

**(L)WHiC56,(L)WHi49
(L)WHiCX56,(L)WHiX49**

Service Manual

- This manual must be read by Service personnel repairing the above appliance models.
- Take this manual with you when attending Service study meetings.
- The specifications and contents of this manual may change at any time without prior notification.

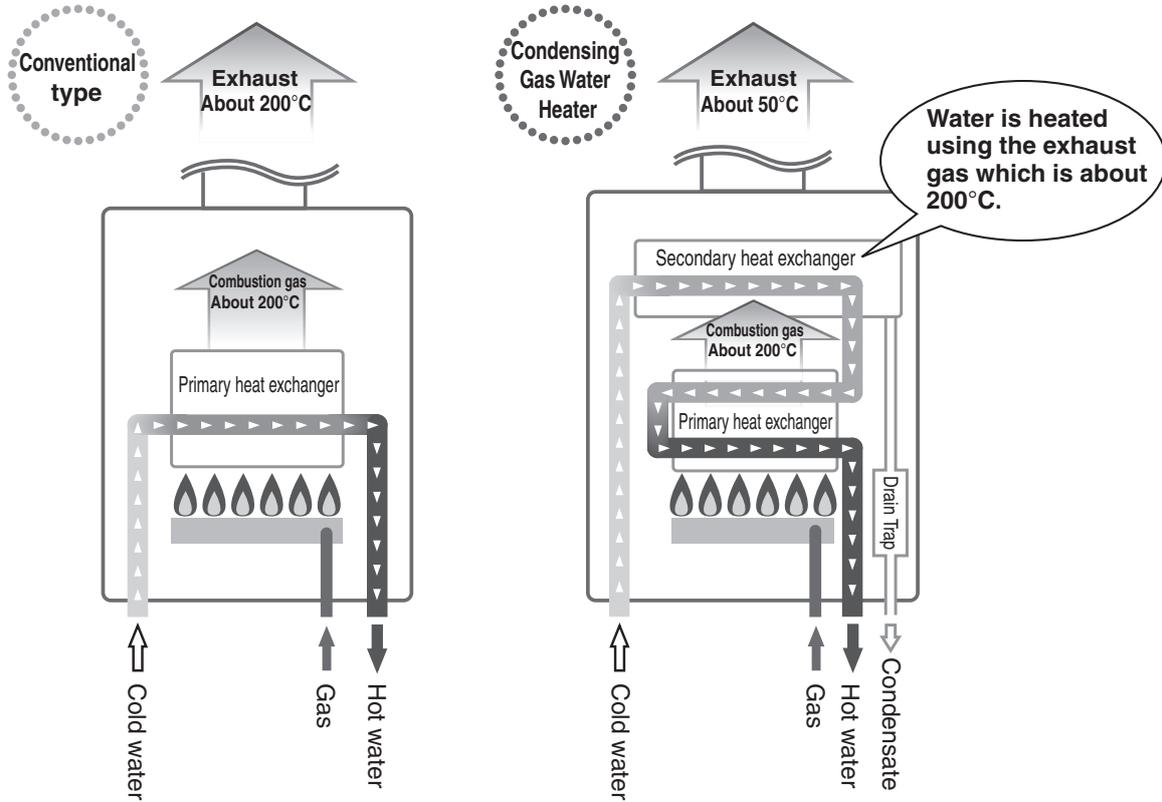
Never short-circuit any safety devices

CONTENTS

Overview of Condensing Gas Water Heater	2
Hot Water Supply Capabilities	3
Pressure Loss Characteristics	5
Component Diagrams	6
Principle of Operation	10
Remote Controller	13
Initial Operation	15
Setting Hot Water Temperature	16
Sequence	17
Wiring Diagram	19
Checkpoints and Measures if a Breakdown Occurs	21
Installation	52
Regular Maintenance	56
Water Quality	59
Procedure for Flushing the Heat Exchanger	60
Draining Water from Unit	61
Specifications	64
Dimensions	68
Installation Check	73
Parts	77

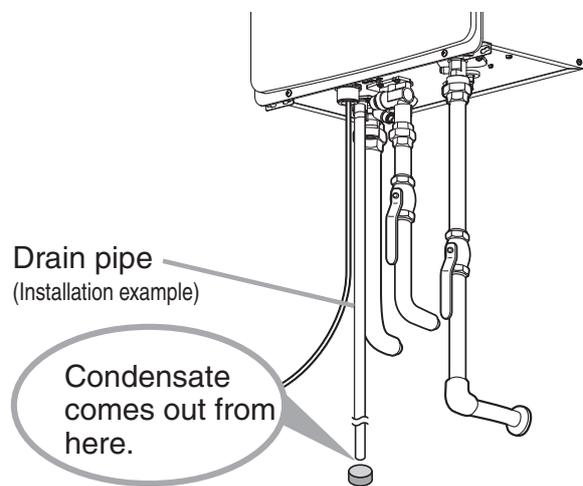
Overview of Condensing Gas Water Heater

This water heater is a high efficiency, fully condensing appliance. Unlike a traditional water heater, a condensing type captures heat from the exhaust gas and uses it to preheat the incoming cold water as it passes through the secondary heat exchanger as illustrated below.



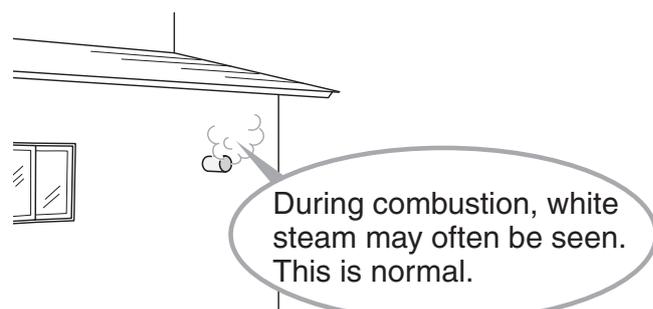
The condensing gas water heater discharges condensate.

When heat from the exhaust gas is collected within the secondary heat exchanger, condensation occurs from moisture in the exhaust gas and the resulting water is discharged from the drain pipe (approx. 100cc/min maximum). It is not a water leak. Do not plug or block the drain line as it must always be allowed to freely flow.



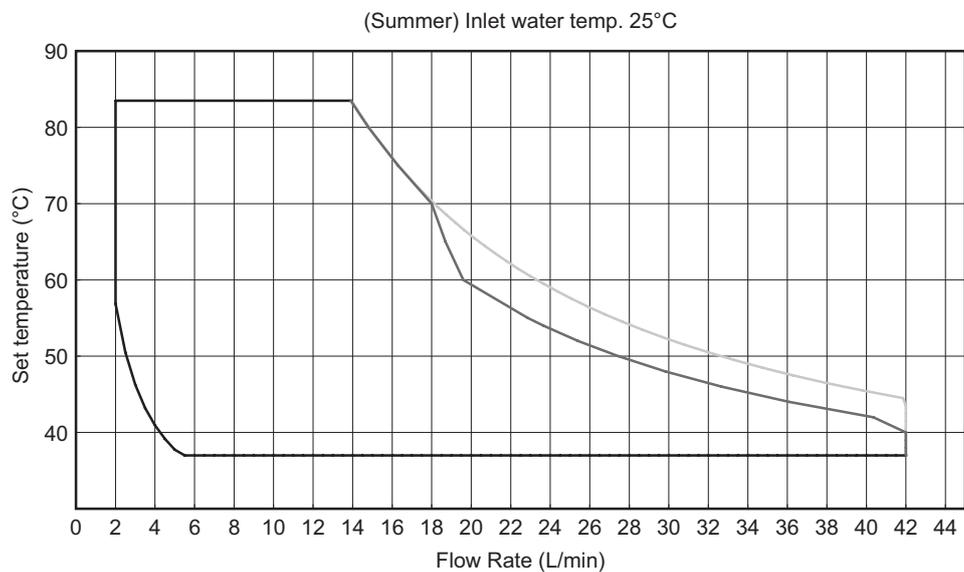
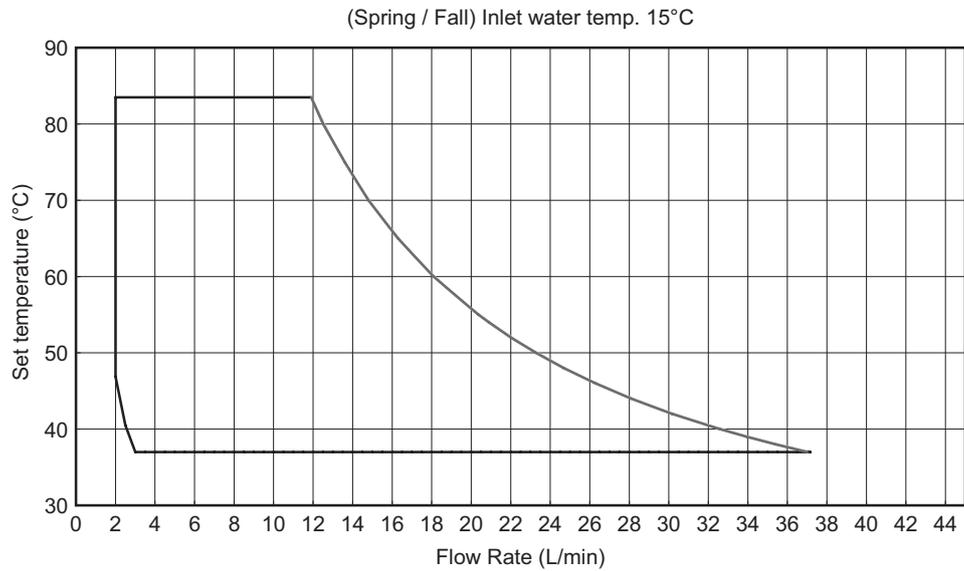
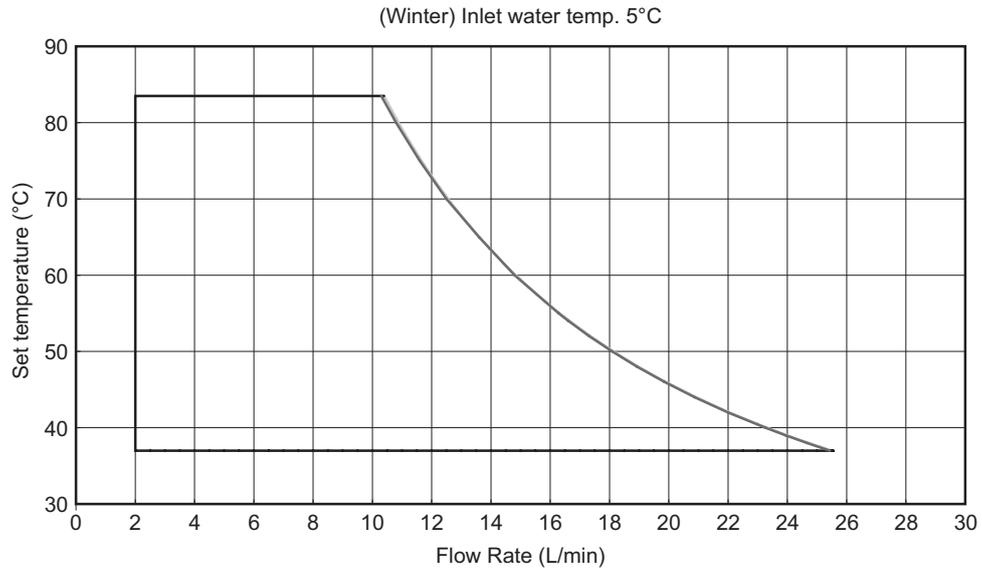
The condensing gas water heater tends to show white steam.

After the exhaust gas passes through the secondary heat exchanger, it becomes low in temperature and moisture rich which tends to produce steam at the vent discharge terminal. This is a normal occurrence.

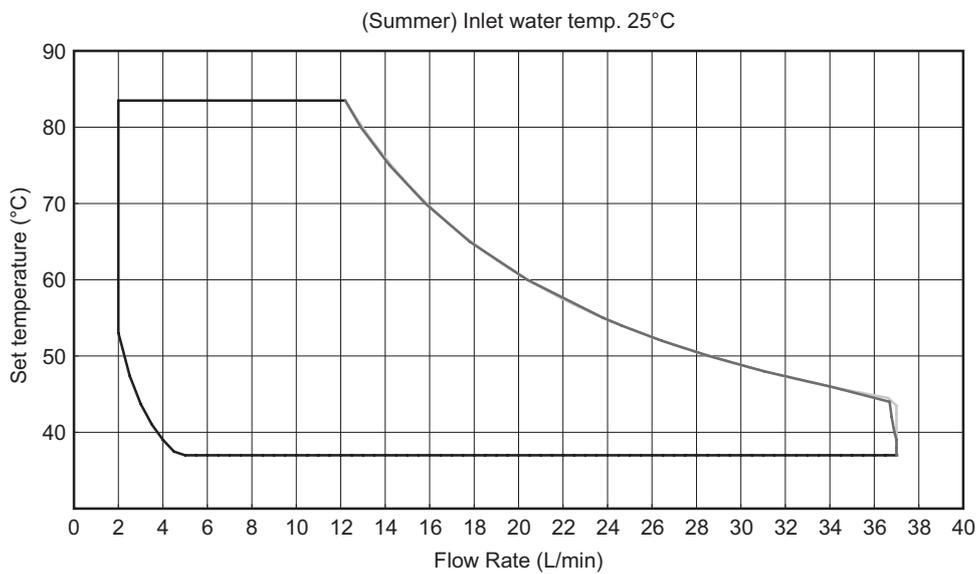
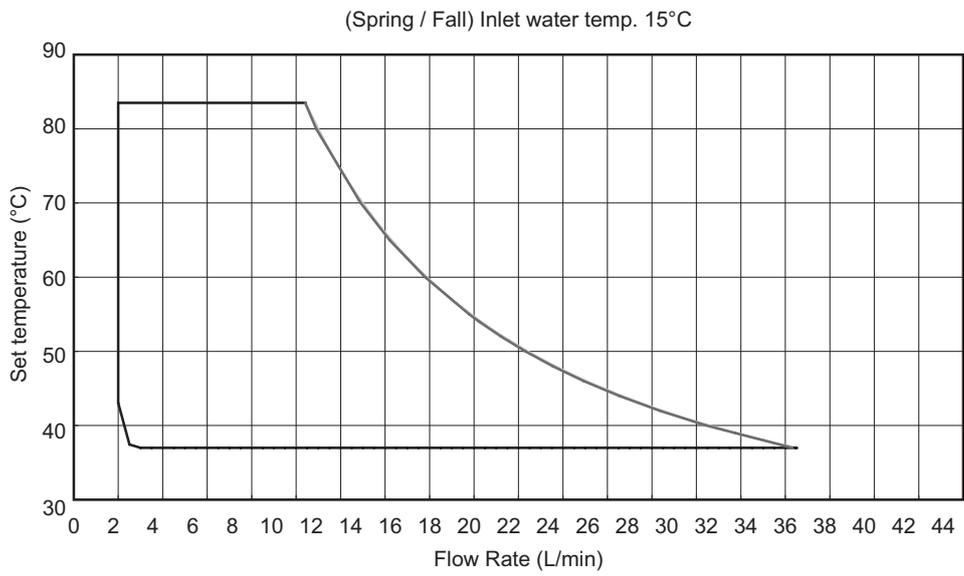
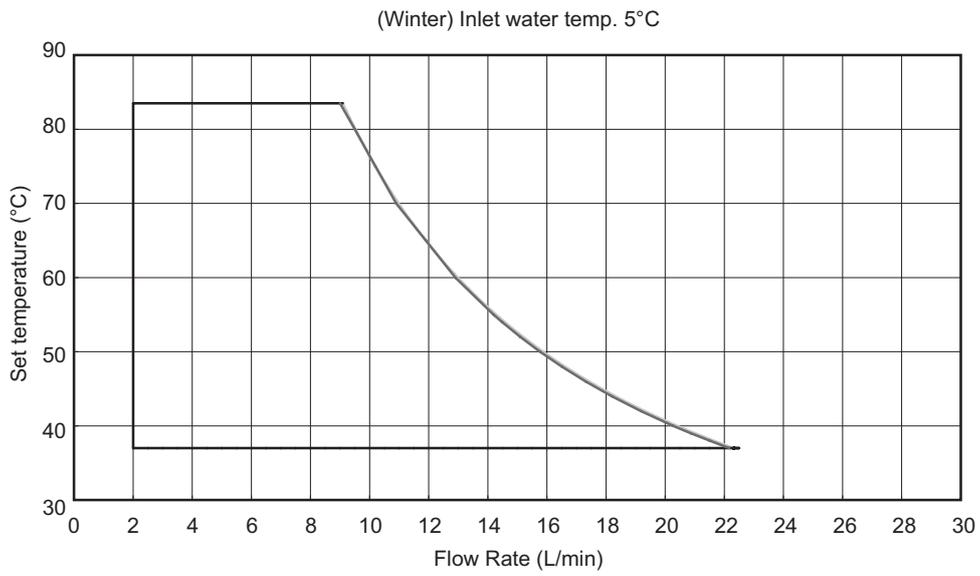


