Rinnai rl94 service manual

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Search Now Find the nearest Rinnai trained Advanced Comfort Expert who sells, services and installs Rinnai products in your area. Whether you are a customer, owner, dealer or professional, there may be questions we can have to help you online. We have compiled a set of answers to the questions that we hear most often when it comes to non-tank water heaters, hybrid water heaters or home heating systems. You can find your answer, or if you haven't found your question, please contact our customer service center. VIEW BUYERS GUIDE - Do not store or use gasoline or other flammable vapors and liquids in close proximity to this or any other device. - WHAT to do if you SMELL GAS - Don't try to light any appliance. Do not touch any electric switch; Don't use the phone in your building. Call the gas supplier immediately from your neighbor's phone. Follow the gas supplier's instructions. If you are unable to contact the gas supplier, call the fire department. Installation and maintenance must be carried out by a qualified installer, service agency or gas supplier. INSTALLER Manual: Leave this manual with the device. CONSUMER: Save this guide for future help. Content table..... 2 Consumer safety information ... 4 Operating instructions..... 6 Service..... 11 error codes..... 12 Installation instructions..... 16 Consumer support..... 44 French version..... 47 RL75i ..... REU-VB2528FFUD-US RL94i REU-VB2735FFUD-US R98LSi ..... REU-VA3237FFU-US R98LSi-ASME .... REU-VA3237FFU-ASME Direct Vent Tankless Water Heater FOR INDOOR APPLICATIONS ONLY Register your product by phone www.rinnairegistration.com or call 1-866-RINNAI1 (746-6241) ANS No21.10.3 - CSA 4.3 If the information in these instructions does not follow accurately, a or an explosion can cause property damage, bodily injury or death. WARNING VB Series (RL75i, and RL94i) are certified for installation in manufactured (mobile) homes. Page 22 VB series Indoor LS Spec

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3 Definitions of consumer security information security..... 4 Behavior of safety and practice..... 4 Security features..... 4 Description of the operation..... 4 Operating Instructions Temperature Controller..... 5 Features are available on temperature controllers..... 6 How to set the temperature..... 7 Setting up the temperature controller..... 7, 8 Temperature Options without a temperature controller..... 8 Setting the volume of sound (Voice Fast)..... 8 Using Water Smart /Bath Fill Feature..... 9 Review..... 9 Installing the volume of water..... 9 Filling Tub..... 10 Installation of the controller for mute..... 10 Hours Installation..... 10 Cleaning maintenance..... 11 Vent system..... 11 Motors..... 11 Temperature..... 11 Lime / Scale of build-up..... 11 Accumulation of snow..... 11 Visual inspection of the flame..... 11 Errors Cheats Error Code Table..... 12.13 Problem Shooting on Common Issues..... 14 Access to operational information..... 14 Water quality..... 14 Rinse of the heat-throb (..... 15 Installation instructions..... 16 General instructions..... 16 Gaps from the device..... 17 Joining the water heater..... 17 Electrical connection..... 18 Indication of an error or switch control of the air handler ... (RL75i, RL94i only)..... 18 Gas Pipelines General Instructions..... 18 Tube size procedure - Example..... 19 Water Pipeline of valve insulation and pressure of the aid swaths..... 20 Pipeline Requirements..... 21 Pressure Relief Valve Requirements..... 21 Freezing protection 21, 22 Freeze The Protection Pipelines..... 23 Recommended pipelines for the base installation .. 24 Recommended pipelines for system circulation..... 25 Venting Instructions Consumption / Exhaust Guidelines..... 26 Condensation..... 26 Maximum length of Vent..... 27 Vent Foods..... 28 Flue Terminal Clearances (ANS No 21.10.3, CSA 4.3)..... 29 Additional clearances - Vent Terminal..... 30 Flue Installation - Concentric Venting (RL75i, RL94i)..... 31 Flue Installation (R98LSi, R98LSi-ASME)..... 32, 33 Connecting several water heaters..... 34 High-altitude installations..... 34, 35 Temperature Controller Installation Location..... 36 Configurations..... 36 Cable lengths and size..... 36 Mounting controller..... 37 Instructions for operation..... 38 Technical data pressure curve..... 39 Data stream output..... 39 Cosmic heating..... 40 Dimensions..... 41 Ladder Charts..... 42, 43 Consumer Support Guarantee Information..... 44 Limited warranty..... 44, 45 State rules..... 46 French version..... 47-68 Content Table This model was built in accordance with the requirements of the ASME Boiler and Press Courts

