

Rinnai®

Gas Fan Convection Heater

Installation and Operation Manual

FC510 (RCE-391A-H)

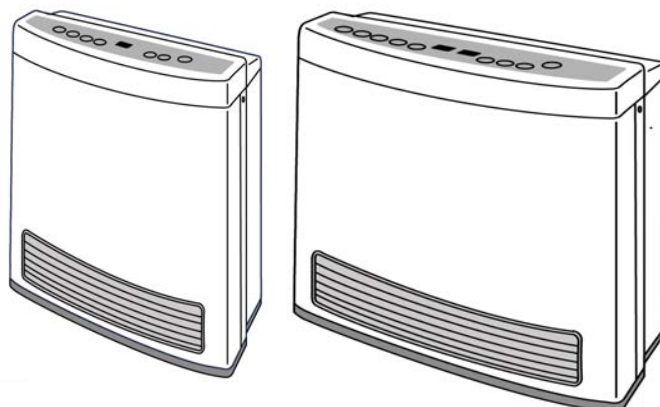
FC824 (RCE-691TA-H)

Installer: Leave this manual with the appliance.

Consumer: Retain this manual for future reference.



ANSI Z21.11.2



⚠ WARNING

If the information in these instructions is not followed exactly, 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 the vicinity of this or any other appliance.
- BEFORE OPERATING smell around the appliance for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
- WHAT TO DO IF YOU SMELL GAS
 - Do not try to light any appliance.
 - Do not touch any electrical switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency, or gas supplier.

This is an unvented gas-fired heater. It uses air (oxygen) from the room in which it is installed. Provisions for adequate combustion and ventilation air must be provided. Refer to page 6 of this manual.

READ ALL OF THE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR OPERATING THIS HEATER.

This manual provides information on the installation, operation, and maintenance of the heater. For proper operation and **safety**, it is important to follow the instructions and adhere to the safety precautions.

A licensed professional must install the fan convection heater according to the exact instructions within this manual.

The consumer must read the entire manual to properly operate the heater and for instructions on regular maintenance required to be performed.

This appliance may be installed in an aftermarket, permanently located, manufactured (mobile) home, where not prohibited by local codes.

This appliance is only for use with the type of gas indicated on the rating plate. This appliance is not field convertible for use with other gas types.

Service should be performed only by a licensed professional.

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Important Safety Information

Safety Definitions



This is the safety alert symbol. This symbol alerts you to potential hazards that can kill or hurt you and others.



Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

Safety Behaviors and Practices for the Consumer and Installer

WARNING

- Before operating, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
- Early signs of carbon monoxide poisoning resemble the flu, with headaches, dizziness, or nausea. If you have these signs, the heater may not be working properly. Get fresh air at once! Have heater serviced. Some people are more affected by carbon monoxide than others. These include pregnant women, people with heart or lung disease or anemia, those under the influence of alcohol, and those at high altitudes.
- Keep the area around the appliance clear and free from combustible materials, gasoline, and other flammable vapors and liquids.
- Never store liquid propane containers indoors.
- Combustible construction refers to adjacent walls and ceiling and should not be confused with combustible or flammable products and materials. Combustible and/or flammable products and materials should never be stored in the vicinity of this or any gas appliance.
- Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, do not try to repair it; call a licensed professional. Force or attempted repair may result in a fire or explosion.
- Do not use heater if any part has been under water. Immediately call a qualified service technician to inspect the room heater and to replace any part of the control system and any gas control which has been under water.
- Ensure the room is sufficiently ventilated. Consult your local gas authority for information on ventilation requirements.
- Do not use substitute materials. Use only parts certified with the appliance.
- Should overheating occur or the gas supply fail to shut off, turn off the manual gas control valve to the appliance.
- Do not use an extension cord or an adapter plug with this appliance.
- This appliance is equipped with a three-prong plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the ground prong from this plug.
- Do not operate appliance with the front panels removed, cracked, or broken.. Replacement of the panels should be done by a licensed professional.
- Do not move the heater while it is turned on.
- Any alteration to the appliance or its controls can be dangerous and will void the warranty.

CAUTION

- Do not install this appliance above 5,200ft.
- Do not block the warm air discharge. Do not allow anyone to sleep directly in front of the appliance.
- Due to high temperatures, the appliance should be located out of traffic and away from furniture and draperies.
- Children and adults should be alerted to the hazards of high surface temperature and should stay away to avoid burns or clothing ignition.
- Young children should be carefully supervised when they are in the same room as the appliance.
- Any safety screen or guard removed for servicing must be replaced prior to operating the appliance.
- Do not insert items into the louvers.
- Do not place clothing or other flammable material on or near the appliance
- Do not spray aerosols near the appliance while it is operating. Most aerosols contain butane gas which is flammable.
- Do not install this appliance in areas where spray painting or plating is taking place, or in places such as hair salons where there may be large amounts of dust, chemical residue, or debris. Using the appliance in such areas may result in strong odors or irritated eyes and sinuses.
- Turn off the appliance when not in use or when away for long periods of time.
- Do not sit on the appliance.
- Do not unplug the appliance while it is operating or while the fans are on. Do not use a plug in type timer with this appliance.

Installation Instructions

Installer Qualifications

A licensed professional must install the appliance, inspect it, and leak test it before use. The warranty will be voided due to improper installation.

The installer should have skills such as:

- gas sizing
- connecting gas lines and electricity
- knowledge of applicable national, state, and local codes

If you lack these skills, contact a licensed professional.

Type of installation

- This appliance is equipped only for use with type of gas indicated on the rating plate. This appliance is not convertible for use with other gases.

Installation Steps

| | |
|---|----|
| General Instructions | 4 |
| Determine Installation Location | 6 |
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General Instructions

DO NOT

- Do not obstruct the flow of combustion and ventilation air.
- Do not use substitute parts that are not authorized for this appliance.

WARNING

This appliance is available in natural gas or propane versions. The appliance cannot be field converted from one gas type to the other.

MUST DO

- The installation must conform with local codes or, in the absence of local codes, with the *National Fuel Gas Code, ANSI Z223.1/NFPA 54*, or the *Natural Gas and Propane Installation Code, CSA B149.1*. If installed in a manufactured home, the installation must conform with the *Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280* and/or *CAN/SCA Z240 MH Series, Mobile Homes*.
- The appliance, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the *National Electrical Code, ANSI/NFPA 70*.
- The appliance and its appliance main gas valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psi (3.5 kPa) (13.84 in W.C.).
- You must follow the installation instructions and those in *Care and Maintenance* for adequate combustion air intake and exhaust.

INFORMATION

- Should overheating occur or the gas supply fail to shut off, turn off the manual gas control valve to the appliance.
- Keep the installation location free of chemicals such as cleaners that produce fumes. These fumes can damage components and reduce the life of your appliance.
- **Do not** spray aerosols near the heater while it is in use. Many aerosols contain butane gas and can be a fire hazard. Use of aerosols, paint, polishes, etc. while the heater is in use may also create odors as well as irritate the eyes and sinuses.

General Instructions (continued)

- A licensed professional should install the appliance and inspect it before use.
- When unpacking the appliance, check for the correct gas type and for damage. The Operation and Installation Manual and a manual gas valve are included.
- This appliance is intended for supplemental heating only. The International Fuel Gas Code Standard 620-6 “Prohibited Use” states that “One or more unvented room heaters shall not be used as a sole source of comfort heating in any dwelling”.
- **Do not** install this appliance in a bedroom or bathroom.
- **Do not** install this appliance in a windy area such as facing a window or near a door leading to the outside.
- **Do Not** install this appliance above 5,200ft.
- If you move, check the gas type in your new area. The local gas authority will be able to advise on local regulations.
- If the flooring is carpet, tile, or other combustible material other than wood, then the appliance must be installed on a metal or wood panel extending the full width and depth of the appliance.
- This appliance discharges a large volume of warm air next to the floor. Any particles in the air such as cigarette smoke, lint, dust, or debris could cause discoloration in nylon carpets containing dyes or vinyl surfaces.
- This appliance is not designed to be built into or mounted directly in a wall
- Rinnai suggests that a dedicated electrical circuit with a 120VAC, 60 hz, 10 amp power source be used.
- A 1/8” test plug is provided for testing of manifold differential pressure. It is located on the modulating gas valve.
- The flow of combustion and ventilation air must not be obstructed.
- Note that in some regions, an unvented gas heater will increase the amount of humidity in the room.

Prepare for installation

Parts included

- Gas Fan Convection Heater
- Anchors
- Screws
- Manual Gas Shut Off Valve
- Floor Fixing Plate

Tools needed

- Pipe wrenches (2)
- Adjustable pliers
- Screwdrivers (2)
- Wire cutters
- Gloves
- Safety glasses
- Level

Tools that might be needed

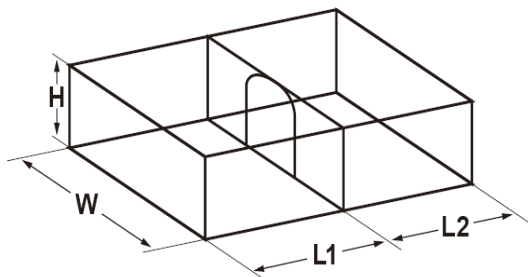
- Saw
- Threading machine with heads and oiler
- Steel pipe cutter
- Manometer

Materials needed

- Soap solution or other appropriate leak detector solution.
- Approved pipe thread pipe sealant for either natural gas or propane.

Determine Installation Location

- The heater must not be installed in a confined space or unusually tight construction unless provisions are provided for adequate combustion and ventilation air.
- National Fuel Gas Code, ANSI Z223.1/NFPA 54* defines a confined space as a space whose volume is less than 50 cubic feet per 1,000 BTU per hour (4.8m³ per kW) of the aggregate input rating of all appliances installed in that space and an unconfined space as a space whose volume is not less than 50 cubic feet per 1,000 BTU per hour (4.8m³ per kW) of the aggregate input rating of all appliances installed in that space.
- Rooms connecting directly with the space in which the appliances are installed, through openings not furnished with doors, are considered a part of the unconfined space.



The following formula can be used to determine the maximum heat rating for a given unconfined space:

$$\text{BTU/HR} = \frac{(L1+L2) \times W \times H \times 1000}{50}$$

(All dimensions are in feet.)

For example:

If L1=15.5 ft, L2=12 ft, W=12 ft, H=8 ft, and there is no door between the rooms, then for the space to be considered unconfined the maximum rating is:

$$\frac{(15.5+12) \times 12 \times 8 \times 1000}{50} = 52,800 \text{ BTU/HR}$$

If there is a door between the 2 rooms then for the space to be considered unconfined the maximum rating is:

$$\frac{15.5 \times 12 \times 8 \times 1000}{50} = 29,760 \text{ BTU/HR}$$

If the appliance rating exceeds the maximum heater rating in the calculation above, the space is confined.

WARNING

If the area in which the heater may be operated is smaller than that defined as an unconfined space or if the building is of unusually tight construction, provide adequate combustion and ventilation air by one of the methods described in the *National Fuel Gas Code, ANSI Z223.1/NFPA 54, Section 5.3* or applicable local codes.

Unusually tight construction is defined as construction where:

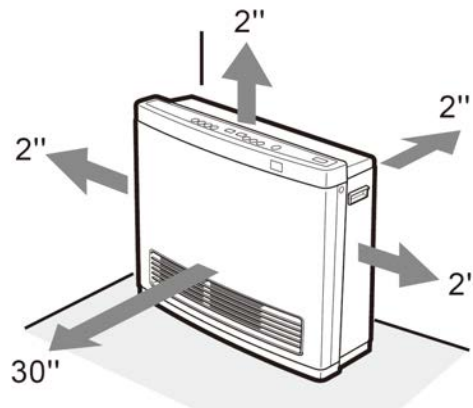
- Walls and ceilings exposed to the outside atmosphere have a continuous water vapor retarder with a rating of 1 therm or less with openings gasketed or sealed;
- Weather stripping has been added on openable windows and doors; and caulking or sealants are applied to areas such as joint around window and door frames, between sole plates and floors, between wall ceiling joints, between wall panels, at penetrations for plumbing, and gas lines, and at other openings.

Clearances

The minimum clearances from combustible materials and for proper operation and servicing are as follows:

- 2 inches from top
- 2 inches from back (measured from the base of the appliance)
- 2 inches from sides
- 30 inches from front
- 0 inches from bottom

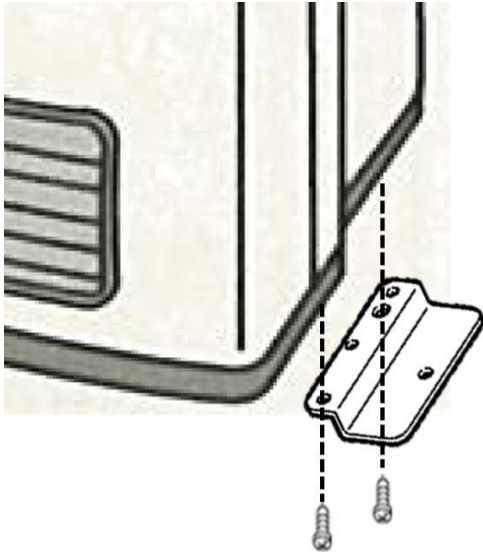
In addition, do not install in areas where curtains, drapes, clothing, or other moving flammables are within 12 inches of the appliance.



Installation Location (continued)

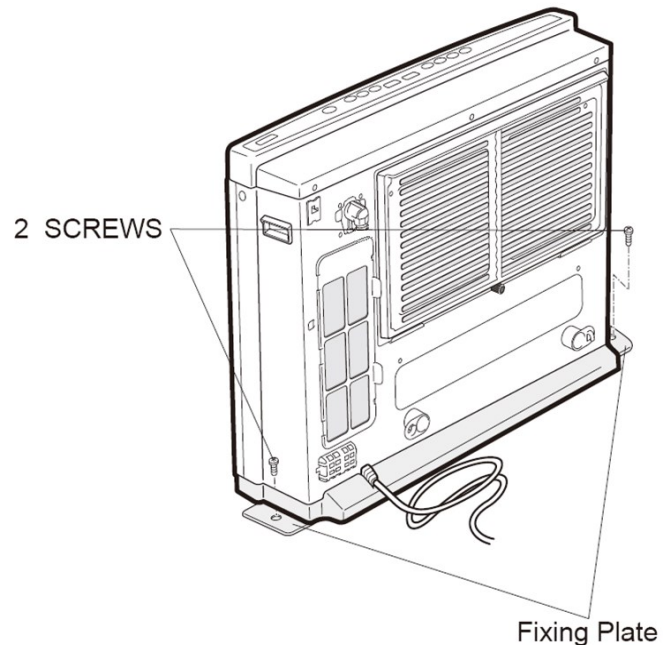
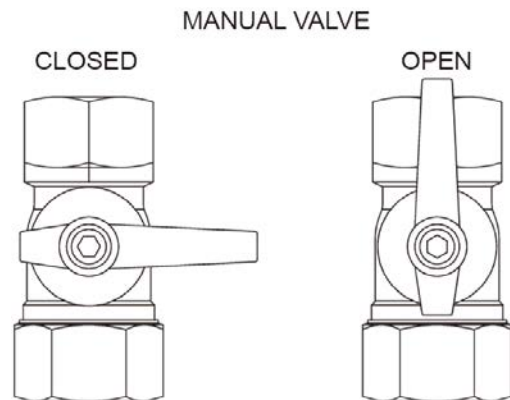
Gas Connection

1. Attach 2 fixing plates to the bottom of the base plate before connecting the gas.



2. The gas supply line must be gas tight, sized and installed so as to provide a supply of a gas sufficient to meet the maximum demand of the heater without loss of pressure.
3. The supplied shut off valve must be installed in the upstream of the gas line to permit servicing.
4. Flexible pipe and any appliance connector valve used for gas piping must be types approved by nationally recognized agencies.
5. Any compound used on the threaded joint of the gas piping must be a type which resists the action of liquefied petroleum gas (propane / LPG).
6. Check the gas supply pressure immediately upstream at a location provided by the gas company. Supplied gas pressure must be within the limits shown in the specifications section.

7. After completion of gas pipe connections, all joints including the heater must be checked for gas tightness by means of leak detector solution, soap and water, or an equivalent nonflammable solution, as applicable. (Since some leak test solutions, including soap and water, may cause corrosion or stress cracking, the piping must be rinsed with water after testing, unless it has been determined that the leak test solution is noncorrosive.)
8. After completing pipework, secure the heater to the floor. Use the 2 screws provided, as shown in the drawing. To avoid deforming the floor plate, do not over torque the screws.