Hot Water Supply Capabilities

■ (L)WHiC56,(L)WHiCX56

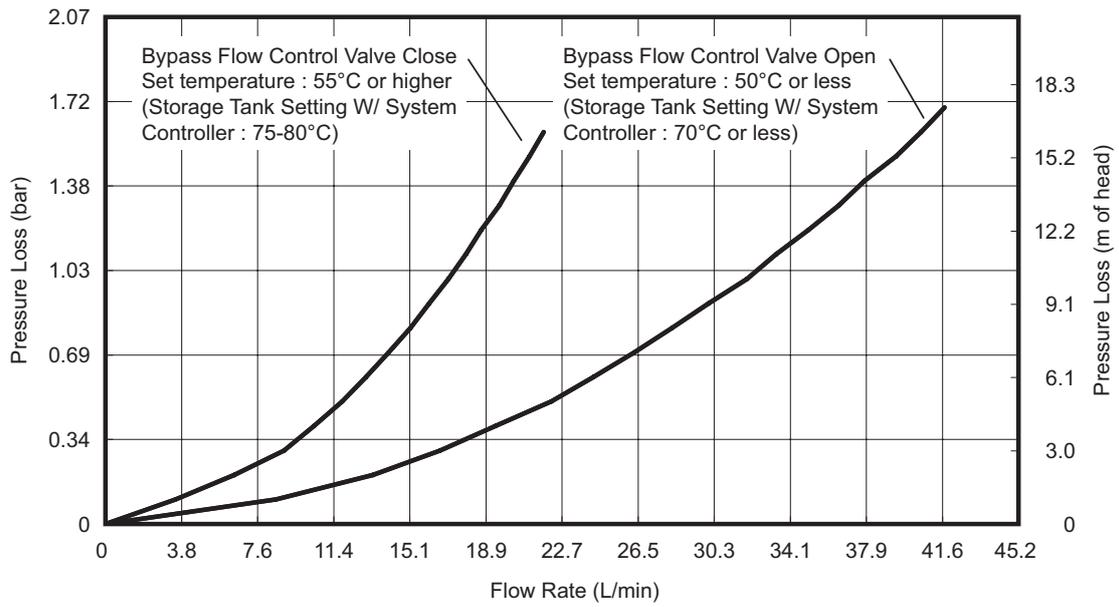


■ (L)WHi49,(L)WHiX49

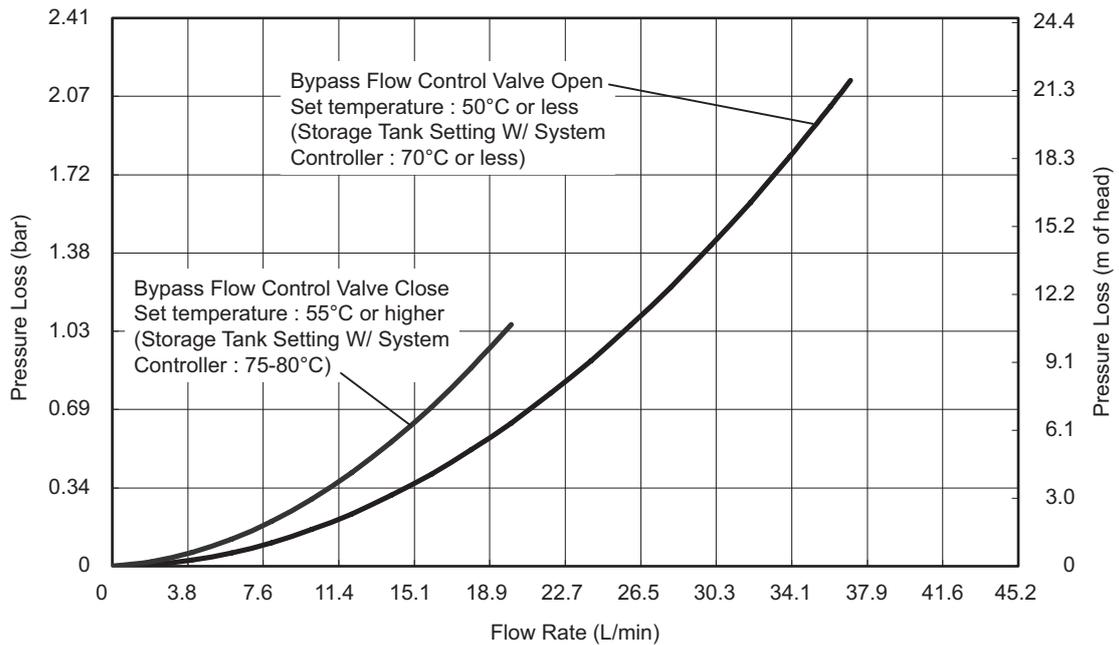


Pressure Loss Characteristics

■ (L)WHiC56,(L)WHiCX56

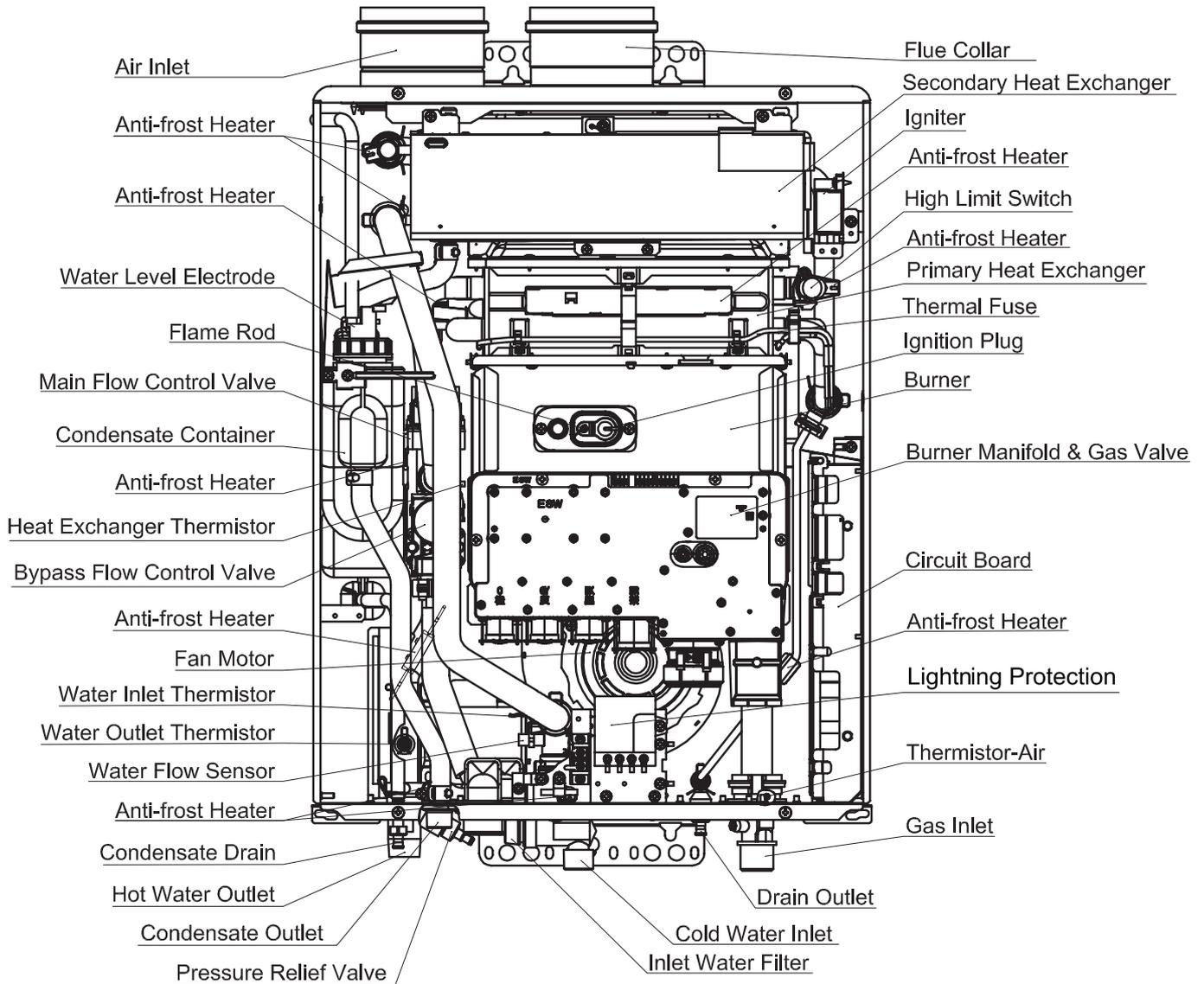


■ (L)WHi49,(L)WHiX49

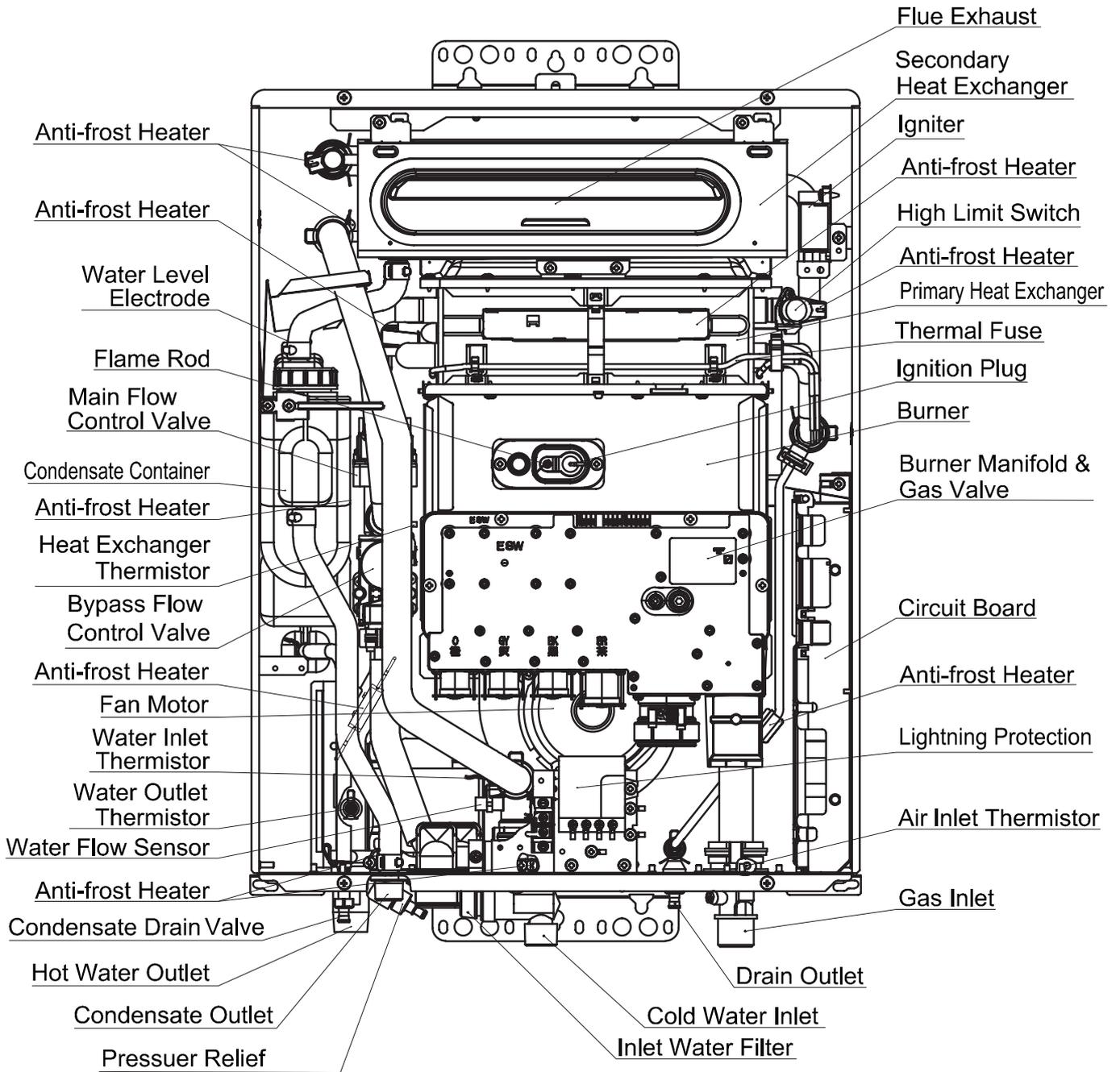


Component Diagrams

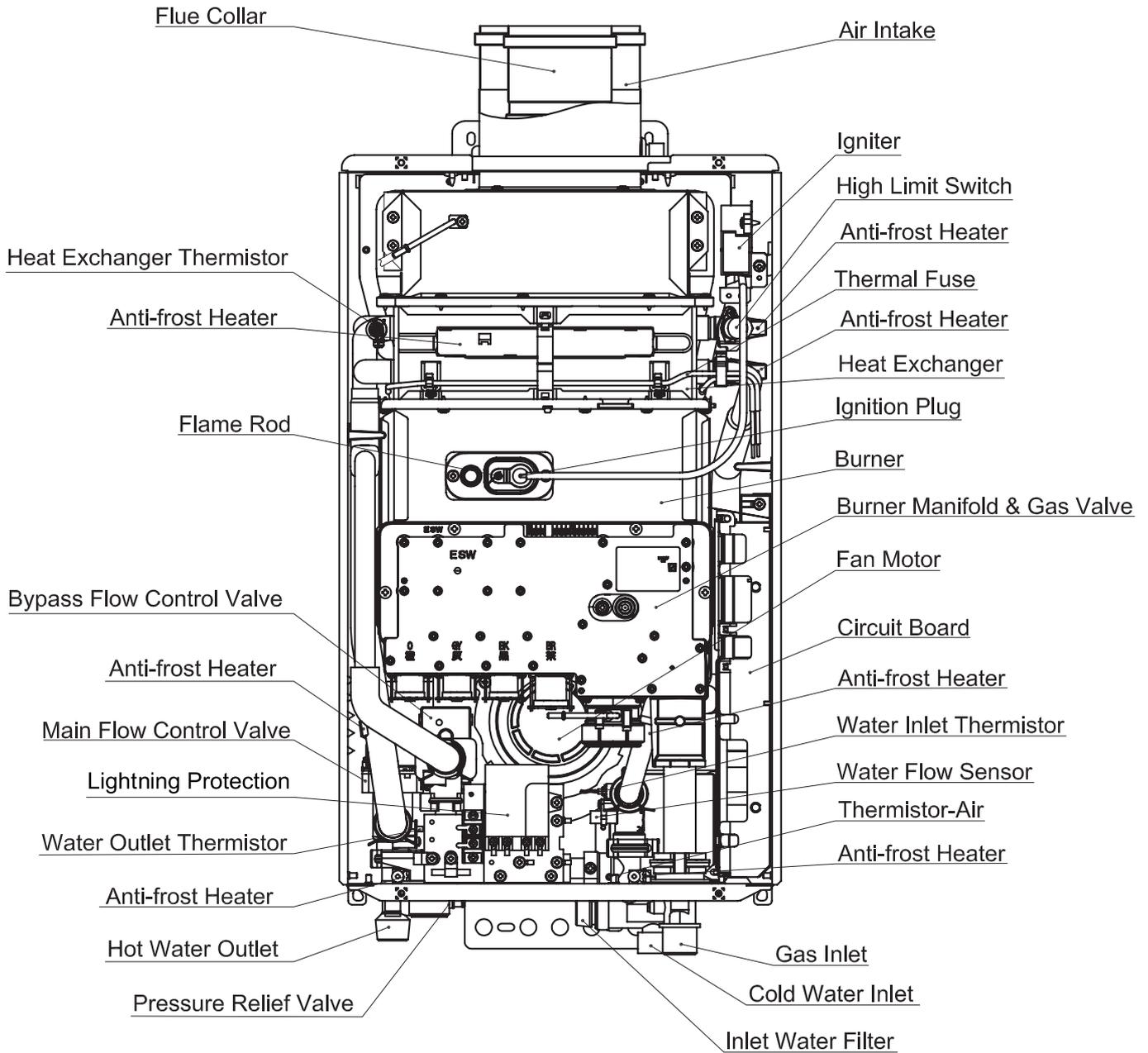
■ (L)WHiC56



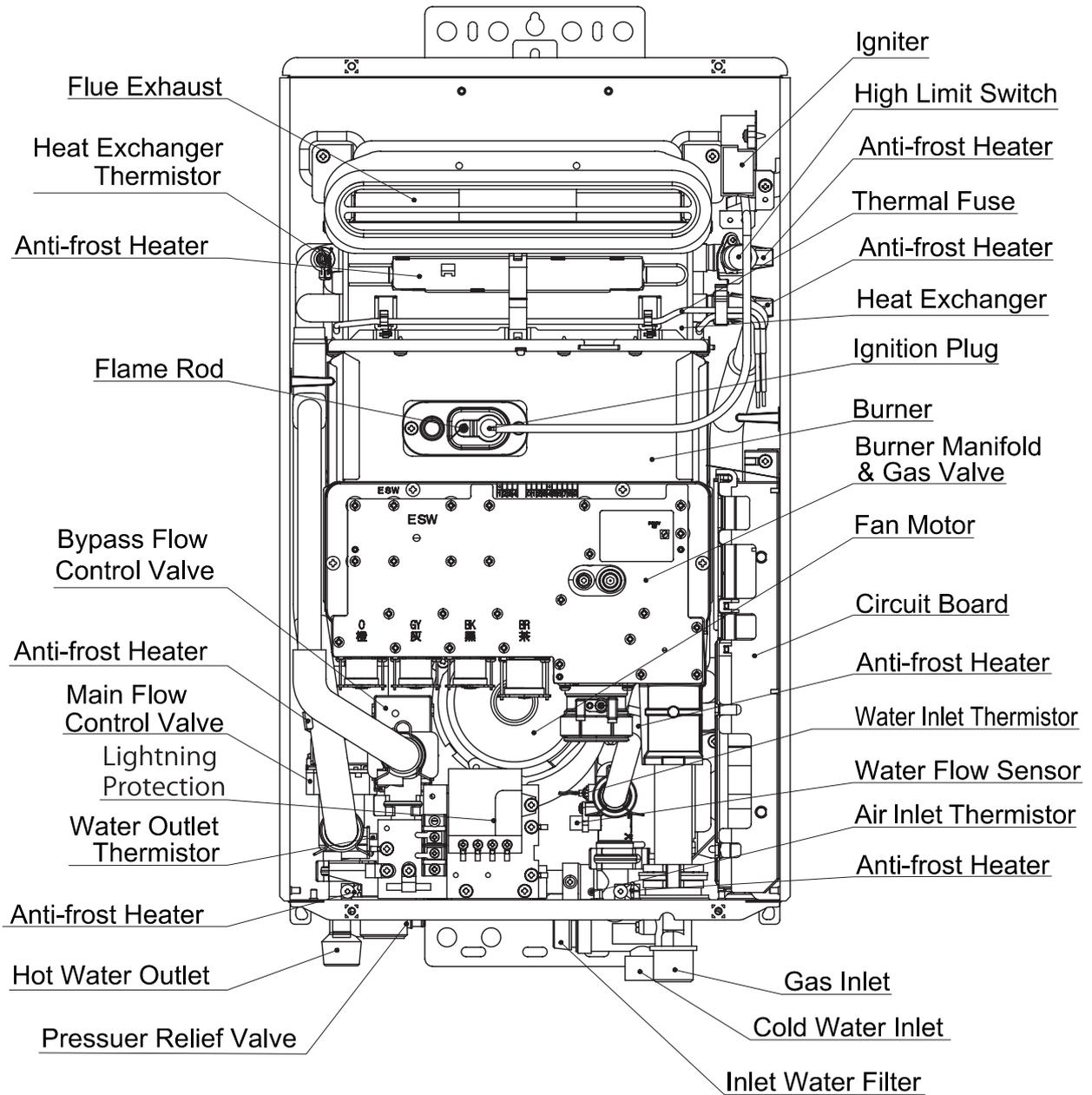
■ (L)WHiCX56



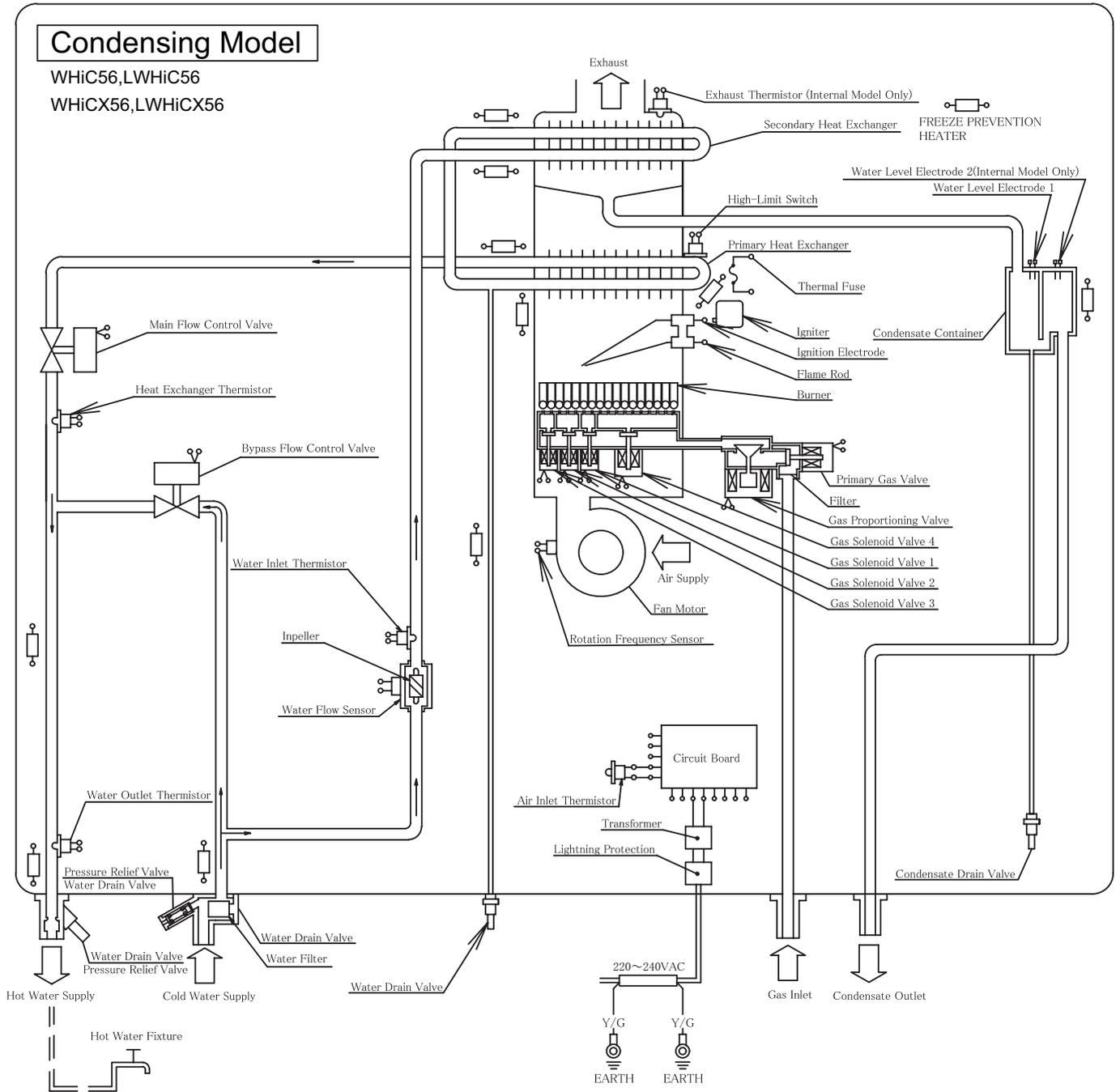
■ (L)WHi49

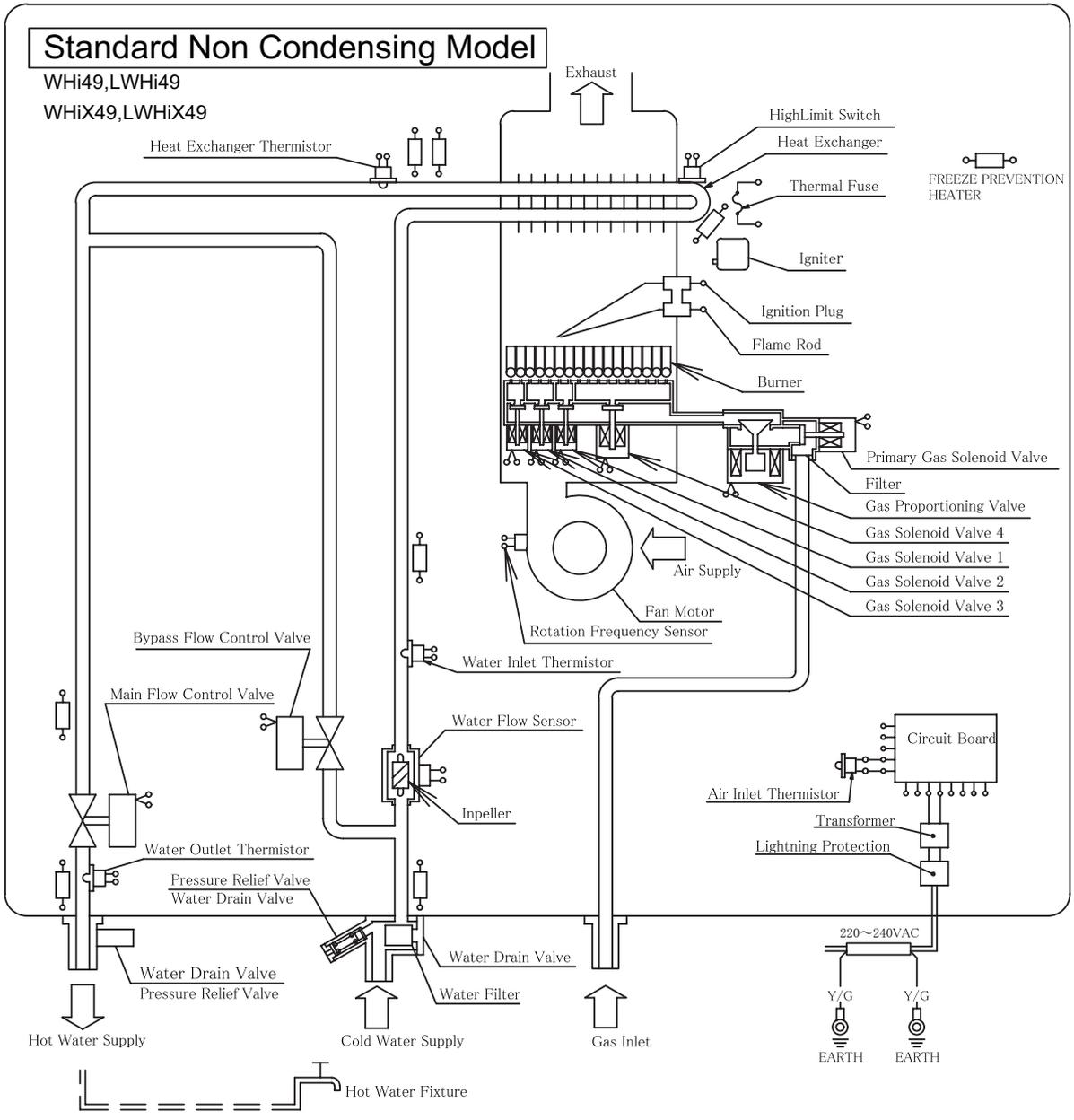


■ (L)WHiX49



Principle of Operation





■ Explanation of operation

1. Using hot water

- (1) Turn the ON/OFF button on the remote controller to ON. (The ON/OFF button will turn on the light.)
- (2) Open the hot water valve to be used. If the water flow sensor detects a water flow above the minimum operation water flow volume, pre-purge (purging gas remaining in the combustion chamber before ignition) will be carried out for a fixed duration of time. After this the gas solenoid valve will open, the ignition device will activate, and ignition will take place in the burner. (The bypass flow control valve is always waiting in the normally "open" position.)
- (3) When the flame rod (flame sensor) detects a flame, the ignition device will stop sparking.
- (4) The hot water temperature will automatically be adjusted to the temperature selected with the temp. button.
- (5) Close the hot water valve that was used.
- (6) When the water flow sensor detects a water flow below the minimum operation water flow, the gas solenoid valve will close and the flame will go out. Post-purge (purging gas remaining in the combustion chamber after the flame goes out) will be carried out for a fixed duration of time, and then the unit will stop.
- (7) After using, the ON/OFF button on the remote controller should be turned OFF.
(The ON/OFF button will turn off the light.)

2. Error Codes

If by any chance the flame rod does not detect a flame or the high limit switch activates, the gas solenoid valve will close and extinguish the flame.

The display will show an error message to inform you of safe operation.

The safe operation reset procedure is to press the ON/OFF button so it turns OFF, and then press it again to turn it ON.

3. Miscellaneous

Before going to bed or at other times when the unit will not be used for a prolonged period of time, be sure to press the ON/OFF button on the remote controllers, make sure that the display has gone off, and then close the primary gas solenoid valve.

Remote Controller

Main Controller (RC-9018M) <Optional>

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.

Power ON /OFF Button / Indicator (Green)

For turning the water heater on/off.

Alarm Off Button / Indicator (Red)

Stops the tone that is emitted when an error occurs.

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.

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.

Back Button

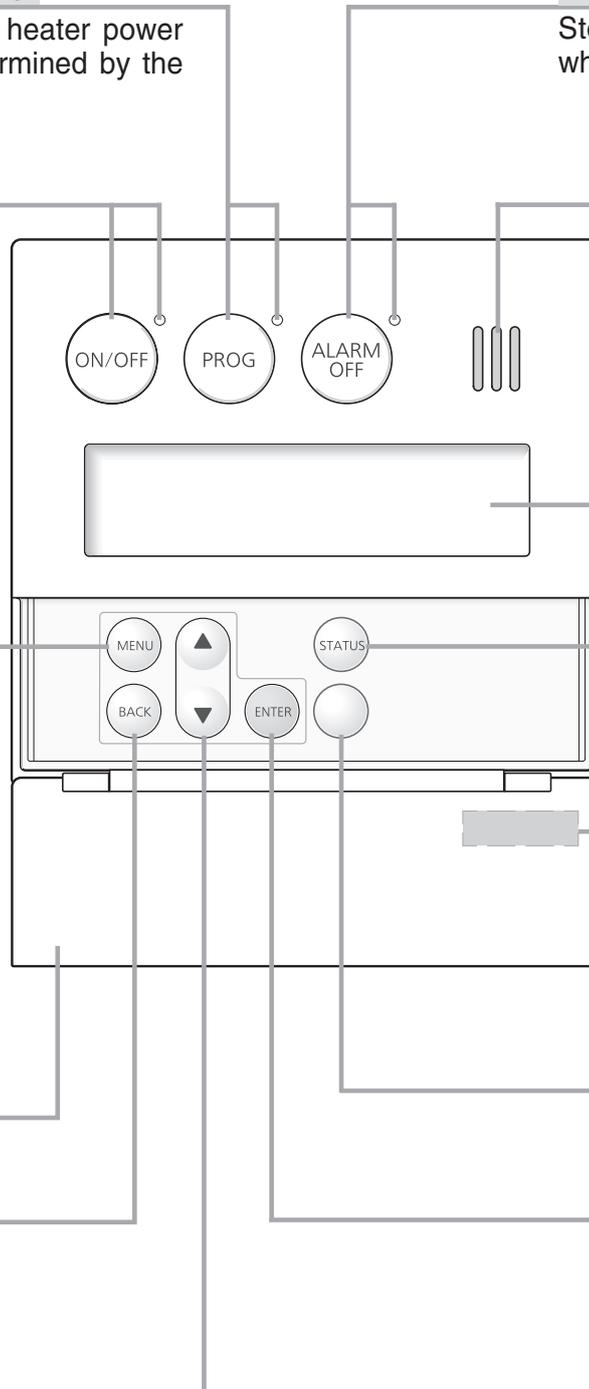
Returns to the previous screen while making system settings or checking status.

Enter Button

Confirms changes made by the user.

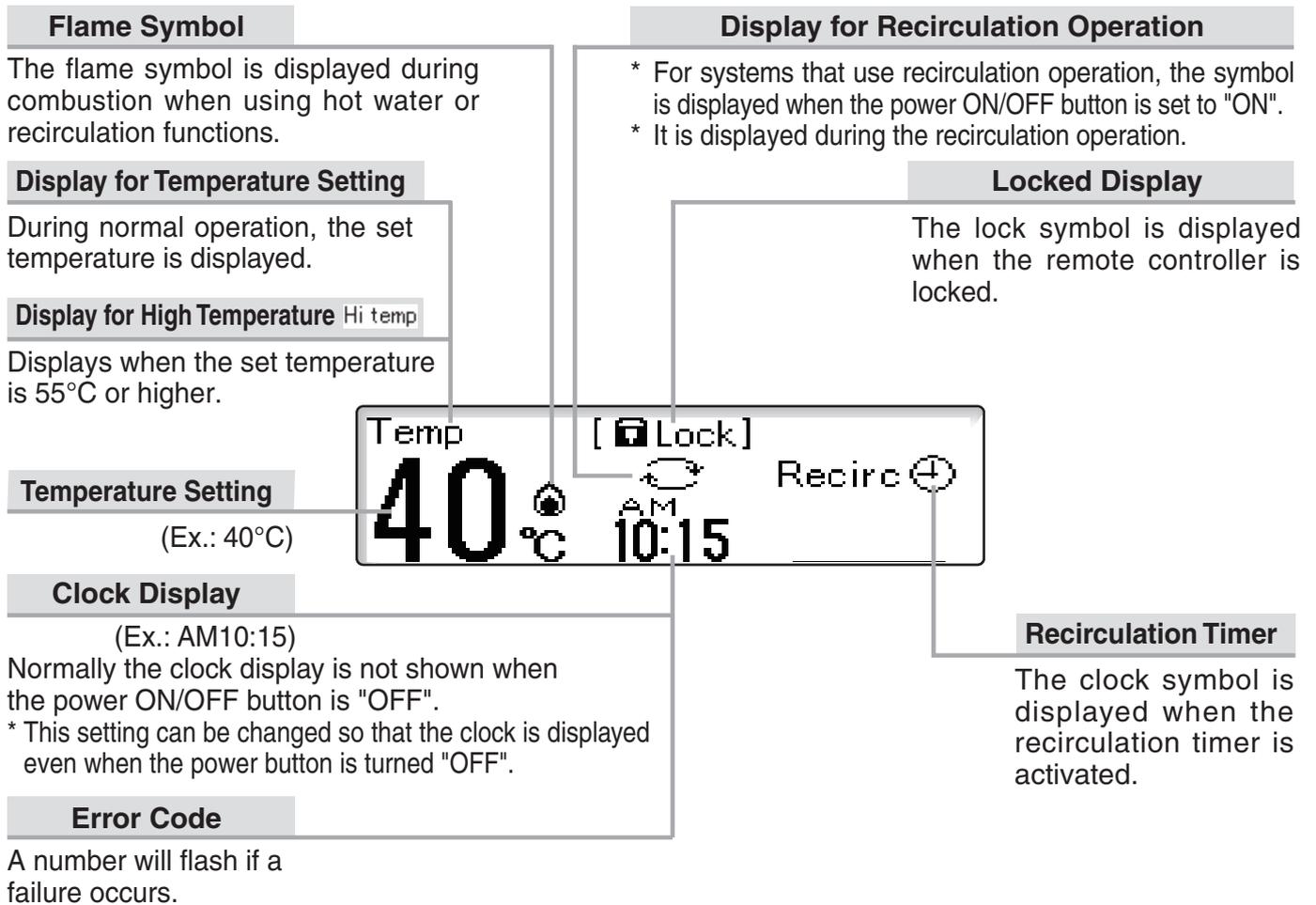
Hot Water Temperature Setting Buttons

For setting the hot water temperature, the flow meter alarm, and other settings.



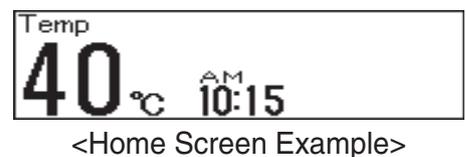
Screen Display

- * 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.



What is the home screen?

The home screen is displayed when the  button is "ON".
Normally, the hot water temperature and the clock, etc. are displayed.

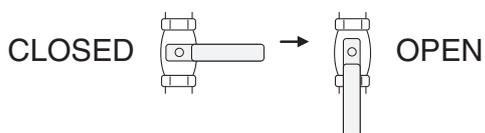


Initial Operation

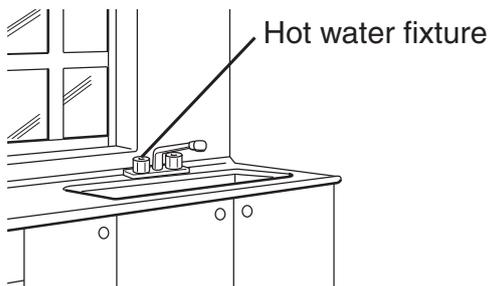
Before the first use of your water heater, make the following preparations.

Follow steps **1 through 4**

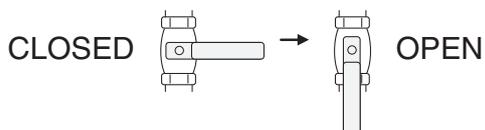
1 Open the water supply valve.



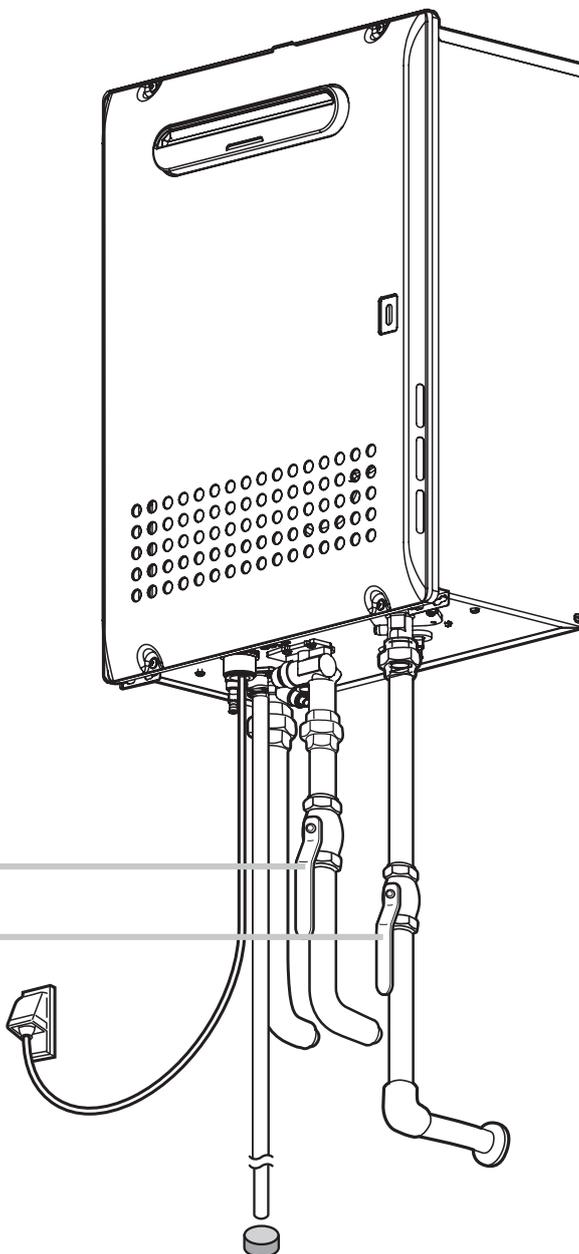
2 Open a hot water fixture to confirm that water is available, and then close the fixture again.



3 Open the gas supply valve.

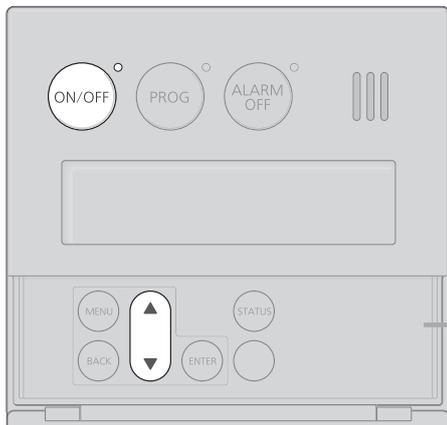


4 Turn on the power.



Ex. WHiCX56, LWHiCX56

Setting Hot Water Temperature



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

Cover shown in the open position.

Operation	Screen Display	Description
1 ON/OFF button is "ON".		* 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.		

Temperature Setting Options

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

37	38	39	40	41	42	43	44	45	46	47	48	50	55	60	65	70	75	80	85
Washing dishes, etc.				Shower, hot water supply, etc.										High temperature					

*Initial factory setting is 40°C

< Display when high temp is set >
 Blinks for approximately 10 seconds → Lit.

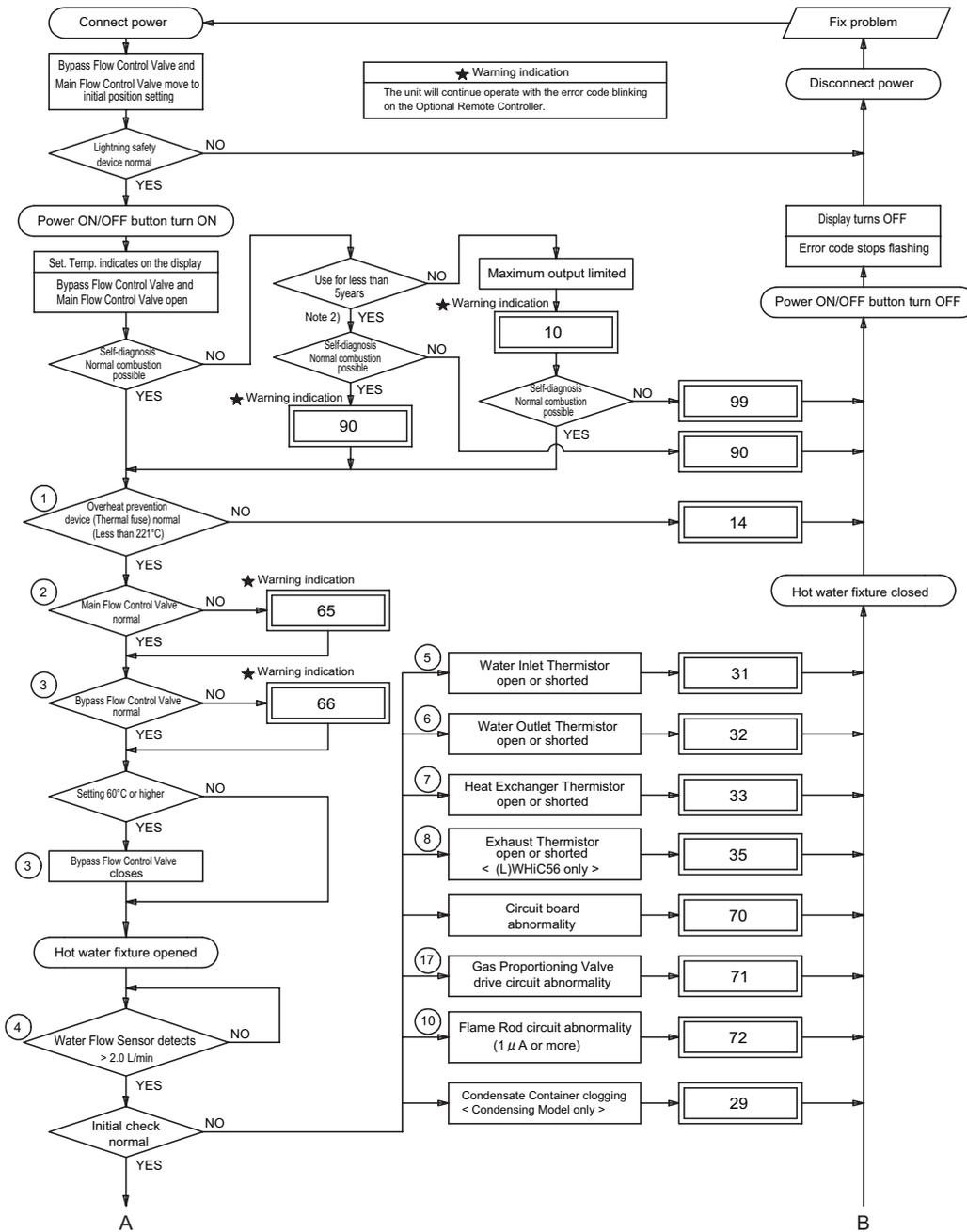
If fixtures incorporate mixing valves, set the temperature higher than usual.

- * For applications that occasionally require a higher temperature setting, locate the remote controller in a convenient location.
- * Consult local codes for minimum operating temperatures.
- 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 10°C higher than the required temperature to ensure the appropriate fixture temperature.

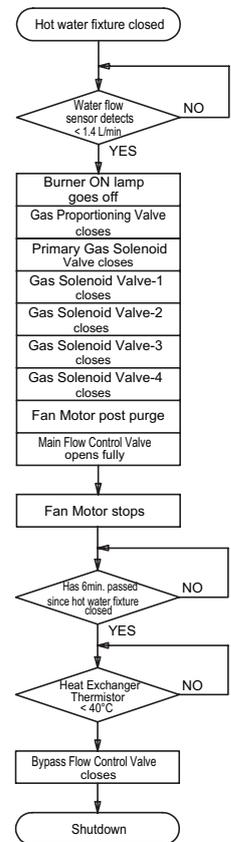
Sequence

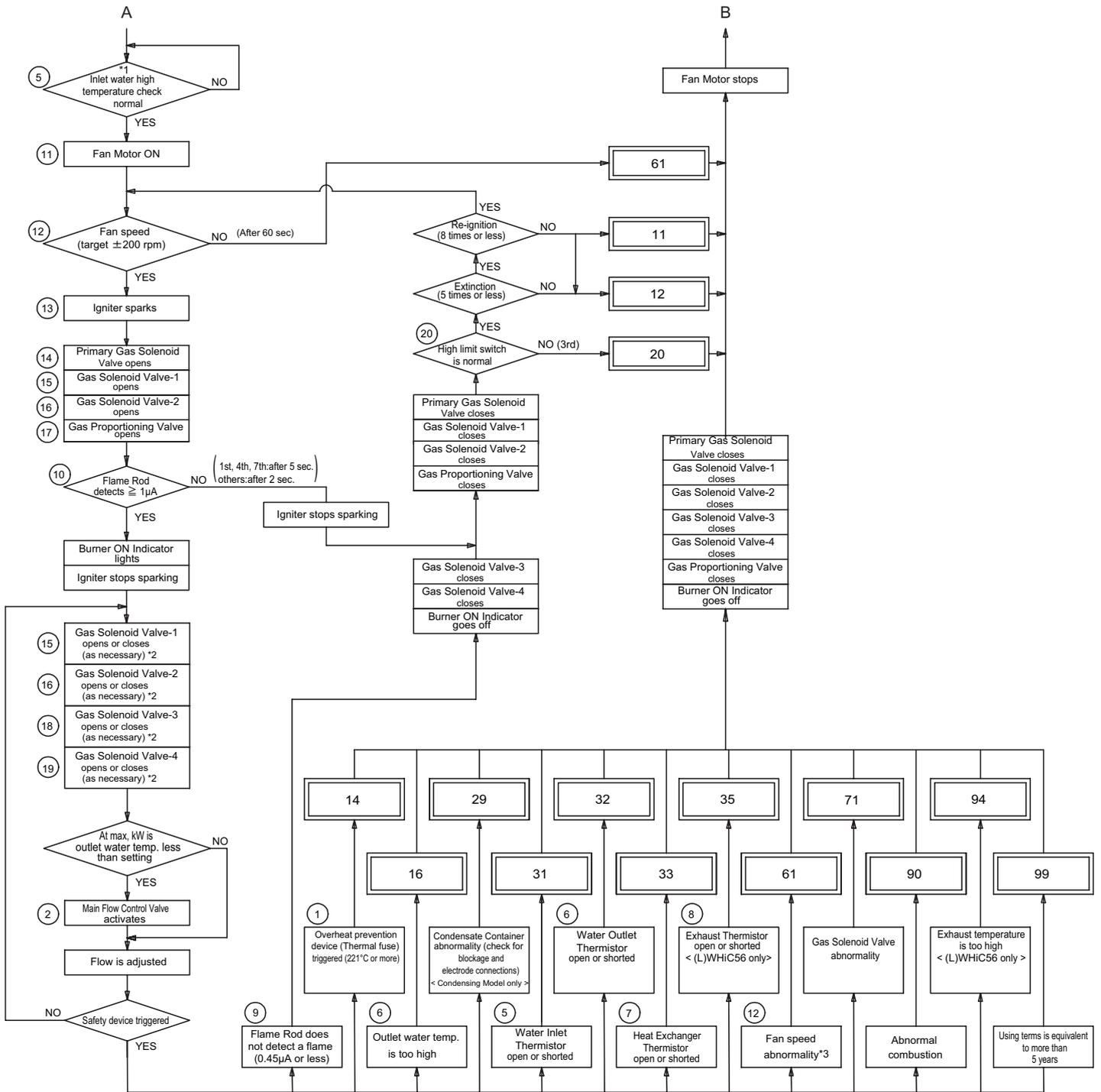
Operation Flow Chart

Water heating



Shutdown procedure





*3 When the present fan speed is 500rpm more or less than target speed.

*1 If the inlet temp is less than 50°C or if the following statements about K are true, the inlet temperature will be normal (YES).

$$K > \frac{\text{Approx. } 2.5 \times 25}{\text{Total water flow (L/min)}} + \text{water inlet temperature (°C)}$$

Set temperature	37°C or more
K	Set temp +5°C

*2

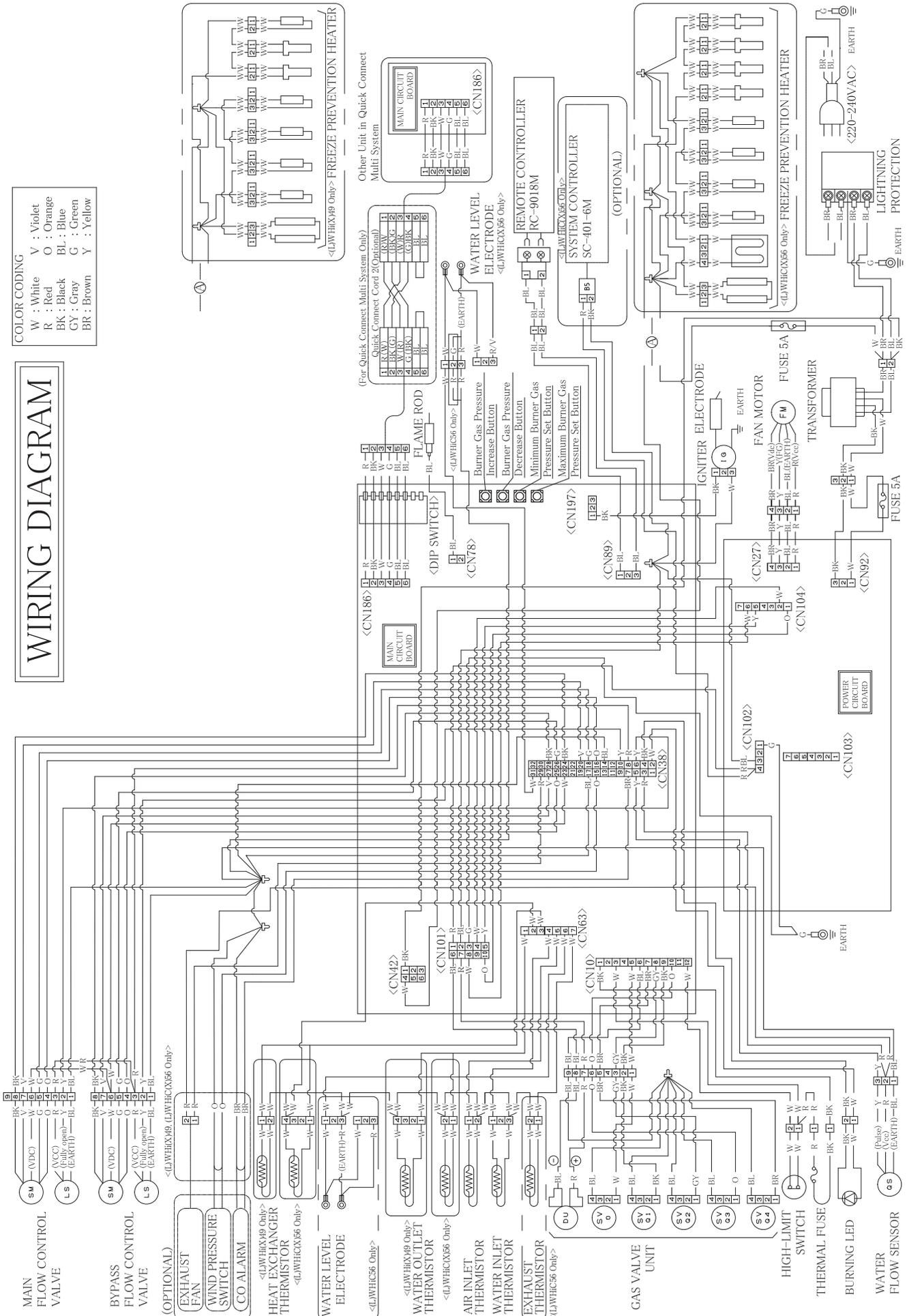
WHi49	Over 38.4kW	Over 24.2kW	Over 17.4kW	Over 10.5kW	Over 6.6kW	Over 3.6kW
LWHi49	Over 36.1kW	Over 23.5kW	Over 16.2kW	Over 10.1kW	Over 7.0kW	Over 3.6kW
WHiX49	Over 36.6kW	Over 24.1kW	Over 15.3kW	Over 10.8kW	Over 7.2kW	Over 3.6kW
LWHiX49	Over 37.0kW	Over 21.6kW	Over 15.2kW	Over 10.3kW	Over 6.6kW	Over 3.6kW
WHiC56	Over 41.9kW	Over 26.3kW	Over 16.7kW	Over 12.0kW	Over 8.0kW	Over 4.2kW
LWHiC56	Over 41.2kW	Over 24.8kW	Over 16.6kW	Over 10.8kW	Over 7.2kW	Over 4.2kW
WHiCX56	Over 42.0kW	Over 25.8kW	Over 16.4kW	Over 11.0kW	Over 7.3kW	Over 4.2kW
LWHiCX56	Over 42.6kW	Over 25.3kW	Over 16.6kW	Over 10.8kW	Over 7.2kW	Over 4.0kW
Gas Solenoid Valve-1	ON	ON	ON	ON	/	ON
Gas Solenoid Valve-2	ON	/	ON	ON	ON	/
Gas Solenoid Valve-3	ON	/	ON	/	/	/
Gas Solenoid Valve-4	ON	ON	/	/	/	/

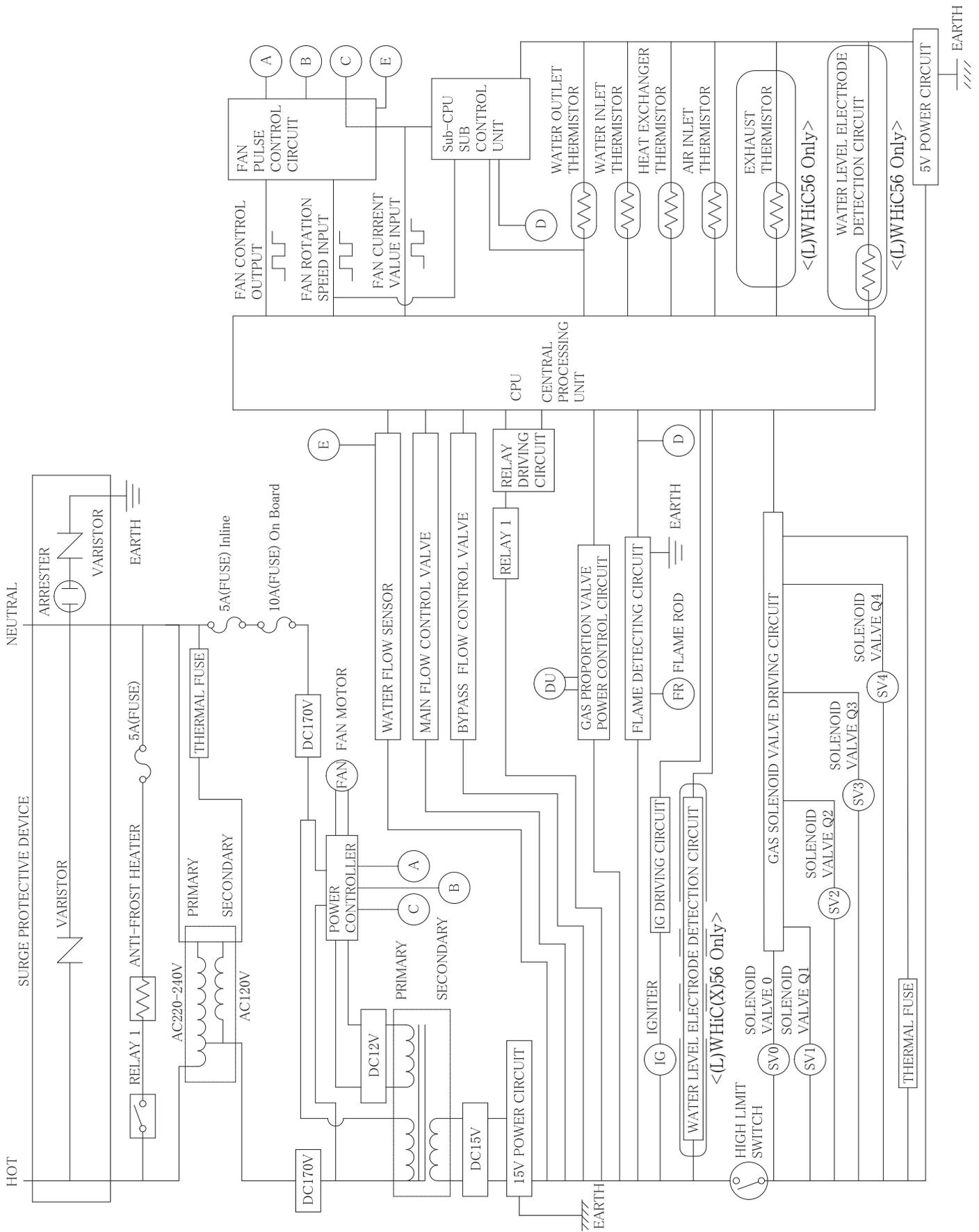
Wiring Diagram

WIRING DIAGRAM

COLOR CODING

W : White	V : Violet
R : Red	O : Orange
BK : Black	BL : Blue
GY : Gray	G : Green
BR : Brown	Y : Yellow





Checkpoints and Measures if a Breakdown Occurs

■ Error Codes and Checkpoints

Display*	Description	Diagnosis Point (Trouble Point)
(F) 10	Combustion abnormality (Output drop) (Warning indication)	Check for abnormal combustion. Check flue for blockage or obstruction.
(F) 11	Ignition failure (Initial flame fault detection)	Check the gas supply piping and pressure. Check for Igniter spark (13). Check Gas Solenoid Valves and Gas Proportioning Valve (14, 15, 16, 17). Check Flame Rod (10). Check earth, paying special attention to the earth connection to the Circuit Board.
(F) 12	Flame Rod does not detect flame (Flame fault detection)	Check for accidental extinction of the flame. Check for abnormal combustion. Check Gas Solenoid Valves. Check Flame Rod (10). Check earth, especially on Circuit Board.
(F) 13	CO Alarm operation (CO Alarm connected only)	Check for exhaust leakage. Check for CO Alarm failure.
(F) 14	Overheat Prevention Device (Thermal Fuse) triggered	Check for melting or damage to the Thermal Fuse (1). Check for improper connection of Thermal Fuse.
(F) 16	Abnormally high output temperature	Measure the resistance through the Water Outlet Thermistor (6). Check for Gas Proportioning Valve (17). Check for Burner Gas Pressure.
(F) 20	High Limit Switch triggered	Check if High Limit Switch is triggered (20). Check for improper connection of High Limit Switch.
(F) 29	Condensate Container clogging < Condensing Model only >	Check if the drain line is clogged or frozen (22, 23). Check that the drain pipe slope down.
(F) 30	Air Inlet Thermistor abnormality	Measure the resistance through the Air Inlet Thermistor (21). Check for an open or short circuit. Check for improper connection of Air Inlet Thermistor.
(F) 31	Water Inlet Thermistor abnormality	Measure the resistance through the Water Inlet Thermistor (5). Check for an open or short circuit. Check for improper connection of Water Inlet Thermistor.
(F) 32	Water Outlet Thermistor abnormality	Measure the resistance through the Water Outlet Thermistor (6). Check for an open or short circuit. Check for improper connection of Water Outlet Thermistor.
(F) 33	Heat Exchanger Thermistor abnormality	Measure the resistance through the Heat Exchanger Thermistor (7). Check for an open or short circuit. Check for improper connection of Heat Exchanger Thermistor.
(F) 35	Exhaust Thermistor abnormality < (L)WHiC56 only >	Measure the resistance through the Exhaust Thermistor (8). Check for an open or short circuit. Check for improper connection of Exhaust Thermistor.
(F) 51	Failure of Gas Solenoid Valve (other than drive circuit)	Check for proper connection of the Gas Solenoid Valves. Check for damage to the Gas Solenoid Valve connections.
(F) 61	Fan Motor abnormality	Check that the fan is rotating and check the pulse frequency from the fan rotational frequency sensor (11,12). Check for improper connection of the fan. Check voltage from Circuit Board.
(F) 65	Main Flow Control Valve abnormality	Check that the Main Flow Control Valve is functioning (2). Check for improper connection of the valve.
(F) 66	Bypass Flow Control Valve abnormality	Check that the Bypass Flow Control Valve is functioning (3). Check for improper connection of the valve.
(F) 70	Circuit Board abnormality	Circuit Board failure.
(F) 71	Gas Solenoid Valve drive circuit abnormality	Check for damage to the Gas Solenoid Valve drive circuit on the Circuit Board.
(F) 72	Flame Rod circuit abnormality (Detection of flame when no flame is present)	Measure the current from the Flame Rod when there is no flame (9). Check for a earth fault.
(F) 73	Circuit Board setting abnormality (Improper Maintenance Writers Settings, DIP Switch Settings, etc.)	Check for proper setting of maintenance writers on Circuit Board. Check the Circuit Board (microcomputer) for damage. Check the DIP switch settings. (Ex. vent length, etc.)
F76	Multi-system communication error	Check for proper connection of Quick Connect Cord.
760	Remote Controller transmission abnormality	Check connection from Remote Controller to Circuit Board. Check Remote Controller and Circuit Board for damage.
(F) 90	Combustion abnormality (Warning indication)	Check for abnormal combustion. Check flue and air inlet for blockage or obstruction.
	Combustion abnormality (Unit shuts off)	Check for abnormal combustion. Check flue for blockage or obstruction. Check that flame ignites all across the burner.
(F) 94	Exhaust temperature is too high < (L)WHiC56 only >	Check for abnormal combustion (8).
(F) 99	Combustion abnormality (Unit shuts off)	Check for abnormal combustion. Check flue for blockage or obstruction.

