NORITZ

TANKLESS GAS WATER HEATER

Owner's Guide

Models : NC1991-OD
NC1991-DVC

FOR USE IN COMMERCIAL APPLICATIONS.

WARNING If the information in this manual 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.**

- **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 the gas supplier.**

Low NOx Approved
by SCAQMD
14 ng/J or 20 ppm
(Natural Gas Only)

Thank you for purchasing this Noritz Tankless Gas Water Heater.
Before using, please:
Read this manual completely for operation instructions.
Completely fill out the warranty registration card (included separately) and mail the detachable portion to Noritz America Corporation.
Keep this manual (and the remainder of the warranty registration card) where it can be found whenever necessary.
Installation must conform with local codes, or in the absence of local codes, the National Fuel Gas Code, ANSI Z223.1/NFPA 54.
Noritz America reserves the right to discontinue, or change at any time, the designs and/or specifications of its products without notice.

NORITZ America Corporation

SBA8883-1
Rev. 03/13

SBA8883

Important Safety Information-1

To prevent damage to property and injury to the user, the icons shown below will be used to warn of varying levels of danger.
Every indication is critical to the safe operation of the water heater and must be understood and observed. Potential dangers from accidents during installation and use are divided into the following four categories. Closely observe these warnings; they are critical to your safety.

■ Icons warning of risk level

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER	DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
CAUTION	CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

■ Other icons

Electric Shock.	High Temperature.	Be sure to do.	Ground.	
Prohibited	No flame.	Don't touch.	Don't disassemble the equipment.	Don't touch with a wet hand.

DANGER

Prohibited

Vapors from flammable liquids will explode and catch fire causing death or severe burns.

Do not use or store flammable products such as gasoline, solvents or adhesives in the same room or area near the water heater.

Keep flammable products:
1. **Far away from the water heater.**
2. **In approved containers.**
3. **Tightly closed.**
4. **Out of children's reach.**

Vapors:
1. **Cannot be seen.**
2. **Vapors are heavier than air.**
3. **Go a long way on the floor.**
4. **Can be carried from other rooms to the main burner by air currents.**

Prohibited

Hot Water Heater temperatures over 125°F (52°C) can cause severe burns instantly or death from scalding.

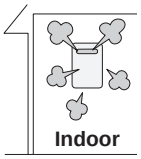
Children, disabled and elderly are at the highest risk of being scalded.
Feel water temperature before bathing or showering.
Temperature limiting valves are available, ask professional person.

(Continued)

(Continued)

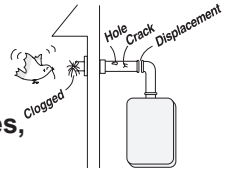
Prohibited

[NC1991-OD]
Do Not Install Indoors.
This will cause carbon monoxide poisoning and a potential fire hazard.



Prohibited

[NC1991-DVC]
Do not use the water heater if the concentric pipe is displaced, has holes, is clogged or is corroded.



Prohibited

Do not allow anyone to change the water temperature while hot water is being used.

To prevent scalding, do not change the water temperature to a higher setting.

⚠ WARNING

No flame.

A. This water heater 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 water heater area for evidence of leaking 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.**

C. Use only your hand to turn the gas valve knob. Never use tools. If the knob will not turn by hand, don't 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 water heater if any part has been under water. Immediately call a qualified service technician to inspect the water heater and to replace any damaged parts.

Be sure to do.

When a gas leak is noticed:
1. **Stop use immediately.**
2. **Close the gas valve.**

[NC1991-DVC]
3. **Open windows and doors.**

Be sure to do.

If you detect abnormal combustion or abnormal odors, or during an earthquake, tornado or fire:
1. **Turn off the hot water supply.**
2. **Turn off the power to the water heater.**
3. **Turn off gas and water supply valve.**
4. **Call the nearest Noritz agent.**

Prohibited

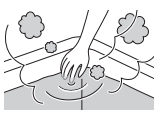
Explosion Hazard ;
If the temperature and pressure relief valve is dripping or leaking, have a qualified service technician replace it. Do not plug or remove the valve.

Failure to follow these instructions can result in fire or explosion, and personal injury or death.

High Temperature.

Check the temperature of the running hot water before entering the shower.

Check the temperature before stepping into the bath tub.



(Continued)

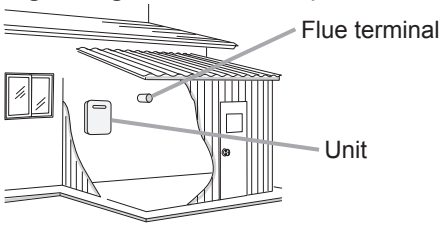
Important Safety Information-2

(Continued)

⚠ WARNING

Prohibited

Do not place the unit or the flue terminal in an indoor environment by means of adding walls and ceiling (Do not enclose using corrugated sheets, etc.)



Carbon monoxide poisoning or fire may occur as a result.

Prohibited

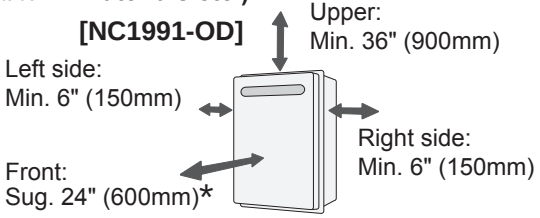
[NC1991-DVC]
Do not place outdoors

Rain may enter the unit or the burner fire may be blown by the wind, causing malfunction or fire as a result.

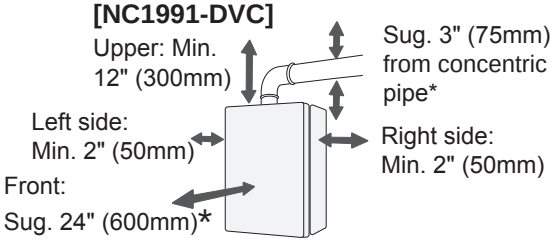
Be sure to do.

Leave the proper clearance between the water heater and nearby objects (trees, timber, boxes with flammable materials etc.).

[NC1991-OD]



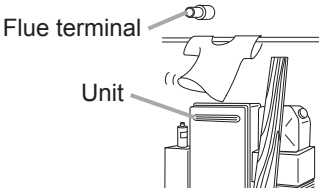
[NC1991-DVC]



* Indicates suggested clearances for maintenance.

Prohibited

Do not place combustibles such as laundry, newspapers, oils etc. near the heater or the flue terminal.



Prohibited

Carbon Monoxide Poisoning Hazard. Do not install this water heater in a mobile home, recreational vehicle or on a boat.

Prohibited

Do not use combustible chemicals such as oil, gasoline, benzene etc. in the near the heater or the flue terminal.

Prohibited

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

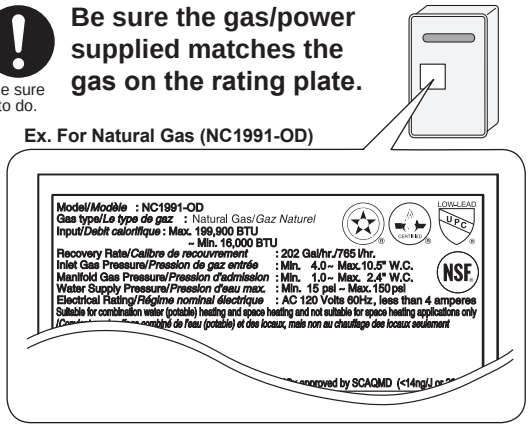
Prohibited

Do not place or use a spray can near the water heater or the flue terminal.

Be sure to do.

Be sure the gas/power supplied matches the gas on the rating plate.

Ex. For Natural Gas (NC1991-OD)



Be sure to do.

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

Prohibited

If this unit will be installed in a beauty salon or other location where hair spray or aerosols will be used, locate the unit in a separate area that is supplied with fresh air from outdoors.

Prohibited

Do not use hair spray or spray detergent in the vicinity of the heater.

Prohibited

Do not allow small children to play unsupervised in the bathroom.
Do not allow small children to bath unsupervised.

(Continued)

(Continued)


Don't touch with a wet hand.


Electric Shock.

Do not touch the power cord with wet hands.


Be sure to do.

Consult the nearest Noritz agent if the water heater location needs to be changed.


Don't disassemble the equipment.

Contact a qualified service technician for any necessary repairs, service or maintenance.


Be sure to do.

Contact Noritz before using with a solar pre-heater.

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 gas conversion kit shall be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction. The information in the instructions must be followed to minimize the risk of fire or explosion or to prevent property damage, personal injury, or death. The qualified service agency is responsible for the proper installation of this kit. The installation is not proper and complete until the operation of the converted appliance is checked as specified in the manufacturer's instructions supplied with the kit.

⚠ CAUTION


Ground.

Be sure to electrically ground the unit.


Be sure to do.

Keep power cord free of dust.


Prohibited

Do not use the water heater for other than hot water supply, shower and bath.


Prohibited

Do not use a broken or modified power cord. Do not bind, bend or stretch power cords.
Do not scratch, modify, or subject them to impact or force.


Be sure to do.

To prevent burns or scalding, turn off the power button and wait until the equipment cools before performing maintenance.


Prohibited

Do not turn off the water heater while someone is bathing.


Prohibited

Do not cover the water heater and the flue terminal, store trash or debris near it, or in any way block the flow of fresh air to the unit.


Prohibited

Do not install in locations where excessive dust or debris will be in the air.


Don't touch.

Do not touch the exhaust vent or the flue terminal and concentric pipe during or immediately after operation of the water heater.

[NC1991-OD]

[NC1991-DVC]

Important Safety Information-3

CAUTION

Do not drink water that has been inside the unit for an extended period of time. Do not drink the first use of hot water from the unit in the morning.

Clean the filter on the water inlet as frequently as required by the quality of your local water.

Keep the area around the unit clean.

If boxes, weeds, cobwebs, cockroaches etc. are in the vicinity of the unit, damage or fire can result.

Do not install the equipment where the exhaust will blow on walls or windows.

If the water supply is in excess of 12 grains per gallon (200 mg/L) of hardness, acidic or otherwise impure, treat the water with approved methods in order to ensure full warranty coverage.

Problems resulting from scale formation are not covered by the warranty.

Check ignition during use and extinction after use.

Do not run water through the unit when unit is not on.

When discharging hot water, make sure the unit is ON. If water is run through the unit with the unit OFF, water may condense inside the unit and cause incomplete combustion or damage to the internal electrical components.

For single-handle fixtures or valves, discharge water setting the handle completely to the water side.

This unit is only approved for installation up to 4500 ft. (1350m) above sea level.

For installations at higher elevations, contact Noritz America for Instructions.

Do not disassemble the remote controller.

Do not use benzene, oil or fat detergents to clean the remote controller.

This may cause deformation.

Do not get the remote controller wet.

It is not water resistant, water can cause damage.

Do not splash water on the remote controller. Do not expose the remote controller to steam.

Do not locate the remote controller near stoves or ovens, this may cause damage or failure.

Preventing damage from freezing (☞p.32)

Damage can occur from frozen water within the device and pipes even in warm environments. Be sure to read below for appropriate measures. Repairs for damage caused by freezing are not covered by the warranty.

Take necessary measures to prevent freezing of water and leakage of gas when leaving the unit unused for long periods of time. (☞p.33)

If it is snowing, check the air inlet, exhaust vent and flue terminal for blockage.

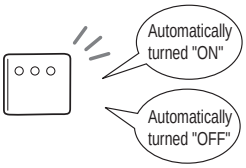
Do not use parts other than those specified for this equipment.

