

REC PRO[®]

***RV Tankless Water
Heater User Manual
RP-1057-42BTU
RP-1057-60BTU***



**This water heater is ONLY for installation in Recreational Vehicles (RV's) and is manufactured by RecPro 806 S. Division St. Bristol, IN 46507
Design conforms to CSA/ANSI Z21.10.3:19 & CSA4.3:19**

Dear Customer,

Thank you and congratulations on your new purchase. We hope this product brings you years of reliable comfort and enjoyment during your travels. In order to fully understand all the features this product offers, please read these operating instructions. If you do not understand any information provided in the manual, please contact RecPro customer service immediately (574) 848-0405.

Read through this manual carefully. This manual will instruct you on how to safely use all features this product offers. To ensure safe use of this water heater, ALWAYS read and follow all instructions in this manual. Any repair or maintenance not described in this manual should be done ONLY by an authorized dealer or qualified service professional.

The manufacturer will not be held responsible for any damages that may occur if the instructions provided in this manual are not followed.

This water heater is designed for installation in ventilated applications. This appliance must be installed in a ventilated compartment. This water heater is ONLY installed in Recreation Vehicles (RV's) and is not for use in Marine or space heating applications.

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

When there is strong wind, please keep the exhaust outlet of the blower in the same direction of wind, in order to let it exhaust smoothly.

If wind pressure is too high, this heater will be switched off automatically for safety.



Water heaters for recreation vehicle installation only.

Failure to follow the instructions provided may result in a fire or explosion that could result in property damage, personal injury, or death.

- 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 switches 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 for repairs.
- If you cannot reach a gas supplier or qualified service technician, 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.



Should overheating occur or the gas supply fails to shut off, turn off the manual gas control valve to the appliance.

Never operate the appliance if you smell gas. Do not assume that the smell of gas in your rv 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 the gas source. An odorant should be added to the gas used by this water heater.

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

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

WARNING

Do not alter the operation of your water heater, nor change the design/construction of your water heater. This appliance is not intended for use by young children or infirm persons without supervision. Young children should be supervised to ensure that they do not play with the appliance.

The thermostat on your water heater is adjustable. It is a temperature sensing limit designed to maintain a water temperature from 95°F (35°C) to 123°F (50°C). Water temperatures over 125°F (52°C) can cause severe burns instantly or death from scalds; therefore, be careful when using hot water. Children, disabled, and the elderly are at highest risk of being scalded. Always feel water before bathing or showering.

WARNING

CARBON MONOXIDE RISK

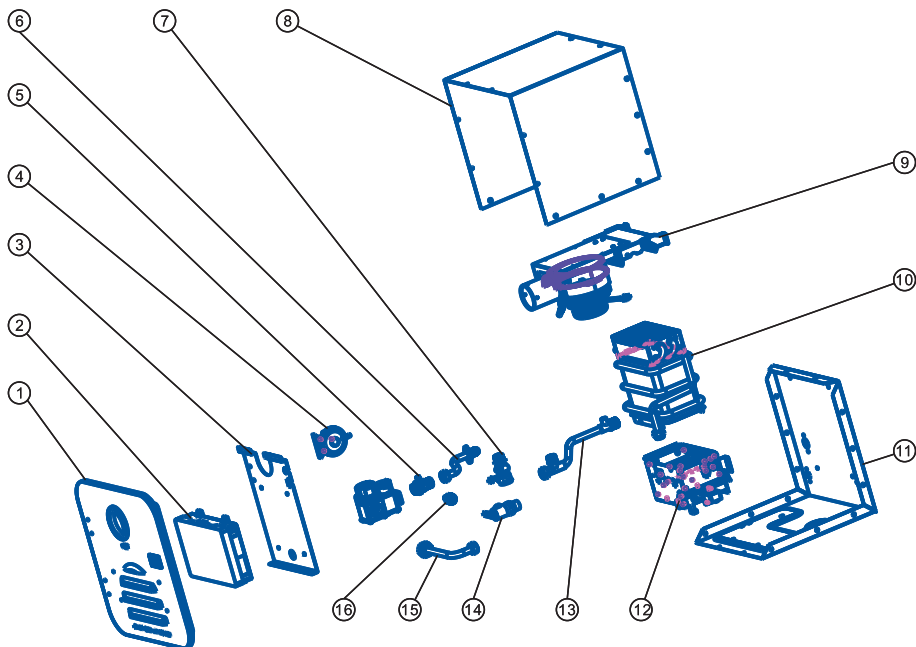
This water heater may produce unsafe levels of carbon monoxide if improperly operated. Ventilation and fresh air circulation is required. Carbon monoxide poisoning can cause death, and exposure for a short amount of time can lead to serious injuries. Carbon monoxide has no smell and is unlikely to be detected. It is also highly flammable and can explode on contact with a spark or flame. Never block the blower or fresh air inlet.

