proper direction of rotation to insure correct air delivery. (See wiring diagram).

CAUTION
Label all wires prior to disconnection when servicing controls. Wiring error can cause improper and dangerous furnace operation. Always verify proper operation of furnace after servicing.

Your furnace should be inspected by a qualified service agency yearly before turning the furnace on. Particular attention should be given to the following items.

1. Inspect furnace installation and vent termination to be sure furnace is properly secured in place (see Installation Instructions), that vent terminates to the atmosphere, and that vent tubes overlap properly (see Installing Vent Assembly.)

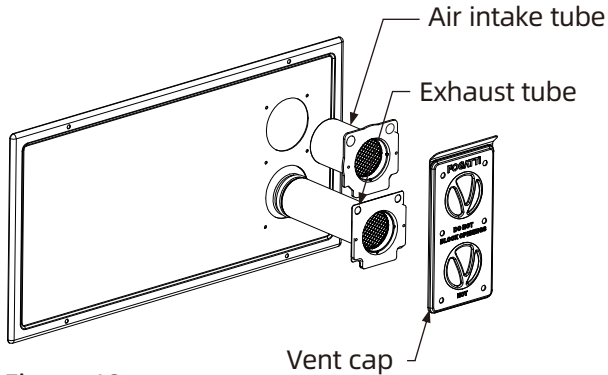


Figure 18

2. Inspect chamber and venting to assure that these components are physically sound without holes or excessive corrosion and that the installation and/or reinstallation is in accordance with Furnace's installation instructions. (Reference installation manual supplied with furnace.)

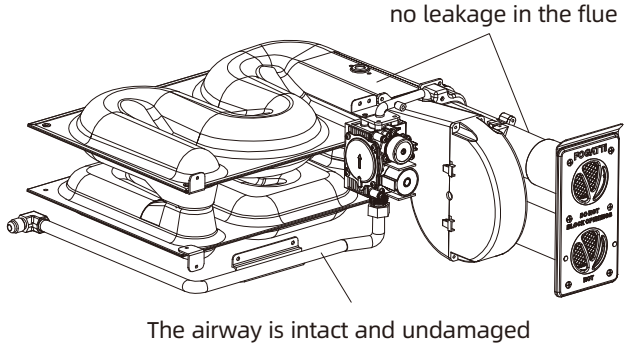


Figure 19

WARNING
It is imperative that the products of combustion be properly vented to atmosphere and that all combustion air supplied to burner be drawn from outside atmosphere.

3. Check the base on which furnace is mounted. Be sure it is physically sound, void of any sagging, deterioration, etc.
4. Inspect furnace, the venting, ducting and gas piping to furnace for obvious signs of deterioration. Correct any defects at once.
5. Inspect combustion chamber for restrictions in exhaust or intake. It is imperative that the flow of intake combustion air and the flow of exhaust gases being expelled to the outside atmosphere not be obstructed. Any soot or loose debris should be blown out using compressed air. (See Figure 20)

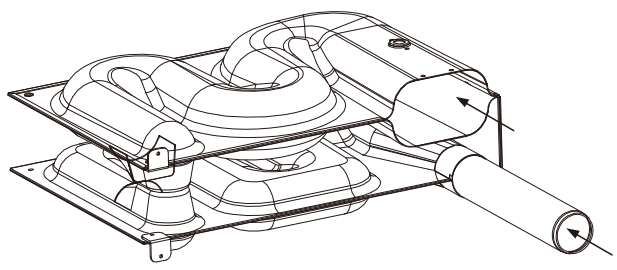


Figure 20

NOTE: To clean the chamber. The furnace must be removed from the cabinet and the manifold. Blower assembly and controls removed leaving the chamber only. As shown. Using compressed air, blow through the chamber, as shown by arrows, to remove soot or loose debris.

6. Inspect all gaskets. If any gaskets show signs of leakage or deterioration, replace them. Safe operation of the furnace depends on all gaskets being tight.
7. Inspect return air inlet openings to the furnace. Remove any restrictions to assure adequate air flow.

You, as the owner/user, should inspect the furnace monthly during the heating season for presence of soot on vent. Operating the furnace under this condition could lead to serious property damage, personal injury or loss of life.
If soot is observed on the vent, immediately shut the furnace down and contact a qualified service agency.

Listed below are several safety related items that you should follow during the heating season to assure continued safe operation of the furnace.

1. Inspect furnace venting. Venting must be free of obstructions, void of soot, and properly terminated to the atmosphere. (See Installing Vent Assembly.)

WARNING
Do not install screens over the vent for any reason. Screens will become restricted and cause unsafe furnace operation. Accessories are being marketed for RV products which we do not recommend. For your safety, only factory authorized parts are to be used on your furnace.

2. Periodically inspect the vent for obstructions or presence of soot. Soot is formed whenever combustion is incomplete. This is your visual warning that the furnace is operating in an unsafe manner. If soot is present, immediately shut furnace down and contact your dealer or a qualified service person.

