

NR50-OD

NR66 (-SV,-OD) / N-0531S (-OD)

NR71 (-SV,-OD) / N-0631S (-OD)

NR98 (-SV,-OD,-DVC) / NC199 (-OD, -DVC) / N-0751M (-OD,-DVC)

NCC199 (-SV,-DV) / N-0841MC (-DV)

NRC111 (-SV,-DV) / N-0842MC (-DV)

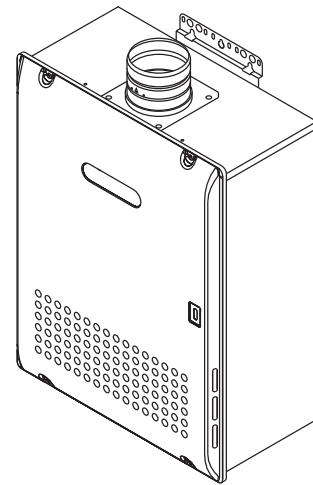
NR111 (-SV,-OD,-DV) / NC250 (-SV,-DV)-ASME / N-0931M (-OD,-DV)

NC380-SV-ASME / N-1321M-ASME

Field Manual

- Refer to this manual whenever performing service or maintenance on this appliance.
- This manual will be used for service technician training seminars.
- The specifications and descriptions in this manual may be changed without prior notice.
- For further assistance, contact Noritz Technical Support at 1-866-766-7489.

Do not short circuit any safety device on this appliance



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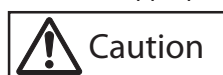
Important Safety Information

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.

- Use only the appropriate tools and parts:



- Only use replacement parts manufactured by Noritz 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.

1. Features

1. Quick Connect Multi System (For NR98/NC199/N-0751M Series, NCC199/N-0841MC Series, NRC111/N-0842MC Series, NR111/NC250/N-0931M Series, and NC380/N-1321M Series only)

- Allows the simple installation of up to 2 units linked together using a Quick Connect Cord

CCP Valve }
System Controller } Not required

2. Secondary Recirculation Pump in a Multi-System (For NCC199/N-0841MC Series, NRC111/N-0842MC Series, NR111/NC250/N-0931M Series, and NC380/N-1321M Series only)

- Two recirculation pumps can be connected to the multi-system controller to provide a rotational pump system. The multi-system controller will rotate the run time of each pump to increase pump life and also provide a backup should one pump fail.

3. Multi-System Rotation Timing (For NCC199/N-0841MC Series, NRC111/N-0842MC Series, NR111/NC250/N-0931M Series, and NC380/N-1321M Series only)

- (1) In a multi-system installation, the system controller rotates the primary unit every 8 hours of accumulated combustion time.
- (2) If the primary unit is operating during the rotation timing, rotation is made after combustion is finished (wait time of up to 16 hours).
- (3) Rotation is made every 24 hours, regardless of the burn, to ensure even wear.

4. Maximum Remote Controller Length (Only one remote controller can be connected.)

- Remote Controller (1 unit): Cord can be extended up to 300' with 18AWG wire.
- * Note: In a Quick Connect Multi-System, only one remote controller will be installed.
(For NR98/NC199/N-0751M Series, NCC199/N-0841MC Series, NRC111/N-0842MC Series, NR111/NC250/N-0931M Series, and NC380/N-1321M Series only)

5. Temperature Lockout Function

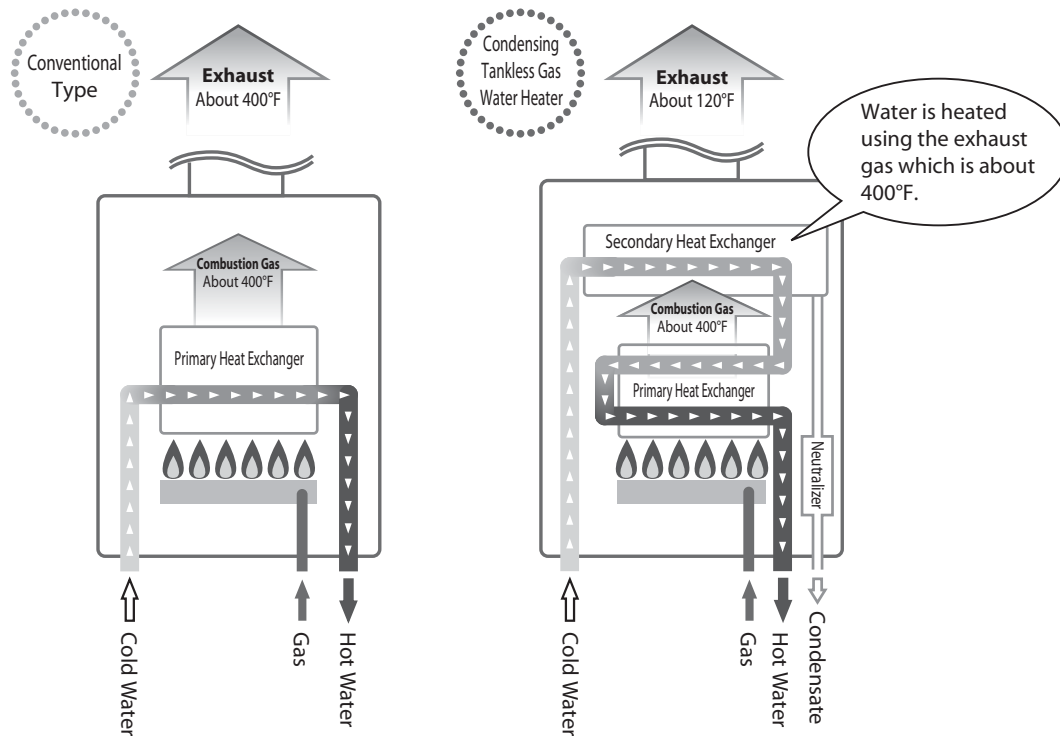
- The Remote Controller can be set to restrict the maximum allowable temperature setting for added safety. See page 82-83 for details.

6. Elevation Adjustment

- The water heater can be quickly configured for installations above 2000' by simply disconnecting a jumper inside of the unit. No additional equipment or adjustments are necessary. See the "Installation Manual" for details.

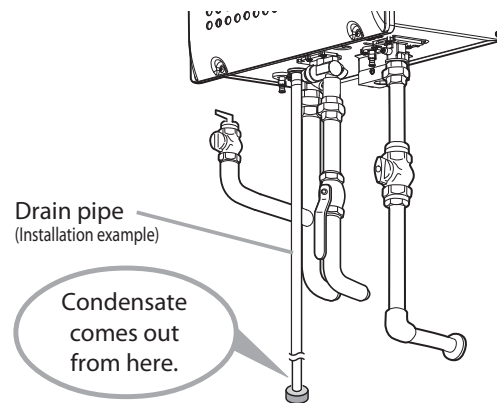
■ Overview of Condensing Tankless Gas Water Heater

This water heater is a high efficiency, fully condensing appliance. Unlike a traditional tankless 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.



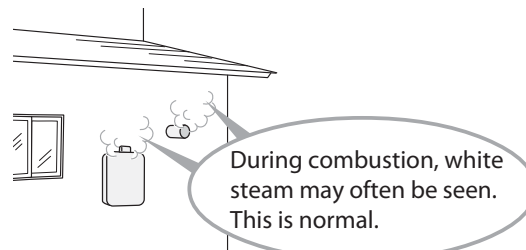
The condensing tankless gas water heater discharges condensate.

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. 2 gallons/hour (GPH) 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 tankless 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.



2. Specifications/Performance Table

■ NR50-OD / NR66 (-SV,-OD) / N-0531S (-OD) / NR71 (-SV,-OD) / N-0631S (-OD)

Item		Specification				
Model Name		NR50-OD	NR66-SV N-0531S	NR66-OD N-0531S-OD	NR71-SV N-0631S	NR71-OD N-0631S-OD
Type	Installation	Outdoor, Wall Mounted	Indoor/Outdoor, Wall Mounted	Outdoor, Wall Mounted	Indoor/Outdoor, Wall Mounted	Outdoor, Wall Mounted
	Air Supply/Exhaust	Power Vented				
Ignition		Direct Ignition				
Operating Pressure		15-150 psi				
Minimum Flow Rate		0.5 GPM				
Dimensions		20.5"(Height) x 13.8"(Width) x 6.7"(Depth)			23.6"(Height) x 13.8"(Width) x 6.7"(Depth)	
Weight		33 lbs.	36 lbs.		41 lbs.	
Water Holding Capacity		0.2 Gallon				
Connection Sizes	Water Inlet	3/4"				
	Hot Water Outlet	3/4"				
	Gas Inlet	1/2"	3/4"			
Power Supply	Supply	120 VAC (60Hz)				
	Consumption	NG : 36W	NG : 54W	NG : 51W	NG : 59W	NG : 46W
		LP : 39W	LP : 59W	LP : 52W	LP : 66W	LP : 50W
		Freeze Prevention 141W (Optional for NR50-OD)				
Materials	Casing	Zincified Steel Plate/Polyester Coating				
	Flue Collar	Stainless Steel				
	Heat Exchanger	Copper Sheeting, Copper Tubing				
Safety Devices		Flame Rod, Thermal Fuse, Lightning Protection Device (ZNR), Overheat Prevention Device, Freeze Prevention Device (optional for NR50-OD), Fan Rotation Detector				
Accessories		Anchoring Screws				

■ NR98 (-SV,-OD,-DVC) / NC199 (-OD,-DVC) / N-0751M (-OD,-DV,-DVC)

Item		Specification			
Model Name		NR98-SV N-0751M	NR98-OD NC199-OD N-0751M-OD	N-0751M-DV	NR98-DVC NC199-DVC N-0751M-DVC
Type	Installation	Indoor/Outdoor, Wall Mounted	Outdoor, Wall Mounted	Indoor, Wall Mounted	
	Air Supply/Exhaust	Power Vented			
Ignition		Direct Ignition			
Operating Pressure		15-150 psi			
Minimum Flow Rate		0.5 GPM			
Dimensions		23.6"(Height) x 13.8"(Width) x 9.4"(Depth)	24.2"(Height) x 18.3"(Width) x 9.4"(Depth)	23.6"(Height) x 13.8"(Width) x 10.2"(Depth)	
Weight		47 lbs.	54 lbs.	55 lbs.	
Water Holding Capacity		0.2 Gallon			
Connection Sizes	Water Inlet	3/4"			
	Hot Water Outlet	3/4"			
	Gas Inlet	3/4"			
Power Supply	Supply	120 VAC (60Hz)			
	Consumption	NG : 62W	NG : 64W	NG : 85W	NG : 108W
		LP : 75W	LP : 77W	LP : 100W	LP : 96W
		Freeze Prevention 145W		Freeze Prevention 161W	
Materials	Casing	Zincified Steel Plate/Polyester Coating			
	Flue Collar	Stainless Steel			
	Heat Exchanger	Copper Sheetting, Copper Tubing			
Safety Devices		Flame Rod, Thermal Fuse, Lightning Protection Device (ZNR), Overheat Prevention Device, Freeze Prevention Device, Fan Rotation Detector			
Accessories		Remote Controller, Remote Controller Cord, Anchoring Screws			Anchoring Screws

■ NCC199 (-SV,-DV) / N-0841MC (-DV) / NRC111 (-SV,-DV) / N-0842MC (-DV)

Item		Specification			
Model Name		NCC199-SV N-0841MC	NCC199-DV N-0841MC-DV	NRC111-SV N-0842MC	NRC111-DV N-0842MC-DV
Type	Installation	Indoor/Outdoor, Wall Mounted	Outdoor, Wall Mounted	Indoor/Outdoor, Wall Mounted	Indoor, Wall Mounted
	Air Supply/Exhaust	Power Vented			
Ignition		Direct Ignition			
Operating Pressure		15-150 psi			
Minimum Flow Rate		0.5 GPM			
Dimensions		24.4"(Height) x 18.4"(Width) x 9.4"(Depth)			
Weight		73 lbs.			
Water Holding Capacity		0.5 Gallon			
Connection Sizes	Water Inlet	3/4"			
	Hot Water Outlet	3/4"			
	Gas Inlet	3/4"			
Power Supply	Supply	120 VAC (60Hz)			
	Consumption	NG : 106W			
		LP : 109W			
		Freeze Prevention 213W			
Materials	Casing	Stainless Steel		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, Freeze Prevention Device, Fan Rotation Detector			
Accessories		Remote Controller, Remote Controller Cord, Anchoring Screws			

■ NR111 (-SV,-OD,-DV) / NC250 (-SV,-DV)-ASME / N-0931M (-OD,-DV) / NC380-SV-ASME

Item		Specification			
Model Name		NR111-SV NC250-SV-ASME N-0931M	NR111-OD N-0931M-OD	NR111-DV NC250-DV-ASME N-0931M-DV	NC380-SV-ASME
Type	Installation	Indoor/Outdoor, Wall Mounted	Outdoor, Wall Mounted	Indoor, Wall Mounted	Indoor/Outdoor, Wall Mounted
	Air Supply/Exhaust	Power Vented			
Ignition		Direct Ignition			
Operating Pressure		15-150 psi			
Minimum Flow Rate		0.5 GPM			0.7 GPM
Dimensions		24.2"(Height) x 18.3"(Width) x 9.4"(Depth)			29.7"(Height) x 19.1"(Width) x 11.8"(Depth)
Weight		62 lbs.			105 lbs.
Water Holding Capacity		0.3 Gallon			0.6 Gallon
Connection Sizes	Water Inlet	3/4"			1"
	Hot Water Outlet	3/4"			1"
	Gas Inlet	3/4"			1"
Power Supply	Supply	120 VAC (60Hz)			
	Consumption	NG : 115W	NG : 90W	NG : 115W	NG : 137W
		LP : 115W	LP : 95W	LP : 120W	LP : 142W
		Freeze Prevention 250W			Freeze Prevention 371W
Materials	Casing	Zincified Steel Plate/ Polyester Coating (Stainless Steel for ASME)	Zincified Steel Plate/ Polyester Coating	Zincified Steel Plate/ Polyester Coating (Stainless Steel for ASME)	Stainless Steel
	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, Freeze Prevention Device, Fan Rotation Detector			
Accessories		Remote Controller, Remote Controller Cord, Anchoring Screws			

Performance

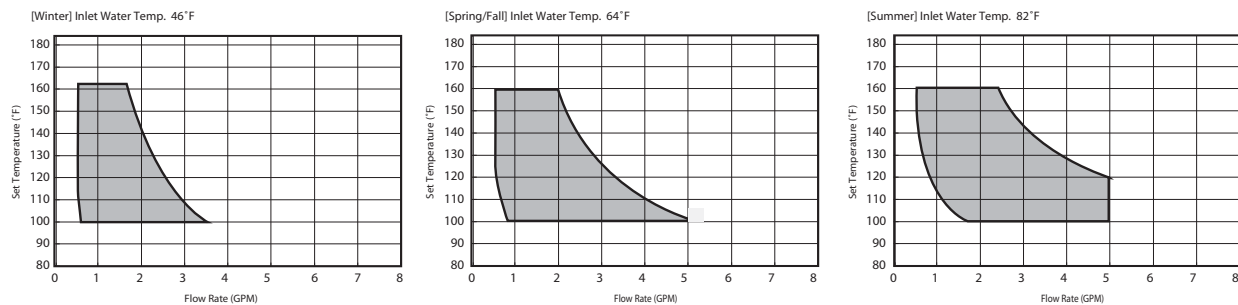
Item		NR50-OD	NR66-SV N-0531S	NR66-OD N-0531S-OD	NR71-SV N-0631S	NR71-OD N-0631S-OD
Gas Consumption	Maximum Performance	NG : 120,000 btuh LP : 120,000 btuh	NG : 140,000 btuh LP : 140,000 btuh	NG : 180,000 btuh LP : 180,000 btuh	NG : 180,000 btuh LP : 180,000 btuh	NG : 180,000 btuh LP : 180,000 btuh
	Minimum Performance	NG : 20,000 btuh LP : 20,000 btuh	NG : 20,000 btuh LP : 20,000 btuh	NG : 25,000 btuh LP : 25,000 btuh	NG : 25,000 btuh LP : 25,000 btuh	NG : 25,000 btuh LP : 25,000 btuh
Maximum Hot Water Capacity	45°F Rise	4.2 Gal./min.	5.3 Gal./min.	6.3 Gal./min.	6.3 Gal./min.	6.3 Gal./min.
Capacity Range		0.5 - 5.0 Gal./min.	0.5 - 6.6 Gal./min.	0.5 - 7.1 Gal./min.	0.5 - 7.1 Gal./min.	0.5 - 7.1 Gal./min.
Default Temperature Options		120, 130, 135 (for NR50-OD only), 140°F (Original is 120°F)				
Temperature Settings (Using the Remote Controller)		100 - 150°F (In 5°F intervals), 160°F (12 Options)				

Item		NR98 (-SV,-OD) N-0751M (-OD,-DV)	NR98-DVC N-0751M-DVC	NCC199 (-SV,-DV) N-0841MC (-DV)	NRC111 (-SV,-DV) N-0842MC (-DV)
Gas Consumption	Maximum Performance	NG : 199,900 btuh LP : 199,900 btuh		NG : 199,900 btuh LP : 199,900 btuh	
	Minimum Performance	NG : 12,000 btuh LP : 12,000 btuh		NG : 11,000 btuh LP : 11,000 btuh	
Maximum Hot Water Capacity	45°F Rise	7.5 Gal./min.		8.4 Gal./min.	
Capacity Range		0.5 - 9.8 Gal./min.		0.5 - 11.1 Gal./min.	
Temperature Settings (Using the Remote Controller)		100 - 150°F (In 5°F intervals), 160, 170, 180°F (In 10°F intervals) (14 Options)			
Default Temperature Options		120, 130, 140, 180°F (Original is 120°F)			

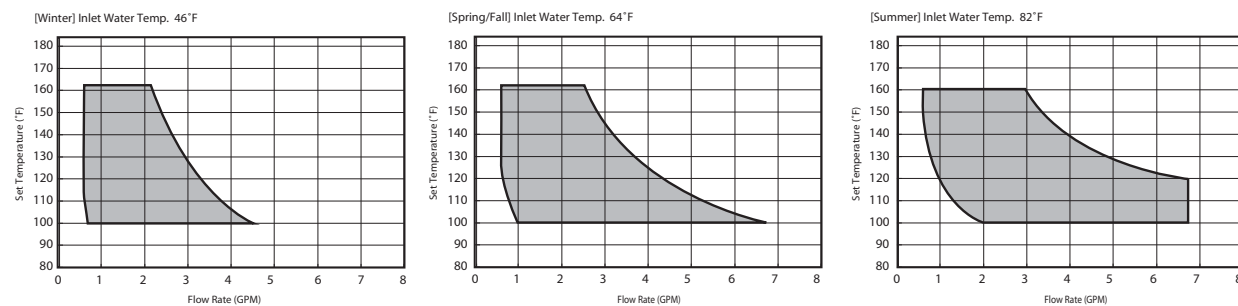
Item		NR111-SV NC250-SV-ASME N-0931M (-ASME)	NR111-OD N-0931M-OD	NR111-DV NC250-DV-ASME N-0931M-DV (-ASME)	NC380-SV-ASME	
Gas Consumption	Maximum Performance	NG : 250,000 btuh LP : 250,000 btuh		NG : 380,000 btuh LP : 380,000 btuh		
	Minimum Performance	NG : 11,000 btuh LP : 11,000 btuh		NG : 22,500 btuh LP : 22,500 btuh		
Maximum Hot Water Capacity	45°F Rise	9.3 Gal./min.			13.2 Gal./min.	
Capacity Range		0.5 - 11.1 Gal./min.			0.7 - 13.2 Gal./min.	
		100 - 150°F (In 5°F intervals), 160, 170, 180°F (In 10°F intervals) (14 Options)				
Temperature Settings (Using the Remote Controller)						
Default Temperature Options		120, 130, 140, 180°F (Original is 120°F)				

Hot Water Supply Capabilities

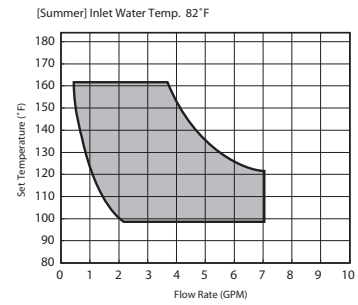
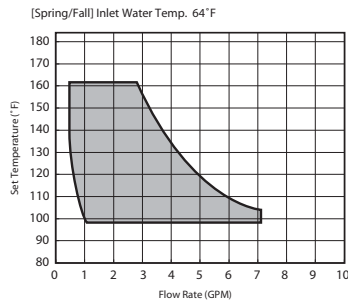
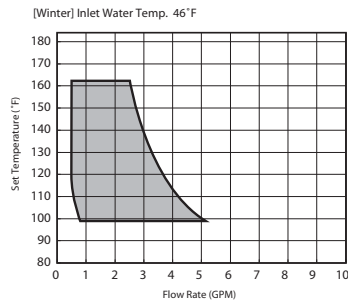
NR50-OD



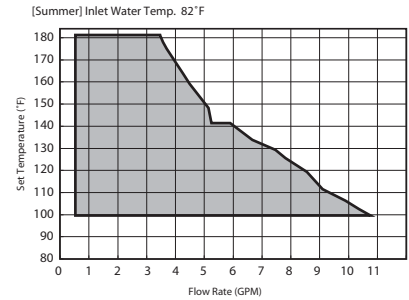
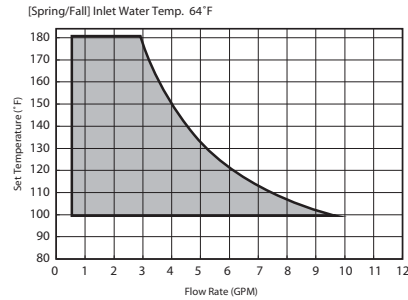
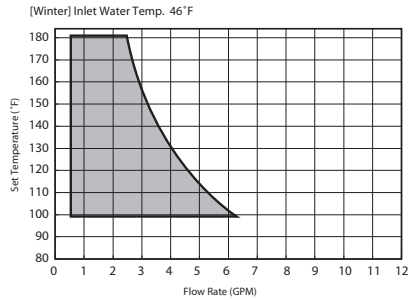
NR66 (-SV,-OD) / N-0531S (-OD)