FIRE/EXPLOSION RISK

A fire or explosion may result causing property damage, personal injury, or loss of life. Do not store or use gasoline or other flammable vapors and liquids in or adjacent to this water heater or any other appliance. Failure to comply with all installation and operating instructions will void the warranty.

- This water heater is recommended to be used at normal altitudes at 1-2000 feet and at high altitudes at 2001-4500ft, but NOT allowed to be used higher than the the above said altitudes.
- Use LPG only. Natural gas or other gas sources are not allowed.
- Use 12V DC only. 220V or 120V is not allowed.
- Blowing air may be hot and can burn your skin.
- Shut off all gas appliances when refueling.
- Turn gas OFF when vehicle is in motion.
- LP tanks must be filled by a qualified gas supplier only.

ABOUT THIS WATER HEATER



Item	Parts name
1	Door kit
2	MCU
3	MCU rack
4	Wind Pressure Switch
5	Inlet gas pressure testing point
6	Gas inlet piping
7	Water flow sensor
8	Casing(N shape)
9	blower
10	Heat exchanger
11	Casing(L shape)
12	Burner assembly
13	Cold water inlet piping
14	Pressure relief valve
15	Gas relay piping

Features:

- On Demand Hot Water
- LP Gas/Induced Draft
- Consistent Hot Water Temperature
- Linear Gas Control Valve
- Electronic Gas Modulation
- Microprocessor Controls

This gas water heater is designed especially for RV use.

Hot Water On Demand

This feature is activated by water flow. Open the faucet and the Hot Water On Demand feature will begin working automatically. Close the faucet and it will stop working.

Consistent Temperature Hot Water

This water heater is self-regulating, meaning the heater automatically adjusts the gas flow to the burners according to the water flow and water temperature to ensure the desired temperature is reached at your tap. Simply set the temperature on the screen and the heater does the rest of the work.

Low Water Flow

This water heater will start with water flow as low as 2.5L per minute (0.7GPM).

Attention: If water flow from hot water outlet is less than 2.5L per minute (0.7 GPM), this heater will not activate.

Automatic Freezing Protection

When the temperature of the water pipe in the water heater is lower than **43°F ± 2°F (6°C ± 1°C)**, the heater will activate for 5 seconds. Then, after another 3 minutes, it will be ready for next cycle. Automatic freezing protection needs gas supply and power on. If you do not want to use the automatic freezing protection, you could switch off power supply by pressing **on/off switch** (indicated by arrow).



Error Code Display

Intelligent microcomputer technology monitors various safety devices, gas proportional valves and other components in real-time to find faults and safely shutdown the water heater when a fault is detected. (Error code chart is located in the back of this manual)

Safety Features:

Flame out protection: If the flame goes out, the gas supply to the burner will switch off.

Low-Voltage/Over-Voltage Shutdown: If the voltage drops below 10V DC (or rises above 17V DC), the appliance will shut off.

Over-current Protection: If there is a short circuit in the appliance (>10 A), a fuse on the control unit will activate and the appliance will switch off.

Blower Monitoring: If there is a failure with the blower, the gas supply to the burner will switch off automatically.

Hot Water Temperature Monitoring:

A water over-temperature switch avoids excessively high water temperatures in case of an error.