Electricity

⚠ WARNING

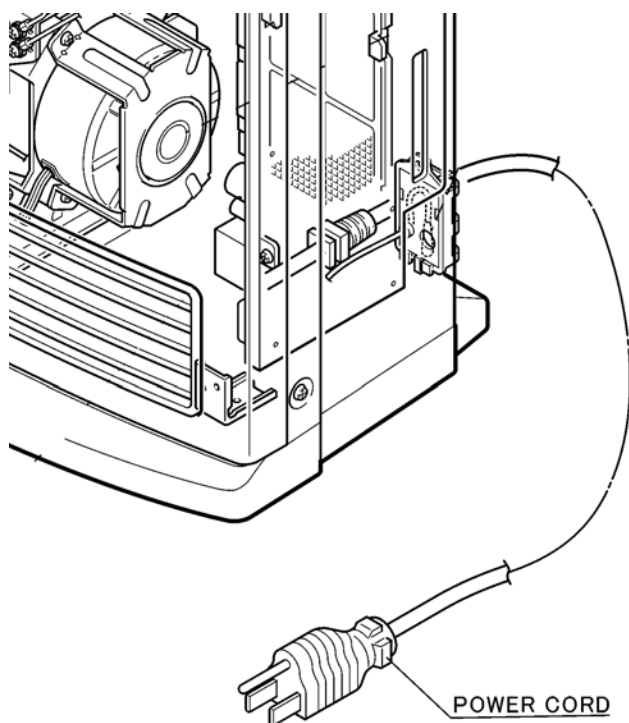
DO NOT use an extension cord or an adapter plug with this appliance.

The heater must be electrically grounded in accordance with local codes and ordinances or, in the absence of local codes, in accordance with the National Electrical Code, ANSI/NFPA No. 70.

The heater is equipped with a three-prong (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding terminal from this plug.

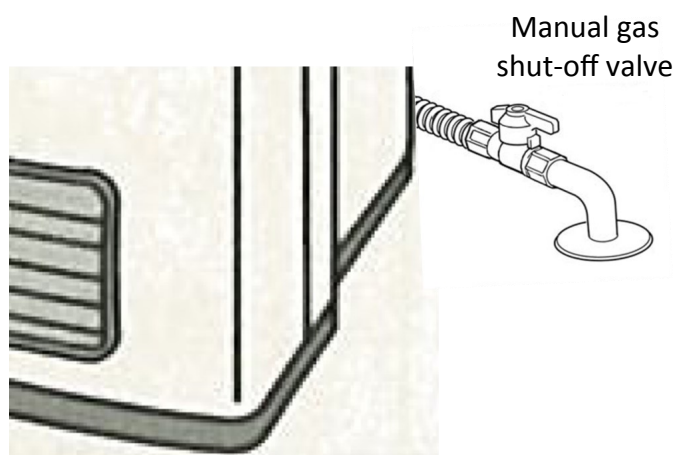
The heater requires 120 VAC, 60 Hz power from a properly grounded circuit.

Plug the 6.5 foot (2 meter) long power cord into a standard 3 prong 120 VAC, 60 Hz properly grounded wall outlet.



Checklist for Gas and Electricity

- ☐ A manual gas control valve is placed in the gas line to the heater.
- ☐ Check the gas lines and connections for leaks.
- ☐ Confirm that the gas inlet pressure is within limits.
- ☐ Confirm that the heater is rated for the gas type supplied.
- ☐ Confirm that the electricity is supplied from 120 VAC, 60 Hz power source and is in a properly grounded circuit.
- ☐ An extension cord or an adapter plug has not been used with the heater.



High Altitude Installations



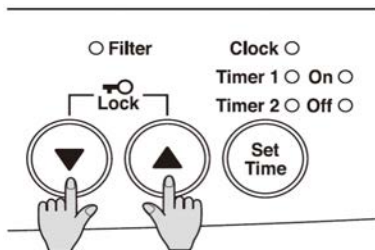
ATTENTION

The following procedure for high altitude installations above 2,000 feet must be performed by a licensed professional. Failure to perform this adjustment may result in the unit shutting down.

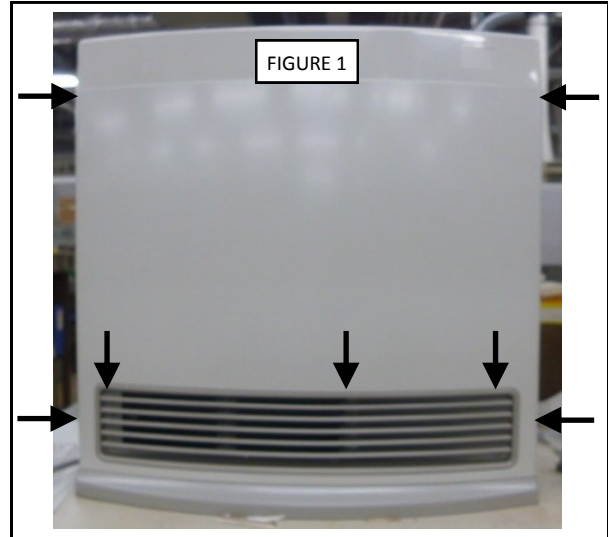
1. Turn off gas and power supply to unit.
2. Remove 7 screws securing front panel. (FIGURE 1)
3. Remove front panel.
4. Turn on power to the unit.
5. Locate the test switch at the top of the PC Board. (FIGURE 2)
6. Press and hold the Test Switch for 1-2 seconds. The display will now display the current gas type and altitude setting (see chart below).

| Gas position | Gas type | Altitude (ft) |
|--------------|----------|---------------|
| 13 | NG | 0-2000 |
| 14 | NG | 2001-5200 |
| L1 | LP | 0-2000 |
| L2 | LP | 2001-5200 |

7. Using the “UP”(▲) and the “DOWN”(▼) buttons select the appropriate gas type and altitude range for the application.



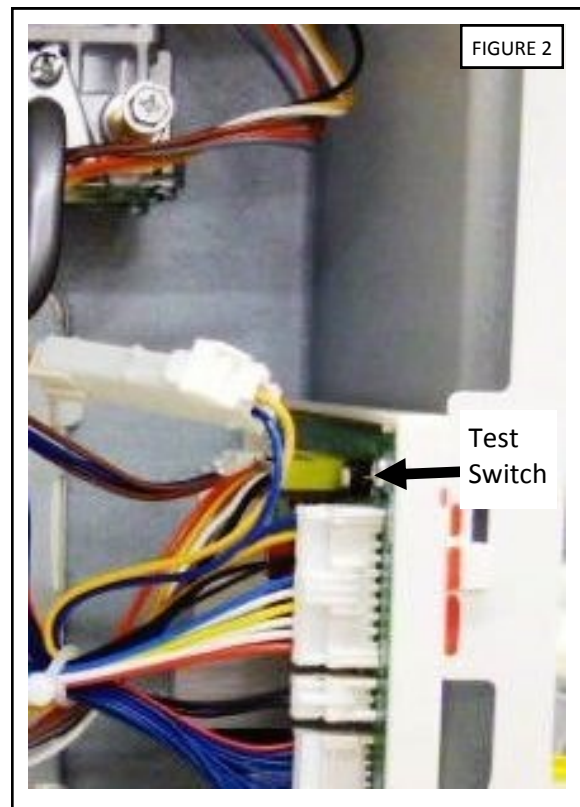
8. Once the selection has been made and is displayed on the LED, press the Test Switch 3 times until the unit is in the normal off setting.
9. Remove the test port plug on the gas control valve and connect a manometer using a 1/8" test connection to adjust the pressure settings. (FIGURE 3)
10. Turn on gas to the unit.
11. Press the “ON/OFF” button to place the unit in operation.
12. Press the Test switch (FIGURE 2) twice to place the unit in Low fire mode. “PL” will appear on the display.



CAUTION



Do not touch any other areas on the PC board besides the **Test Switch** while power is supplied to the appliance. Parts of the PC board are supplied with 120 volts AC.



High Altitude Installations

13. Adjust the Low fire setting by using the “UP”(▲to increase) and the “DOWN”(▼to decrease) buttons to adjust the manifold pressures per the table below.

| Low pressure 2,001-5,200ft | NG | LPG |
|-------------------------------|------------|------------|
| FC510 | 0.75" W.C. | 1.31" W.C. |
| FC824 | 0.61" W.C. | 1.17" W.C. |

14. Press the Test switch (FIGURE 2) again to place the unit in High fire mode. “PH” will appear on the display.
15. Adjust the High fire setting by using the “UP”(▲to increase) and the “DOWN”(▼to decrease) buttons to adjust the manifold pressures per the table below.

| High pressure 2,001-5,200ft | NG | LPG |
|--------------------------------|-----------|-----------|
| FC510 | 1.8" W.C. | 3.2" W.C. |
| FC824 | 3.4" W.C. | 6.3" W.C. |

16. Press the “ON/OFF” button to cease operation. (The unit will not revert to its normal state unless the “ON/OFF” button is pressed.)
17. Press the “ON/OFF” button once again to complete procedure.
18. Turn off gas supply. Remove manometer and reinstall test port plug. (FIGURE 3)
19. Turn on gas supply. Operate the unit normally checking for normal operation and gas leaks.
20. Turn off gas and power supply to unit.
21. Reinstall front panel. (FIGURE 1)
22. Turn on gas and power supply and place unit in normal working condition.

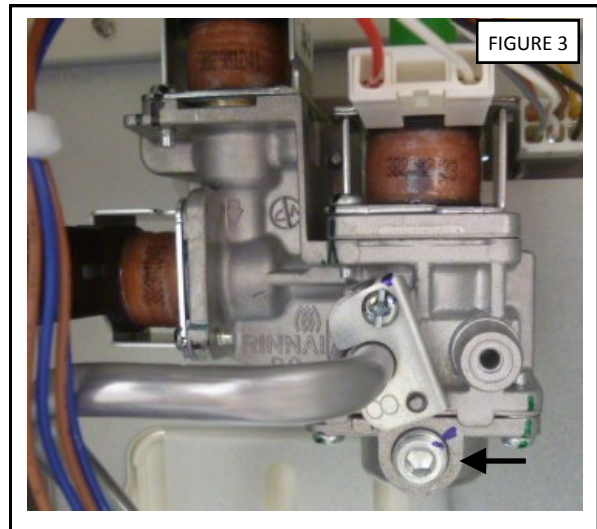


FIGURE 3

! ATTENTION

Failure to properly follow these instructions may result in the unit shutting down.

! WARNING

Failure to correctly reassemble the components according to these instructions may result in a gas leak or explosion.

Final Checklist

- ☐ The heater is not subject to corrosive compounds in the air.
- ☐ Clearances from the heater are met.
- ☐ The unit is not installed above 5,200ft.
- ☐ The unit has been properly calibrated for the appropriate altitude.
- ☐ A manual gas control valve has been placed in the gas line to the heater.
- ☐ Check the gas lines and connections for leaks.
- ☐ Confirm that the gas inlet pressure is within limits.
- ☐ Confirm that the heater is rated for the gas type supplied.
- ☐ Confirm that the electricity is supplied from a 120 VAC, 60 Hz power source, is in a properly grounded circuit, and turned on.
- ☐ Explain to the customer the importance of not blocking the warm air discharge.
- ☐ Explain to the customer the operation of the heater, safety guidelines, maintenance, and warranty.
- ☐ The installation must conform with local codes or, in the absence of local codes, with the *National Fuel Gas Code, ANSI Z223.1/NFPA 54*, or the *Natural Gas and Propane Installation Code, CSA B149.1*. If installed in a manufactured home, the installation must conform with the *Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280* and/or *CAN/SCA Z240 MH Series, Mobile Homes*.
- ☐ The heater must not be installed in a confined space or unusually tight construction unless provisions are provided for adequate combustion and ventilation air.
- ☐ The appliance is not installed in a bedroom or bathroom.
- ☐ **Leave the entire manual taped to the heater or give the entire manual directly to the consumer.**

Specifications

| FC510 | | NG | | LP | |
|------------------------------|----|------------|---------------|------------|---------------|
| Elevation | | 0 ~ 2000ft | 2001 ~ 5200ft | 0 ~ 2000ft | 2001 ~ 5200ft |
| Input (BTU/h) | Hi | 10000 | 9200 | 10000 | 9200 |
| | Lo | 5500 | 5500 | 5600 | 5600 |
| Manifold Pressure (inch H2O) | Hi | 1.8 | 1.8 | 3.2 | 3.2 |
| | Lo | 0.64 | 0.75 | 1.12 | 1.31 |
| FC824 | | NG | | LP | |
| Elevation | | 0 ~ 2000ft | 2001 ~ 5200ft | 0 ~ 2000ft | 2001 ~ 5200ft |
| Input (BTU/h) | Hi | 24000 | 22000 | 22000 | 20000 |
| | Lo | 8400 | 8400 | 8000 | 8000 |
| Manifold Pressure (inch H2O) | Hi | 3.4 | 3.4 | 6.3 | 6.3 |
| | Lo | 0.52 | 0.61 | 1.00 | 1.17 |

| | FC510 | FC824 |
|-----------------------|---|--|
| Gas Connection | 1/2 Inch Male NPT | 1/2 Inch Male NPT |
| Gas Control | Electronic | Electronic |
| Burners | Ceramic Burner | Ceramic Burner |
| Temperature Control | Electronic Thermostat | Electronic Thermostat |
| Ignition System | Electronic Spark Ignition | Electronic Spark Ignition |
| Electrical Connection | AC 120V, 60Hz, 19 Watts | AC 120V, 60Hz, 29 Watts |
| Fuse Size | 5 Amps | 5 Amps |
| Fan CFM | Low Speed: 67.8/ High Speed: 97.8 | Low Speed: 109.5/ High Speed: 215.4 |
| Weight | 22.1lb (10kg) | 26.5lb (12kg) |
| Dimensions | Height: 19.4 in (492 mm) Width: 19.2 in (487 mm) Depth: 9.6 in (244 mm) | Height: 19 in (482mm) Width: 24 in (610 mm) Depth: 9.4 in (239 mm) |

Safety Features

- **Overheat Switch:** The appliance will automatically shut down when the appliance exceeds a predetermined temperature. Determine the cause of overheat and resolve the issue (i.e. if the filters are determined to be the cause, clean the filters) and allow heater to cool before turning back on.
- **Flame Failure Device:** The appliance will automatically shut down if the burner flame is extinguished.
- **Oxygen Depletion Sensor:** If the oxygen level in the room drops below a preset limit, this sensor disables the gas supply to the heater. If this occurs, turn the heater off and ventilate the room before turning the heater back on. The heater will not re-ignite until the room is fully ventilated.
- **Tilt Switch:** If the heater is knocked over, the tilt switch will disable the gas supply. The fan will continue to purge. To re-enable the gas supply, stand the heater back to its upright position, turn it off, and then back on. The tilt switch may also activate if the heater is jolted or picked up while in operation.
- **Power Failure:** The appliance will disable the gas supply if it loses electrical power. The appliance can be restarted after power is restored.
- **Fuse:** The electrical circuits are protected by a fuse. When the fuse blows, the heater will not operate until the fuse is replaced by a qualified service provider.

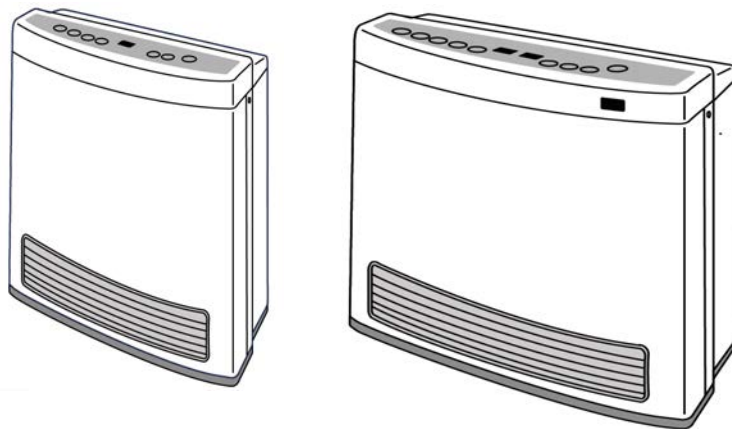
Rinnai®

Gas Fan Convection Heater

Operation Instructions

FC510..... (RCE-391A-H)

FC824..... (RCE-691TA-H)



Important Facts about your Gas Fan Convection Heater

Thank you for purchasing a Rinnai Gas Fan Convection Heater. For proper operation and safety, it is important to follow the instructions exactly and adhere to all safety precautions.

Read all of the instructions and the warranty thoroughly before operating this heater. Keep this manual in a safe place.

⚠ WARNING

If the information in these instructions is not followed exactly, a fire or explosion may result causing 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.
- **BEFORE OPERATING** smell around the appliance for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
- **WHAT TO DO IF YOU SMELL GAS**
 - Do not try to light any appliance.
 - Do not touch any electrical switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency, or gas supplier.

Consumer Operation Guidelines for the Safe Operation of your Fan Convection Heater

FOR YOUR SAFETY READ BEFORE OPERATING







WARNING

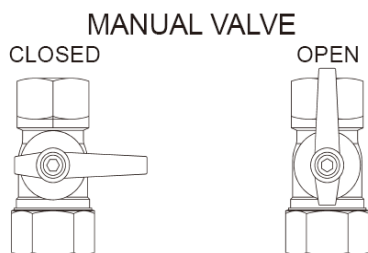
If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- A. This appliance does not have a pilot. It is equipped with an ignition device that automatically lights the burner. **Do not try to light the burner by hand.**
- B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.