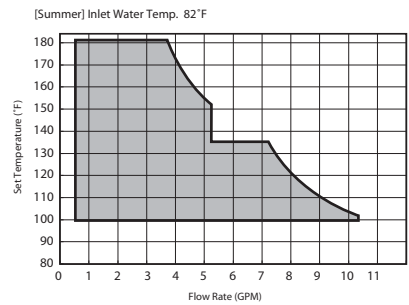
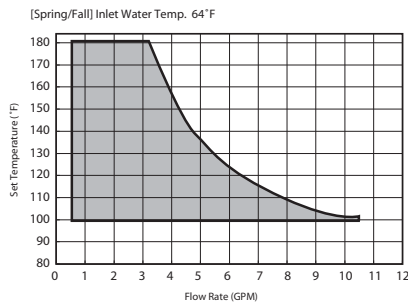
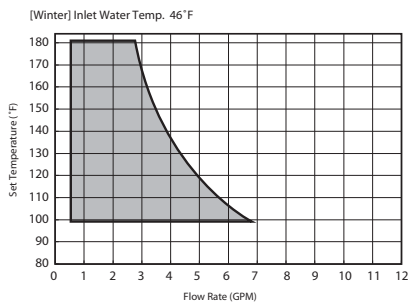
■ NR71 (-SV,-OD) / N-0631S (-OD)



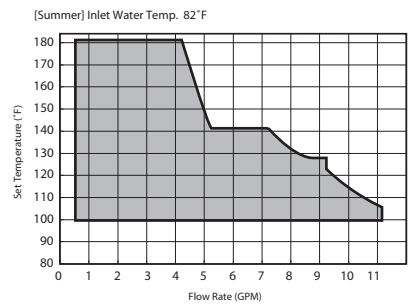
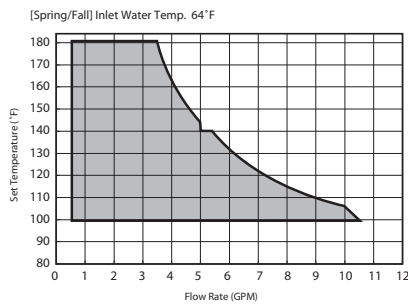
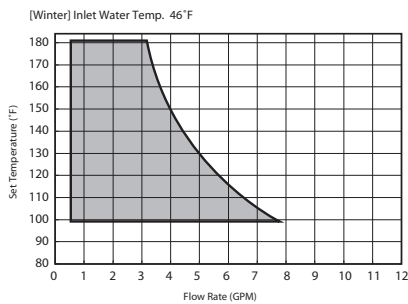
■ NR98 (-SV,-OD,-DVC) / NC199 (-SV,-OD,-DVC) / N-0751M (-OD,-DV,-DVC)



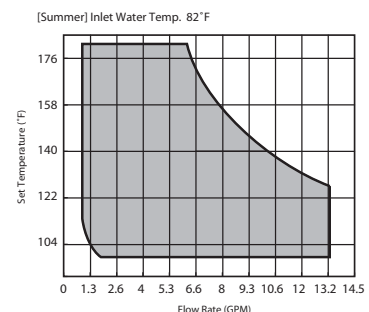
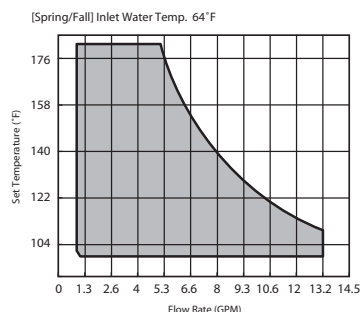
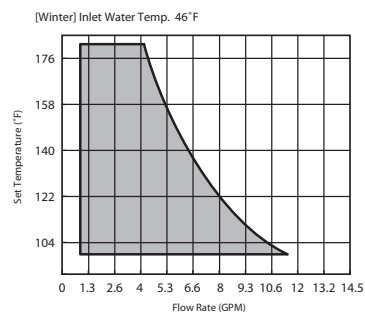
■ NCC199 (-SV,-DV) / N-0841MC (-DV) / NRC111 (-SV,-DV) / N-0842MC (-DV)



■ NR111 (-SV,-OD,-DV) / NC250 (-SV,-DV)-ASME / N-0931M (-OD,-DV)



■ NC380-SV-ASME / N-1321M-ASME

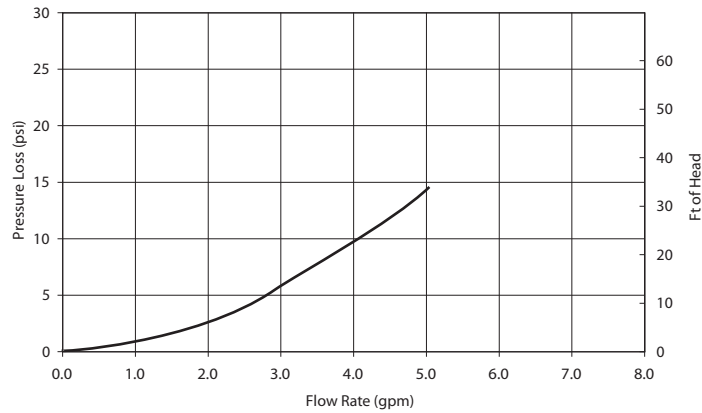


■ Pressure Loss Characteristics

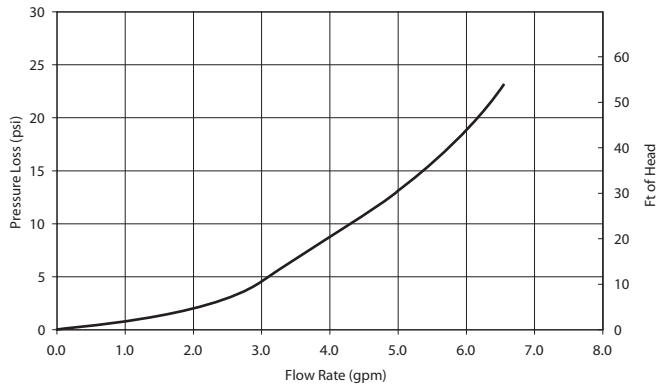
NOTE: Flow rates shown will vary slightly depending on the incoming water temperature and the setting temperature on the remote controller.

System Controllers are compatible with Commercial models only (NC199, NCC199, NC250, and NC380 Series). The Storage Tank setting is a feature that is only available with SC-201-6M(-EXT), SC-201-12M, and SC-201-24M System Controller models. See System Controller Manual for more information regarding features, installation, and compatibility.

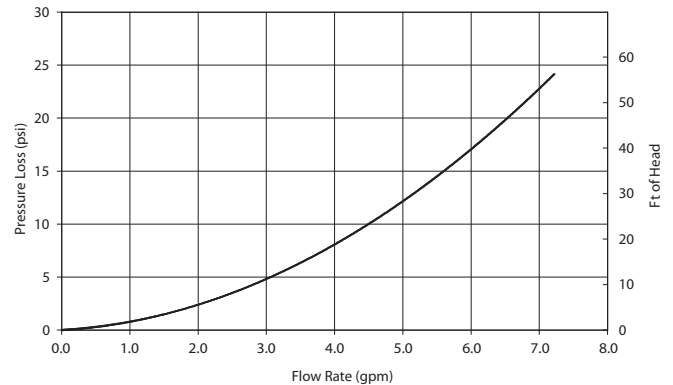
■ NR50-OD



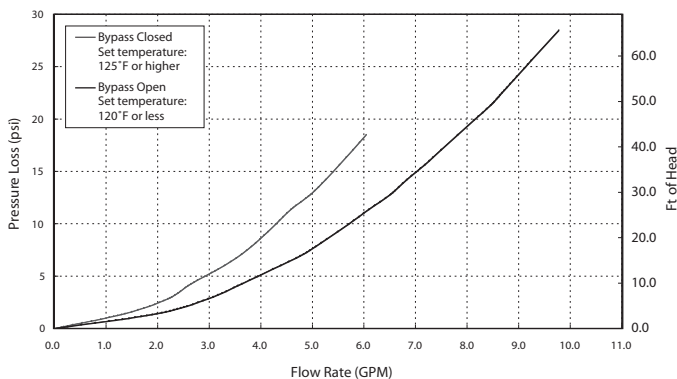
■ NR66 (-SV,-OD) / N-0531S (-OD)



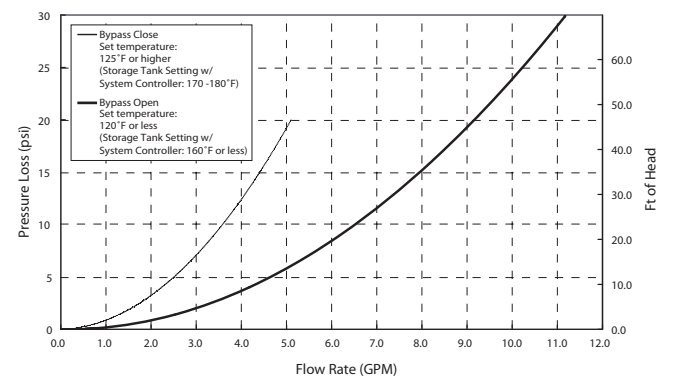
■ NR71 (-SV,-OD) / N-0631S (-OD)



■ NR98 (-SV,-OD,-DVC) / NC199 (-OD,-DVC) / N-0751M (-OD,-DV,-DVC)

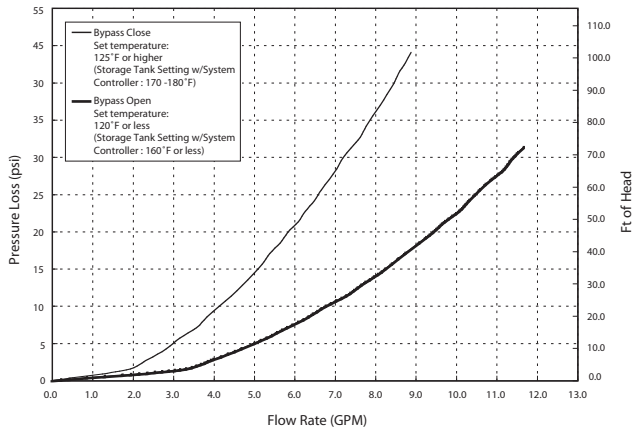


■ NCC199 (-SV,-DV) / N-0841MC (-DV) / NRC111 (-SV,-DV) / N-0842MC (-DV)

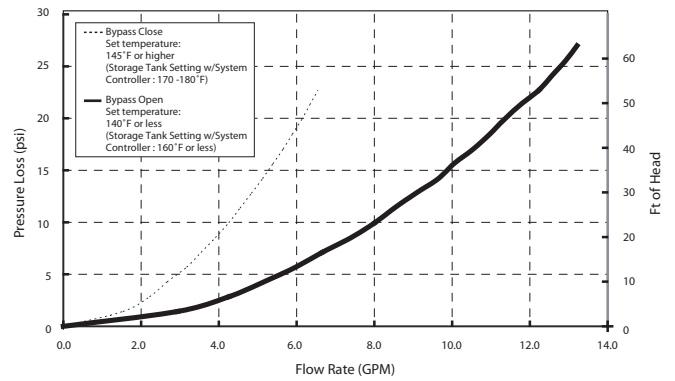


■ Pressure Loss Characteristics (continued)

■ NR111 (-SV,-OD,-DV) / NC250 (-SV,-DV)-ASME / N-0931M (-OD,-DV)