*In a Quick Connect Multi-System, "F##" (except F76) indicates an error code from the secondary unit (unit without a remote controller).
*(L)WHi49 series flue system type is Room sealed If the heater exhibits noise and vibration when installed with flue terminal and flue (less than 2 meters) without elbow, the DIP switch should be changed. Refer to DIP switch table No.7 and No.8. Select result "C long length".

■ Troubleshooting

Important Safety Information

To prevent damage to property and injury to the user, the icons below warn of varying levels of risk.

 Warning	Ignoring this indication will cause an immediate danger of death or serious injury.
 Caution	Ignoring this indication may result in death or serious injury.
	Prohibited.

1. Safety Tips for Service

- Wear the appropriate clothing and protective gear:



- In order to prevent injury or accident, wear a protective helmet, safety boots and a lifting belt whenever necessary.



- Only use replacement parts manufactured by DUX for this model as listed in the Installation Manual Parts List for service on this unit. Use appropriate tools.

- Modification of the unit is prohibited:



- Do not attempt to modify or alter the unit. This will cause a fire hazard and a risk of electrical shock.

- When servicing:



- Disconnect the power supply during maintenance and repairs to reduce the risk of electric shock. If it is necessary to have the electricity connected during repairs, use extreme caution not to touch parts that may cause a shock.

- Do not short circuit any safety device on this appliance:



- If a safety device is not functioning properly, replace the part. Do not under any circumstances short circuit the part.

- Exhaust and gas leakage caution:



- Always check for leaks when installing or modifying the exhaust vent or gas piping.

2. Post-Service Checks

- Check parts for leaks:



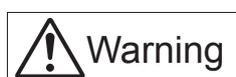
- Confirm that there are no gas, water, or exhaust leaks regardless of whether the service performed could have caused them.
- If the unit is installed indoors, check that the flue collar and vent pipe are installed correctly and that they are in good condition. Confirm that there are no gas, water or exhaust leaks regardless of whether the service performed could have caused them.

- Check for combustibles:



- After service or maintenance is completed, check that there are no combustibles in the vicinity of the unit.

- Check insulation resistance:



- After service or maintenance is completed, measure the resistance between the electrical wires and ground. If it is less than 10MΩ, there is a risk of electrical shock.

- Properly reconnect the power supply:



- Confirm that the power supply has been reconnected properly after service or maintenance is completed. Also confirm that there is no dust or other obstacles that might cause an electric shock or a fire hazard.

No Error Code

	Error	Page
1-1	The operation indicator does not light when the ON/OFF button is pressed.	24
1-2	The fan does not operate when hot water fixture is opened	26
1-3	Outlet water temperature incorrect	27

Error Code displayed

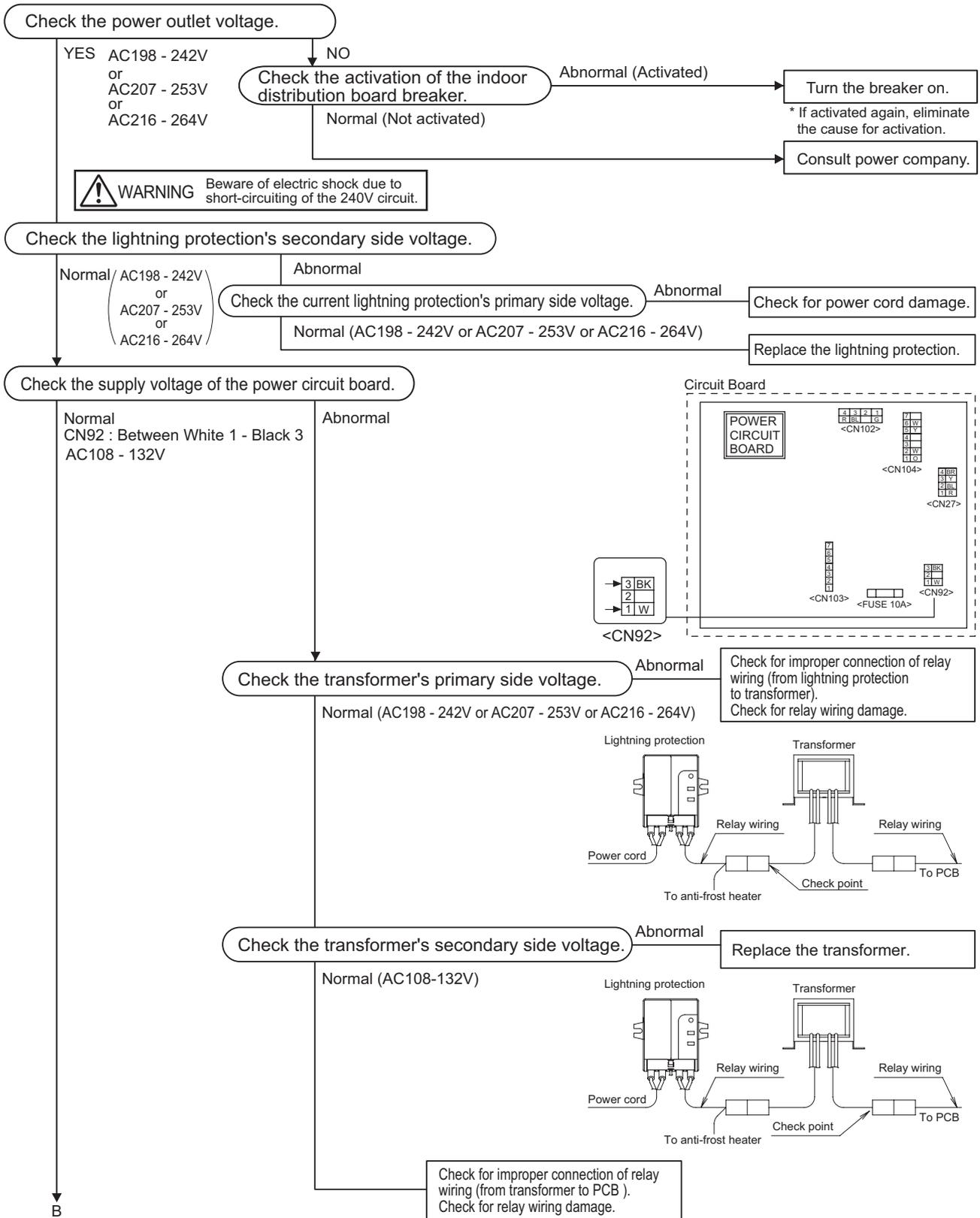
	Error Code Displayed	Page
(F)10	Combustion abnormality (Output drop and Warning indication only)	30
(F)11	Ignition failure (Initial flame fault detection)	30
(F)12	Flame Rod does not detect flame (Flame fault detection)	33
(F)14	Overheat Prevention Device (Thermal Fuse) triggered	33
(F)16	Abnormally high output temperature	34
(F)20	High Limit Switch triggered	34
(F)29	Clogging of condensate container (Water level electrode shorted)	35
(F)30	Air inlet thermistor abnormality	35
(F)31	Water inlet thermistor abnormality	35
(F)32	Water outlet thermistor abnormality	36
(F)33	Heat exchanger thermistor abnormality	36
(F)35	Exhaust thermistor abnormality <(L)WHiC56 only>	37
(F)51	Failure of Gas Solenoid Valve (or Gas Solenoid Valve drive circuit abnormality)	37
(F)61	Fan Motor abnormality	38
(F)65	Main flow control valve abnormality	39
(F)66	Bypass flow control valve abnormally	39
(F)70	Circuit Board abnormality	39
(F)71	Gas Solenoid Valve drive circuit abnormality	39
(F)72	Flame Rod circuit abnormality (Detection of flame when no flame is present)	39
(F)73	Circuit Board setting abnormality	39
F76	Multi-system communication error	39
(F)760	Remote controller transmission abnormality	40
(F)90	Air flow abnormality	40
	Combustion abnormality	40,41,42
(F)94	Exhaust temperature is too high <(L)WHiC56 only>	43
(F)99	Combustion abnormality (Appliance is stopped)	43

* In a Quick Connect Multi-System, "F###" (except F76) indicates an error code from the secondary unit (unit without a remote controller).

* (L)WHi49 series flue system type is Room sealed. If the heater exhibits noise and vibration when installed with flue terminal and flue (less than 2 meters) without elbow, the DIP switch should be changed. Refer to DIP switch table No.7 and No.8. Select "C long length".

1. No Error Code

1-1. The operation indicator does not light when the ON/OFF button is pressed.

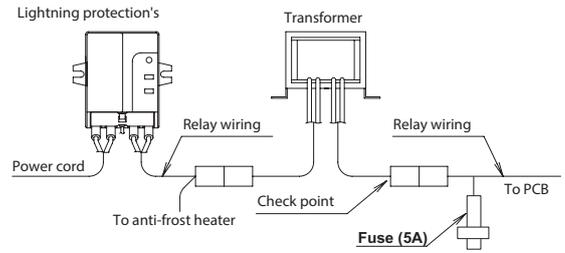
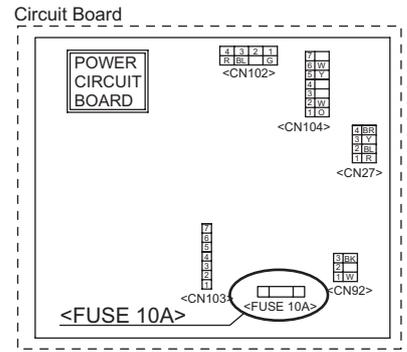


B
 Check the current fuse.

* Unplug the power cord when checking.

Normal (Not blown)

Abnormal
(Blown)



Replace the current fuse .

* If the fuse blows again, eliminate the cause for the excess current.

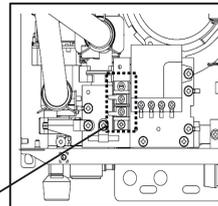
Check the voltage at the remote controller terminal.

Normal (DC13 - 16V)

Abnormal

Remove the remote controller cord.

Remote controller terminal



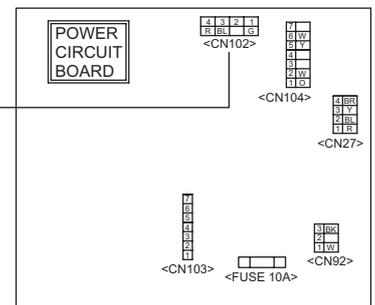
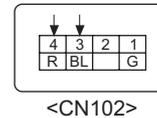
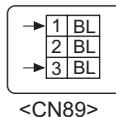
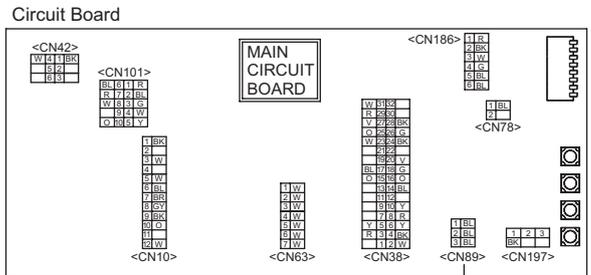
Check the voltage of the remote controller on the circuit board.

Abnormal

Check for improper connection of wiring, damage, short-circuiting or ground fault, then replace the circuit board set.

Normal

CN89 : Between Blue1 - Blue3
 CN102: Between Blue3-Red4
 DC 13 - 16V

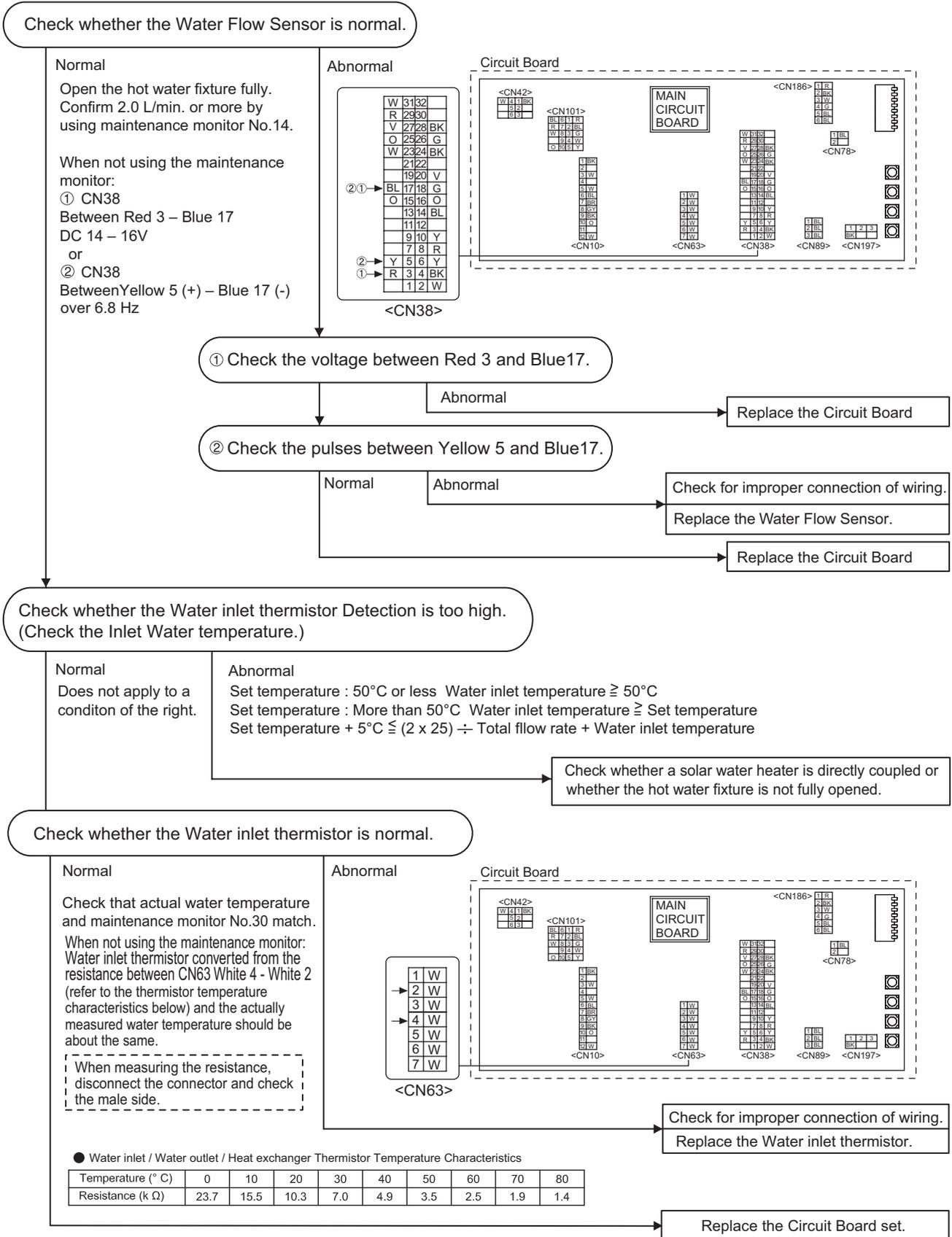


Check for the remote controller terminal damage, disconnection of wiring, short-circuiting or ground fault, then replace the remote controller terminal.

Check for remote controller cord damage, short-circuiting or ground fault, and if there is no problem replace the remote controller.

* If there is cord damage, short-circuiting or ground fault, replace the remote controller cord.

1-2. The fan does not operate when the hot water fixture is opened.



1-3. Outlet water temperature incorrect

Only connect and disconnect the connector after the fan has stopped rotating and then disconnect the electrical power. (The Circuit Board and Fan Motor may be damaged otherwise.)

Check whether the Water inlet / Water outlet / Heat exchanger Thermistor are normal.

Normal

Set the "Operation" button to the on position, and then disconnect electrical power, and then open the fixture (pass through the water to the unit). Close the fixture, and then reconnect electrical power. Check the maintenance monitor. The difference between No.30, No.31 and No. 32 data should be within $\pm 3^{\circ}\text{C}$.

Abnormal

Check the thermistor resistance.

Abnormal

Check for improper connection of wiring, connectors, etc., then replace the thermistor.

When measuring the resistance, disconnect the connector and check the male side.

Normal

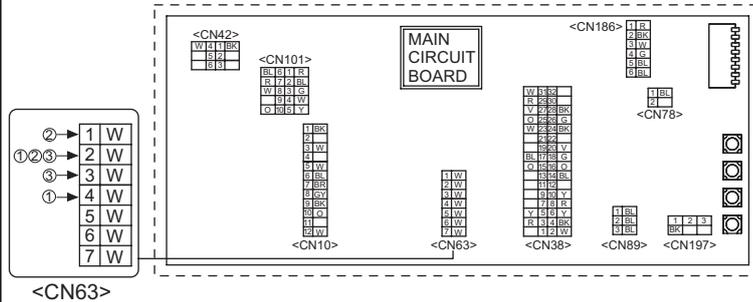
- ① CN63 White 4 - White 2 (inlet)
- ② CN63 White 1 - White 2 (outlet)
- ③ CN63 White 3 - White 2 (heat exchanger)

Refer to the thermistor temperature characteristics below.

● Water inlet / Water outlet / Heat exchanger Thermistor Temperature Characteristics

Temperature ($^{\circ}\text{C}$)	0	10	20	30	40	50	60	70	80
Resistance (k Ω)	23.7	15.5	10.3	7.0	4.9	3.5	2.5	1.9	1.4

Circuit Board



Replace the Circuit Board set.

Check that the Water outlet thermistor is normal with the outlet water conditions.

Normal

Turn the unit on, and then set the temperature to "37 $^{\circ}\text{C}$ " and "60 $^{\circ}\text{C}$ " by using Remote Controller*. Open the hot water fixture fully, and then confirm Water outlet thermistor by the maintenance monitor. No. 31 data should be within $\pm 3^{\circ}\text{C}$ of the set temperature.

Abnormal

<The occurrence condition for error code 65>
The error code is displayed if position detection cannot be performed 25 seconds after position resetting performed.

Set the "Operation" button to the off from on position, and confirm the display of the remote controller.

Normal (Not show 65)

Abnormal (Show 65)

Error Code 65 Main flow control valve abnormality

Check the voltage of the main flow control valve. (Check while the main flow control valve is activating, for example when the "Operation" button is turned off.)

No abnormality in appliance.

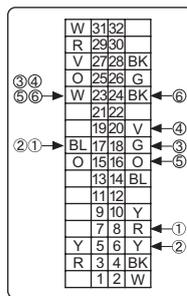
Abnormal

Replace the Circuit Board set.

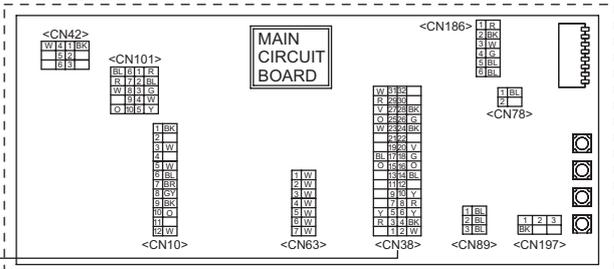
Normal

- ① CN38 Red 8 - CN38 Blue 17 DC1V - 16V
- ② CN38 Yellow 6 - CN38 Blue 17 DC1V or less
- When the "Operation" button is ON.
- ③ CN38 White 23 - CN38 Green 18 DC1V - 16V
- ④ CN38 White 23 - CN38 Violet 20 DC1V - 16V
- ⑤ CN38 White 23 - CN38 Orange 16 DC1V - 16V
- ⑥ CN38 White 23 - CN38 Black 24 DC1V - 16V

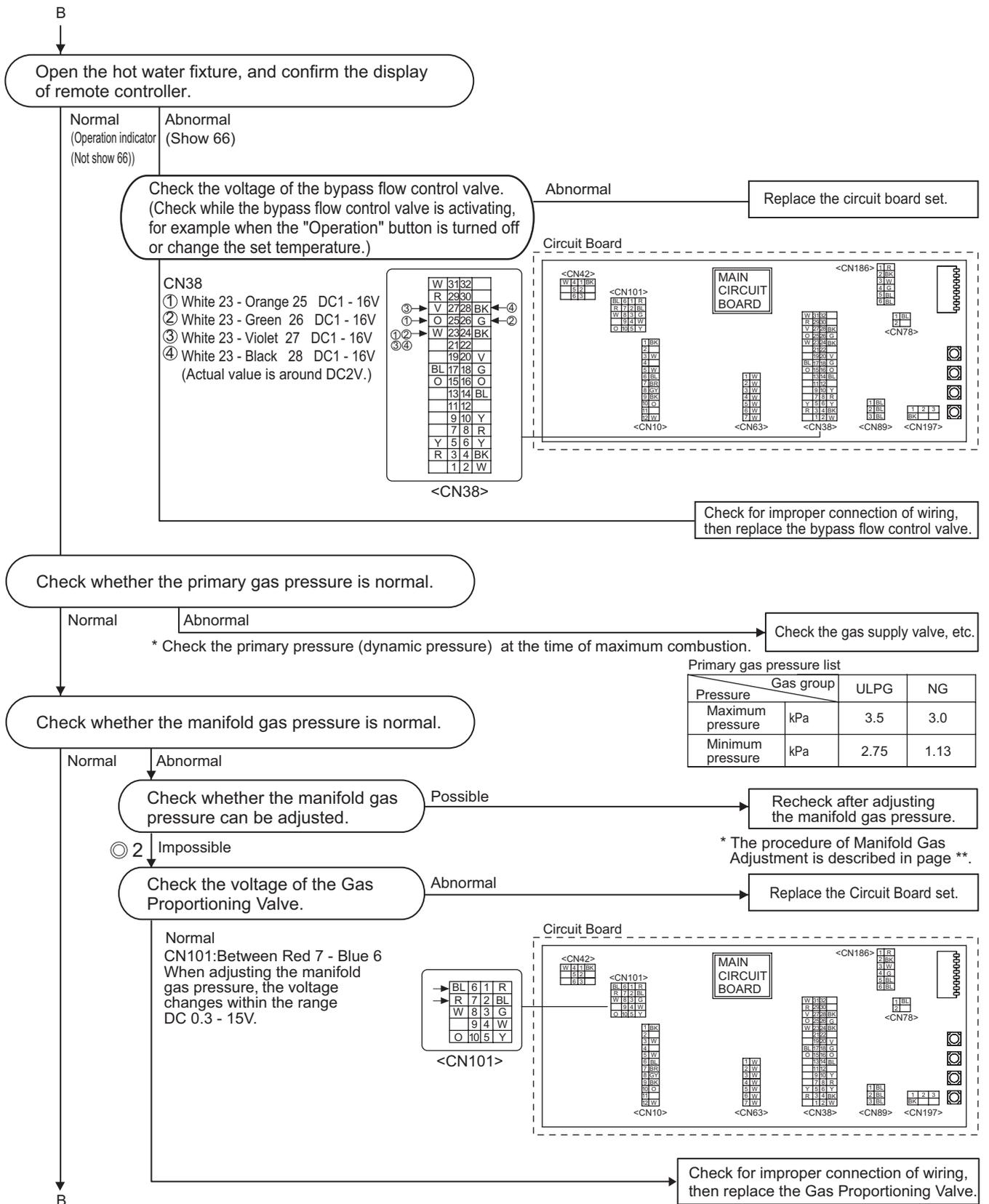
Check for improper connection of wiring, then replace the main flow control valve.



Circuit Board



B



B

During combustion, press the "maximum burner pressure set button" and check whether all the burners combusts.

Normal * The procedure of Burner Gas Adjustment is described in page **.

Abnormal

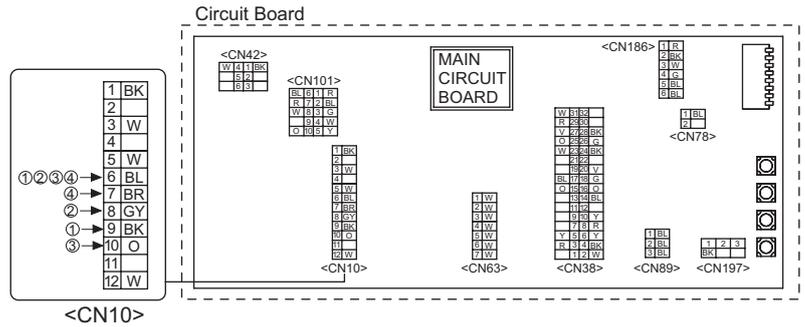
Check the voltage of Gas Solenoid Valve-1 (SV1), Gas Solenoid Valve-2 (SV2), Gas Solenoid Valve 3 (SV3) and Gas Solenoid Valve 4 (SV4).

Abnormal

Replace the Circuit Board set.

Normal

- ① SV1 CN 10 : Between Black 9 - Blue 6
DC14 - 16V
- ② SV2 CN 10 : Between Gray 8 - Blue 6
DC14 - 16V
- ③ SV3 CN 10 : Between Orange 10 - Blue 6
DC14 - 16V
- ④ SV4 CN 10 : Between Brown 7 - Blue6



Check the Gas Proportioning Valve. Check in the same procedure as ②.

Check for the Water Flow Sensor or water fixtures.

2. Error Code Displayed

Error Code 10 Combustion abnormality
(Output drop and warning indication only)

* Warning indication : Regardless of whether the ON/OFF button is on or off, warning indicator "10" flashes and combustion continues with limited output. Reset the power supply to stop the flashing.

<The occurrence condition for error code 10>
After using for 5 years or the equivalent, the error message is displayed if the initial fan speed correction is 103% ((L)WHiC56, (L)WHiCX56), 104% ((L)WHi49, (L)WHiX49) or more. (Output drop, continue combustion.)

Inspect the burner specifications.

Normal Abnormal

- Check gas type.
- Check the burner injector size and main damper size.
- Check the primary and manifold gas pressure.

Adjust the burner specifications.

Inspect the air supply and exhaust passages.

Normal Abnormal

- Check for the fan motor clogging.
- Check for the air supply and exhaust passages.

Clean the clogged section.

Explanation of the appliance service life.

Error Code 11 Ignition failure
(Initial flame fault detection)

Only connect and disconnect the connector after the fan has stopped rotating and then disconnect the electrical power. (The Circuit Board and Fan Motor may be damaged otherwise.)

<Condition of occurrence for error code 11>
Displayed if flame detection was not possible at the time of initial ignition due to the causes listed below. (Defective ignition device, leakage of ignition plug, problem in gas supply, poor connection of ground wire, defective flame rod, etc.)

Check that the flame ignites (check through the peephole of the burner).

YES

NO

Check whether the Igniter is normal.

YES

NO

Check the voltage to the Igniter (on the connector).

Normal
DC 14-16V between connector

Check for improper connection of ignition plug, then replace the Igniter.

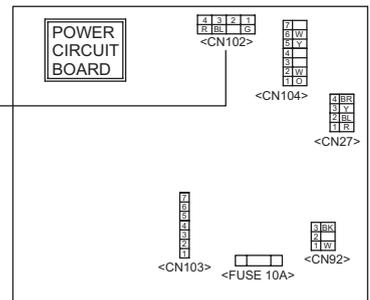
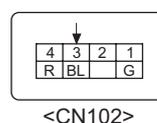
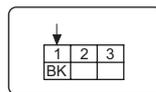
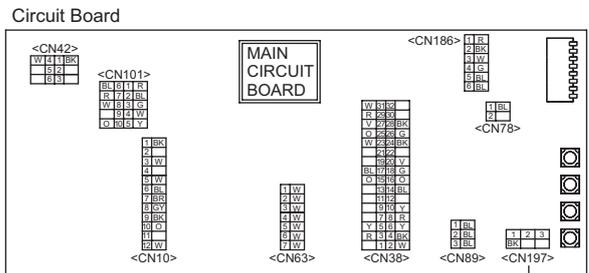
Abnormal

Check the voltage to the Igniter (on the Circuit Board).

Abnormal

Check Thermal Fuse and High Limit Switch conduction, and if 2Ω or less (Thermal Fuse) / 1Ω or less (High Limit Switch), replace the Circuit Board.

Normal
Between : CN197 Black1 - CN102 Blue3
DC14 - 16V

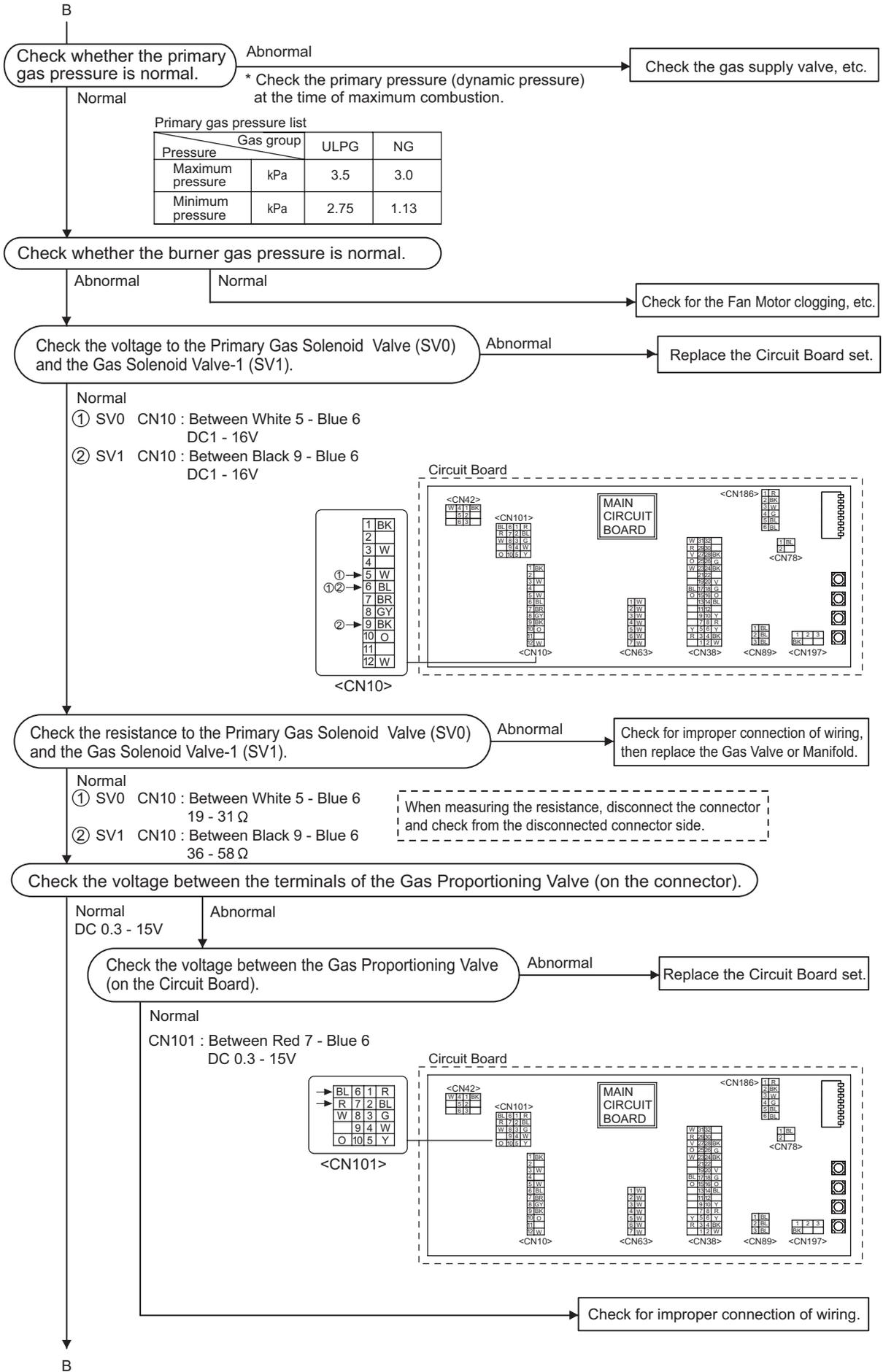


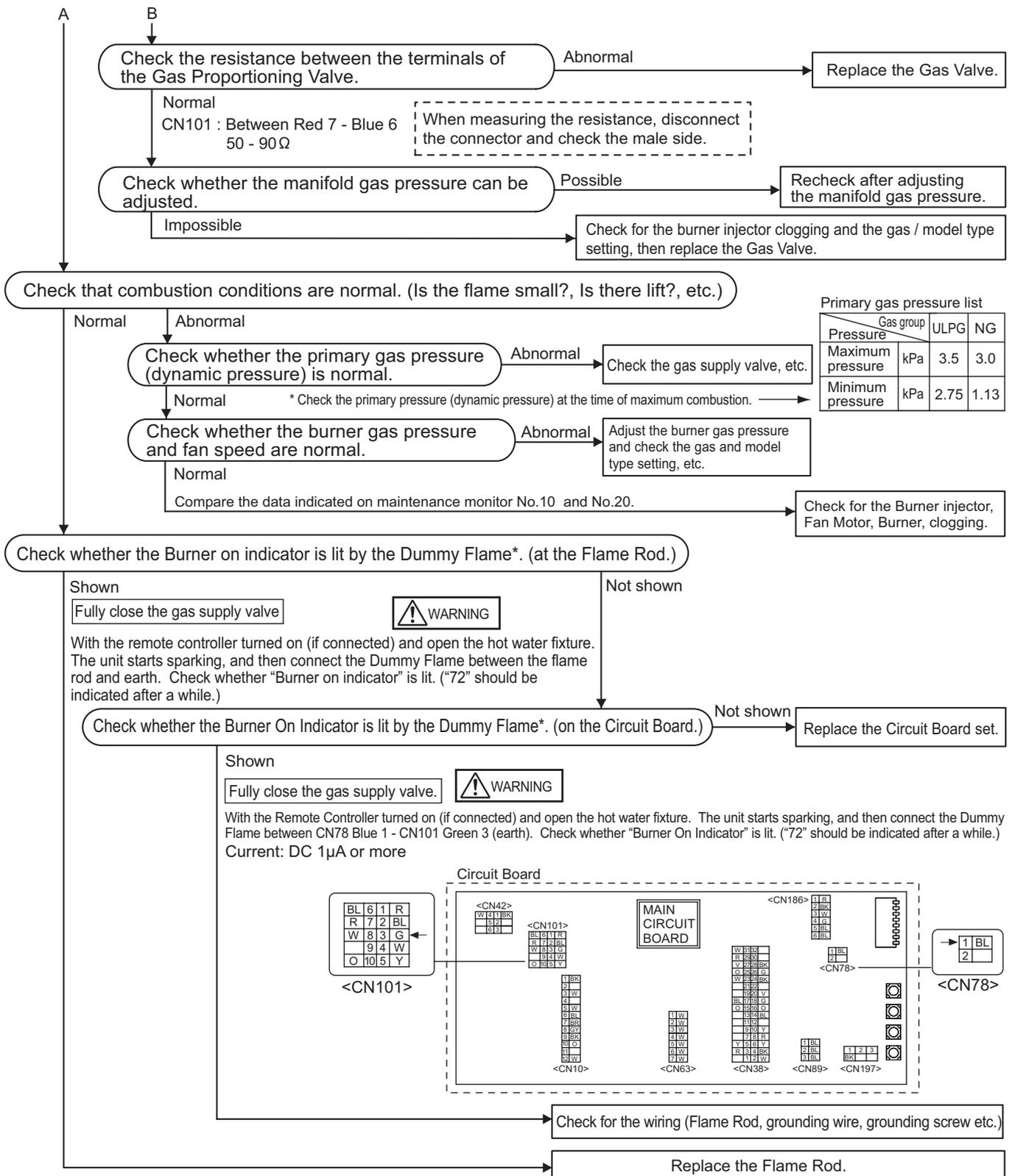
A

B

Replace the Igniter or the Ignition Plug.