Winterization:

A small amount of water will remain inside the water heater and the pipeline connected to this water heater even when the water heater is not active. Frozen water can cause pipelines to crack. Drain water according to the following instructions:

1. Turn off electrical power to water heater.
2. Shut off gas supply to water heater.
3. Turn off water pump on water system.
4. Winterize the rest of your vehicle as you normally would.

How It Works:

1. Turning on a hot water faucet activates the On Demand Water Heater.
2. The water heater senses the flow of water.
3. The water heater confirms that the combustion air fan is working.
4. The combustion chamber is then purged of any remaining raw gas.
5. The burner will ignite and confirm the flame.
 - a. The approximate time from turning on the faucet to ignition is 6 seconds. After the initial lighting sequence and the water heater is maintaining temperature, the ignition cycle is reduced to approx. 4 seconds.
 - b. Burners will stay ON until the waterflow is shut off.
6. The flow of hot water at the SET point begins approx. 3 seconds after ignition but will not reach the faucet until the hot water lines leading to the faucet are cleared of any remaining water. This time is determined by the length of the hot water line.
7. When the hot water faucet is turned OFF, the water heater shuts down and will remain in a ready state until hot water is called for again. NOTE: Blower motor will operate for approximately 18 seconds after the hot water faucet is turned OFF.
8. The On Demand Control Center can be left in the ON position and no further action is required by the user.
9. If the water heater fails to light for any reason, a second Trial For Ignition (TFI) will automatically begin. If the second Trial For Ignition (TFI) fails, the water heater will automatically begin a third Trial For Ignition (TFI). If the third Trial For Ignition (TFI) fails, the water heater will go into a lock out mode and will not try to light the burner again.

To reset:

Turn faucet OFF, then back on. NOTE: This Water Heater has an energy mode circuit that will shut down operation if operating continuously for 20 minutes, for safety reasons. To reset, turn the faucet off and on again. It will begin from step 1.

NOTE: Air in the gas line after changing propane tanks is the main reason for not lighting the burner. A simple method to remove air from the gas line is to ignite a burner on the installed cooking appliance inside your RV.

INSTALLATION

Installation and service must be performed by a qualified installer, service agency, OEM, or gas supplier.

This appliance must be installed in accordance with local codes or, in the absence of local codes, the national fuel gas code, ANSI Z223.1/NFPA 54 or the CSA B149.1, natural gas and propane installation code. or, on recreational vehicles, NFPA 1192 or CAN/CSAZ240 RV.

This heater must be electrically grounded in accordance with 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 I.

This heater must be isolated from the gas supply piping system by closing its individual manual shutoff 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).

For recreational vehicle (RV) installation only, not for installation in manufactured homes (mobile homes).

For installation only on noncombustible floors. Minimum clearance from combustible construction:

Sides 20 inches (508mm) Back 20 inches (508mm) Top 20 inches (508mm)

The gas pressure regulator must be used with this heater. Combustion air shall not be supplied from occupied spaces.

DO NOT use test pressures higher than 20 in-wc to test the gas leakage.
DO NOT attempt to modify the appliance.
DO NOT alter the appliance for a positive grounding battery system.
DO NOT move the appliance by grabbing the interior components.
Make sure all exhaust gases are directed outside the RV.

Protect all combustible material from the exhaust gases. **DO NOT** draw air for combustion from occupied spaces. Always disconnect the 12V appliance (to protect the control from surges that may occur) when performing Dielectric (hi-pot) testing, welding, electrical, etc. work on the coach.

Only use with a proven 12V power source such as battery or approved converter.

DO NOT vent the water heater using a venting system serving another appliance.

DO NOT install directly into a shower, or near direct heat.

Installation Requirements

Do not install the water heater to where the vent can be covered or obstructed when any door on the trailer is opened. If this is not possible, then the travel of the door must be restricted in order to provide a 6" minimum clearance between the water heater vent and any door whenever the door is opened.

Due to the differences in vinyl siding, this appliance should not be installed on vinyl siding without first consulting with the manufacturer of the siding or cutting the siding away from the area around the appliance vent.