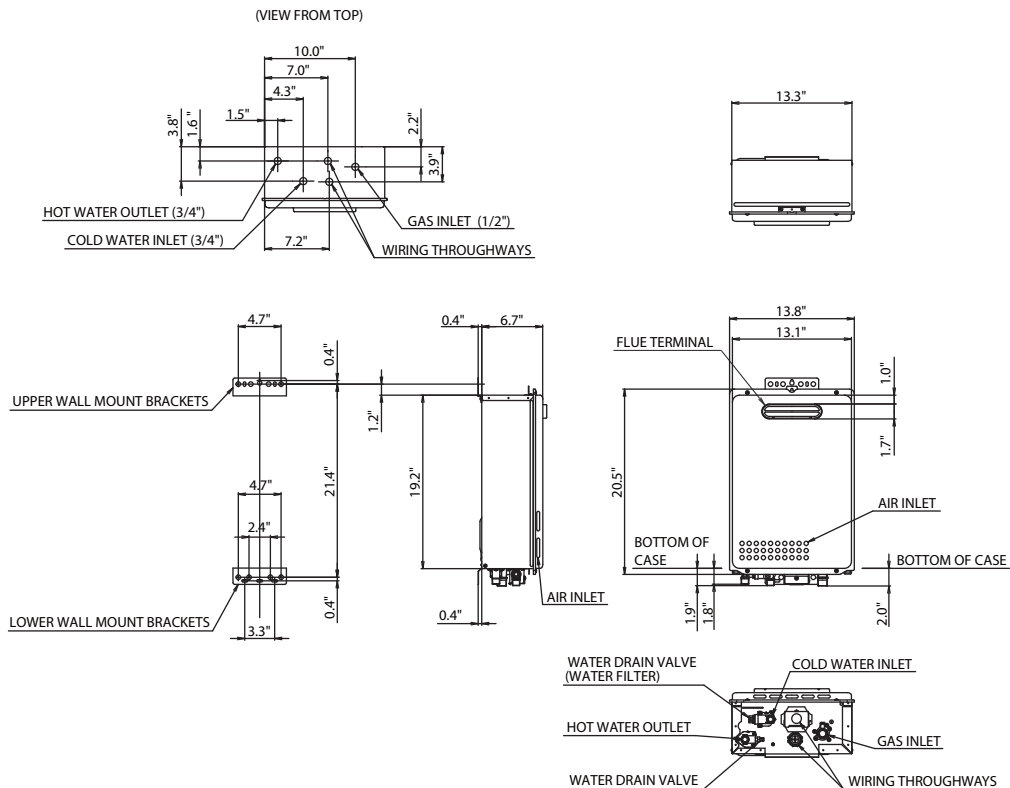


■ NC380-SV-ASME / N-1321M-ASME

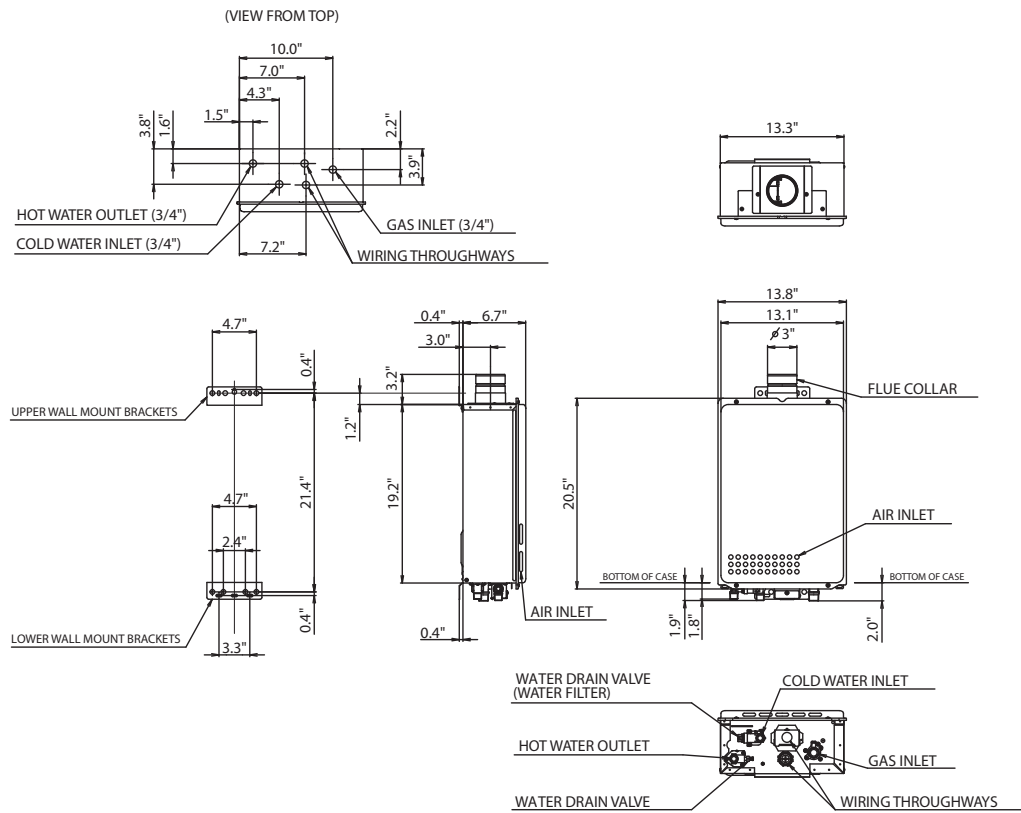


3. Dimensions

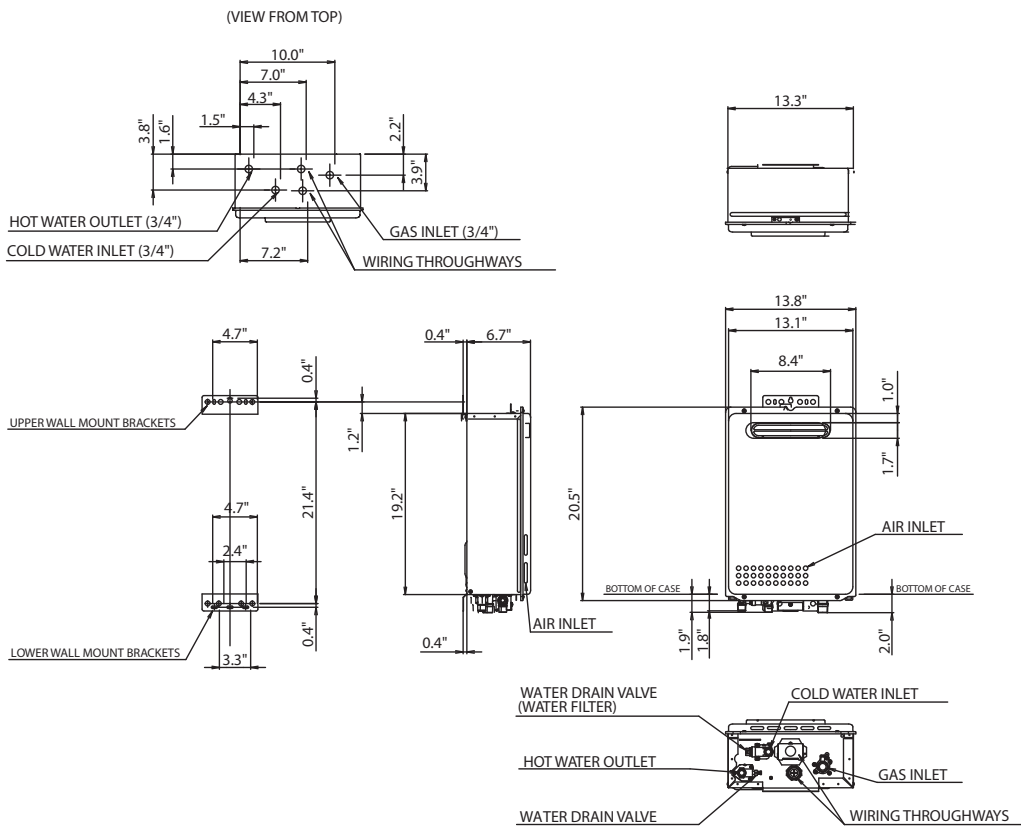
■ NR50-OD



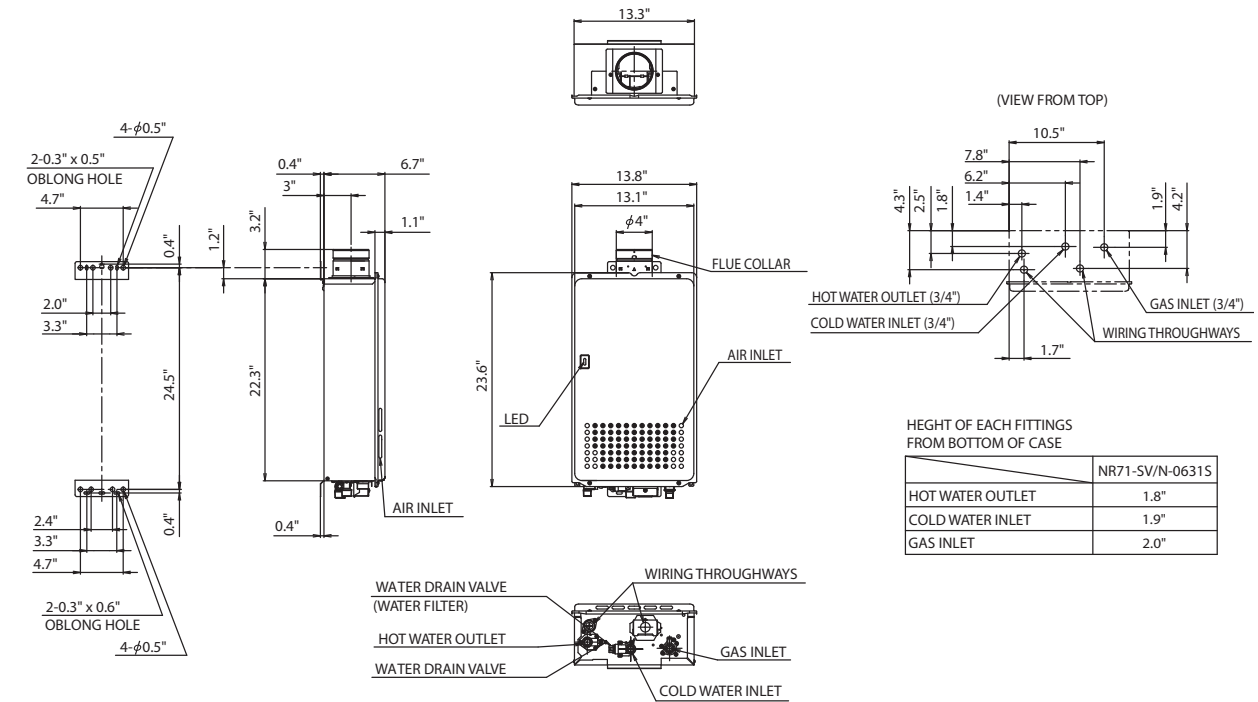
■ NR66-SV / N-0531S



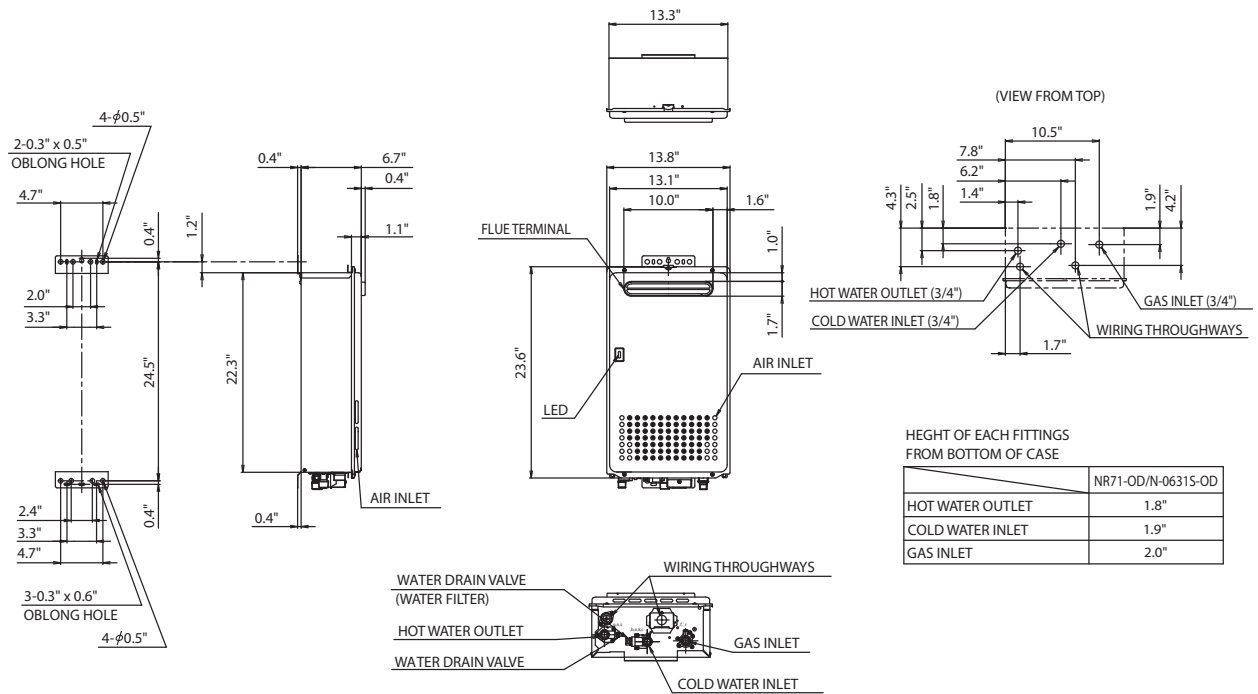
■ NR66-OD / N-0531S-OD



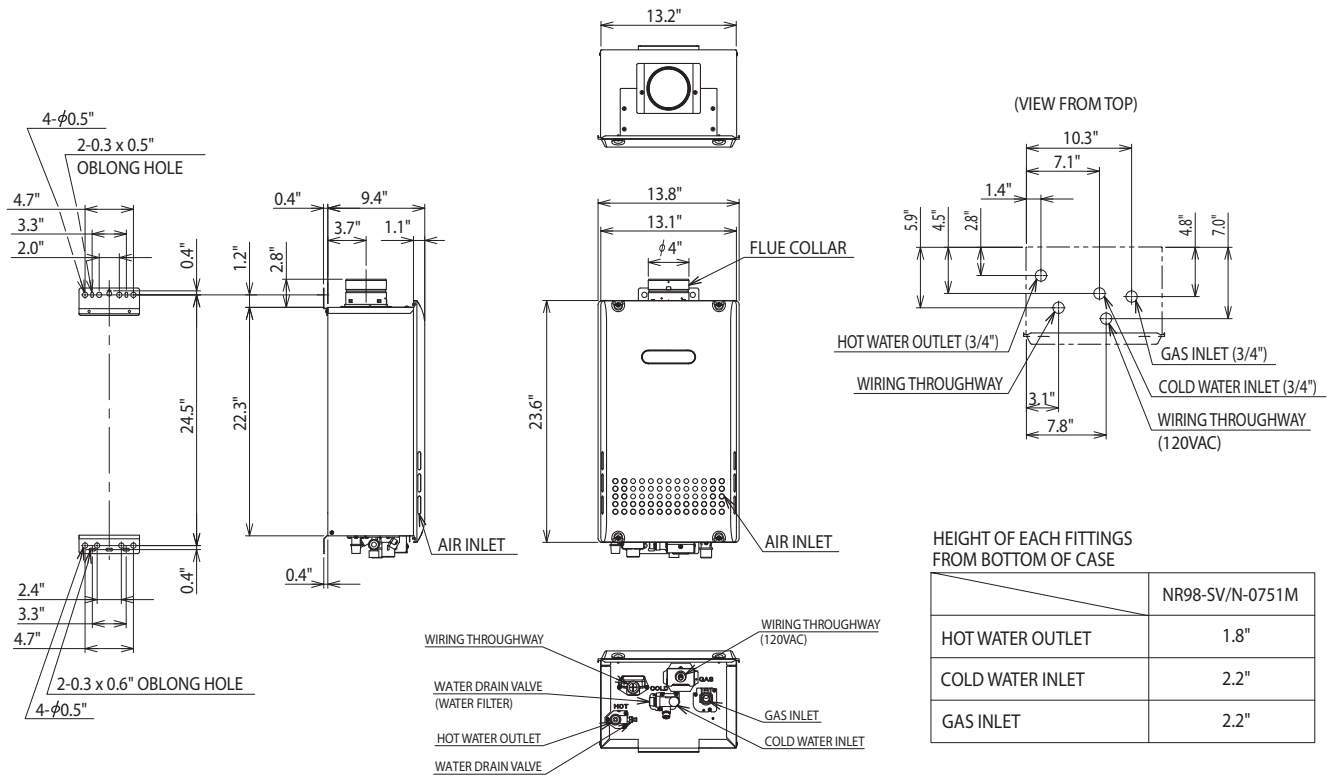
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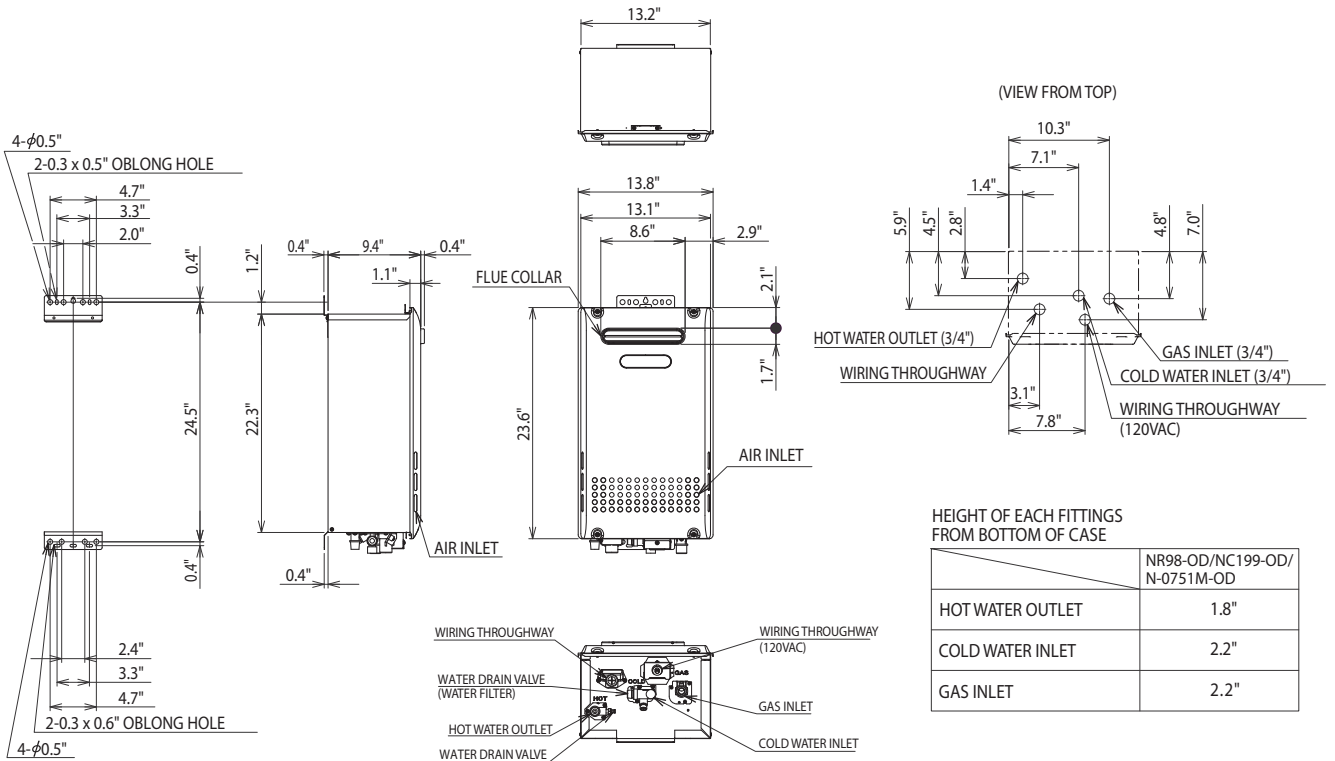
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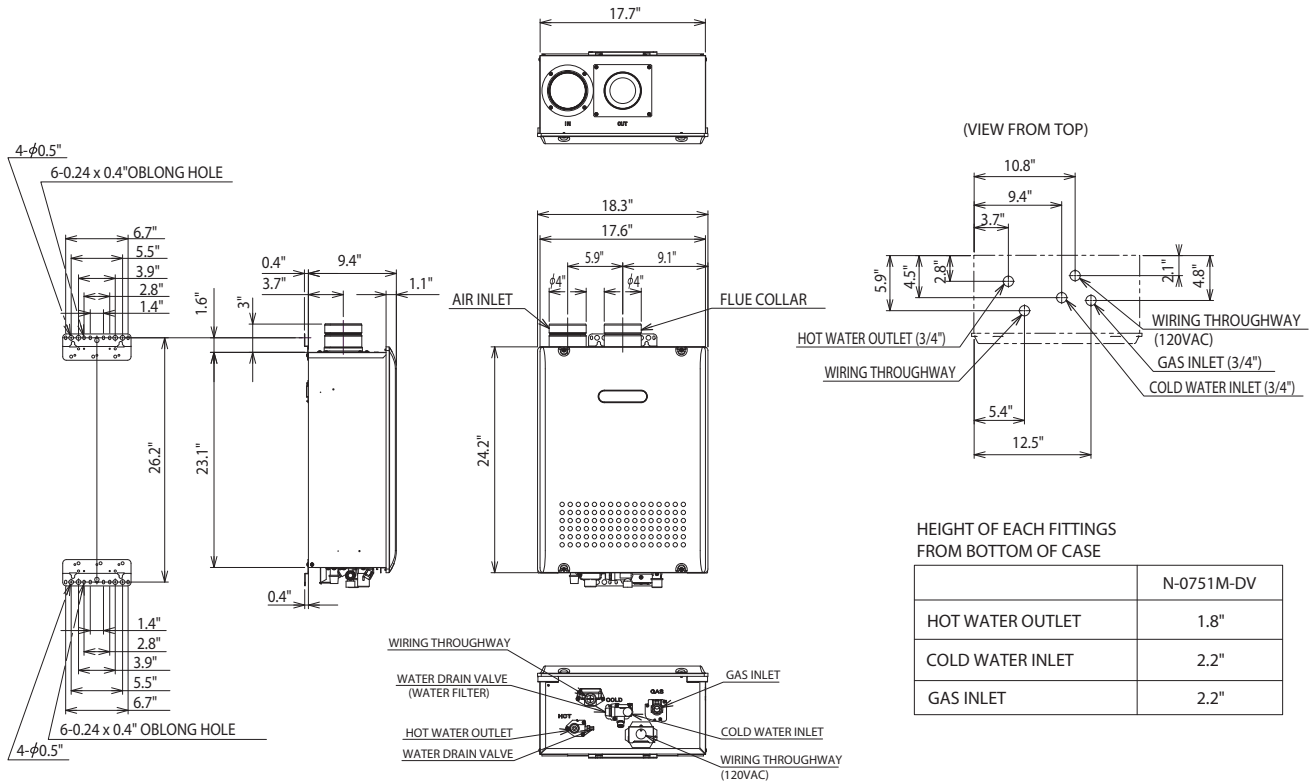
■ NR98-SV / N-0751M



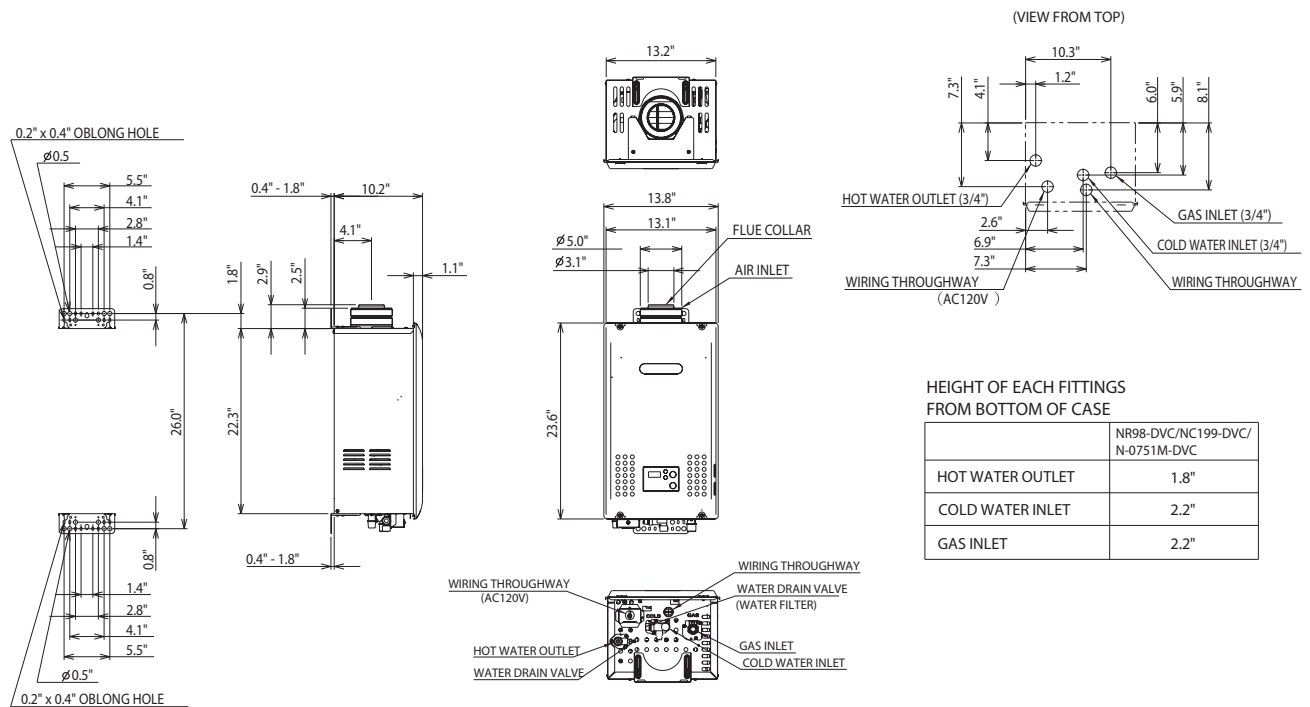
■ NR98-OD / NC199-OD / N-0751M-OD



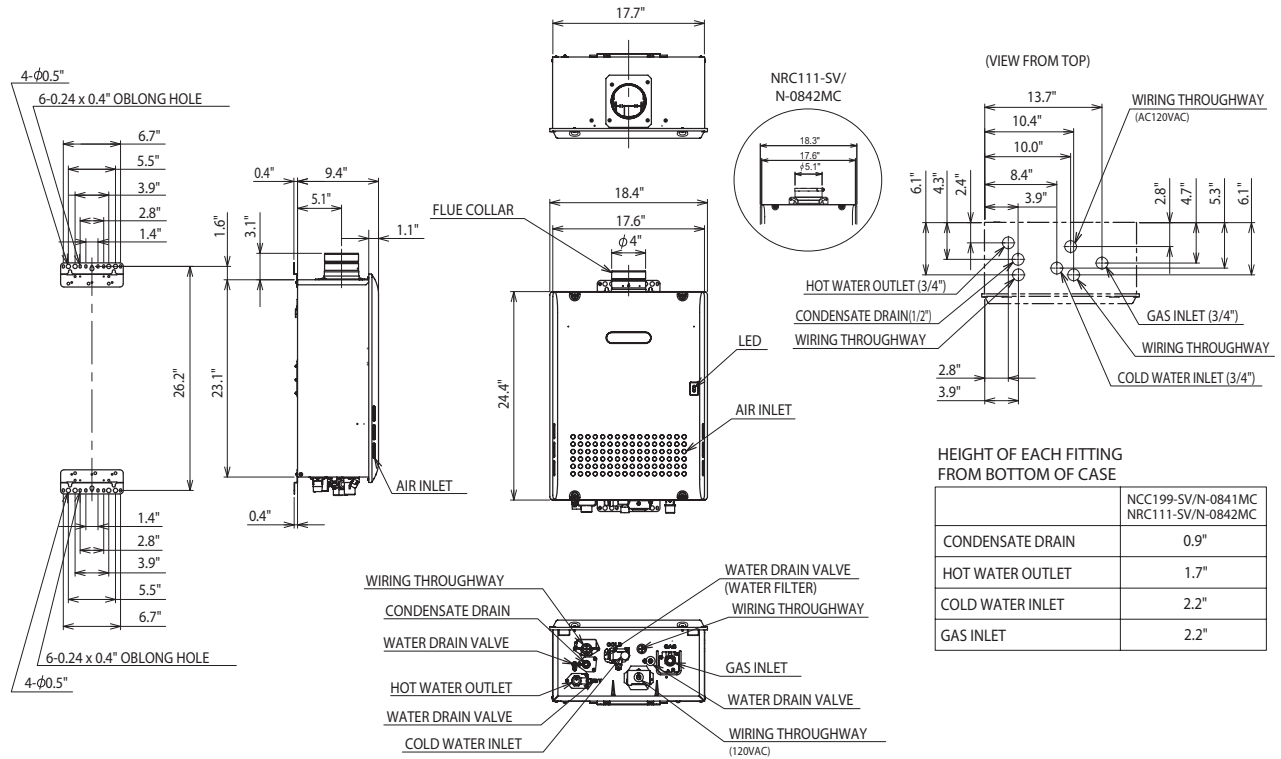
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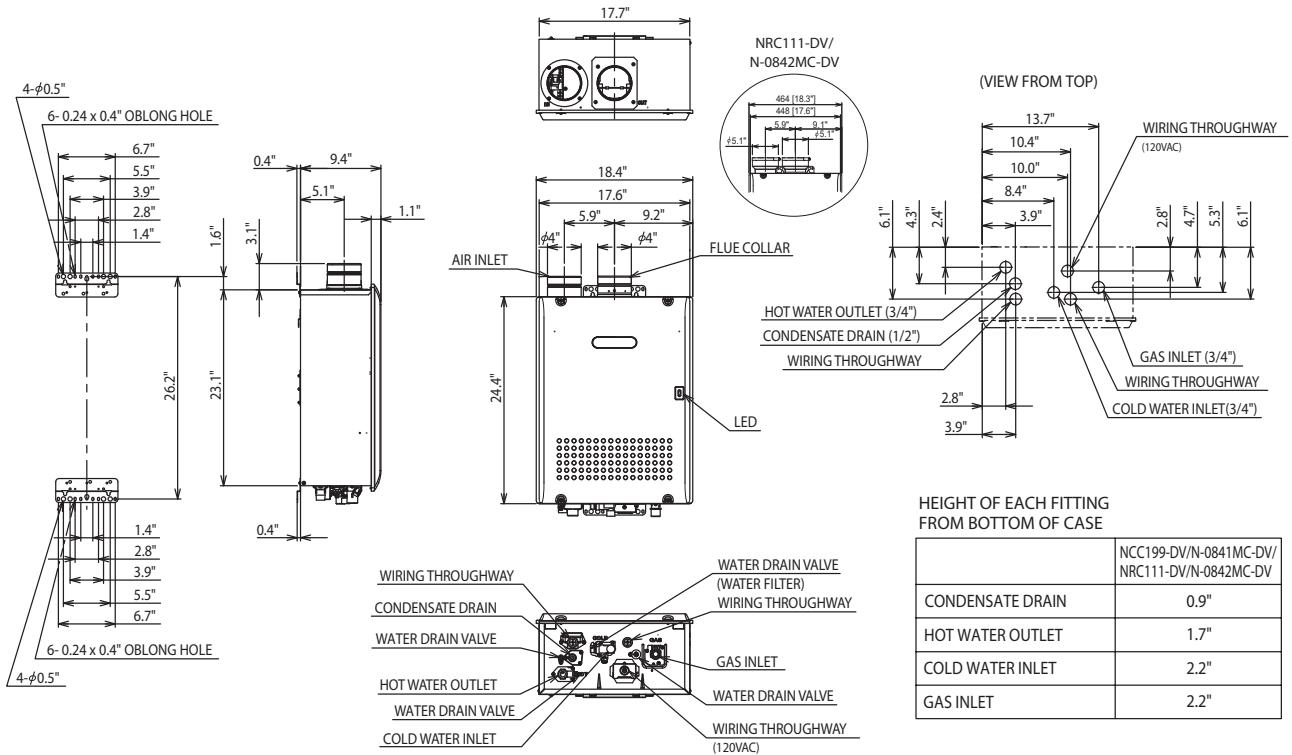
■ NR98-DVC / NC199-DVC / N-0751M-DVC