A
B
A
B





In many cases, the error code 11 for ignition failure does not reappear. In some cases the error is caused by fluctuations due to environmental factors (time, humidity, etc.). If the error does not reappear, also check the items listed below.

Item	Check contents	Fluctuation factors and check procedure
Gas supply	Low primary pressure	Check whether the gas supply valve is half open. Check the primary pressure (dynamic pressure) at the time of maximum combustion. Check whether the error occurs when there is high gas consumption. (The primary gas pressure (dynamic pressure) may fluctuate during high usage.)
	The Primary Gas Solenoid Valve (SV0) The Gas Solenoid Valve-1 (SV1)	Check whether the cable was caught between the front cover and the casing or not.
Ignition device (faulty spark)	Igniter	Check for faulty insertion of wiring from Igniter to the Ignition Plug.
	Ignition Plug	Check for water on or traces of water on the Ignition Plug.
Control and settings	Faulty the manifold gas pressure setting	Check whether the manifold gas pressure can be adjusted and readjust the manifold gas pressure.
	Flame Rod	Check whether "the grounding wire was caught between the front cover and the casing" or "the leakage occurred" or not. Check for looseness or faulty connection of grounding screw.
	Gas Proportioning Valve	Switch the maximum and minimum burner pressure set button and check that the burner gas pressure switches smoothly. (Possible cause: Catching of moving coil)
Other	Wiring	Faulty connection due to looseness of connector pins or incomplete insertion of connectors. Check whether the cable was caught between the front cover and the casing.

Error Code 12 Flame Rod does not detect flame
(Flame fault detection)

<The occurrence condition for error Code 12>
The message is displayed if no flame can be detected by the flame rod during combustion.

The trouble diagnosis for "Error Code 12" is same as "Error Code 11".

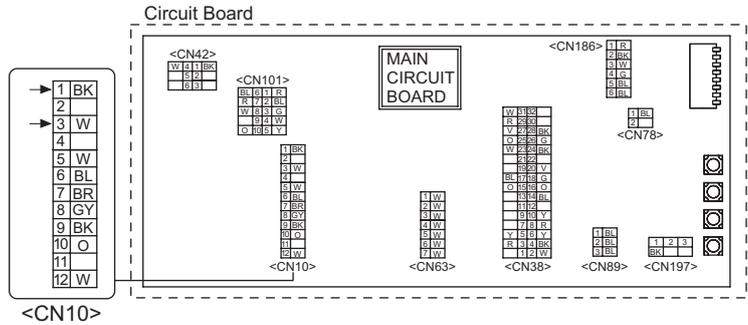
Error Code 14 Overheat Prevention Device (Thermal Fuse) triggered

Check the overheat prevention device (Thermal Fuse) resistance.

Normal
CN10
Between Black 1 - White 3
2Ω or less

When measuring the resistance, disconnect the connector and check the Female side.

Abnormal



Check for improper connection of wiring.
Check for the Primary Heat Exchanger is normal
(ex. The surface discolors black, clogging, etc.)
Replace the overheat prevention device (Thermal Fuse).

*If the Thermal Fuse is blown again, correct the cause.

Replace the Circuit Board set.

Error Code 16 Abnormally high output temperature

<The occurrence condition for error code 16>

- The error message appears if one of the following conditions is present:
- To prevent water at high temperatures from being output, if the output water temperature is 90°C or more.
 - If water 60°C or more is output when the set temperature is 50°C or less.
 - If water 10°C or more above the set temperature is output when the set temperature is 55°C or more.

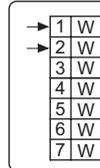
Check the Water outlet thermistor resistance.

Normal

CN63 : Between White 1 - White 2
Refer to the thermistor temperature characteristics below.

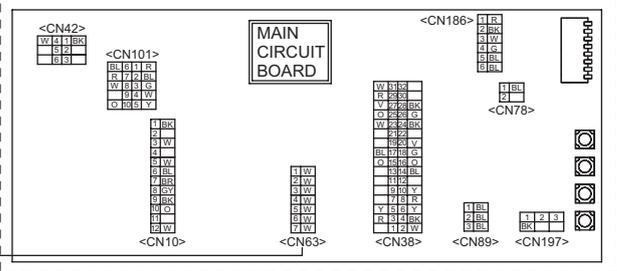
When measuring the resistance, disconnect the connector and check the male side.

Abnormal



<CN63>

Circuit Board



Check for improper connection of wiring.

Replace the Water outlet thermistor.

● Water inlet / Water outlet / Heat exchanger Thermistor Temperature Characteristics

Temperature (° C)	0	10	20	30	40	50	60	70	80
Resistance (k Ω)	23.7	15.5	10.3	7.0	4.9	3.5	2.5	1.9	1.4

Check the Gas Proportioning Valve.

It is shown on page 6 (© 2).

Normal

Check for the Main Flow Control Valve.

It is shown on page 5 (© 1).

Normal

Replace the Circuit Board set.

Error Code 20 High Limit Switch triggered

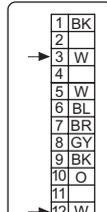
Check the High Limit Switch resistance.

Normal

CN10
Between White 12 - White 3
1 Ω or less.

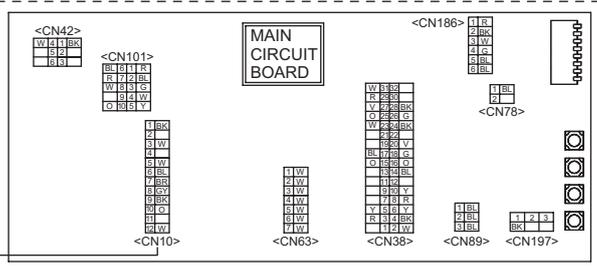
When measuring the resistance, disconnect the connector and check the male side.

Abnormal



<CN10>

Circuit Board



Check for improper connection of wiring.

Replace the High Limit Switch.

Check for the Primary Heat Exchanger is normal.
(ex. The surface discolors black, clogging, etc.)

Replace the Circuit Board set.

Error Code 29 Clogging of condensate (Water level electrode shorted) <(L)WHiC56, (L)WHiX56 only>

Check the drain line is clogged or frozen.

Normal → Check the water level electrode of the condensate.

Abnormal → Check for the clogging of the condensate drain circuit.

<Condition of occurrence for error code 29>
The error message is displayed if water level electrode is shorted.

Normal
Disconnect the wiring connector of the water level electrode, and then confirm the maintenance monitor No. 19 to know the cause.
[000] : Normal

Abnormal

<When not using the maintenance monitor>
① CN38 : White 31 - Blue 17
DC14 - 16V
② CN63 : White 6 - White 2
DC14 - 16V
*(L)WHiC56 only

Circuit Board

<CN38>

W	31	32
R	29	30
V	27	28
O	25	26
W	23	24
	21	22
	19	20
BL	17	18
O	15	16
	13	14
	11	12
	9	10
Y	7	8
R	3	4
	1	2

<CN63>

1	W
2	W
3	W
4	W
5	W
6	W
7	W

The maintenance monitor No. 19 is displaying other than [000].

Check for wiring damage, short-circuiting.
Replace the Circuit Board set.

Replace the condensate container.

Error Code 30 Air inlet thermistor abnormality

Check the Air inlet thermistor open or short circuit.

Normal
CN63 : Between White 5 - White 2
DC 0.7 - 4.4V
Resistance : Refer to the table below.

Abnormal

Circuit Board

<CN63>

1	W
2	W
3	W
4	W
5	W
6	W
7	W

Check for improper connection of wiring.
Replace the Air inlet thermistor.

Replace the Circuit Board set.

● Air inlet Thermistor Temperature Characteristics

Temperature (°C)	-20	-10	0	10	20	30	40
Resistance (kΩ)	101.7	57.7	33.8	20.4	12.6	8.0	5.2

Error Code 31 Water inlet thermistor abnormality

Check the Water inlet thermistor open or short circuit.

Normal
CN63 : Between White 4 - White 2
DC 1 - 4.5V
Resistance : Refer to the table below.

Abnormal

Circuit Board

<CN63>

1	W
2	W
3	W
4	W
5	W
6	W
7	W

Check for improper connection of wiring.
Replace the Water inlet thermistor.

Replace the Circuit Board set.

• Water inlet / Water outlet / Heat exchanger Thermistor Temperature Characteristics

Temperature (°C)	0	10	20	30	40	50	60	70	80
Resistance (kΩ)	23.7	15.5	10.3	7.0	4.9	3.5	2.5	1.9	1.4

Error Code 32 Water outlet thermistor abnormality

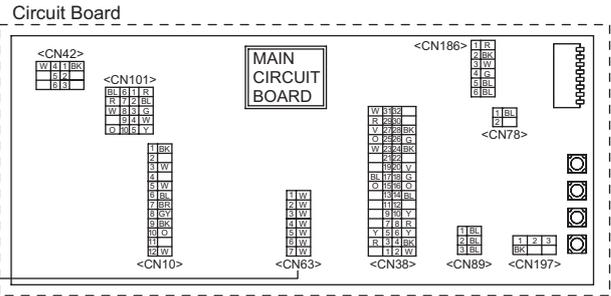
Check the Water outlet thermistor open or short circuit.

Normal

CN63 : Between White 1 - White 2
DC 1 - 4.5V
Resistance : Refer to the table below.

When measuring the resistance, disconnect the connector and check the male side.

Abnormal



Check for improper connection of wiring.

Replace the Water outlet thermistor.

Replace the Circuit Board set.

● Water inlet / Water outlet / Heat exchanger Thermistor Temperature Characteristics

Temperature (° C)	0	10	20	30	40	50	60	70	80
Resistance (k Ω)	23.7	15.5	10.3	7.0	4.9	3.5	2.5	1.9	1.4

Error Code 33 Heat exchanger thermistor abnormality

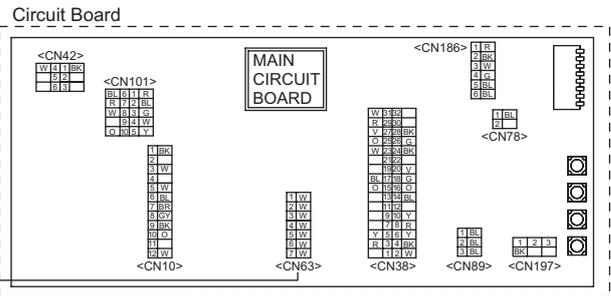
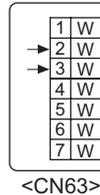
Check the Heat exchanger thermistor open or short circuit.

Normal

CN63 : Between White 3 - White 2
DC 1 - 4.5V
Resistance : Refer to the table below.

When measuring the resistance, disconnect the connector and check the male side.

Abnormal



Check for improper connection of wiring.

Replace the Heat exchanger thermistor.

Replace the Circuit Board set.

● Water inlet / Water outlet / Heat exchanger Thermistor Temperature Characteristics

Temperature (° C)	0	10	20	30	40	50	60	70	80
Resistance (k Ω)	23.7	15.5	10.3	7.0	4.9	3.5	2.5	1.9	1.4

Error Code 35 Exhaust thermistor abnormality <(L)WHiC56 only>

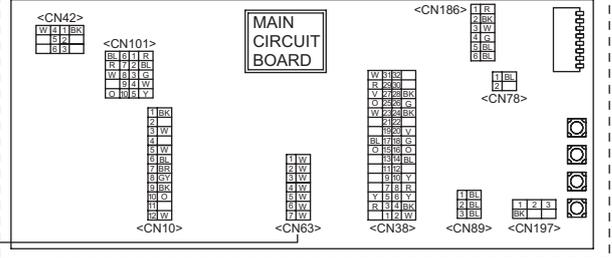
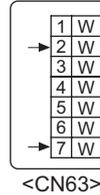
Check the Exhaust thermistor open or short circuit.

Normal
CN63 : Between White 7 - White 2
Resistance, Voltage : Refer to the table below.

When measuring the resistance, disconnect the connector and check the male side.

Abnormal

Circuit Board



Check for improper connection of wiring.

Replace the Exhaust thermistor.

Replace the Circuit Board set.

● Exhaust Thermistor Temperature Characteristics

Temperature (° C)	-20	-10	0	10	20	30	40
Resistance (k Ω)	487	276	162	98.3	61.5	39.5	26.1
Voltage(DCV)	4.6	4.3	3.9	3.4	2.8	2.3	1.8

Error Code 51 Failure of Gas Solenoid Valve
(or Gas Solenoid Valve drive circuit abnormality)

Check whether each connector (for SV0~SV4) on Manifold and Gas Valve comes out.

Normal

Abnormal

<Condition of occurrence for error code 51>

- When the Unit is in following conditions, the error code is displayed.
- if the Gas Solenoid Valve's connections are improper.
- if the Gas Solenoid Valve's connections are damaged.
- Circuit Board failure.

Connect the connector.

Check the coil resistance* of each Gas Solenoid Valve.
(Which Gas Solenoid Valve has abnormality?)
Check for improper connection of wiring, damage.

Normal

Abnormal

- * Coil resistance
- SV0 : 19~31Ω
- SV1 : 36~58Ω
- SV2 : 36~58Ω
- SV3 : 36~58Ω
- SV4 : 36~58Ω

When measuring the resistance, disconnect the connector and check the female side.

SV0 abnormality

Replace the Gas Valve.

SV1 or SV2 or SV3 or SV4 abnormality

Replace the Manifold.

Check the High Limit Switch.

It is shown on page 13.

Normal

Replace the Circuit Board.

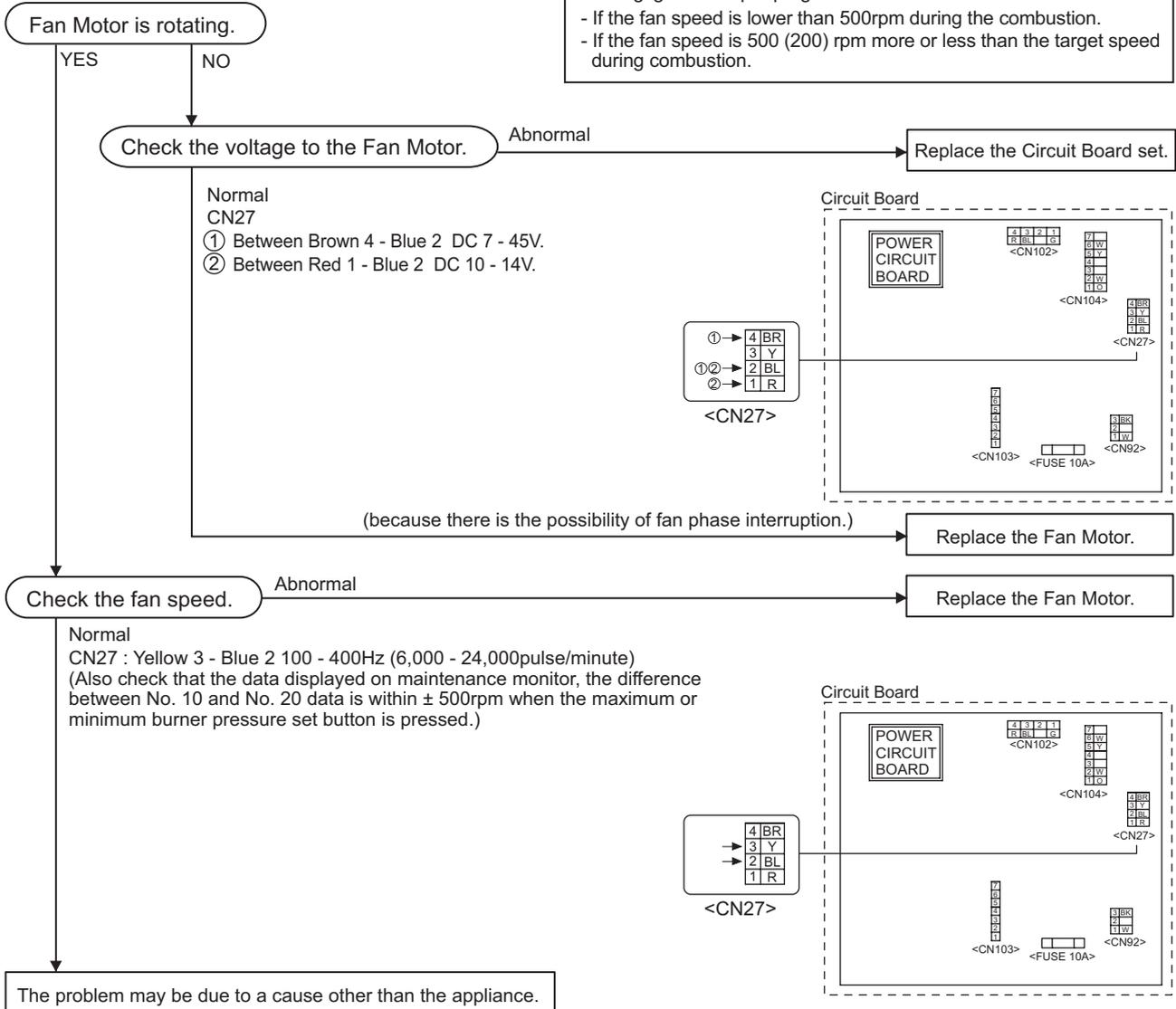
Error Code 61 Fan Motor abnormality

Only connect and disconnect the connector after the fan has stopped rotating and then disconnect the electrical power.
(The Circuit Board and Fan Motor may be damaged otherwise.)

<Condition of occurrence for error code 61>

When the Unit is in following conditions, the error code is displayed.

- If the fan speed is 200rpm more or less than the target speed during ignition or pre purge.
- If the fan speed is lower than 500rpm during the combustion.
- If the fan speed is 500 (200) rpm more or less than the target speed during combustion.



* If the problem does not reappear and only appears on the error code history, it could be due to a cause other than the unit, such as temporary blockage due to wind gusts or obstruction, a drop in the supply voltage (below AC 207 or 216V), etc. Please explain this to the customer.

Error Code 65 Main flow control valve abnormally

Same matter from error message 65, page 6.

Error Code 66 Bypass flow control valve abnormally

Same matter from error message 66, page 7.

Error Code 70 Circuit Board abnormality

Disconnect the electrical power, then reconnect electrical power to the Unit to reset the system.
If the Circuit Board abnormality is continuous, replace the Circuit Board set.

Error Code 71 Gas Solenoid Valve drive circuit abnormality
Circuit Board abnormality

This error code is displayed due to failure on the circuit board (Gas Solenoid Valve drive circuit) or in the Gas Solenoid Valve drive system's ground or at High Limit Switch. The cause could be a welding issue on the Circuit Board or failure of High Limit Switch. If High Limit Switch is normal the Circuit Board set should be replaced.

Error Code 72 Flame Rod circuit abnormality
(Detection of flame when no flame is present)

Disconnect the connector from the Flame Rod and to prevent grounding the connector. And check whether "72" is displayed or not.

Not displayed

Displayed

<Condition of occurrence for error code 72>
This is displayed if the Flame Rod detects a flame before ignition.

Replace the Circuit Board set.

Replace the Flame Rod.

Error Code 73 Circuit board setting abnormality

- Check for the appliance that is not set, the gas type, model type, etc.
- Check whether the DIP switch settings has been changed while the water heater has a power.

Error Code F76 Multi-system communication error

- Check for proper connection of Quick Connect Cord.

Error Code 760 Remote Controller transmission abnormality

Check the voltage of Remote Controller terminal on Circuit Board.

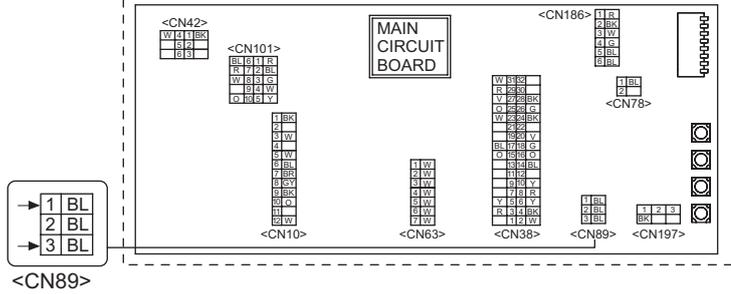
Normal

Blue 1 - Blue 3
DC14-16V

Remove the Remote Controller cord.

Abnormal

Circuit Board



Check for improper connection of wiring, then replace the Circuit Board set.

Check for Remote Controller cord damage, short - circuiting or ground fault. If there is no problem, replace the Remote Controller.

Error Code 90 Air flow abnormality
Combustion abnormality

90 Air flow abnormality

<Condition of occurrence for error code 90>
Detected abnormal air flow when the unit will start.

- 1 Check air inlet for blockage or obstruction.
- 2 Check exhaust for blockage or obstruction.
- 3 Check whether the fan motor is normal.
(ex. Clogging of fan blades, etc.)

If 1 to 3 check out okay, replace the Fan Motor. Replace the Circuit Board set if the error code is displayed again.

90 Combustion abnormality

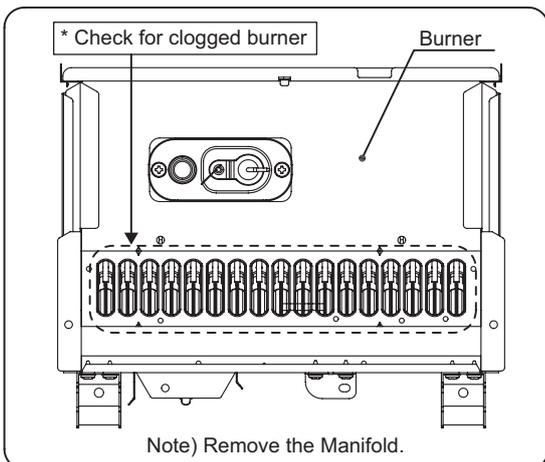
<Condition of occurrence for error code 90>
When the unit has begun to operate,
- Air inlet for blockage or obstruction
- Exhaust for blockage or obstruction.

- 1 Check air inlet for blockage or obstruction.
- 2 Check exhaust for blockage or obstruction.
- 3 Check the Fan Motor is normal.
(ex. Clogging of fan blades, etc.)
- 4 Check the Burner is normal (clogged*).

If 1 to 4 check out okay, replace the Circuit Board set if the error code is displayed again.

The detail conditions for this error code are shown on page 22.

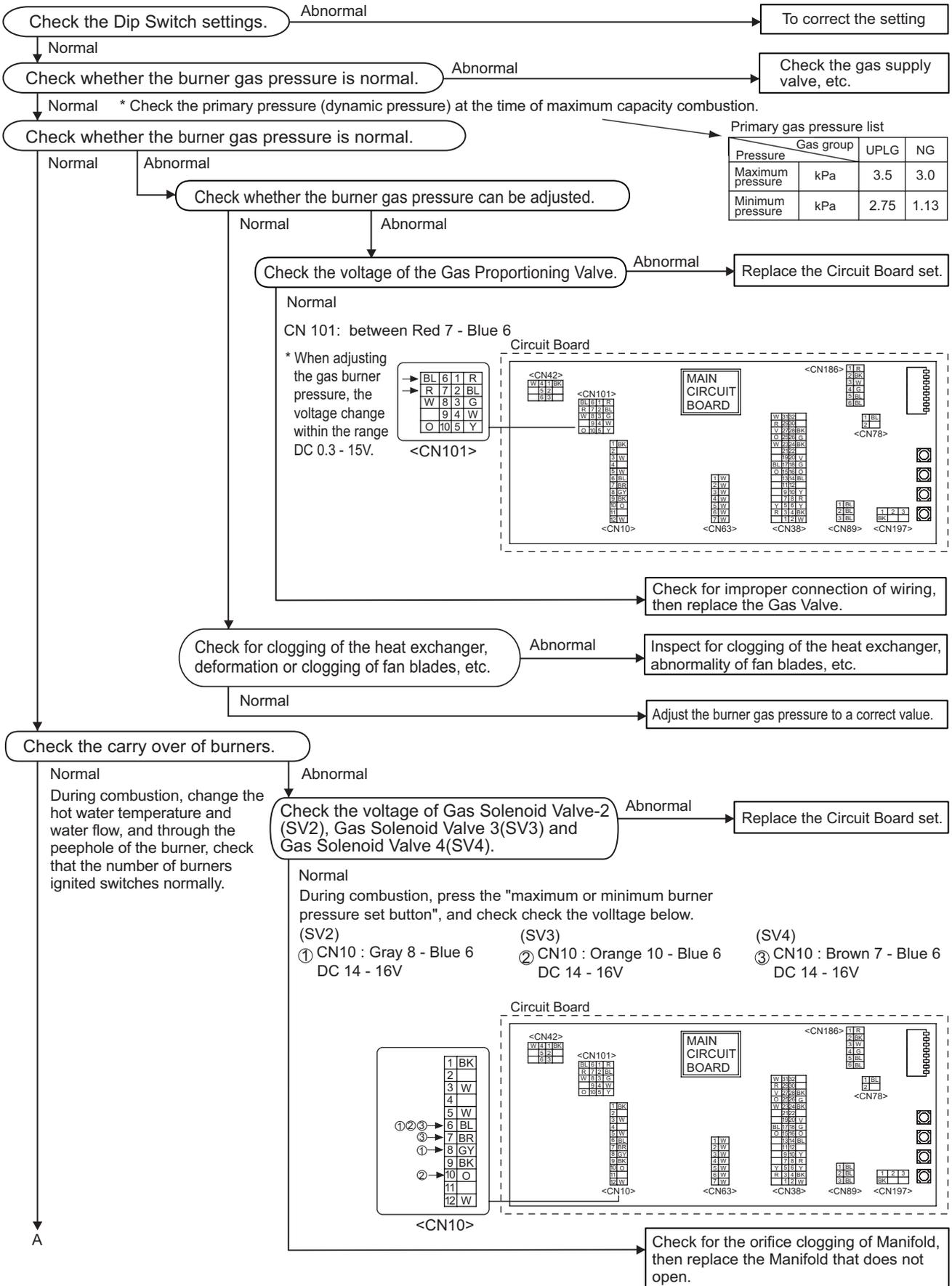
* How to check for clogged burner

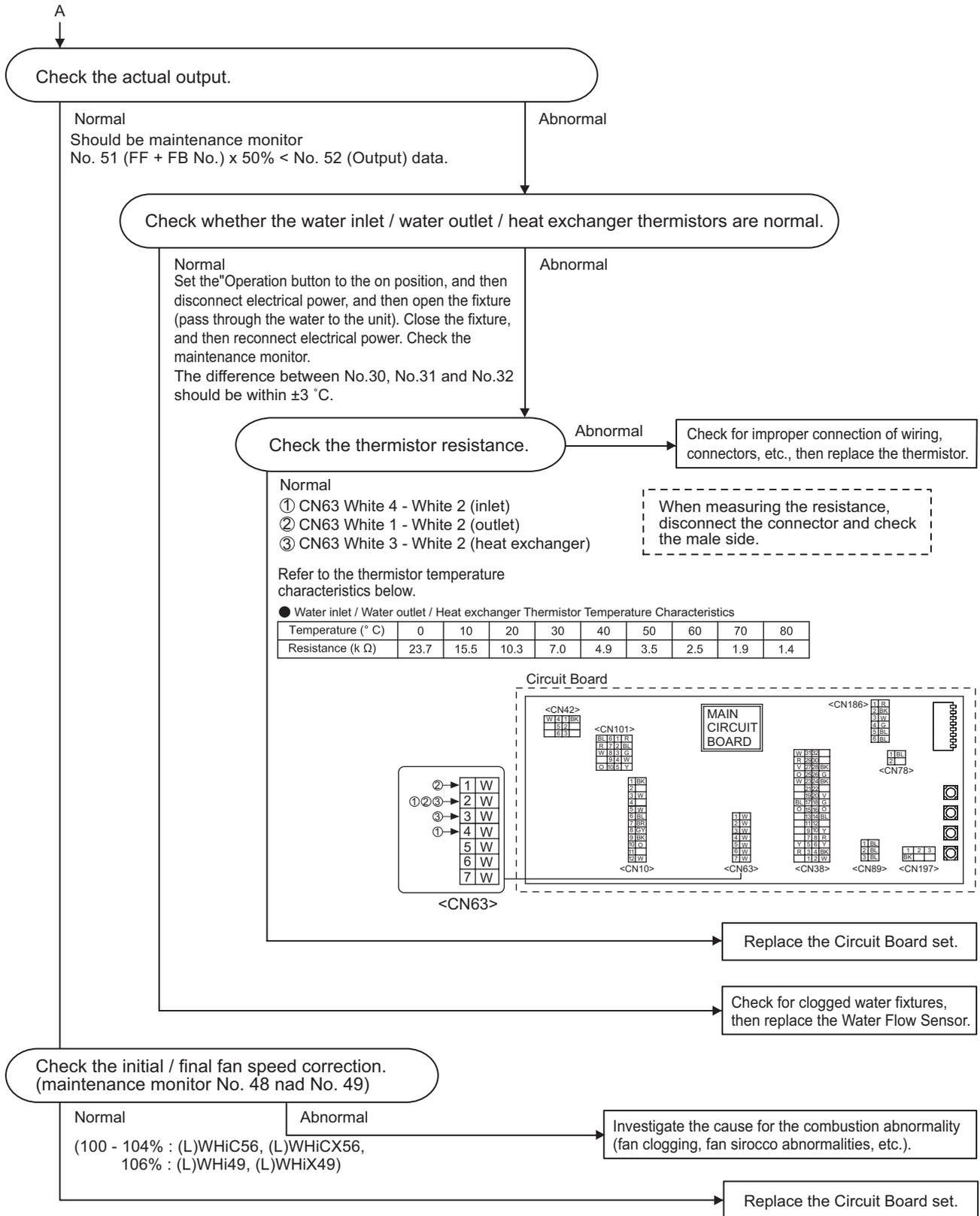


90 Combustion abnormality

<Condition of occurrence for error code 90>
 "Output/FF+FB No. $\leq 50\%$ "
 (Maintenance No.52 / Maintenance No. 51 $\leq 50\%$)

Only connect and disconnect the connector after the fan has stopped rotating and then disconnect the electrical power.
 (The Circuit Board and Fan Motor may be damaged otherwise.)





Error Code 94 Exhaust temperature is too high <(L)WHiC56 only>

Check the exhaust thermistor resistance.

<The occurrence condition for error code 94>

The message is displayed if exhaust temperature is 60°C or more.

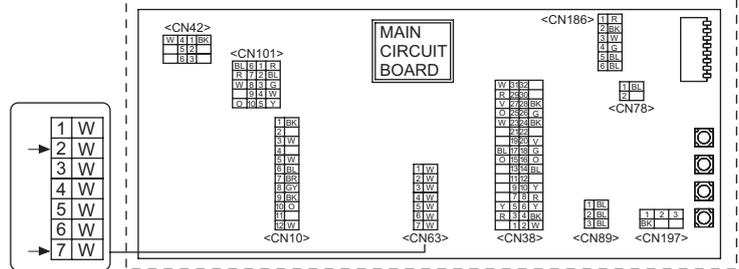
Normal

CN63 : Between White 7 - White 2
Refer to the thermistor temperature characteristics below.

When measuring the resistance, disconnect the connector and check the male side.

Abnormal

Circuit Board



Check for improper connection of wiring.

Replace the exhaust thermistor.

● Exhaust Thermistor Temperature Characteristics

Temperature (°C)	-20	-10	0	10	20	30	40
Resistance (kΩ)	487	276	162	98.3	61.5	39.5	26.1

Check air inlet for blockage or obstruction.

Check exhaust for blockage or obstruction.

Check the Fan Motor is normal.
(ex. Clogging of fan blades, etc.)

Check for the Primary Heat Exchanger is normal.
(ex. The surface discolors black, clogging, etc.)

Error Code 99 Combustion abnormality (Appliance is stopped)

Replace the appliance for the end of its service life.

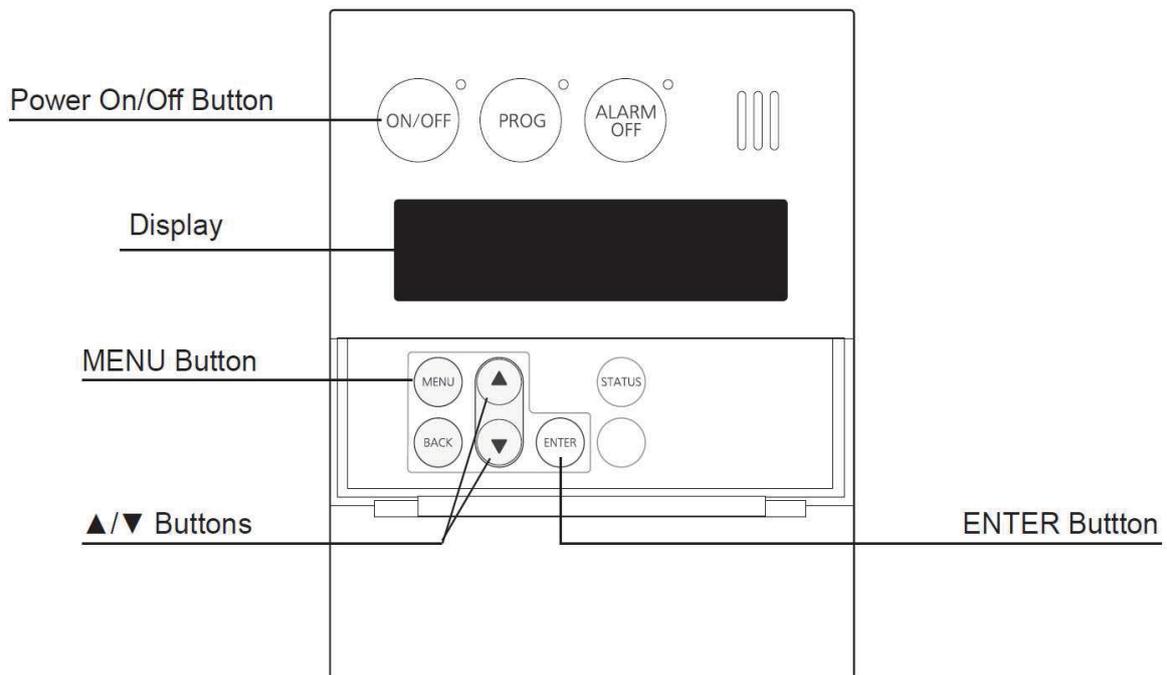
Refer to the lower list to confirm the occurrence condition for error code 99.
(The appliance is reset by the electrical power disconnect and reconnect.)

<The occurrence condition for error code 90, 10, and 99>

①(L)WHiC56, (L)WHiCX56 ②(L)WHi49, (L)WHiX49

Output	Equipment status		Error Code	Equipment operation
	Fan speed correction	Equipment usage period		
—	①103%, ②104% or more (less than ①104%, ②106%)	Less than 5 years	"90"	"90" is displayed as combustion abnormality (warning indicator). Appliance will continue operation.
	①104%, ②106%	Less than 5 years	"90"	Appliance is stopped.
	①103%, ②104% or more (less than ①104%, ②106%)	5 years or more	"10"	"10" is displayed as warning of service life (warning indicator). Appliance will continue operation but output is dropped.
	①104%, ②106%	5 years or more	"99"	Appliance is stopped.
Target output x 50% ≥ actual output	—	—	"90"	Appliance is stopped.

■ Remote Controller
RC-9018M



■ Displaying Maintenance Monitors

<Display Procedure>

1. Press and hold both the up [▲] and down [▼] setting buttons simultaneously for more than 5 seconds. This can be done regardless of whether the power has been turned on or the unit is operating.

<Indications>

1. [Unit No.], [Item(Data) No.], [Data] will appear on the display.
2. Different Item(Data) No. can be selected using the up [▲] or down [▼] buttons.
3. With the remote controller in maintenance mode, the hot water set temperature and other functions cannot be adjusted.

<Returning to Normal Mode>

1. For releasing the indication, press and hold both [▲] and [▼] of the setting button simultaneously more than 2 seconds, or leave it alone for more than 10 minutes.

<Clearing Error Codes from Memory>

When the power is OFF, press and hold the down [▼] button for more than 5 seconds.

Maintenance Monitor List

Data No.	Item	Data (Display Reading X Multiplier)		Minimum Value for Indication	Remarks
		Multiplier	Unit		
03	Total Plug-in Time	X 100	hour	100 hour	Disp. Range [000] - [1310]
04	Total Combustion Time	X 1	hour	1 hour	Disp. Range [000] - [999]
05	Total Combustion Time	X 1000	hour	1000 hour	Disp. Range [000] - [1999]
07	Number of Ignition Times	X 10	time	10 times	Disp. Range [000] - [999]
08	Number of Ignition Times	X 10000	time	10000 times	Disp. Range [000] - [1999]
10	Fan Rotational Frequency	X 10	rpm	25 rpm	-
14	Total Flow Rate	X 0.1	L/min	0.1L/min	-
19	State of water level electrode 1, 2	000 001 010 011	-	-	1=OFF 2=OFF [000], 1=ON 2=OFF [001] 1=OFF 2=ON [010], 1=ON 2=ON [011] < Condensing Model only >
30	Water Inlet Thermistor Detection Temperature	X 0.1	°C	0.5°C	-
31	Water Outlet Thermistor Detection Temperature	X 0.1	°C	0.5°C	-
32	Heat Exchanger Thermistor Detection Temperature	X 0.1	°C	0.5°C	-
36	Exhaust Thermistor Detection Temperature	X 1	°C	1°C	< (L)WHiC56 only >
38	Air Inlet Thermistor Detection Temperature	X 1	°C	1°C	-
91	Error Code History 1	Most Recent Error Code		-	If the same error code is repeated, it will appear in the history list twice. If it is repeated more than twice, it will only appear twice.
92	Error Code History 2	Next Most Recent Error Code		-	
93	Error Code History 3	Next Most Recent Error Code		-	
94	Error Code History 4	Next Most Recent Error Code		-	
95	Error Code History 5	Next Most Recent Error Code		-	
96	Error Code History 6	Next Most Recent Error Code		-	
97	Error Code History 7	Next Most Recent Error Code		-	
98	Error Code History 8	Next Most Recent Error Code		-	

■ Circuit Board Replacement Procedure

When swapping in a new circuit board, the new circuit board needs to be programmed.

Failure to successfully program the circuit board will result in a 73 error code.