Contents

RC-9018M Operation Overview

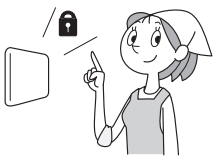
Basic operation

It is possible to automatically turn the water heater "ON" or "OFF".



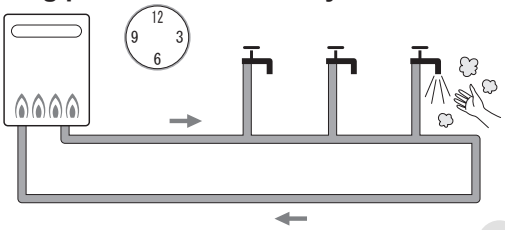
☞p.20

It is possible to lock remote controller operation.



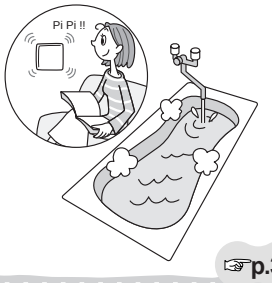
☞p.22

[For recirculation systems (System [Rcrc])] It is possible to circulate hot water only during preferred times of day.



☞p.28

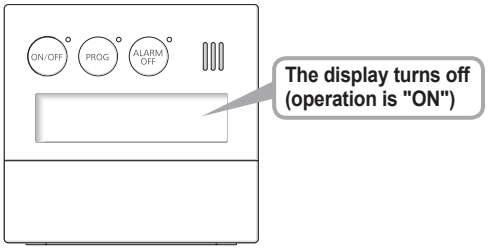
[When using only one water heater:] It is possible to set the remote controller to alert the user when the bathtub has reached a preset fill volume to prevent overfilling.



☞p.30

Power Saving Mode **The initial setting is set to "Powersave dsply : No-1"**

If you set "Powersave dsply" to "Yes" (☞p.23), unnecessary power consumption by the remote controller is prevented. If approximately ten minutes pass without using hot water or without pressing a button, the display of the remote controller turns off.



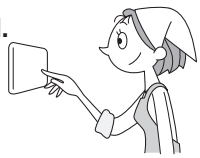
* If you use hot water or press a button, "Powersave dsply" is released.
  If you press the PROG button only once, "Powersave dsply" is released and the automatic program function will operate.
* If the setting temperature is set to 125°F/55°C or more, "Powersave dsply" will not function to prevent accidental scalding.
* If "Recirc" is operating, "Powersave dsply" will not function.

This setting is adjustable ☞ p.23

User Preferences

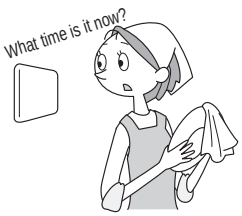
The remote controller can be customized based on the preference of the user in the following ways:

The set temperature can be restricted to a maximum level to prevent high temperature settings from being selected.

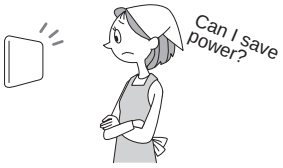


Adjusting the Maximum Output Temperature ☞**p.23**

The clock display can be shown even though the power ON/OFF button is set to "OFF".



The remote controller display can be turned off to save power.

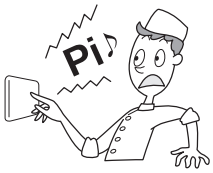


Power Saving Modes ☞**p.23**

The brightness of the remote controller can be adjusted for better visibility.

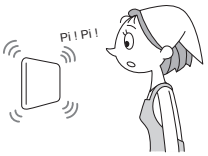
Remote Controller Display Brightness Settings ☞**p.24**

The remote controller can be muted so that it does not emit a tone when a button is pressed.



Muting the Remote Controller ☞**p.24**

The remote controller can be muted so that it does not emit a tone when an error occurs.



Error Tone Settings ☞**p.24**

Additional Settings

- **Draining the water heater (freeze prevention).** ☞ **p.25 "Draining the Water Heater"**
- **Restoring default remote controller settings.** ☞ **p.25 "Restoring Default Settings"**

Initial Operation

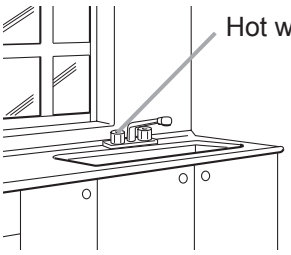
Before the first use of your water heater, make the following preparations.

Follow steps **1 through 4**.

1 Open the water supply valve.

CLOSED → OPEN

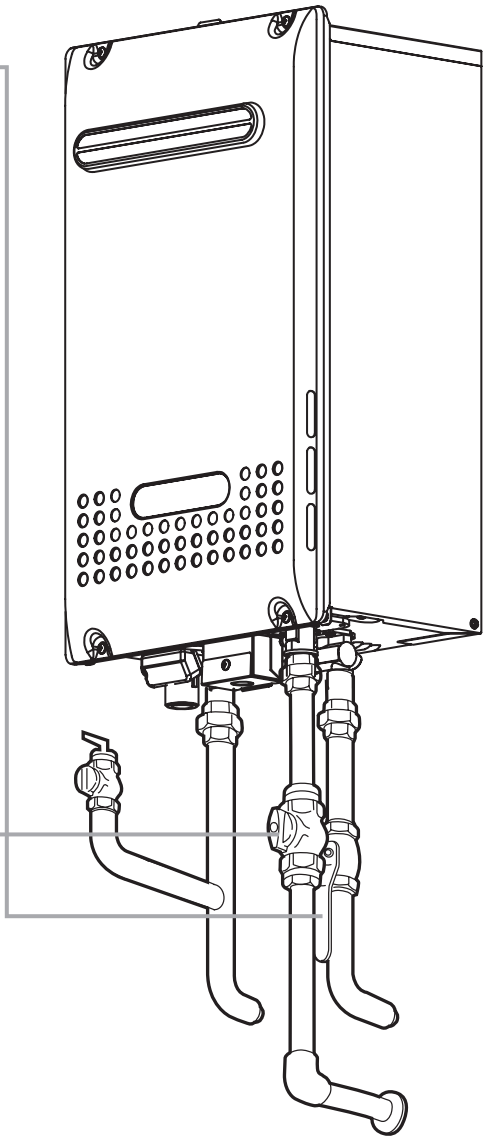
2 Open a hot water fixture to confirm that water is available, and then close the fixture again.



3 Open the gas supply valve.

4 Turn on the power.

Do not touch with wet hands.

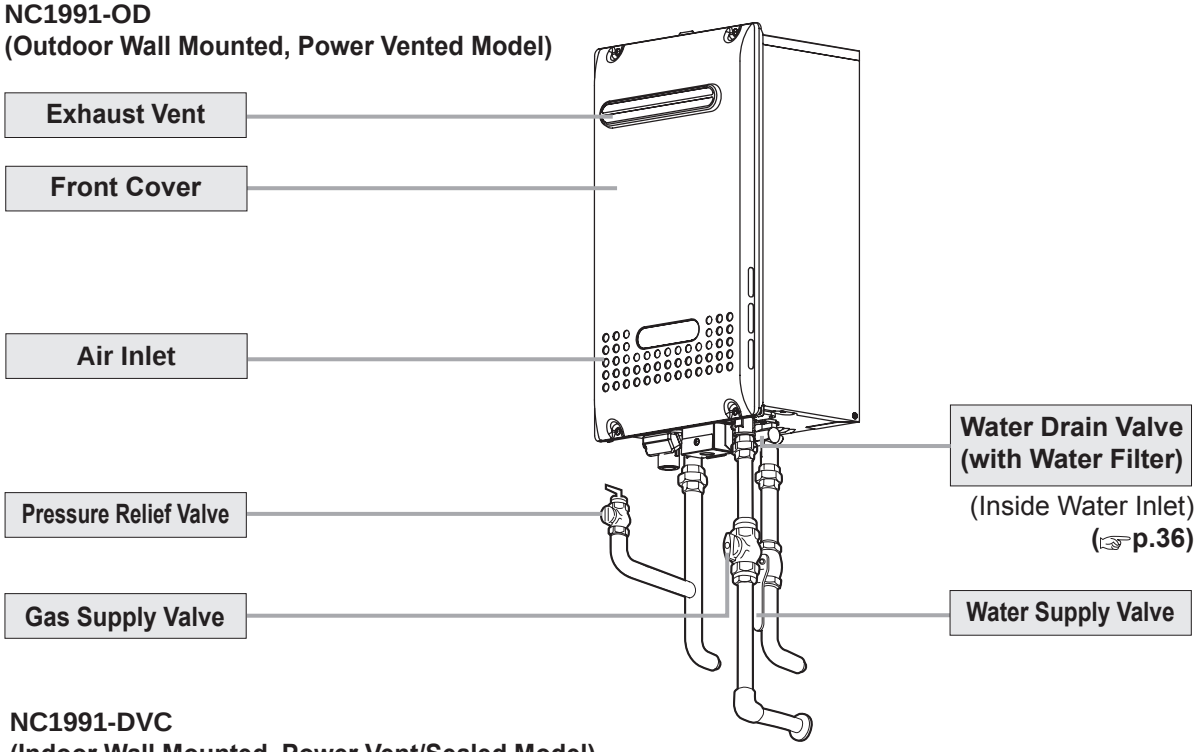


(Ex. NC1991-OD)

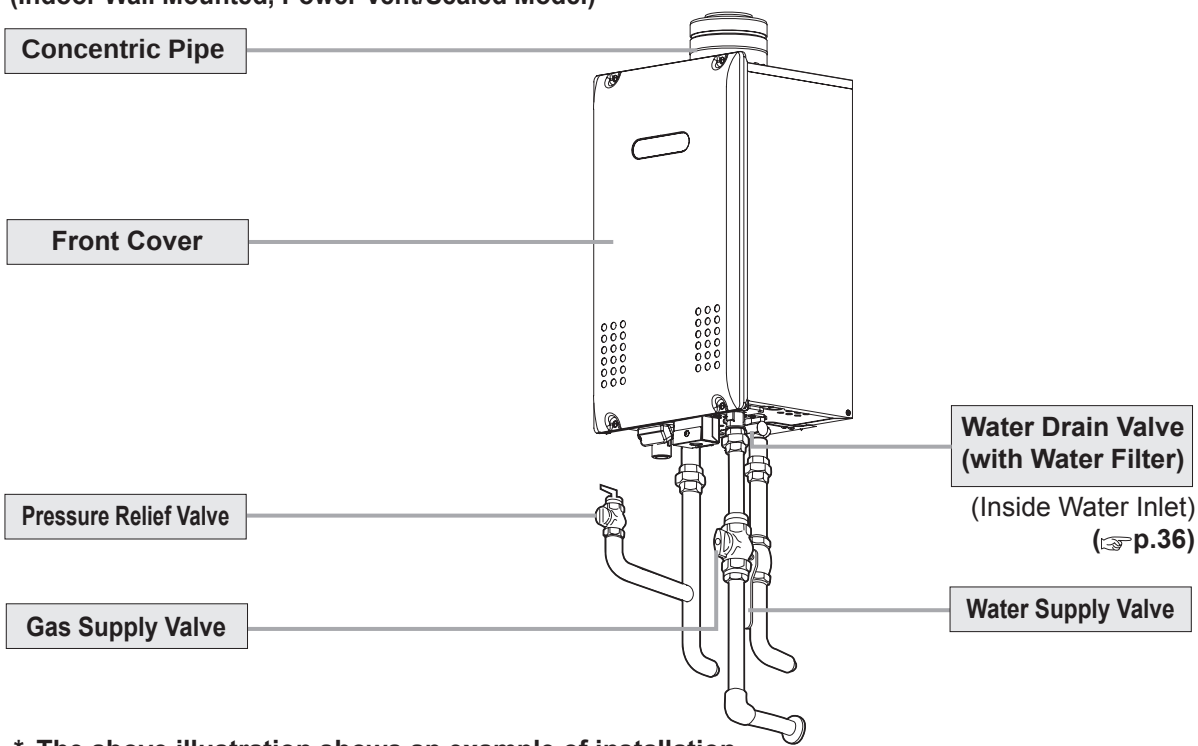
General Parts -1

Main Unit

NC1991-OD
(Outdoor Wall Mounted, Power Vented Model)



NC1991-DVC
(Indoor Wall Mounted, Power Vent/Sealed Model)



* **The above illustration shows an example of installation.**
The exact installation configuration may be slightly different.

