

## RV FURNACES

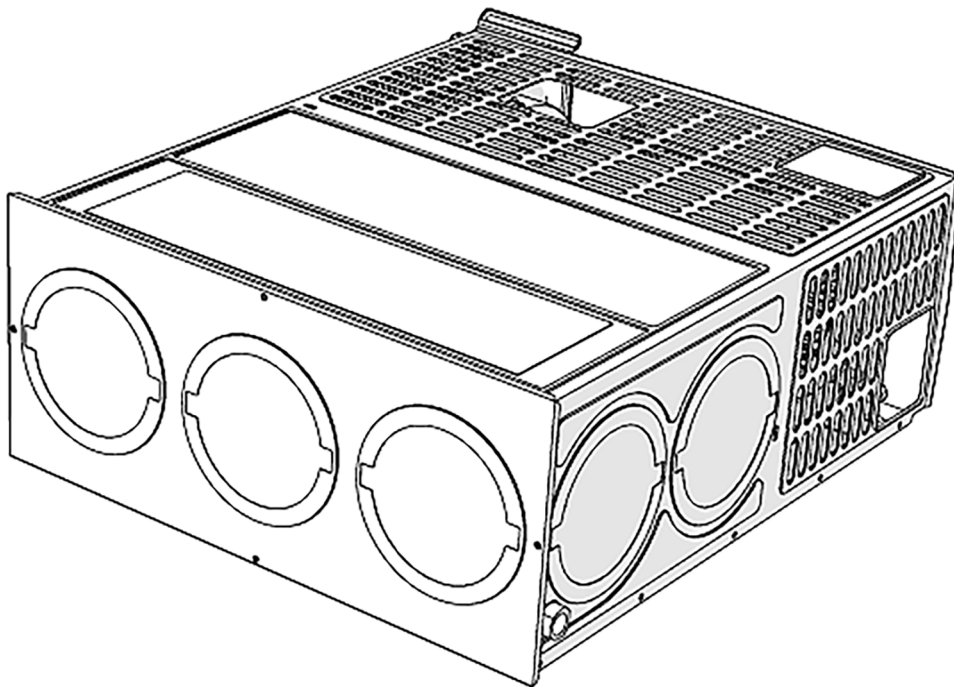
MODEL (LIPPERT PN)

FFG20FA (2023033712) FFG30FA (2022121947) FFG35FA (2022121948)

FFG20RA (2023033713) FFG30RA (2022121949) FFG35RA (20221219509)

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## TROUBLESHOOTING AND SERVICE MANUAL



\* Picture shown here is for reference only.

This manual contains the product's basic information, safety, maintenance, replaceable parts, fault diagnosis and basic troubleshooting procedures.

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## Introduction

This document provides an overview on replaceable parts for Furrion® RV Furnaces, as well as basic troubleshooting and service information.

**NOTE:** Images used in this document are for reference only when assembling, installing and/or operating this product. Actual appearance of provided and/or purchased parts and assemblies may differ. For more detailed operation, including general safety instructions, warnings and cautions, see Instruction Manual at : <https://support.lci1.com/documents/ccd-0006025> or scan this QR code:



## Safety

Read and understand all instructions before installing or operating this product. Adhere to all safety labels. This manual provides general instructions. Many variables can change the circumstances of the instructions, i.e., the degree of difficulty, operation and ability of the individual performing the instructions. This manual cannot begin to plot out instructions for every possibility, but provides the general instructions, as necessary, for effectively interfacing with the device, product or system. Failure to correctly follow the provided instructions may result in death, serious personal injury, severe product and/or property damage, including voiding of the Lippert limited warranty.