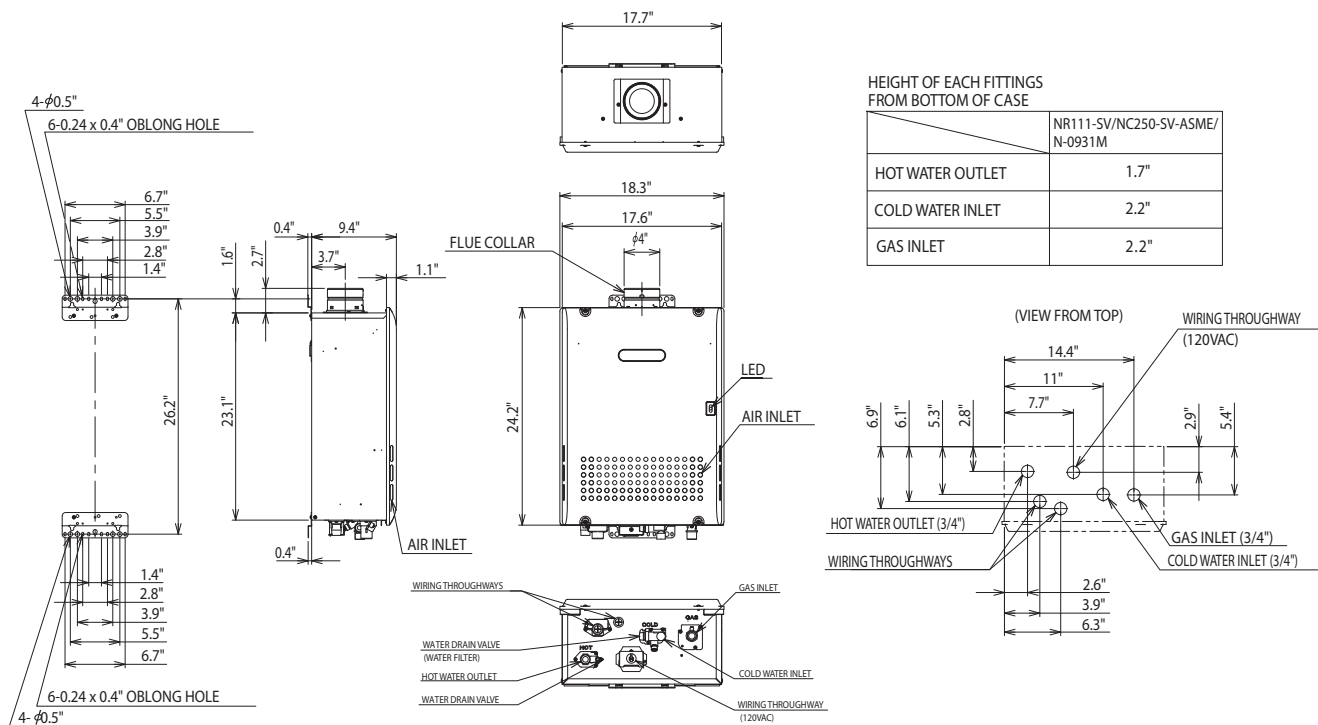
■ NCC199-SV / N-0841MC / NRC111-SV / N-0842MC



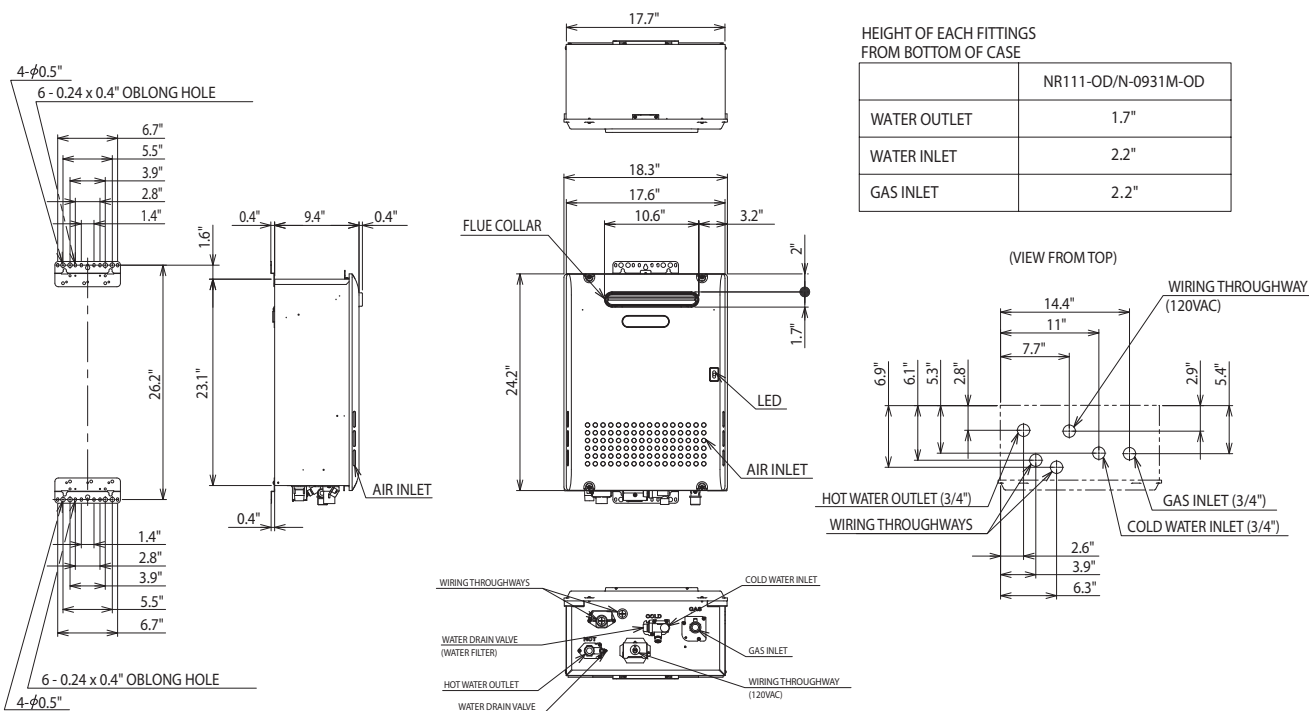
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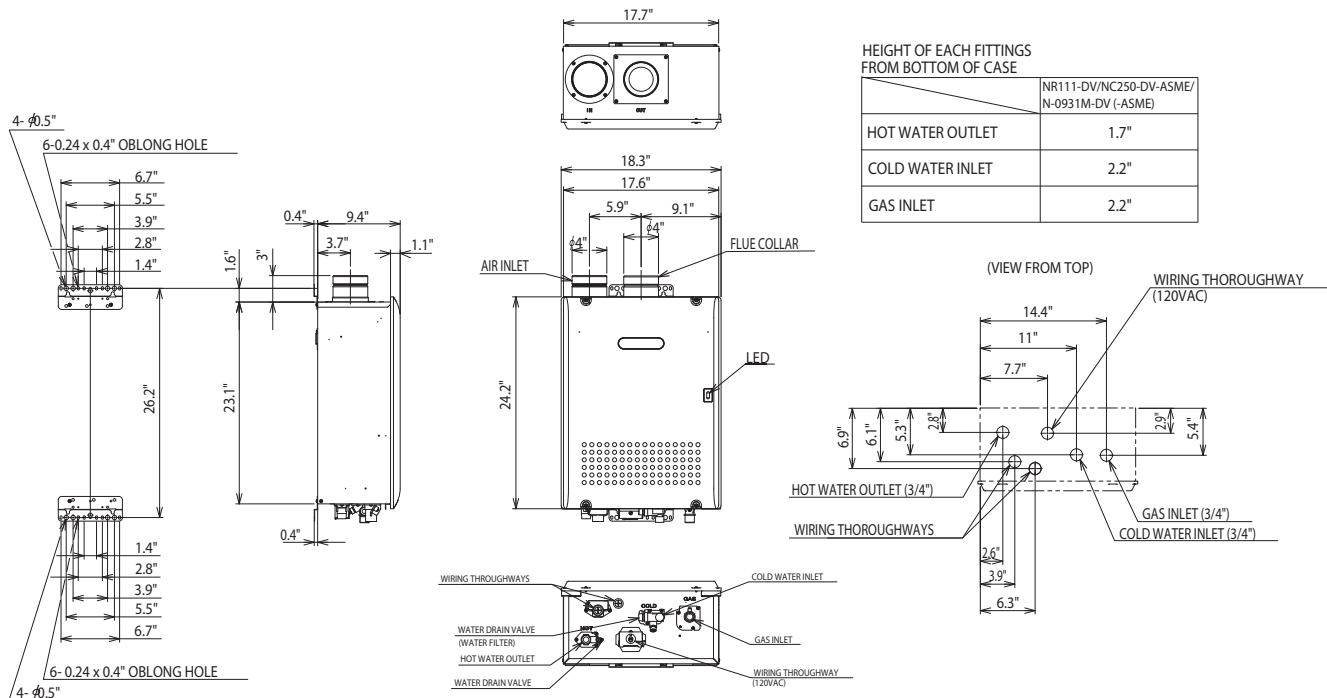
■ NR111-SV / NC250-SV-ASME / N-0931M



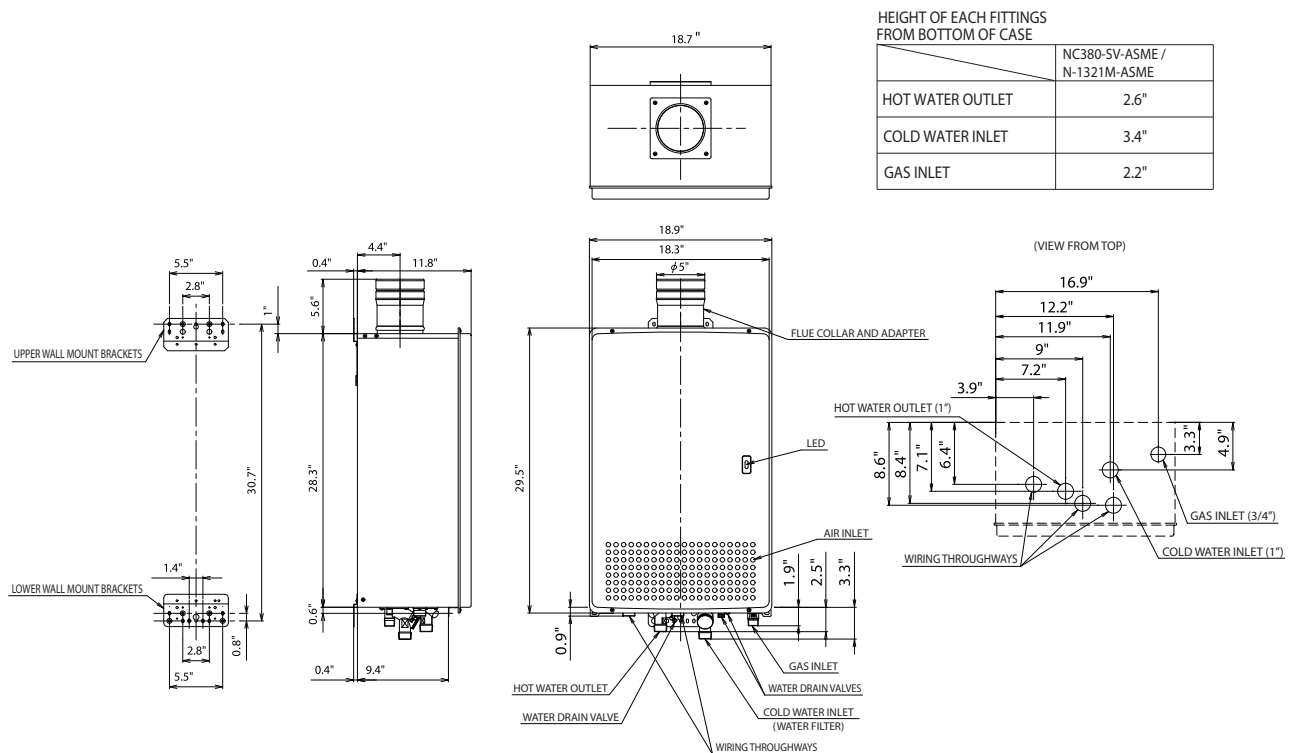
■ NR111-OD / N-0931M-OD



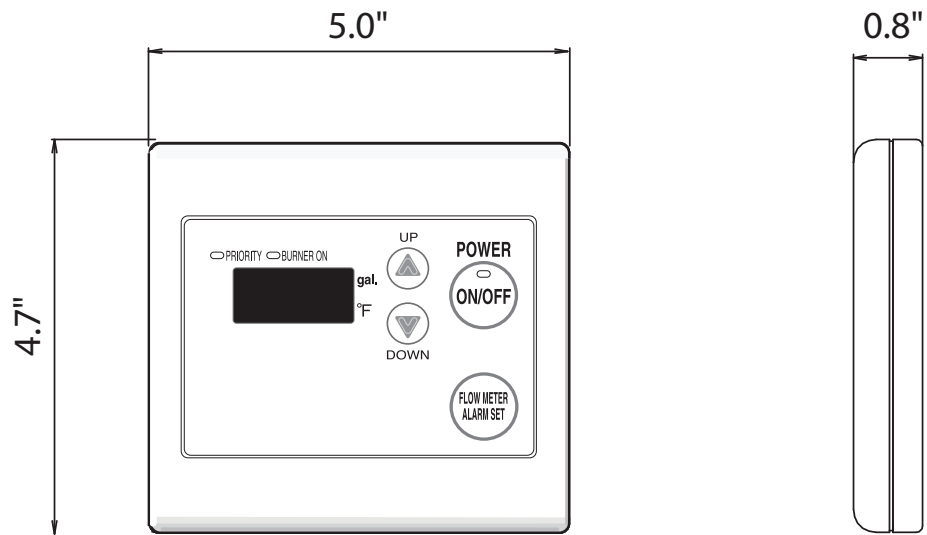
■ NR111-DV / NC250-DV-ASME / N-0931M-DV



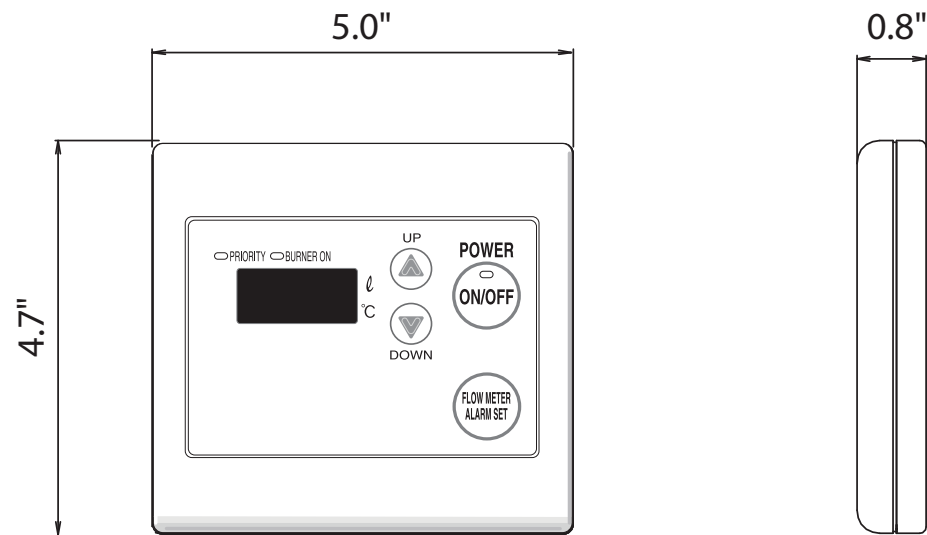
■ NC380-SV-ASME / N-1321M-ASME



- RC-7649M (Optional for NR50-OD / NR66 (-SV,-OD) / N-0531S (-OD) / NR71 (-OD) / N-0631S (-OD))

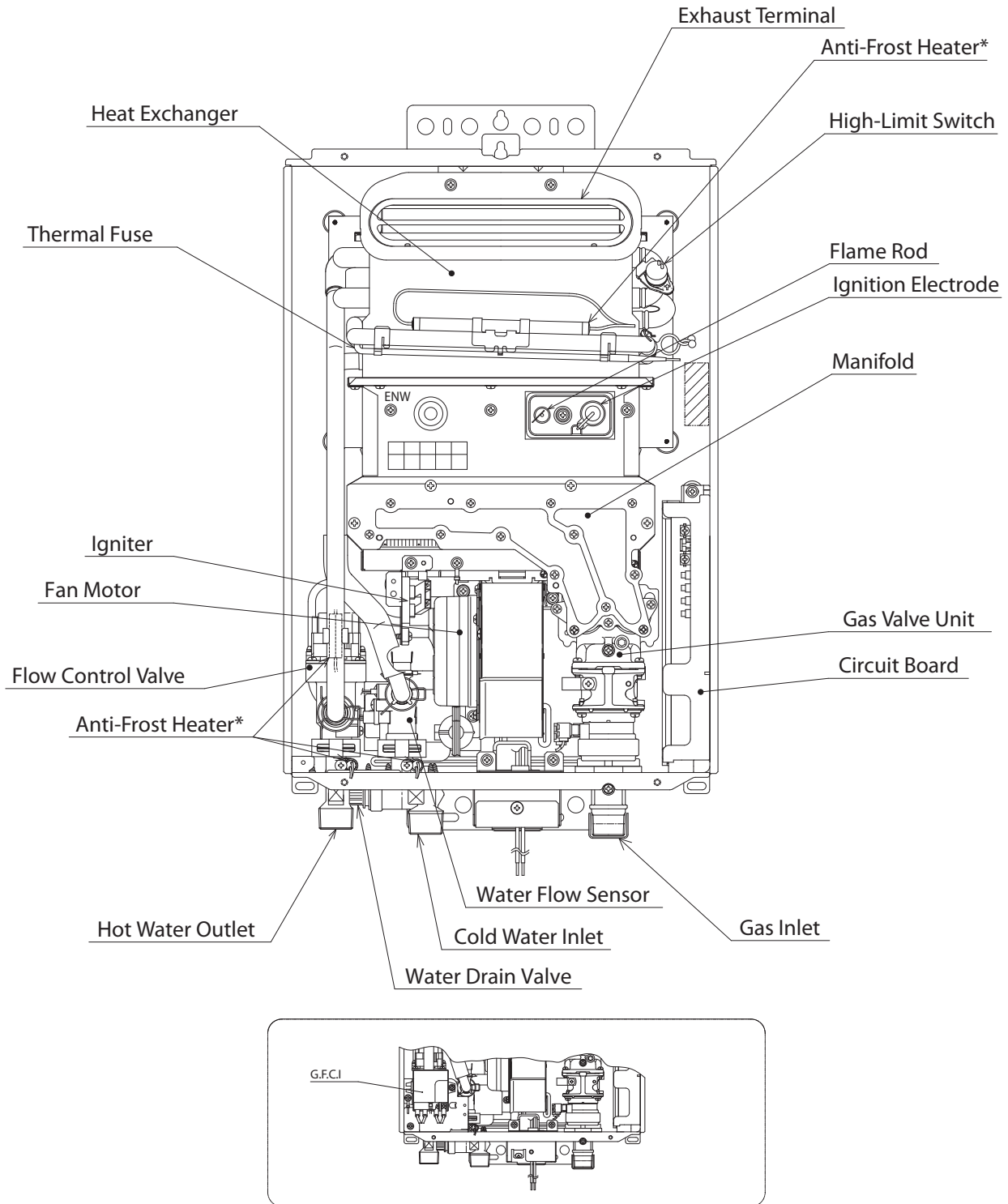


- RC-7650M (Optional Canadian Version)



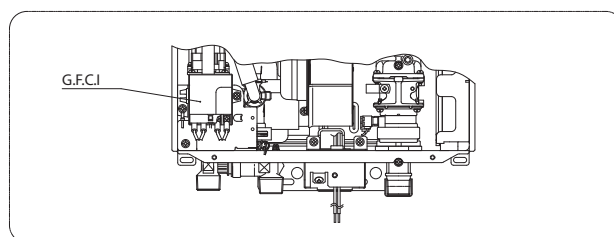
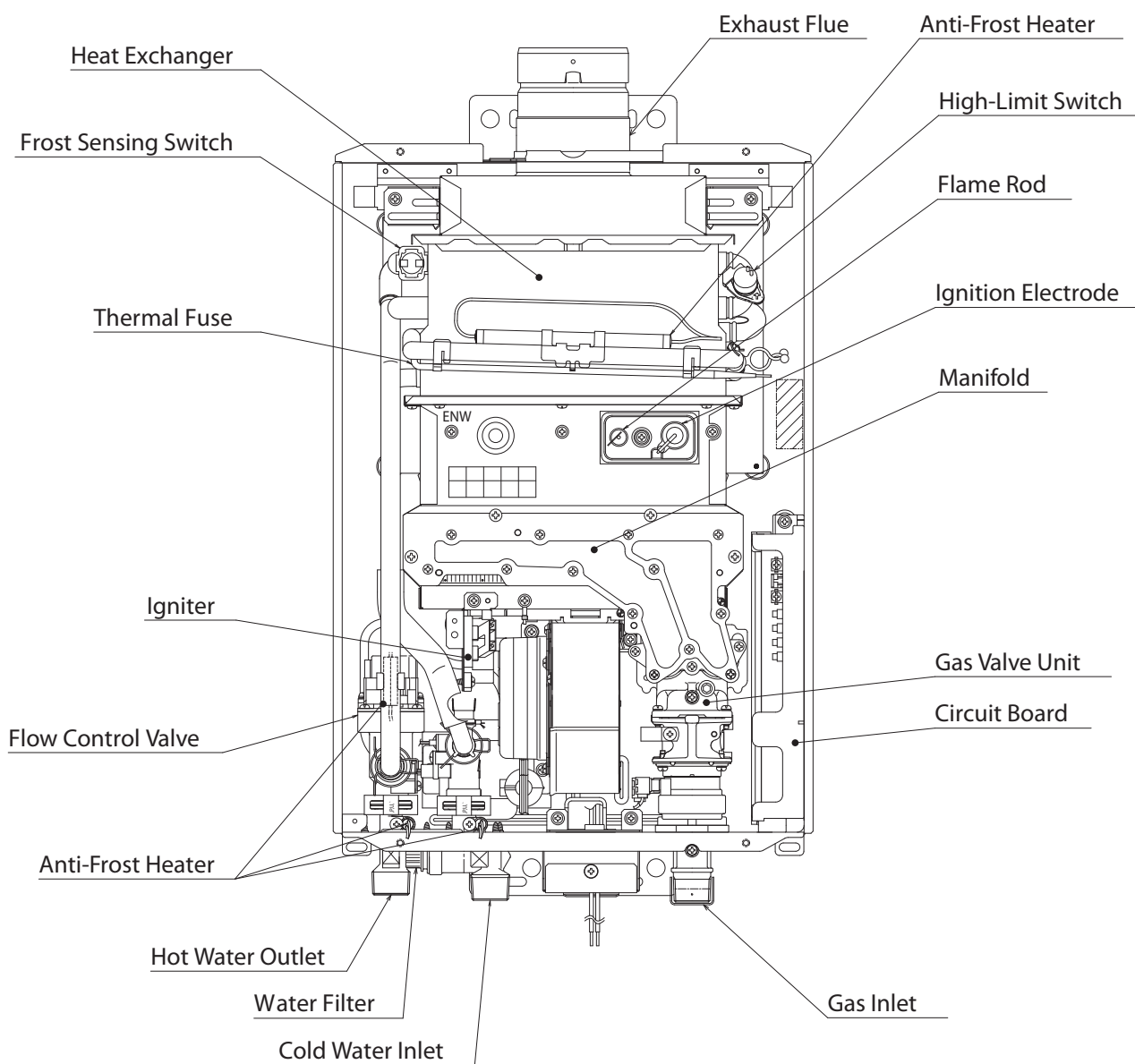
4. Components