General Parts -2

Remote Controller (RC-9018M)

The remote controller will emit a tone when a button is pressed.

Prog Button / Indicator (Red)

Activates the automatic water heater power "ON" or "OFF" setting as determined by the user selected schedule. (☞p.21)

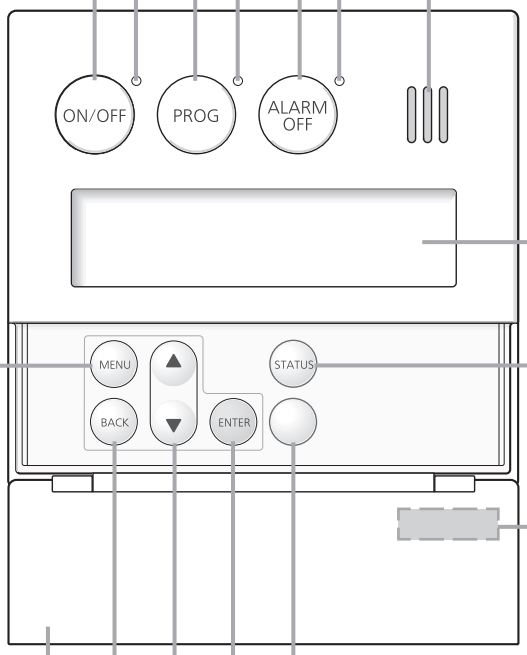
Alarm Off Button / Indicator (Red)

Stops the tone that is emitted when an error occurs. (☞p.41)

Power ON /OFF Button / Indicator (Green)

For turning the water heater on/off.

Speaker



Display Screen

(☞Next page)

Menu Button

* Use to change system settings or to return to the home screen.
* If you press the menu button and press the temperature setting buttons, Sys monitor is sometimes displayed, however, do not use this mode as it meant for installation or service personnel only.

Status Button

Check the status of the system or the number of installed units (☞p.14)

Remote Controller Part Number

The part number is printed on the surface of the cover.

Cover shown in the open position.

Lock Button

Locks remote controller operation. (☞p.22)

Back Button

Returns to the previous screen while making system settings or checking status.

Enter Button

Confirms changes made by the user.

Hot Water Temperature Setting Buttons

For setting the hot water temperature (☞p.18), the flow meter alarm, and other settings.

Screen Display

* The screen display shown below is for illustration purposes only.
  The actual display will vary depending on how the water heater is being used.
* After a button is pressed, the display will gradually become darker to prevent unnecessary power consumption by the remote controller.

Flame Symbol

The flame symbol is displayed during combustion when using hot water or recirculation functions.

Display for Temperature Setting

During normal operation, the set temperature is displayed.

Display for High Temperature Hi temp

Displays when the set temperature is 125°F/55°C (131°F) or higher. (☞p.19)

Temperature Setting

(Ex.: 110°F)

Clock Display

(Ex.: AM10:15)

Normally the clock display is not shown when the power ON/OFF button is "OFF".

* This setting can be changed so that the clock is displayed even when the power button is turned "OFF". (☞p.23)

Error Code

A number will flash if a failure occurs. (☞p.41)

Display for Recirculation Operation

* For systems that use recirculation operation, the symbol is displayed when the power ON/OFF button is set to "ON".
* It is displayed during the recirculation operation. (☞p.18)

Locked Display

The lock symbol is displayed when the remote controller is locked. (☞p.22)

Recirculation Timer

The clock symbol is displayed when the recirculation timer is activated. (☞p.29)

Note: As shipped from the factory, the remote controller is set to display in °F and gallons.
To adjust the display to °C and liters, refer to the Installation Manual.

What is the home screen?

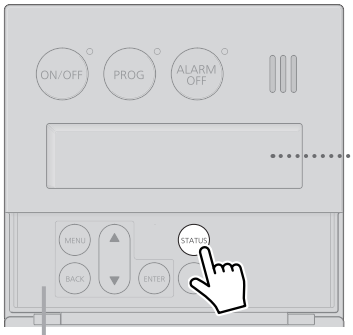
The home screen is displayed when the ON/OFF button is "ON".

Normally, the hot water temperature and the clock, etc. are displayed.

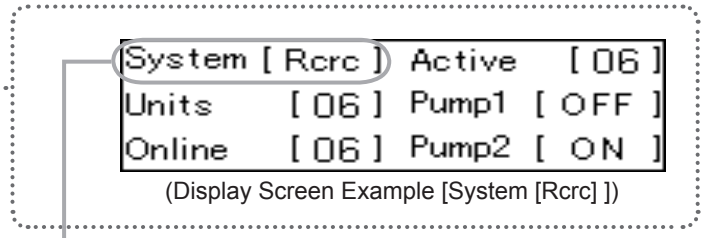
<Home Screen Example>

System Check

If you press the STATUS button, you can check the status of the system



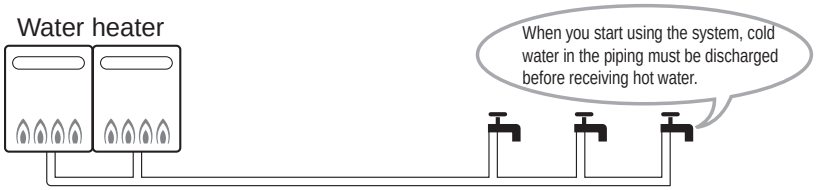
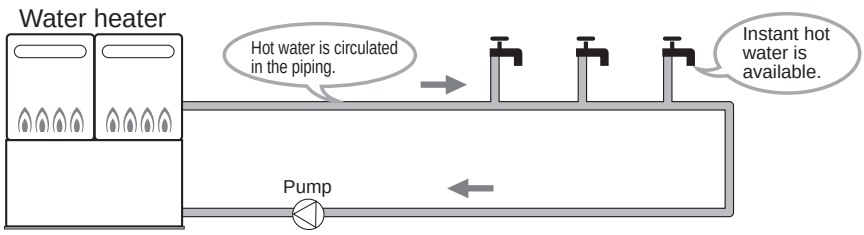
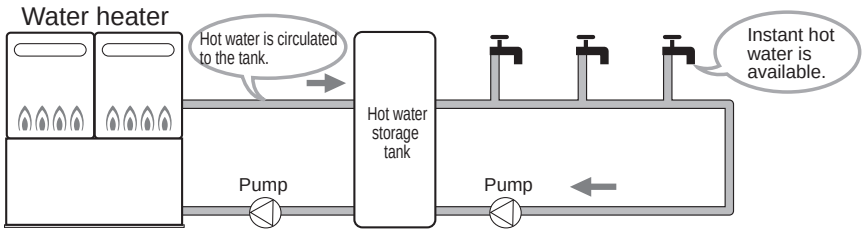
Cover shown in the open position.



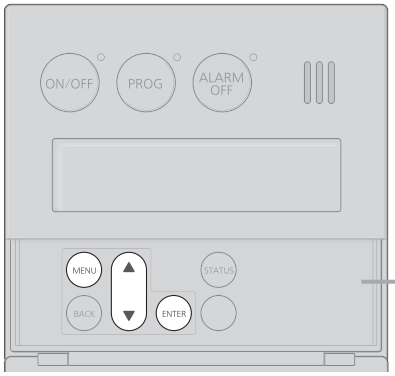
(Display Screen Example [System [Rcrc]])

System Displayed on the Remote Controller	System Description
System [Std]	Water heater only operation.
System [Rcrc]	* Water heater and recirculation operation. * During recirculation operation, hot water is always circulated in the piping to provide instant hot water when a fixture is opened. [If you set the ON/OFF button to "ON", ↻ is displayed. (If "synchro ON/OFF" is set to "ON". (☞p.26))]
System [Tank]	* Water heater combined with a storage tank operation. * If a recirculation system is also installed, hot water is always circulated in the piping to provide instant hot water when a fixture is opened. [If you set the ON/OFF button to "ON", ↻ is displayed.]

Depending on the configuration of your system, not all functions may be used.

General System Diagram * The number of water heaters, fixtures, and pumps will vary depending on the configuration of the hot water system.	**Applicable Remote Controller Functions**
	**Functions other than those shown on pages 26 to 29 can be used.**
	**All functions can be used.**
	**Functions other than those shown on pages 26 to 31 can be used.**

For All Systems Clock Adjustment

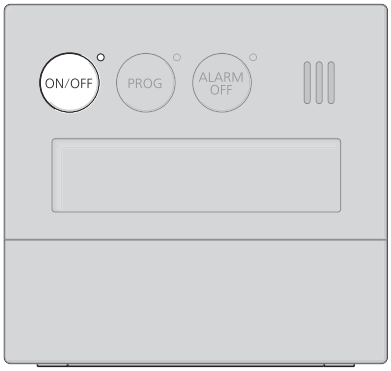


Cover shown in the open position.

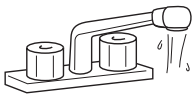
Operation	Screen Display	Description
1 Press the MENU button inside the cover.	Menu Set clock Set PROG Recirc menu	* This adjustment can be made regardless of whether the ON/OFF button is ON/OFF.
2 Press the ENTER button.	Set clock [—:——]	
3 1) Use the ▲▼ buttons to reset the clock. 2) Press the ENTER button to complete the clock setting.	1) Set clock [AM10:15] (Ex: AM10:15) 2) Set complete The screen returns to the previous screen.	* The time changes in 1-minute increments with each press of the button, and then in 10-minute increments if the button is kept pressed down. * If the display is left untouched for approximately 20 seconds without pressing the ENTER button, the setting will be completed. When the ON/OFF button is turned ON, the home screen will be restored.

* In the event of a power outage or after disconnecting power to the water heater, when power is restored, the clock on the display screen will show " - : - - " and the clock will need to be reset.
* Normally, when the ON/OFF button is turned OFF, the clock display disappears, but it is possible to display the clock when the ON/OFF button is turned OFF by changing a setting. (☞p.23)

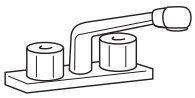
For All Systems Using the Water Heater



* **If System [Tank] is displayed, hot water will be discharged at the temperature of the storage tank.**

Operation	Screen Display	Description
1 (ON/OFF) **button is "ON".**	For systems with recirculation operation, ↻ is displayed here. Temp 110°F AM 10:15 Check (Ex.: 110°F)	* The (ON/OFF) indicator is lit. * The previously set hot water supply temperature is shown. [For systems with recirculation operation] * If you set the (ON/OFF) button to "ON", recirculation operation is automatically started. (If "Synchro ON/OFF" was set to "ON".(☞p.26)) * The setting temperature displayed may vary from the actual temperature at the fixture depending on conditions such as season or length of piping.
2 **Turn on hot water.** 	Lit during combustion Temp 110°F AM 10:15	

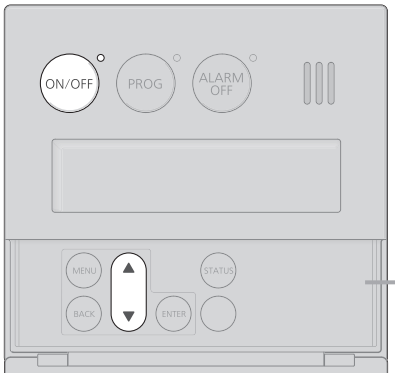
● Turn off the hot water

Turn off hot water. 	Unlit Temp 110°F AM 10:15	* During operation, the symbol 🔥 may be continuously lit.