**The "WARNING" symbol above is a sign that a procedure has a safety risk involved and may cause death or serious personal injury if not performed safely and within the parameters set forth in this manual.**

## **WARNING**

**Failure to follow instructions provided in this manual may result in death, serious personal injury and/or severe product and property damage, including voiding of the component warranty.**

## **CAUTION**

**The “CAUTION” symbol above is a sign that a safety risk is involved and may cause personal injury and/or product or property damage if not safely adhered to and within the parameters set forth in this manual.**

## **CAUTION**

**Always wear eye protection when performing service, maintenance or installation procedures. Other safety equipment to consider would be hearing protection, gloves and possibly a full face shield, depending on the nature of the task.**

## **Important Safety Instructions**

### **WARNING**

#### **FIRE OR EXPLOSION HAZARD**

**Failure to follow safety warnings exactly could result in serious injury, death, or property damage.**

## **Precautions/Warnings**

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

## What To Do If You Smell Gas

- Evacuate all persons from the vehicle.
- Shut off the gas supply at the gas container or source.
- Do not touch any electrical switch, or use any phone or radio in the vehicle.
- Do not start the vehicle's engine or electric generator.
- Contact the nearest gas supplier or qualified service technician.
- If you cannot reach a gas supplier, contact the nearest fire department.
- Do not turn on the gas supply until the gas leak(s) has been repaired.
- Installation and service must be performed by a qualified installer, service agency, or the gas supplier.

## Fire Or Explosion Hazard

- Ensure that all intended components are attached to the furnace after installation. The furnace should never be used without all intended components attached correctly.
- Do not store gasoline, oil, gasoline-soaked rags, or other flammable vapors and liquids inside storage compartment(s).
- Before refueling or parking near a gasoline pump, ensure that all LP gas appliances (vented to the outside of the RV) are shut OFF. Otherwise, fumes from gasoline pumps could come into contact with an LP gas appliance burner flame and ignite.
- Turn OFF the LP gas supply at the gas tank.
- Keep the furnace area clear and free of combustible materials, gasoline, and other flammable vapors and liquids.
- Use only with the type of gas approved for the furnace. Refer to the furnace rating plate.
- Do not overfill LP gas tanks. LP tanks must be filled by a qualified gas supplier only. Follow the tank manufacturer's operating instructions located on the tank.

- Immediately shut down the furnace and call a service agency if the furnace cycles erratically or delays on ignition.
- Shut OFF the gas valve to the furnace before shutting off the electrical supply if the gas supply fails to shut off, or if overheating should occur.

### Carbon Monoxide Hazard

- This furnace can produce carbon monoxide, which has no odor and can be life-threatening. Keep the burner and vent assembly system clean from any obstructions.
- Doors must be properly sealed and the draft cap and assemblies must be adjusted and sealed correctly to prevent carbon monoxide from entering the RV.
- Do not block the exhaust system of the furnace.
- Combustion products must be properly vented to the atmosphere and all combustion air supplied to the burner must be drawn from the outside atmosphere.

### Electrical Shock Hazard

- This furnace is designed for 12VDC negative ground only. Never attempt to alter it for a positive ground system or connect it directly to a 115 VAC power.
- Do not use a battery charger to supply power to the furnace, even when testing.
- Use only Furrion® approved replacement parts and components.

## Service and Maintenance

You, as the owner/user, should inspect the furnace monthly during the heating season for the presence of soot on the 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.

- Never attempt to repair the furnace yourself. Contact a qualified service technician.
- Keep the furnace, control compartments, burners, and circulating air passageways clean and unobstructed. More frequent cleaning may be required from excessive lint from carpeting, bedding materials, pet hair, etc.
- Do not use petroleum or a citrus-type cleaner on plastic parts, as damage may occur.

## Electrical Shock , Fire , Or Explosion Hazard

Improper servicing could result in dangerous operation, serious injury, death, or property damage.

### **WARNING**

**Failure to follow the safety warnings exactly could result in dangerous operation, serious injury, death, or property damage.**

- Before servicing, disconnect all electrical power to the Furnace.
- When servicing the controls, label all wires prior to disconnecting for servicing and servicing controls. Reconnect the wires correctly.
- Verify proper operation after servicing.