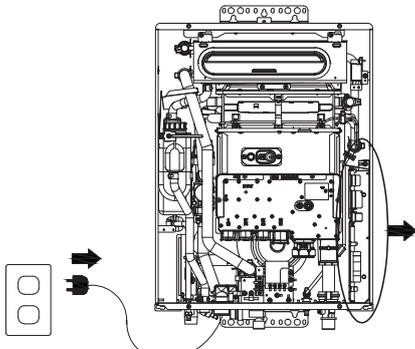
Typically this programming can be done with a data transfer from the old circuit board to the new circuit board.

Even a damaged circuit board can usually transfer data properly.

Always attempt the data transfer first, and if unsuccessful, retry the data transfer procedure.

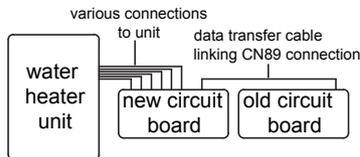
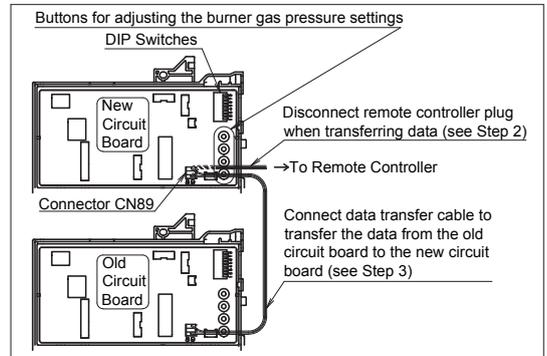
Only if the data transfer is unsuccessful, then you should follow the procedure for manual programming on the reverse side of this page.

1. Data Transfer Procedure



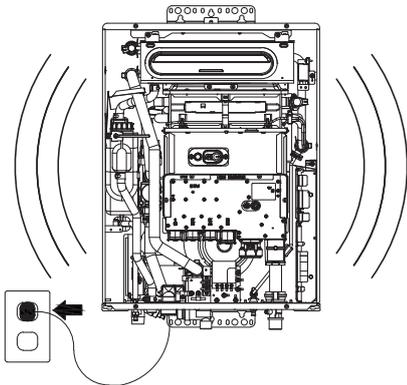
(for illustration only)

1. Make sure the remote controller is off (completely blank), If it is ON, turn it OFF and wait for 10 seconds.
2. ...then disconnect electrical power.
3. Remove old circuit board out of the unit and transfer all electrical connections to the new circuit board.
...except connector CN89 which should be left unplugged.



4. Use the blue and white data transfer cable supplied with the new circuit board to connect the CN89 connection from the old circuit board to the new one.

5. Connect power and wait about 30 seconds to a minute.
The unit will signal a successful data transfer by spinning the fan and opening and closing the gas valve for about 3 minutes.



If you get a successful data transfer: disconnect electrical power to the unit, disconnect the data transfer cable and reconnect the original CN89 connector.

The circuit board can now be mounted back into the unit.

Note: (If you disconnected any wires to pull out the circuit board, make sure to reconnect all wires.)

Burner gas pressures should be checked with a digital manometer and adjusted if necessary.

Refer to the "Setting list for MW settings and Burner Gas pressures" at reverse side.

If you fail to get a successful data transfer, refer to the reverse side for Manual Programming.

2. DIP Switch Settings

*Disconnect the electrical power to the unit before adjusting the DIP Switches.

DIP Switch Settings are set to the same as the old circuit board.

The following settings can be adjusted using the DIP Switches:

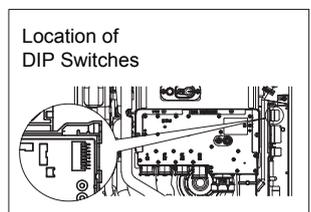
1. By using SW 1, adjustments can be made for installations at elevations above 610m.
Adjust the DIP switches as illustrated in the table ,if this water heater is installed at an altitude of 610m or higher.

2. By using SW3, 4 and 5, adjustments can be made for installations flue type "B23".
For Type "B23", be sure to turn SW 3 ON.

"Single unit operation" and "Multi system "are distinguished by SW 4 and 5.

3. By using SW 7 and 8, adjustments can be made for extended flue lengths.

Refer to the "Setting list for DIP Switches" and "DIP Switches No.7 and No.8 details" table for details.



[DIP Switches]

Setting list for DIP Switches (● : ON ○ : OFF)

	SW1	SW3	SW4	SW5	SW7	SW8
High elevation adjustment		Type:B23 adjustment*			Flue length adjustment*	
SW1		SW3	SW4	SW5	SW7	SW8
○	0-610m	●	○	●	○	○
●	611-1,220m	●	●	○	●	○
					○	●
					●	●

*Internal model only.

DIP Switches No.7 and No.8 details < Internal model only >

Select results	WHi49,LWHi49 model Type:C13,C33 only	WHi49,LWHi49 model Type:B23 only
		WHiC56,LWHiC56 model Type:C13,C33,C53 Type:B23
A	Minimum length	Short length
B	Short length	Long length
C	Long length	
D	Maximum length	

*WHi49,LWHi49 series flue system type is Room sealed, if the heater exhibits noise and vibration when installed with flue terminal and flue (less than 2 meters) without elbow, the DIP switch should be changed.
Refer to DIP switch table No.7 and No.8. Select result "C long length".

Manual Programming

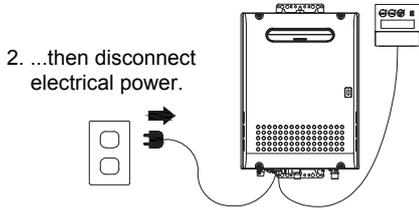
(only do this if the data transfer on the reverse side is unsuccessful)

This procedure will require the remote controller.

Make sure the circuit board is completely connected including connector CN89.

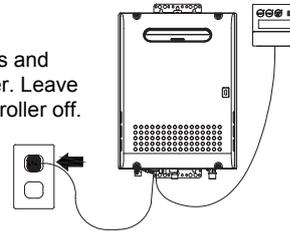
If connected, in a multi unit configurations undo System Controller connections or Quick Connect Cord.
After Manual Programming, make sure all connections are made before making the initial circuit board settings.

1. Make sure the remote controller is off (completely blank), If it is ON, turn it OFF and wait for 10 seconds.

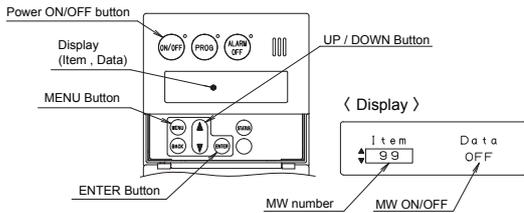


2. ...then disconnect electrical power.

3. Wait 10 seconds and reconnect power. Leave the remote controller off.

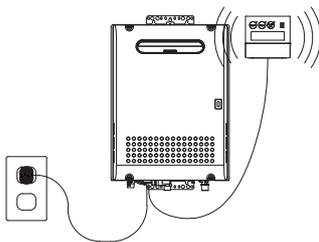


[Remote controller]



4. With the remote controller blank, hold the up button until the display blinks "99". You are now in the maintenance writer (MW) mode and can scroll through the MWs using the UP and DOWN buttons.

- a) Use the UP or DOWN button to change the " Item " number or " Data " ON or OFF. Press the " ENTER " button to select " Item " or " Data " .
- b) Turn MWs "2E" ON.
- c) If your unit is WHiC56 or LWHiC56 turn MWs "1B" and "37" ON.
- d) If your unit is WHiX56 or LWHiX56 turn MWs " 37 " ON.
- e) Turn MWs "FC" and "FE" ON and press the UP or DOWN button. (Display blinks with "A0".)
- f) After completing the setting, press the "ENTER" button to select "Item". Configure the remaining MWs according to the chart below based on your unit's model and gas type.



Setting list for MW settings and burner gas pressures (Check the rating plate for model and gas type)

Model	Gas type	Circuit board MW setting (●:ON ○:OFF)									Burner gas Pressure (mbar) Cover off				
		A1	A5	A6	A7	A8	A9	AA	AC	C3	C7	C8	C9	Max value	Min value
WHiCX56	2H	●	○	○	○	○	○	●	●	●	●	●	●	6.9	3.2
LWHiCX56	3P	○	○	○	○	○	○	●	●	●	●	●	●	8.4	3.7
WHiC56	2H	○	●	●	○	○	○	○	○	○	○	○	○	7.0	3.2
LWHiC56	3P	○	●	●	○	○	○	○	○	○	○	○	○	8.7	3.7
WHiX49	2H	○	○	○	○	○	○	○	○	○	○	○	○	6.4	3.1
LWHiX49	3P	○	○	○	○	○	○	○	○	○	○	○	○	10.0	4.3
WHi49	2H	○	○	○	○	○	○	○	○	○	○	○	○	6.7	3.1
LWHi49	3P	○	○	○	○	○	○	○	○	○	○	○	○	7.8	3.6

5. Once complete, hold the UP and DOWN buttons together for five seconds until the remote controller starts beeping rapidly. This is the signal that the changes to the MWs have been saved and the unit is ready for use.
6. Check burner gas pressures with a digital manometer and adjust if necessary.

Remote Controller Settings

1. Within the first ten minutes of connecting electrical power, before turning on the Power ON/OFF button, press the "MENU" button on the remote controller and select "Initial settings" by pressing the "▲" or "▼" button. If the unit does not go into "Initial settings" mode, unplug the unit and try again.
2. Change "Save backlight" from "Normal" to "On".
3. To return to the home screen, press the "MENU" button or let it sit for approximately 20 sec.

■ Drain Trap Replacement

Replace the Drain trap following the procedures below.

1. Disconnect electrical power to the unit.
2. Drain water from the Drain trap using the drain valve located underneath the water heater (Fig.).
3. Disconnect the relay connector(2 positions), remove the fixing screw, and remove drain hose 1 and drain hose 2. (Fig.). Remove the Drain trap by lifting up on it to disengage the tabs.
Note) When removing the drain hoses, make sure that water in the hose does not come into contact with any part of your body. If it comes into contact with any part of your body, rinse it off immediately with fresh water. Do not allow water from the drain hoses or drain trap to leak into the water heater.
4. Connect the neutralizer drain hose (with pin clip) to the new Drain trap and install the one.
Reconnect drain hose 1 and drain hose 2 as well as the relay connector.(2 positions)
Note) Drain hose 1 and drain hose 2 must be oriented so that there is a downwards slope and there are no bends or kinks in the hoses.
Do not connect the wires labeled as "Connector (Factory Use Only)" as shown in Fig. .

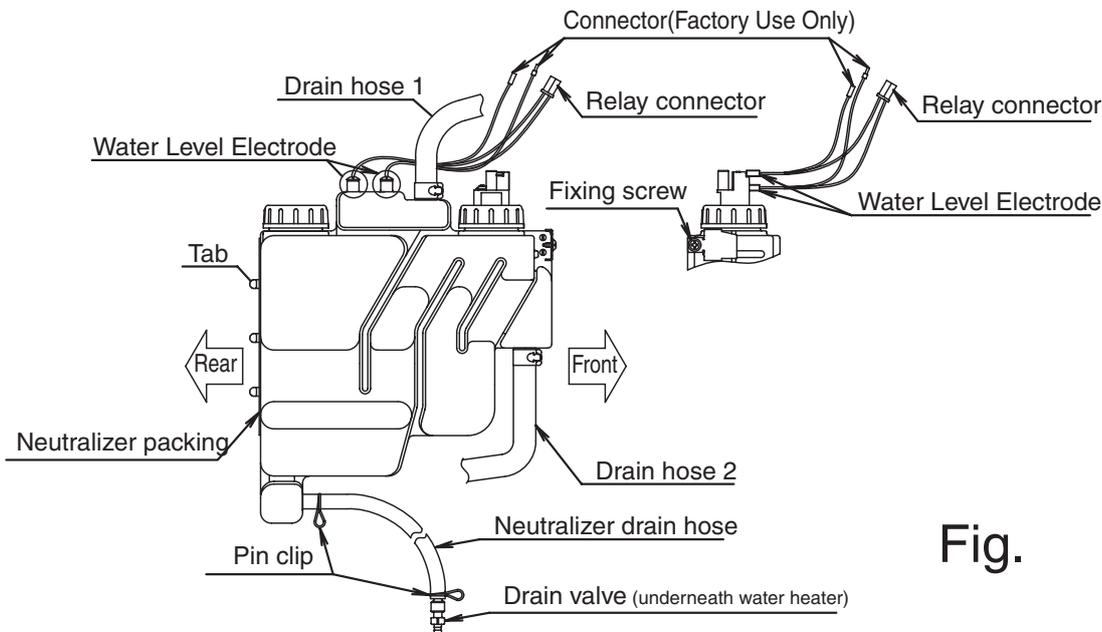


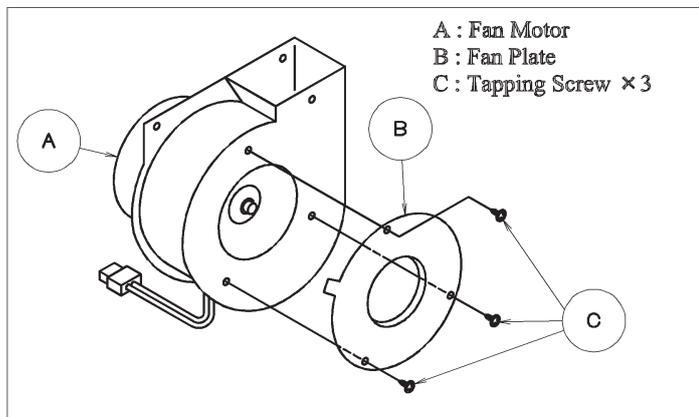
Fig.

⚠ Danger

Prior to initial start up, make sure that you fill the drain trap unit with water. This is to prevent dangerous exhaust gases from entering the building. Failure to fill the drain trap unit could result in severe personal injury or death. Refer to the installation manual.

When changing the Fan Motor.

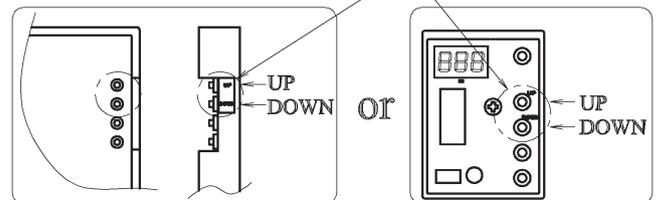
When Fan Plate(B) is installed in the old Fan Motor, install Fan Plate (B) to the new Fan Motor as shown in figure to maintain the proper air volume. When you change the Fan Motor, please remove this plate from the old Fan Motor, and install in the new Fan Motor. After changing the Fan Motor, please follow the procedure "Circuit Board Settings". The unit will not operate properly unless you follow these steps.



Circuit Board

Depending on the unit the button will be in a different location.

"UP" and "DOWN" buttons for adjusting the manifold pressure settings



Circuit Board Settings

1. Turn off all water flow to the unit.
2. If the unit has a remote controller, turn off the "POWER" button on the remote controller so it is blank and wait for 10 seconds, then disconnect electrical power to the unit for about 30 seconds.
3. Reconnect electrical power to the unit, within the first ten minutes, press and hold both the "UP" and "DOWN" buttons on the Circuit Board (see illustration above).
4. Approximately 10 seconds after holding the buttons in, the unit will signal a successful programming by spinning the Fan Motor and opening and closing the gas valve. Release the "UP" and "DOWN" buttons after the confirmation. The Fan will continue to run for about 3 minutes after the release of buttons, or you can disconnect electrical power.

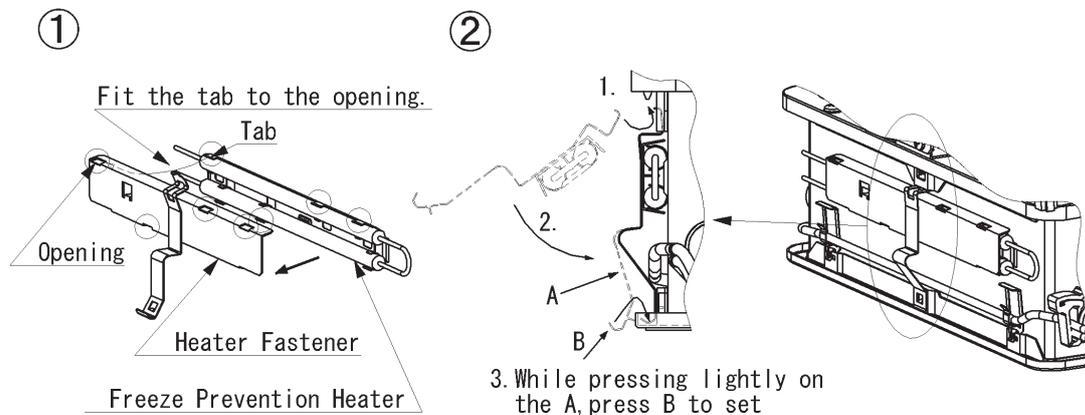
Note .

If the Fan Motor does not operate, disconnect electrical power and repeat Procedures 1 - 4 again.

Freeze Prevention Heater Installation Procedure

Please check the previous position and re-install to original position. The freeze prevention heater shall be installed with the method described in the diagram below.

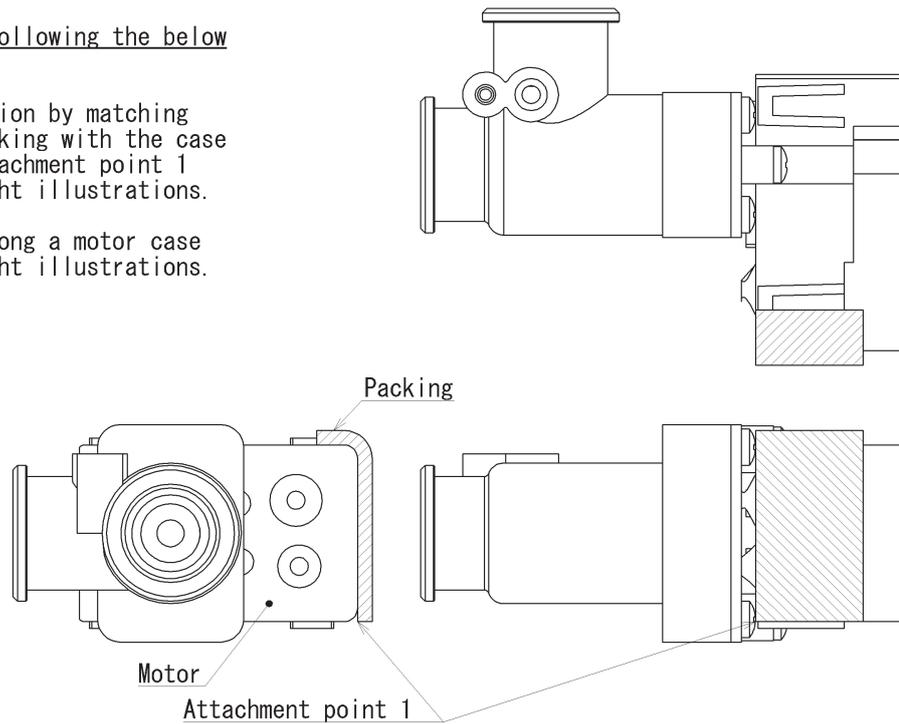
- ① Install the freeze prevention heater to the heater fastener.
- ② Install the heater fastener to the heat exchanger.



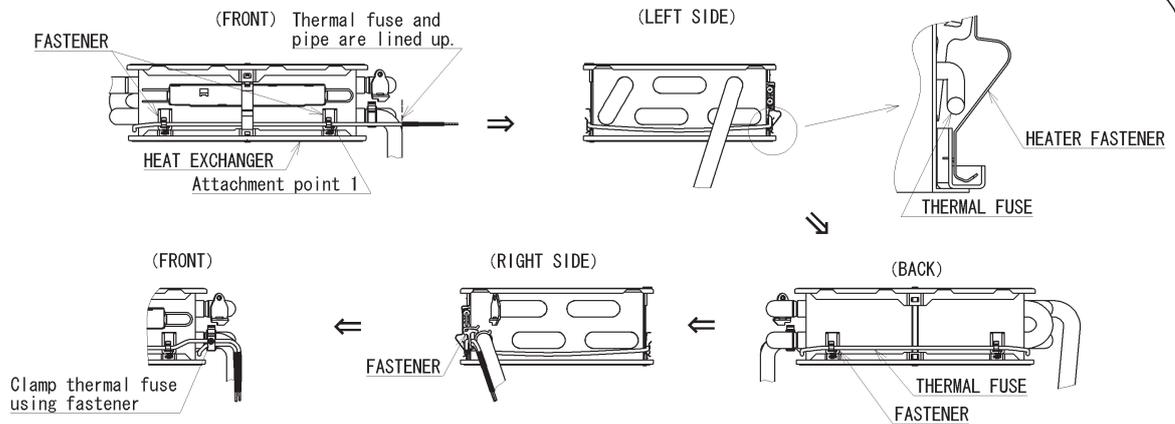
Packing Installation Procedure

Install the packing following the below procedures.

1. Begin the installation by matching a corner of the packing with the case of the motor at attachment point 1 as shown in the right illustrations.
2. Bend the packing along a motor case as shown in the right illustrations.



Thermal Fuse Installation Procedure



Install the thermal fuse following the below procedures.

1. Begin the installation by attaching the thermal fuse to the front of the heat exchanger using the fastener at attachment point 1 as indicated in the above illustration.
2. Continue wrapping the thermal fuse around the heat exchanger securing it at each attachment point using the fasteners shown in the above illustrations.

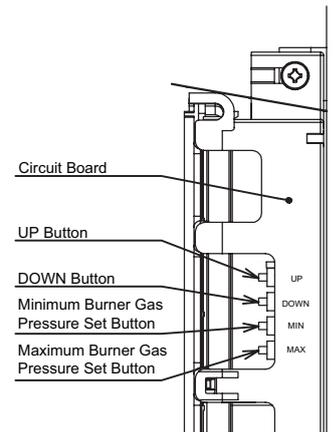
Caution

The thermal fuse may snap if it is twisted, pinched or bent too sharply.

Do not bend the thermal fuse to a radius of less than 1.25".

■ Burner Gas Pressure Adjustment

- Note 1) Use the following procedure to adjust the burner gas pressure only if it can be done with a high flow rate through the unit.
- Note 2) When the burner gas pressure is adjusted, the front cover will be off. Adjust the burner gas pressure to the value of "Cover Off" in the table (because it is not possible to adjust the burner gas pressure with the front cover on).
- Note 3) Internal model only
 Take the Intake Air and Exhaust Vent Pipes off the water heater when adjusting the burner gas pressure.
 Turn the DIP Switches (No.7, No.8) off when adjusting the burner gas pressure. (DIP Switches No.7 and No.8 : For Vent Length Adjustment)
1. With a manometer or pressure gauge connected to the burner gas pressure tap, press and hold the "Maximum Burner Gas Pressure Set Button".
 Use the "UP and DOWN Buttons" to adjust to the correct pressure.
 2. Press and hold the "Minimum Burner Gas Pressure Set Button".
 Use the "UP and DOWN Buttons" to adjust to the correct pressure.
 3. Repeat steps (1) and (2) until both are at the correct pressure.



Burner Gas Pressures Maximum and Minimum Values

Model Name	Gas type	Supply Pressure (mbar)	Burner Gas Pressure (mbar) Front Cover Off	
			Max value	Min value
WHi49	2H	20	6.7	3.1
LWHi49	3P	30/37	7.8	3.6
WHiX49	2H	20	6.4	3.1
LWHiX49	3P	30/37	10.0	4.3
WHiC56	2H	20	7.0	3.2
LWHiC56	3P	30/37	8.7	3.7
WHiCX56	2H	20	6.9	3.2
LWHiCX56	3P	30/37	8.4	3.7

* Burner gas pressure values are subject to change without prior notice.
 Please check the latest burner specification table.

Installation

■ Filling the drain trap unit with water

The drain trap unit can be filled before connecting the vent pipe.

Filling the drain trap unit before vent pipe installation.



DANGER

Prior to initial start up, make sure that you fill the drain trap unit with water. This is to prevent dangerous exhaust gases from entering the building. Failure to fill the drain trap unit could result in severe personal injury or death.

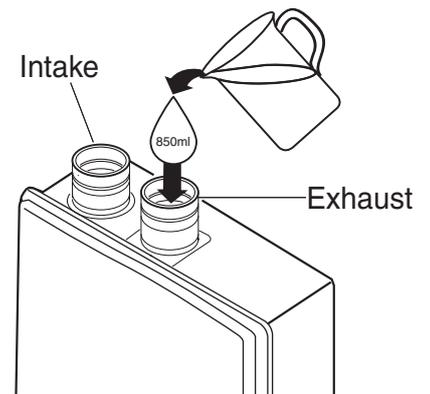
Please follow one of the procedures described below to ensure that the drain trap unit is filled with water.

- 1) Fill the drain trap unit by pouring approx. 850ml of water into the exhaust accessory on the top of the appliance as illustrated below.

Or, if the vent pipe has already been installed:

- 2) After installing the drain pipe, make sure that the area around the appliance is well ventilated; open a window or a door if necessary. Then, operate the unit and verify that condensate is coming out of the drain pipe.

(During normal use of the water heater, condensate will begin to discharge from the drain pipe within 30 minutes of use. However, depending on the season and/or installation site conditions, it may take longer.)



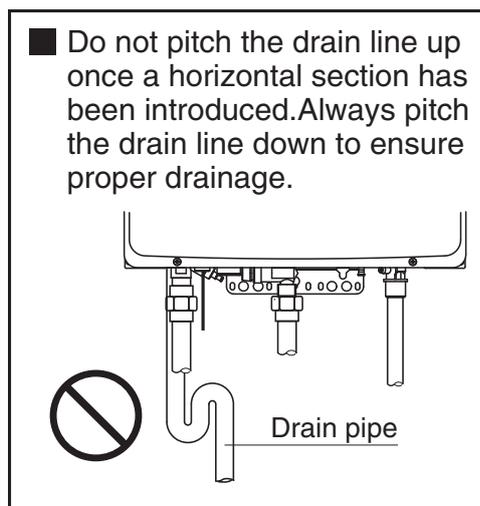
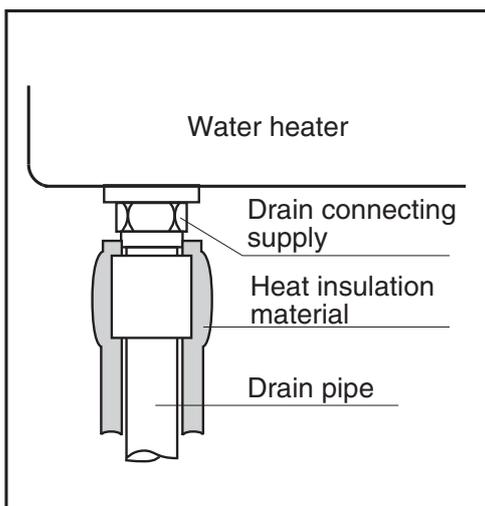
■ Condensate Piping



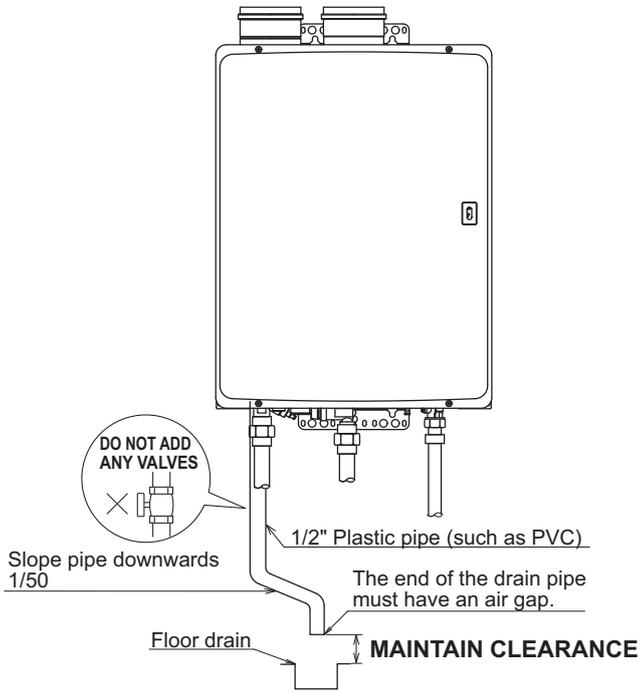
CAUTION

Due to the acidic nature of the condensate, be sure to properly drain and if necessary, treat the condensate prior to disposal. Damage caused by improperly handled condensate is not covered by the warranty.

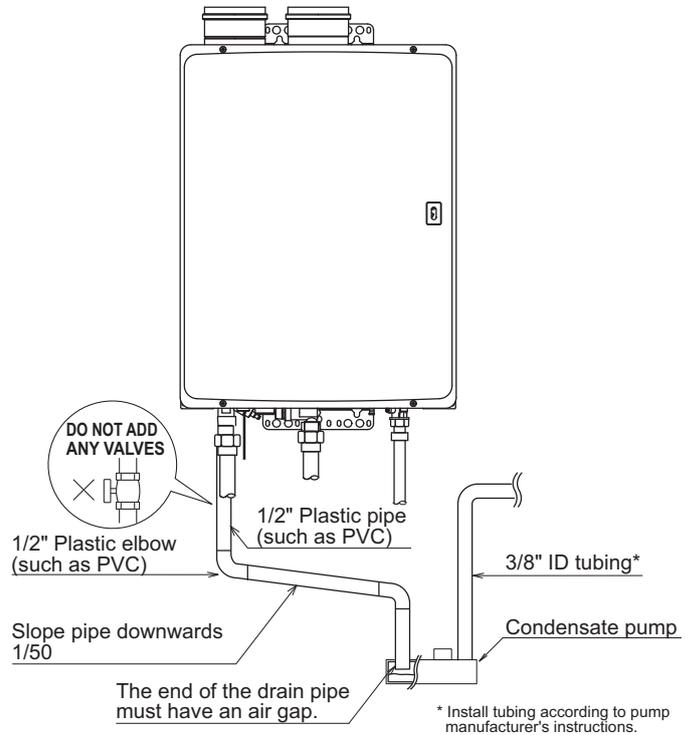
- This water heater is a high efficiency, fully condensing appliance which produces acidic condensate during operation. The water heater incorporates a collection and removal system which must be properly drained in order to ensure proper operation of this appliance.
- The pH level of the condensate is approximately 2-3. It should be drained as required by local code or when the condensate could cause damage.
- In order to drain the condensate, a 1/2" threaded fitting is provided at the base of the water heater. Do not reduce the size of this fitting or the drain piping to less than 1/2". In cold climates, do not drain the condensate to the outdoors. If the drain pipe freezes during cold weather, the pipe will not drain condensate and the unit will stop operating.
- Use plastic pipe with acid resistance, such as PVC, for the drain line. Do not use steel, black iron, or any other material which can corrode when placed into contact with acidic condensate.
- Keep the length of the drain pipe as short as possible. Long runs or applications where the nearest drain is above the water heater will require the use of a condensate pump. Size the pump to allow for a maximum condensate discharge of 100ml/minutes from the water heater.
- Horizontal runs must be sloped 1/50 downwards the drain or condensate pump. The condensate will be discharged by gravity force only. Make the drain pipe run as short as possible.
- The end of the drain pipe must not be submerged in water or blocked in any way. To ensure proper drainage, leave the end of the drain pipe open to the atmosphere. Do not have a trap. Also, make sure that there are no obstructions blocking the drain line from discharging condensate.
- Be sure to check that condensate is freely flowing from the drain piping after the system has been installed. Condensate will begin flowing out of the water heater within 15 minutes after operation has started.
- Take measures to prevent the condensate drain lines from freezing (insulation, heat tape, electric heaters, etc.).



Condensate piping to floor drain



Condensate piping with pump

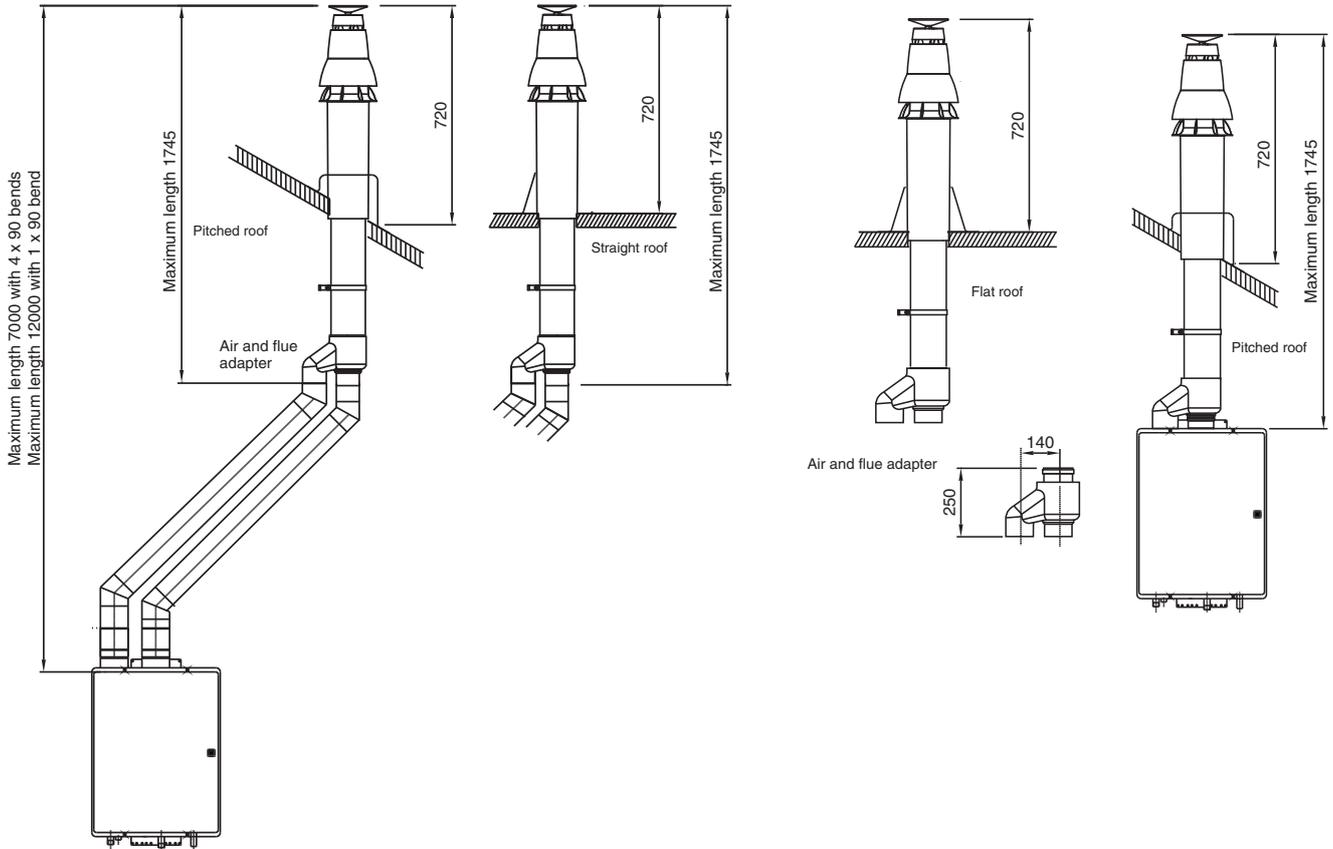


Note:

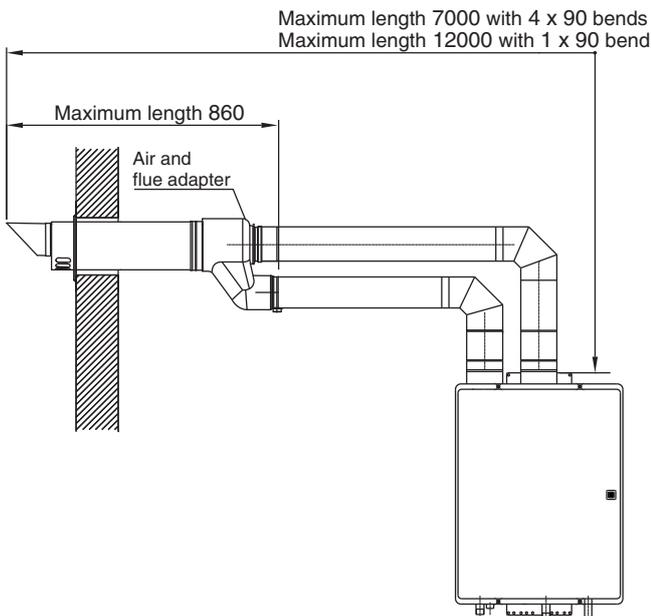
If the drain line becomes clogged or frozen, condensate will back-up into the water heater and a "29" error code will flash on the remote controller, ceasing operation. If this occurs, clear the clog or freeze so that condensate can freely flow. Be sure to slope the drain pipe, use the appropriate size pipe, allow the proper clearances, and apply freeze prevention measures (when necessary) to prevent the drain line from clogging or freezing.