⚠ DANGER | High Temperature | **To prevent scalding : Hot Water Heater temperatures over 125°F (52°C) can cause severe burns instantly or death from scalding.**

- Children, disabled and elderly are at the highest risk of being scalded. Feel water temperature before bathing or showering. Temperature limiting valves are available, ask a professional person.
- When setting the unit to 125°F / 55°C (131°F) or higher, “Hi temp” will flash for 10 seconds and emit a tone as a high temperature warning.
- Take caution when using the unit again after setting to 125°F (52°C) or higher. Always check the set temperature before use.
- Do not allow anyone to change the water temperature while hot water is running.

For All Systems Setting Hot Water Temperature



Cover shown in the open position.

* If System [Tank] is displayed, hot water will be discharged at the temperature of the storage tank.

Operation	Screen Display	Description
1 ON/OFF button is "ON".	Temp 110°F AM 10:15 (Ex.: 110°F)	* The ON/OFF indicator is lit. * The previously set hot water supply temperature is shown.
2 Set the temperature using the ▲▼ buttons inside the cover.	Temp 105°F AM 10:15 (Ex.: 105°F)	

Temperature Setting Options

■ When using °F mode: (°F: The temperature settings below are examples. The temperature setting necessary depends on the usage, the length of piping and the time of year.)

100	105	110	115	120	125	130	135	140	145	150	160	170	185
Washing dishes, etc.	Shower, hot water supply, etc.				High temperature								

*Initial factory setting is 110°F

■ When using °C mode: (°C (°F): The temperature settings below are examples. The temperature setting necessary depends on the usage, the length of piping and the time of year.)

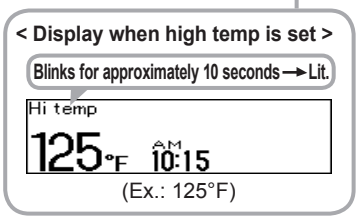
37 (99)	38 (100)	39 (102)	40 (104)	41 (106)	42 (108)	43 (109)	44 (111)	45 (113)	46 (115)	47 (117)	48 (118)	50 (122)	55 (131)	60 (140)	65 (149)	70 (158)	75 (167)	80 (176)	85 (185)
Washing dishes, etc.	Shower, hot water supply, etc.												High temperature						

*Initial factory setting is 40°C (104°F)

If fixtures incorporate mixing valves, set the temperature higher than usual.

* For applications that occasionally require a higher temperature setting, locate the remote controller in a convenient location.
* Consult local codes for minimum operating temperatures.

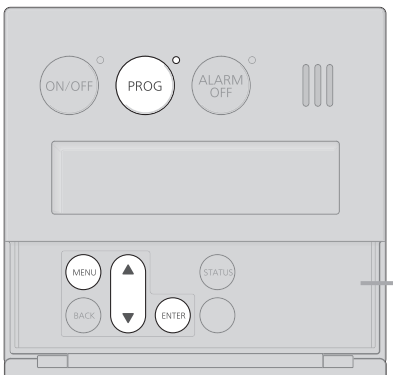
< Display when high temp is set >



(Ex.: 125°F)

- Hot water temperatures shown are approximate and may differ from the actual temperature at the fixture depending on external factors such as the season and length of piping in the system.
- When low temperatures are set (for washing dishes, etc.), if the incoming water temperature is already quite high, it may be difficult to ensure the outgoing water temperature is as per the setting.
- Please check the temperature displayed before using any hot water.
  Be especially careful using hot water after the set temperature has been changed.
- When the hot water temperature is adjusted using thermostat controlled water mixing valves, set the temperature on the remote controller approximately 20°F (10°C) higher than the required temperature to ensure the appropriate fixture temperature.

For All Systems Automatic Water Heater “ON” or “OFF”



Cover shown in the open position.

* If you set the time to turn "ON" or "OFF" the ON/OFF button, the ON/OFF button is automatically turned "ON" or "OFF" at the set time every day by just turning the PROG button "ON".
* It is also possible to set only “ON” or “OFF” operation.
* For recirculation systems, circulation is started or stopped according to the ON/OFF button condition, "ON" or "OFF".

Set the time to turn "ON" or "OFF" the ON/OFF button automatically

Operation	Screen Display	Description

This example describes setting the "ON time" and "OFF time" to 10:00 am and 8:00 pm, respectively.

Preparation

1. Check that the current time is properly set. (Setting the time ☞p.16)
2. Check the PROG button is set to "OFF"

1

1) Press the MENU button inside the cover, Select "Set PROG" using the ▲▼ buttons.

2) Press the ENTER button.

1)
```
Menu
        Set clock
        Set PROG
        Recirc menu
```

2)
```
Start          End
-:--  ~        -:--
```

* You can set the time regardless if the ON/OFF button is "ON" or "OFF".
* The previously set "Start time" and "End time" are displayed.

2

1) Set the ON time to "AM10:00" using the ▲▼ buttons.

2) Press the ENTER button to complete the setting.

1)
```
Start          End
AM10:00  ~     -:--
```

2)
```
Start          End
AM10:00  ~     -:--
```

* The time changes in 10-minute increments with each press of the button, and then in 1-hour increments if the button is kept pressed down.
* If the previous setting is OK, press the ENTER button without setting "Start time".
* If you do not want to set the "Start time", select "- : --" (located between AM 11:50 and PM 0:00 settings).

3

1) Set the OFF time to "PM8:00" using the ▲▼ buttons.

2) Press the ENTER button to complete the setting.

1)
```
Start          End
AM10:00  ~     PM 8:00
```

2)
```
Set      AM    PM
Reset    10:00 ~ 8:00
         Confirm?
```

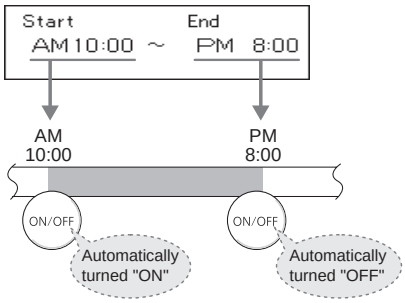
* The time changes in 10-minute increments with each press of the button, and then in 1-hour increments if the button is kept pressed down.
* If the previous setting is OK, press the ENTER button without setting "End time".
* If you do not want to set the "End time", select "- : --" (located between AM 11:50 and PM 0:00 settings).

Operation

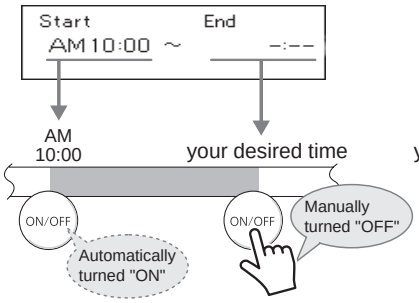
Hint for operation Follwing this procedure allows for automated control of water heater operation without user interaction.

* The setting time shown on the display of the remote controller is for example purposes only.

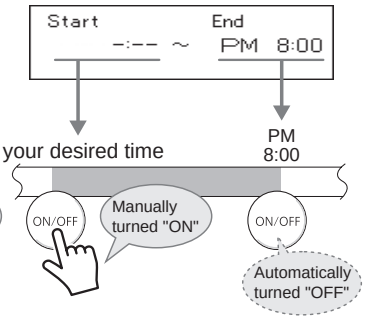
■ **Ex. 1: Both "ON" and "OFF" functions are automated.**



■ **Ex. 2: Only “ON” function is automated.**



■ **Ex. 3: Only “OFF” function is automated.**



Operation	Screen Display	Description
4 **Check "Set" is selected, and then press ENTER button to confirm all settings.**	Set complete	* If you do not press ENTER button, the time setting is not completed. * If you want to change "ON/OFF time", select "Reset" and then press the ENTER button, return to step 2.

Activate Automatic Operation

Operation	Screen Display	Description
1 PROG **button is "ON".**	Start End AM10:00 ~ PM 8:00 (Display Example)	* You can activate automatic operation regardless if the ON/OFF button is “ON” or “OFF”. * PROG indicator is lit when activated. * "Start time" and "End time" will be displayed upon activation. * If both the "Start time" and "End time" are set to "- : --", the alarm sounds "Pi Pi Pi" and Set PROG is displayed.

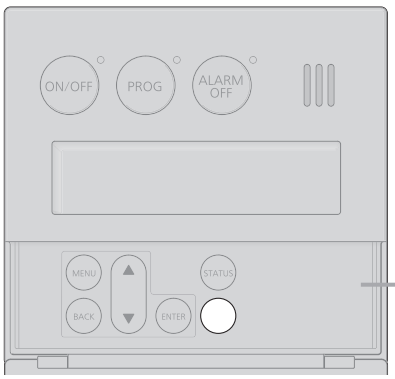
● To Deactivate Automatic Operation

PROG **button is "OFF".**	* The PROG indicator is unlit.

* If the PROG button is not set to "OFF", the water heater will automatically turn "ON" or "OFF" at the set times.

* If there is a power failure or power is disconnected to the water heater, automatic operation will be deactivated.

For All Systems Locking the Remote Controller



Cover shown in the open position.

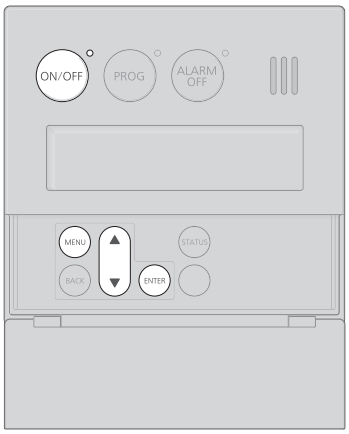
By locking the remote controller, the settings cannot be accidentally changed if a button is pressed by mistake.

Operation	Screen Display	Description
1 **Press and hold ( ) button for approximately 2 seconds to lock the remote controller.**	Lock complete [PROG] [MENU] [Temp]	* The operation can be locked regardless if the (ON/OFF) button is "ON" or "OFF". * The operations of (PROG), (MENU), and (▲▼) buttons are locked. * Approximately 3 seconds after locking the remote controller, the display will return to the previous screen.
If you press these buttons (PROG) (MENU) (▲▼) **while the remote controller is locked, the "Locked" screen will appear.**	Locked [PROG] [MENU] [Temp]	* Approximately 3 seconds after the "locked" screen appears, the display will return to the previous screen.

● To Unlock the Remote Controller

Press and hold ( ) button for approximately 2 seconds to unlock the remote controller.	Unlock complete [PROG] [MENU] [Temp]	* Approximately 3 seconds after unlocking the remote controller, the display will return to the previous screen.

For All Systems Customizable Settings <Misc settings> -1



Adjusting the Maximum Output Temperature.

The maximum output temperature can be limited to prevent discharging hot water at too high of a temperature.

1 ON/OFF **button is "OFF".**

2 **Press the** MENU **button inside the cover, Select** Misc settings **using the** ▲▼ **buttons.**

Press the ENTER **button.**

The "Misc settings" screen appears.