Code and received a certificate of approval from the National Council. The heat on this block has the NB and HLW brands. RCalifornia Proposition 65 lists chemicals known to the state that cause cancer, birth defects, death, serious illness or other reproductive injuries. This product may contain such substances, be their origin from the burning of fuel (gas, oil) or components of the product itself. Page 312 VB Series Indoor LS Guide Codes Bug Rinnai water heater has the ability to check your own work continuously. If a malfunction occurs, the error code flashes on the temperature controller display. This helps diagnose a malfunction and can allow you to overcome the problem without calling the service. Please identify the code that is displayed when the service question is asked. Code Fault Remedy 02 No burner work during the Freeze Protection Service Call 03 Power outages while filling the bath (Water will not leak flow Power return). Turn off all hot water taps. Click ON/OFF twice. 10 Air deliveries or exhaust blockages Ensure Rinnai-approved ventilation materials are currently in use. Make sure that nothing blocks the entrance of the chimney or exhaust. Check all ventilation components for the right connections. Make sure the length of the ventilation is within. Make sure the condensed collar has been fitted correctly. Check the drop switches are installed properly. Check the fan for a lock. 11 No ignition Make sure the gas is turned on on the water heater, gas meter, or cylinder. Make sure the type of gas and pressure is correct. Make sure the gas line, meter and/or regulator is properly sized. Bleeding all the air from the gas lines. Check the drop switches are installed properly. Make sure the device is properly grounded. Turn off the ™ or MSA controls to isolate the issue. Make sure the ignition works. Check the ignition wiring to use for damage. Check the gas salt valves for open or short circuits. Remove the lid of the burner and make sure that all the burners sit properly. Remove the burner stove and inspect the surface of the burner for condensation or debris. 12 Fire failure Make sure the gas is turned on on the water heater and gas meter. Check for obstacles in the chimney socket. Make sure the gas line, meter and/or regulator is properly sized. Make sure the type of gas and pressure is correct. Bleeding all the air from the gas lines. Make sure that a proper Rinnai ventilation material has been installed. Make sure the condensed collar has been installed properly. Make sure the length of the ventilation is within. Check the drop switches are installed properly. Make sure the device is properly grounded. Turn off the keyboard. Turn off the ™ or MSA controls to isolate the issue. Check the power source for free connections. Check the power source for proper voltage and voltage swings. Make sure the wire of the flame rod is plugged in. Check the rod flame to build up the carbon. Turn off and reconnect all transactions on the PC block and board. Check dc shorts on the components. Check the gas salt valves for open or short circuits. Remove the burner stove and inspect the surface of the burner for condensation or debris. Check the ground wire for the PC board. Some of the checks below may need to be made a qualified service professional. Call a maintenance professional for any remedy that includes gas or electricity. Call a specialist If you have any doubts or reservations about executing the remedy yourself. WARNING Page 4 - Do not store or use gasoline or other flammable vapors and liquids in close proximity to this or any other appliance. - WHAT to do if you SMELL GAS - Don't try to light any appliance. Do not touch any electric switch; Don't use the phone in your building. Call the gas supplier immediately from your neighbor's phone. Follow the gas supplier's instructions. If you are unable to contact the gas supplier, call the fire department. Installation and maintenance must be carried out by a qualified installer, service agency or gas supplier. Operation and installation INSTALLER: Leave this guide with the device. CONSUMER: Save this guide for future help. Content table..... 2 Consumer safety information ... 4 Operating instructions..... 6 Service..... 11 error codes..... 12 Installation instructions..... 16 Consumer support..... 44 French version..... 47 RL75i ..... REU-VB2528FFUD-US RL94i ..... REU-VB2735FFUD-US R98LSi ..... REU-VA3237FFU-US R98LSi-ASME .... REU-VA3237FFU-ASME Direct Vent Tankless Water Heater FOR INDOOR APPLICATIONS ONLY Register your product by phone www.rinnairegistration.com or call 1-866-RINNAI1 (746-6241) ANS No21.10.3 - CSA 4.3 If the information in these instructions is not accurately complied with, fire or explosion can cause property damage, personal injury or death. WARNING VB Series (RL75i, and RL94i) are certified for installation in manufactured (mobile) homes. Page 510 VB Series Indoor LS Guide To Settings the Controller to disable to eliminate the beeps at the key press or turn on the beeps back, press and hold both buttons ▲ and until the beep is heard (approximately 5 seconds). Models MC-91 and MCC-91 Using Water Smart/Bath Filling feature Installing clocks MC-100V Click function twice for 10 seconds to set the watch. Click on the ▲ or button to reach the desired time. The clock on the BC-100V automatically shows the time that was set on the MC-100V. Filling Pipe 1. Click Water Smart / Bath Fill once. The button will illuminate, and the tone will sound. 2. Voice request will announce: Hot water system is ready. Open the hot water tap. Make sure the amount of water is set. Link to the water volume installation on the previous page. Open the hot water faucet. The In usage indicator will be illuminated on the MC-100V and BC-100V controllers. Hot water will start flowing. 