■ NR50-OD / NR66-OD / N-0531S-OD

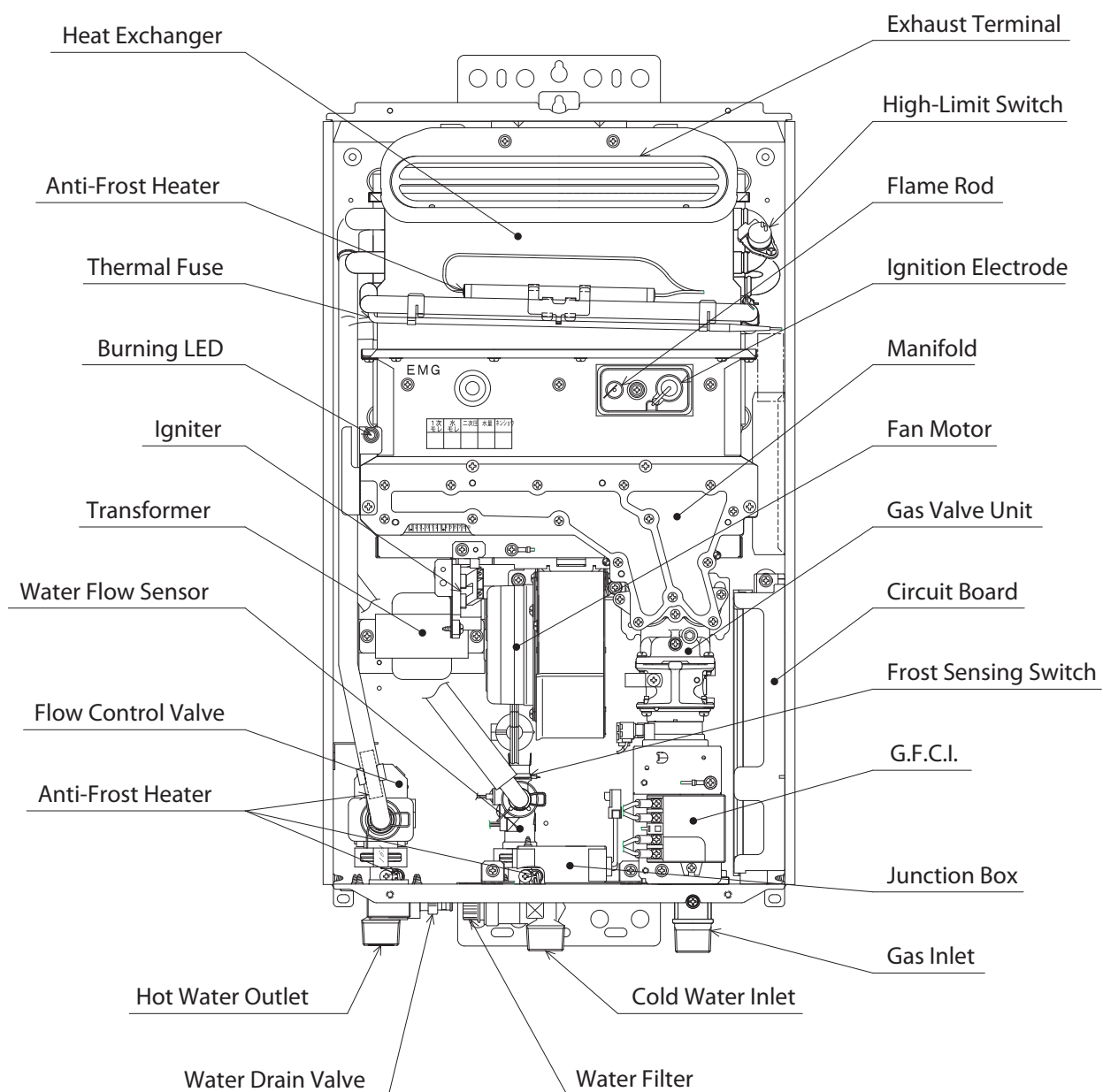


** Freeze protection kit is an optional accessory for the NR50-OD model and is not included with the unit. For cold weather installations, the optional Freeze Protection Kit (#SKG7772) is required in order to prevent internal freezing. For more information about the Freeze Protection Kit, please contact Noritz Technical Support at 1-866-766-7489.*