3 **Select** Max set temp **using the** ▲▼ **buttons, and then press the** ENTER **button.**

4 **Change the setting using the** ▲▼ **buttons.**

Max set temp
[185 °F]

(Ex: 185°F)

[For Fahrenheit (°F)]
100 - 150°F (In 5°F intervals),
160°F, 170°F, 185°F
[For Celsius (°C)]
37 - 48°C (In 1°C intervals),
50 - 85°C (In 5°C intervals)

(Initial setting=185°F / 85°C)

Setting completed

Display Screen Power Saving Mode [powersave dsply]

To conserve power consumption by the display, it can be turned off completely or set to only display the clock when the power ON/OFF button is turned "OFF".

1 **Press the** MENU **button inside the cover, Select** Misc settings **using the** ▲▼ **buttons.**

Press the ENTER **button.**

The "Misc settings" screen appears.

2 **Select** Powersave dsply **using the** ▲▼ **buttons, and then press the** ENTER **button.**

3 **Change the setting using the** ▲▼ **buttons.**

Powersave dsply (Clock hidden)
[No-1]

(Ex: No-1)

Yes: the display will turn off and the clock will not be displayed when the power ON/OFF button is turned "OFF".
No-1: the display will not turn off and the clock will not be displayed when the power ON/OFF button is turned "OFF".
No-2: the display will not turn off and the clock is displayed when the power ON/OFF button is turned "OFF".

(Default setting=No-1)

Setting completed

To change other settings, select the option and press the ENTER **button.**

To return to the home screen, press the MENU **button or let it sit for approximately 20 seconds.**

Customizable Settings <Misc settings> -2

Adjusting the brightness of the display screen when the remote controller is turned on.

The display screen can be brightened or darkened or the backlight can be turned off completely.

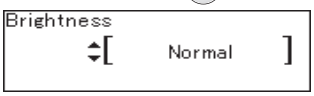
1 Press the MENU button inside the cover, Select Misc settings using the ▲▼ buttons.

Press the ENTER button.

The "Misc settings" screen appears.

2 Select Brightness using the ▲▼ buttons, and then press the ENTER button.

3 Change the setting using the ▲▼ buttons.



(Ex: Normal)

Dark / Dim / Normal / Bright

(Default setting=Normal)

Setting completed

Muting the remote controller.

The remote controller can be muted so that it does not emit a tone when a button is pressed.

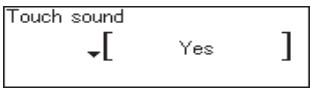
1 Press the MENU button inside the cover, Select Misc settings using the ▲▼ buttons.

Press the ENTER button.

The "Misc settings" screen appears.

2 Select Touch sound using the ▲▼ buttons, and then press the ENTER button.

3 Change the setting using the ▲▼ buttons.



(Ex: Yes)

Yes / No

(Default setting=Yes)

Setting completed

<System dependent option>

Error Tone Settings.

The remote controller can be muted so that it does not emit a tone when an error occurs.

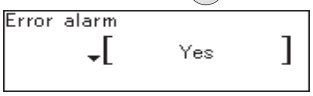
1 Press the MENU button inside the cover, Select Misc settings using the ▲▼ buttons.

Press the ENTER button.

The "Misc settings" screen appears.

2 Select Error alarm using the ▲▼ buttons, and then press the ENTER button.

3 Change the setting using the ▲▼ buttons.



(Ex: Yes)

Yes / No

(Default setting=Yes)

Setting completed

To change other settings, select the option and press the ENTER button.

To return to the home screen, press the MENU button or let it sit for approximately 20 seconds.

Draining the Water Heater.

(☞ Refer to page 33 for details.)

1 ON/OFF **button is "OFF".**

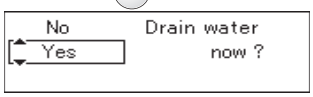
2 **Press the** MENU **button inside the cover, Select** Misc settings **using the ▲▼ buttons.**

Press the ENTER **button.**

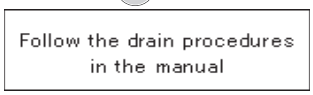
The "Misc settings" screen appears.

3 **Select** Drain water **using the ▲▼ buttons, and then press the** ENTER **button.**

4 **Select "YES" using the ▲▼ buttons.**



Press the ENTER **button.**



Drain the water heater following the procedures described on page 33.

To stop draining water from the water heater

If you press the ENTER button again when "Drain water" and "Operating" are alternately displayed following steps 2 to 3, the drain function will stop.

Restoring Default Settings.

Select settings can be restored to the factory default conditions.
See items marked with a ★ in the "Default Settings" section (☞p.47).

1 ON/OFF **button is "OFF".**

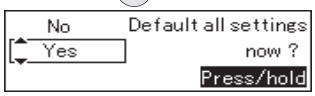
2 **Press the** MENU **button inside the cover, Select** Misc settings **using the ▲▼ buttons.**

Press the ENTER **button.**

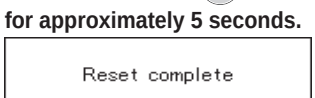
The "Misc settings" screen appears.

3 **Select** Default all settings **using the ▲▼ buttons, and then press the** ENTER **button.**

4 **Select "YES" using the ▲▼ buttons.**



Press and hold the ENTER **button for approximately 5 seconds.**



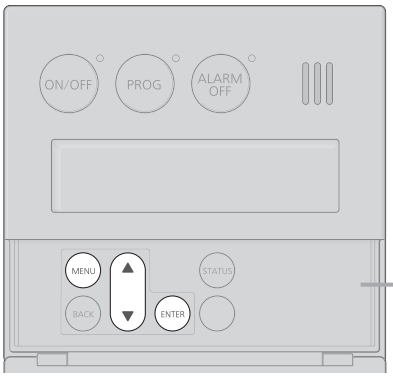
Setting completed

To change other settings, select the option and press the ENTER **button.**

To return to the home screen, press the MENU **button or let it sit for approximately 20 seconds.**

For System [Rcrc]

Enabling Automatic Recirculation Operation



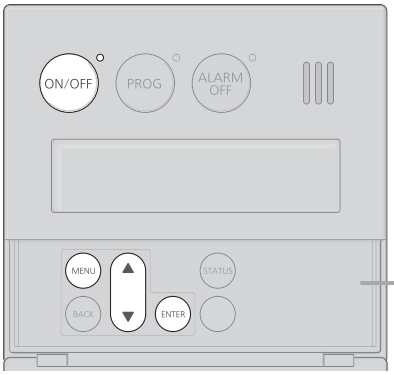
Cover shown in the open position.

* **To check system status. (☞p.14)**
* **When "synchro ON/OFF" is set to "Yes", recirculation can be activated automatically.**
* **To change "synchro ON/OFF" from "Yes" to "No", follow the same procedure as described below.**

Operation	Screen Display	Description
1 **1) Press the MENU button inside the cover, Select "Recirc menu" using the ▲▼ buttons.** **2) Press the ENTER button.**	1) Menu: Set clock / Set PROG / [▲▼ Recirc menu] 2) Recirc Menu: [▲▼ Synchro ON/OFF] / Recirc on/off / Recirc timer	* This adjustment can be made regardless of whether the ON/OFF button is ON/OFF.
2 **Select "Synchro ON/OFF" and press the ENTER button.**	Synchro ON/OFF: ▲[No]	
3 **1) Press ▲.** **2) Press the ENTER button.**	1) Synchro ON/OFF: ▼[Yes] 2) Set complete ▼ The screen returns to the previous screen.	* If the display is left untouched for approximately 20 seconds without pressing the ENTER button, the setting will be completed, and when the ON/OFF button is turned ON, the home screen will be restored.

For System [Rcrc]

Manually Starting Recirculation Operation

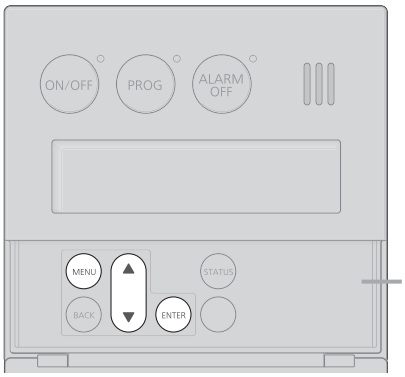


Cover shown in the open position.

Recirculation operation can be manually stopped or started using this procedure.

Operation	Screen Display	Description
1 **1) Press the MENU button inside the cover, Select "Recirc menu" using the ▲▼ buttons.** **2) Press the ENTER button.**	1) Menu Set clock Set PROG [Recirc menu] 2) Recirc Menu [Synchro ON/OFF] Recirc on/off Recirc timer	* You can set this function if the ON/OFF button is "ON".
2 **1) Select "Recirc on/off" using the ▲▼ buttons.** **2) Press the ENTER button.**	1) Recirc Menu Synchro ON/OFF [Recirc on/off] Recirc timer 2) Starting recirc operation [Display when recirculation is set to "ON"] ▼ The screen returns to the previous screen.	* If the display is left untouched for approximately 20 seconds without pressing the ENTER button, the setting will be completed. [Display when the recirculation is set to "OFF"] Stopping recirc operation

For System [Rcrc] Setting the Recirculation System



Cover shown in the open position.

* With the recirculation operation timer set, hot water will be automatically circulated in the hot water pipes. Even with this function activated, it may take several minutes for hot water to be completely circulated through the plumbing system. Set the timer to activate the recirculation system prior to the first use of hot water to ensure hot water is instantly available.
* Multiple recirculation time periods can be set.
* Until the timer is deactivated (☞p.29), the recirculation system will operate daily at the set times.
* When the recirculation system is turned "OFF" by the timer, the water heater will still remain "ON" and can be used normally.

Operation	Screen Display	Description

This example describes setting the recirculation system to operate between 5:00 am - 8:00 am.

Preparation **Check that the current time is properly set. (Setting the time ☞p.16)**

1

1) Press the MENU button inside the cover, Select "Recirc menu" using the ▲▼ buttons.

2) Press the ENTER button.

1)
```
Menu          Set clock
              Set PROG
           [  Recirc menu ]
```

2)
```
Recirc    [  Synchro ON/OFF
Menu         Recirc    on/off
             Recirc timer
```

* You can set the timer regardless if the ON/OFF button is "ON" or "OFF".

2

1) Select "Recirc timer" using the ▲▼ buttons.

2) Press the ENTER button.

1)
```
Recirc        Synchro ON/OFF
Menu          Recirc    on/off
           [  Recirc timer ]
```

(Example of a display)

2)
```
     AM                PM
  0  3  6  9  0  3  6  9  0
[AM--:--] to AM--:--
```

* The previous setting is displayed.

3

1) Select "AM5:00" using the ▲▼ buttons.

2) Press the ENTER button to complete the "Start" time setting.

1)
```
     AM                PM
  0  3  6  9  0  3  6  9  0
Here [AM 5:00] to AM 6:00
```

2)
```
     AM                PM
  0  3  6  9  0  3  6  9  0
AM 5:00 to ▲[AM 6:00]
```

* Every time when you press the button, the time changes by one hour.

[To keep the current "Start" time]
Press the ENTER button without changing the "Start" time, and proceed to step 4.

[To add additional time periods to the current setting, or to cancel the previous setting]

1) Press the ENTER button without setting "Start" time.

2) Press the ENTER button without setting "End" time.

3) Follow the procedures "Adding Additional Time Periods" or "Resetting All Time Periods" (☞p.29).