### **WARNING**

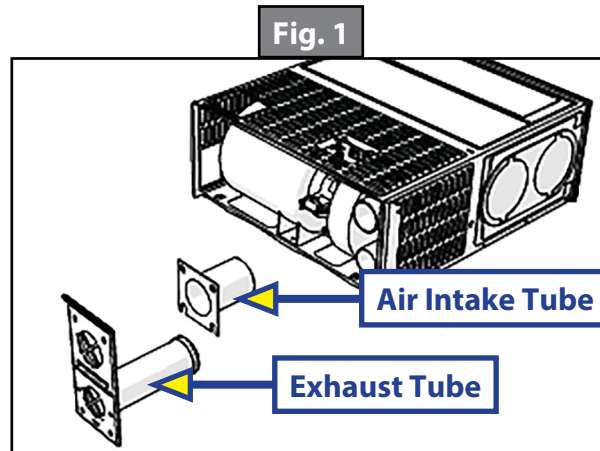
**If the user of this appliance fails to maintain it in the condition in which it was shipped from the factory or if the appliance is not used solely for its intended purpose or if appliance is not maintained in accordance with the instructions in this manual, then the risk of a fire and/or the production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

## Annual Inspections

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

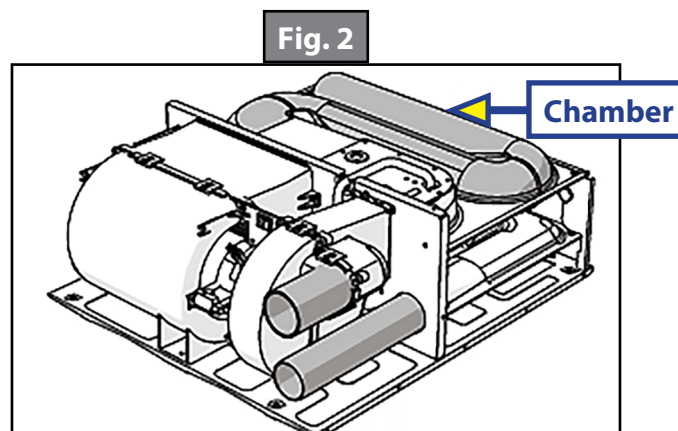
### Air Intake and Exhaust Tubes

- Ensure the vents properly exhaust into the atmosphere and that the vent assembly is positioned tightly against the outer door.
- Inspect the vent for obstructions or the presence of soot. If soot is present, immediately shut off the furnace and contact your dealer or a qualified service technician.
- Inspect the furnace exhaust tubes for blockage, overlap, holes, or soot.
- Keep all tubes clean and free of obstructions. (Fig.1).



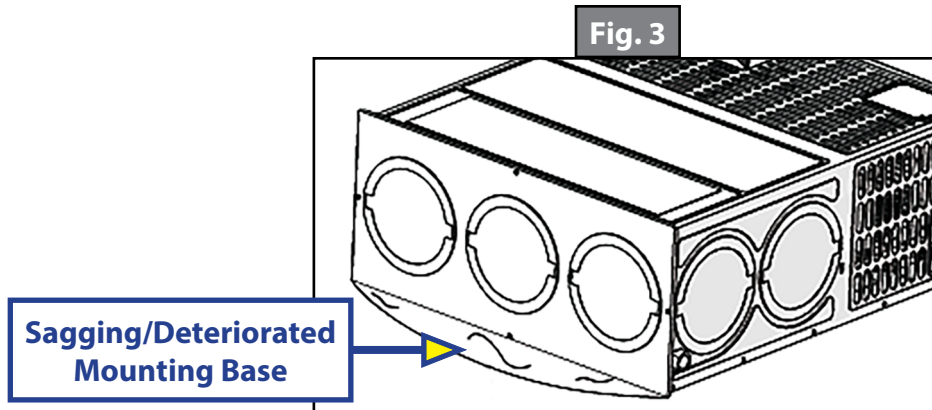
### Chamber

Inspect the chamber (Fig.2) and vent system for holes or excessive corrosion. 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.



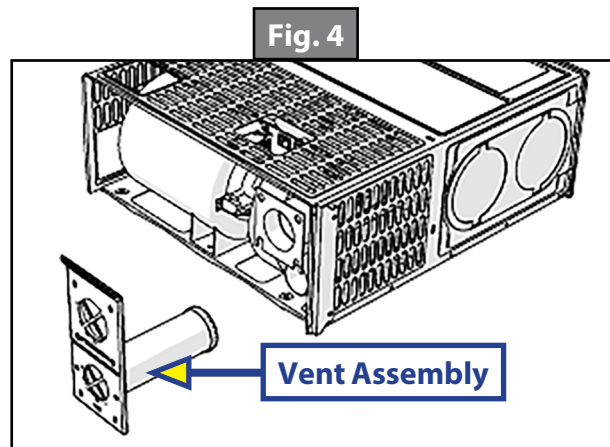
## Base

Check the base on which furnace is mounted, and ensure it is physically sound, to avoid any sagging, deterioration (Fig.3), and etc.