3. When a predetermined volume of water was produced then 4. Turn off the hot water tap and press the bath filling button. The water heater will not allow hot water to flow from any source until the Water Smart/Bath Fill button is pressed. The light button will come out. HOTCOLDON! To stop filling the tub before it finishes to stop the flow of water during the bath filling function, click the Water Smart/Bath Fill button. The button will flash, and the voice request will announce: Hot water is not available. Turn off all hot water taps and press the Bath Filling button. Follow the voice hint instructions. NOTE: the flow of water will stop, the Water Smart / Bath Fill button will hang (tone will sound voice hint The bathtub is complete. Turn off the bath with the hot water tap and press the bath filling button. When other cranes are open during time Bath filling function, any hot water flowing elsewhere, subtract from the total amount of water for the bath. For example, if the bath filling function is installed at 50 gallons and 5 gallons of hot water is used elsewhere during the filling period, the bathtub will fill with only 45 gallons. LOOK OUT FOR HOTCOLDON! The MC-91 In Use does not light up while the bath fill function is running. NOTICE Page 6 VB Series Indoor LS Guide 11 WARNING Turn off the power supply, manual gas valve and manual water control valve when maintaining the device. Repairs and maintenance must be performed by a qualified service professional. The device must be inspected annually by a qualified service professional. Check the proper work after maintenance. Cleaning is essential to ensure that the control compartments, burners and circulating air passages of the device are clean. Clean as follows: 1. Turn off and cut off the electricity. Allow to cool down. 2. Close the water by disabling the valves. Remove and clean the water intake filter. 3. Remove the front panel by removing 4 screws. 4. Use air under pressure to remove dust from the main burner, heat heater, and fan blades. Do not use damp cloth or spray cleaners on the burner. Do not use volatile substances such as benzene and thinners. They can ignite or disappear the paint. 5. Use a soft dry cloth to wipe the cupboard. The Vent System ventilation system must be inspected at least annually for debris or damage. Motors motors are constantly lubricated and do not need periodic lubricant. Keep the fan and engine free of dust and dirt by cleaning annually. Temperature Controller Use a soft damp cloth to clean the temperature controller. Do not use solvents. Lime/Scale If you get an LC error code, refer to the procedure, Flushing the heat heater. Check the water quality section to see if your water needs to be treated or conditioned. (When you check the history of the 00 service code, it's replaced with LC.) A visual inspection of the flame burner should evenly flame across the surface when working properly. The flames should burn with clear, blue, stable flames. See the breakdown of the burner parts for the location of the view ports. The pattern of flame should be, as shown in the pictures below. Accumulation of snow Keep the area around the chimney terminal without snow and ice. The device will not function properly if the air or exhaust gases are obstructed (blocked or partially blocked) by obstacles. Service Page 7 VB Series Indoor LS Guide 13 Fault Code 16 Over Temperature Warning Check for restrictions in airflow around the unit and ventilation terminal. Check for low water flow system that causes short cycling. Check foreign materials in the combustion chamber and/or exhaust pipes. Check for clogged heat exchange heat exchange heat exchange heat exchange heat exchange 32 Outgoing water temperature sensor Check the sensor wiring for damage. To measure the stability of the sensor. A clean scale-building sensor. Replace the sensor. 33 Heat Detector Outgoing Temperature Sensor Checking a faulty wiring sensor for damage. To measure the stability of the sensor. A clean scale-building sensor. Replace the sensor. 34 Check the fault of the combustion air temperature sensor for restrictions in the air flow around the unit and ventilation terminal. Check the sensor wiring for damage. To measure the stability of the sensor. A clean scale-building sensor. Make sure the blade of the fan is tight on the engine shaft and is in good condition. Replace the sensor. 52 Modulation Solenoid Valve Signal Abnormal gas modulation check solenoid valve wiring to use for free or damaged terminals. Measure the resistance of the valve coil. 61 Burning Fan Failure To Ensure the fan will turn loose. Check the wiring used for the engine for damaged and/or free connections. Measure the engine winding resistance. 65 Water Flow Management Faulty Water Flow Control Valve failed to close during the bath filling function. Turn off the water immediately and stop filling the bathtub. Contact a qualified or licensed state contractor to maintain the appliance. 71 Solenoid Valve Circuit Fault replaces the computer board. 