WHAT TO DO IF YOU SMELL GAS
 - Do not try to light any appliance.
 - Do not touch any electric switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department
- C. Use only your hand to push the in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, do not try to repair it; call a qualified service technician. Force or attempted repair may result in a fire or explosion.
- D. Do not use this appliance if any part has been under water. Immediately call a licensed professional to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

OPERATING INSTRUCTIONS

1. **STOP!** Read the safety information above.
2. Set the thermostat to the lowest setting.
3. Turn off all electric power to the appliance using the ON/OFF button on the control panel.
4. This appliance is equipped with an ignition device that automatically lights the burner. Do not try to light the burner by hand.
5. Locate the manual gas valve on the back side of the heater. Turn the manual valve clockwise to the full OFF position. 
6. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the safety information above. If you don't smell gas, go to the next step.
7. Turn the manual gas valve counterclockwise  to the full ON position.
8. Turn on all electric power to the appliance using the ON/OFF button.
9. Set the thermostat to desired setting.
10. Burner is lit when operation lamp glows red.
11. If operation lamp is flashing red, burner has not been lit and an error code will display.  **ON -** 
12. If the appliance will not operate, follow the instructions "To turn off gas appliance" and call your licensed service technician or gas supplier.



TO TURN OFF GAS TO APPLIANCE

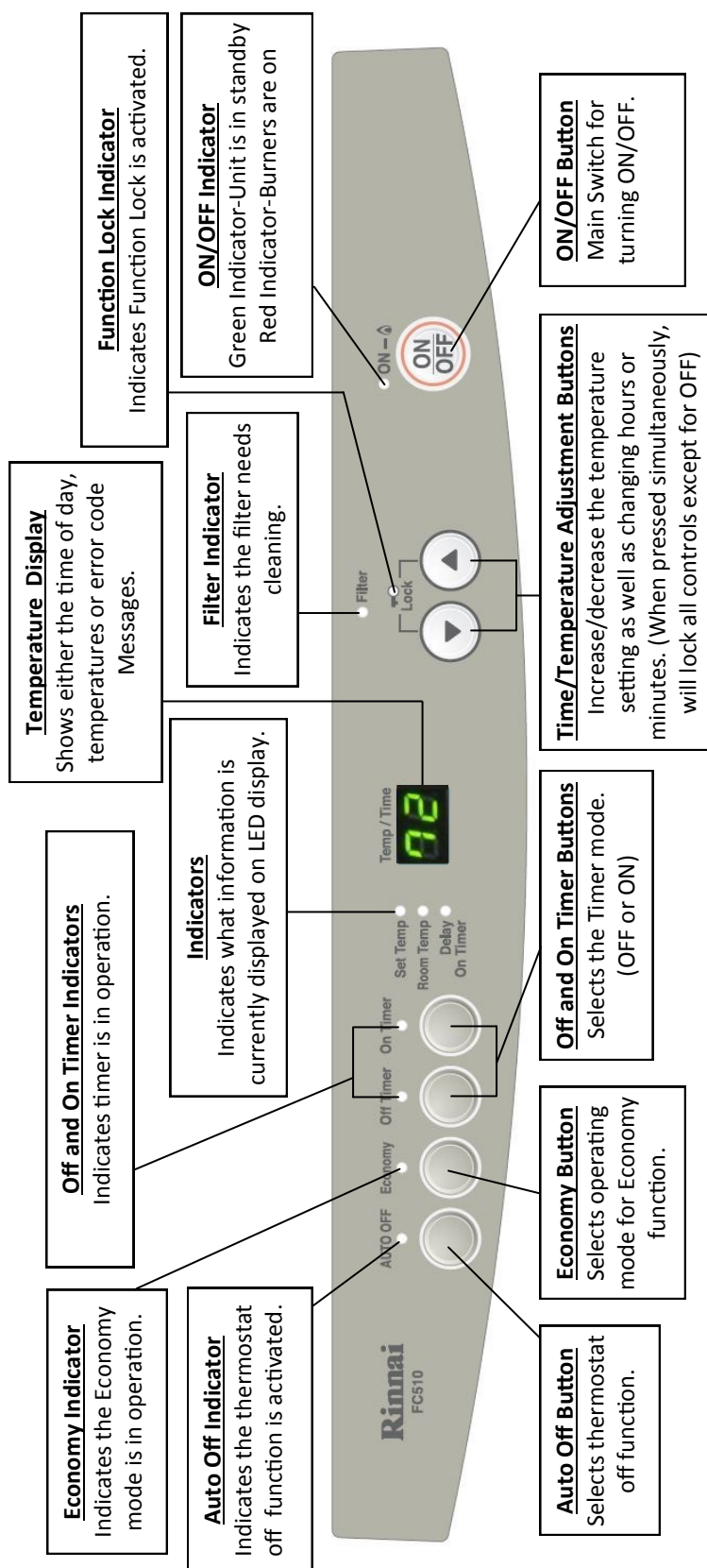
1. Turn off all electric power to the appliance using the ON/OFF button.
2. Set the thermostat to the lowest setting.
3. Turn the manual valve clockwise  to the full OFF position.

WARNING

- Before operating, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
- Keep the area around the heater clear and free from combustible materials, gasoline, and other flammable vapors and liquids.
- Due to the high surface temperature, keep children, clothing and furniture away. Keep burner and control compartment clean.
- Do not use this appliance if any part has been under water. Immediately call a licensed professional to inspect the appliance and to replace any part of the control system and any gas control which has been under water.
- Should overheating occur or the gas supply fail to shut off, turn off the manual gas control valve to the appliance.
- Do not use an extension cord or an adapter plug with this appliance.
- Any alteration to the appliance or its controls can be dangerous and will void the warranty.
- Keep the air intake location free of chemicals and combustible materials that produce fumes. These fumes can damage components and reduce the life of your appliance.
- Improper Installation, adjustment, alteration, service, or maintenance can cause personal injury or loss of life. Refer to owner's manual provided with appliance. Installation and service must be performed by a licensed professional.

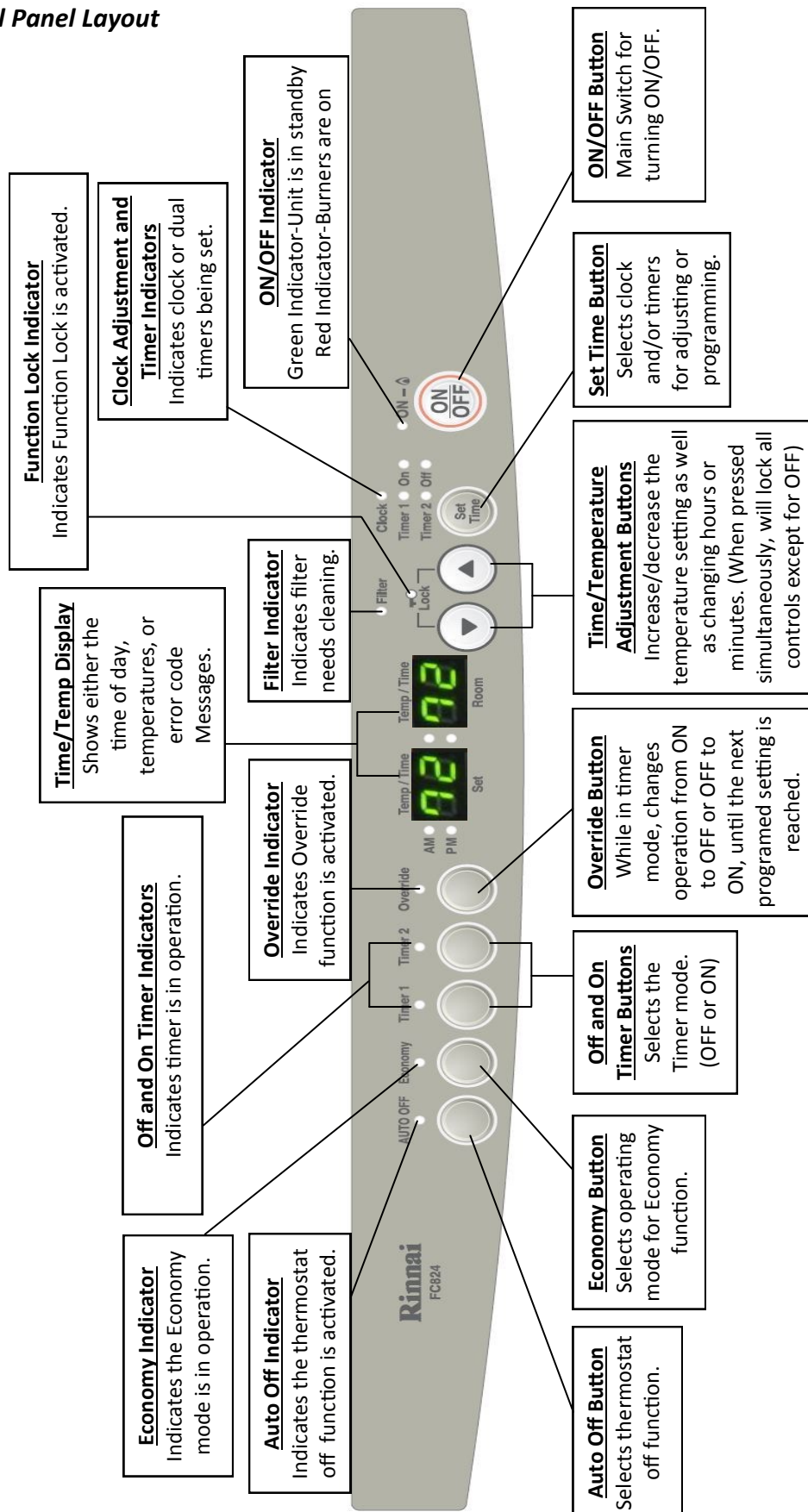
Operating Instructions

FC510 Control Panel Layout



Operating Instructions

FC824 Control Panel Layout



Operating The Heater

TURNING ON:

Press the **ON/OFF** button to operate the heater. The ON indicator will glow green. After approximately 3 seconds the spark generator will be heard before the burner ignites and the ON indicator glows red, indicating that the burner is lit. Warm air can be felt coming from the louvers approximately 5 seconds later.



NOTE

If the heater does not ignite on initial try, air may be remaining in the gas supply line. The spark generator will only continue for 15 seconds. After this, it will be necessary to press the ON/OFF button OFF, then ON again.

TURNING OFF:

Simply press the **ON/OFF** button to switch off the heater. The ON indicator will go out. The convection fan will continue to operate for several minutes after the burner has gone out in order to cool the appliance. **Do not unplug the appliance while the convection fan is running.**



NOTE

DO NOT turn heater off by unplugging. The convection fan will continue to run as the appliance needs to cool.

Room Temperature Adjustment:

NOTE

The room temperature and pre-set temperatures can only be displayed and adjusted when the heater is running.

Press the "▲" button to increase the temperature setting or "▼" button to decrease the temperature setting.

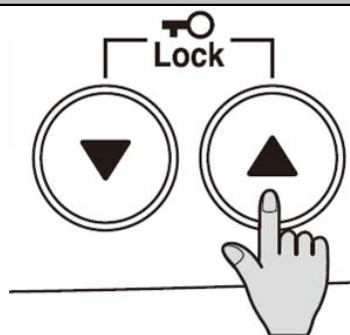
The temperatures can be set to:

- a) [L] low (minimum combustion)
- b) [60°F] to [80°F] in 2°F increments
- c) [H] high (maximum combustion)

(Default temperature setting is 72°F)

NOTE

If the heater does not ignite, then the pre-set temperature may not be set to a setting that is higher than the actual room temperature.



AUTO OFF:

When **AUTO OFF** is selected, the indicator light will glow. The unit will now be under full thermostat control. The heater will operate to reach the selected room temperature and then turn **OFF**. Press **AUTO OFF** again to disable this function.

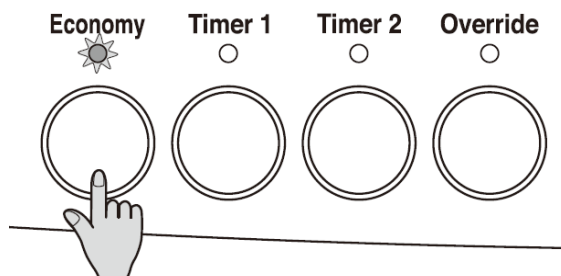


NOTE

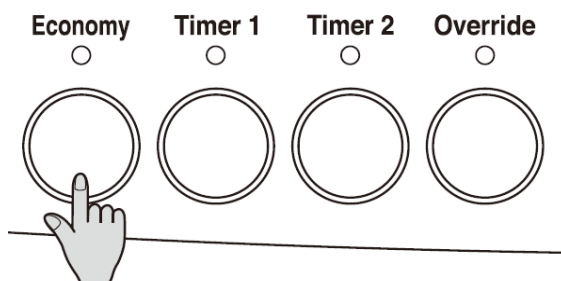
*When **AUTO OFF** indicator light is not glowing, the unit will continue to produce heat in at least a low fire capacity until the unit is manually powered down.*

Economy Mode:

Press the Economy button to start the Economy function. The Economy indicator will glow.



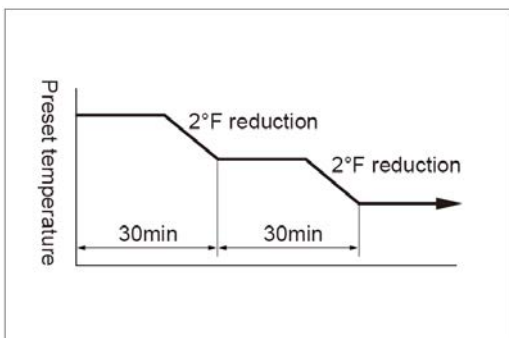
Press the Economy button once more to switch off the function.



NOTE

The Economy mode may only be activated when the heater is turned on. The Economy mode remains ON and in the system memory until deactivated.

After the room is heated initially the air temperature may be dropped to a lower level without affecting comfort. 30 minutes after the selected room temperature (set with the thermostat) is reached, the Economy mode, if ON, reduces the temperature by 2° F. After another 30 minutes it reduces the temperature by a further 2°F. This is an energy saving feature. The Economy mode does not operate if the heater is under capacity for the room size.

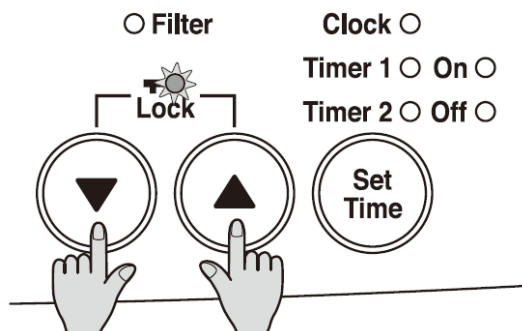


Function Lock:

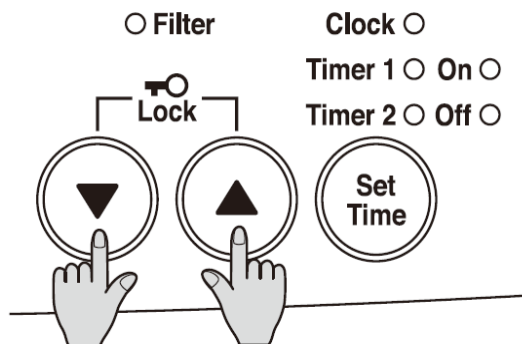
NOTE

The Function Lock will help prevent accidental operation as well as making the control panel child resistant.

To operate the Function Lock simply press the " ▲ " and " ▼ " buttons at the same time. The function is activated immediately and the Function Lock indicator will glow.



To deactivate Function Lock simply press the " ▲ " and " ▼ " buttons at the same time for 2 seconds and the Function Lock indicator will go out.



NOTE

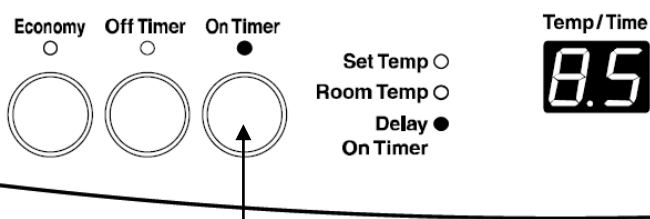
During normal operation the Function Lock may be activated and all controls other than the OFF switch will be locked. Deactivating the lock releases the controls. If the lock is activated while the heater is turned OFF, then all functions will be locked. If the heater is turned OFF while the Function Lock is activated, it cannot be turned ON again until the lock is deactivated.

Operating the Timer(s) (FC510):

The Timer feature allows you to delay the start time of the heater for up to 24 hours.

Operating the On Timer

Press the On Timer button . The On Time indicator will illuminate and the Combustion indicator will be illuminated green to confirm that the heater is awaiting for the Delay “ON” time period to pass before commencing operation. The Delay On Timer indicator will also illuminate and the current Delay On Time period will be displayed on the Digital (Temp / Time) display for 10 seconds. While displayed, the Delay “ON” time can be adjusted by pressing the Up or Down buttons . A delay time of up to 9½ hours can be set in increments of 30 minutes and a delay time of up to 24 hours in increments of 60 minutes. When the programmed Delay “ON” time period has passed, the heater will automatically begin operation.