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 ensure that the appliance cannot be operated by setting the thermostat to the "OFF" position and shutting of all electrical and gas supply to the appliance.

Do not install this appliance to where the vent terminates below a slide-out.

This appliance is not to be installed under any overhang. It must be free and clear of any type overhang.

The appliance shall be disconnected from the gas supply piping system during any pressure testing of the system.

The appliance and its gas connections shall be leak tested before operation.

There must be access for removing unit for service. Choose a location to place the appliance, based on the following:

DO NOT install the water heater in RV halls or walkways. It should be installed on the exterior wall of the RV.

DO NOT install on the rear or front of the RV to minimize contamination from road grime, 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.

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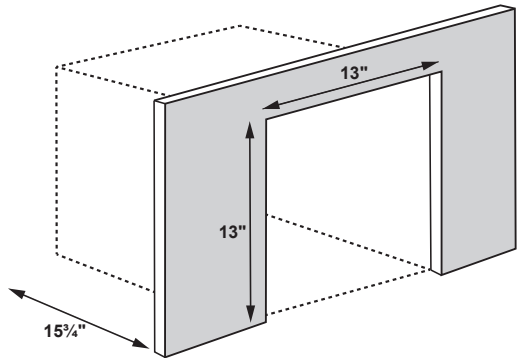
The exhaust port should face outside the RV. The RV hot water heater should be installed on a solid, non-combustible floor (other than wood flooring) or on a non-combustible frame.

In order to install a water heater firmly, the bottom of the unit should be supported by a non-combustible floor or frame. If the surrounding of the opening is a combustible material, use a flame retardant insulating material such as heat-insulating felt or heat-insulating board to completely separate 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. Doing so will ensure 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 outside the vehicle.

Attaching The Water Heater To Your RV

Cut a hole sizing 13"x 13"(330x330 mm). 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. We suggest 15³/₄" (400 mm) at least in depth. The hole should be accessible to the heater from inside your RV for maintenance or water drain for winterization.



At the bottom or back of the hole, please insert gas inlet, inlet, outlet pipe, power line and other channel holes. Inserted gas pipe, wire, pipe length should be greater than the opening depth 1¹/₂ times for maintenance and testing. The perimeter of the hole should ensure sufficient strength to attach the water heater. The water heater flange cover should be glued with 3/4" (18mm) wide single-sided adhesive EVA. The paste should be flat and connected seamlessly. Do not apply too thickly. Press the water heater into the opened hole. Secure the water heater to the RV body with 12 screws (ST5x25mm). Air and water should be isolated from openings to prevent entry into the interior of the RV.

Connect Cold Water Inlet and Hot Water Outlet

The cold water inlet and the hot water outlet are located in the back of the heater. Identify it by the sticker on it.

The cold water inlet and the hot water outlet are connected via 2 standard ½" male fittings. Use a rubber seal or other removable sealants to prevent water leakage. The cold water inlet must NOT contain sediment, which will cause the flow meter of this water heater to not work properly. The flow meter contains a rotary wheel to detect water flow speed. Sediment could block the wheel and prevent it from rotating.



Input Water Flow:

The RV's cold water system derives its water input from a pressurized (45 PSI or greater) water source such as a shore connection or an RV water pump connected to the RV's fresh water storage tank.

- A steady water flow (no pulsating) will ensure consistent temperature and performance.
- Water Pressure regulators are commonly recommended but they often decrease water flow to unacceptable levels.
- Water filters are highly recommended to keep sediment out of the plumbing system but need to be maintained or they can restrict water flow.
- Winterization by-pass kits are not recommended in tankless water heater systems. They can cause a number of plumbing issues that will affect the operation of the water heater.
- City water connections at RV parks can have low or varying water pressure. If this condition occurs and cannot be resolved, then we recommend filling the fresh water tank and using the onboard water pump.

Connect The Gas Supply:

Note: This heater ONLY uses Liquid Propane (LP). The max pressure of LP can not exceed 2.74k Pa. The gas pressure regulator must be used with this heater. Connect an approved gas line at the male threaded 3/8" standard gas inlet and use an approved sealant for this connection. Ensure the fastener securing the gas line to the unit is secure and test with soapy water or a leak detector to verify there are no leaks.