72 Flame sensing malfunction device ensure flame rod touching flames when unit fires. Check all the wiring of the rod flame for damage. Remove the rod flame and check for carbon accumulation; clean with sand paper. Check inside the burner chamber for any foreign material blocking the flame on the flame rod. Measure the output of the microamper of the sensor chain with real flame. Replace the fiery rod. LC Scale Build-up in Heat Exchanger (when you check the history of the 00 service code is replaced by LC) Flash heat exchanger. Check out the instructions in the guide. Replace the heat. NOTE: The LC code is the only error code that will allow the unit to continue working. The display will alternate between the LC code and the temperature. The controller will continue to honk. The LC code will be reset if the power is off and then turned on. There is no code Nothing happens when the water flow is activated. Clean water filter. At the new installations to provide hot and cold water lines are not abolished. Check to see if there's any bleeding. Isolate the block from the building by turning off the cold water line to the building. Isolate the circulating system, if any. Open the collapse valve; If the water is flowing, there is bleeding in your plumbing. Make sure you have at least the minimum flow speed required for the fire station. Make sure the turbine rotates freely. resistance to the water flow control sensor. Check dc shorts on the components. 31 Sensor burner Error Measure Resistance Sensor. Replace the sensor. 73 Burner Sensor Circuit Error Check wiring sensor and PC board for damage. Replace the sensor. 14 Heat fuse Check the type of gas unit and make sure it corresponds to the type of gas used. Check for restrictions on the flow of air around the block and the ventilation terminal. Check for a low flow in a circulating system that causes short cycling. Make sure the dive switches are set in the right position. Check foreign materials in the combustion chamber and/or exhaust pipes. Check the heat for cracks and/or disconnections. Check the surface of the heat in hot spots that indicate a blockage due to the build-up of scale. Check out the instructions in the guide for flushing the heat. Measure the stability of the safety chain. Make sure the high fire and low fire pressure are manified correctly. Check for an inappropriate product conversion. Page 8 VB Series Indoor LS Error Codes Guide 3 Rinnai Specs is constantly updating and improving products. This, the specifications can be changed without notice. The maximum gas pressure in the entrance should not exceed the value specified by the manufacturer. The minimum value listed for input adjustment purposes. Model RL75i RL94i R98LSi R98LSi-ASME Minimum Gas Consumption Btu/h 180,000 199,000 (NG) 190,000 (LP) 237,000 Maximum Gas Consumption Btu/h 180,000 199,000 (NG) 190,000 (LP) 237,000 Hot water capacity (Min - Max) * 0.4 - 7.5 GPM (1.5 - 28.5 L/min) 0.4 - 9.4 GPM (1.5 - 35.5 L/min) 0.6 - 9.8 GPM (2.4 - 37.1 l/min) Hot water capacity (45° F rise) 6.5 GPM (25.0 L/min) 7.1 GPM (27.0 L/min) 8.5 GPM (32.2 L/min) Default Temperature Setting (no controller) 125º F (49º C) Temperature Controller Default Setting 104º F (40º C) Maximum Temp Setting (commercial **) 160º F (71º C) 185º F (85º C) Maximum Temp Setting (residential) see Temperature Ranges for more information Selectable at 120º F (49º C) or at 140º F (60º C) 140º F (60º C) Minimum Temperature Setting 98º F (37º C) Weight 51 lb (23 kg) 53 lb (24 kg) 55 lb (25 kg) Efficiency Thermal Efficiency : 84.0% Noise Level 49 dB Electric Consumption Normal 76 W 83 W 99 W Standby 2 W Anti-frost Protection 184 W 116 W By-Pass Control Fixed Electronic Minimum Gas Supply Pressure Natural Gas 5.0 inch W.C. Propane 8.0 inches W.C. Maximum natural gas pressure 10.5 inches W.C. Propane 13.5 inches W.C. Type of Direct Vent instrument, the temperature is controlled by the continuous flow of gas hot water system. Operation with or without a remote control, installed in the kitchen, bathroom, etc. Approved type of natural gas or propane - Make sure the unit corresponds to the type of gas supplied at the Power Connection installation: 3/4 MNPT, Cold Water Entry: 3/4 MNPT, Hot Water Exit: 3/4 MNPT Direct Ignition System Electronic Ignition Electrical Compounds Device: AC 120 Volt, 60 Hz. Remote Control: DC 12 Volt (Digital) Water Temperature Simulation Feedfor. Water pressure Minimum water pressure: 20 PSI (Recommended 30-80 PSI for maximum maximum water pressure 150 PSI Cable control non-polarized two main cables (minimum 22 AWG) Energy Star Skilled Yes Yes Yes No (not applicable) Certified for installation in manufactured (mobile) homes Yes No No No No Factor: 0.82 - The minimum flow may vary slightly depending on the temperature and temperature of the water. - for commercial and hydron applications requiring higher temperatures Page 9 VB Series Indoor LS Guide 23 Pressure Relief Valve3/4 Ball Valve3/4 UnionCheck ValveSPressure Regulator circulating PumpSolenoid ValveBoiler Drain ValveKEYGasSupplyMinimum3 /4ColdWaterSupplyLineMinimum 3/4 Hot WaterSupply LineS1/2 Minimum usually OpenSolenoid Valve3/4 Minimum normally closed Salt ValveRoute on the floor DrainVacuumBreakerNOTE: ALL pipes and fittings, shown below the dotted line, must be located inside a house or building. NOTE: Heat trail ALL plumbing and fittings located on the shore of the house (attic, space scanning) or construction structure. (All water pipes and fittings are shown on the