## Vent Assembly

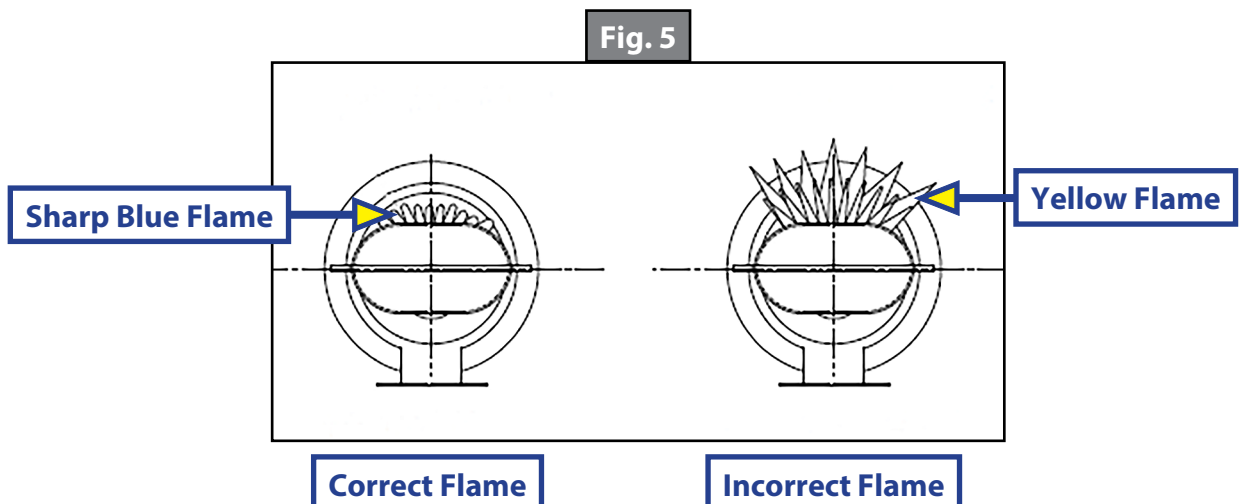
Inspect the furnace, venting, ducting, and gas piping for obvious signs of deterioration (Fig.4). Correct any defects.



## Inspecting the Vent Flame

Observe the main burner flame to assure it is burning with a hard blue flame with well defined burner ports (Fig.5) If flame appears yellow or burner has a lazy flame, shut furnace down. It is possible that burner needs cleaning or replaced. If excessive rust and corrosion are present on burner surface, the burner must be thoroughly cleaned or replaced. The burner may be cleaned using a steel wire brush and blown clean using high compression air.