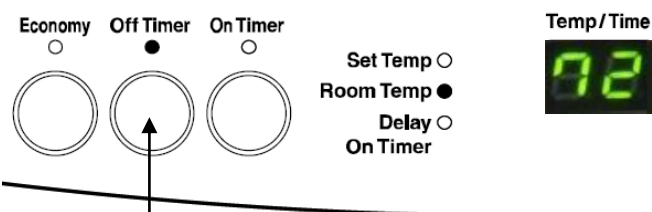
NOTE

The heater will continue to operate for a period of 60 minutes. On Timer operation can be cancelled by pressing either the ON/OFF button or the Off Timer button . The delay 'On' time last programmed is stored in the memory and will be the default until it is re-adjusted.

If the On Timer button is pressed while the heater is in operation the On Timer will override manual operation.

Operating the Off Timer

The Off Timer allows you to set a 60 minute delay before the heater will automatically turn off.



To operate, press the Off Timer button . The Off Timer indicator will illuminate and the Combustion indicator will be illuminated red to confirm that the heater will continue operation until the Delay 'off' time period has passed after which it will stop. The Delay Off time is 60 minutes. When this time has passed, the heater will automatically stop operation and the Off Timer indicator will go out.

During Off Timer operation full manual control of the heater is available.

NOTE

After the Off Timer operation is completed, press the On/Off button twice to restart the heater.

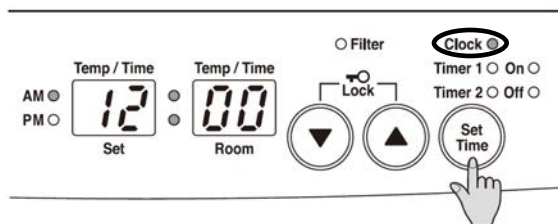
The Off Timer and On Timer(s) work independently of each other. However, if both timers are operating and the Delay On time period is 30 minutes, the Delay Off Timer will override the Delay On Timer.

Setting the Clock: (FC824)

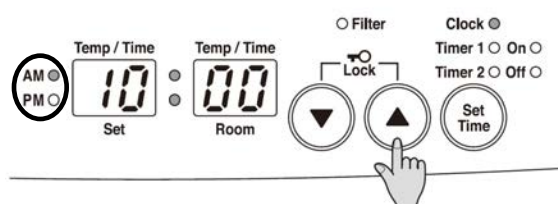
When the appliance is first plugged in and then turned on, the digital display will show “-:-” After 10 seconds the Digital Display will turn off.

Example: setting the clock to 10:35 A.M.

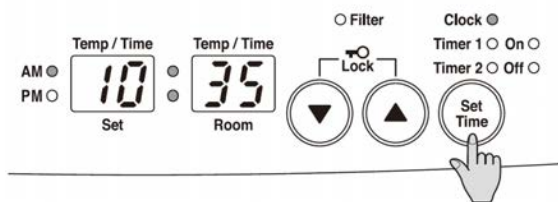
1. Press the Set Time Button once, the Clock Indicator will glow.



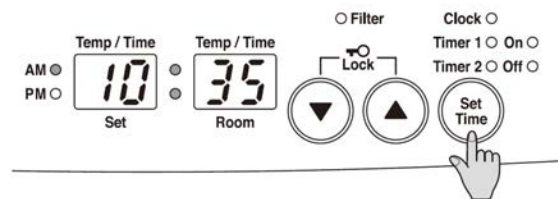
2. Press and hold the "▲" button; the minutes will begin to change first, then the time will change by whole hours. Release the button when AM 10:00 shows on the Digital Display. Confirm that you have selected AM. A small indication on the left hand side of the Digital Display should indicate the AM setting.



Then press and hold the "▲" button again, release the button when AM 10:35 shows. If you go past AM 10:35, then the "▼" button can be used to change the time settings in reverse.



3. Press the Set time button five times to lock in the time. The Clock and Timer indicators will go out. After 10 seconds the Digital Display will turn off.



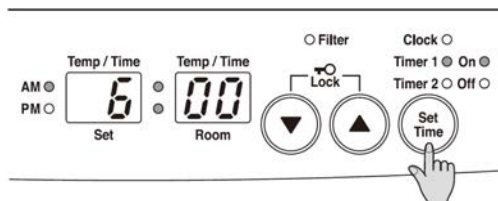
NOTE

Before programming the Timer(s), ensure the clock time has been set.

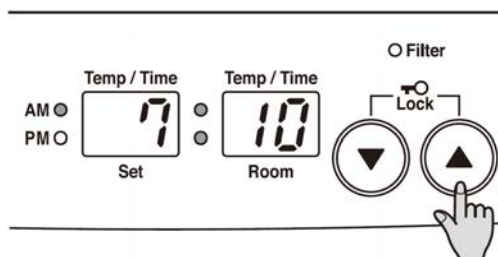
Programming the On/Off Timer(s) (FC824)

Example: setting Timer 1 to heat between 7:10 A.M to 9:00 A.M.

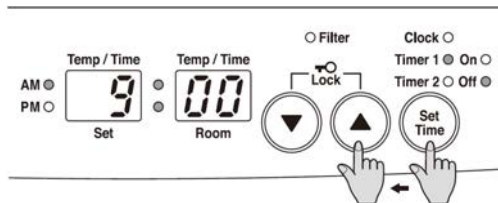
1. Press the Set Time Button twice. The digital display will show AM 6:00. Timer 1 Indicator will glow.



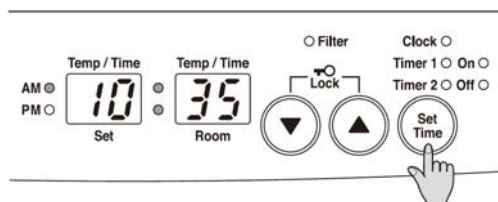
2. Press the "▲" button until AM 7:00 appears. Release the button, then press it again until AM 7:10 appears. (Press the "▼" button if you go past AM 7:10.)



3. Press the Set Time button again, the Timer 1 OFF indicator will glow. Press the "▲" button until AM 9:00 appears.



4. Press the Set Time button three times to lock in the programmed time. The digital display will show the current time. After 10 seconds the digital display will turn off.



NOTE

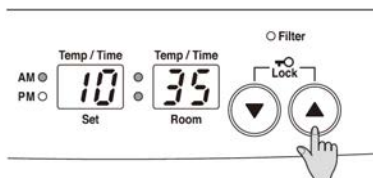
Timer 2 is programmed in the same way simply choosing Timer 2 instead of Timer 1. Timers can be programmed to operate for any 2 periods within 24 hours. The programmed time must be selected and locked in within 1 minute of the Timer Indicators glowing, otherwise the adjustment will not be saved.

Operating the Timer(s) (FC824):

NOTE

Before operating the Timer(s), the clock time must be correct, and a starting time and finishing time for the Timer(s) must be programmed. The two Timers operate in the same way. This heater will begin operating before the programmed starting time in order for the room to reach the temperature setting by the programmed starting time.

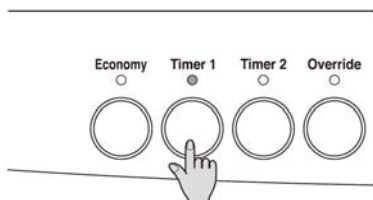
1. To select the Timer(s) to commence heating: Check that the time shown on the Digital Display is correct. Check the ON and OFF times for both Timers.



2. Press the ON-OFF button to operate the heater: The On indicator will glow green and the heater will begin to operate. Select the desired temperature setting.



3. Press the Timer 1 and On Timer 2 button(s). The Timer indicator(s) will glow and the heater will remain on standby until one hour prior to the time programmed into the selected Timer(s). When this time is reached, the Timer indicator will flash and the heater will operate. The ON indicator glows red when the heater commences operation.



The heater can be operated to alternate between Timers automatically during cold weather by selecting Timer 1 and Timer 2 together. Both Timer indicators will glow. The appliance will remain on standby at intervals between the programmed finishing and starting times of each Timer. While the heater is operating during programmed intervals the Timer indicator will flash.

NOTE

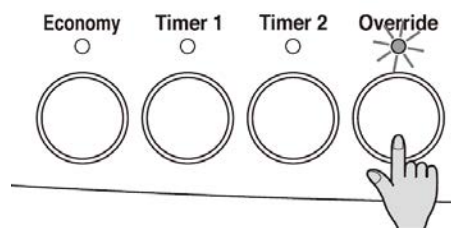
If there is a power failure, the system memory will retain the Timer programs and the clock will stop at when the power goes off. The clock will start keeping time again when the power returns but will have to be reset to the correct time.

Override Function:

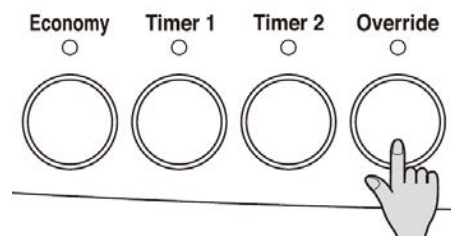
NOTE

This function is intended to be used to manually override the current operation of the heater while it is in Timer mode. For example, if the heater is in standby (between the end time and start time of the Timer), and the Override button is pressed, then the heater will operate and heat the room. If the heater is in operation in Timer mode, then pressing the Override button will turn the heater OFF.

To operate the Override simply press the Override button. The Override indicator will flash.



To manually deactivate the Override simply press the Override button again. The Override indicator will go out, and the heater will return to standby mode or ON mode depending on the programmed times.



NOTE

The heater will continue to operate on Override until the Override button is pressed again, or one of the Timers takes over the operation of the appliance. This means that the Override mode will automatically drop out if a programmed Starting time is reached. The appliance will then return to operating at times programmed into the Timer(s).

Required Maintenance

The appliance must be inspected annually by a licensed professional. Repairs and maintenance should be performed by a licensed professional. The licensed professional must verify proper operation after servicing.

WARNING

To protect yourself from harm, before performing maintenance:

- Turn off the electrical power supply by unplugging the power cord or by turning off the electricity at the circuit breaker. (The temperature controller does not control the electrical power.)
- Turn off the gas at the manual gas valve, usually located immediately below the heater.

WARNING

Keep the appliance area clear and free from combustible materials, gasoline, and other flammable vapors and liquids.

The following maintenance items are required for the proper operation of your heater.

The appliance must be inspected annually by a licensed professional. Repairs and maintenance should be performed by a licensed professional. The licensed professional must verify proper operation after servicing.

Regular inspections, as outlined in this section, are strongly recommended as means of keeping your heater operating efficiently and safely. Access to internal parts is from the front of the heater.

Any safety screen or guard removed for servicing an appliance must be replaced prior to operating the heater.

Both air filters should be cleaned monthly during the heating season. Do not wait for filter warning lamp to come on before cleaning filters. Do not use the heater with the filter warning lamp on or the appliance will overheat. Dusty filters reduce the air flow through the heater and reduce the heater's effectiveness. The filters while installed may be cleaned with a vacuum cleaner.

The heater should be inspected and cleaned annually by a professional service person. More frequent cleaning may be required due to excessive lint from carpeting and/or other materials. It is imperative that the controls, burners and circulating air passageways of the appliance be kept clean.

Required Maintenance (continued)

Clean as follows:

1. Turn heater off. Unplug electrical cord and allow to cool for 1 hour.
2. Remove the louver assembly. (FC510: 3 Screws, FC824: 2 screws)
3. Remove front panel:
 - FC510:** Remove 2 screws near top and 2 screws near bottom of unit and pull front panel off towards you. (**Figure 1**)
 - FC824:** Remove 2 screws near to top of the appliance as well as the 3 screws on the back of the control panel (**Figure 3**). Lift the front panel upwards and rotate toward you. Pull downward to remove the front panel. (**Figure 2**)
4. Use a vacuum cleaner or apply air to remove dust from around the burner and electrical components. In addition, apply the vacuum/air supply to the holes near the bottom of the combustion chamber cover (FC510 has 3 holes and the FC824 has 2 holes) .
5. All outside parts of the heater can be cleaned using soap and water on a soft damp cloth.
6. Install the front panel and the louver assembly.

FC510

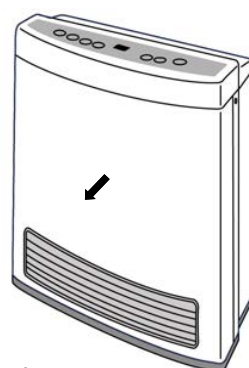


Figure 1

Front Panel Removal

FC824

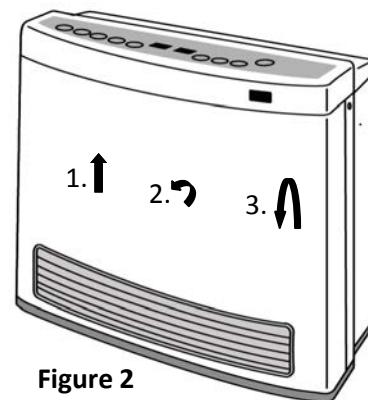


Figure 2

Back of FC824 control panel

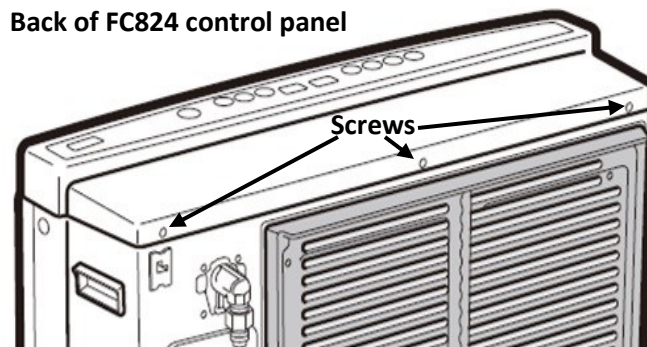
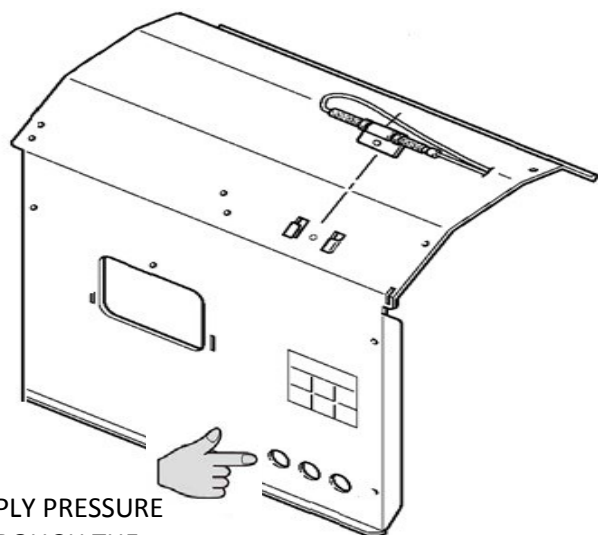


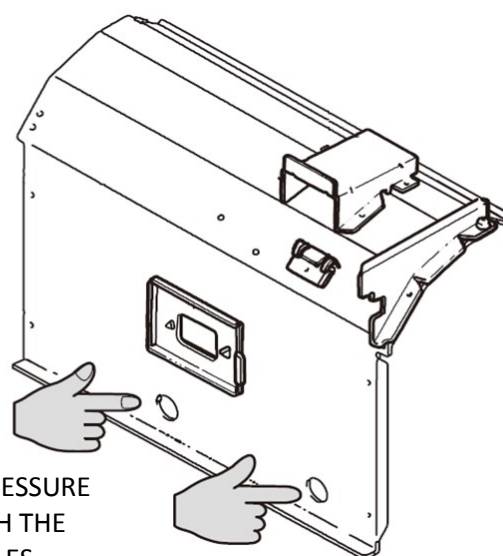
Figure 3

FC510



APPLY PRESSURE
THROUGH THE
THREE HOLES

FC824

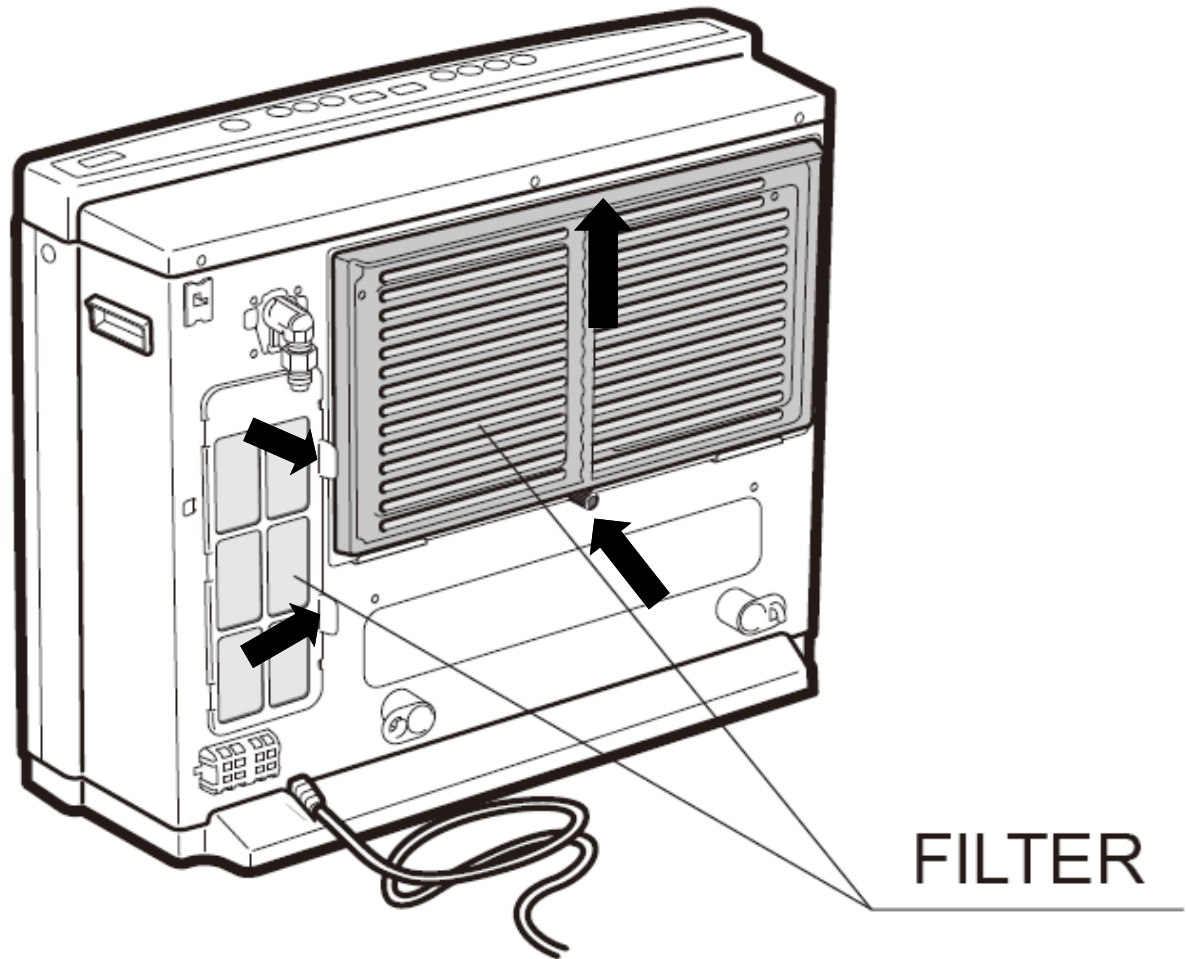


APPLY PRESSURE
THROUGH THE
TWO HOLES

Required Maintenance (continued)

Removing the Filters:

1. Unscrew the cap (Philips screw in the center) securing the large filter.
2. Pull the large filter up and away.
3. For the small filter simply pull the two tabs away from the unit.