3. Keep furnace clean. More frequent cleaning may be required due to excessive lint from carpeting, bedding material, etc. It is imperative that control compartments, burners and circulating air passageways of the appliance be kept clean.
4. The motor is permanently lubricated and requires no oiling.
5. Keep the furnace area clear of any combustible materials, gasoline or other flammable vapor and liquids.
6. Before operating furnace, check the location of the furnace vent to make sure it will not be blocked by the opening of any door on the trailer. If it can be blocked, do not operate the furnace with the door open.
7. Do not restrict the flow of combustion air or the warm air circulation to the furnace. To do so could cause personal injury and/or death.
8. Never operate the furnace if you smell gas. Do not assume that the smell of gas is normal. Any time you detect the odor of gas, it is to be considered life threatening and corrected immediately. Extinguish any open flames including cigarettes and evacuate all persons from the vehicle. Shut off gas supply at LP gas bottle. (See safety notice on front cover of this manual.)
9. Immediately shut furnace down and call a service agency if furnace cycles erratically or delays on ignition.

WARNING
Should overheating occur, or the gas supply fail to shut off, shut off the manual gas valve to the appliance before shutting off the electrical supply.

10. Never attempt to repair damaged parts. Always have them replaced by a qualified service agency.
11. Never attempt to repair the furnace yourself. Seek the help of a qualified service person.
12. Never restrict the ducting installed by your trailer manufacturer. To do so could cause improper furnace operation.
13. Do not install air boosters in the duct system. Such devices will cause the furnace to cycle and to have erratic wind pressure switch operation.
14. Clothing or other flammable material should not be placed on or near the appliance.
15. Always follow the operating instructions. Do not deviate from the step-by-step procedures.
16. Do not use this appliance if any part has been submerged under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control that has been submerged under water.
17. When considering add-on rooms, porch or patio, attention must be given to the venting of your furnace. For your safety, do not terminate furnace vent inside add-on rooms, screen porch or onto patios. Doing so will result in products of combustion being vented into the room or occupied areas.
18. In any installation in which the vent of this appliance can be covered due to the construction of the RV or some special feature of the RV such as slide out, pop-up, etc. always insure that the appliance cannot be operated by setting the wired controller to Press the power button to turn off the screen or shut down the device and shutting off all electrical and gas supply to the appliance. Never operate furnace with vent covered.

3.11 Installation and Removal of Unit Installed From Inside

TO REMOVE

1. Disconnect power supply at furnace.
2. Remove vent cap assembly.
3. Disconnect gas connections.
4. Remove front cover (4 screws).
5. Remove tie-down screw from center of unit and remove furnace from cabinet.

TO INSTALL

1. Slide unit into cabinet. NOTE: Care must be taken in routing wiring to back of cabinet and outside of cabinet.
2. Reinstall tie-down screw.
3. Reinstall cabinet front.
4. Connect gas line.
5. Check gas connections for leaks using a soap and water solution. Correct any gas leaks immediately.
6. Reinstall vent cap assembly.

3.12 Installation and Removal of Unit When Optional Back is Used

TO REMOVE

1. Break power to furnace.
2. Remove vent cap assembly.
3. Remove optional back.
4. Disconnect power supply at furnace.
5. Disconnect power supply plug from module board.
6. Disconnect electrode wire from module board.
7. Remove the two (2) screws securing module board and panel assembly to firewall and pull out assembly. EXERCISE CARE NOT TO DAMAGE BOARD.

NOTICE
This will allow more room for making the gas connections at the flare fitting. It will be necessary to hold the flare fitting with a wrench when tightening or loosening the gas line.

8. Remove gas line.
9. Remove tie-down screw at blower base and remove furnace from cabinet.

TO REINSTALL

1. Slide unit into cabinet and secure with screw at base of blower.
2. Connect gas line.
3. Check gas connections for leaks using a soap and water solution. Correct any gas leaks immediately.
4. Reinstall module board and panel assembly.
5. Reconnect electrode wire to board
6. Reconnect power supply to board.
7. Reconnect power to furnace. NOTE: If this connection was made inside the cabinet, care must be exercised to prevent wires from coming in contact with the room air blower wheel.
8. Reinstall optional back.
9. Reinstall vent cap.
10. Provide power to furnace.

4 Operation

4.1 Operating Instructions

WARNING
Do not operate furnace while vehicle is in motion or being towed.

NOTICE
During initial firing of this furnace, a burn-off of excess oils remaining from manufacturing process may cause "smoking" for 5 - 10 minutes.

1. Stop! Read Users Information Manual supplied with furnace.
2. Turn off the manual valve (if so equipped) or the valve at the outside LP tank . Do not force.
3. Set Wired controller above room temperature to begin blower operation. A slight delay will occur before the blower comes on. Allow blower to run for 5 minutes for combustion chamber purge cycle. If blower does not come on or stops before ignition cycle, go to shut down and contact your dealer or a local recreational vehicle service agency.
4. After 5 minutes, Press the power button, the remote control screen goes off, and the machine is turned off. Blower will remain on. Wait approximately 2 minutes for blower to go off.
5. Open manual shut-off valve (if so equipped) or the valve at the outside LP tank. Correct operating characteristics depend on the valve being positioned fully open. Never attempt to operate with a valve partially closed. NOTE: This furnace has a gas shut-off switch. With the switch turned OFF, gas will not flow to burner nor will the furnace operate.
6. Set Wired controller to desired setting. If set above room temperature, blower will come on.
7. When the ambient temperature reaches the set temperature, the machine will enter standby mode. When the conditions for restarting are met, the machine will be notified to initiate the startup process again.
8. Allow 30 seconds for main burner to light after blower comes on. This furnace is equipped with an ignition device which automatically lights the burner. The flame indicator light on the remote control is on. Do not try to light the burner by hand.