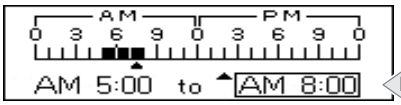
Operation Timer

Operation	Screen Display	Description

4

1) Select "AM8:00" using the ▲▼ buttons.

2) Press the ENTER button to complete the "End" time setting.



* Every time when you press the button, the time changes by one hour.

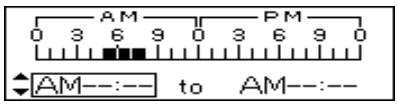
[To keep the current "End" time]
Press the ENTER button without changing the "End" time, and proceed to step 5.

<Adding Additional Time Periods>

1) Select "Add" using the ▲▼ buttons.

2) Press the ENTER button.

3) Select the time period following the procedures in Steps 3 to 4.



* You can set multiple operation time periods.

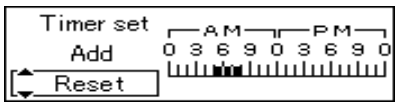
<Resetting All Time Periods>

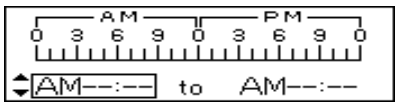
1) Select "Reset" using the ▲▼ buttons.

2) Press the ENTER button.

(All settings are cleared.)

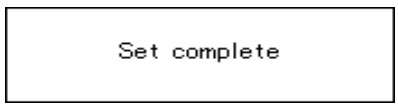
3) Adjust the time period following the procedures in Steps 3 to 4.





5

Press the ENTER button to complete the time settings.



"Recirc timer" and "Recirc timer on" are altenately displayed on the menu (approximately 10 seconds)

(Example of home screen when the power ON/OFF button is turned "ON")

* The timer will not activate without pressing the ENTER button.

* If the time is not set, the time setting screen is displayed (☞p.16).

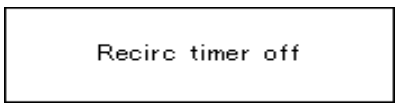
* Until the timer is deactivated, the recirculation system will operate daily at the set "Start" and "End" times.

● To Cancel the Recirculation System Operation Timer

1) Carry out steps 1 to 2.

2) Select "Cancelled" using the ▲▼ buttons.

3) Press the ENTER button.



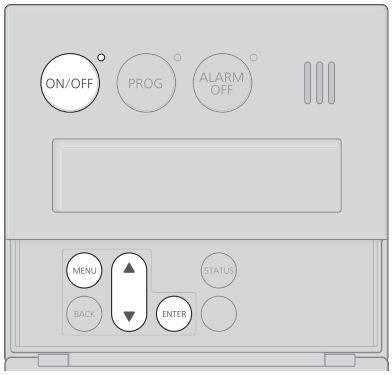
The screen returns to the Recirc Menu.

* If the ON/OFF button is "ON", the screen returns to the home screen in approximately 10 seconds.

* If the timer is deactivated during a recirculation time period, recirculation will continue until it is stopped using the procedure shown on p.27.

Single Water Heater Only

Flow Meter Alarm

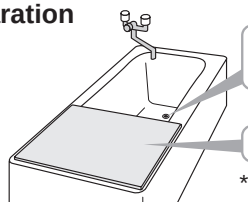


If the flow meter alarm is being used to indicate when a tub is full:

- **If any hot water is being used besides what is going into the tub, the alarm will sound before the tub is full.**
- **If there was water in the tub before the fill began, or if the water is not shut off manually when the alarm sounds, the tub may overflow.**
- **If there was water in the tub before the fill began, the temperature in the tub after it is full may be different from the temperature setting.**

Operation	Screen Display	Description

Preparation



① **Confirm that the stopper is closed.**

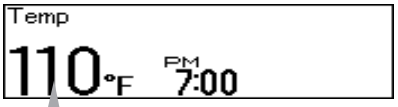
② **Close the lid.**

* Open the lid closest to the spout to allow for filling.

(Example of bathtub filled with hot water.)

1

ON/OFF **button is "ON".**



Check (Ex: Home screen)

* The ON/OFF indicator is lit.

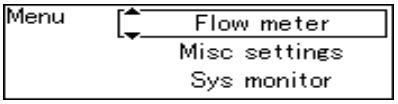
* The current setting temperature is displayed.

2

1) Press the MENU **button inside the cover, Select "Flow meter" using the** ▲▼ **buttons.**

2) Press the ENTER **button.**

1)



2)

(Ex: Alarm off)

* The current hot water filling volume is displayed.

3

Adjust the Flow Meter Alarm volume setting

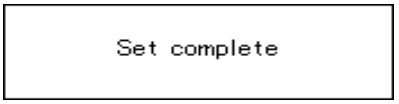
1) Change the volume with ▲▼ **to your desired hot water volume.**

2) Press the ENTER **button.**

1)

(Ex: 45 gal)

2)



* The set hot water volume will be stored in memory.

* The screen returns to the home screen.

* If the display is left untouched for approximately 20 seconds without pressing the ENTER button, the setting will be completed and the home screen will be restored.

Fill Volume Options

(gal)

10	15	20	25	30	35	40	45	50	55	60	70	80	90	100	Alarm off

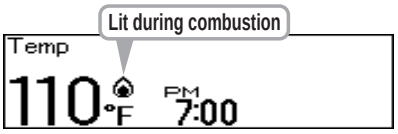
(L)

40	60	80	100	120	140	160	180	200	220	240	260	300	340	380	Alarm off

(Default setting = Alarm off)

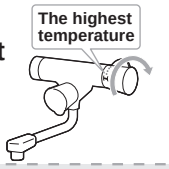
Operation	Screen Display	Description

4 **Turn on hot water.**

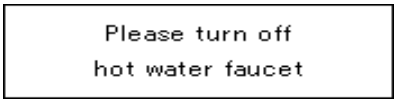


If the hot water temperature has been set so that it does not require mixing, set the mixing valve to its highest setting.

The hot water in the bathtub may become lukewarm if it is mixed with cold water at the fixture.



5 **When the bathtub fills with the preset volume of water, an alarm will sound alerting you to shut off the water.**



* Why doesn't the flow meter alarm sound even if the bathtub is filled with water? (☞p.39)
* The alarm will continue to sound even if the ALARM OFF button is pressed.

Turn off the hot water when the alarm sounds to prevent overfilling.

Hot Water Filling Temperature Options

(°F : The temperatures settings below are only examples. The temperature setting necessary will depend on the usage, the length of piping and the time of year.)

100	105	110	115	120
Warm	Warmer		Hot	

(°C (°F) : The temperatures settings below are only examples. The temperature setting necessary will depend on the usage, the length of piping and the time of year.)

37 (99)	38 (100)	39 (102)	40 (104)	41 (106)	42 (108)	43 (109)	44 (111)	45 (113)	46 (115)	47 (117)	48 (118)
Warm			Warmer				Hot				

* Initial factory setting: 110°F or 40°C (104°F)

*** Although the temperature can be set to 125°F / 50°C or higher, do not set the temperature to 125°F / 50°C or higher as it can cause severe burns instantly or death from scalding.**

* The hot water filling temperature is same as the setting temperature.
* The setting temperature displayed may vary from the actual temperature at the fixture depending on conditions such as season or length of piping.

Preventing Damage from Freezing-1

CAUTION

* Damage can occur from frozen water within the device and pipes even in warm environments. Be sure to read below for appropriate measures.
* Repairs for damage caused by freezing are not covered by the warranty.

Freezing is prevented within the device automatically by the freeze-prevention heater.

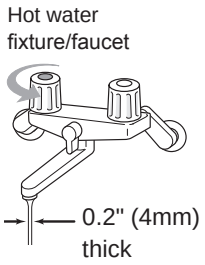
Freezing cannot be prevented when the power plug is unplugged. Do not remove the power plug from the wall outlet.
Freezing will be prevented regardless of whether the operation switch is ON or OFF.

* In normal operation, freezing is prevented within the device automatically unless the outside temperature without wind is below -4°F (-20°C) for NC1991-OD or -30°F (-35°C) for NC1991-DVC.
* The freeze prevention heaters will not prevent the plumbing external to the unit from freezing. Protect this plumbing with insulation, heat tape or electric heaters, solenoids, or pipe covers. If there remains a freezing risk, contact the nearest Noritz agent.

Take the measures below for extremely cold temperatures*.
Outside temperature including wind chill factor less than -4°F (-20°C) for NC1991-OD or -30°F (-35°C) for NC1991 -DVC.

This method can protect not only the heater, but also the water supply, water piping and mixing valves.

1. Turn off the power.
2. Close the gas supply valve.
3. Open a hot water fixture/faucet, and keep a small stream of hot water running. (0.1 gallon (400cc)/minute or about 0.2" (4mm) thick.)
   * If there is a mixing valve, set it to the highest level.
   * When linking multiple units, discharge water equivalent to (0.1 gallon (400cc)/minute per unit.)
4. The flow may become unstable from time to time. Check the flow 30 minutes later.
   * In general, it is not advisable to run water through the unit when it is OFF (p. 6), but in this case freeze prevention is more important.



* Remember to set mixing valves and fixtures to their original levels before using the unit again to prevent scalding.
* If there is still a risk that the unit will freeze, drain the unit as shown on the next page.

If water will not flow because it is frozen

1. Close the gas and water valves.
2. Turn off the power button.
3. Open the water supply valve from time to time to check whether water is running.
4. When the water is flowing again, check for water leaks from the equipment and piping before using.

If the heater or the piping is frozen, do not use the heater or it may get damaged.

If the water heater will not be used for a long period of time, drain the water.

Drain the water as follows:

⚠ CAUTION

To avoid burns, wait until the equipment cools down before draining the water. The appliance will remain hot after it is turned off.

Drain water into a bucket to prevent water damage.

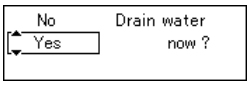
Drainage Using the Remote Controller

1 (1) ON/OFF button is "OFF".

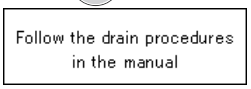
(2) Press the MENU button inside the cover,
Select Misc settings using the ▲▼ buttons.
Press the ENTER button.
The "Misc settings" screen appears.

(3) Select Drain water using the ▲▼ buttons,
and then press ENTER button.

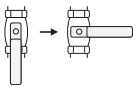
(4) Select "YES" using the ▲▼ buttons,



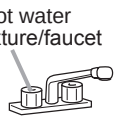
Press ENTER button.



2 Close the water supply valve.



3 Fully open all hot water fixtures/faucets.

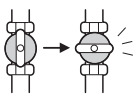


4 Open all drain plugs and drain the water out of the unit.

5 When the water is completely drained, replace all drain plugs and close the hot water fixtures/ faucets.

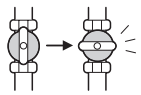
6 Close the gas valve and disconnect the electrical power supplied to the unit.

Do not touch with wet hands.



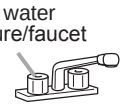
Manual Draining

1 Close the gas valve.



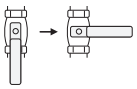
2 (1) Turn the power on/off button "On".

(2) Turn and leave open the hot water fixtures/ faucets for more than 2 minutes and close.



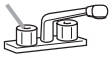
* If multiple units are being used, drain two minutes for each unit.
* An 11 Error Code may appear on the remote controller.
This is not a malfunction of the unit.
Do not turn Power ON/OFF Button OFF.