■ Flue Terminal Installation

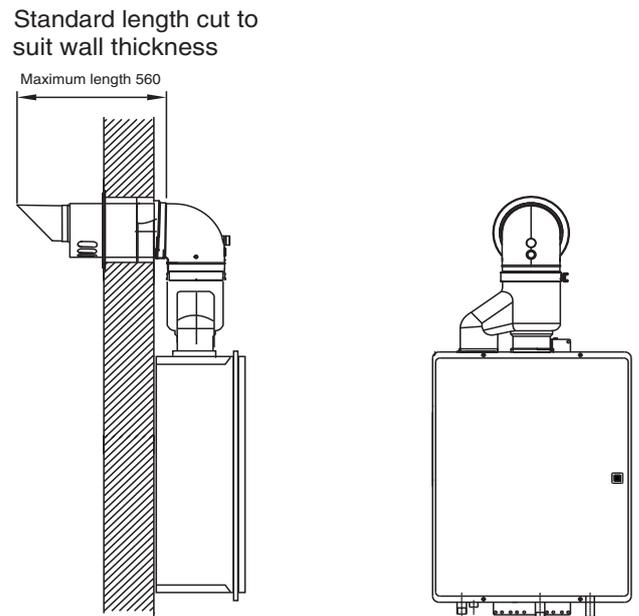
• VERTICAL FLUE TERMINAL



• HORIZONTAL FLUE TERMINAL (LONG)



• HORIZONTAL FLUE TERMINAL (SHORT)



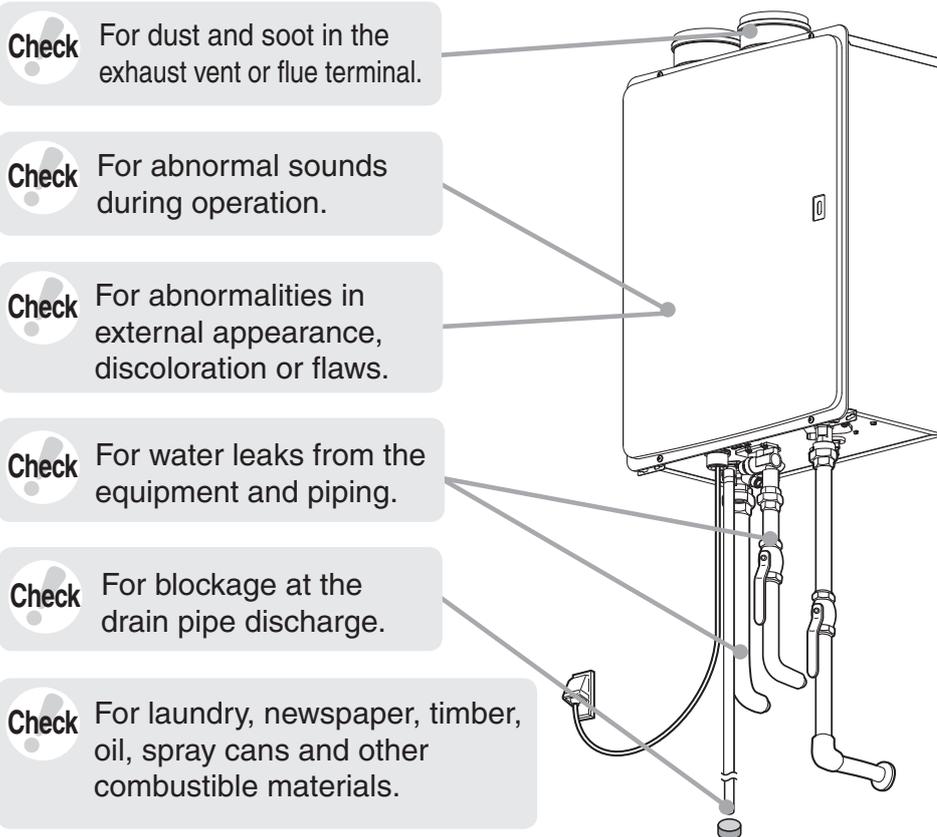
Regular Maintenance

Inspection (Once a month)



High Temperature

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



Maintenance (Once a month)

Equipment

The boiler casing can be cleaned using a mild liquid detergent with a damp cloth, then a dry cloth to polish.

Do not use any form of abrasive or solvent cleaner as you may damage the paintwork.

Remote Controller

Wipe the surface with a wet cloth.

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

Performance



CAUTION



Be sure to do.

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



For laundry, newspaper, timber, oil, spray cans and other combustible materials.



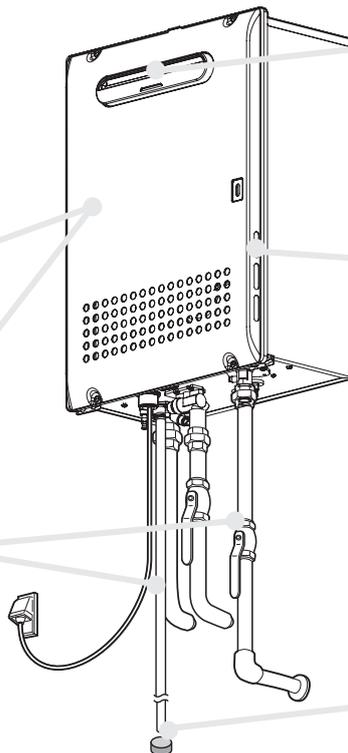
For abnormal sounds during operation.



For abnormalities in external appearance, discoloration or flaws.



For water leaks from the equipment and piping.



For dust and soot in the flue exhaust.



For dust or debris in the air inlet.



For blockage at the drain pipe discharge.
Condensing model only

Ex. WHiCX56, LWHiCX56

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.

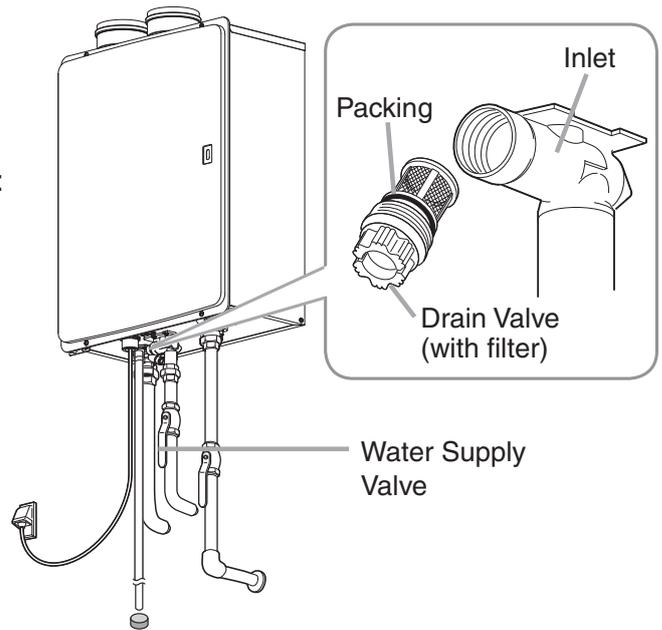
Maintenance (Once a month)

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 produce 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.

- * Water will be discharged from the trap plug. Place a container, etc. to receive the discharged water.
1. Close the water supply valve.
 2. Open all hot water fixtures.
 3. Remove the inlet and outlet drain plugs (about 1.7 L: (L)WHiCX56 and (L)WHiC56, 0.8L: (L)WHiX49 and (L)WHi49, 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). (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. WHiC56, LWHiC56

Water Quality

If the heater is in a hard water area a suitable water conditioning device must be installed to prevent the build up of limescale within the heat exchanger. Heat exchangers damaged by scaling are not covered by the manufacturer's warranty.

WATER QUALITY TABLE

Maximum levels

Description	pH	Total Dissolved solids (TDS)	Total Hardness	Chlorides	Magnesium	Calcium	Sodium	Iron
Maximum Recommended Levels	6.5 - 9.0	500 mg/liter	150 mg/liter	250 mg/liter	10 mg/liter	20 mg/liter	180 mg/liter	1 mg/liter

Procedure for Flushing the Heat Exchanger

Flushing the heat exchanger.

1  button is "ON".

2 Set the temperature more than 60 degrees.

3 Push  button again, and water heater turns off.

4 Disconnect electrical power to the water heater.

5 Close the shutoff valves on both the hot water and cold water lines (V3 and V4).

6 Connect pump outlet hose (H1) to the cold water line at service valve (V2).

7 Connect drain hose (H3) to service valve (V1).

8 Pour chemical product used to flush heat exchanger into water (acid 8-10% of water content).

9 Place the drain hose (H3) and the hose H2) to the pump inlet into the cleaning solution.

10 Open both service valves (V1 and V2) on the hot water and cold water lines.

11 Operate the pump and allow the vinegar to circulate through the water heater for at least 1 hour at a rate of 15 liters per minute.

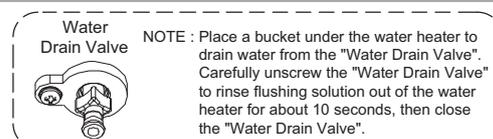
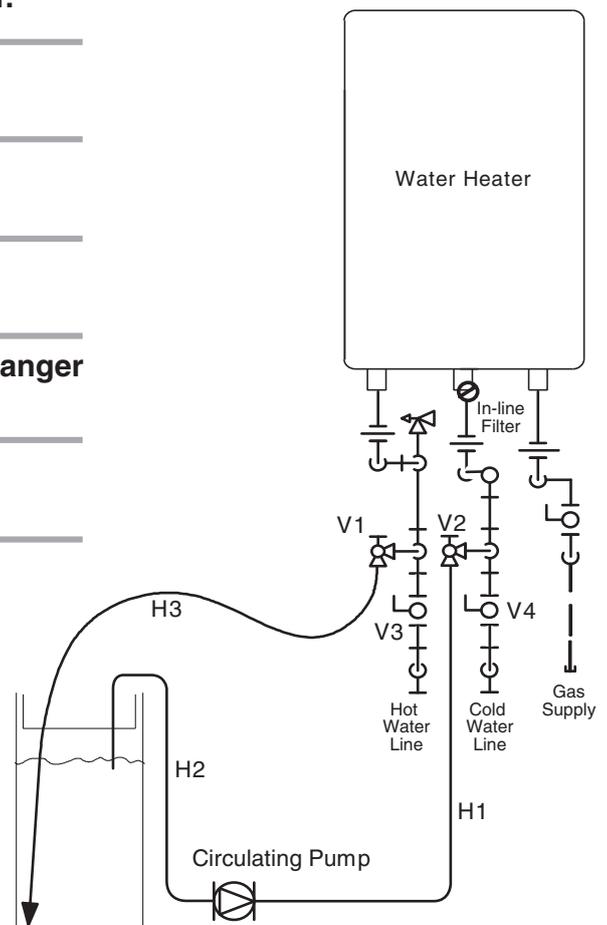
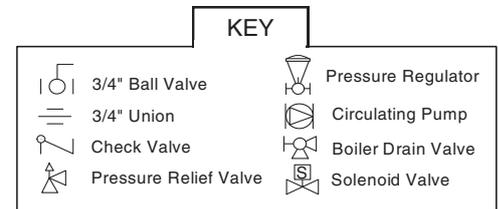
12 Turn off the pump.

13 Rinse the chemical/water from the water heater as follows:

- Remove the free end of the drain hose (H3) from the pail. Place in sink or outside to drain.
- Close service valve, (V2), and open shutoff valve, (V4). Do not open shutoff valve, (V3).
- Allow water to flow through the water heater for 5 minutes.
- Close shutoff valve (V4). When unit has finished draining remove the inline filter at the cold water inlet and clean out any residue. Place filter back into unit and open valve (V4).
- Close service valve, (V1), and open shutoff valve, (V3).

14 Disconnect all hose.

15 Restore electrical power to the water heater.



Draining Water from Unit

■ Preventing Damage from Freezing

The heater and piping can be damaged if cold temperatures cause water to freeze inside the unit. The damage can be prevented with the following method:

Normal cold [outside temperatures between 0°C - 10°C with no wind]

At these temperatures, the units have freeze prevention heaters that will prevent freezing.

* **Do not disconnect the power. The freeze prevention heaters will not work if the power is disconnected.**

* The freeze prevention will work regardless of whether the operation button on the remote controller has been turned on.

When the temperature drops, the **freeze-prevention heaters** are automatically activated to keep the unit warm and prevent it from freezing.

The freeze prevention heaters will not prevent the plumbing external to the unit from freezing. Protect this plumbing with insulation. If you are still worried that your heater will freeze, contact the nearest agent.

For severely cold temperatures [outside temperature including wind chill of less than -10°C]

Run water to prevent freezing.

1. Turn the unit on with the Power Button on the Remote Controller.
2. Close the gas supply valve.
3. Open a hot water fixture and let it run for approx. 2 minute, and then check that the number 11 or F11 is flashing on the remote controller display.
 - * If multiple units are being used, drain each unit for approx. 2 minute.
 - * It is possible that a different number may be displayed on the remote controller, but as long as it is flashing, you may continue.
4. Adjust a hot water fixture, and keep a small amount of hot water running. (0.4L/minute or about 4mm thick.)
 - * If there is a mixing valve, set it to the highest level.
 - * When linking multiple units, discharge water equivalent to 0.4L/minute per unit.
5. The flow may become unstable from time to time. Check the flow 30 minutes later.



- This method can be applied not only to the heater, but also to the water supply, water piping and mixing valve.
- Remember that if the mixing valve is set to the maximum level, there is a risk of scalding.
- If freezing still might occur, drain the water from the unit following the steps on the next page.

If water will not flow because it is frozen

1. Close the gas and water valves.
2. Turn off the operation 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, or follow steps 1 through 4 on P15 ("Initial Operation").

- If the heater or the piping is frozen, do not use the heater, or it may become damaged.
- Repairs for damage caused by freezing, is not covered by the warranty.

■ When Unused for an Extended Period

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

CAUTION



If you do not use the product for long time, contact your nearest agency.

Because the operation in equipment is necessary for complete drainage.

CAUTION



Whenever the unit is checked, maintained, or drained, the power switch must be turned "Off", and it must be allowed to cool down first.

To prevent scalding.

The water within the appliance is still very hot, for a short period after use.

Preparation A bucket for draining water.

Drainage Using the Remote Controller

1

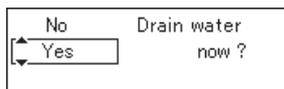
(1)  button is "OFF".

(2) Press the  button inside the cover,
Select **Misc settings** using the  buttons.
Press the  button.

The "Misc settings" screen appears.

(3) Select **Drain water** using the  buttons,
and then press  button.

(4) Select "YES" using the  buttons,

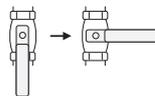


Press  button.

Follow the drain procedures
in the manual

2

Close the water supply valve.



3

Fully open all hot water fixtures/faucets.



4

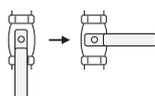
Open all drain plugs and drain the water out of the unit.

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.

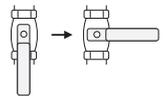


Do not touch with wet hands.

Manual Draining

1

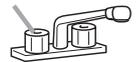
Close the gas valve.



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.

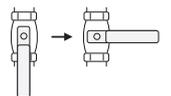
* An 11 Error Code may appear on the remote controller.

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.

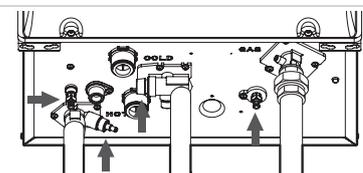


5

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

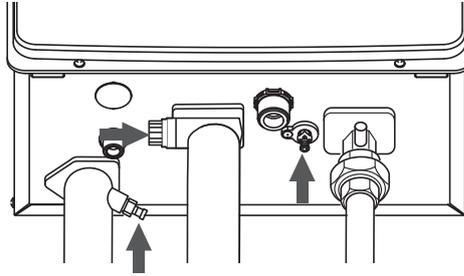
Ex. WHiCX56, LWHiCX56

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

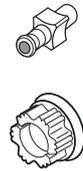
If the water heater will not be used for a long period of time, drain the water.

Position of the cleanout plugs

3 positions



- * The shapes of the cleanout plugs are as pictured on the right.
- * The cleanout plugs may not be clearly visible as they are partially hidden behind the pipe insulation.
- * Water may not drain out fully even though the cleanout plugs are loosened, depending on the pipe arrangement. In this case, fully remove the cleanout plugs. (Make sure not to mislay them.)



(Condensing model only)

Water in an internal tank cannot drain to out side if try to drain according to above drain operation. Freezing is prevented within the device automatically by the freeze-prevention heater. Freezing cannot be prevented when the power plug is unplugged. Recommendation : the power plug is plugged when heater does not use. Please contact to service center how to drain water inside of tank to outside.

Turning the Unit Back On (Condensing model only)

1. Check that all drain plugs are inserted.
2. Check that all hot water fixtures are closed.
3. Follow the procedure on P15 "Initial operation", steps 1 through 4.
4. Make sure that the area around the appliance is well ventilated; open a window or a door if necessary.
Then, operate the unit and verify that condensate is coming out of the drain pipe.
(During normal use of the water heater, condensate will begin to discharge from the drain pipe within 30 minutes of use. However, depending on the season and/or installation site conditions, it may take longer.)

* If water does not appear at the end of the drain line, a qualified service technician must clean the condensate line.

! DANGER

(Condensing model only)



Be sure to do.

After the water heater has been out of use for a long time or after replacing the drain trap with a new unit, make sure that you fill the drain trap unit with water. This is to prevent dangerous exhaust gases from entering the building. Failure to fill the drain trap unit could result in severe personal injury or death. (By performing step 4 as described above, the drain trap unit will automatically fill itself with water.)

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		WHiC56	LWHiC56
Type	Installation Air Supply/Exhaust	Internal, Wall Mounted Power Vented	
Ignition		Direct Ignition	
Minimum Pressure for Maximum flow		2.0 bar	
Minimum Flow Rate		2.0 L/min.	
Dimensions		61.5 cm(Height) x 46.4 cm(Width) x 24 cm(Depth)	
Weight		32 kg	
Water Holding Capacity		2.0 Litre	
Connection Sizes	Water Inlet	R 3/4"	
	Hot Water Outlet	R 3/4"	
	Gas Inlet	R 3/4"	
	Condensate Drain	R 1/2"	
Power Supply	Supply	220 - 240V AC (50Hz)	
	Consumption	75.9 W	75.9 W
		Freeze Prevention 223W	
Materials	Casing	Zincified Steel Plate/Polyester Coating	
	Flue Collar	Stainless Steel	
	Heat Exchanger	Copper Sheetting, Copper Tubing	
Safety Devices		Flame Rod, Thermal Fuse, Pressure Relief Valve, Lightning Protection Device (ZNR), Overheat Prevention Device, Freezing Prevention Device, Fan Rotation Detector	
Accessories		Anchoring Screws	

Performance

Item		Maximum Performance	Minimum Performance
Gas Consumption (NET)	G20	54 kW	4.4 kW
	G31	54 kW	4.4 kW
Hot Water Capacity	25°C Rise	32 L/min.	
	58°C Rise	13 L/min.	
Capacity Range		2.0 - 42 L/min.	
Temperature Settings		37 - 48, 50, 55, 60, 65, 70, 75, 80, 85°C	

Specifications

Item		Specification	
Model Name		WHiCX56	LWHiCX56
Type	Installation Air Supply/Exhaust	External, Wall Hanging Power Vented	
Ignition		Direct Ignition	
Minimum Pressure for Maximum flow		2.0 bar	
Minimum Flow Rate		2.0 L/min.	
Dimensions		61.5 cm(Height) x 46.4 cm(Width) x 24 cm(Depth)	
Weight		32 kg	
Water Holding Capacity		2.0 Litre	
Connection Sizes	Water Inlet	R 3/4"	
	Hot Water Outlet	R 3/4"	
	Gas Inlet	R 3/4"	
	Condensate drain	R 1/2"	
Power Supply	Supply	220 - 240 VAC (50Hz)	
	Consumption	75.9W	75.9W
		Freeze Prevention 223W	
Materials	Casing	Zincified Steel Plate/Polyester Coating	
	Flue Collar	Stainless Steel	
	Heat Exchanger	Copper Sheeting, Copper Tubing	
Safety Devices		Flame Rod, Thermal Fuse, Pressure Relief Valve, Lightning Protection Device (ZNR), Overheat Prevention Device, Freezing Prevention Device, Fan Rotation Detector	
Accessories		Anchoring Screws	

Performance

Item		Maximum Performance	Minimum Performance
Gas Consumption (NET)	G20	53.5 kW	4.35 kW
	G31	54.5 kW	4.35 kW
Hot Water Capacity	25°C Rise	32 L/min.	
	58°C Rise	13 L/min.	
Capacity Range		2.0 - 42 L/min.	
Temperature Settings		37 - 48, 50, 55, 60, 65, 70, 75, 80, 85°C	

Specifications

Item		Specification	
Model Name		WHi49	LWHi49
Type	Installation Air Supply/Exhaust	Internal, Wall Mounted Power Vented	
Ignition		Direct Ignition	
Minimum Pressure for Maximum flow		2.0 bar	
Minimum Flow Rate		2.0 L/min.	
Dimensions		60 cm(Height) x 35 cm(Width) x 28 cm(Depth)	
Weight		28 kg	
Water Holding Capacity		1.0 Litre	
Connection Sizes	Water Inlet	R 3/4"	
	Hot Water Outlet	R 3/4"	
	Gas Inlet	R 3/4"	
Power Supply	Supply	220 - 240 V AC (50Hz)	
	Consumption	75.9W	81W
		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, Pressure Relief Valve, Lightning Protection Device (ZNR), Overheat Prevention Device, Freezing Prevention Device, Fan Rotation Detector	
Accessories		Anchoring Screws	

Performance

Item		Maximum Performance	Minimum Performance
Gas Consumption (NET)	G20	49.0 kW	3.6 kW
	G31	49.0 kW	3.6 kW
Hot Water Capacity	25°C Rise	28 L/min.	
	58°C Rise	11 L/min.	
Capacity Range		2.0 - 37 L/min.	
Temperature Settings		37 - 48, 50, 55, 60, 65, 70, 75, 80, 85 °C	

Specifications

Item		Specification	
Model Name		WHiX49	LWHiX49
Type	Installation Air Supply/Exhaust	External, Wall Hanging Power Vented	
Ignition		Direct Ignition	
Minimum Pressure for Maximum flow		2.0 bar	
Minimum Flow Rate		2.0 L/min.	
Dimensions		60 cm(Height) x 35 cm(Width) x 24 cm(Depth)	
Weight		26 kg	
Water Holding Capacity		1.0 Litre	
Connection Sizes	Water Inlet	R 3/4"	
	Hot Water Outlet	R 3/4"	
	Gas Inlet	R 3/4"	
Power Supply	Supply	220 - 240 VAC (50Hz)	
	Consumption	75.9W	75.9W
		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, Pressure Relief Valve, Lightning Protection Device (ZNR), Overheat Prevention Device, Freezing Prevention Device, Fan Rotation Detector	
Accessories		Anchoring Screws	

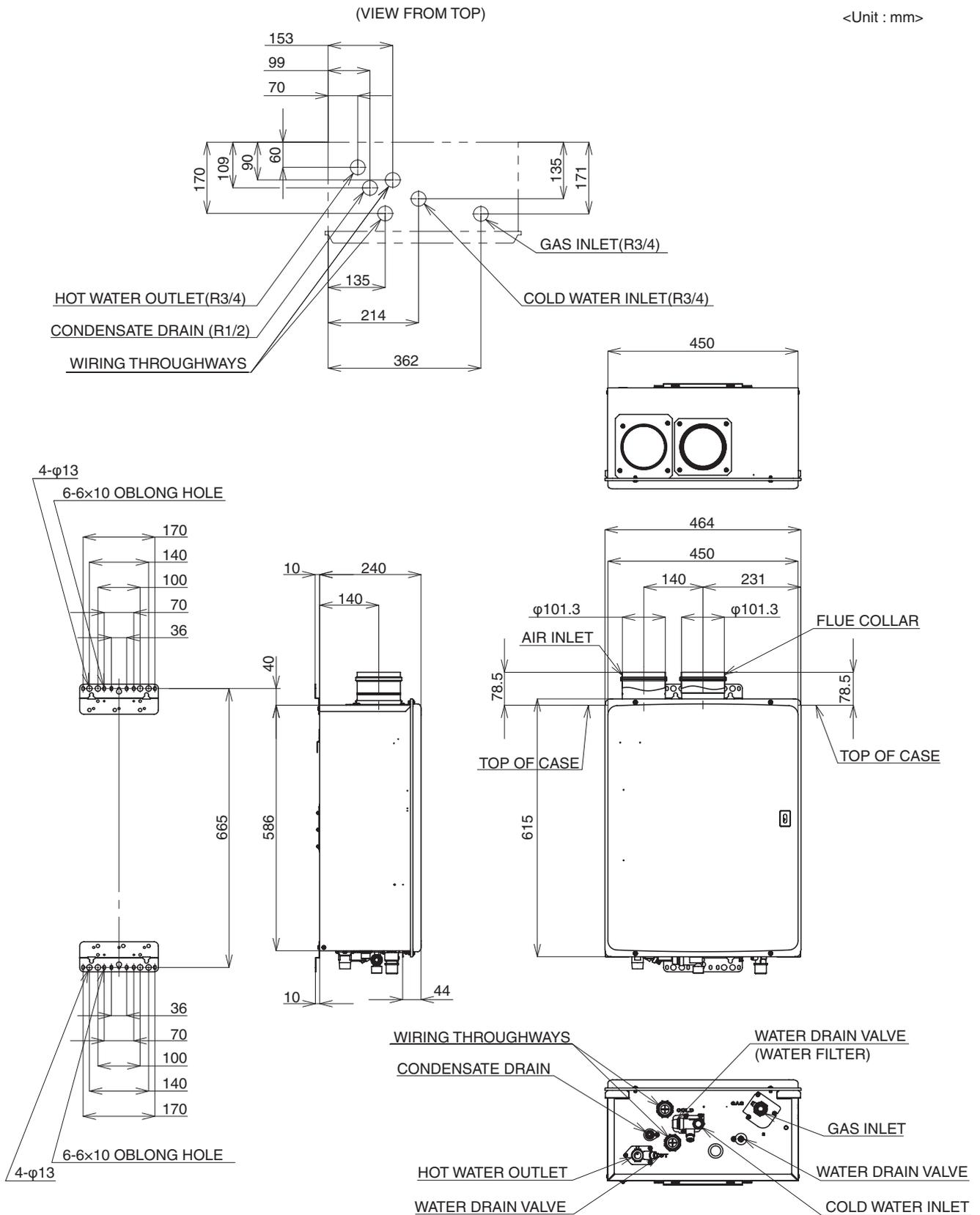
Performance

Item		Maximum Performance	Minimum Performance
Gas Consumption (NET)	G20	53.5 kW	4.35 kW
	G31	53.5 kW	4.35 kW
Hot Water Capacity	25°C Rise	28 L/min.	
	58°C Rise	12 L/min.	
Capacity Range		2.0 - 37 L/min.	
Temperature Settings		37 - 48, 50, 55, 60, 65, 70, 75, 80, 85°C	

Dimensions

■ (L)WHiC56

<Unit : mm>

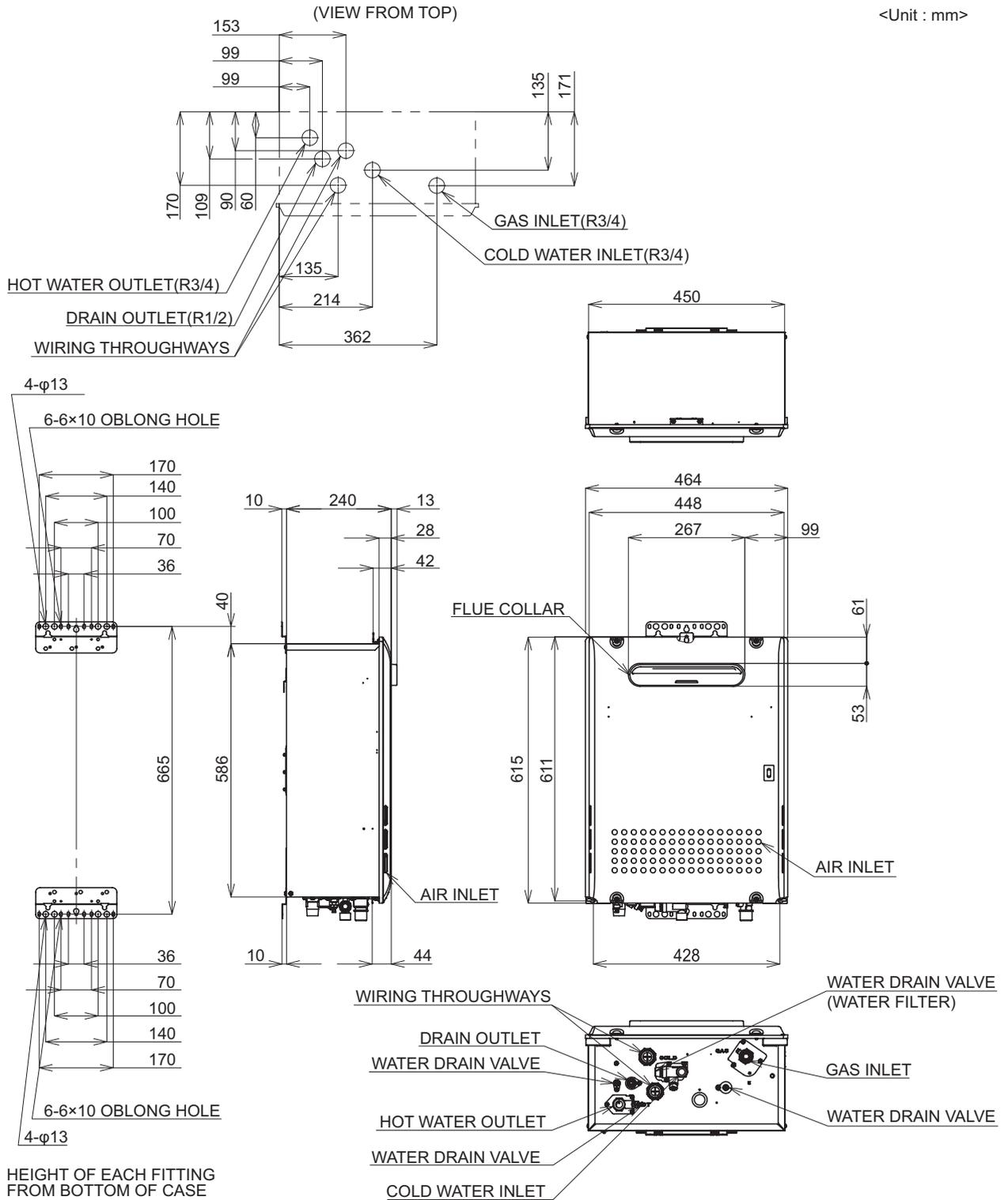


HEIGHT OF EACH FITTING
FROM BOTTOM OF CASE

CONDENSATE DRAIN	20
HOT WATER OUTLET	44
COLD WATER INLET	55
GAS INLET	56

■ (L)WHiCX56

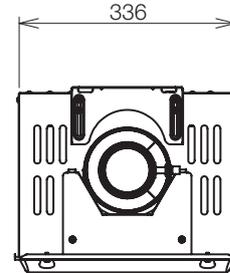
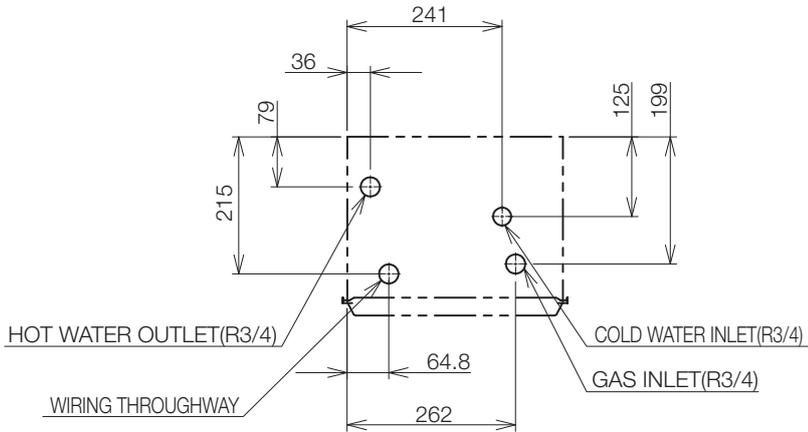
<Unit : mm>



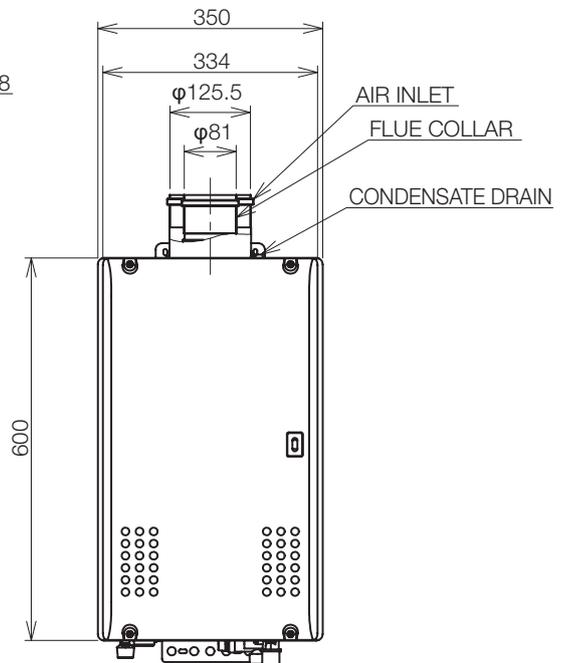
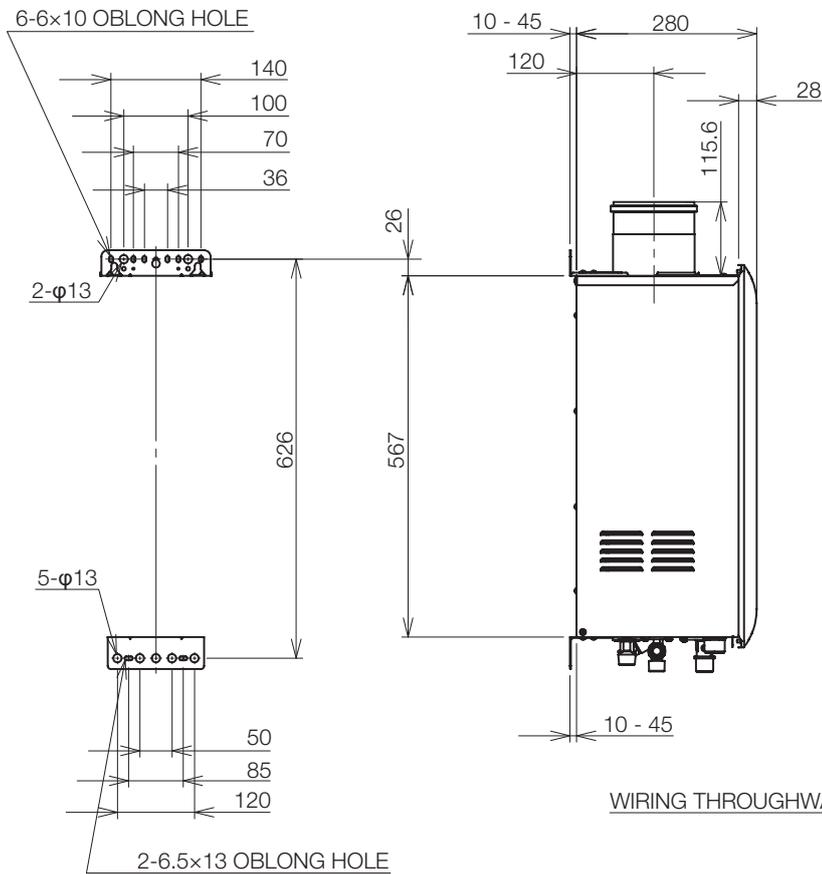
■ (L)WHi49

<Unit : mm>

(VIEW FROM TOP)

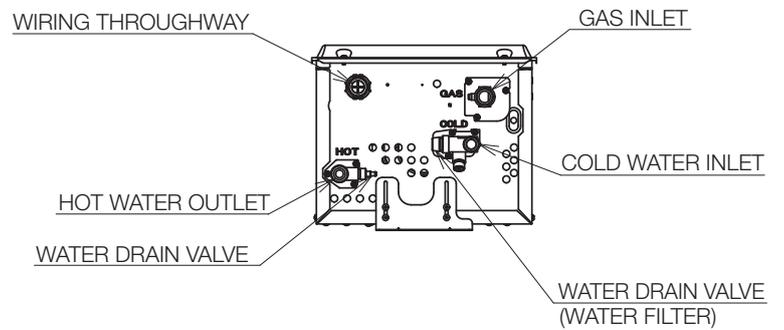


6-6x10 OBLONG HOLE



HEIGHT OF EACH FITTING FROM BOTTOM OF CASE

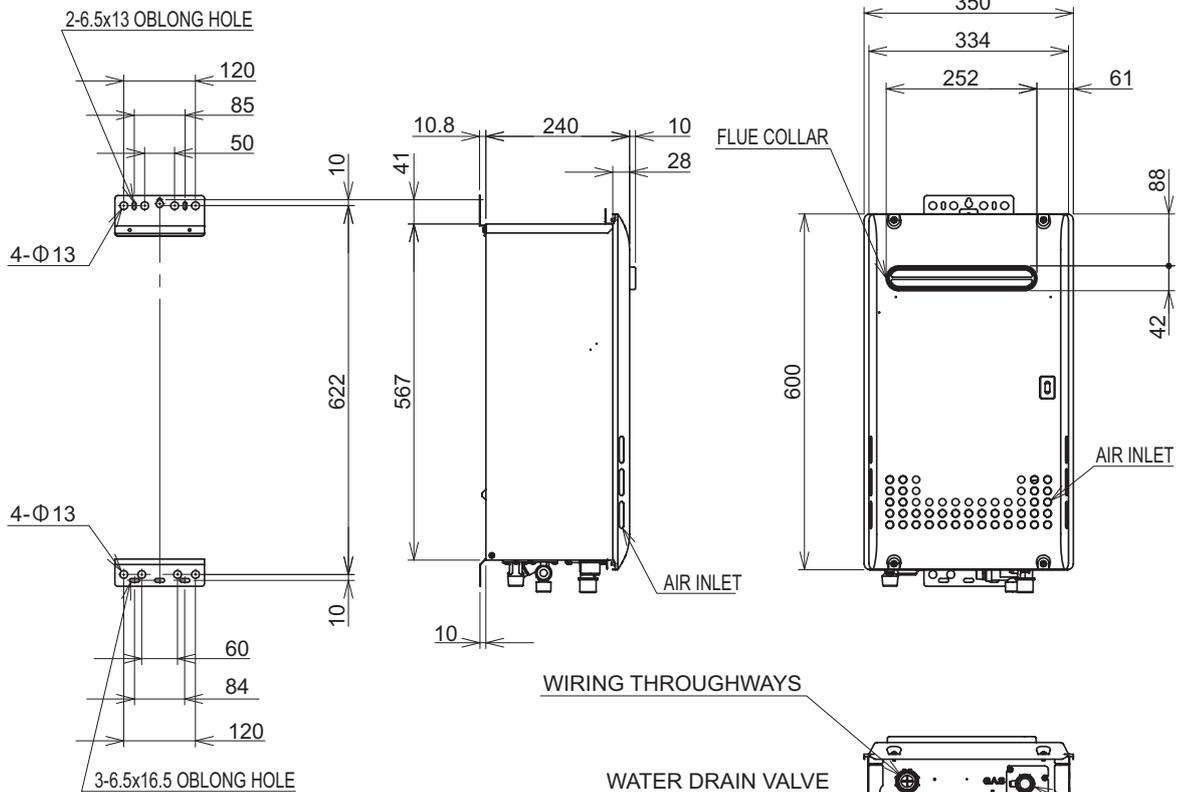
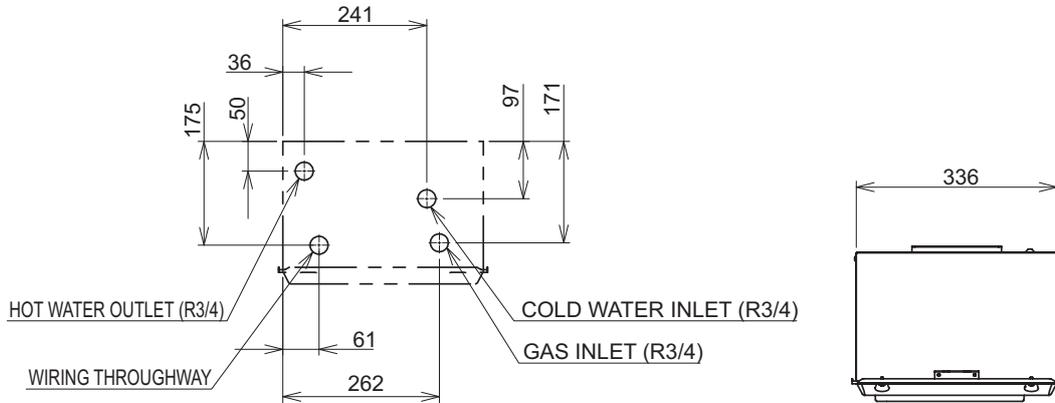
HOT WATER OUTLET	44
COLD WATER INLET	55
GAS INLET	56