dotted line in the picture.) RinnaiWater Heater3/4GasConnectionS The vacuum switch line should be located on the side of the building structure. It's not an engineering drawing. It is intended only as a guide, not as a replacement for professionally designed draft drawings. This redrawing is not intended to describe the complete system. The subcontractor/engineer must determine the necessary components of the iconfiguration of a particular installed system. This drawing does not imply compliance with the local requirements of the building code. The contractor/engineer is required to ensure that the installation is not comscripted by all local building codes. Confer with local buildingofficials before installation. The freeze protection guarantee does not cover the damage due to freezing. In the event of a power failure at temperatures below zero, the water heater must be drained from the entire water to prevent damage from freezing. The device can be drained manually. However, Rinnai strongly recommends that to drain the salt-like valves will be installed that will automatically deplete the device if power is lost. Rinnai also recommends installing a jump protector with terminals that allows solenoid valves to work if the device is disabled due to an error code. When the electric water heater fails, 3/4 of the salt-shaped valve closes (stop the flow of water into the heater) and 1/2 of the salt-shaped valve opens (allows the water heater and associated drain pipes to drain. NOTICE Page 1022 VB Series Indoor LS Guide If the water heater will not be used during possible frosty weather, it is recommended that the water inside the water heater be drained. Freeze the Guide to drain protection water heater WARNING To avoid burns, wait until the equipment cools down before draining the water. The water in the appliance will remain hot it's off. For manual draining: 1. Turn off cold water and gas supply. 2. Turn off the temperature controller. 3. Turn off the water heater. 4. Open the hot water drain connector on the hot socket. 5. Remove the water filter to drain the cold water. To resume normal operation: 1. Confirm that all water draining tubes have been removed, that the gas supply is off, and that all taps are closed. 2. Screw in a hot water drain fork. 3. Screw in a water filter in cold water entrance. 4. Open the cold water supply. 5. Open the faucet and confirm that the water is flowing and then close. 6. Turn on the power. 7. Confirming that the temperature controller is off, turn on the gas supply. 8. Turn on the temperature controller. Running a small amount of water through a water heater to prevent freezing if the temperature exceeds the water heater's ability to freeze to protect itself, or if power is lost, the next steps can prevent the water heater and external piping from freezing. (Units associated with MSA or ECEMEN should be drained to prevent freezing if they are not in use.) 1. Turn off the water heater. 2. Close the gas valve. 3. Reduce the flow to about 0.1 gal/min or where the flow is about 0.2 inches thick. When the water heater or external pipelines froze 1. Do not exponate the water heater if it or the external pipelines are frozen. 2. Close the gas and water valves and turn off the power. 3. Wait until the water thaws. Check by opening the water valve. 4. Check the water heater and pipelines for leaks. HOTCOLDON!0.1 gal/min or about 0.2 inches thick - Use a wrench or other tool to unscrew the hot water drain plug. Water Filter Hot Water Outlet Hot Water Drainage Fork - Cold Water Entry If the insulation kit is installed, remove the drain lids on both insulating valves and open both valves over the lids (blue and red valve handles). If the insulation kit has been used to drain the device, replace the drain lids and close both insulation valves (blue and red valve handles). Page 11 VB Series Indoor LS Guide 21 - Manual water control valve must be placed in the water entering the compound with the Rinnai water heater before it is connected to the water line. Unions can be used on both hot and cold water lines for future maintenance and power outages. Pipelines (including soldering materials) and components connected to the device must be approved for use in drinking water systems. Clear the water line to remove all debris and air. Debris will damage the Rinnai water heater. Toxic chemicals, such as those used to purify boiler water, should not be injected into drinking water used to heat the premises. If the device is used as a drinking water, it should not be connected to a system that was previously used with an unpotated water heater. Make sure the water filter on the Rinnai water heater is clean and installed. Approved pressure pressure The valve is required by the American National Standard (ANSI No.21.10.3) / Canadian Standard (CSA 4.3) for all water heating systems, and should be available for maintenance. The discharge valve must meet the standard for reset valves and automatic gas shutdown devices for ANSI No21.22 hot water systems and/or standard temperature, pressure, temperature and pressure valves and vacuum pressure valves, CAN1-4.4. The relief valve should be estimated at up to 150 psi and at least up to the maximum BTU/hr of the device. The discharge