⚠ WARNING

Failure to keep the primary air openings of the burner clean may result in sooting and property damage.

DO NOT damage or distort any parts of the heater.

DO NOT use a wet cloth or spray cleaners on the burner.

Keep the appliance area clear and free from combustible materials (i.e. aerosols or spray paint), gasoline, and other flammable vapors and liquids.

Troubleshooting:

1. Confirm that the heater is properly installed. See Installation section.
2. Make sure the gas valve on the LP gas bottle or gas supply line is ON and that gas pressure is available.
3. Make a careful visual inspection of all electrical connection and wiring.
4. If trouble persists, refer to the following trouble shooting chart and corresponding remedy.

| Problem Cause | No On indicator | Burner does not ignite | Filter warning lamp glows | Combustion stops during operation | Takes too long to warm the room | Remedy |
|---|-----------------|------------------------|---------------------------|-----------------------------------|---------------------------------|--|
| Not Plugged In | ● | ● | | | | Plug in |
| Power Failure | ● | ● | | ● | | Manually operate (push ON/OFF Button) after power is restored. |
| (Initial Installation) Air in gas pipe | | ● | | | | Purge air (Installer) |
| Room too large | | | | | ● | Check with retailer |
| Dust on the air filters | | | ● | | | Clean air filters (WEEKLY) |
| Louvre obstructed | | | | ● | ● | Clean obstruction |
| Air filter blocked | | | | ● | ● | Clean filter (WEEKLY) |
| On/Off Timer is set | | ● | | | | Cancel On/Off Timer |
| Child Proof Lock set | ● | ● | | | | Cancel Child Proof Lock |
| Gas turned off at meter | ● | ● | | | | Turn gas on (SERVICER) |

Diagnostic Codes

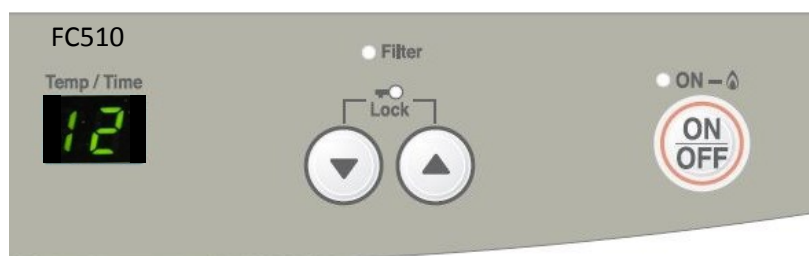
This heater has the ability to check its own operation continuously. **If a fault occurs, an Error Message will flash on the digital display of the control panel.** This assists with diagnosing the fault, and may enable you to overcome a problem without a service call. Please quote the code displayed when inquiring about service.

| CODE DISPLAYED | DEFINITION | REMEDY |
|----------------|-----------------------|---|
| 03 | Tilt Switch Activated | Inspector gas line connection, after setting heater upright. Turn heater ON |
| 11 | Missed Ignition | Check gas is turned ON, Service call if repeated |
| 12 | Flame Failure | Ventilate the room. Service call if repeated. |
| 14 | Overheat | Clean filter. Service call if repeated. |
| 16 | Room Overheat | Service call. |
| 00 | Power Cut | Turn Heater OFF, then ON again |

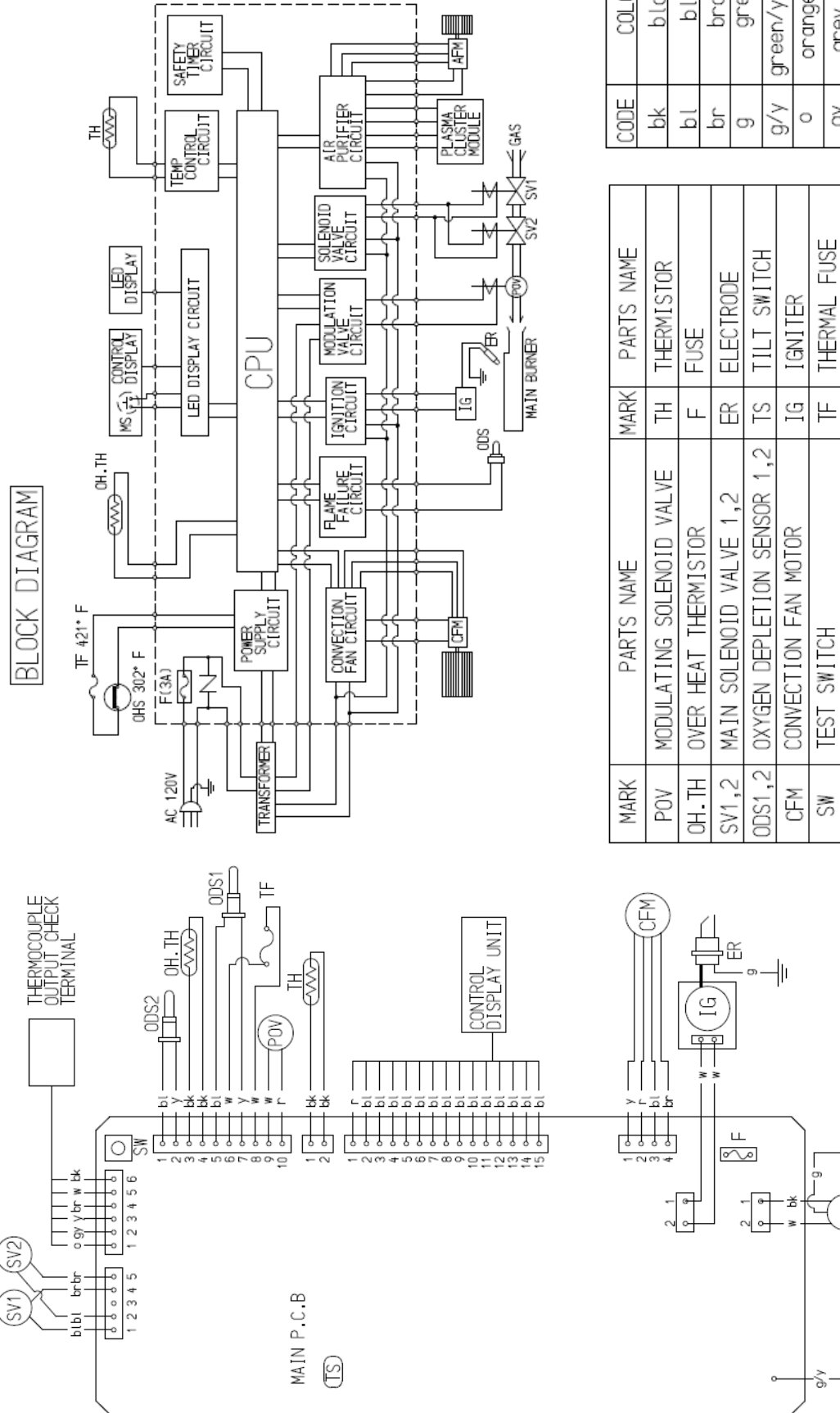
If you see other codes displayed, contact Rinnai or your nearest service agent and arrange for a service call.

NOTE

In some cases, you may be able to clear the Error Message simply by turning the heater OFF, then ON again. If the Error Message still remains or returns on the next operation, contact Rinnai or your nearest service agent and arrange for a service call.



Electrical Diagram FC510

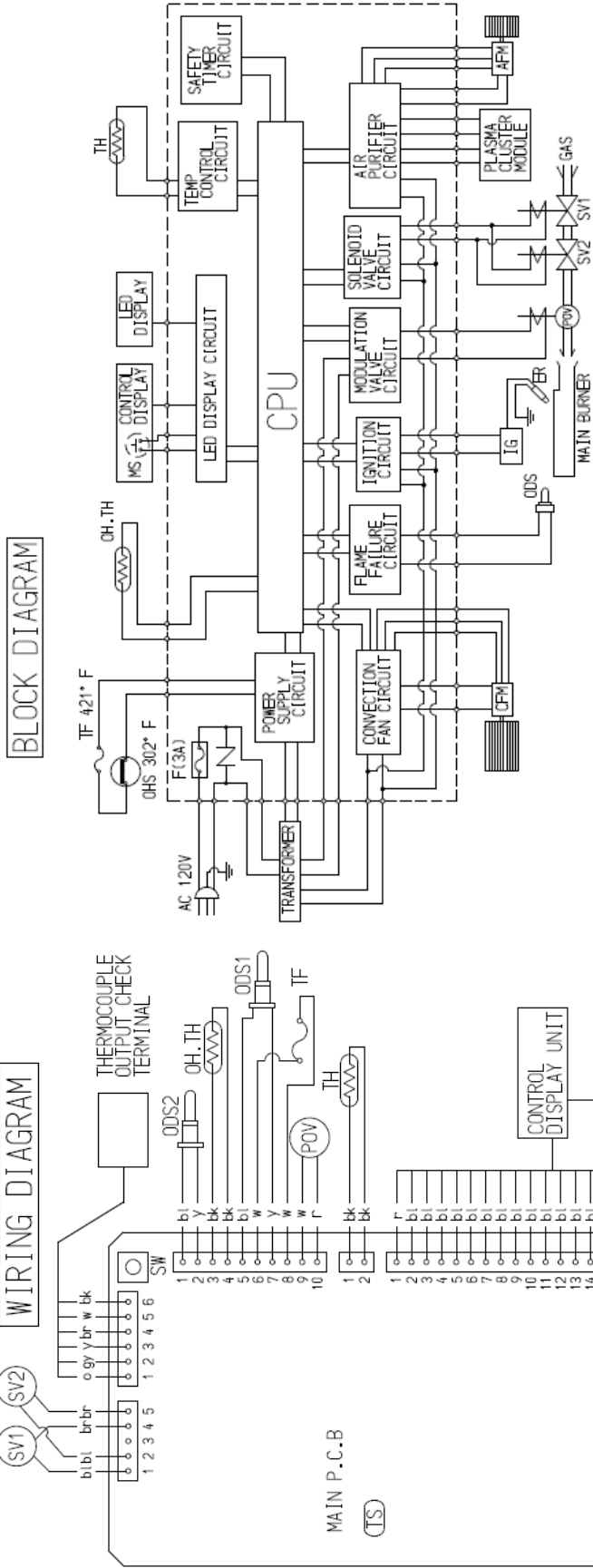


CAUTION

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

If any of the original wire as supplied with the appliance must be replaced, it must be replaced with a wire of at least a 194 9F temperature rating and 18 AWG.

Electrical Diagram FC824



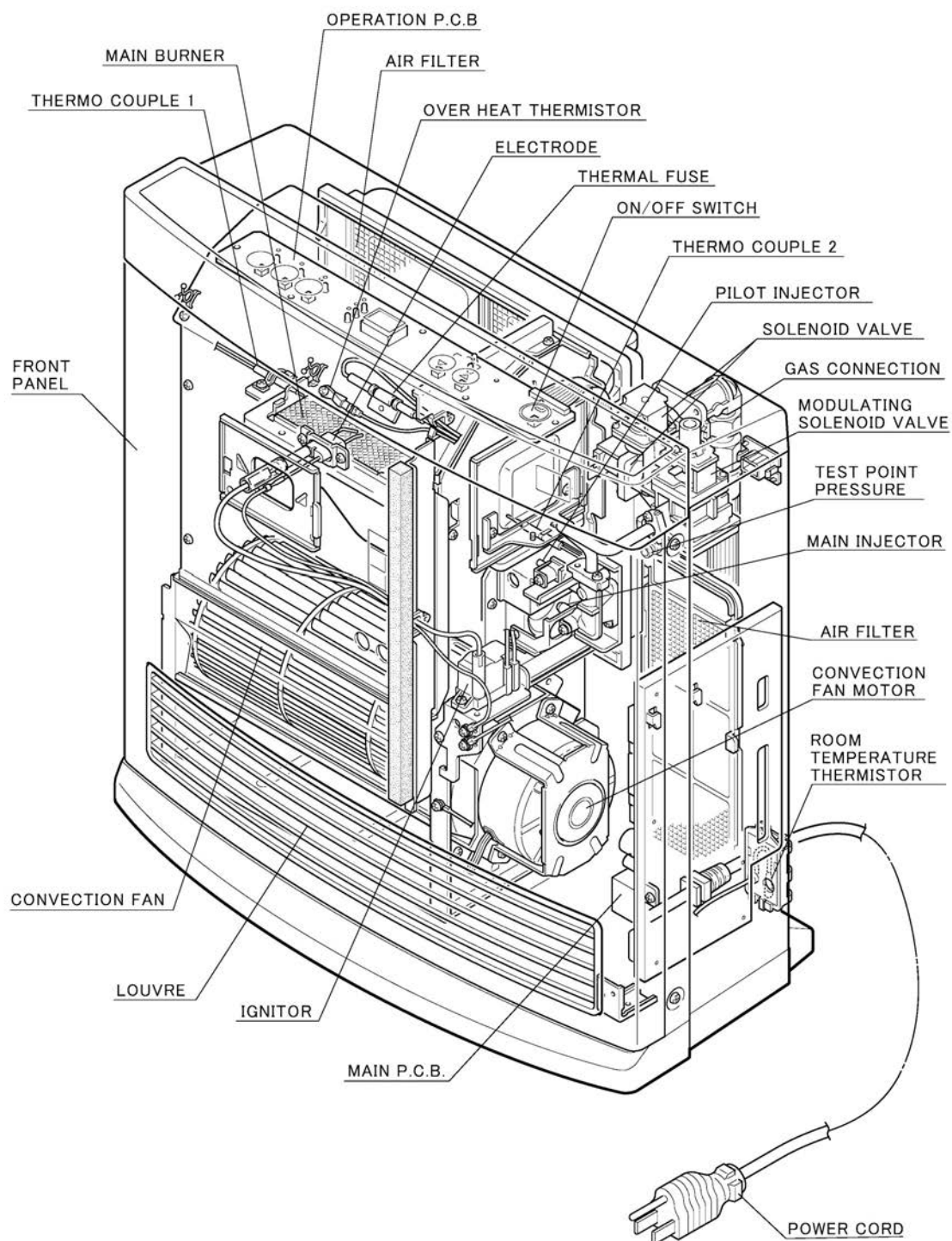
| MARK | PARTS NAME | MARK | PARTS NAME | CODE | COLOR |
|--------|-----------------------------|------|--------------|------|--------------|
| POV | MODULATING SOLENOID VALVE | TH | THERMISTOR | bk | black |
| OH, TH | OVER HEAT THERMISTOR | F | FUSE | bl | blue |
| SV1,2 | MAIN SOLENOID VALVE 1,2 | ER | ELECTRODE | br | brown |
| ODS1,2 | OXYGEN DEPLETION SENSOR 1,2 | TS | TILT SWITCH | g | green |
| CFM | CONVECTION FAN MOTOR | IG | IGNITER | g/y | green/yellow |
| SW | TEST SWITCH | TF | THERMAL FUSE | o | orange |
| | | | | gv | gray |
| | | | | r | red |
| | | | | w | white |
| | | | | y | yellow |