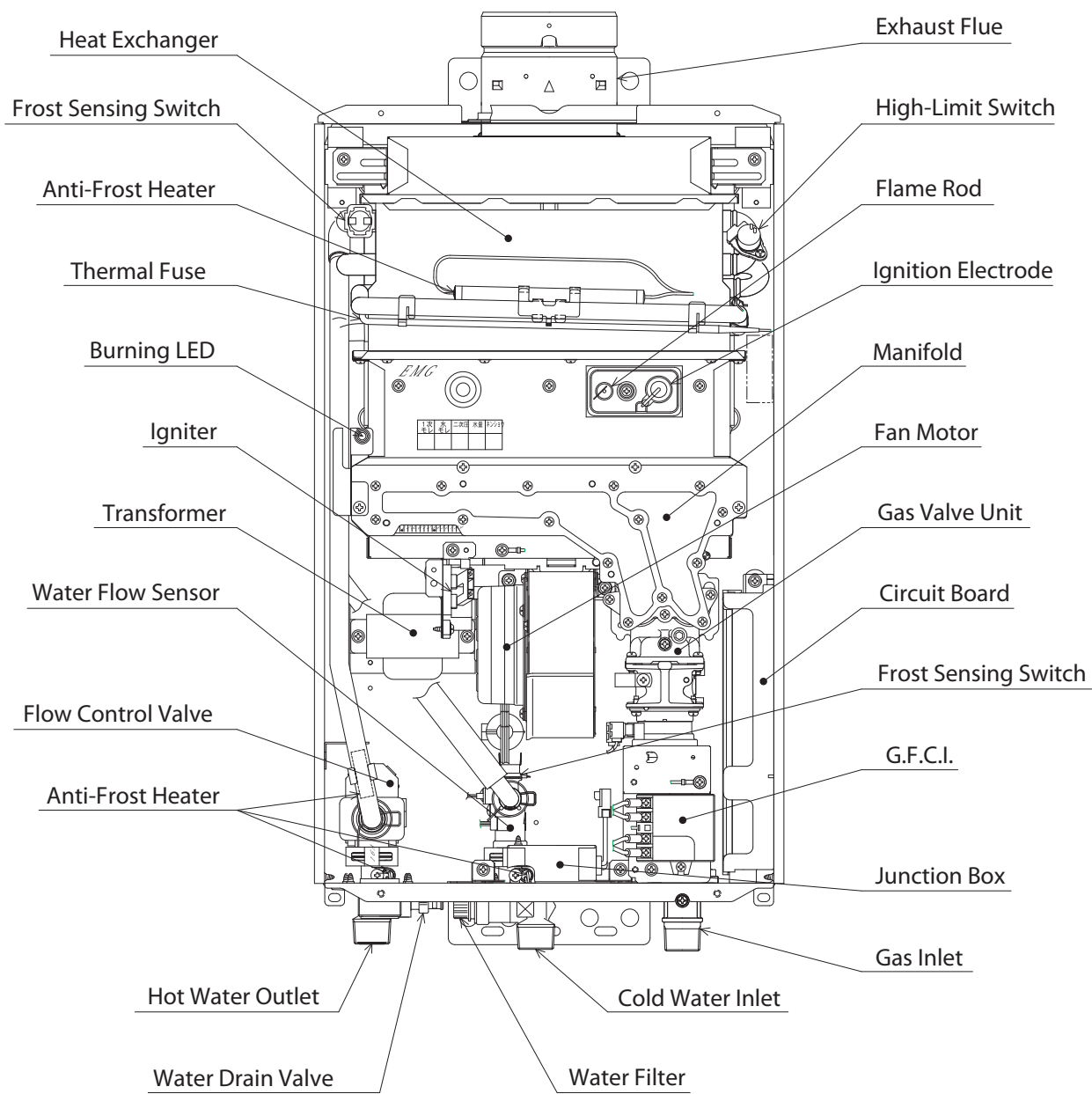
■ NR66-SV / N-0531S



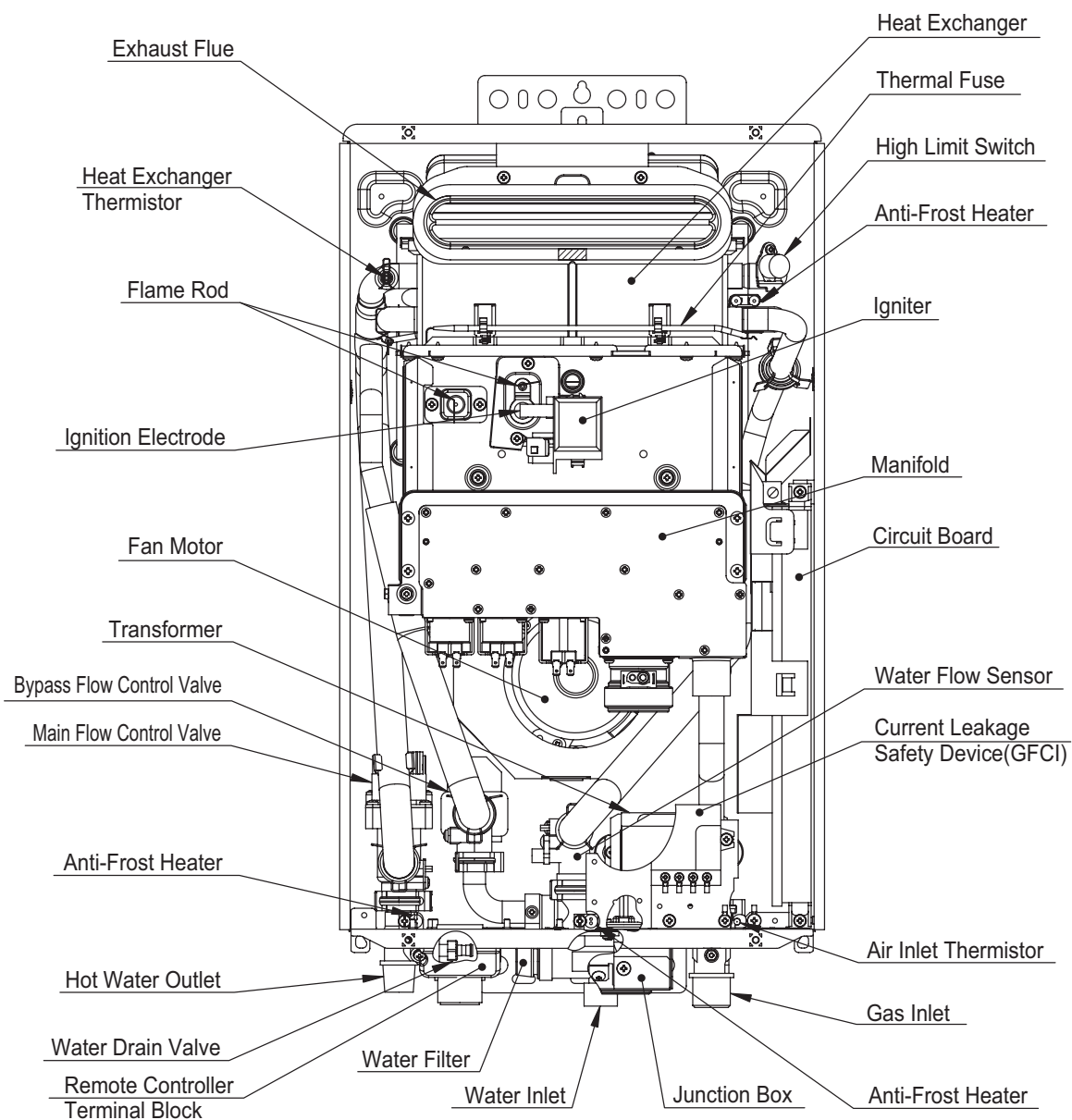
■ NR71-OD / N-0631S-OD



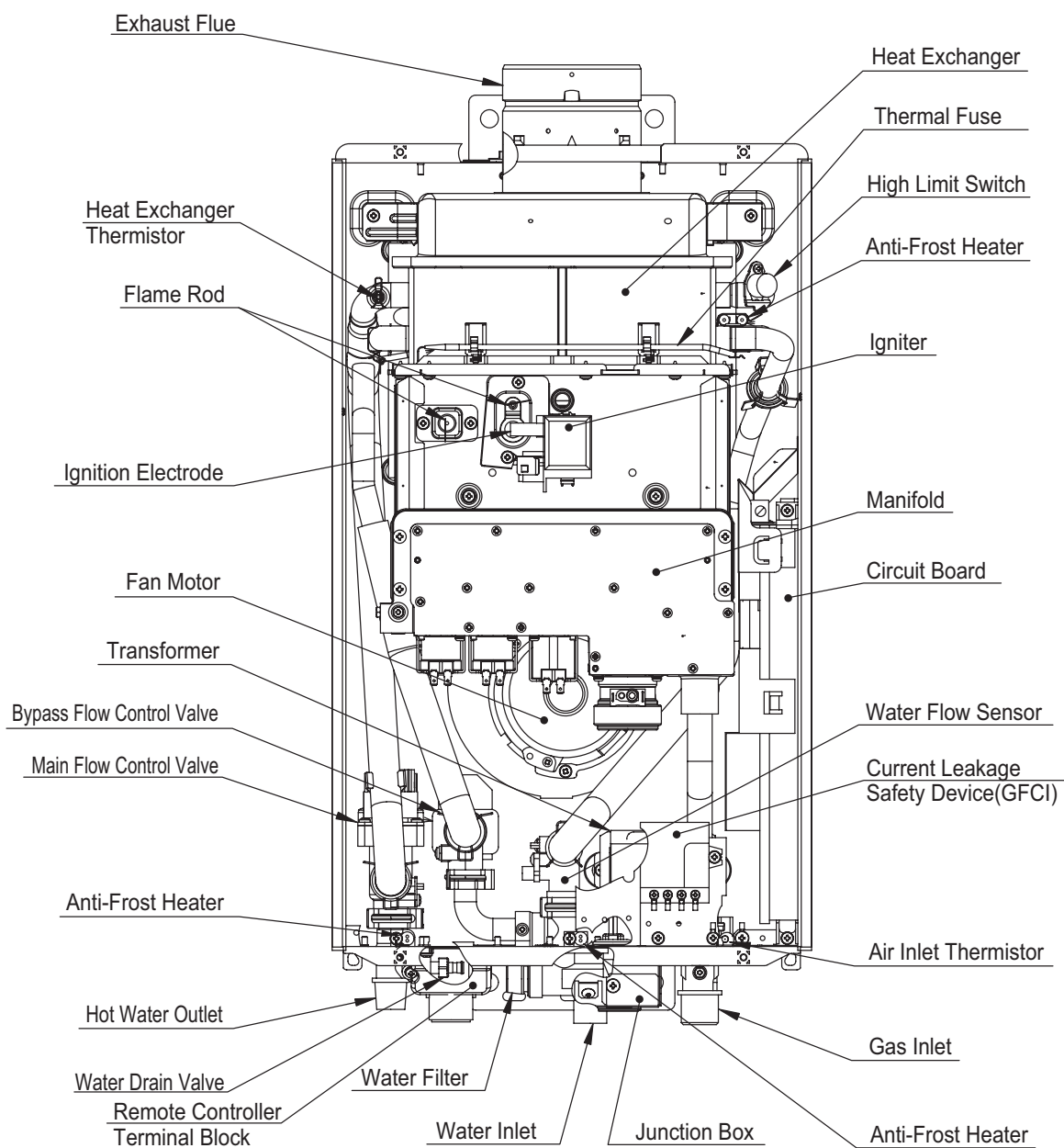
■ NR71-SV / N-0631S



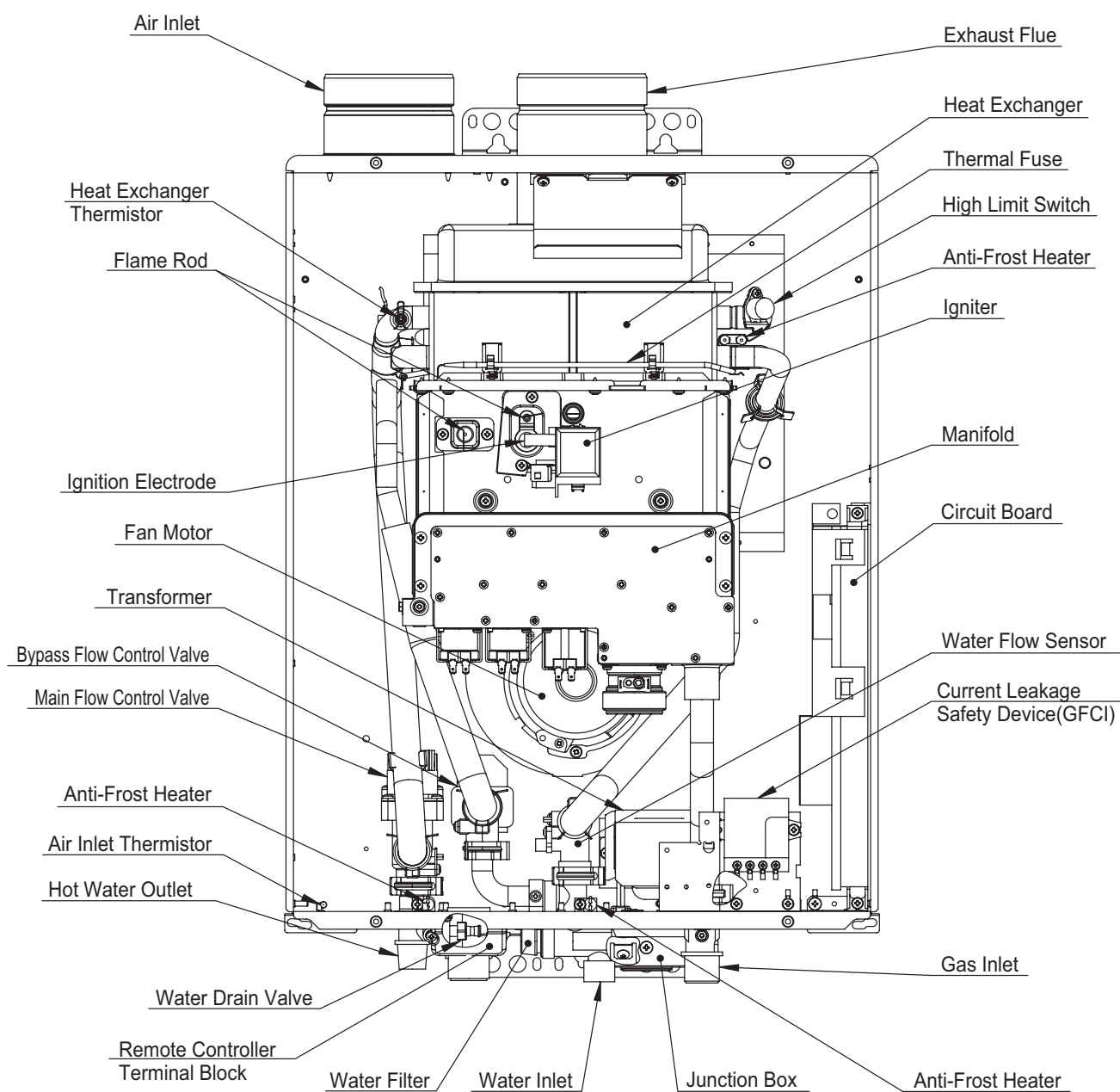
■ NR98-OD / N-0751M-OD



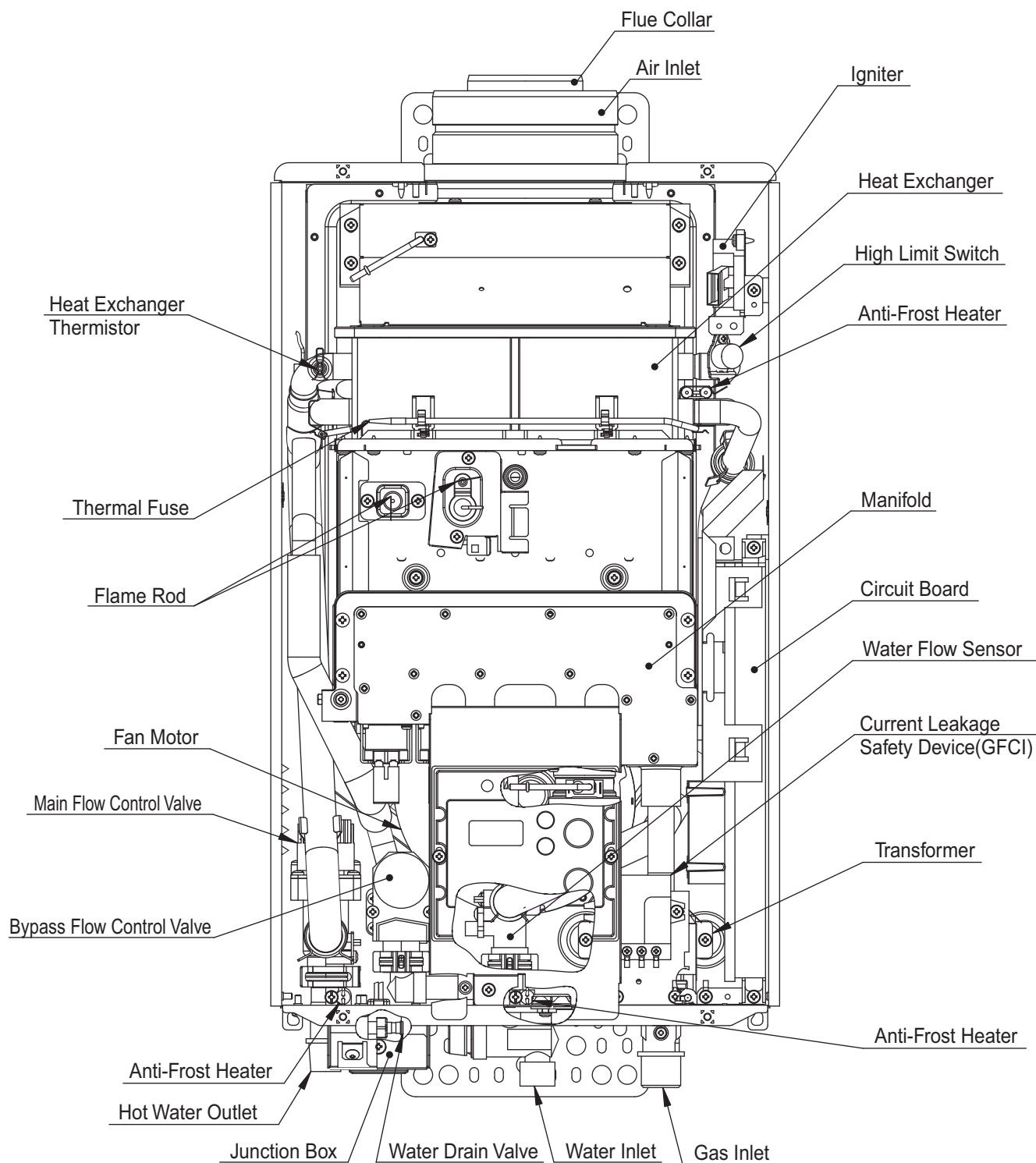
■ NR98-SV / N-0751M



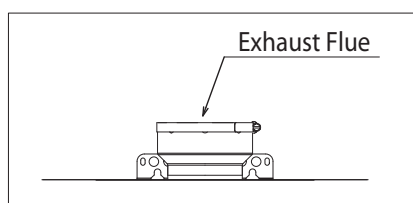
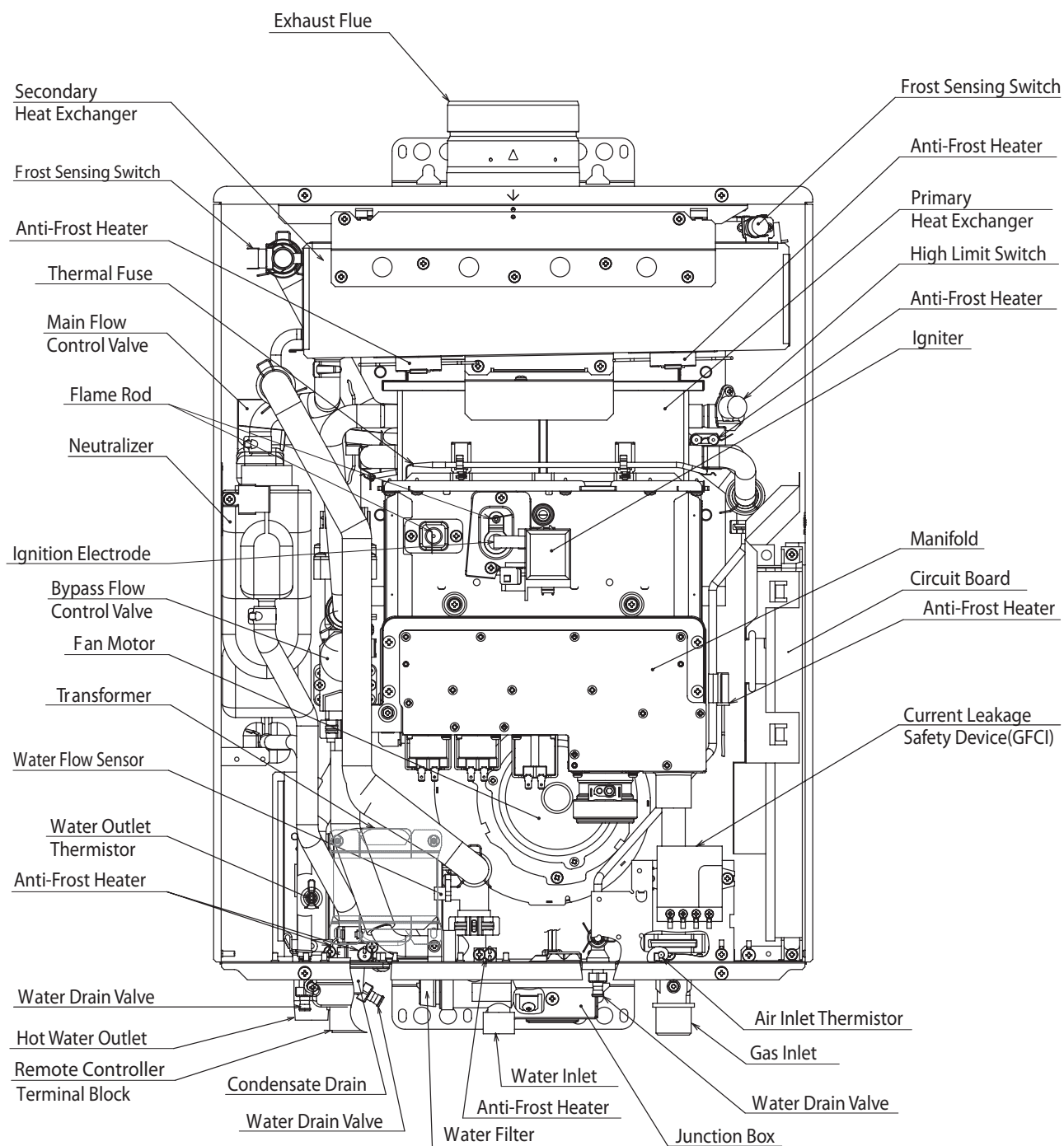
■ N-0751M-DV



■ NR98-DVC / NC199-DVC / N-0751M-DVC

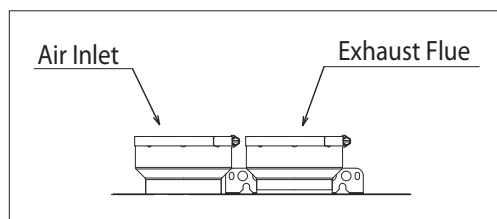
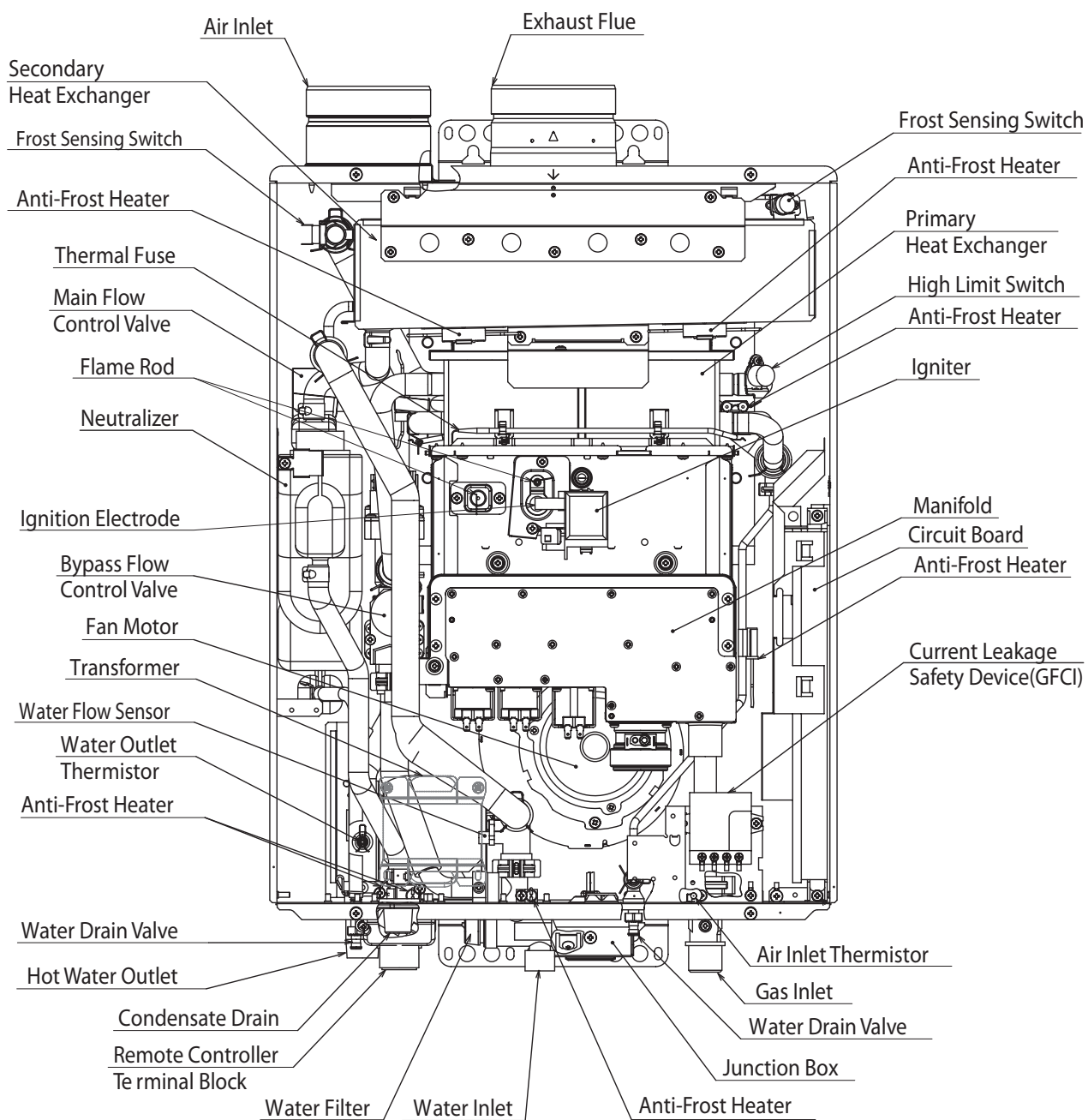