from the pressure valve should be pipes on the ground or into the drainage system to prevent exposure or possible dangers of burns to humans or other plants or animals. Follow the local codes. Water discharged from the relief valve can cause severe burns instantly, scalding or death. The pressure valve must be manually administered once a year to check the correct operation. In accordance with the manufacturer's instructions, the reset valve must be added to the hot water line and near the hot water outlet. DO NOT develop any other valve type or turn off the device between the relief valve and the water heater. Do not plug in the relief valve or install any reduced fittings or other restrictions in the relief line. The relief line should provide a complete drainage of the valve and line. If the reset valve is periodically discharged, this may be due to the thermal expansion of the closed water supply system. Contact your water supplier or your local plumbing inspector about how to fix this situation. Don't plug in the relief valve. Neither Rinnai nor the American National Standard (ANSI No.21.10.3) / Canadian Standard (CSA 4.3) require a combined temperature and valve to relieve pressure for this device. However, local codes may require a combined temperature and valve to relieve pressure. Pressure Relief Valve Requirements Pipeline Requirements Freezing Protection Features include electrical heating elements. Freezing protection can be disabled if electricity is not supplied, or if there is an error preventing the water heater from functioning. Loss of protection from freezing can damage water from heat or plumbing rupture. Installation of automatic discharge of salt-shaped valves is optional. However, Rinnay strongly recommends installing these valves to prevent damage from freezing in case normal freezing protection is to become disabled. Any damage caused by the product as a result of the freeze is not covered by the warranty. In addition, the salt-shaped valves must be connected electrically to the jump tread with the terminals. This allows salt-shaped valves to work if the water heater is disabled due to an error code. the valves and tread jump with terminals are available for purchase in Rinnai. Freezing protection features won't interfere with pipeline pipeline Rinnai recommends heat tracing and insulation of hot and cold water pipes connecting the blocks. The tube coating casings can be packed with insulation for additional freezing protection. With electric power, Rinnai water heaters will not freeze when the outdoor air temperature is as cold as -22oF (-30oC) for internal models or as cold as -40F (-20oC) for outdoor models when protected from direct wind impact. Because of the wind-cold effect, any wind or air circulation on the block will reduce its ability to freeze protection. Freeze Protection Page 1220 VB series Indoor LS Manual insulation valves and pressure relief Valve (RL75i and RL94i) Water piping insulation valves provide the ability to insulate the water heater from the plumbing structure and allow quick access to the flash heat heater. Check with local codes to determine if pressure and temperature valve relief is required. The included valves meet the American National Standard (ANSI No.21.10.3) / Canadian Standard (CSA 4.3) and are approved by ANSI/NSF 61 for drinking water. Instructions for installing insulation valves: 1. Wrap the ends of the threaded water entry and socket on the water heater tank, as well as the threaded end of the approved pressure relief valve with a minimum of 5 teflon wraps® tape. 2. Screw the pressure valve in 3/4 of the filater opposite the wing handle on the hot water valve. (Red drainage pen) (see Valve's Pressure Relief section for proper installation requirements) 3. Loosen the 3/4 union nut on the hot water valve and connect to a hot water socket on without a water heater. If the nut is removed, make sure you rearrange the tail exactly to the valve and that the black washer is positioned so that the raised metal edge of the valve is inside the washer. 4. Align the direction of hot water runoff in the right position. 5. Tighten the assembly of the union to the hot water valve using approximately 15 feet of torque. 6. Repeat steps 3-5 for the cold water valve. (BLUE drainage handle) to connect to the COLD water entrance on a water heater without tanks. 7. Connect INLET on the COLD water valve to main source water supply. 8. Connect the OUTLET on the hot water valve to the HOT WATER plumbing system. 