3 Close the water supply valve and disconnect the electrical power supplied to the unit.



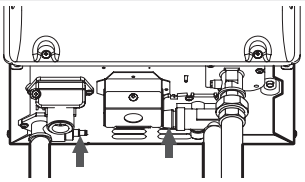
Do not touch with wet hands.

4 Fully open all hot water fixtures/faucets.



5 Open all drain plugs and drain the water out of the unit.

6 When the water is completely drained, replace all drain plugs and close the hot water fixtures/faucets.



Drain Plugs (Ex. NC1991-OD)

Each drain plug mignt not be visible if insulation is installed around the piping.

Preventing Damage from Freezing-2

Turning the Unit Back On

1. Check that all drain plugs are inserted.
2. Check that all hot water fixtures/faucets are closed.
3. Follow the procedure on p.10 “Initial operation”, steps 1 through 4.

Regular Maintenance-1

Periodic Inspection

⚠ CAUTION

Be sure to do.

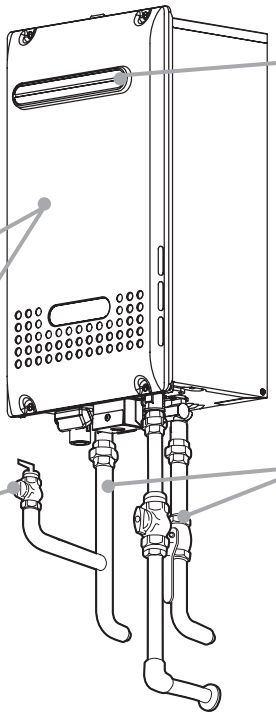
To prevent burns or scalding, turn off the power button and wait until the equipment cools before performing maintenance.

Check For laundry, newspaper, timber, oil, spray cans and other combustible materials. near the heater or the flue terminal.

Check For abnormal sounds during operation.

Check For abnormalities in external appearance, discoloration or flaws.

Check For proper operation of pressure relief valve.



Check For dust and soot in the exhaust vent or the flue terminal.

Check For water leaks from the equipment and piping.

(Ex. NC1991-OD)

Periodic Maintenance

Equipment

Wipe the outside surface with a wet cloth, then dry the surface. Use a neutral detergent to clean any stains.

Remote Controller

Wipe the surface with a wet cloth.

- Do not use benzene, oil or fatty detergents to clean the remote controller; deformation may occur.
- The remote controller is not water resistant. Keep it dry.

Regular Maintenance-2

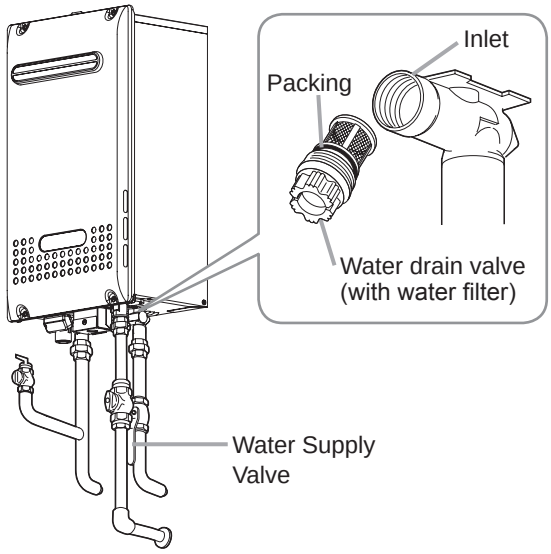
Periodic Maintenance

Water Drain Valve (with Water Filter)

If the water drain valve (with water filter) is covered with debris, the hot water may not run smoothly, or the unit may put out cold water. Check and clean the filter as explained below.

*** To avoid burns, wait until the equipment cools down before draining the water. The appliance will remain hot after it is turned off.**

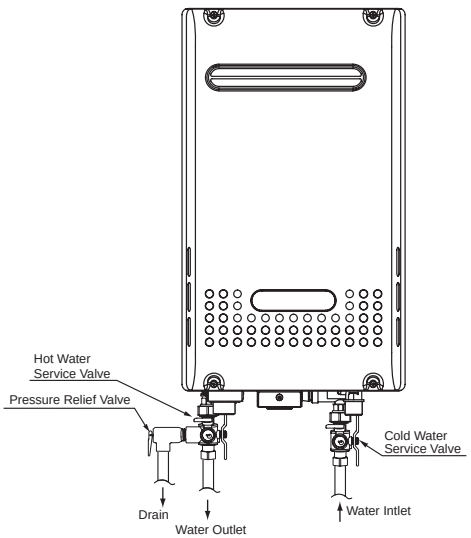
1. Close the water supply valve.
2. Open all hot water fixtures.
3. With a bucket ready, remove the inlet and outlet drain plugs (about 0.2 gallon (0.8L) will drain out)
4. Take the water drain valve (with water filter) out of the inlet. (See illustration to right).
5. Clean the water drain valve (with water filter) with a brush under running water.
6. Replace the water drain valve (with water filter) and close the drain plugs. (Take care not to lose the packing.)
7. Close all hot water fixtures.
8. Open the water supply valve and check that water does not leak from the drain plugs or water drain valve (with water filter).



(Ex. NC1991-OD)

Optional Maintenance

Isolation Valves



(Ex. NC1991-OD)

* Isolation valves may be purchased as an accessory from Noritz.
They allow for full diagnostic testing and easy flushing of the system.

* The kit includes two full port isolation valves and a pressure relief valve for the hot side. Contact Noritz for more information.

Troubleshooting-1

Initial Operation

Unit does not attempt to ignite when water is running.	• Check for reversed plumbing or crossed pipes. • Check the water drain valve filter. (☞p.36)
Unit attempts to ignite but fails	• Reset unit and try again. There may be air in the gas line. • Have a professional check the gas supply pressure.

Temperature

Hot water is not available when a fixture is opened.	• Are the gas and water supply valves fully open? • Is the water supply cut off? • Is the hot water fixture/faucet sufficiently open? • Is the gas being cut off by the gas meter? (Can other gas devices such as stoves be used?) • (For LP) Is there enough gas in the tank? (Can other gas devices such as stoves be used?) • Is the water drain valve filter clogged? (☞p.36) • Is the power button turned on?
No water is available when a fixture is opened.	• Is the water supply cut off? • Is the heater frozen?
The hot water is not the correct temperature.	• Is the hot water fixture/faucet sufficiently open?
Water takes time to become hot when turning the hot water fixture/faucet.	• Have you allowed enough time for the cold water in the pipes to drain out?
The water is too hot.	• Are the gas and water supply valves fully open? • Is the water temperature setting appropriate? (☞ p.18) • If the water supply temperature is high, it is possible for the temperature to be higher than the temperature set on the remote controller. • If only a small amount of hot water is demanded, it is possible for the temperature to be higher than the temperature set on the remote controller.
The water is not hot enough.	• Are the gas and water supply valves fully open? • Is the water temperature setting appropriate? (☞ p.18) • If the amount of hot water required is very high, it is possible for the temperature to be lower than the temperature set on the remote controller. Decrease the amount of hot water passing through the unit and the temperature should stabilize.

(Continued)

Troubleshooting-2

(Continued)

The water is cold when only a single fixture is open.	• The unit will not heat the water if the flow rate is less than 0.5 gallons (2L) per minute. Open the fixture more or open other fixtures so that a greater flow passes through the unit, and the unit should begin heating again.
Fluctuations in hot water temperatures.	• Set water temperature at 115°F to 120°F or 48°C (118°F) to 50°C (122°F). This will allow you to use a higher flow of hot water thus meeting the minimum flow requirement of 0.5 GPM (2L/min.). • Clean the water filter of any debris (☞ p.36)
Setting temperature cannot rise.	• Is the maximum temperature setting appropriate? (☞ p.23)

Amount of Hot Water

The amount of hot water at a certain fixture is not constant.	• When hot water is demanded at other fixtures, the amount available may be reduced. The maximum flow available from this unit is 7.5 GPM (28.2L/min.) at a 45°F (25°C) temperature rise. • Pressure fluctuations and other plumbing conditions can cause the temperature and pressure at a fixture to be unstable, but it should stabilize after a short time. • There are some types of hot water taps that discharges large volumes of hot water at first but stabilize after time. • To keep the temperature stable, the heater limits the amount of water that can flow through it to a small amount initially, but the amount increases over time.
The amount of hot water in the tub is less/more than the set amount.	• When hot water is used for other fixtures while filling the bath tub, the tub will not fill as much. • If there is water in the tub already, or when filling is stopped and restarted, the tub will fill more.
The flow meter alarm does not sound even when filled to the set amount.	• The flow meter alarm is set to sound when hot water is continuously discharged for the set volume of water. If mixing valves are used, or if cold water is mixed with hot water at the fixture, the tub will fill more than the setting of the flow meter alarm.
Amount of hot water available has decreased over time.	• Is the water filter clogged? (☞ p.36) • If the supply water is hard and has not been treated, scale can build-up in the water heater and decrease the maximum amount of hot water available. Scale can be removed from the water heater by flushing the unit periodically. To prevent scale from forming in the water heater, a water softener or scale inhibitor is recommended.

Remote Controller

The power ON/OFF indicator does not light up.	• Has there been a power failure? • Is the power connected properly?
The water temperature changes after a power failure or when the power is disconnected.	• The temperature setting and the flow meter alarm setting may both need to be reset after a power outage.
The clock display shows "- : - -".	• If the time is not displayed on the clock, either a power failure has occured or power was disconnected resulting in the display showing "- : - -". (☞ p.16)
The flow meter alarm does not sound or it sounds before the bathtub has been filled to the set amount.	• The flow meter alarm is set to sound when hot water is continuously discharged for the set volume of water. If hot water is used for other fixtures while filling the bath tub, the alarm will sound before the tub is full. • If mixing valves are used, or if cold water is mixed with hot water at the fixture, the tub will fill more than the setting of the flow meter alarm.
The setting cannot be changed when a button is pressed.	• The remote controller is locked. While the remote controller is locked these buttons  cannot be used. (☞ p.22)
[For recirculation systems] Flame symbol <🔥> lights up or goes out.	• During recirculation operation, the water heater will turn on and off to keep the hot water pipes up to temperature.

Sounds

The fan can be heard after operation is stopped. A motor can be heard when turning the unit ON or OFF, when opening or closing a fixture, or after the unit has been running for a while.	• These noises indicate the proper operation of devices which are designed to let the unit reignite more quickly, and ensure the water temperature is stable.

Troubleshooting-3

Other

The Heater stops burning during operation.	• Are the gas and water supply valves fully open? • Is the water supply cut off? • Is the hot water fixture/faucet sufficiently open? • Is the gas being cut off by the gas meter? (Can other gas devices such as stoves be used?) • (For LP) Is there enough gas in the tank? (Can other gas devices such as stoves be used?)
White smoke comes out of the exhaust vent on a cold day.	• This is normal. The white smoke is actually steam.
The hot water is turbid.	• This is harmless. Small bubbles appear as the air in the water is heated and depressurized rapidly to atmospheric pressure.
The water appears blue The bath tub/wash-basin has turned blue	• Coloration to a blue color may be noticed from small traces of copper ion contained in the water and fat (furring). However, there are not problems concerning health. Coloration of the bath tub/wash-basin can be prevented by cleaning frequently.
A small amount of water is discharged from the pressure relief valve.	• This is normal. When the water heater is under high pressure, a small amount of water may be discharged from the pressure relief valve.

Water Quality

Damage to the water heater as a result of poor water quality is not covered by the Limited Warranty. To ensure full warranty coverage, treat or condition water that exceeds the target levels provided in this table.