CAUTION

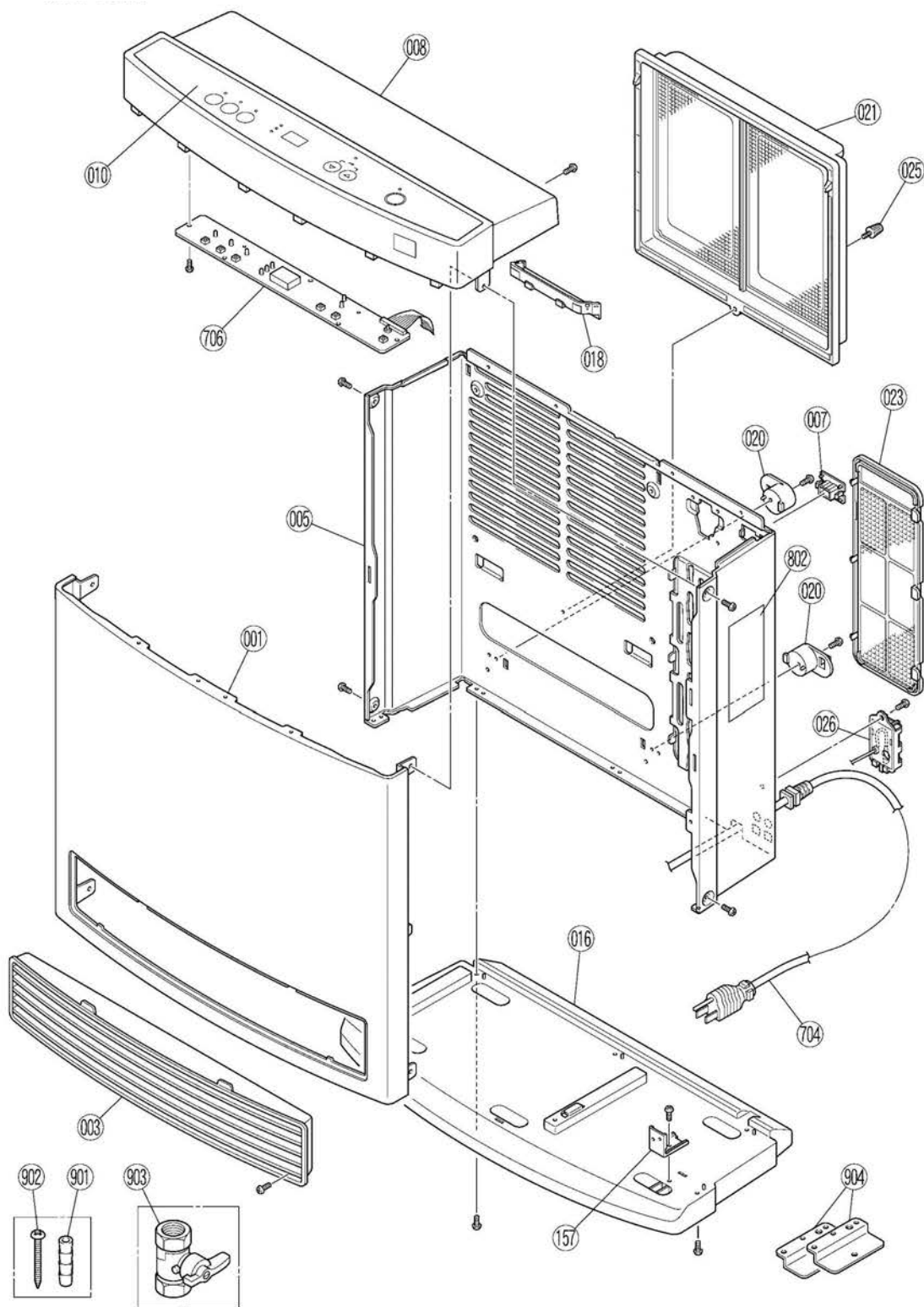
Label all wire prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

If any of the original wire as supplied with the appliance must be replaced, it must be replaced with a wire of at least a 194 9F temperature rating and 18 AWG.