■ NCC199-SV / N-0841MC / NRC111-SV / N-0842MC



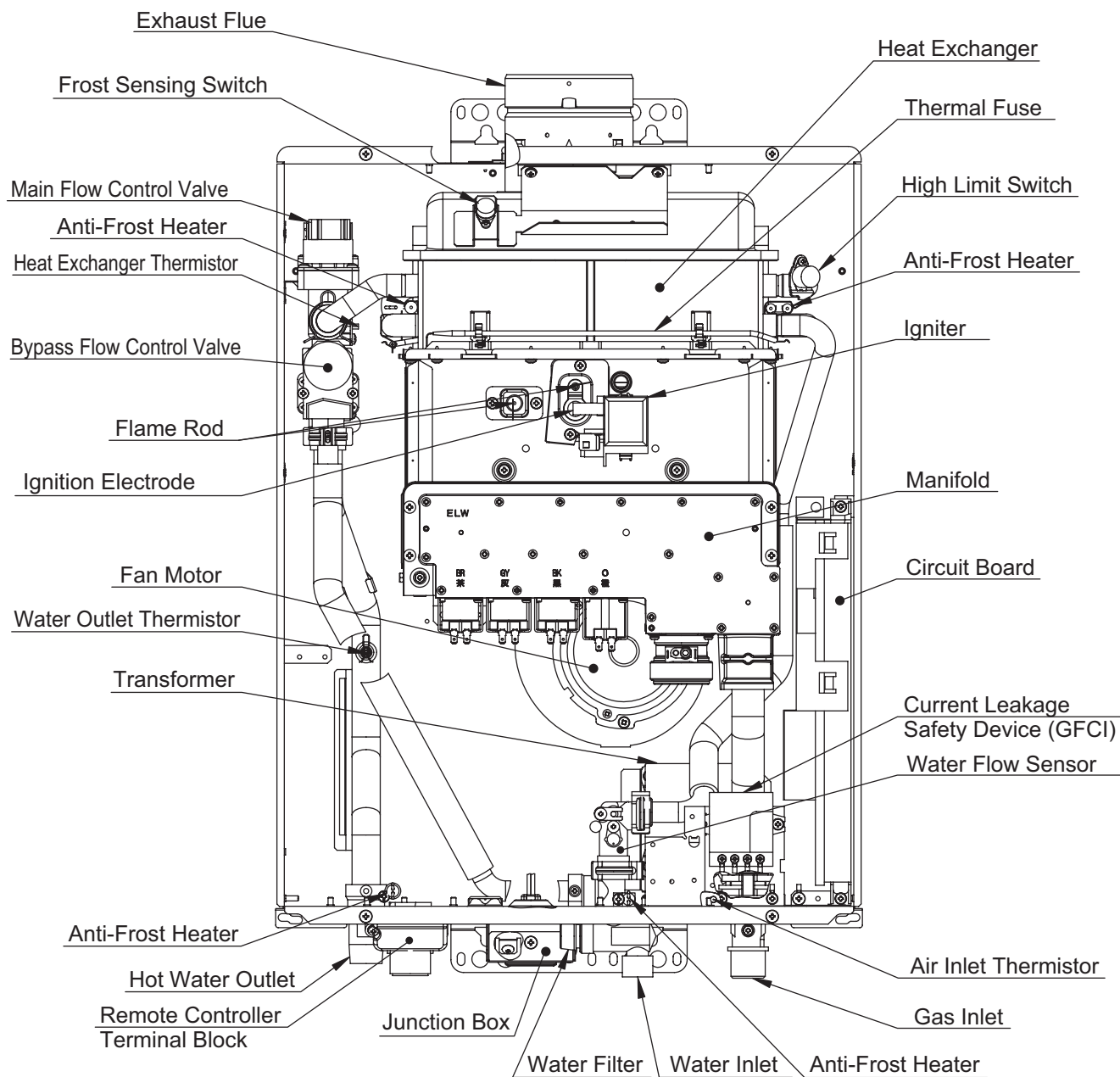
NRC111-DV /
N-0842MC-DV

■ NCC199-DV / N-0841MC-DV / NRC111-DV / N-0842MC-DV

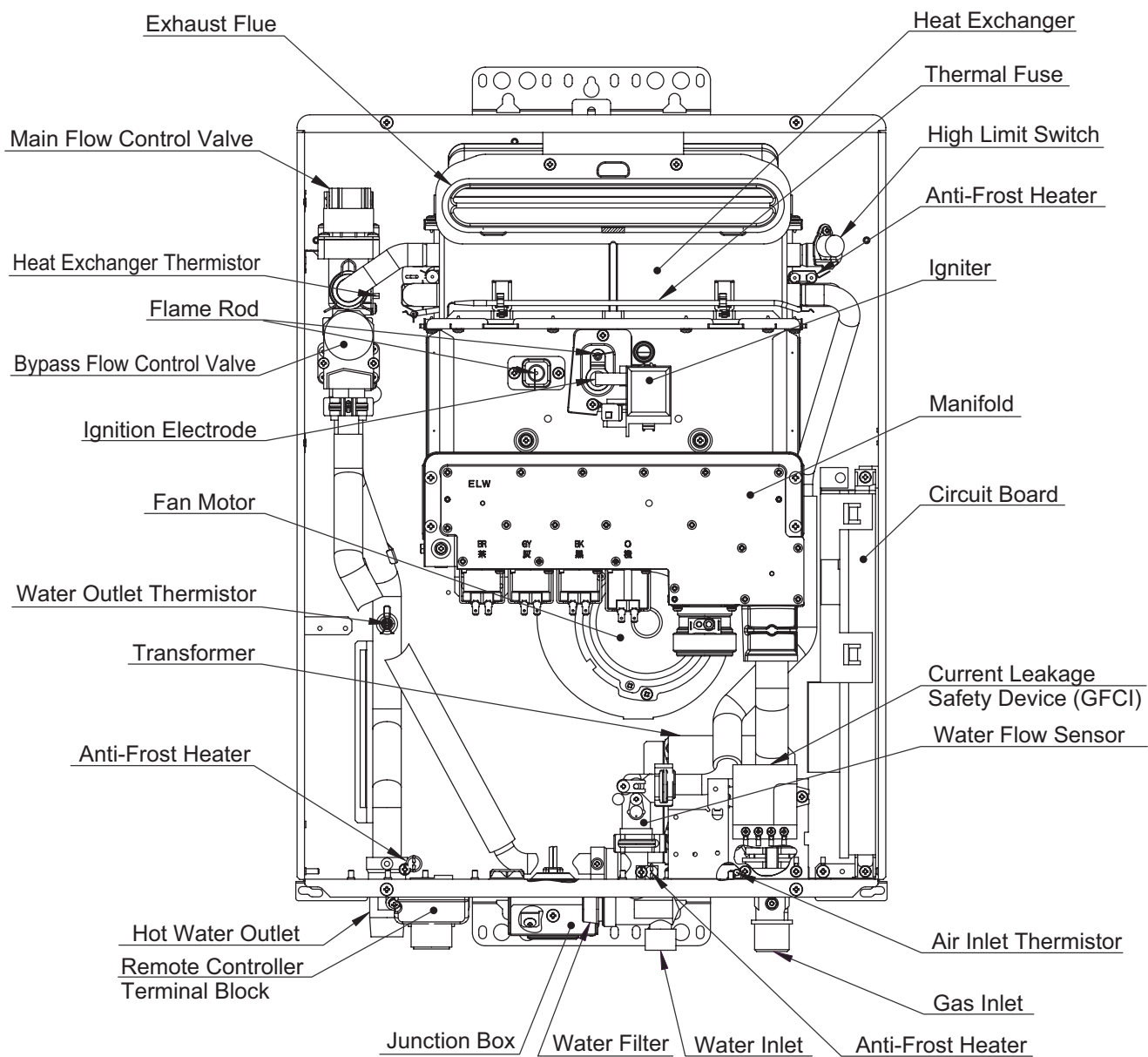


NRC111-DV /
N-0842MC-DV

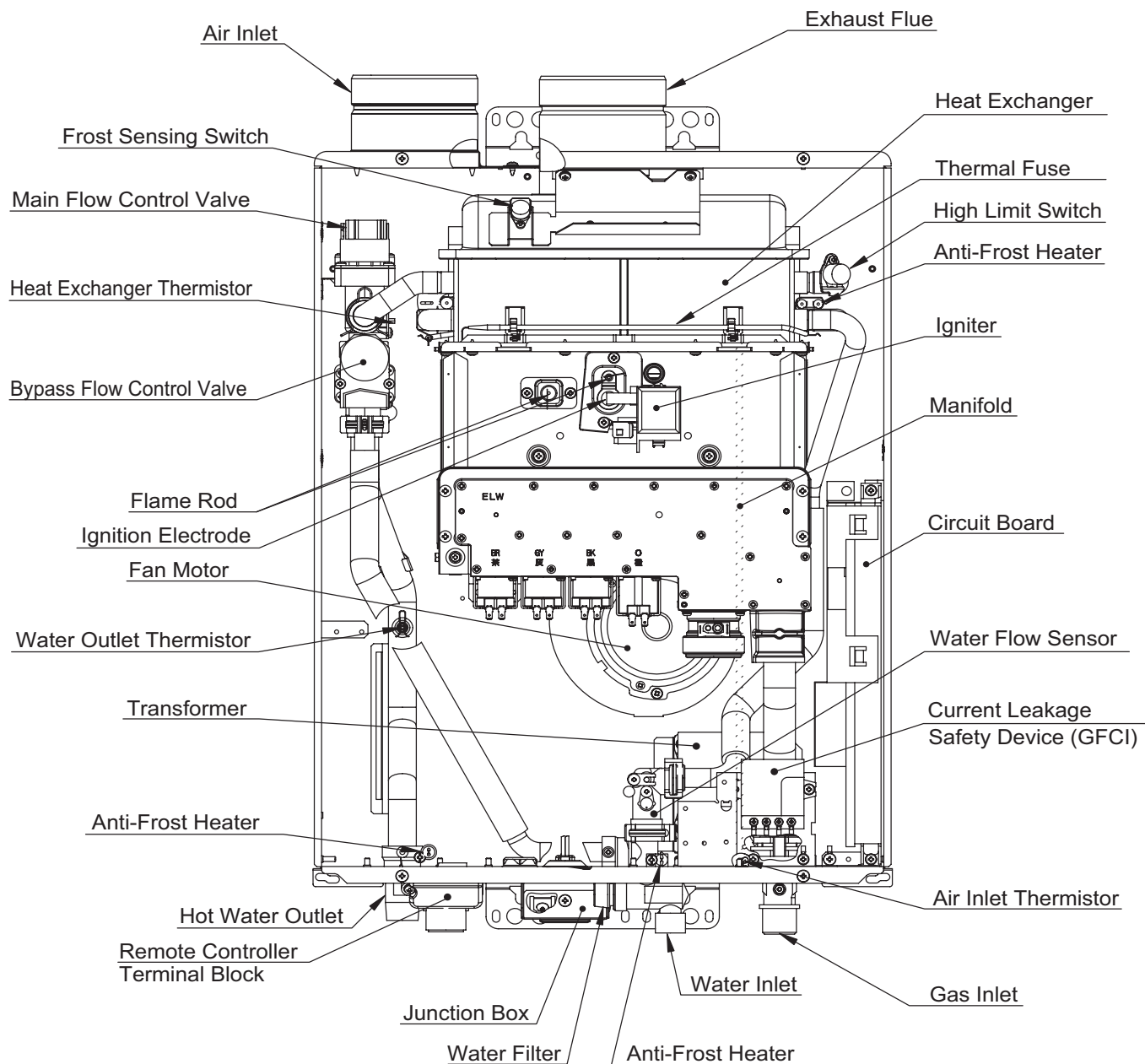
■ NR111-SV / NC250-SV-ASME / N-0931M



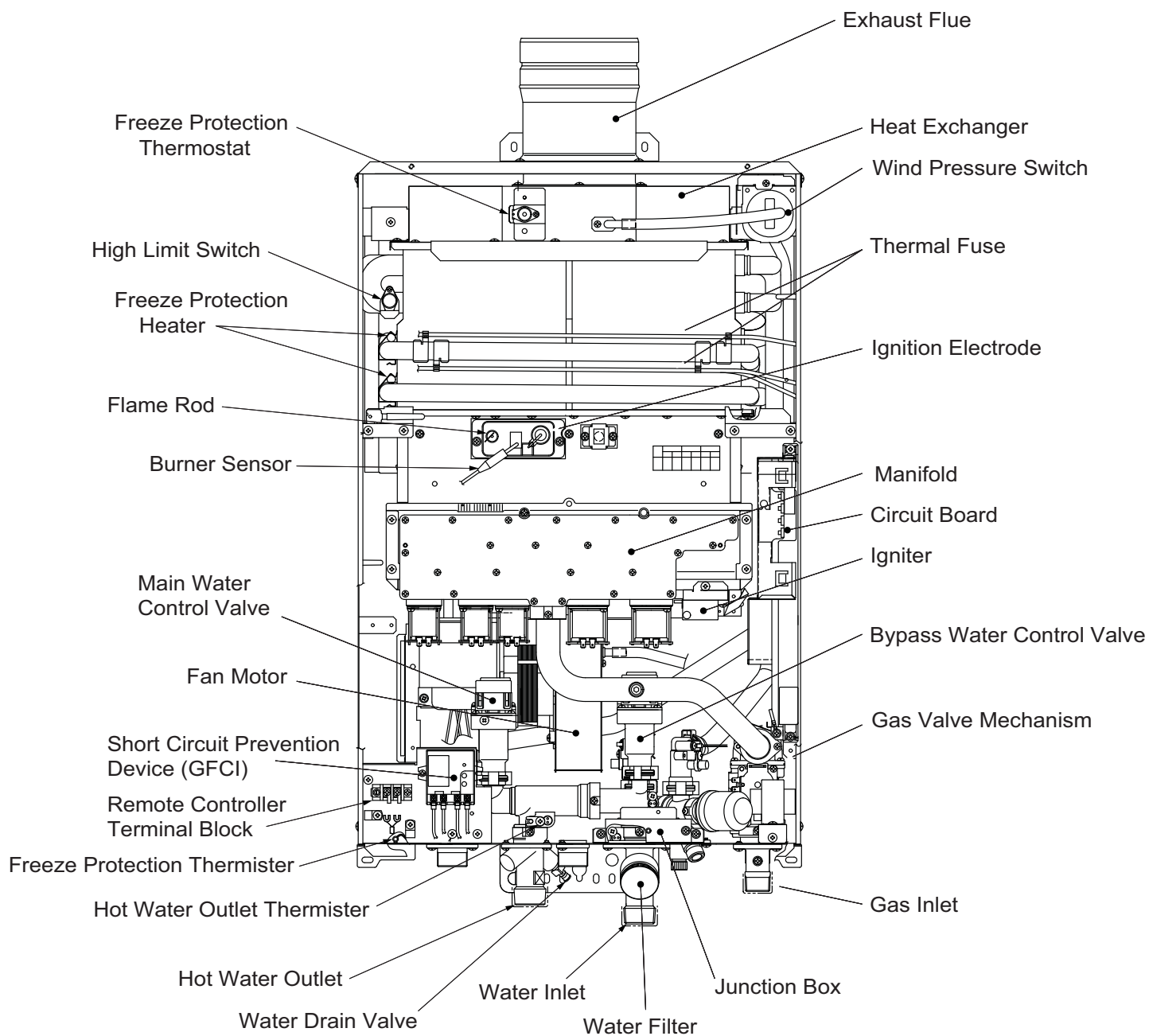
■ NR111-OD / N-0931M-OD



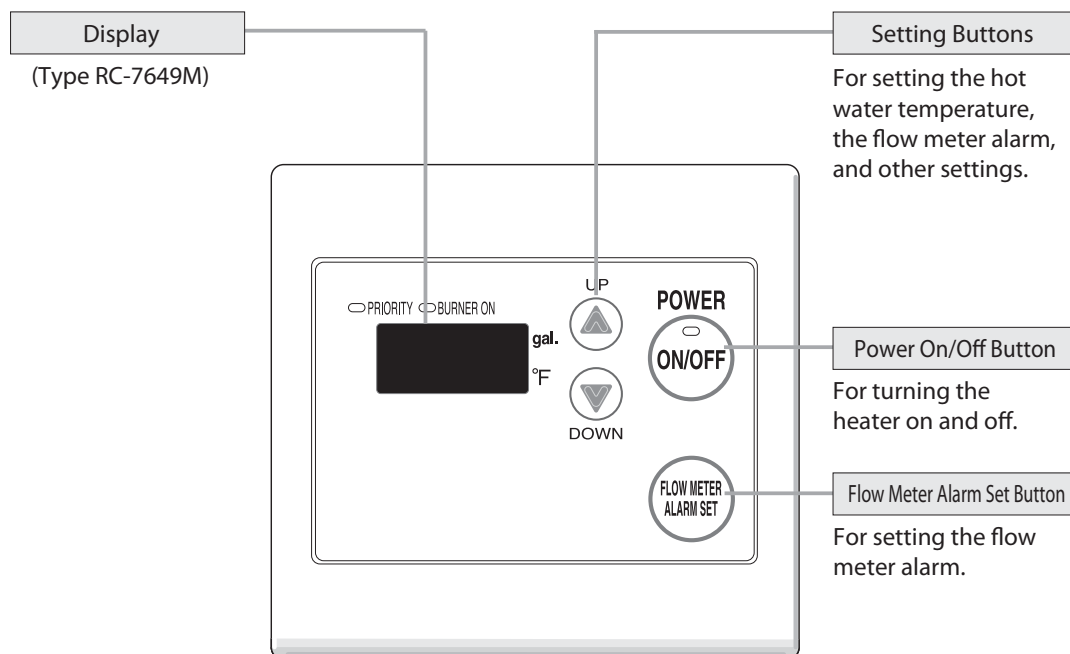
■ NR111-DV / NC250-DV-ASME / N-0931M-DV



■ NC380-SV-ASME / N-1321M-ASME



■ Remote Controller (RC-7649M and RC-7650M)

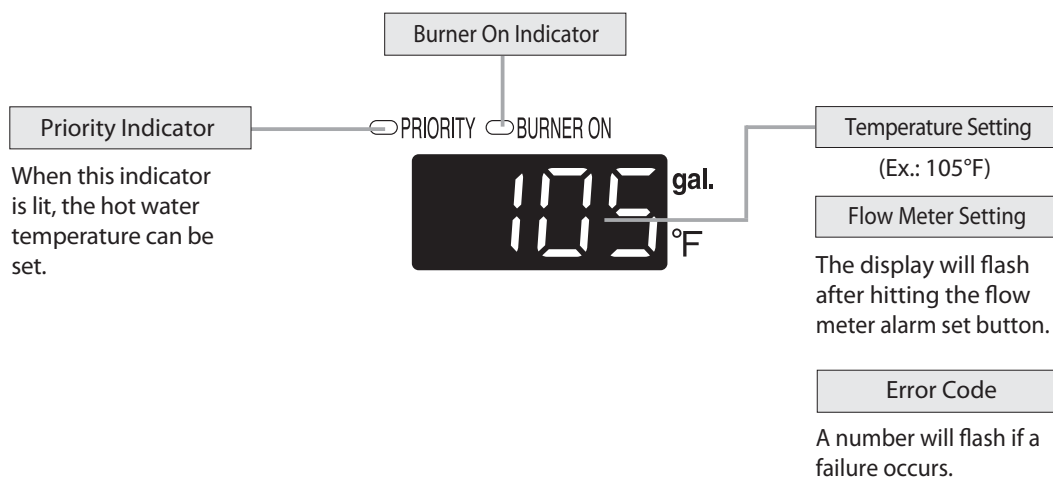


* Before use, remove the protective sheet from the remote controller surface.

* The unit has been shipped from the factory with the remote control set at 110°F.

Display (RC-7649M)

The illustration below shows an example of the remote controller display. What is actually displayed depends on how the water heater is set.



Display (RC-7650M)



5. Troubleshooting

■ Error Codes and Checkpoints (With optional remote controller connected.)

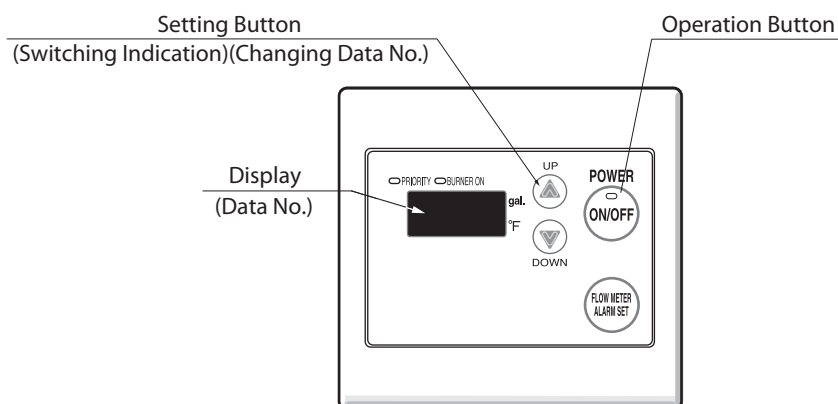
Display	Description	Diagnosis Point (Trouble Point)
10	Combustion Abnormality	Check for abnormal combustion, Check flue for blockage or obstruction
11	Ignition Failure	Is gas valve open, Check gas type, Check burner window for flame, Check flame rod connection, Check igniter connection, What size is gas line, Is the LP tank full
12	Flame Rod Does Not Detect Flame (Secondary Flame Fault Detection)	Is gas valve all the way open, Check gas type, Check flame rod connection, What size is gas line, Is the LP tank full
14	Overheat Cutoff Fuse	Check connection of overheat cutoff fuse, Check for damage of fuse
16	Abnormally High Output Temperature	Check outlet water temperature, Is the water hard, Is the water pressure less than 25 PSI, Is there a clogged pre-filter or strainer
20	High Limit Switch	Check high limit switch connection, Is the water hard
21	Pressure Switch Abnormality	Check pressure switch, Check fan motor, Check flue for blockage or obstruction (For N-1321M-ASME)
29	Neutralizer Water Level Electrode Abnormality	Check for neutralizer and/or drain pipe blockage, Check for proper connection of water level electrode
30	Freeze Protection Thermostat	Check freeze protection thermostat connection
31	Inlet Thermistor Abnormality	Check inlet thermistor connection
32	Outlet Thermistor Abnormality	Check outlet thermistor connection
33	Heat Exchanger Thermostat	Check heat exchanger thermostat connection
41	Flow Sensor Abnormality	Check flow sensor for debris and/or damage
410	Multi-System Flow Imbalance Error	Check flow for blockage or obstruction Check flow sensor and filter for debris and/or damage
56	CCP Valve Abnormality	Check flow for blockage, Check CCP valve(s) for proper operation with System Controller
59	Combustion Abnormality	Check flue for blockage or obstruction Check gas pressure
61	Fan Motor Abnormality	Check that the fan is rotating
63	Recirculation Pump Error	Check for proper pump operation Check recirculation hot water supply pipe
65	Main Water Control Valve	Call Noritz Technical Support (866-766-7489)
66	Bypass Water Control Valve	Call Noritz Technical Support (866-766-7489)
70	Circuit board Abnormality	Circuit board failure
71	Gas Solenoid Valve Abnormality	Check gas valve connections, Check for damage to gas valve
72	Flame Rod Abnormality	Check for flame on burner
73	Improper Circuit Board Setting	Check circuit board for damage and proper connections, Unplug/replug power to unit if wiring was altered during operation
760	Remote Controller Transmission Abnormality	Check Remote Controller Cord, Check wiring connections if Multi-System or Quick-Connect is in use
90	Combustion Abnormality (Warning indication)	Check for abnormal combustion Check flue 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
92	Neutralizer Life Cycle Warning	Replace neutralizer (Refer to instructions included with replacement neutralizer)
93	Neutralizer Life Cycle End	
99	Combustion Abnormality (Unit shuts off)	Check for abnormal combustion Check flue for blockage or obstruction
(F) 76	Multi-System Communication Error	Check for proper connection of the Quick-Connect Cord or Multi-System Controller

*In a quick connect multi-system, "F##" (except F76) indicates an error code from the secondary unit (unit without a remote). The ON/OFF condition of the neutralizer water level electrode can be checked using the maintenance monitors. When maintenance monitor number 19 reads "000", the condition of the electrode is normal. When this monitor reads "111", the condition of the electrode is abnormal.

■ Error Codes and Checkpoints for NR71/N-0631S Series Only (No remote controller connected)

No. of Flashes	Reset Method (without Remote Controller)	Reset Method (with Remote Controller)	Will Unit Work After Being Reset	Other Symptoms	Error Code Representation	
Continuous Flashing	No Reset	No Reset	YES	It's available to burn even before reset.	10	90
	Turn Off Water	Turn Off Water	YES		90	
					11	12
	Disconnect Power	Power Button	YES		90	
3	Disconnect Power	Power Button	YES	It's available to burn even before reset.	59	
	Turn Off Water	Turn Off Water	NO	If minimum flow rate is available immediately	31	
4	Turn Off Water	Turn Off Water	YES	Turning off the water will only reset the unit if there is no remote controller installed.	61	
	Disconnect Power	Power Button	NO	If power button is on immediately	14	
	Turn Off Water	Turn Off Water		If minimum flow rate is available immediately	32	
	Disconnect Power	Disconnect Power	YES		20	
5	Disconnect Power	Power Button	YES		72	
			NO		71	72
		Disconnect Power	YES		99	
			NO		70	73

■ Remote Controller (Optional for NR50-OD, NR66 (-SV,-OD) / N-0531S (-OD), NR71 (-SV,-OD) / N-0631S (-OD)) ● RC-7649M



■ Displaying Maintenance Monitors

<Display Procedure>

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

<Indications>

1. The maintenance monitor data no. will appear on the display for two seconds, and then the data will appear.
2. In order to switch to other maintenance monitor data, press either the up or down button once. The data no. will then reappear, then different data nos. can be selected using the up [▲] and [▼] down buttons. When the maintenance monitor data no. is changed, the data no. will be displayed for two seconds, after which the data will appear.
3. With the remote controller in maintenance mode, the hot water set temperature and flow meter alarm cannot be adjusted.

<Returning to Normal Mode>

1. For releasing the indication, press and hold both [▲] and [▼] of the setting button simultaneously more than two 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 (Using Optional Remote Controller)

Data No.	Item	Data (Display Reading x Multiplier)		Minimum Value for Indication	Remarks
		Multiplier	Unit		
03	Total Plug-in Time	X 100	hour	100 hours	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 hours	Disp. Range [000] – [65]
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] – [65]
13	Neutralizer Life Cycle Counter	X 10	hour	10 hours	[000] – [1999]
14	Total Flow Rate	X 0.1	gal/min.	0.1 gal/min.	*1
		X 0.1	L/min.	0.1 L/min.	*2
15	Heat Exchanger Flow Rate (751, 841, 931 series, and N-1321M-ASME only)	X 0.1	gal/min.	0.1 gal/min.	*1
		X 0.1	L/min.	0.1 L/min.	*2
30	Inlet Thermistor Temperature Reading	X 1	°F	1°F	*1 **
		X 1	°C	0.5 °C	*2 **
31	Outlet Thermistor Temperature Reading	X 1	°F	1°F	*1 **
		X 1	°C	0.5 °C	*2 **
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		— — —	

*1 When RC-7649 is used.

*2 When RC-7650 is used.

** For NC380-SV-ASME/N-1321M-ASME, the multiplier value is X 0.1.

- To view the maintenance monitors of another unit in a multi-system or Quick Connection installation, press the FLOW METER ALARM SET button (while in monitor mode) to switch to the desired unit (NR98/NC199/N-0751M Series, NCC199/N-0841MC Series, NRC111/N-0842MC Series, NR111/NC250/N-0931M Series, and NC380-SV-ASME/N-1321M-ASME).

- If the Circuit Board needs to be replaced on a unit that has been operating for longer than 1 year, the neutralizer will also require replacement.

■ Neutralizer Life Cycle Warning and Replacement Procedures (NCC199/NRC111 and N-0841MC/N-0842MC series only)

• Neutralizer Life Cycle Counter Operation: Neutralizer Usage Estimate

When the water heater operates at full capacity, the life cycle counter will add 1 hour of neutralizer usage for approximately every hour of water heater usage time.

Life Cycle Warning Steps

1. Error code "92" will display on the remote controller when life cycle counter has reached 1114 hours (maintenance monitor will display "111").
2. Error code "92" will display on the remote controller and the maximum hot water capacity will be limited to 2.6 GPM when the life cycle counter has reached 1214 hours (maintenance monitor will display "121").
3. When the life cycle counter has reached 1314 hours (maintenance monitor will display "131"), error code "93" will display on the remote controller and the water heater will operate in safe mode only.

Note : When replacing the neutralizer, it is necessary to reset the life cycle counter; refer to the proceeding sections for instructions.

■ Neutralizer Replacement

Replace the neutralizer following the procedures below:

1. Disconnect electrical power to the unit.
2. Drain water from the neutralizer using the drain valve located underneath the water heater (Fig. 1).
3. Disconnect the relay connector, remove the fixing screw, and remove drain hose 1, drain hose 2, and the neutralizer drain hose (Fig. 1). Remove the neutralizer 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 your eyes or hands. If it comes into contact with your eyes or hands, rinse it off immediately with fresh water. Do not allow water from the drain hoses or neutralizer to leak into the water heater.
4. Connect the neutralizer drain hose (with pin clip) to the new neutralizer and install the neutralizer.

Reconnect drain hose 1 and drain hose 2 as well as the relay connector.

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. 1.

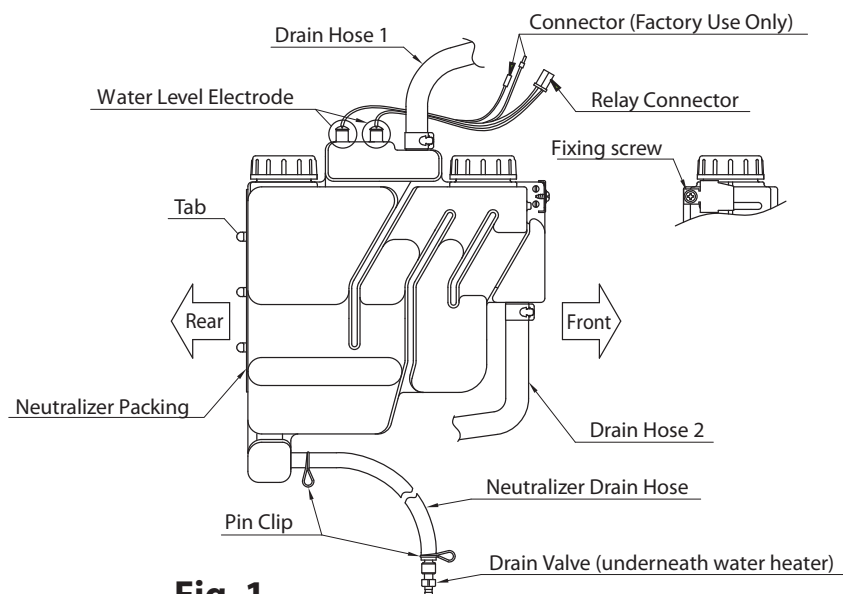


Fig. 1

Caution

5. Reset the Neutralizer Life Counter.
- 5-1 Reconnect electrical power to the unit.
- 5-2 Refer to the next section "Resetting the Unit" to reset the Neutralizer Life Counter at the circuit board.
- 5-3 Confirm that the neutralizer has been reset by using the Maintenance Monitors (refer to the section "Displaying Maintenance Monitors" for instructions). Maintenance Monitor number 13 should read "000" on the remote controller if a successful reset has been performed.

Danger

Prior to initial start up, make sure that you fill the neutralizer unit with water.
This is to prevent dangerous exhaust gases from entering the building.
Failure to fill the neutralizer unit could result in severe personal injury or death.
Refer to the installation manual or contact Noritz America Technical Support (866-766-7489) for instructions.

Disposal method of neutralizing agent (calcium carbonate) remaining in the neutralizer after replacement

The neutralizing agent is high purity calcium carbonate (limestone) and it does not contain chemical substances that are harmful to the environment. Dispose of the old neutralizer according to local waste regulations.

■ Resetting the Unit

Reset the Neutralizer Life Counter according to the procedures below after replacing the neutralizer:

<Resetting at the Circuit Board>

1. Within the first 10 minutes of connecting electrical power, with the unit turned off and no water passing through the unit, press "the Minimum Manifold Pressure Set Button" and "the Maximum Manifold Pressure Set Button" at the same time for 10 seconds (Fig. 2).
2. When the fan motor turns and the gas valve unit cycles ON/OFF (cycles of 2 seconds), the reset procedure is complete.

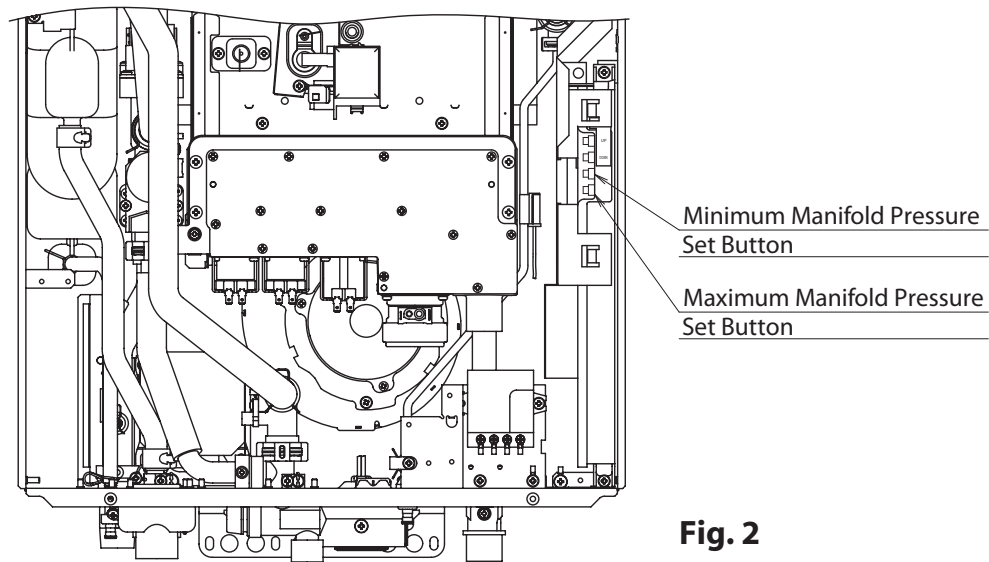


Fig. 2

■ Gas Line Requirements

All Noritz Tankless Water Heaters must be provided with a sufficient supply of gas in order to function properly. An undersized gas line could result in under heated water temperatures and an error code displayed on the operation panel. To verify a properly sized gas line, follow the below procedures. The gas line must provide at least the minimum stated pressure at the maximum firing rate. If the unit is being supplied gas from other than a dedicated line, it is recommended that the other appliances be turned on to ensure an adequate supply is available for the unit.