Source: EPA National Secondary Drinking Water Regulations (40 CFR Part 143.3)

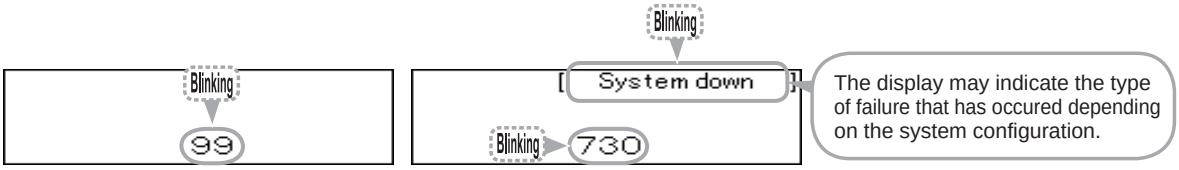
Total Hardness*	: 200 mg/L (12 gpg) or less
Aluminum	: 0.05 to 0.2 mg/L or less
Chloride	: 250 mg/L or less
Copper	: 1 mg/L or less
Iron	: 0.3 mg/L or less
Manganese	: 0.05 mg/L or less
pH	: 6.5 - 8.5
Total Dissolved Solids	: 500 mg/L or less
Zinc	: 5 mg/L or less
Sulfate ion	: 250 mg/L or less
Residual chlorine	: 4 mg/L or less

* Maximum limit suggested by Noritz.

Checking for Error Conditions

When a failure occurs, information relating to the error blinks on the display.
The error alarm may also continuously sound.

Error Code Display Screen



Error Code	Cause	Action
11	Ignition error	Check whether the gas valve is open. Press the power button to turn the unit off, open a hot water fixture/faucet, and turn the unit back on. If the flashing number doesn't return the problem is solved.
90	Abnormal combustion, low gas supply pressure	Have a professional check the gas supply pressure. Contact the nearest Noritz agent.
99	Abnormal combustion	Contact the nearest Noritz agent.

Contact Noritz America if:

- Any other error code appears.
- An error code is indicated again after the above actions were followed.
- There are any other questions.

To Stop the Error Alarm

Press the ALARM OFF **button (the indicator will turn off).**

Follow-up Service-1

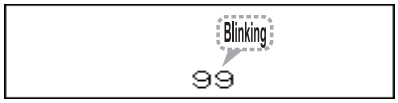
Requesting Service

First follow the instructions in the troubleshooting section (☞ p.37 to p.41).
If the error is not corrected, contact Noritz America Technical Support at 866-766-7489.

We will need to know:
The Model .....(check the rating plate)
*See p.4 for the location of the label
Date of purchase .....(see the warranty)
Details of problem ....(flashing error codes, etc., in much detail as possible)
Your name, address, and telephone number
Desired date of visit

* A request for service may be rejected if the water heater is installed in a location where working on the unit may be dangerous. Contact a plumber.

If an error code is displayed, the model name and code can be checked



< Ex:Error code >

* If more than one water heater is installed, this procedure cannot be used.

Operation	Screen Display	Description
1 **Press the** ENTER **button.**	 Model code Product name of water heater is displayed	
2 ENTER **button is pushed again.** (Return to previous screen.)	 <Screen display (Example)>	* If the display is left untouched for approximately 60 seconds, it will return to the previous screen.

Press the STATUS button to check the status of the system

Operation	Screen Display	Description
1 Press the STATUS button inside the cover.	System [Rcrc] Active [04] Units [06] Pump1 [OFF] Online [04] Pump2 [ON] <Screen display (Example)>	* Status can be checked regardless of whether the ON/OFF button is ON/OFF. * If the BACK button is pushed or it is left untouched for approximately 10 minutes, it will return to the previous screen.

● Identifying units that require service (system dependent).

Press the STATUS button twice inside the cover.	Error unit 1 – – – – 6 – – – – – – – – – – – – – – – – – – <Screen display (Example)>	* If you press the BACK button, the screen of step 1 is displayed. If you press the STATUS button, the screen returns to the previous screen.

Warranty

A warranty registration card is included separately.
Be sure that the plumber, date of purchase and other necessary items are filled in.
Read the content carefully, and keep the warranty card in a safe place.

For repairs after the warranty period, there will be a charge on any service, and service will only be performed if the unit is deemed repairable.

Period of Time for Stocking Repair Parts

Noritz will stock repair and maintenance parts for this unit for the time period from the date of the original installation as follows: twelve (12) years for the heat exchanger and ten (10) years for remaining parts.

Reinstallation

If you want to reinstall the appliance at a different location, confirm that the gas and power supply indicated on the rating plate are available at the new location. If you are not sure, consult the local utility company.

Follow-up Service-2

Gas Conversion

If you move to a region that uses a different type of gas or if the local gas supply is converted, replacement of the gas manifold and adjustment of the appliance will be necessary.
This work must be performed by either Noritz or a qualified service agency and will be charged for even during the warranty period. The qualified installer will also be responsible for purchasing the gas conversion kit directly from the manufacturer.
For more information, contact Noritz America Technical Support at 866-766-7489.

⚠ WARNING

The gas conversion kit shall be installed by a qualified service agency* in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction. The information in the instructions must be followed to minimize the risk of fire or explosion or to prevent property damage, personal injury, or death. The qualified service agency is responsible for the proper installation of this kit. The installation is not proper and complete until the operation of the converted appliance is checked as specified in the manufacturer's instructions supplied with the kit.

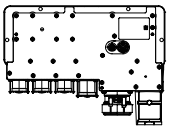
* A qualified service agency is any individual, firm, corporation, or company which either in person or through a representative is engaged in and is responsible for the connection, utilization, repair or servicing of gas utilization equipment or accessories; who is experienced in such work, familiar with all precautions required, and has compiled with all of the requirements of the authority having jurisdiction.

Before the gas conversion is performed, verify the proper gas conversion kit with your water heater model on the table provided below.

Conversion Kit	Model	Conversion Type
CK-48	NC1991-OD	Propane to Natural Gas
CK-49	NC1991-OD	Natural Gas to Propane
CK-50	NC1991-DVC	Propane to Natural Gas
CK-51	NC1991-DVC	Natural Gas to Propane

The following parts are supplied in the conversion kit. These items will replace the existing parts that are currently installed in the unit. Make sure that all parts are replaced and properly installed by a qualified service agency.

* A Noritz remote controller and a digital gas manometer are required to complete the installation. Do not proceed if this equipment is not immediately available.


Manifold Plate


O-Ring


Damper


Conversion Kit Label

After the necessary parts have been replaced on the unit, the remote controller is then used to adjust the settings on the water heater for use with the proper gas type.

The gas pressure values at both the gas supply inlet fitting and at the manifold inlet on the unit are verified by the installer. Proper adjustments will be made to ensure safe and efficient operation.

Once this is completed, a final gas leak check will be performed to confirm that all parts have been securely installed.

If you notice the smell of gas at any time after the installation has been completed, turn the water heater off and contact your gas supplier immediately.

Specifications-1

- Specifications may be changed without prior notice.
- The capacity may differ slightly, depending on the water pressure, water supply, piping conditions, and water temperature.

Specifications

Item		Specification
Model Name		NC1991-OD
Type	Installation	Outdoor Wall Mounted
	Air Supply/Exhaust	Power Vented
Ignition		Direct Ignition
Operating Pressure		15-150 psi
Minimum Flow Rate		0.5 GPM (2 L/min.)
Dimensions (Height) x (Width) x (Depth)		23.6" (600mm) x 13.8" (350mm) x 9.4" (240mm)
Weight		54 lbs.
Water Holding Capacity		0.2 Gallon (1.0L)
Connection Sizes	Water Inlet	3/4"
	Hot Water Outlet	3/4”
	Gas Inlet	3/4”
Power Supply	Supply	120 VAC (60Hz)
	Consumption	NG : 65W LP : 67W Freeze Prevention 161W
Materials	Casing	Zincified Steel Plate/Polyester Coating
	Flue Collar	Stainless Steel
	Heat Exchanger	Copper Sheeting, Copper Tubing
Safety Devices		Flame Rod, Thermal Fuse, Lightning Protection Device (ZNR), Overheat Prevention Device, Freezing Prevention Device, Fan Rotation Detector
Accessories		Remote Controller, Remote Controller Cord, Anchoring Screws

Performance

Item		Maximum Performance	Minimum Performance
Gas Consumption	NG	199,900 btuh	16,000 btuh
	LP	199,900 btuh	16,000 btuh
Maximum Hot Water Capacity	45°F (25°C) Rise	7.5 GPM (28.2 L/min.)	
Capacity Range		0.5-9.8 GPM (2-37 L/min.)	
Temperature Settings	°F Mode:	100-150°F (In 5°F intervals), 160, 170, 185°F (14 Options)	
	°C Mode:	37-48°C (In 1°C intervals), 50-85°C (In 5°C intervals) (20 Options)	
Default Temperature Options		120°F (50°C),135°F (57°C),140°F (60°C),185°F (85°C) (Original is 120°F (50°C))	

Specifications-2

- Specifications may be changed without prior notice.
- The capacity may differ slightly, depending on the water pressure, water supply, piping conditions, and water temperature.

Specifications

Item		Specification
Model Name		NC1991-DVC
Type	Installation	Indoor Wall Mounted
	Air Supply/Exhaust	Power Vented
Ignition		Direct Ignition
Operating Pressure		15-150 psi
Minimum Flow Rate		0.5 GPM (2 L/min.)
Dimensions (Height) x (Width) x (Depth)		23.6" (600mm) x 13.8" (350mm) x 11.0" (280mm)
Weight		58 lbs.
Water Holding Capacity		0.2 Gallon (1.0L)
Connection Sizes	Water Inlet	3/4"
	Hot Water Outlet	3/4”
	Gas Inlet	3/4”
Power Supply	Supply	120 VAC (60Hz)
	Consumption	NG : 80W LP : 83W Freeze Prevention 193W
Materials	Casing	Zincified Steel Plate/Polyester Coating
	Flue Collar	Stainless Steel
	Heat Exchanger	Copper Sheeting, Copper Tubing
Safety Devices		Flame Rod, Thermal Fuse, Lightning Protection Device (ZNR), Overheat Prevention Device, Freezing Prevention Device, Fan Rotation Detector
Accessories		Remote Controller, Remote Controller Cord, Anchoring Screws

Performance

Item		Maximum Performance	Minimum Performance
Gas Consumption	NG	199,900 btuh	16,000 btuh
	LP	199,900 btuh	16,000 btuh
Maximum Hot Water Capacity	45°F (25°C) Rise	7.5 GPM (28.2 L/min.)	
Capacity Range		0.5-9.8 GPM (2-37 L/min.)	
Temperature Settings	°F Mode:	100-150°F (In 5°F intervals), 160, 170, 185°F (14 Options)	
	°C Mode:	37-48°C (In 1°C intervals), 50-85°C (In 5°C intervals) (20 Options)	
Default Temperature Options		120°F (50°C),135°F (57°C),140°F (60°C),185°F (85°C) (Original is 120°F (50°C))	

Default Settings

Items	Default setting
Clock display (unset)	–:––
Hot water temperature	110˚F / 40˚C
Hot water volume	Alarm off

Customizable Settings (☞P23 - 25)	Default setting	
Maximum Output Temperature	185˚F / 85˚C	★
"Powersave dsply" and clock display	No-1	★
Brightness of the display screen when the remote controller is turned on.	Normal	★
Operation sound of remote controller	Yes	★
Notification when a failure is generated	Yes	★

★ Indicates an item that can be restored to default.
See p.25 "Restoring Default Settings".