■ (L)WHiX49

(VIEW FROM TOP)

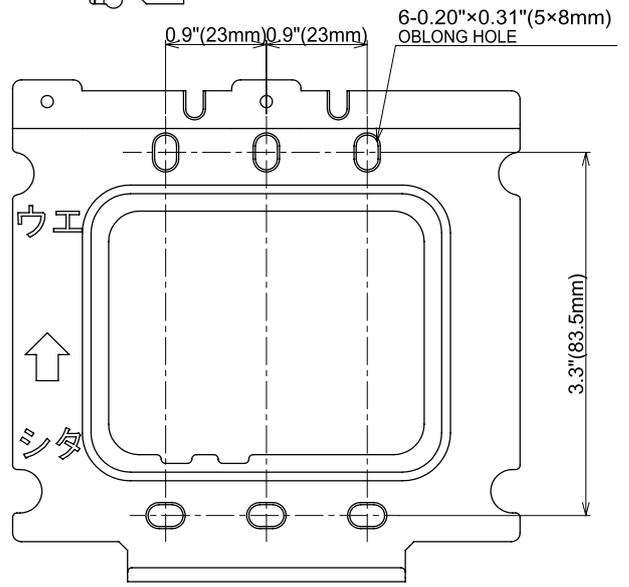
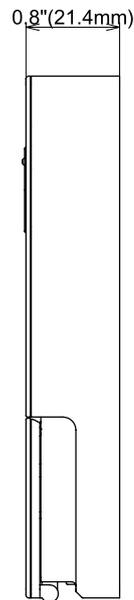
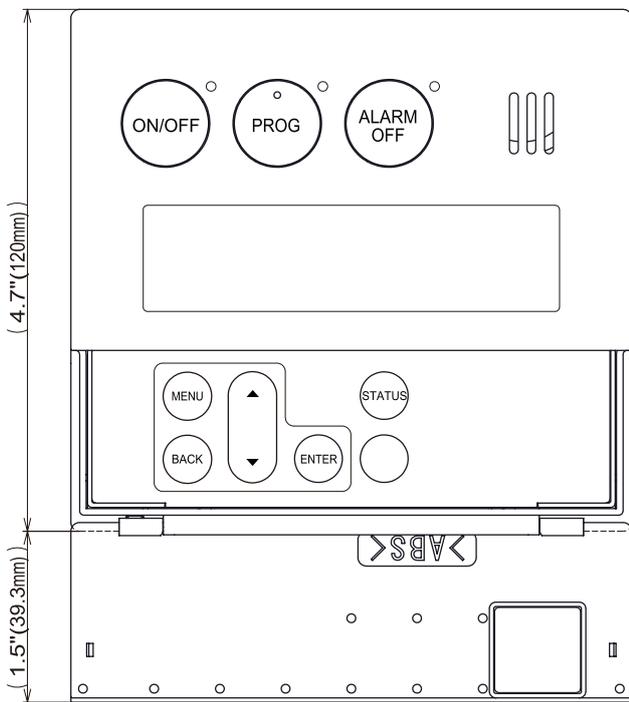
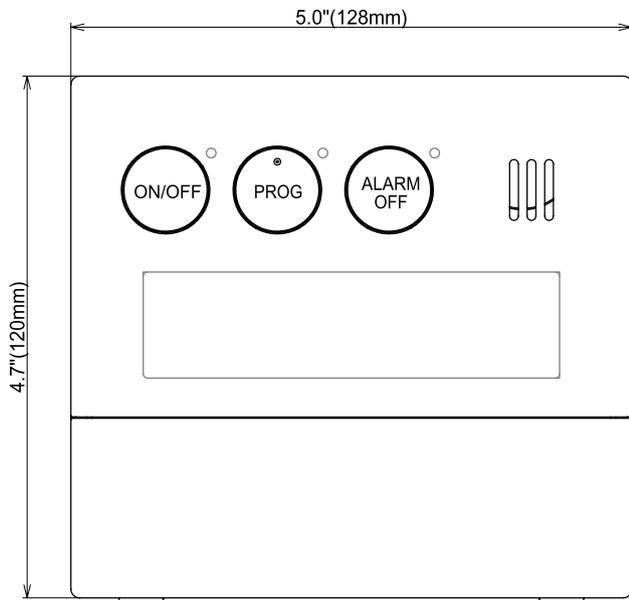
<Unit : mm>



HEIGHT OF EACH FITTING FROM BOTTOM OF CASE

HOT WATER OUTLET	45
COLD WATER INLET	55
GAS INLET	56

■ RC-9018M



Mounting bracket

Installation Check

Installation problems can cause the unit to work unsatisfactorily. If the unit is not working properly, but there are no error codes or evidence of malfunction, check the installation.

* Installation Checks:

Altitude

1. If this water heater is installed in a location where the altitude is greater than 610m, the combustion may become abnormal because of the thinness of the air. The unit must be configured for high elevation installations by adjusting the high elevation dip switches located inside of the water heater. Refer to the "Installation Manual" for detailed instructions.

Air Supply/Exhaust

1. Make sure that the installation location provides sufficient combustible air and enough space for an exhaust vent.
2. Install the venting only as outlined in the installation manual.

Installation Environment

1. If this unit will be installed in a factory, salon, or laundry service, install it in a location where it will not be exposed to steam, ammonia, sulfur, chlorine, ethylene compounds, or acids.
2. If this unit will be installed in a restaurant, locate it so that it will not be effected by steam.
3. Avoid any installation that will expose the unit to steam or moisture.

For Multiple Floor Water Supply

1. If the unit will be installed on the lower floor of a multiple story building, in order to get the maximum flow rate through the unit, there must be at least 2.0bar of water pressure at the inlet to the unit. If this supply water pressure cannot be maintained, install pumps to increase the pressure and install a pressure gauge to adjust the supply pressure to the desired level. If the supply pressure to the water heater falls below this level, boiling may occur in parts of the heat exchanger, causing an abnormal sound and possibly damaging the water heater.

Installation of Strainer

1. If the unit will be installed in a system with a circulating or pressure increasing pump, install a strainer with a No.50 or greater mesh to protect the unit from damage caused by debris in the plumbing line. This is especially important for older piping.

* Installation Cautions

Gas Supply Piping

Because a large quantity of gas is used with these appliances, make sure to size the gas meter and supply piping to match the maximum KW rating of the heater.

Air Supply and Vent Pipe

■ Before installation, note the following:

- Vent pipe diameters and maximum vent length
 - *Refer to the installation manual for proper settings.
- Make sure the installation location allows for a flue to be built that will be shorter than the maximum allowable vent length.
 - * A longer vent will cause a danger of explosion.
 - Choose a good path for the vent pipe.
- Do not penetrate the vent pipe through a fire wall.
- Extend the vent pipe all the way to the outdoors.
- Steam and condensed water may exit the vent pipe. Be sure to install the vent pipe so that the steam and water droplets will not harm anything.
- The condensate trap can be filled before connecting the vent pipe.

Filling the condensate trap with water

The drain trap unit can be filled before connecting the vent pipe.

Filling the drain trap unit before vent pipe installation.



DANGER

Prior to initial start up, make sure that you fill the drain trap unit with water. This is to prevent dangerous exhaust gases from entering the building. Failure to fill the drain trap unit could result in severe personal injury or death.

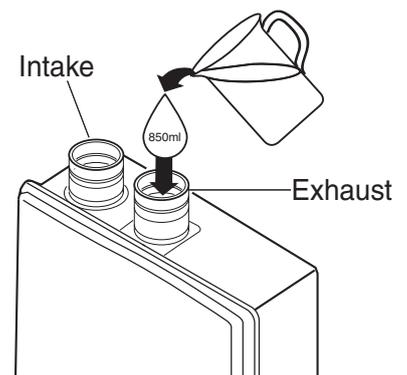
Please follow one of the procedures described below to ensure that the drain trap unit is filled with water.

- 1) Fill the drain trap unit by pouring approx. 850ml of water into the exhaust accessory on the top of the appliance as illustrated below.

Or, if the vent pipe has already been installed:

- 2) After installing the drain pipe, make sure that the area around the appliance is well ventilated; open a window or a door if necessary. Then, operate the unit and verify that condensate is coming out of the drain pipe.

(During normal use of the water heater, condensate will begin to discharge from the drain pipe within 30 minutes of use. However, depending on the season and/or installation site conditions, it may take longer.)



Electrical

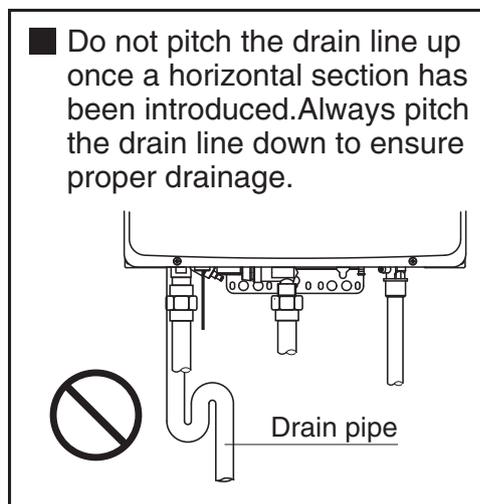
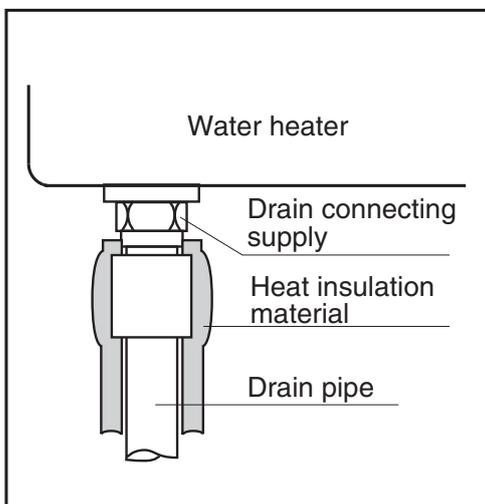
- The electrical power supply to the unit should be installed by a qualified electrician.
- Allocate 4A on the circuit for this water heater.
If more than one unit is being installed, allocate an appropriate circuit to provide power for each unit.

Condensate Piping

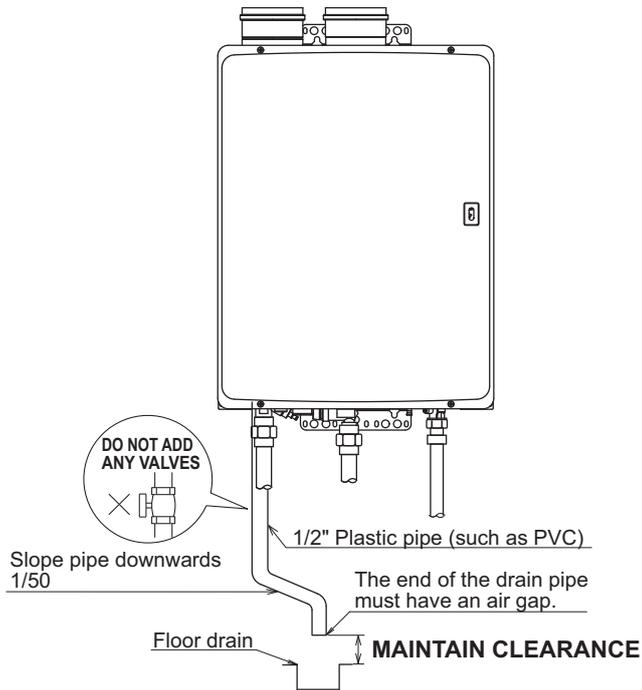
CAUTION

Due to the acidic nature of the condensate, be sure to properly drain and if necessary, treat the condensate prior to disposal. Damage caused by improperly handled condensate is not covered by the warranty.

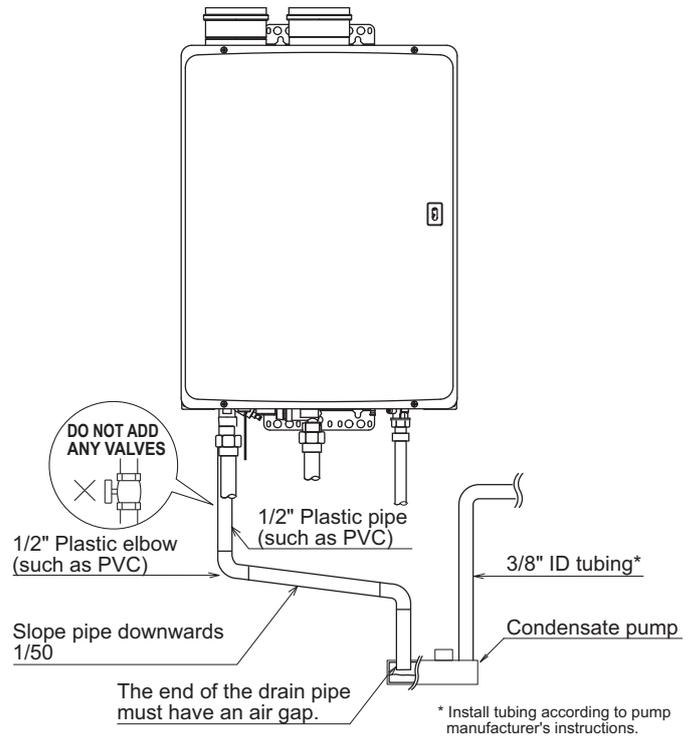
- This water heater is a high efficiency, fully condensing appliance which produces acidic condensate during operation. The water heater incorporates a collection and removal system which must be properly drained in order to ensure proper operation of this appliance.
- The pH level of the condensate is approximately 2-3. It should be drained as required by local code or when the condensate could cause damage.
- In order to drain the condensate, a 1/2" threaded fitting is provided at the base of the water heater. Do not reduce the size of this fitting or the drain piping to less than 1/2".
In cold climates, do not drain the condensate to the outdoors. If the drain pipe freezes during cold weather, the pipe will not drain condensate and the unit will stop operating.
- Use plastic pipe with acid resistance, such as PVC, for the drain line. Do not use steel, black iron, or any other material which can corrode when placed into contact with acidic condensate.
- Keep the length of the drain pipe as short as possible. Long runs or applications where the nearest drain is above the water heater will require the use of a condensate pump. Size the pump to allow for a maximum condensate discharge of 100ml/minutes from the water heater.
- Horizontal runs must be sloped 1/50 downwards the drain or condensate pump. The condensate will be discharged by gravity force only. Make the drain pipe run as short as possible.
- The end of the drain pipe must not be submerged in water or blocked in any way. To ensure proper drainage, leave the end of the drain pipe open to the atmosphere. Do not have a trap. Also, make sure that there are no obstructions blocking the drain line from discharging condensate.
- Be sure to check that condensate is freely flowing from the drain piping after the system has been installed. Condensate will begin flowing out of the water heater within 15 minutes after operation has started.
- Take measures to prevent the condensate drain lines from freezing (insulation, heat tape, electric heaters, etc.).



Condensate piping to floor drain



Condensate piping with pump

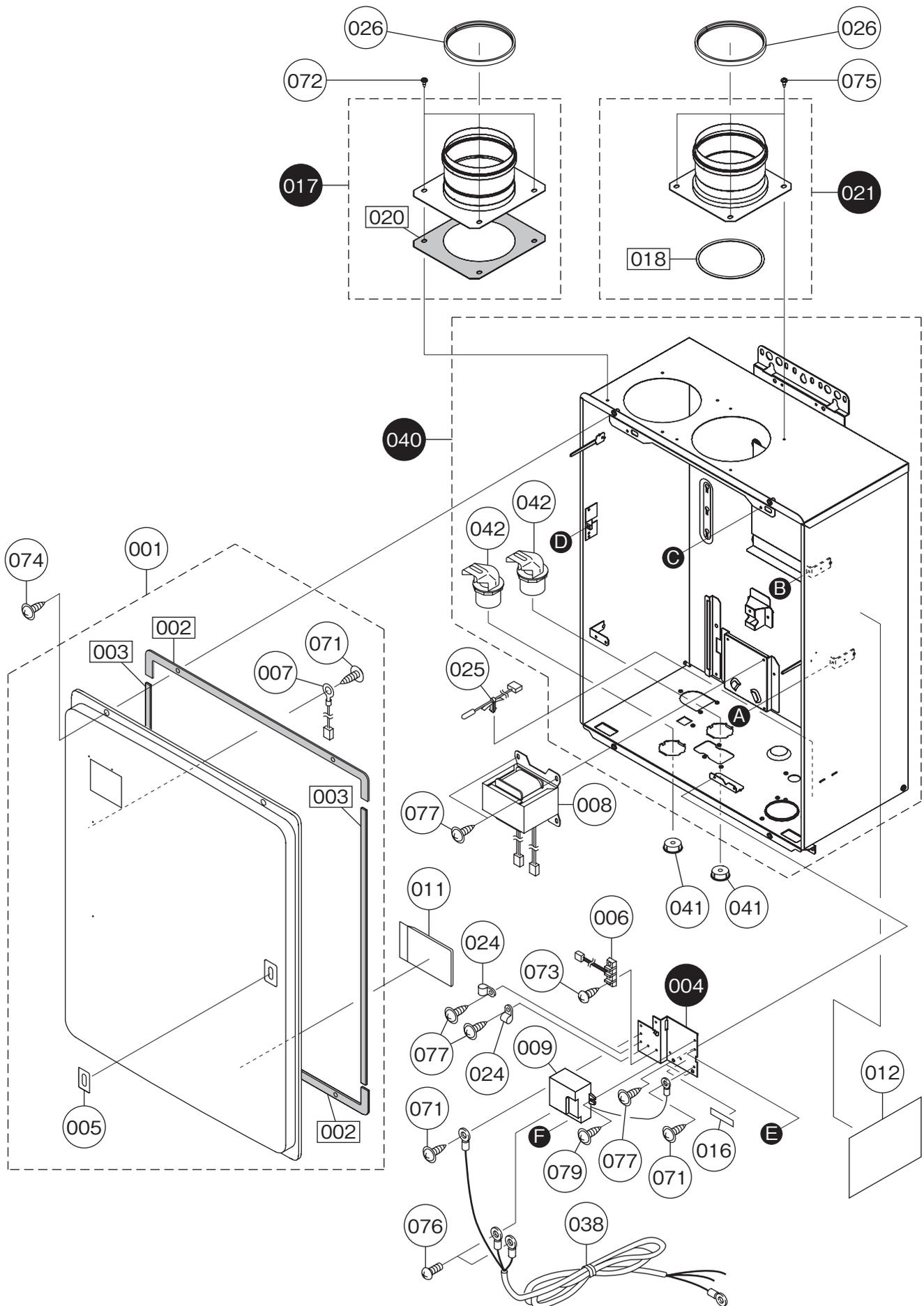


Note:

If the drain line becomes clogged or frozen, condensate will back-up into the water heater and a "29" error code will flash on the remote controller, ceasing operation. If this occurs, clear the clog or freeze so that condensate can freely flow. Be sure to slope the drain pipe, use the appropriate size pipe, allow the proper clearances, and apply freeze prevention measures (when necessary) to prevent the drain line from clogging or freezing.

Parts

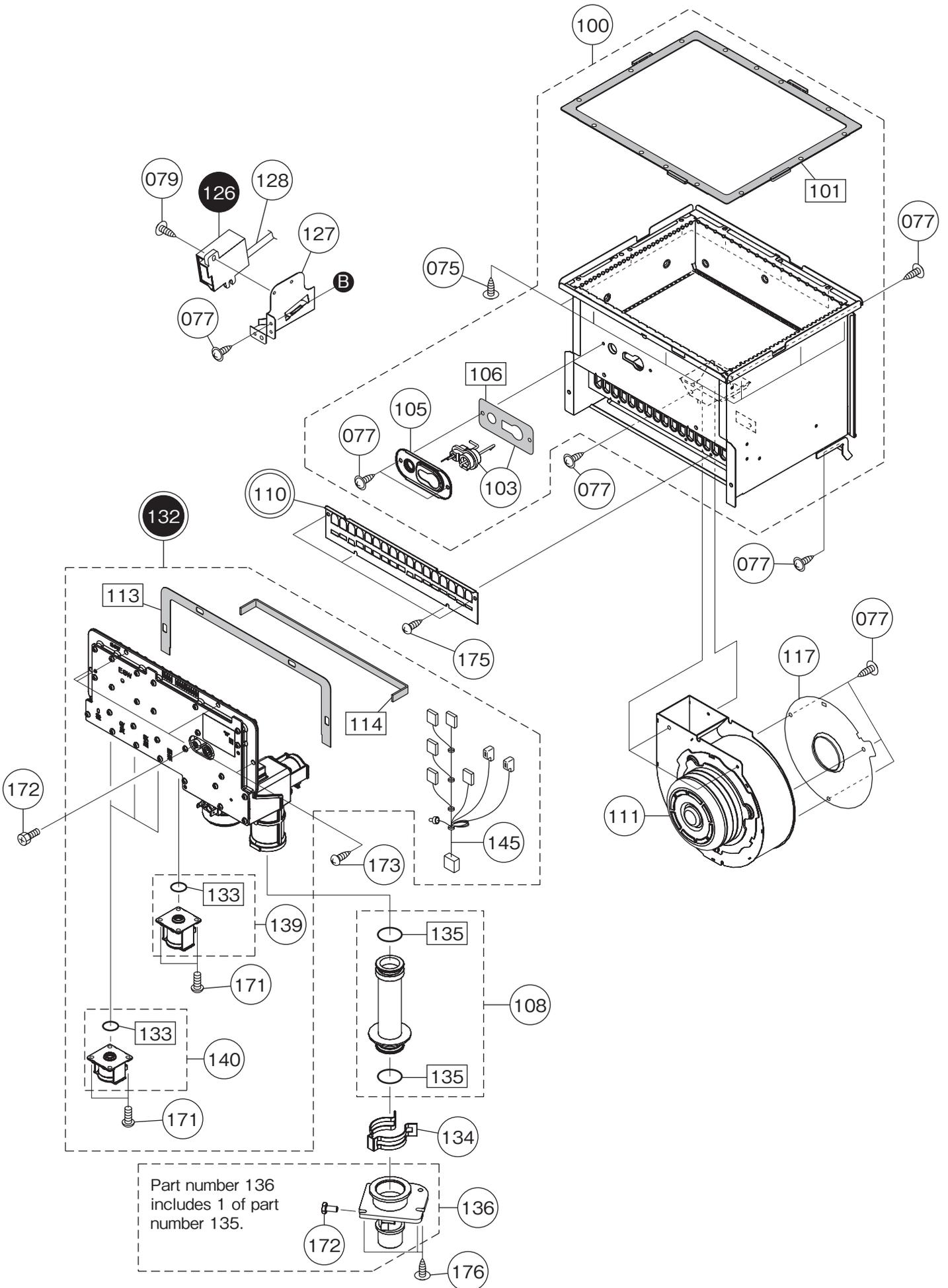
External outfitting (L)WHiC56



External outfitting (L)WHiC56•(L)WHiCX56

Part Nos.	Part Names	Order Nos.	Q'ty/unit
001	Front Cover - WHiC56 AD UK(SET)	SKJ7275	1<(L)WHiC56>
	Front Cover - WHiCX56 AD UK(SET)	SKJ7274	1<(L)WHiCX56>
002	Gasket - Front Cover Top and Bottom	AAPL015	2
003	Gasket - Front Cover Sides	AAPL017	2
004	Mounting Plate - Terminal Block and/or GFCI	DZTA006	1
005	Sight Glass Window	DECK008	1
006	Wiring Harness - Remote Terminals	CCPJ028	1
007	Wiring Harness - Earth Connect Cord	EGHJ028	1
008	Transformer	FAFJ001	1
009	Lightning Protection	FAFJ002	1
011	Wiring Diagram	FBUK005	1
012	Label - Outside Case Caution Label	ELEK077	1<(L)WHiC56>
	Label - Outside Case Caution Label	ELEK062	1<(L)WHiCX56>
016	Label - Terminal Block Cover	EGHK010	1
017	Exhaust Flue Adapter	EPJF011	1<(L)WHiC56>
018	O-Ring - Exhaust Flue Φ 92	ETHF025	1<(L)WHiC56>
020	Gasket - Exhaust Flue	SKD7467	1<(L)WHiC56>
021	Exhaust Flue Adapter	FAFF001	1<(L)WHiC56>
024	Wire Clamp - Nylon #4	7287909	2
025	Thermistor - Air	BWCH003	1
026	Gasket - Φ 100	SAF606N	2<(L)WHiC56>
038	Power Supply Cord	ELEJ006	1
040	Case - WHiC56	FBUA011	1<(L)WHiC56>
	Case - WHiCX56	FBUA001	1<(L)WHiCX56>
041	Wire Grommet - Rubber	ELEA031	2<(L)WHiC56>
	Wire Grommet - Rubber	CXPA026	2<(L)WHiCX56>
042	Wiring Through Way	EHKA013	2
071	Screw - Short Machined M4X6 S410		<(L)WHiC56>
072	Screw - Medium Tapping M4X10 S410		
073	Screw - Long Tapping M4X12 S410		
074	Screw - Front Cover with washer M4X12 S410		
075	Screw - Medium Tapping M4X10 S410		
076	Screw - GFCI M3.5X6 S430		
077	Screw - Short Tapping M4X8 S410		
079	Screw - Long Tapping M4X12 S410		

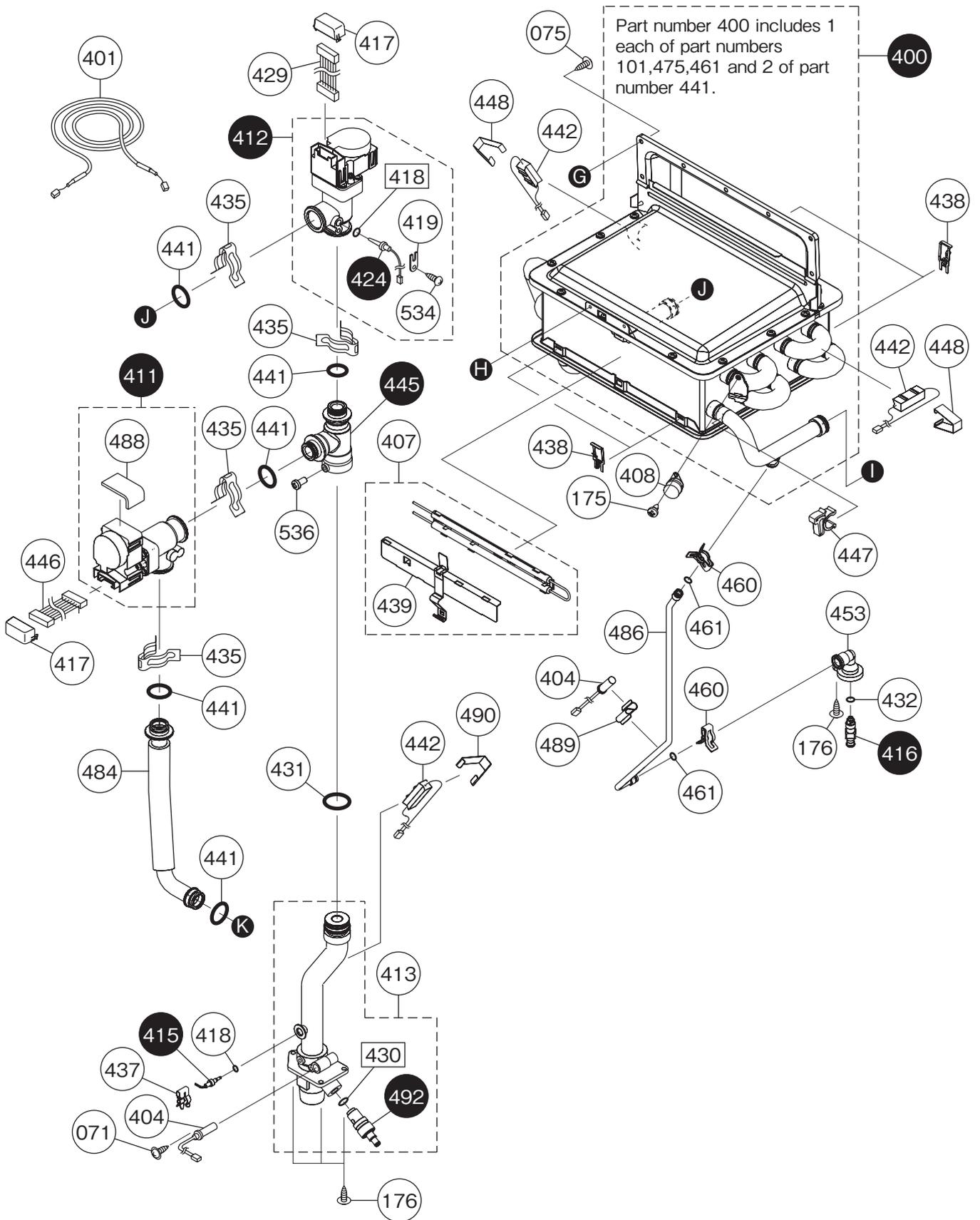
Combustion unit and gas route (L)WHiC56·(L)WHiCX56



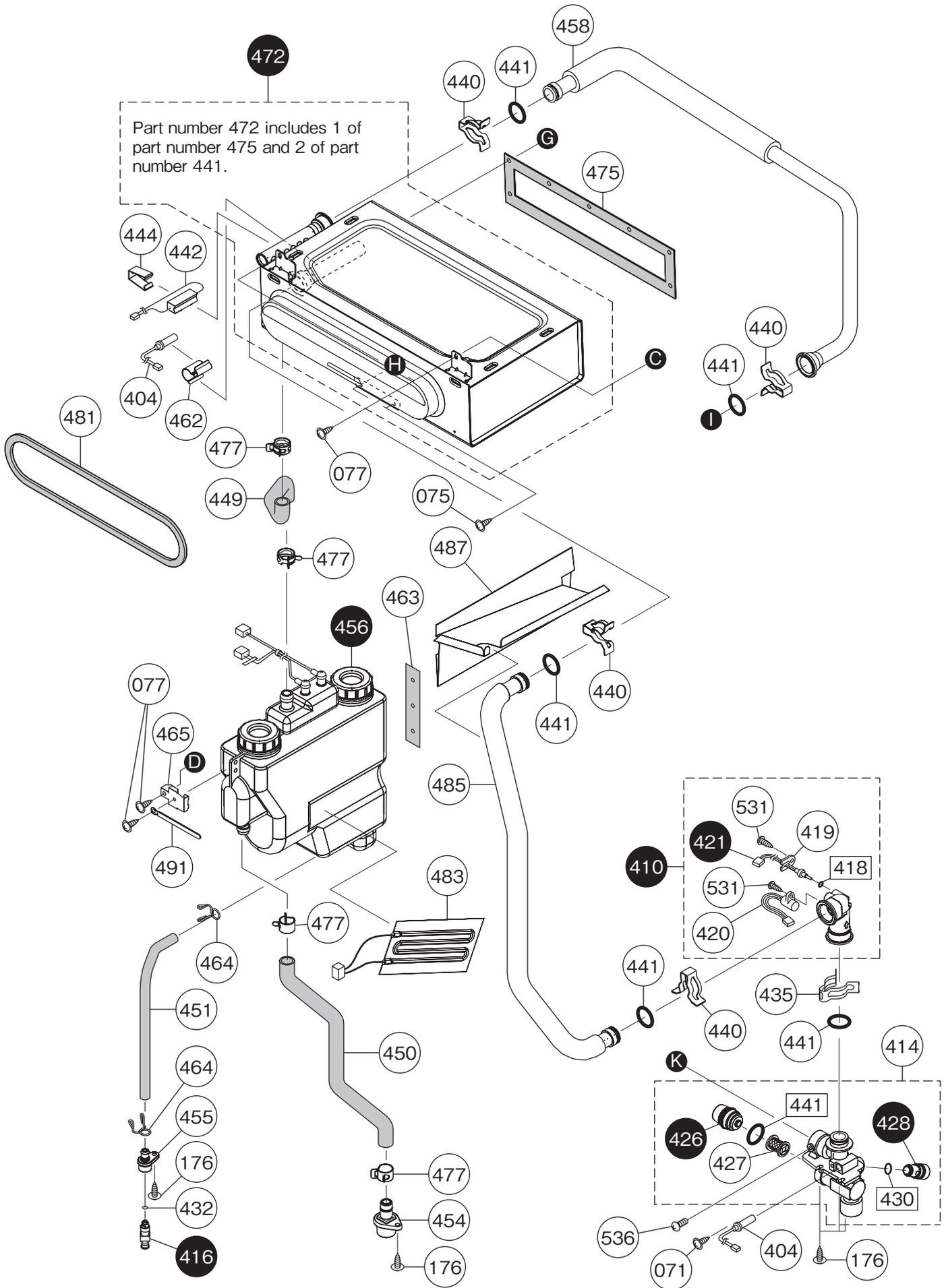
Combustion unit and gas route (L)WHiC56•(L)WHiCX56

Part Nos.	Part Names	Order Nos.	Q'ty/unit
100	Burner w/ Gasket and Ignition Plug (SET)	SKH7184	1
101	Gasket - Burner	ESWL001	1
103	Ignition Plug w/ Gasket	SKG7311	1
105	Mounting Plate - Ignition Plug	ESWC011	1
106	Gasket - Ignition Plug	EHKL001	1
108	Gas Pipe (SET)	SKJ70Q9	1
110	Burner Damper 17-13	EFWC033	1<LWHiC56 · LWHiCX56>
	Burner Damper 17-14	EFWC034	1<WHiC56 · WHiCX56>
111	Fan Motor w/ Housing	SKD7441	1<(L)WHiC56>
	Fan Motor w/ Housing	SKC7470	1<(L)WHiCX56>
113	Gasket - Manifold Plate Top	ERDL007	1
114	Gasket - Manifold Plate Bottom	ERDL009	1
117	Fan Plate φ 40	EHKF424	1<(L)WHiC56>
	Fan Plate φ 48	CRUC046	1<(L)WHiCX56>
126	Igniter	ERDJ112	1
127	Mounting Plate - Igniter	DTJA015	1
128	High Voltage Igniter Wire	SAC1229	1
132	Gas Valve w/ Manifold Plate 17 (SET)	SKH7186	1<LWHiC56 · LWHiCX56>
	Gas Valve w/ Manifold Plate 24 (SET)	SKH7187	1<WHiC56 · WHiCX56>
133	O-Ring - Gas Solenoid	SAA6044	4
134	"C" Clamp - Gas Pipe 25.4	6340601	1
135	O-Ring - Gas Pipe P25.5	SAB1512	2
136	Inlet Gas Connection w/ Screw (SET)	SKJ71X9	1
139	Gas Manifold Solenoid 1	SKG7181	1
140	Gas Manifold Solenoid 2	SKG7316	3
145	Wiring Harness - Gas Valve	ESWJ015	1
171	Screw - Machine w/ guide M4X12		
172	Screw - Inlet and Manifold Gas M4X8	SAC6082	2
173	Screw - Large Manifold Plate M5X16 S410		
175	Screw - Small Tapping w/o collar M4X8 S410		
176	Screw - Long Machine M4X12 S410		