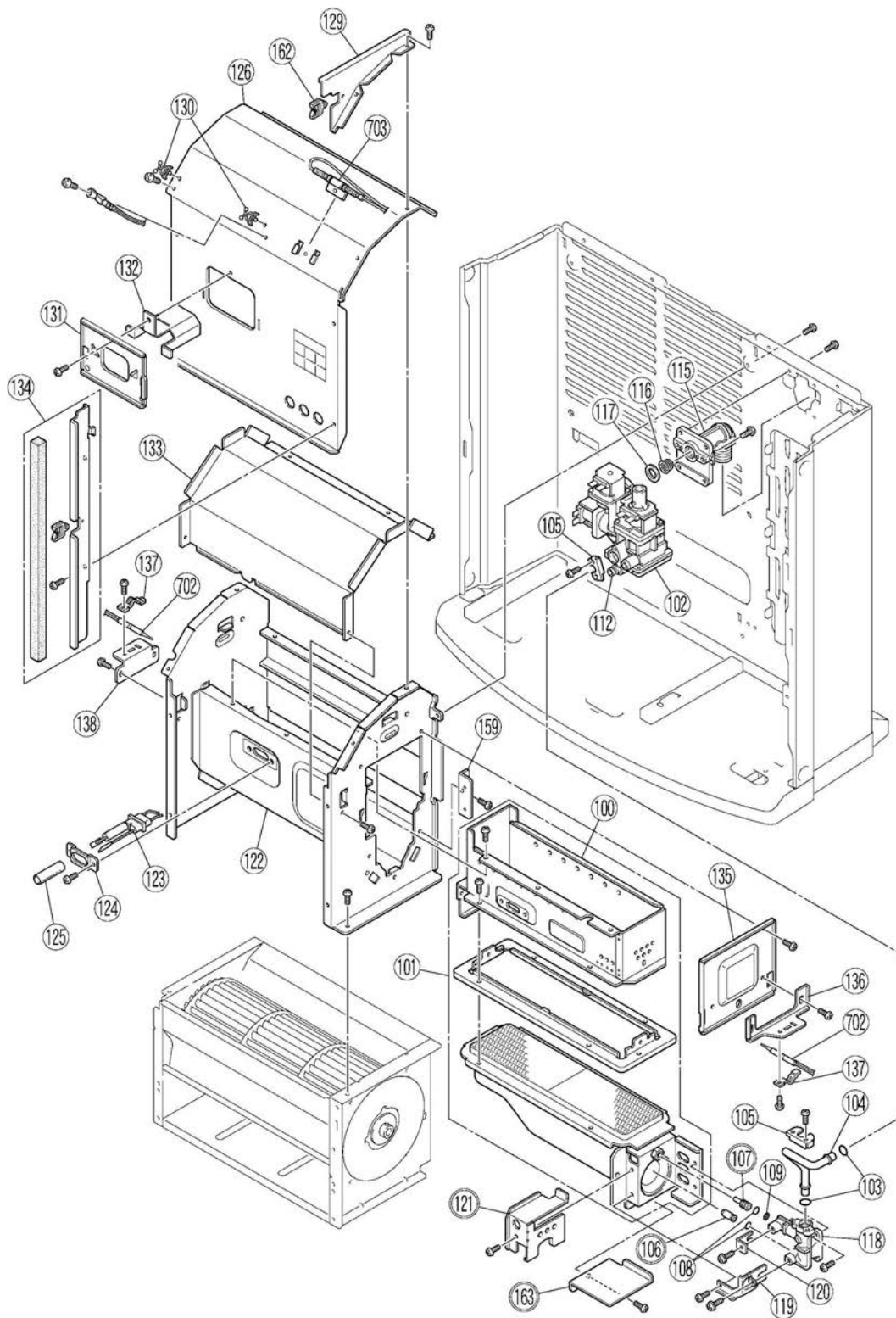
Parts Breakdown FC510



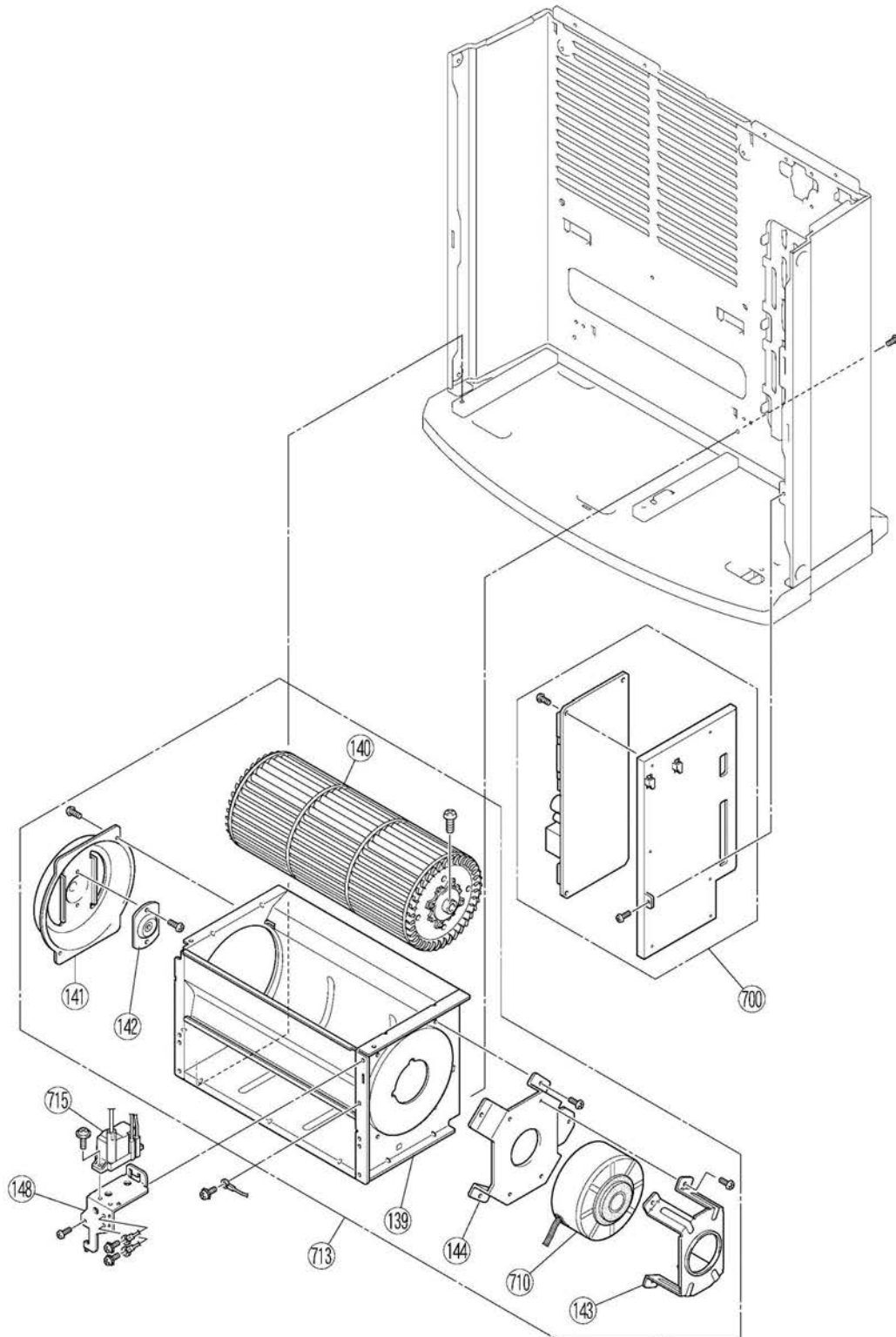
Parts Breakdown FC510



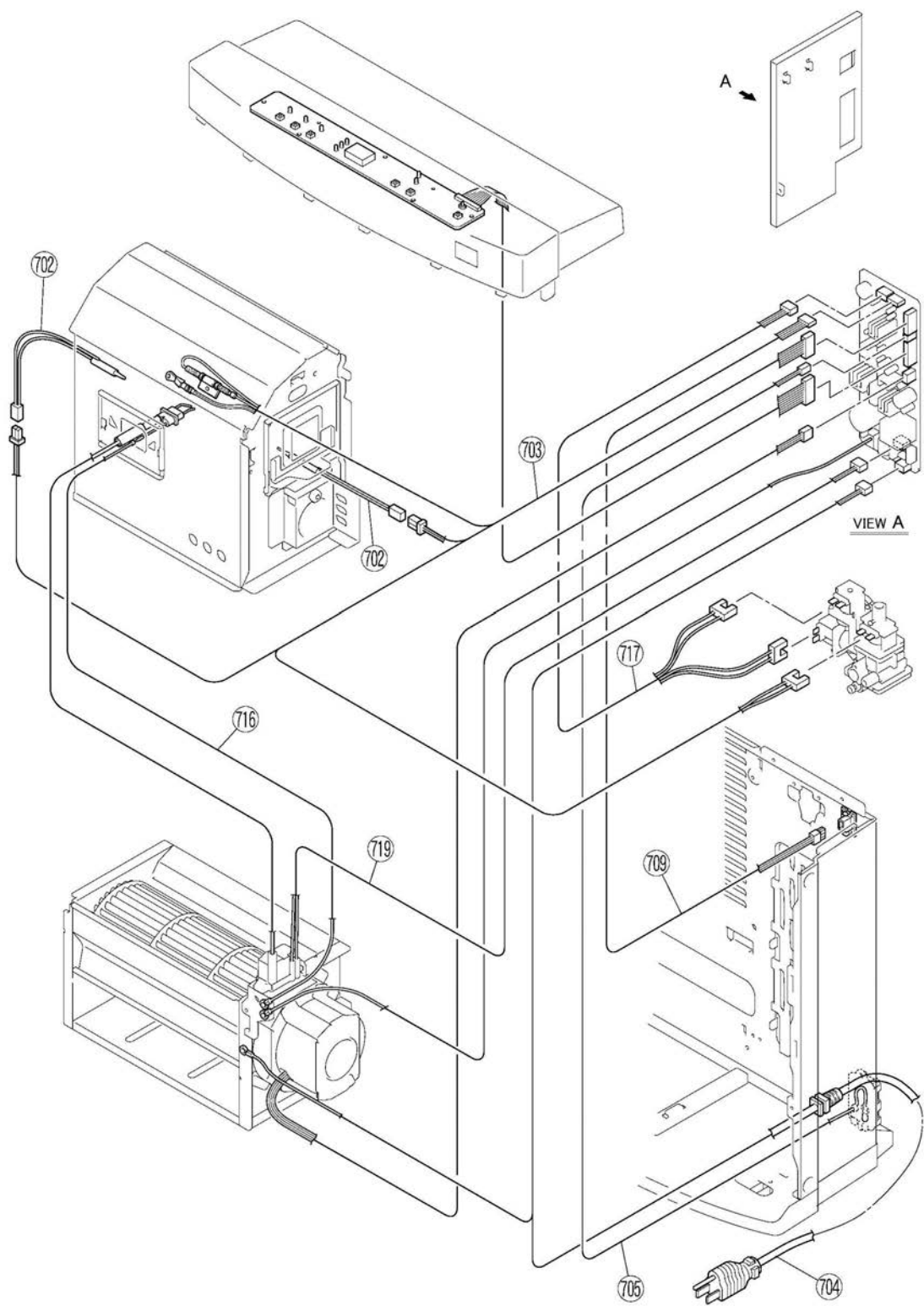
Parts Breakdown FC510



Parts Breakdown FC510



Parts Breakdown FC510



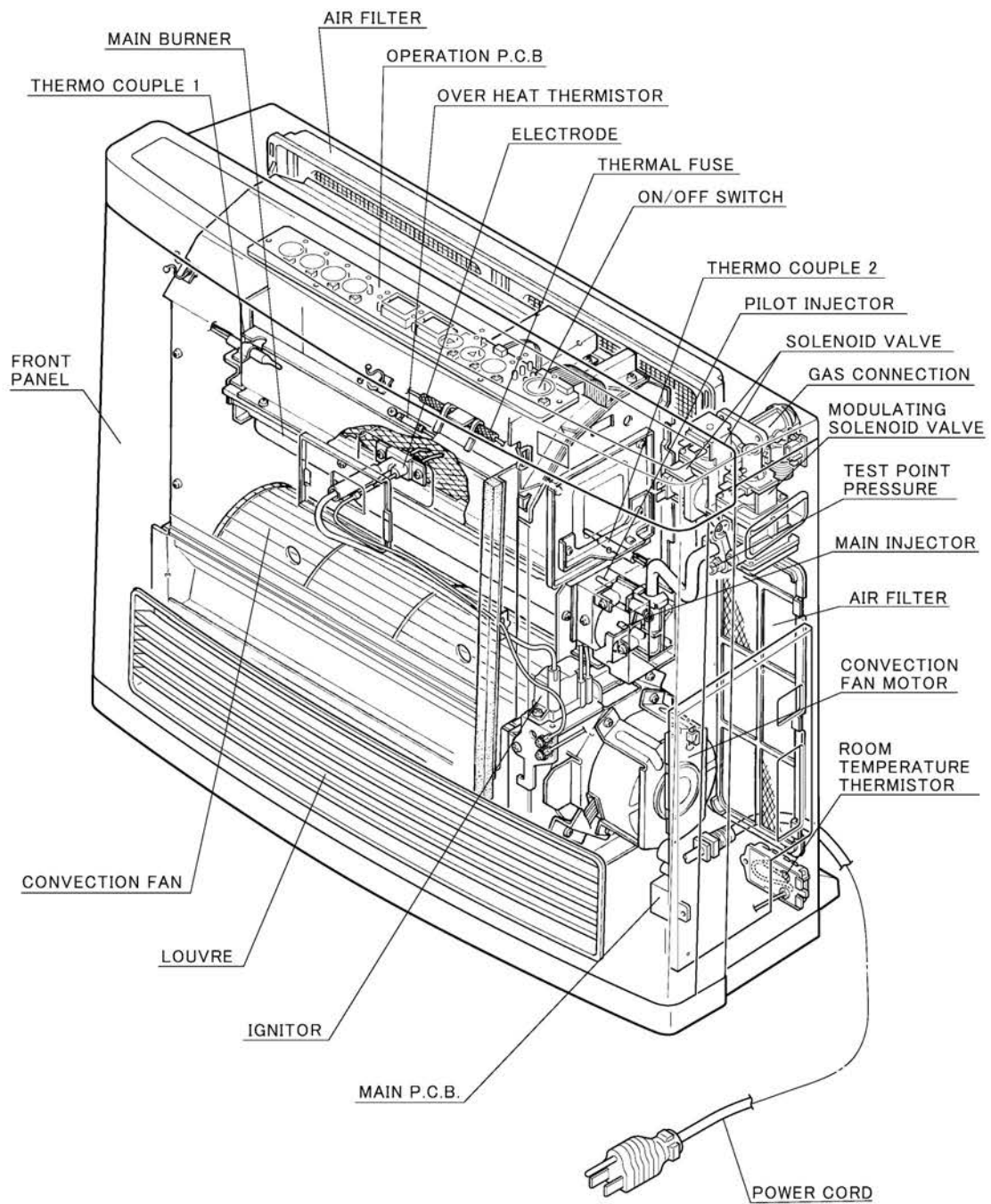
Parts List for FC510

| NO | PART NAME | PART NUMBER | QTY. |
|-----|------------------------------|----------------|------|
| 001 | FRONT PANEL | 909000001 | 1 |
| 003 | LOUVER ASSEMBLY | 909000002 | 1 |
| 005 | REAR PANEL | 909000035 | 1 |
| 007 | THERMOCOUPLE TEST PORT | 909000003 | 1 |
| 008 | TOP PLATE | 909000036 | 1 |
| 010 | INDICATER PANEL | 909000037 | 1 |
| 016 | BASE | 909000004 | 1 |
| 018 | HANDLE | 909000005 | 1 |
| 020 | CORD HOLDER | 909000006 | 2 |
| 021 | AIR FILTER-A | 908000001 | 1 |
| 023 | AIR FILTER-B | 908000002 | 1 |
| 025 | RESIN SCREW | RC-513-20 | 1 |
| 026 | THERMISTOR COVER | 909000007 | 1 |
| 100 | SECONDARY AIR COVER ASSEMBLY | 909000008 | 1 |
| 101 | BURNER ASSEMBLY | 906000001 | 1 |
| 102 | GAS CONTROL ASSEMBLY | 906000021 | 1 |
| 103 | O RING | M10B-1-8 | 2 |
| 104 | CONNECTION PIPE | 906000022 | 1 |
| 105 | CONNECTION PIPE BRACKET | RC-152-220X03 | 2 |
| 106 | INJECTOR (NG) | 906000002 | 1 |
| 106 | INJECTOR (LP) | 906000003 | 1 |
| 107 | PILOT INJECTOR (NG) | 906000004 | 1 |
| 107 | PILOT INJECTOR (LP) | 906000005 | 1 |
| 108 | O RING | 909000009 | 2 |
| 109 | FILTER | 908000003 | 1 |
| 112 | BLIND SCREW | AU39-965X01 | 1 |
| 115 | GAS INLET | 431F-1110-2 | 1 |
| 116 | FILTER | 908000008 | 1 |
| 117 | PACKING | C311-7 | 1 |
| 118 | INJECTOR HOLDER | 906000006 | 1 |
| 119 | CONNECTION PIPE FIXING PLATE | 909000010 | 1 |
| 120 | INJECTOR FIXING PLATE | 909000011 | 1 |
| 121 | DAMPER (NG) | 906000007 | 1 |
| 121 | DAMPER (LP) | 906000008 | 1 |
| 122 | COMBUSTION CHAMBER ASSEMBLY | 906000009 | 1 |
| 123 | ELECTRODE | 905000001 | 1 |
| 124 | ELECTRODE BRACKET | RC-512-51 | 1 |
| 125 | SILICON TUBE | RC-223-84-BX03 | 1 |
| 126 | COMBUSTION CHAMBER COVER | 906000010 | 1 |
| 129 | UPPER SEPARATION BRACKET | 909000012 | 1 |
| 130 | CABLE CLIP | CP-90125-4 | 2 |
| 131 | LID | 909000013 | 1 |
| 132 | HEAT SHIELD | 906000011 | 1 |
| 133 | SEPARATION BOARD | 909000014 | 1 |
| 134 | PARTITION BOARD | 909000015 | 1 |

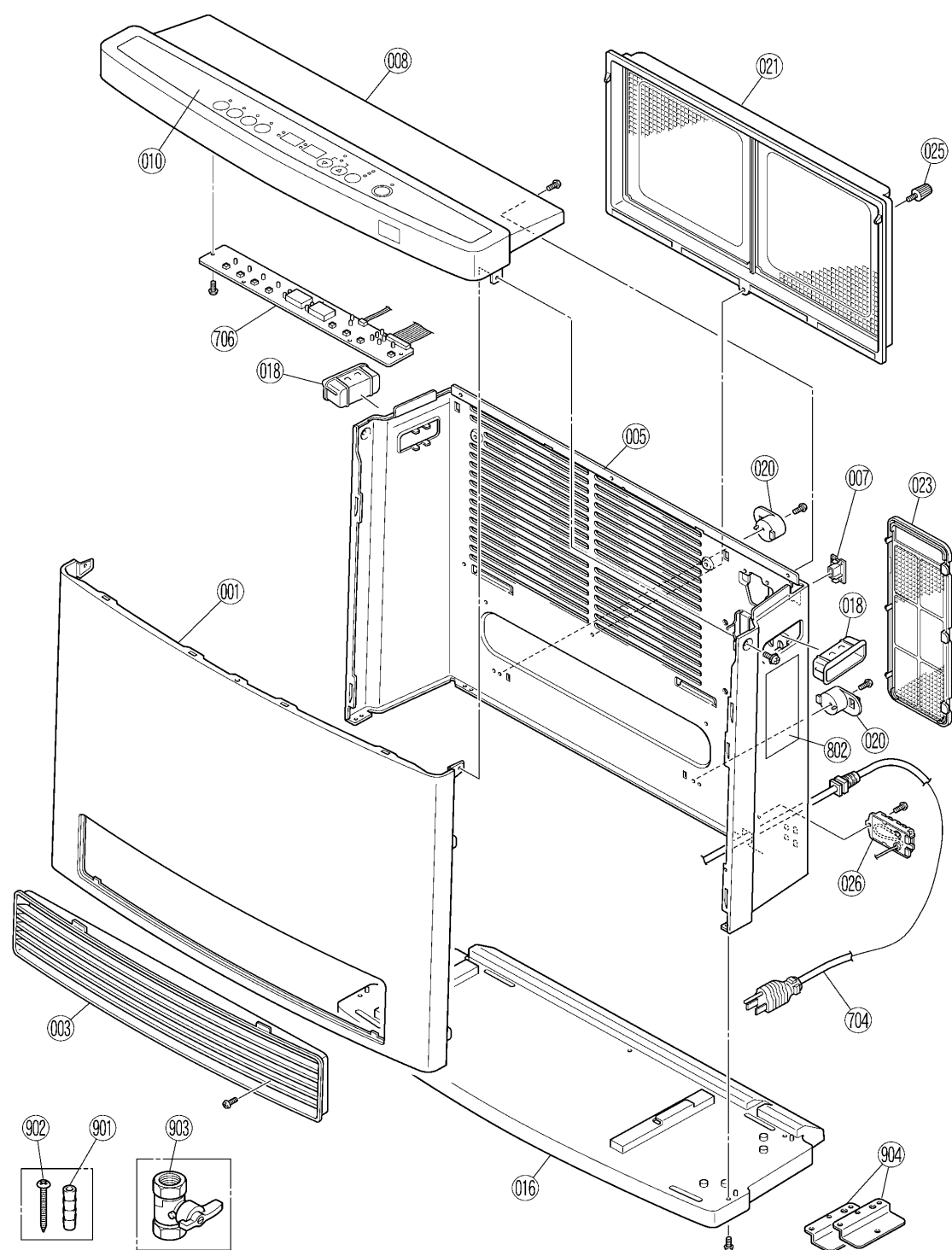
Parts List for FC510 (continued)

| NO | PART NAME | PART NUMBER | QTY. |
|-----|-------------------------------|--------------|------|
| 135 | BURNER LID | 906000012 | 1 |
| 136 | THERMOCOUPLE BRACKET-A | 909000016 | 1 |
| 137 | THERMOCOUPLE FIXER | RC-210-89X01 | 2 |
| 138 | THERMOCOUPLE BRACKET-B | 909000017 | 1 |
| 139 | CASING ASSEMBLY | 909000018 | 1 |
| 140 | CONVECTION FAN | 908000004 | 1 |
| 141 | BEARING BRACKET | RC-504-32 | 1 |
| 142 | BEARING | RC-223-74 | 1 |
| 143 | MOTOR BRACKET-A | 909000019 | 1 |
| 144 | MOTOR BRACKET-B | 909000020 | 1 |
| 148 | IGNITER BRACKET | 909000021 | 1 |
| 157 | LOUVER ASSEMBLY BRACKET | RC-291-28 | 1 |
| 159 | THROAT COVER | 909000022 | 1 |
| 162 | EDGE HOLDER | CP-90207 | 1 |
| 163 | GUARD PLATE | 909000023 | 1 |
| 700 | P.C.B. ASSEMBLY | 905000006 | 1 |
| 702 | THERMOCOUPLE TOTAL ASSEMBLY | RC-511-166-3 | 2 |
| 703 | THERMAL FUSE HARNESS | 905000002 | 1 |
| 704 | POWER SUPPLY CORD | 905000007 | 1 |
| 705 | THERMISTOR | RC-361-140-4 | 1 |
| 706 | OPERATION P.C.B. | 905000008 | 1 |
| 709 | THERMOCOUPLE CHECK LEAD WIRE | 905000003 | 1 |
| 710 | CONVECTION FAN MOTOR | 908000005 | 1 |
| 713 | CONVECTION FAN MOTOR ASSEMBLY | 908000006 | 1 |
| 715 | IGNITER | 905000009 | 1 |
| 716 | EARTH HARNESS | 905000004 | 1 |
| 717 | MODULATING VALVE HARNESS | 905000005 | 1 |
| 719 | IGNITER HARNESS | 905000010 | 1 |
| 802 | WARNING PLATE | RC-506-1042 | 1 |
| 888 | OWNER'S MANUAL | 900000001 | 1 |
| 901 | ANCHOR | AU102-902 | 2 |
| 902 | SCREW | 909000024 | 2 |
| 903 | MANUAL VALVE ASSEMBLY | BRR37-244 | 1 |
| 904 | FLOOR FIXING PLATE | RC-592-1035 | 2 |