**NOTE:** To properly observe burner operation, the furnace must be removed.



## Annual Maintenance

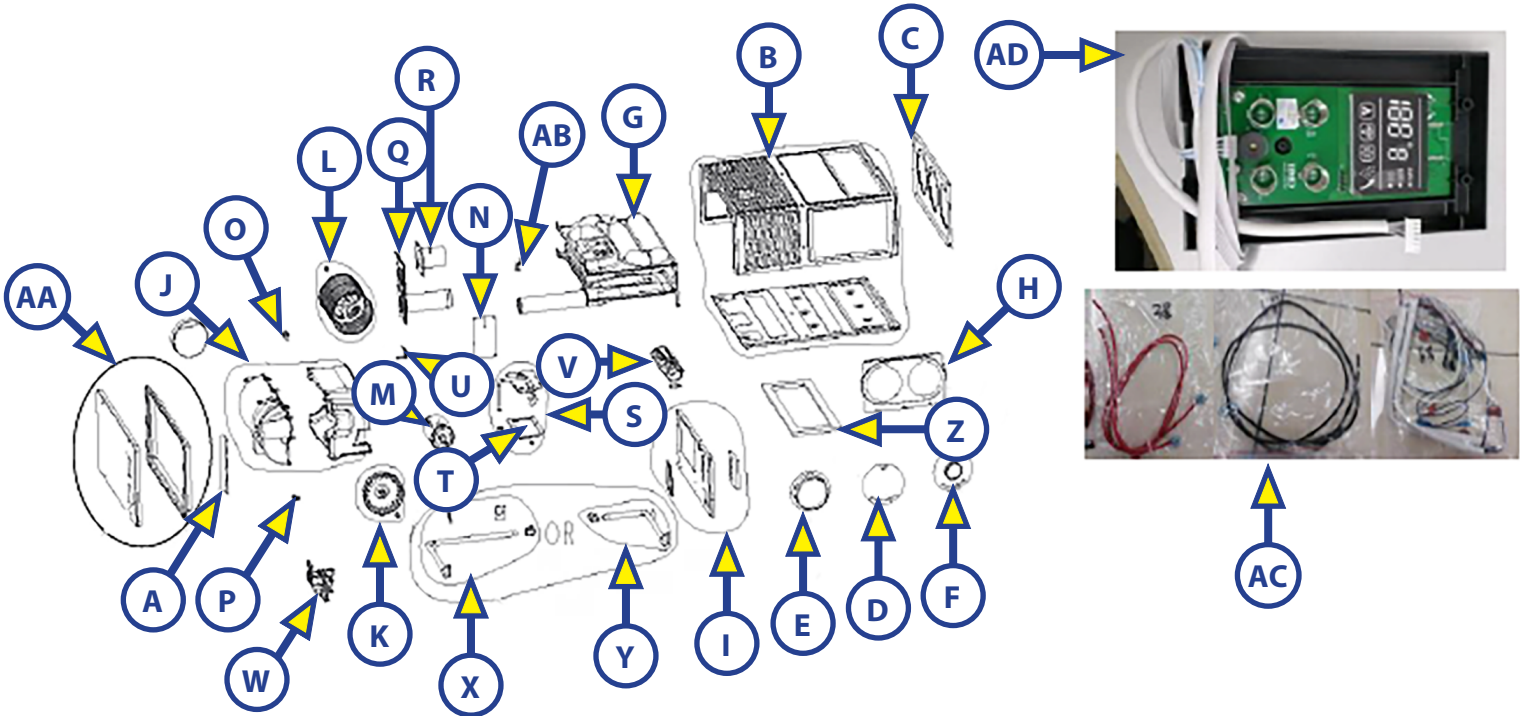
A qualified person should perform the following preventative maintenance and safety checks annually.

Annual Maintenance	
Air Wheel	Clean and clear any obstructions.
Orifice Inspection	Inspect the orifice annually.
Burner	Requires no adjustment, inspect annually. Clean burner with a wire brush to remove debris and corrosion build up.
Control Compartment	Remove dirt and lint.
Ducting	Clean and clear obstructions. Reconnect any ducts that have become loose.
Gas Pressure Test	Test the entire piping system. Test the gas connections for leaks with a leak test solution.
Gas Supply System	Perform a pressure drop test according to current ANSI standards.
Gaskets	Inspect all gaskets for tight seals.
General	Check physical support system for sagging cracks, gaps, etc.
Motor	Requires no oiling. Permanently sealed and lubricated. Inspect annually.
Return Air	Clean and clear obstructions.
Venting	Check position of exhaust tube and Furnace chamber tube.
Voltage	Check power with applicable power sources (generator, battery, and converter).
Wire Connections	Check for loose, disconnected, or worn insulation areas.

**NOTE:** The motor is permanently lubricated and requires no oiling.



Replaceable Parts List



Callout	Part #	Description	Model
A	2023010299	Vertical Mount Kit	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
B	2023010300	Metal Shell Assembly	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
C	2023010301	Front Panel	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
D	2022121953	4" Duct Cover Plate for Gas Furnace	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
E	2022121951	4" Duct Collar for Gas Furnace	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
F	2022121952	2" Duct Collar for Gas Furnace	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
G	2023010302	Heat Exchanger Assembly	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
H	2023010303	Small Side Plate	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
I	2023010304	Firewall with Gasket Kit	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA

Callout	Part #	Description	Model
J	2023010305	Blower Housing Assembly	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
K	2023010306	Combustion Fan Wheel	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
L	<a href="#">2023010307</a>	Blower Fan Wheel	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
M	2023010308	Motor with Gasket for 30k and 35K Models	FFG35FA, FFG35RA, FFG30FA, FFG30RA
	2023038739	Motor with Gasket for 20K Models	FFG20FA, FFG20RA
N	2023010309	Control Board (active low input)	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
	2023060551	Control Board (active low input)	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
O	2023010310	Sail Switch	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
P	2023010311	Power Switch	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
Q	2023010312	Vent Cap and Exhaust Tube Assembly (w/6 x #10 x 1" Stainless Steel Self-Tapping screws)	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
R	2023010313	Intake Tube	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
S	2023010314	Burner Intake Assembly with Gas Tip (30K Models)	FFG30FA, FFG30RA
	2023010315	Burner Intake Assembly with Gas Tip (35K Models)	FFG35FA, FFG35RA
	2023038740	Burner Intake Assembly with Gas Tip (20K Models)	FFG20FA, FFG20RA
T	2023010316	Burner Gasket	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
U	2023010317	Igniter Electrode	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
V	2023010318	Furnace Burner	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA

Callout	Part #	Description	Model
W	2023010319	Gas Solenoid Valve	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
X	2023010320	Front Gas Tube Kit	FFG35FA, FFG30FA, FFG20FA
Y	2023010321	Rear Gas Tube	FFG35RA, FFG30RA, FFG20RA
Z	2022121954	Dust Gasket for Gas Furnace	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
AA	2022121955	Door (Kit for OEM) for Gas Furnace - Black	FFG35FA, FFG35RA, FFG30FA, FFG30RA, C-FFG35FA-A05
	2022121956	Door (Kit for OEM) for Gas Furnace - White	FFG35FA, FFG35RA, FFG30FA, FFG30RA, FFG20FA, FFG20RA, C-FFG35FA-A06
	2023058213	Door (Kit for AM) for Gas Furnace - Black	FFG35FA, FFG35RA, FFG30FA, FFG30RA, C-FFG35FA-A10
	2023058214	Door (Kit for AM) for Gas Furnace - White	FFG35FA, FFG35RA, FFG30FA, FFG30RA, FFG20FA, FFG20RA C-FFG35FA-A11
AB	2023010322	HI Limit Switch	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
AC	2023010323	Power Supply Wiring Harness Package	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA
AD	2023010324	Diagnose PCB Units	FFG35FA, FFG35RA FFG30FA, FFG30RA, FFG20FA, FFG20RA