Hot-water feed route 1 (L)WHiC56 • (L)WHiCX56



Hot-water feed route 2 (L)WHiCX56

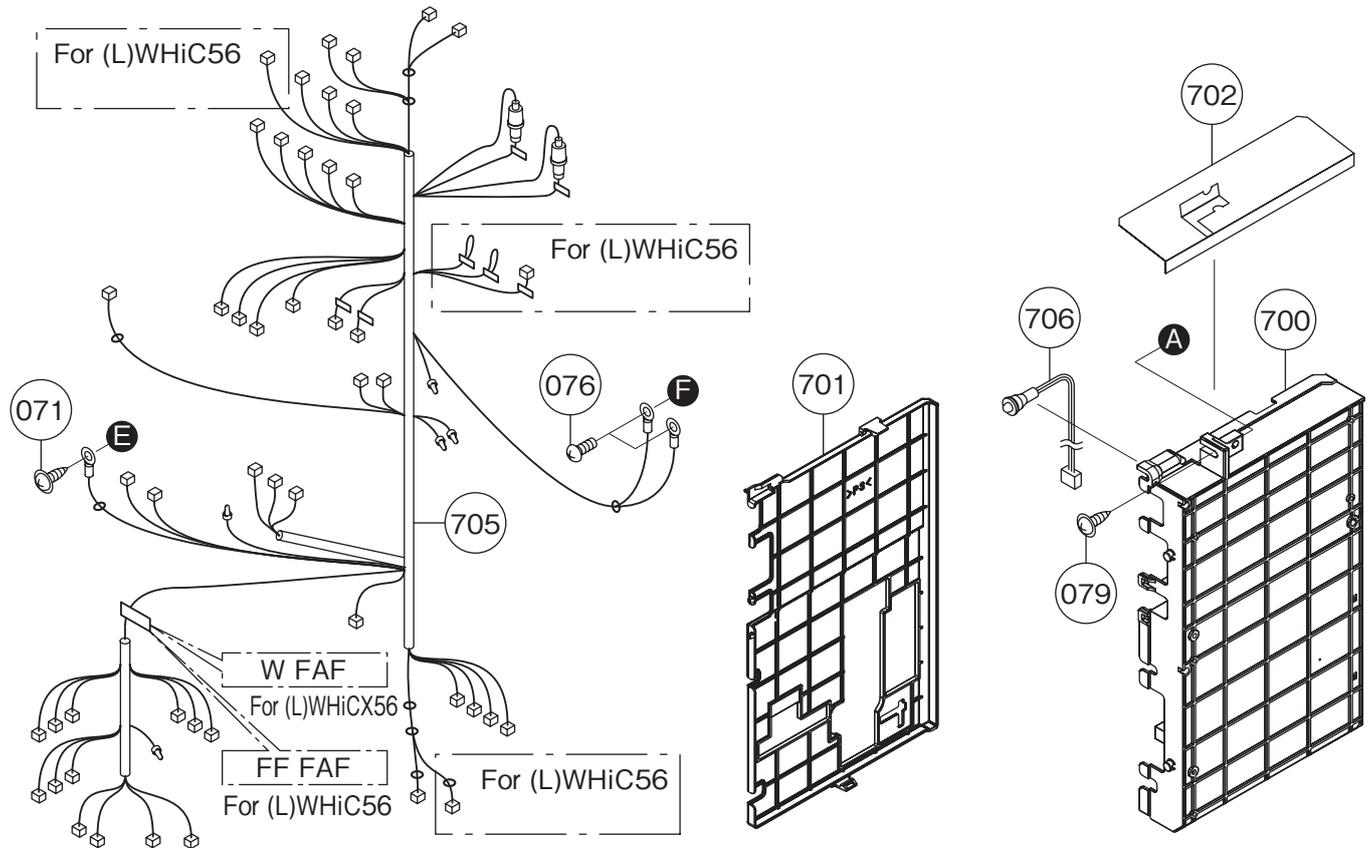


Hot-water feed route (L)WHiC56 • (L)WHiCX56

Part Nos.	Part Names	Order Nos.	Q'ty/unit
400	Heat Exchanger Kit (SET)	SKJ71XH	1
401	Thermal Fuse	SKH7189	1
404	Freeze Prevention Heater - Round Short	ERDH003	4
407	Freeze Prevention Heater - Double Round (SET)	SKJ71X8	1
408	High Limit Switch	DJPH002	1
410	Water Flow Sensor (SET)	ERDD011	1
411	Water Servo - Bypass (SET)	SKH7202	1
412	Water Servo -Main (SET)	ETFD011	1
413	Outlet Water Connection (SET)	FAFD001	1
414	Inlet Water Connection (SET)	EACD006	1
415	Thermistor - White - M64	BWCD096	1
416	Drain Cock	CRUD003	2
417	Wire Cover - Servo	EBTD023	2
418	O-Ring - Thermistor High Temp P4	1323709	3
419	Thermistor Holding Plate	ALSD088	2
420	Magnetic Sensor - Flow Sensor	BWCD090	1
421	Thermistor - White - Q63	BWCD097	1
424	Thermistor - White - Q64	BWCD098	1
426	Water Filter Cap	DTJD006	1
427	Water Filter	EGBD032	1
428	Safety Relief Valve	SAA2811	1
429	Wiring Harness - Main Water Servo	JBGJ024	1
430	O-Ring - High Temp P9	SAD6635	2
431	O-Ring - High Temp P22	7573308	1
432	O-Ring - High Temp P3	SAD6633	2
435	"C" Clamp - Water Pipe 16A	6340300	5
437	"C" Clamp - Thermistor	CRUD055	1
438	Clamp -Thermal Fuse	EGLH002	4
439	Clamp -Freeze Prevention	ERDH011	1
440	"C" Clamp - Water Pipe 16-25	SAD6593	4
441	O-Ring - High Temp P16	3223302	11
442	Freeze Prevention Heater -Rectangle	ERDH002	4
444	Clamp -Freeze Prevention	AMML001	1
445	Mixing Valve	ELWD005	1
446	Wiring Harness - Bypass Water Servo	ETFJ033	1
447	Clamp - Harness	SAB2775	1
448	Clamp -Freeze Prevention	CPLL002	2
449	Drain Hose - SS HEX	ETPF011	1
450	Drain Hose - Condensate	ENJF022	1
451	Drain Hose - Neutralizer / Condensate Container	ENJF023	1
452	Drain Hose - Condensate	EWRFF059	1<(L)WHiC56>
453	Drain Connection - 1/4" tube	CBND018	1
454	Drain Connection - Condensate	EPHF001	1
455	Drain Connection - Neutralizer / Condensate Container	EMDF309	1
456	Condensate Container (SET)	EPJF021	1<(L)WHiC56>
	Condensate Container (SET)	ETPF031	1<(L)WHiCX56>
458	Pipe - Heat Exchanger SS to CU	ETHD007	1
460	"C" Clamp - 1/4" tube 6-13	SAD6594	2
461	O-Ring - High Temp P6	3264408	2
462	Clamp - Freeze Prevention	ETHH003	1
463	Gasket - Neutralizer / Condensate Container	ENJL007	1
464	Clamp - Container Hose φ8	DEGD004	2
465	Mounting Plate - Neutralizer / Condensate Container	EHWA016	1
472	Heat Exchanger Kit - Secondary SS (DV) (SET)	SKH7191	1<(L)WHiC56>
	Heat Exchanger Kit - Secondary SS (OD) (SET)	SKH7190	1<(L)WHiCX56>
473	Exhaust Box	ETPF101	1<(L)WHiC56>
474	Gasket - Exhaust Box	ETPL001	1<(L)WHiC56>
475	Gasket - Secondary Heat Exchanger	ETHL003	1
477	Clamp - Condensate Hose NO.35	SAD6670	4
478	Thermistor - Exhaust	ETHH002	1<(L)WHiC56>
479	Gasket - Exhaust Thermistor	ETHL004	1<(L)WHiC56>
480	Packing - Exhaust Thermistor	ETHL006	1<(L)WHiC56>
481	Gasket - Exhaust (OD)	CZRL001	1<(L)WHiCX56>
483	Freeze Prevention Heater	FAFH001	1
484	Pipe - Inlet to Bypass Servo	ENJD005	1

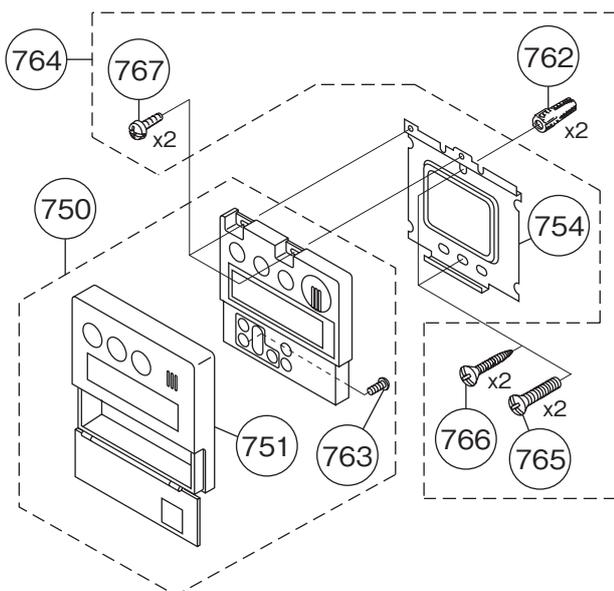
Electronic control unit and Remote controller, Attached set (L)WHiC56 · (L)WHiCX56

Electronic control unit

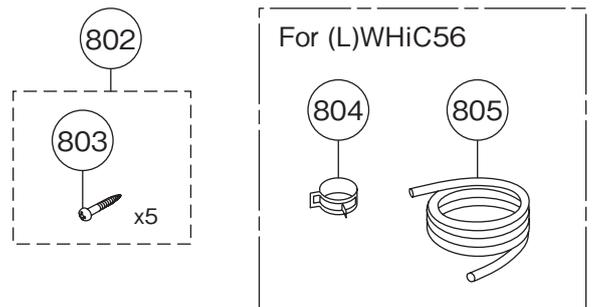


Remote controller

RC-9018M EU



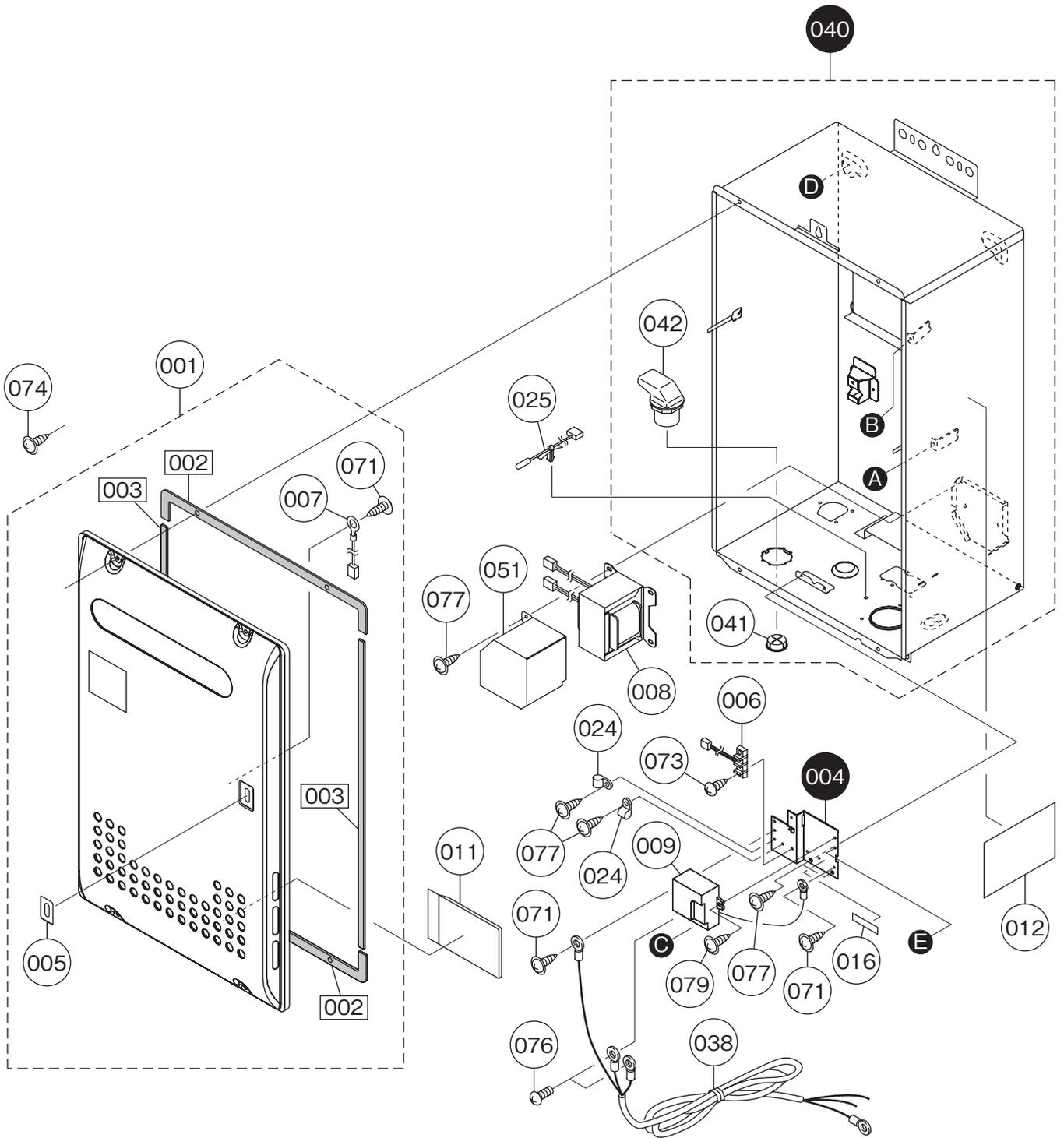
Attached set



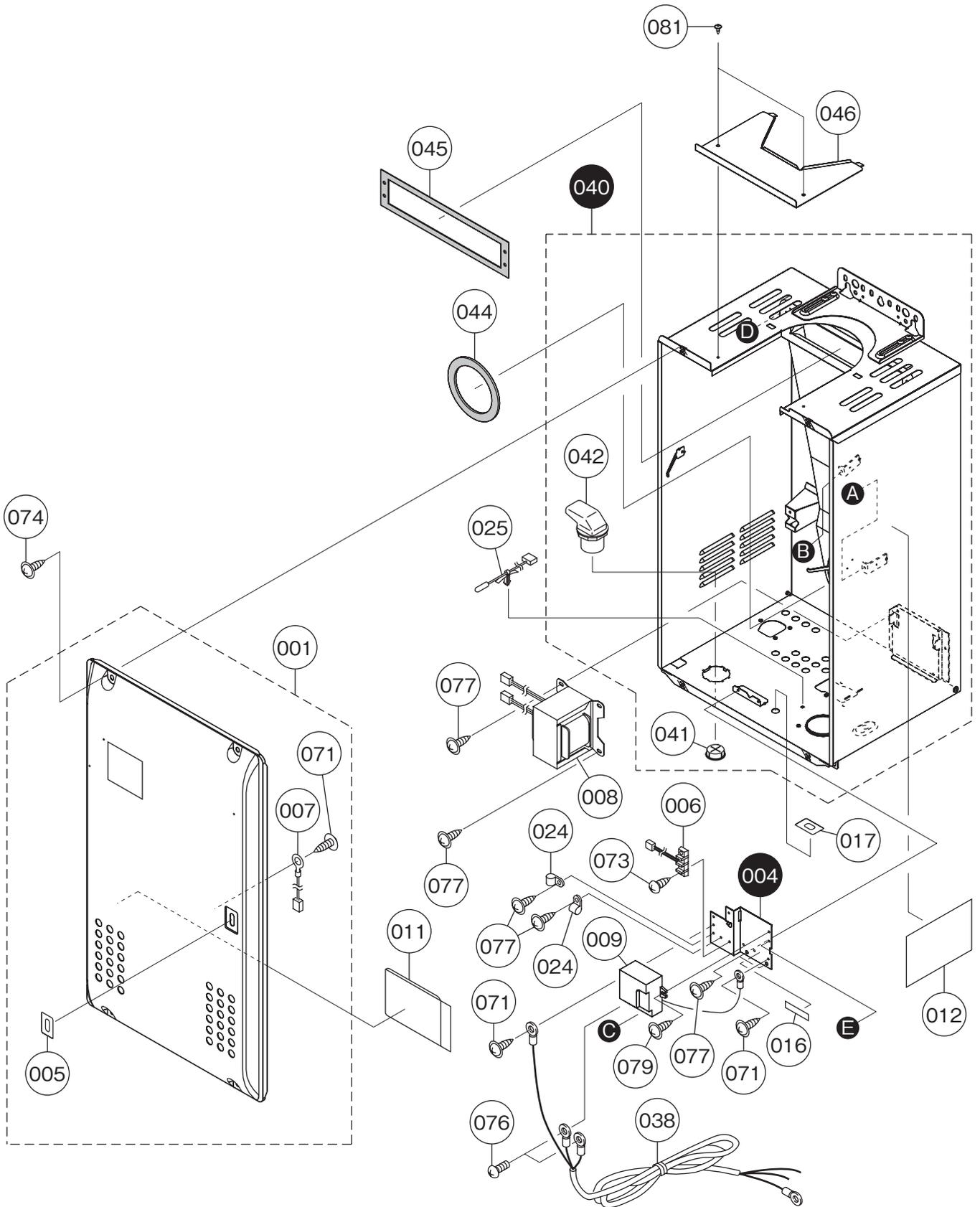
<Special part>

Special part	Special part no.
Owner's guide	888
Installation manual	889

External outfitting (L)WHiX49



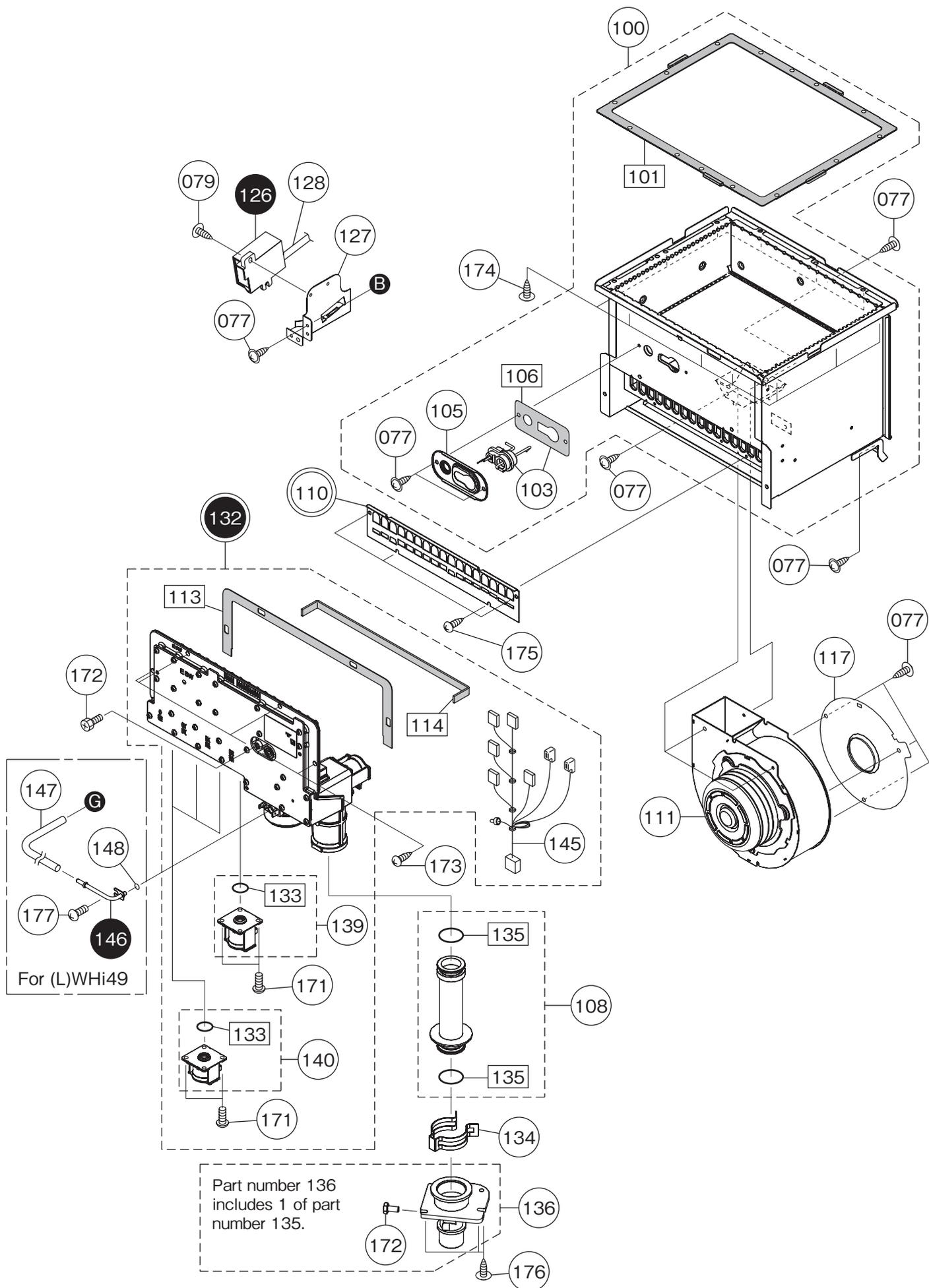
External outfitting (L)WHi49



External outfitting (L)WHiX49•(L)WHi49

Part Nos.	Part Names	Order Nos.	Q'ty/unit
001	Front Cover - WHiX49 AD UK(SET)	SKJ7272	1<(L)WHiX49>
	Front Cover - WHi49 AD UK(SET)	SKJ7273	1<(L)WHi49>
002	Gasket - Front Cover Top and Bottom	EAAL002	2<(L)WHiX49>
003	Gasket - Front Cover Sides	AAPL017	2<(L)WHiX49>
004	Mounting Plate - Terminal Block and/or GFCI	DZTA006	1
005	Sight Glass Window	DECK008	1
006	Wiring Harness - Remote Terminals	CCPJ028	1
007	Wiring Harness - Earth Connect Cord	EGHJ028	1
008	Transformer	FAFJ001	1
009	Lightning Protection	FAFJ002	1
011	Wiring Diagram	FBUK005	1
012	Label - Outside Case Caution Label	ELEK062	1<(L)WHiX49>
	Label - Outside Case Caution Label	ELEK077	1<(L)WHi49>
016	Label - Terminal Block Cover	EGHK010	1
017	Seal - Sight Glass Window	BUBK004	1<(L)WHi49>
024	Wire Clamp - Nylon #4	7287909	2
025	Thermistor - Air	BWCH003	1
038	Power Supply Cord	ELEJ006	1
040	Case - WHiX49	FBVA001	1<(L)WHiX49>
	Case - WHi49	FBVA021	1<(L)WHi49>
041	Wire Grommet - Rubber	CXPA026	1
042	Remote Cord Wiring Through Way	CZLA010	1
044	Gasket - Fan Intake	ERDL001	1<(L)WHi49>
045	Gasket - Duct Intake	ERDL003	1<(L)WHi49>
046	Cover - Top of Case	ELVA099	1<(L)WHi49>
051	Cover - Transformer	FAGA007	1<(L)WHiX49>
071	Screw - Short Machined M4X6 S410		
073	Screw - Long Tapping M4X12 S410		
074	Screw - Front Cover with washer M4X12 S410		
076	Screw - GFCI M3.5X6 S430		
077	Screw - Short Tapping M4X8 S410		
079	Screw - Long Tapping M4X12 S410		
081	Screw - Medium Tapping M4X12 S410		<(L)WHi49>

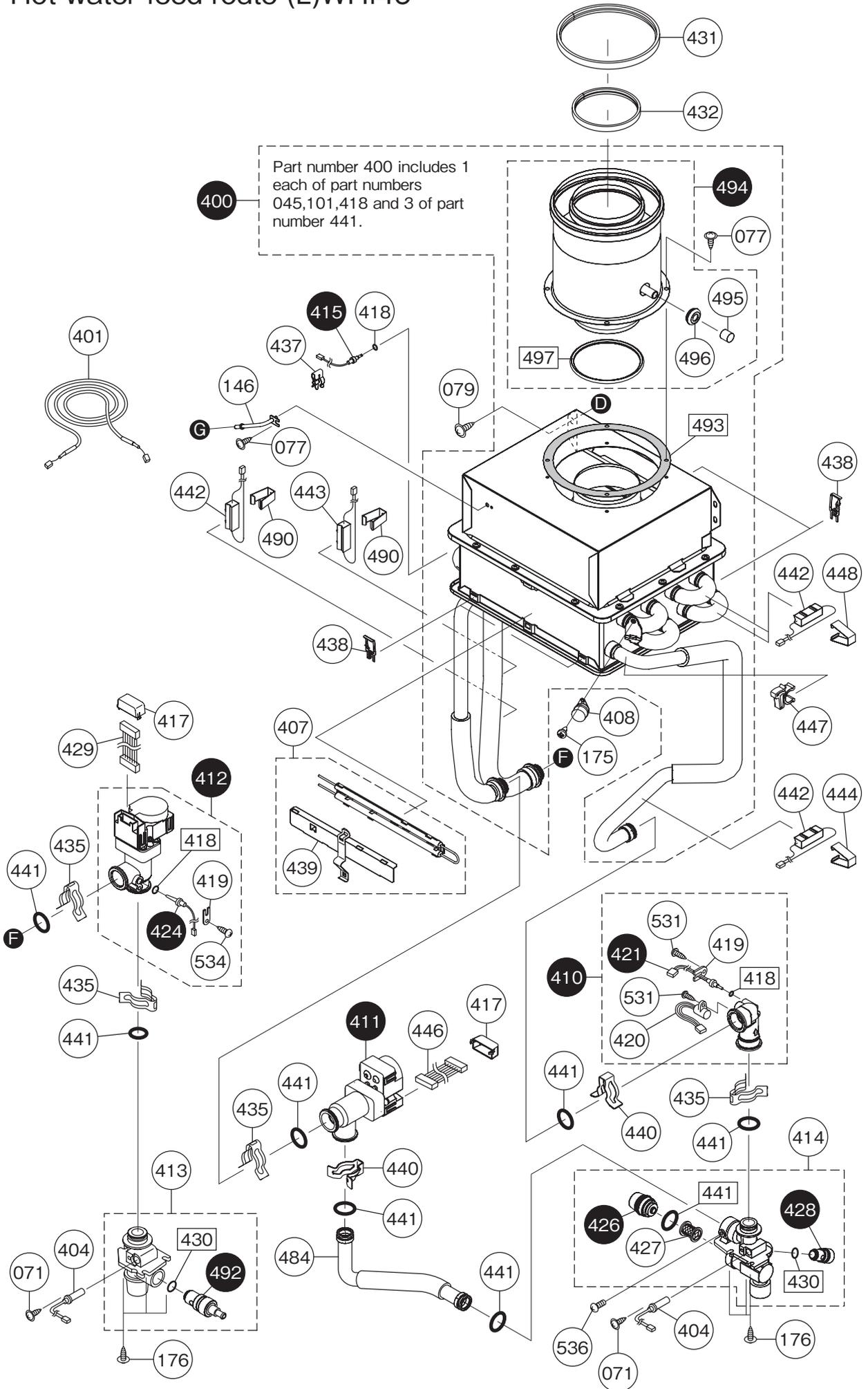
Combustion unit and gas route (L)WHiX49•(L)WHi49



Combustion unit and gas route (L)WHiX49•(L)WHi49

Part Nos.	Part Names	Order Nos.	Q'ty/unit
100	Burner w/ Gasket and Ignition Plug (SET)	SKH7184	1<(L)WHiX49>
	Burner w/ Gasket and Ignition Plug (SET)	SKH7211	1<(L)WHi49>
101	Gasket - Burner	ESWL001	1
103	Ignition Plug w/ Gasket	SKG7311	1
105	Mounting Plate - Ignition Plug	ESWC011	1
106	Gasket - Ignition Plug	EHLK001	1
108	Gas Pipe (SET)	SKJ70Q9	1
110	Burner Damper 17-13	EFWC033	1<LWHiX49 • LWHi49>
	Burner Damper 17-14	EFWC034	1<WHiX49 • WHi49>
111	Fan Motor w/ Housing	SKC7470	1<(L)WHiX49>
	Fan Motor w/ Housing	SKH7214	1<(L)WHi49>
113	Gasket - Manifold Plate Top	ERDL007	1
114	Gasket - Manifold Plate Bottom	ERDL009	1
117	Fan Plate φ44	CRUC045	1<(L)WHiX49>
	Fan Plate φ40	ETFF031	1<(L)WHi49>
126	Igniter	ERDJ112	1
127	Mounting Plate - Igniter	DTJA015	1
128	High Voltage Igniter Wire	SAC1229	1
132	Gas Valve w/ Manifold Plate 15 (SET)	SKH7203	1<LWHiX49>
	Gas Valve w/ Manifold Plate 24 (SET)	SKH7187	1<WHiX49>
	Gas Valve w/ Manifold Plate 16 (SET)	SKH7215	1<LWHi49>
	Gas Valve w/ Manifold Plate 22 (SET)	SKH7216	1<WHi49>
133	O-Ring - Gas Solenoid	SAA6044	4
134	"C" Clamp - Gas Pipe 25.4	6340601	1
135	O-Ring - Gas Pipe P25.5	SAB1512	2
136	Inlet Gas Connection w/ Screw (SET)	SKJ71X9	1
139	Gas Manifold Solenoid 1	SKG7181	1
140	Gas Manifold Solenoid 2	SKG7316	3
145	Wiring Harness - Gas Valve	ESWJ015	1
146	Tube - Metal Back Pressure Tube	EHLA046	2<(L)WHi49>
147	Tube - Silicone	BVHF007	1<(L)WHi49>
148	O-Ring - Back Pressure Tube P4	2100908	1<(L)WHi49>
171	Screw - Machine w/ guide M4X12		
172	Screw - Inlet and Manifold Gas M4X8	SAC6082	2
173	Screw - Large Manifold Plate M5X16 S410		
174	Screw - Medium Tapping M4X10 S410		
175	Screw - Small Tapping w/o collar M4X8 S410		
176	Screw - Long Machine M4X12 S410		
177	Screw - Small Tapping M4X6		< (L)WHi49>

Hot-water feed route (L)WHi49

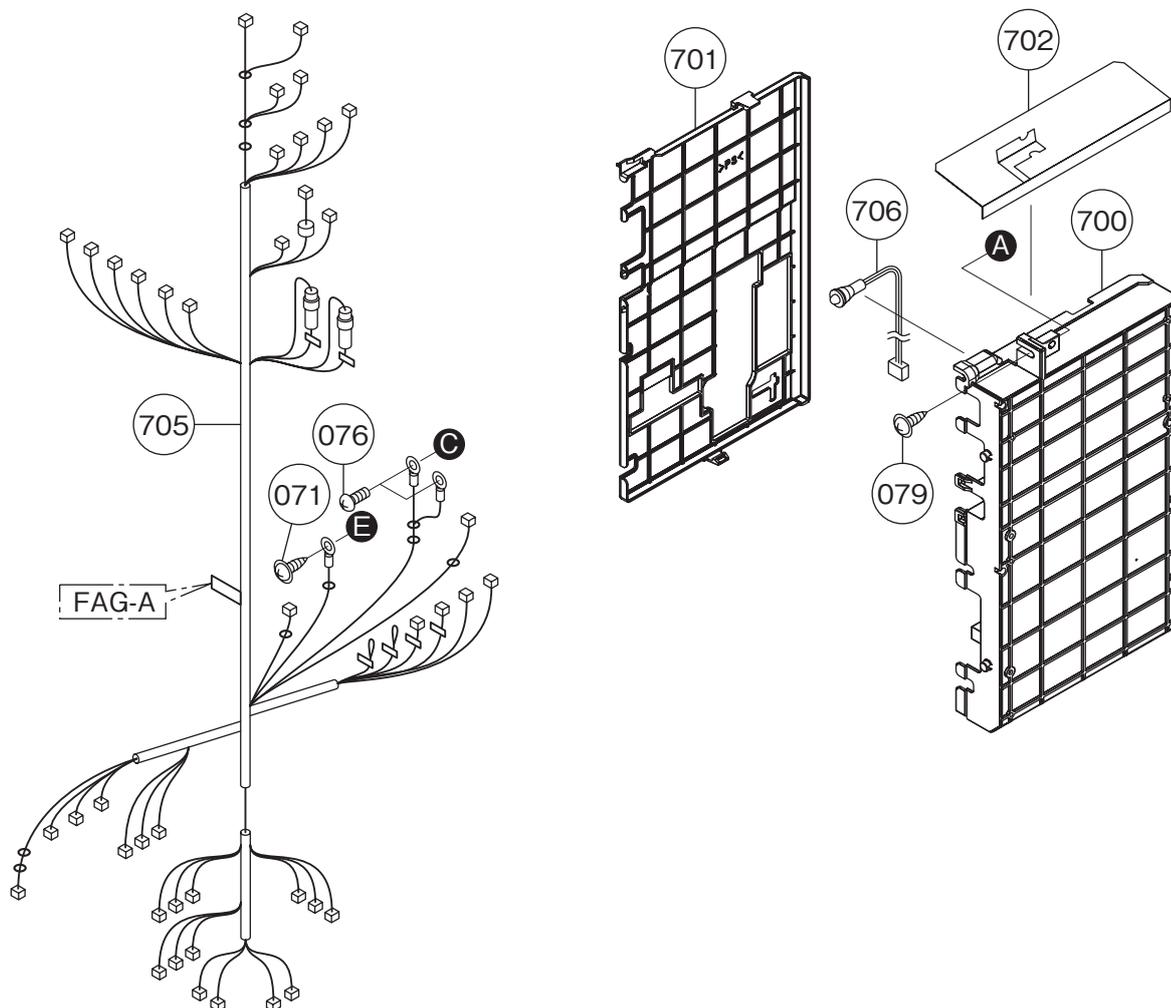


Hot-water feed route (L)WHiX49•(L)WHi49

Part Nos.	Part Names	Order Nos.	Q'ty/unit
400	Heat Exchanger Kit (SET)	SKJ71XL	1<(L)WHiX49>
	Heat Exchanger Kit (SET)	SKJ71XM	1<(L)WHi49>
401	Thermal Fuse	SKH7189	1
404	Freeze Prevention Heater - Round Short	BGDH002	2
407	Freeze Prevention Heater - Double Round (SET)	SKJ71X8	1
408	High Limit Switch	DJPH002	1
410	Water Flow Sensor (SET)	ERDD011	1
411	Water Servo - Bypass (SET)	ETFD010	1
412	Water Servo -Main (SET)	ETFD011	1
413	Outlet Water Connection (SET)	EGGD024	1
414	Inlet Water Connection (SET)	EACD006	1
415	Thermistor - White - M64	BWCD096	1
417	Wire Cover - Servo	EBTD023	2
418	O-Ring - Thermistor High Temp P4	1323709	3
419	Thermistor Holding Plate	ALSD088	2
420	Magnetic Sensor - Flow Sensor	BWCD090	1
421	Thermistor - White - Q63	BWCD097	1
424	Thermistor - White - Q64	BWCD098	1
426	Water Filter Cap	DTJD006	1
427	Water Filter	EGBD032	1
428	Safety Relief Valve	SAA2811	1
429	Wiring Harness - Main Water Servo	JBGJ024	1
430	O-Ring - High Temp P9	SAD6635	2
431	Gasket - Φ 125	SAF606R	1<(L)WHi49>
432	Gasket - Φ 80	SAF606Q	1<(L)WHi49>
435	"C" Clamp - Water Pipe 16A	6340300	4
437	"C" Clamp - Thermistor	CRUD055	1
438	Clamp -Thermal Fuse	EGLH002	4
439	Clamp -Freeze Prevention	ERDH011	1
440	"C" Clamp - Water Pipe 16-25	SAD6593	2
441	O-Ring - High Temp P16	3223302	8
442	Freeze Prevention Heater -Rectangle	ERDH002	4
443	Freeze Prevention Heater	EGHH002	1
444	Clamp -Freeze Prevention	AMML001	1
446	Wiring Harness - Bypass Water Servo	ETFJ033	1
447	Clamp - Harness	SAB2775	1
448	Clamp -Freeze Prevention	CPLL002	2
481	Gasket - Exhaust (OD)	CZRL001	1<(L)WHiX49>
484	Pipe - Inlet to Bypass Servo	ESWD001	1
490	Clamp - Freeze Prevention	ELVL011	2
492	Safety Relief Valve	EGGD029	1
493	Gasket - Flue to Exhaust Box	ELVL019	1<(L)WHi49>
494	Concentric Flue Pipe (SET)	FAGF002	1<(L)WHi49>
495	Cover - Flue Condensate Drain	ELVF097	1<(L)WHi49>
496	Gasket - Flue Condensate Drain	ELVF096	1<(L)WHi49>
497	O-Ring - Concentric Flue Pipe P80	ELVF098	1<(L)WHi49>
531	Screw - Round Head Medium Tapping M4X10 S305		
534	Screw - Round Head Medium Tapping M4X10 S410		
536	Screw - Black Set M4X8 S430		

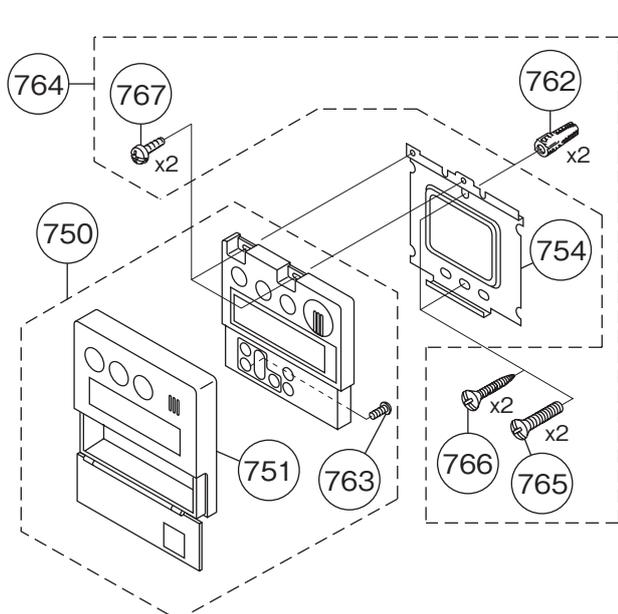
Electronic control unit and Remote controller, Attached set (L)WHiX49 • (L)WHi49

Electronic control unit

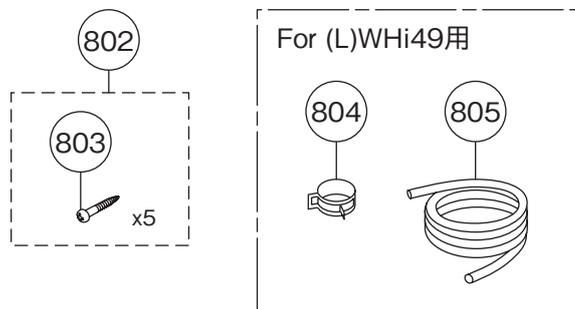


Remote controller

RC-9018M EU



Attached set



<Special part>

Special part	Special part no.
Owner's guide	888
Installation manual	889

Electronic control unit and Remote controller, Attached set (L)WHiX49 • (L)WHi49

Part Nos.	Part Names	Order Nos.	Q'ty/unit
700	Circuit Board	SHC718F	1
701	Cover - Circuit Board	ERDJ008	1
702	Cover - Circuit Board Water Resistant	ETHA023	1
705	Wiring Harness	FAGJ111	1
706	LED Light	CRPJ014	1
750	Remote Controller - RC-9018M (SET)	SKJ72A8	1
751	Cover - Remote	SKJ72A9	1
754	Mounting Plate - Remote RC-9018M	QQNA021	1
762	Dry Wall Anchors6X25		
763	Screw - Round Head Machine M3X6 S430		
764	Screw Package - RC 9018M (SET)	QQNA100	1
765	Screw - Flat Head Machine M4X35		
766	Screw - Flat Head Tapping 4X20		
767	Screw - Round Head Machine M3X6		
800	Box	SKJ7276	1<(L)WHiX49>
	Box	SKJ7277	1<(L)WHi49>
802	Wood Screw set5	SAF6007	1
803	Screw - Round Head Wood 4.8X38 S305		
804	Clamp - Drain Hose (External)	1230701	1<(L)WHi49>
805	Hose - Drain (External)	AHED061	1<(L)WHi49>
888	Owner's Guide	SBB80Z5	1
889	Installation Manual - GQ-C3257WZ AD	SBB80Z8	1<(L)WHiX49>
	Installation Manual - GQ-2857WZ-FFA AD	SBB80ZD	1<(L)WHi49>