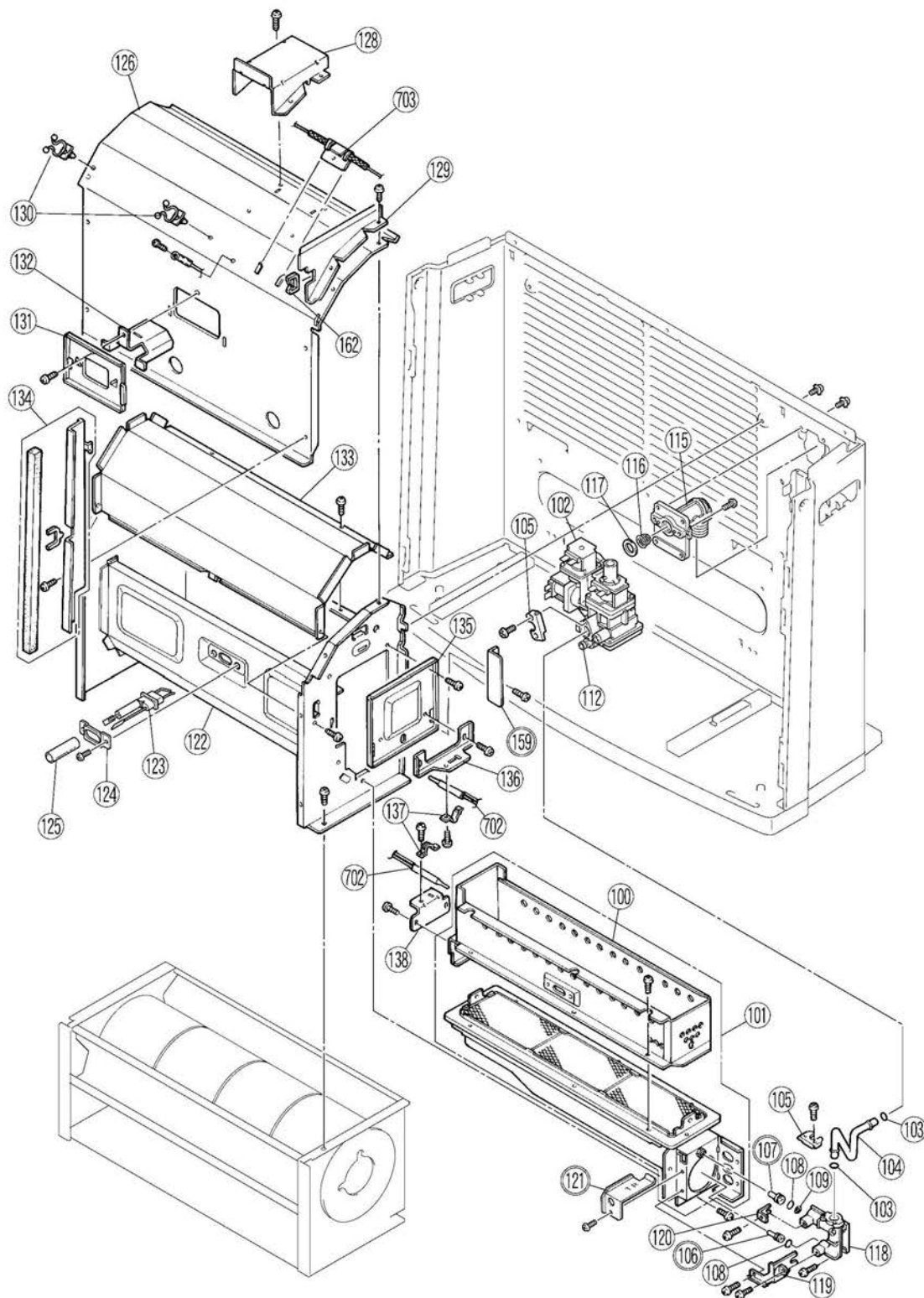
Parts Breakdown FC824



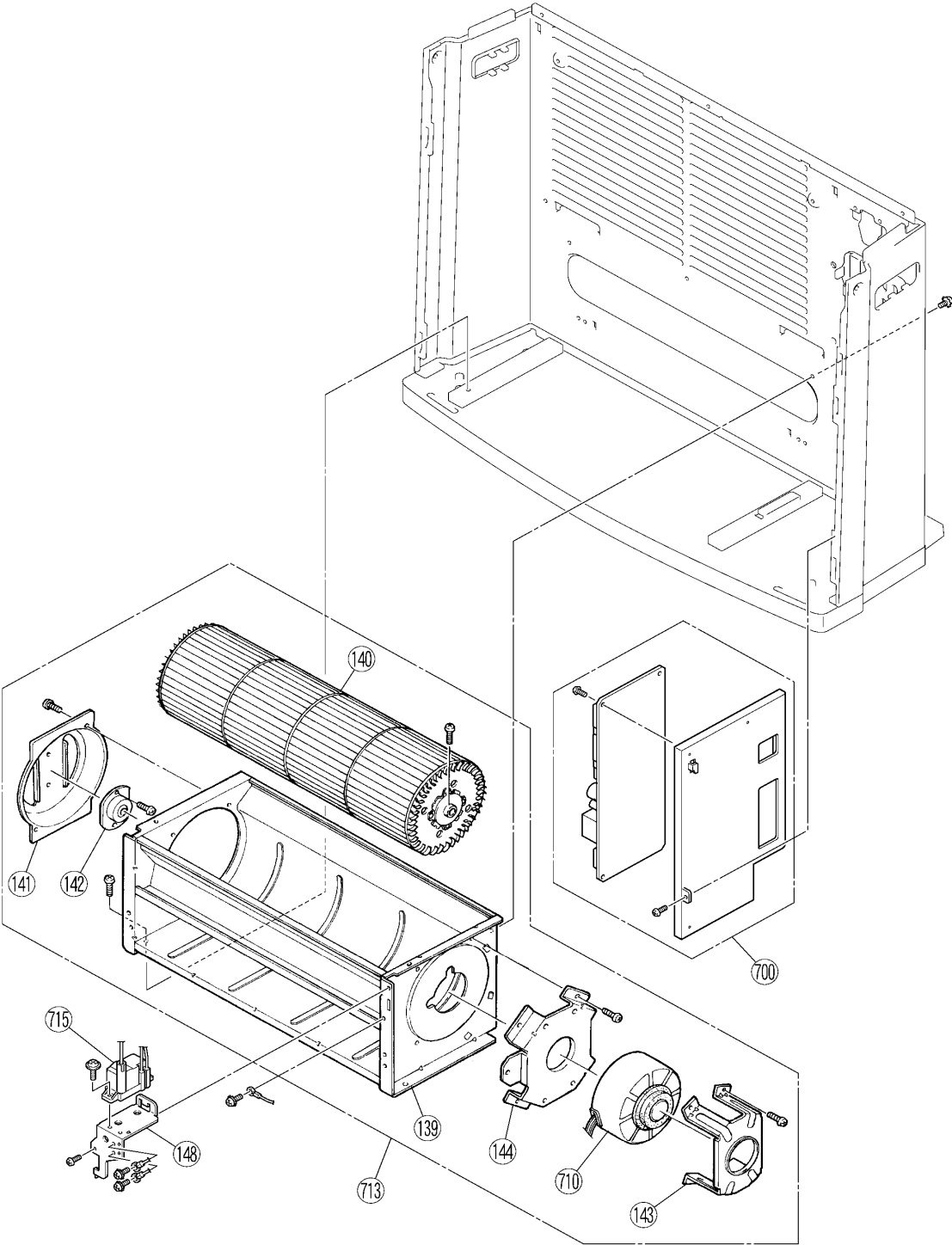
Parts Breakdown FC824



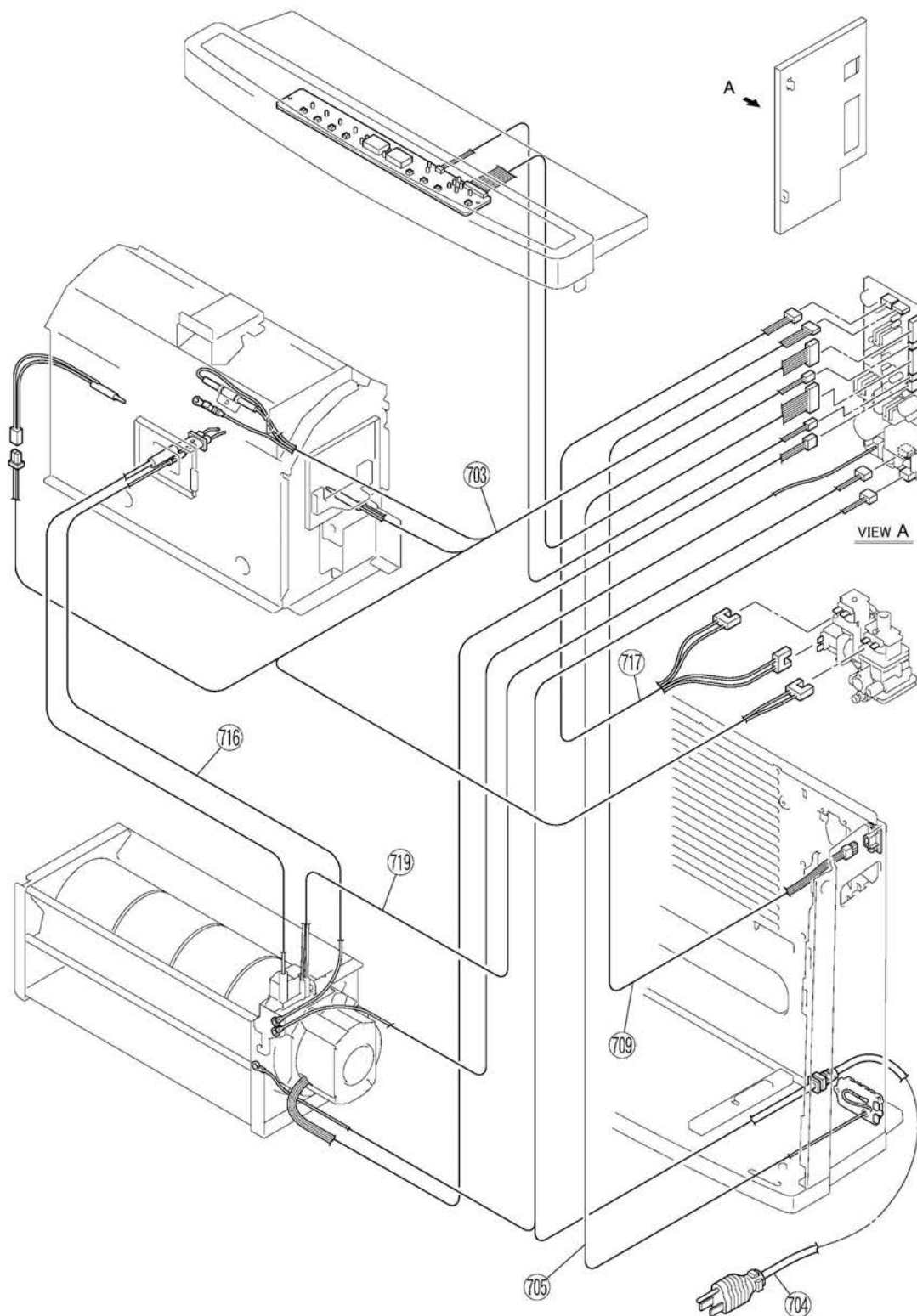
Parts Breakdown FC824



Parts Breakdown FC824



Parts Breakdown FC824



Parts List for FC824

| NO | PART NAME | PART No. | QTY. |
|-----|------------------------------|----------------|------|
| 001 | FRONT PANEL | 909000025 | 1 |
| 003 | LOUVER ASSEMBLY | 909000026 | 1 |
| 005 | REAR PANEL | 909000038 | 1 |
| 007 | THERMOCOUPLE TEST PORT | 909000003 | 1 |
| 008 | TOP PLATE | 909000039 | 1 |
| 010 | INDICATER PANEL | 909000040 | 1 |
| 016 | BASE | 909000027 | 1 |
| 018 | HANDLE | 909000028 | 2 |
| 020 | CORD HOLDER | 909000006 | 2 |
| 021 | AIR FILTER-A | 908000007 | 1 |
| 023 | AIR FILTER-B | 908000002 | 1 |
| 025 | RESIN SCREW | RC-513-20 | 1 |
| 026 | THERMISTOR COVER | 909000007 | 1 |
| 100 | SECONDARY AIR COVER ASSEMBLY | 909000029 | 1 |
| 101 | BURNER ASSEMBLY | 906000013 | 1 |
| 102 | GAS CONTROL ASSEMBLY | 906000021 | 1 |
| 103 | O RING | M10B-1-8 | 2 |
| 104 | CONNECTION PIPE | 906000022 | 1 |
| 105 | CONNECTION PIPE BRACKET | RC-152-220X03 | 2 |
| 106 | INJECTOR (NG) | 906000014 | 1 |
| 106 | INJECTOR (LP) | 906000015 | 1 |
| 107 | PILOT INJECTOR (NG) | 906000016 | 1 |
| 107 | PILOT INJECTOR (LP) | 906000005 | 1 |
| 108 | O RING | 909000009 | 2 |
| 109 | FILTER | 908000003 | 1 |
| 112 | BLIND SCREW | AU39-965X01 | 1 |
| 115 | GAS INLET | 431F-1110-2 | 1 |
| 116 | FILTER | 908000008 | 1 |
| 117 | PACKING | C311-7 | 1 |
| 118 | INJECTOR HOLDER | 906000006 | 1 |
| 119 | CONNECTION PIPE FIXING PLATE | 909000010 | 1 |
| 120 | INJECTOR FIXER | 909000011 | 1 |
| 121 | DAMPER (NG) | 906000017 | 1 |
| 121 | DAMPER (LP) | 906000018 | 1 |
| 122 | COMBUSTION CHAMBER ASSEMBLY | 906000019 | 1 |
| 123 | ELECTRODE | 905000001 | 1 |
| 124 | ELECTRODE BRACKET | RC-512-51 | 1 |
| 125 | SILICON TUBE | RC-223-84-BX03 | 1 |
| 126 | COMBUSTION CHAMBER COVER | 906000020 | 1 |
| 128 | TOP PLATE SUPPORT | 909000030 | 1 |
| 129 | UPPER SEPARATION BRACKET | 909000012 | 1 |

Parts List for FC824 (continued)

| NO | PART NAME | PART No. | QTY. |
|-----|-------------------------------|--------------|------|
| 130 | CABLE CLIP | CP-90125-4 | 2 |
| 131 | LID | 909000013 | 1 |
| 132 | HEAT SHIELD | 906000011 | 1 |
| 133 | SEPARATION BOARD | 909000031 | 1 |
| 134 | PARTITION BOARD | 909000032 | 1 |
| 135 | BURNER LID | 906000012 | 1 |
| 136 | THERMOCOUPLE BRACKET-A | 909000016 | 1 |
| 137 | THERMOCOUPLE FIXER | RC-210-89X01 | 2 |
| 138 | THERMOCOUPLE BRACKET-B | 909000017 | 1 |
| 139 | CASING ASSEMBLY | 909000033 | 1 |
| 140 | CONVECTION FAN | 908000011 | 1 |
| 141 | BEARING BRACKET | RC-504-32 | 1 |
| 142 | BEARING | 908000009 | 1 |
| 143 | MOTOR BRACKET-A | 909000019 | 1 |
| 144 | MOTOR BRACKET-A | 909000020 | 1 |
| 148 | IGNITER BRACKET | 909000021 | 1 |
| 159 | GUARD PLATE | 909000034 | 1 |
| 162 | EDGE HOLDER | CP-90207 | 1 |
| 700 | P.C.B. ASSEMBLY | 905000011 | 1 |
| 702 | THERMOCOUPLE TOTAL ASSEMBLY | RC-511-166-3 | 2 |
| 703 | THERMAL FUSE HARNESS | 905000002 | 1 |
| 704 | POWER SUPPLY CORD | 905000007 | 1 |
| 705 | THERMISTOR | RC-361-140-4 | 1 |
| 706 | OPERATION P.C.B. | 905000012 | 1 |
| 709 | THERMOCOUPLE CHECK LEAD WIRE | 905000003 | 1 |
| 710 | CONVECTION FAN MOTOR | 908000005 | 1 |
| 713 | CONVECTION FAN MOTOR ASSEMBLY | 908000010 | 1 |
| 715 | IGNITER | 905000009 | 1 |
| 716 | EARTH HARNESS | 905000004 | 1 |
| 717 | MODULATING VALVE HARNESS | 905000005 | 1 |
| 719 | IGNITER HARNESS | 905000010 | 1 |
| 802 | WARNING PLATE | RC-506-1042 | 1 |
| 888 | OWNER'S MANUAL | 900000001 | 1 |
| 901 | ANCHOR | AU102-902 | 2 |
| 902 | SCREW | CP-30408 | 2 |
| 903 | MANUAL VALVE ASSEMBLY | BRR37-244 | 1 |
| 904 | FLOOR FIXING PLATE | RC-592-1035 | 2 |

State Regulations

State of Massachusetts: The installation must be made by a licensed plumber or gas fitter in the Commonwealth of Massachusetts.

Sellers of unvented propane or natural gas-fired supplemental room heaters are to provide to the purchaser a copy of 527 CMR 30 at the time of sale of the unit.

In the State of Massachusetts, unvented propane and natural gas-fired space heaters are prohibited in bedrooms and bathrooms.

State of California:

California law requires this notice to be provided:

California Proposition 65 lists chemical substances known to the state to cause cancer, birth defects, death, serious illness or other reproductive harm. This product may contain such substances, be their origin from fuel combustion (gas, oil) or components of the product itself.

The installation must conform with local codes or, in the absence of local codes, with the *National Fuel Gas Code, ANSI Z223.1/NFPA 54*, or the *Natural Gas and Propane Installation Code, CSA B149.1*. If installed in a manufactured home, the installation must conform with the *Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280* and/or *CAN/SCA Z240 MH Series, Mobile Homes*.

NOTICE

It is the responsibility of the installer **prior to the purchase/installation** of this product to ensure that the product, sizing, and installation meets all local codes (state, county, city).

Consumer Support

Warranty Information

The installer is responsible for your heater's correct installation.

Please complete the information below to keep for your records:

Purchased from: _____

Address: _____ Phone: _____

Date of Purchase: _____

Model No.: _____

Serial No.: _____

Installed by: _____ Installer's License No.: _____

Address: _____ Phone: _____

Date of Installation: _____

Limited Warranty

Gas Fan Convection Heater

What is covered?

This Warranty covers any defects in materials or workmanship, subject to the terms stated below. This Warranty extends to the original purchaser and subsequent transferees, but only while the product remains at the site of the original installation. This Warranty only extends through the first installation of the product and terminates if the product is moved or reinstalled at a new location.

How long does coverage last?

| Item | Period of Coverage |
|-----------|-------------------------------|
| All Parts | 3 years from date of purchase |

What will Rinnai do?

Rinnai will provide a replacement part or component that is defective in materials or workmanship as set forth. All repair parts must be genuine Rinnai parts. All repairs must be performed by an individual or servicing company that is properly trained, state qualified or licensed to do the type of repair.

Limited Warranty - continued

Replacement of the product may be authorized by Rinnai only. Rinnai does not authorize any person or company to assume for it any obligation or liability in connection with the replacement of the product. If Rinnai determines that repair of a product is not possible, Rinnai will replace the product with a comparable product at Rinnai's discretion. If a component or product returned to Rinnai is found to be free of defects in material or workmanship, or damaged by improper installation or damaged during return shipping, the warranty claim for parts may be denied.

How do I get service?

You must contact a state qualified/licensed contractor or authorized service provider for the repair of a product under this Warranty. For the name of a qualified/authorized service provider please contact your place of purchase, visit the Rinnai website (www.rinnai.us), call Rinnai at 1-800-621-9419 or write to Rinnai at 103 International Drive, Peachtree City, Georgia 30269.

Proof of purchase is required to obtain warranty service. You may show proof of purchase with a dated sales receipt, or by registering within 30 days of purchasing the product. To register your appliance, please visit www.rinnai.us. For those without internet access, please call 1-866-RINNAI1 (745-6241). Receipt of Registration by Rinnai will constitute proof-of-purchase for this product. However, Registration is not necessary in order to validate this Warranty.

What is not covered?

This Warranty does not cover any failures or operating difficulties due to the following:

- accident, abuse, or misuse
- alteration of the product or any component part
- misapplication (the product is not designed to be used as primary/sole heat source and is intended for supplemental heat only)
- force majeure
- discoloration of carpet, walls, flooring, ceilings, furniture or clothing
- improper installation (such as but not limited to, incorrect gas type, or incorrect gas pressure)
- improper maintenance
- incorrect sizing
- any other causes other than defects in materials or workmanship

This Warranty does not apply to any product whose serial number or manufacture date has been defaced.

Limitation on warranties

No one is authorized to make any other warranties on behalf of Rinnai America Corporation. Except as expressly provided herein, there are no other warranties, expressed or implied, including, but not limited to warranties of merchantability or fitness for a particular purpose, which extend beyond the description of the warranty herein and further Rinnai shall not be liable for indirect, incidental, special, consequential or other similar damages that may arise, including lost profits, damage to person or property, loss of use, inconvenience, or liability arising from improper installation, service or use. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you.

Any implied warranties of merchantability and fitness arising under state law are limited in duration to the period of coverage provided by this limited Warranty, unless the period provided by state law is less. Some states do not allow limitations on how long an implied Warranty lasts, so the above limitation may not apply to you.

This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

PRIVACY NOTICE: Rinnai sometimes shares customer contact information with businesses that we believe provide products or services that may be useful to you. By providing this information, you agree that we can share your contact information for this purpose. If you prefer not to have your information shared with these businesses, please contact customer service and ask not to have your information shared. We will however, continue to contact you with information relevant to the product(s) you registered and/or your account with us.

If you have any questions or feel that the manual is incomplete contact Rinnai at 1-800-621-9419.

NOTES

A tradition of

TRUE RELIABILITY.

For nearly 100 years, we at Rinnai have been fiercely committed to delivering nothing less than a superior experience at every touch point.

Beyond manufacturing the highest quality products, our people stand behind all that we make—before, during and long after installation. From the 24/7/365 technical support for professionals, to our national network of independent installers for homeowners, to on-staff engineers who can assist with choosing the right products and sizes—we're inspiring confidence right along with the comfort our solutions provide.



Learn more about Rinnai high-performance Tankless Water Heaters, Hybrid Tank-Tankless Water Heaters, Boilers, Vent-Free Fan Convectors and Direct Vent Wall Furnaces at www.rinnai.us

Rinnai®

Rinnai America Corporation • 103 International Drive, Peachtree City, GA 30269

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RC-691-51(00)
900000001(02)
11/2014