9. Make sure that both handles of the drainage valve lever are in a closed position (perpendicular to the drainage part of the body). Valve Insulation (cold) 107000081 Valve Isolation (Hot) 107000083 Pressure Relief Valve (PRV) 107000085 Valve Aid Pressure Installation Instructions: PRV must be connected by threading link opposite the wing handle on a hot water valve (designated RED drainage handle) or threaded communication on the side of the relocation installation over the hot water valve. The installation should maintain a 3/4 port size without the valve being disconnected or the line between the line is limited and PRV. The discharge line from the PRV should step down and stop 6 above the drains, where the discharge will be clearly visible. The end of the line discharge should be simple (unreadable) and at least 3/4 in diameter. The discharge line material must be waterable to at least 180o Fahrenheit and can be no more than 30 feet long and contain no more than 4 elbows or bends. No valve of any type can be installed in the discharge line of the pressure valve. Relief pressure valve maintenance: To properly care for this approved pressure relief valve, it is recommended that the valve works manually once a year. Precautions will be taken to discharge potentially burnt hot water under pressure. Make sure the discharge is there for the flow. Contact with your body or other property can cause damage or harm. Please note that only the PRV in this package is certified by CSA International as an approved item. Valve Aid Pressure (PRV) B PRV discharge output C Hot Ball valve drainage pen D Cold Ball valve drainage pen B C D Page 13 24 VB Series Indoor LS Guide Recommended Pipelines for Base Installation GasSupply3/ 4 ColdWaterSupplyLine3/4 Water HotlineRinnaiVodokanalToraRinnaiEquipment ListRinnaiWater HeatersRIK-KIT (optional) (3/4 Fittings Include:2 Trade Unions, 2 ball Valves, 2D Valves and 1 valve to relieve pressure.) TY113/4GasConnectionFor Building FixturesPressure Valve3/4 Ball Valve3/4 UnionCheck ValveSPressure RegulatoryCirculating PumpSolenoid ValveBoiler Drain ValveKEYThis is not a projected pattern. It is intended only as a guide, not as a replacement for professionally designed draft drawings. This redrawing is not intended to describe the complete system. The subcontractor/engineer must determine the necessary components of the iconfiguration of a particular installed system. This drawing does not imply compliance with the local requirements of the building code. The contractor/engineer is required to ensure that the installation is not comscripted by all local building codes. Confer with local buildingofficials before installation. Why do we provide the Rinnai water heater RL94I water heater guide in PDF file format? PDF is incredibly convenient and easy to open and read to everyone, whether they have a computer or a Mac. The PDF can be compressed into a file size that is easy to send via email while maintaining the quality of the images. The PDF file can be incredibly secure, as you can customize passwords, digital signatures and even watermarks. PDF allows you to enter many different types of content, including images, animations, 3D models, hyperlinks and buttons. Page 144 VB Series Indoor LS Guide TO WARNING Behavior and Safety Practice - Keep the area around the device clear and free from materials, gasoline and other vapors and liquids. Any changes to the device or its control can be dangerous and void the warranty. Always check the temperature of the water before entering the shower or bath. Do not use this device if any part has been underwater. Call the service's qualified specialist immediately to inspect the device and replace any part of the control system and any gas control that has been underwater. Safety Definitions Is a security warning symbol. This symbol alerts you to potential dangers that could kill or harm you and others. Points to an imminently dangerous situation that, if left unavoidable, will result in death or serious injury. Points to a potentially dangerous situation that, if left unavoidable, could lead to death or serious injury. Points to a potentially dangerous situation that, if left unavoidable, can lead to minor or moderate severity. It can also be used to alert you to unsafe practices. DANGER CAUTION WARNING Consumer Safety Features - Overheating: The device automatically shuts down when the device exceeds a given temperature. Flame failure: The device automatically shuts down if the flame of the burner is not enough. Power failure: The appliance will turn off the gas if it loses power. Power surge fuse: The glass fuse protects against excessive current. If the fuse blows, all the lamp will be turned off. The Rinnai water heater is one of the most advanced water heaters available. Provides a continuous supply of hot water at a given temperature. This device is a straight vent, where the air is imported from the outside, and the combustion gases are exhausted from the outside. While electricity, water and gas supplies are connected, the Rinnay water heater produces hot water when the hot water tap is open. Ignition is electronic. While the water heater is not in use, pilot light gas is not used. Installing a temperature controller is highly recommended. The temperature controller can set the temperature in a certain range and can provide error codes to diagnose any problems. The temperature of the outgoing hot water is constantly monitored. The Rinnai water heater can regulate the flow of water to maintain the temperature. The flow of water can vary from summer to winter due to the difference in groundwater temperature. Description of Operation Page 1514 VB series Indoor LS Shooting Guide to general issues I have no hot water when I open the faucet. Make sure there is gas, water and electricity in the Rinnai water heater (electricity and gas are included Ino. When I used hot water, the water cooled down. If you adjusted the flow from the faucet to reduce it, you