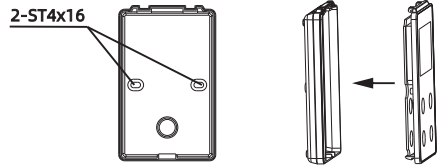
Connect Power Supply

This heater only uses 12VDC. Connect + and - PROPERLY to your RV's power supply. Red is positive, Black is negative.

All faucets are operated the same as in your home. Cold water must be added to achieve the desired hot water temperature.

Choose a convenient location to place the remote control.

The connection between the line controller and the water heater should be reasonably laid out according to the specific environment. Attach the bottom shell with two ST4x16 screws. (Note: The screw should be screwed into position to prevent the screw head from short circuit contact with the circuit board) Attach the front shell to complete the installation of the controller. After fixing the screws, use the insulation strip inside the installation kit to wrap the screw head to prevent damage to the line controller from short circuiting. Confirm the water heater is installed correctly before the initial use. Carefully check that all connections are properly connected and leak free.

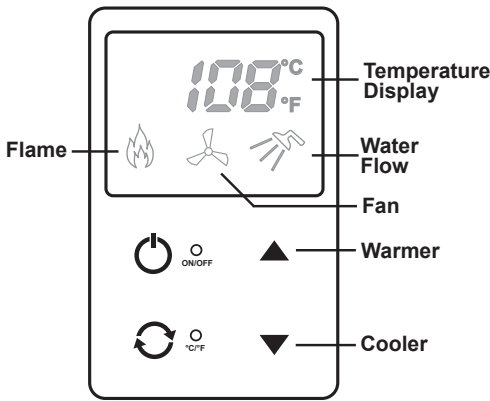


Lighting And Shutdown Instructions

1. Turn on gas supply to the appliance.
2. Turn electrical switch to "on" position. Wait 5 minutes for the gas to clear.
3. Open a hot water faucet to activate the water heater and adjust temperature with cold water faucet.
4. If burner flame fails to ignite, close hot water faucet, then open again to restart the water heater, allowing propane to fill the piping to burner.
5. To shutdown the water heater, close the hot water faucet. For extended periods of no use, turn electrical switch to "off", shut off gas and water supply to the appliance. Refer to the "how does it work" section. All faucets must be operated the same as you use in your home. Cold water must be added to achieve the desired hot water temperature.

Preset Hot Water Temperature

You can preset the hot water temperature on the User control panel. The water heater will automatically adjust the gas input to reach the desired water temperature.



Each time you press the hotter or colder key, the temperature will change by 1°F.

Troubleshooting

NOTE: There may be air inside the gas pipeline to this water heater prior to first time use, which may prevent the water heater from igniting successfully. Turn on the hot water faucet for 3-4 seconds, then turn off the water faucet. Repeat this several times until ignition succeeds.

NOTE: A minimum of 0.67GPM (2.5 LPM) is required for water heater to operate.

NO WATER FLOWS FROM FAUCET WHEN TURNED ON:

Be sure water supply is turned ON and there are no water restrictions.

BURNER TURNS ON, TEMPERATURE FLUCTUATES ERRATICALLY: Clean all shower heads, faucet aerators, or water strainers as required and remove any flow restrictions to assure the minimum 0.67GPM (2.5LPM) of water flow.

HEATER RAPIDLY CYCLES ON AND OFF:

1. Water flow is too low. Increase flow at faucet.
2. Clean all shower heads, faucet aerators, or water strainers as required and remove any flow restrictions to assure the minimum 0.67GPM (2.5LPM) of water flow.
3. Verify the water pump is functioning properly.
4. Bleed air out of plumbing lines by opening all water faucets.
5. If the water heater cycles as the pump cycles, an accumulator tank is needed in the water system. If accumulator tank is already installed, check for water inside the tank and drain tank until only air is present.
6. Water source pressure fluctuates too low causing loss of flow. Check the incoming water source for a minimum of 30 psi(207 kPa).