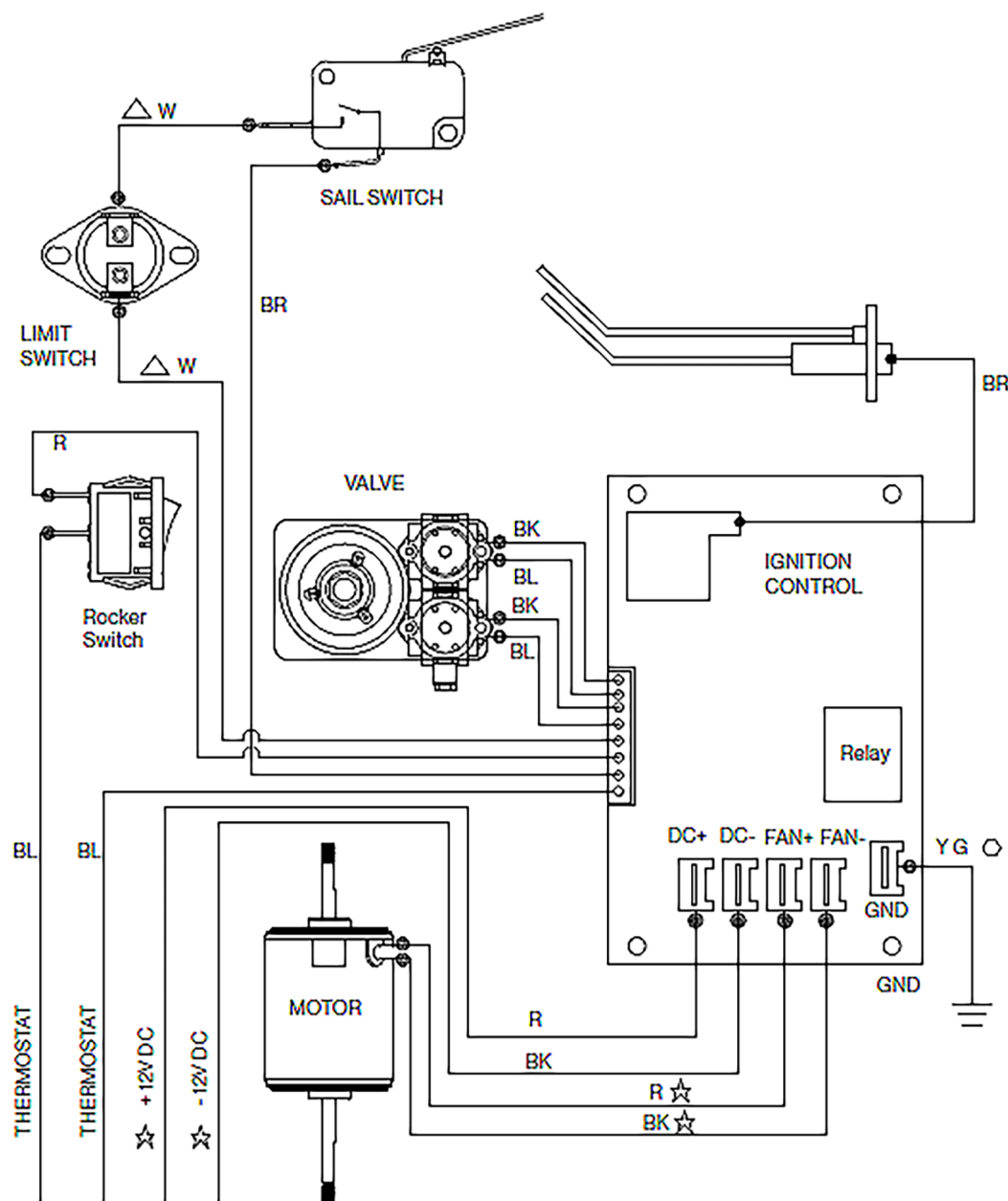
## Troubleshooting

Problem	Remedy
Furnace will not light – Blower does not turn on.	Reset the power to the furnace.
	Check that your gas valves are ON, and that the tanks are not empty.
	Check the main fuse panel for a blown fuse.
	The Furnace-installed breaker switch may be tripped or OFF – Contact a trained RV service provider.
	The 12 VDC power is low; check the RV system voltage.
	The Furnace may be in lockout. Reset the Furnace by switching the thermostat to OFF for 10 seconds, then switch the thermostat to ON. If air is in the propane line, repeat this process up to three times.
	Check the intake and vents to make sure they are not blocked or obstructed.
	Air is in the LP line. Purge the air by turning on other appliances (like a cooktop) that are further downstream from the LP tanks.
	The thermostat is not set to Heat or a high enough temperature. Adjust the thermostat.
Furnace shuts off before it reaches the desired temperature.	Check to make sure all the vents are open and not covered.
	Check the air intake to make sure it is not blocked or obstructed.

## Specifications

Technical Specification	
Optional Power	Gas power
BTU/HR	See appliance Rating Tag
Fuel / Power	Propane
Inlet Pressure	11" WC Min to 13" WC Max
Power Input	12V DC See appliance Rating Tag

## Wiring Diagram



CODE	COLOR	ALL WIRES ARE 22 AWG UNLESS OTHERWISE SPECIFIED. NOTE: IF THE ORIGINAL WIRES THAT COME WITH ELECTRICAL APPLIANCES NEED TO BE REPLACED, THE TEMPERATURE RESISTANCE OF WIRE MATERIALS SHOULD NOT BE LOWER THAN THE NOMINAL VALUE OF THE ORIGINAL WIRES.	
R	RED		
BL	BLUE		
BK	BLACK		
W	WHITE	⬡ 18AWG UL1015 105°C	★ 14AWG UL1015 105°C
BR	BROWN	△ 22AWG UL3122 200°C	
Y G	YELLOW GREEN		



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