may have gone below the minimum flow required. The Rinnai water heater requires a minimum flow speed to work. (See the specification page for the flow speed of your model.) If you're having trouble setting higher temperatures, Rinnai recommends reducing the setting temperature. Choosing a temperature closer to what is actually used on the faucet will increase the amount of hot water supplied to the faucet, due to less cold water mixing on the fixture. White smoke comes out of the exhaust. In cold weather, when the exhaust temperature is much hotter than the outside air, the exhaust gases condense, producing water vapor. When I open a hot tap, I don't immediately get hot water. Hot water must travel through the water pipe from the Rinnai water heater to the faucet. The period of time for hot water to reach your device is determined by the amount of water in the water system between the water heater and the fixture, the water pressure, and the speed of the device's flow. After I turn off the tap with hot water, the fan on the Rinnai water heater continues to work. The fan is designed to continue working for a short time after the water flow stops. This is done to ensure constant water temperatures during a rapid start and stop, as well as exhausting any residual gas chimney products from the block. Consideration of water heater care should include an assessment of water quality. If the water quality exceeds the target levels set in the table, you can treat or condition the water. Source: Part 143 National Rules of Secondary Drinking Water Maximum Level Total Hardness up to 200 mg /L Aluminum - up to 0.2 mg / L chloride - up to 250 mg / L Copper - up to 1.0 mg / L Iron - up to 0.3 mg / L Manganese 0.... 05 mg/l pH - 6.5 to 8.5 TDS (Total dissolved solids) - up to 500 mg/L zinc - up to 5 mg /L Of operating information to display the latest error codes click and hold the On/Off button for 2 seconds. When you're running the Turn/Turn button, press ▲ button. The last 9 error codes will blink one by one. To get out of this mode, click on/off▲ as before. To display the flow of water through the water heater, press and hold the ▲ button for 2 seconds and without releasing the ▲ button turn on/off. To display the water temperature press in the socket and hold the I button for 2 seconds and not release the turn on/off button. Models MC-91 and MCC-91 Page 16 VB Series Indoor LS Guide 15 Water Heater Relief Valve3/4 Ball Valve3/4 Union ValveCheckSPressure Regulator circulating PumpSolenoid ValveBoiler drainage The washing of the heat bomb (error code: LC or 00) error code LC or 00 indicates that the device starts lime and should be washed away. Failure to rinse the appliance will damage the heat. The damage caused by the accumulation of lime is not covered by the device's warranty. After flushing, reset the LC malfunction code by disabling the device's power and turning the power back on. 1. Power outage to the water heater. 2. Close the valves shut down on hot and cold water lines (V3 and V4). 3. Connect the pump socket hose (H1) to the cold water line on the service valve (V2). 4. Connect the drainage hose (H3) to the valve service (V1). 5. Pour 4 gallons of undiluted virgin, food variety, white vinegar in a bucket. 6. Place the drainage hose (H3) and hose (H2) at the pump entrance into the cleaning solution. 7. Open both service valves (V1 and V2) on hot and cold water lines. 8. Work the pump and allow the cleaning solution to circulate through the water heater for 1 hour at a rate of 4 gallons per minute (15.1 liters per minute). 9. Turn off the pump. 10. Rinse the water heater cleaning solution as follows: a. Remove the loose end of the hose drainage (H3) from the bucket. B. Close the service valve, (V2), and open valve shut down, (V4). Do not disable the valve, (V3). C. Allow water to flow through the water heater for 5 minutes d. Close the service valve (V1) and open the valve shut down (V3). 11. Turn off all hoses. 12. C (V4) closed, remove the filter line on the cold water entrance and clean any residue. Place the filter back in the block and open (V4). 13. Restoring the water heater's electricity supply. Cleaning solution 4 gallons of undiluted virgin, food class, white vinegar. CLEAN THERMISTORS Remove and clean thermistors with a soft cloth or sponge after removing the O-ring. Page 17 VB Series Indoor LS Guide 5 Temperature Controller MC-91-1US and MCC-91-1US MC-91 controller MC-91 is a standard temperature controller that comes with a water heater. On indoor models, it is integrated into the front panel. The MCC-91 controller for commercial and hydro use requires higher temperatures. When the MCC-91 controller is connected, these higher temperatures are available on all controller models in the system. Check out the temperature range section. Dimensions (inches): 3.5 W x 4.75 H x 0.75 D TemperatureDisplayPriorityPriorityPriorityButton/OFFButtonIn UseIndicatorTemperatureSelection Why do we provide the Rinnai Water Heater RL94I Water Heater guide in PDF file format? PDF is incredibly convenient and easy to open and read to everyone, whether they have a computer or a Mac. The PDF can be compressed into a file size that is easy to send via email while maintaining the quality of the images