WATER TEMPERATURE IS TOO LOW WITH LOWER WATER FLOW:

Water flow is too low. Increase flow at faucet to assure the minimum 0.67GPM (2.5LPM of water flow.)

MAINTENANCE

Periodic examination of water leaks and gas leaks with soap. DO NOT use a naked flame for detecting leaks.

Periodic examination of venting systems to make sure the air inlet openings in the door panel are without any blocks, such as leaves, heavy dust, mud, etc.

Cleaning of burner: A burner that is covered in soot and debris will not heat your water efficiently and will cause your gas consumption to increase.

Periodically (at least once a year) cleaning your water heater's burner will keep the unit operating at peak performance, save on utilities, and extend the life of the appliance. Steps: Remove the Cover panel; Disconnect the Burner assembly from the gas valve and heat exchanger; Clean with a soft bristle brush and a vacuum cleaner.

Periodic visual check of burner flames If the gas burner produces a blue flame that means that everything is OK. A yellow flame occurs when there is not enough air coming to the flame. An orange or red flame happens when the dust and other debris burn together with the gas. When yellow, red or orange color frame is seen, please contact service center or qualified after sales engineer. Make sure that keeping appliance area clear and free from combustible materials, gasoline, and other flammable vapors and liquids.

Make sure that not obstructing the flow of combustion and ventilation air; It is not allowed to do any manual operation of relief valve to drain, when this heater is working. If you want to do that, switch off the water heater and wait for 10 minutes in order to avoid contact with hot water coming out of the relief valve and to prevent water damage.

DRAINING AND STORAGE INSTRUCTIONS: If the RV is stored during winter months, the water heater system must be drained to prevent damage from freezing.

1. Switch off electrical power to water heater.
2. Turn off gas supply to water heater.
3. Turn off water pump.
4. Open both hot and cold water faucets.

ERROR CODES

Error Code	Description
E0	The hot water outlet temperature probe is broken, or has a No fan working signal detected during start-up or water heater operation. short circuit.
E1	Ignition failure, no ignition. Check the gas supply for any obstructions or issues with flow.
E2	Flame signal was detected BEFORE ignition, and the beeping alarm prompted a failure.
E3	Thermostat malfunction is detected during start-up or water heater operation.
E4	The hot water outlet temperature probe is broken, or has a short circuit.
E5	No fan working signal detected during start-up or water heater operation.
E6	Over-temperature fault. The display will show fault code when the water temperature is 140°F (60°C) or higher for 3 seconds or longer. Please check if the water supply pressure is too low or water pipe is blocked.
E7	Solenoid of gas valve is broken, or has a short circuit.
E8	Fan motor speed exceeds preset.
E9	Pseudo-fire fault when the start-up ignition detected a flame signal, buzzer alarm.
EN	Water heater timer set to Open ("En" is set to open).

SPECIFICATIONS

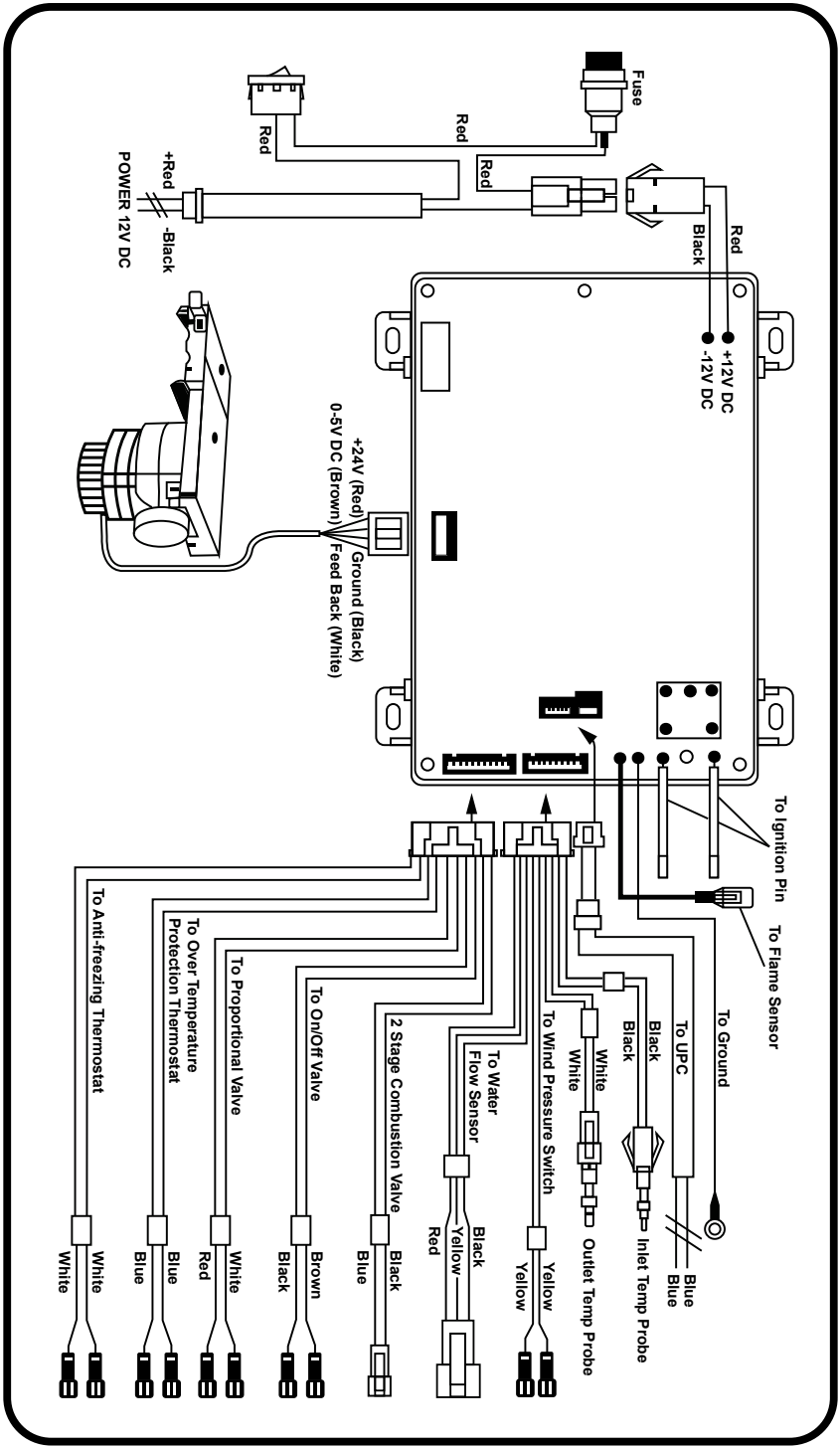
RP-1057-42BTU

TYPE OF GAS	Propane
MAX GAS INPUT	42000BTU/HR
MIN GAS INPUT	8000BTU/HR
MAX GAS INLET PRESSURE	13" WC (3.23kPa)
MIN GAS INLET PRESSURE	11" WC (2.74kPa)
MAX WATER PRESSURE	150 PSI
MANIFOLD PRESSURE	1.63" - 6.97" WC (0.41 - 1.74 kPa)
POWER	12V DC, 3A
MAX WATER TEMPERATURE	123°F
GAS CONNECTION SIZE	3/8" NPT (5X0.94 MM)

RP-1057-60BTU

TYPE OF GAS	Propane
MAX GAS INPUT	60000BTU/HR
MIN GAS INPUT	1200BTU/HR
MAX GAS INLET PRESSURE	13" WC (3.23kPa)
MIN GAS INLET PRESSURE	11" WC (2.74kPa)
MAX WATER PRESSURE	150 PSI
MANIFOLD PRESSURE	1.37" - 5.18" WC (0.34 - 1.29 kPa)
POWER	12V DC, 3A
MAX WATER TEMPERATURE	123°F
GAS CONNECTION SIZE	3/8" NPT (5X0.94 MM)

WIRING DIAGRAM



ELECTRICAL SCHEMATIC DIAGRAM