Gas Pressure

Size the gas line according to total btuh demand of the building and length from the meter or regulator so that the following supply pressures are available even at maximum demand:

NR50-OD NR66/531 Series NR71/631 Series	NCC199/841 Series NRC111/842 Series NR98/NC199/751 Series	NR111/NC250/931 Series NC380 Series/N-1321M Series
Natural Gas Supply Pressure Min: 4" WC Max: 10.5" WC		Natural Gas Supply Pressure Min: 5" WC Max: 10.5" WC
LP Gas Supply Pressure Min: 8" WC Max: 14" WC		LP Gas Supply Pressure Min: 10.5" WC Max: 14" WC

Gas Meter

Select a gas meter capable of supplying the entire btuh demand of all gas appliances in the building.

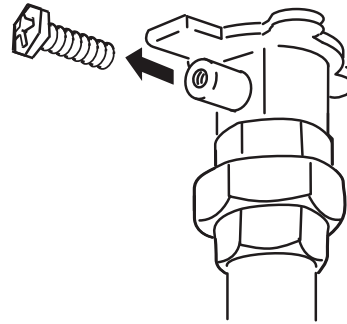
Gas Connection

- Do not use piping with a diameter smaller than the inlet diameter of the water heater.
- Gas flex lines are not recommended unless they are rated for max Btuh of the heater (see below).
- Install a gas shutoff valve on the supply line.
- Use only approved gas piping materials.

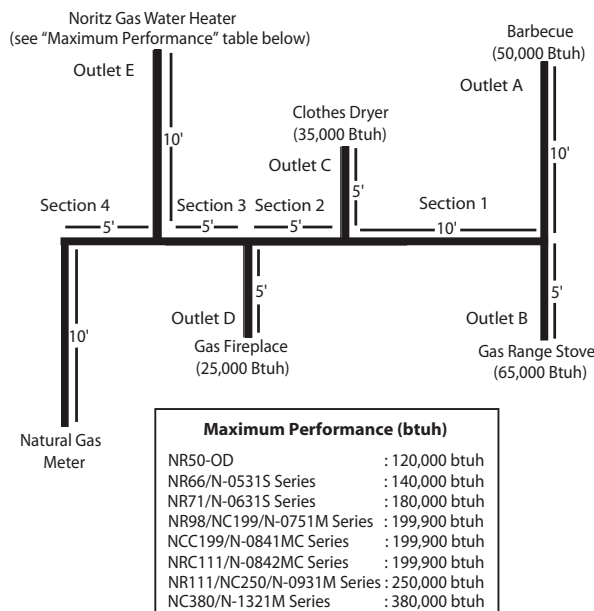
Measuring Gas Pressure

In order to check the gas supply pressure to the unit, a tap is provided on the gas inlet. Remove the hex head philips screw from the tap, and connect a manometer using a silicon tube.

In order to check the gas manifold pressure, a pair of taps are provided on the gas valve inside the unit. The pressure can be checked either by removing the hex head philips screw and connecting a manometer with a silicon tube, or by removing the 1/8" NPT screw with an allen wrench and connecting the appropriate pressure gauge.



Sample Gas Line



Instructions

1. Size each outlet branch starting from the furthest using the Btuh required and the length from the meter.
2. Size each section of the main line using the length to the furthest outlet and the Btuh required by everything after that section.

Sample Calculation

Outlet A: 45' (Use 50'), 50,000 Btuh requires 1/2"
 Outlet B: 40', 65,000 Btuh requires 1/2"
 Section 1: 45' (Use 50'), 115,000 Btuh requires 3/4"
 Outlet C: 30', 35,000 Btuh requires 1/2"
 Section 2: 45' (Use 50'), 150,000 Btuh requires 3/4"
 Outlet D: 25' (Use 30'), 25,000 Btuh requires 1/2"
 Section 3: 45' (Use 50'), 175,000 Btuh requires 1"
 Outlet E: 25' (Use 30'),
 180,000 Btuh requires 3/4" (NR71 Series)
 140,000 Btuh requires 3/4" (NR66 Series)
 120,000 Btuh requires 3/4" (NR50 Series)
 Section 4: 45' (Use 50'),
 355,000 Btuh requires 1-1/4" (NR71 Series)
 315,000 Btuh requires 1-1/4" (NR66 Series)
 295,000 Btuh requires 1-1/4" (NR50 Series)

Periodic Inspection

CAUTION



Be sure to do.

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

* = NR71 (-SV,-OD) and N-0631S (-OD) only



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



For abnormal sounds during operation.



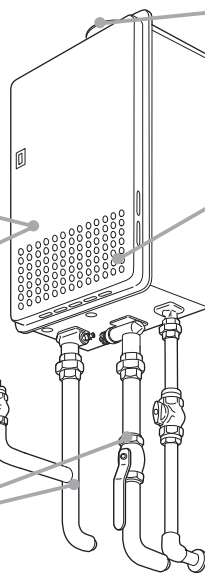
For abnormalities in external appearance, discoloration or flaws.



For proper operation of pressure relief valve.



For water leaks from the equipment and piping.



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



For dust or debris in the air inlet.

(Ex. NR71-SV/N-0631S)

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 water resistant but not waterproof. Keep it as dry as possible.

Periodic Maintenance

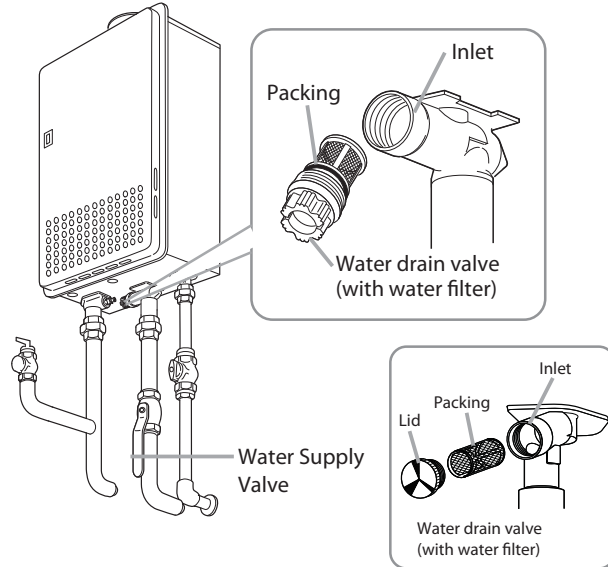
Water Drain Valve (with Water Filter)

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

* To avoid burns, wait until the equipment cools down before draining the water.

The appliance will remain hot after it is turned off.

1. Close the water supply valve.
2. Open all hot water fixtures.
3. With a bucket ready, remove the inlet and outlet drain plugs (up to 0.5 gal. will drain out)
4. Take the water drain valve (with water filter) out of the inlet. (See illustration to right).
5. Clean the water drain valve (with water filter) with a brush under running water.
6. Replace the water drain valve (with water filter) and close the drain plugs.
(Take care not to lose the packing.)
7. Close all hot water fixtures.
8. Open the water supply valve and check that water does not leak from the drain plugs or water drain valve (with water filter).



For NC380-SV-ASME/N-1321M-ASME

Periodic Maintenance

If the unit becomes saturated with lime or scale build-up, the hot water may not run smoothly, or the unit may put out cold water. In addition, damage can occur resulting in failure of the unit if lime or scale deposits are left untreated within the unit. To remove these deposits from the unit, follow the procedure as explained below. To ensure full warranty coverage, hard, acidic, or otherwise impure water should be treated with approved methods.

Note : Isolation valves will need to be installed in order to perform this procedure.

1. If not already on, turn the unit on with the Power Button on the Remote Controller.
2. Close the gas supply valve.
3. Close both the hot and cold water valves with a quarter turn of the main valve wing handle.
The handle will be perpendicular to the main valve body.
4. Ensure the drain valve lever handles are closed on both the hot and cold valves (the lever will be perpendicular to the drain portion of the body) and slowly remove drain caps. Be sure to retain the rubber washer inside of the drain cap.
5. Connect the pump outlet hose to the cold water drain valve of the isolation valve as shown in Figure 1.
6. Connect a drain hose to the hot water drain valve outlet of the isolation valve as shown in Figure 1.
7. Pour approximately 5 gallons of virgin food grade white vinegar or a solution of Lime Away (or CLR) and water (diluted 3 parts water to 1 part Lime Away or CLR) into a bucket.
8. Place both the pump inlet hose and the drain outlet hose into the pail.
9. Open both drain valve lever handles on the isolation valves.

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10. Turn the pump on. The unit will attempt to ignite (make sure that the gas has been turned off) and a number "11" should flash on the remote controller after about 1 minute. Do not reset the unit. Allow the solution to circulate for 45 minutes.

Note: It may take a few minutes to clear air out of the heater and hoses.

11. Turn the pump off and close the cold water drain valve of the isolation valve.
12. Remove the hose from the cold water drain valve and replace cap and washer onto the drain valve outlet.
13. Remove the pump and hose from the bucket and empty the solution.
14. Put the hot water drain hose end back into the empty bucket and open the cold water main valve wing handle. This procedure will flush out the heater with fresh cold water. Flush for at least 5 minutes or until 20 gallons of water has passed through the heater.

Note: For NRC/NCC/841/842 Series condensing models, carefully unscrew the water drain valve from the bottom of the water heater near the gas inlet to flush any residual solution from the system (see Figure 2). The system will be under pressure and the drain valve will only require a couple of turns to allow sufficient flow from the drain. Place a bucket under the unit and flush for about 10 seconds. Attempting to remove the drain valve completely could result in an excessive leak.

15. Close the cold water main valve wing handle and clean the water inlet filter. Place the filter back into the unit.
16. Close the hot water drain valve lever handle, remove the drain hose and replace cap and washer onto the hot water drain valve outlet.
17. Open both the hot and cold water main valve wing handles. Wing handles should now be (OPEN) parallel to the main valve body and lever handles should be (CLOSED) perpendicular to the drain portion of the body, which is the normal operating position.
18. Open the gas supply valve and reset the unit by turning the power off and then on again using the Power Button on the Remote Controller. If no Remote Controller is installed, disconnect, then reconnect electrical power to the unit in order to reset the system.

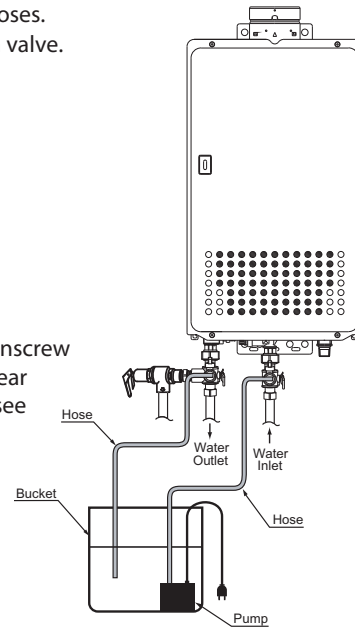


Figure 1. Flush Set-up

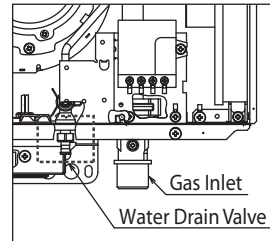


Figure 2. Water Drain Valve on Condensing Models

<NR50-OD, NR66/N-0531S Series, NR71/N-0631S Series>

■ Changing Default Temperature Setting

* The water heater has been factory set to allow a maximum temperature setting of 120°F. To access higher temperature settings through the remote controller, follow the below steps.

- The NR50-OD can be programmed so that it will default to one of four temperatures (140, 135, 130, 120°F) while the NR66/N-0531S and NR71/N-0631S can be set to one of three temperatures (140, 130, 120°F) when the optional remote controller is not connected. To change the default temperature, connect the temperature selection wire as shown in the below diagram.

Note: If the 160°F connector is being used, the unit will automatically default to a temperature of 120°F (135°F for the NR50-OD) when the remote controller is not installed.

- * The water heater has been factory set to allow a maximum temperature setting of 120°F. To access higher temperature settings with the optional remote controller installed, follow the below steps. The unit can only be set to temperatures in the range of 145-160°F when the optional remote controller is installed.

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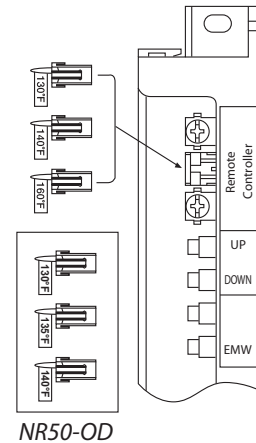
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<When setting the maximum temperature to 125-140°F>

1. Turn the water heater off by pressing the ON/OFF button on the remote controller.
2. Press and hold the FLOW METER ALARM SET button until a sound is heard (2 sec.) and "120°F" appears on the display.
3. Set the upper limit of the hot-water supply temperature to 125°F, 130°F, 135°F or 140°F using the UP and DOWN setting buttons.
4. To put the water heater back into operation, press the ON/OFF button on the remote controller.
To keep the water heater off, let the unit sit for 30 sec. to return to the original display.

<When setting the maximum temperature to 125-160°F>

1. Turn the water heater off by pressing the ON/OFF button on the remote controller.
2. Disconnect electrical power to the water heater.
3. Remove the front cover of the water heater (4 screws).
4. Locate the bag of temperature selection wires attached to the inside of the unit in the bottom left corner.
5. Connect the temperature selection wire labeled "160°F" to the circuit board as shown on the right.
6. Replace the front cover of the water heater (4 screws).
7. Reconnect electrical power to the water heater, but do not turn it on.
8. Press and hold the FLOW METER ALARM SET button until a sound is heard (2 sec.) and "120°F" appears on the display.
9. Set the upper limit of the hot-water supply temperature to 125°F, 130°F, 135°F, 140°F, 145°F, 150°F, 160°F using the UP and DOWN setting buttons.
10. To put the water heater back into operation, press the ON/OFF button on the remote controller.
To keep the water heater off, let the unit sit for 30 sec. to return to the original display.



<NR98/NC199/N-0751M Series, NCC199/N-0841MC Series, NRC199/N-0842MC Series, NR111/NC199/N-0931M Series>

■ Changing Default Temperature Setting

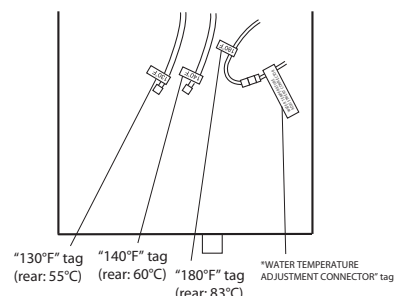
- * The water heater has been factory set to allow a maximum temperature setting of 120°F.
To access higher temperature settings through the remote controller, follow the below steps.
- * When using the remote controller with a multi-system controller, the maximum temperature of the water heater can be set up to 180°F without making the following settings.
 - When changing the temperature, make sure to confirm with the customer that the temperature of the hot water will be very high and that there is a risk of scalding.
 - Water temperatures above 125°F can cause severe burns or death from scalding.

<When setting the maximum temperature to 125-140°F>

1. Turn the water heater off by pressing the ON/OFF button on the remote controller.
2. Press and hold the FLOW METER ALARM SET button until a sound is heard (2 sec.) and 120°F appears on the display.
3. Set the upper limit of the hot-water supply temperature to 125°F, 130°F, 135°F or 140°F using the UP and DOWN setting buttons.
4. To put the water heater back into operation, press the ON/OFF button on the remote controller.
To keep the water heater off, let the unit sit for 30 sec. to return to the original display.

<When setting the maximum temperature to 125-180°F>

1. Turn the water heater off by pressing the ON/OFF button on the remote controller.
2. Disconnect electrical power to the water heater.
3. Remove the front cover of the water heater (4 screws).
4. Connect "WATER TEMPERATURE ADJUSTMENT CONNECTOR" tag connector to "180°F" tag connector as shown on the right.
5. Replace the front cover of the water heater (4 screws).
6. Reconnect electrical power to the water heater, but do not turn it on.
7. Press and hold the FLOW METER ALARM SET button until a sound is heard (2 sec.) and 120°F appears on the display.
8. Set the upper limit of the hot-water supply temperature to 125°F, 130°F, 135°F, 140°F, 145°F, 150°F, 160°F, 170°F or 180°F using the UP and DOWN setting buttons.
9. To put the water heater back into operation, press the ON/OFF button on the remote controller. To keep the water heater off, let the unit sit for 30 sec. to return to the original display.



- The water heater can be programmed so that it will default to one of four temperatures if the remote controller is removed (180, 140, 130, 120°F). To change the default temperature, connect the temperature selection wire as shown in the above diagram. The default temperature is 120°F when the temperature selection wire is not connected.

<NC380-SV-ASME / N-1321M-ASME>

■ Changing Default Temperature Setting

- * The NC380-SV-ASME / N-1321M-ASME can be programmed so that it will default to one of four temperatures if the remote controller is removed (180, 140, 130, 120°F). To change the default temperature, the remote controlled must be initially installed, and removed after programming.

1. Within the first ten minutes of connecting electrical power to the unit, but before pressing the Power On/Off button, hit the UP or DOWN button on the remote controller. This will put the unit into maintenance writer mode, unplug the unit for sixty seconds and try again.
2. The maintenance monitor item number will flash on the display. (the initial item number will be "99").
3. The UP and DOWN buttons can be used to change the maintenance writer item number.
4. Choose a temperature from the chart below and set the 14 and 15 maintenance writers according to the chart below. Pressing the Flow Meter Alarm Set button for 0.5 seconds will switch the indicated item number from "OFF" to "ON" or "ON" to "OFF". If the Priority Lamp is flashing when an item number is displayed, this indicates an "ON" setting from that item number, and if the Priority lamp is off, the item number is off.
5. After setting the 14 and 15 item numbers for the desired temperature, press and hold the UP and DOWN buttons together for five seconds to confirm the new settings. The remote controller will emit a tone when the settings are confirmed. If this is not done, the unit will not put the setting changes into effect. After confirming the setting, remove the remote controller to initiate the default temperature setting.

NOTE: The setting changes can be cancelled by pressing the Power On/Off button before confirming the settings, or if the unit is left alone for ten minutes without confirming the settings. If the default setting needs to be changes again, disconnect the electrical power to the unit, reconnect it and follow this procedure again.

<NC380-SV-ASME/N-1321M-ASME>

Temp. \ Item No.	14	15
180°F	ON	ON
140°F	OFF	ON
130°F	ON	OFF
120°F*	OFF	OFF

* Factory Default Setting

■ Draining the Water for Maintenance or for Freeze Prevention :

CAUTION



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

Drain water into a bucket to prevent water damage.

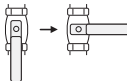
Drainage Using the Remote Controller (NCC/NRC/841/842 series only)

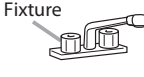
- 1 (1) Turn the power on/off button "off".

- (2) Press the flow meter alarm set button for about two seconds until the alarm sounds. The maximum hot water temperature will flash.


(Ex. 120°F)
- (3) Press the flow meter alarm set button again.

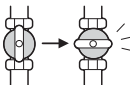
- (4) Press the setting button marked "UP". The display will change from "oF" to "on" after the button is pushed.


- 2 Close the water supply valve.


- 3 Fully open all hot water fixtures.


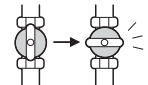
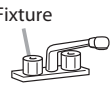
- 4 Open all drain plugs and drain the water out of the unit.

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

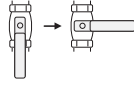
- 6 Close the gas valve and disconnect the electrical power supplied to the unit.


Do not touch with wet hands.

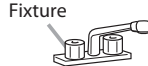
Manual Draining

- 1 Close the gas valve.

- 2 (1) Turn the power on/off button "On".
 (2) Turn and leave open the hot water fixtures 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.

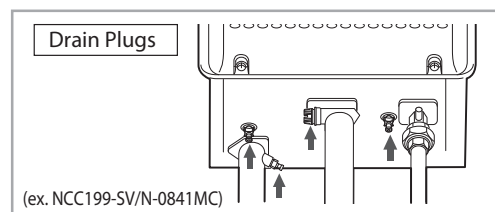
- 3 Close the water supply valve and disconnect the electrical power supplied to the unit.


Do not touch with wet hands.

- 4 Fully open all hot water fixtures.


- 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.



9. 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 2000 ft., the combustion may become abnormal because of the thinness of the air. The unit must be configured for high elevation installations by disconnecting the "High Elevation Disconnect" jumper 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 29 PSI 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 #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 Btu rating of the heater.

Air Supply and Vent Pipe

■ Before installation, note the following:

- Vent pipe diameters and maximum vent length:

Vent Pipe Diameter	ø 4 inches
Maximum Vent Length	15 feet with 3- 90° elbows*

*Refer to venting specifications for other configurations.

For all -DV models, refer to the installation manual for proper venting configurations.

- 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 neutralizer unit can be filled before connecting the vent pipe.

Filling the Neutralizer Unit before Vent Pipe Installation.

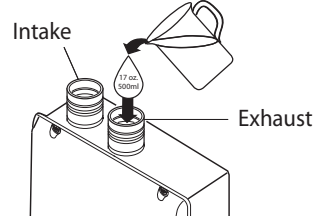


DANGER

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

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

- 1) Fill the neutralizer unit by pouring approx. 17 oz. (500ml) 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 15 minutes of use. However, depending on the season and/or installation site conditions, it may take longer.)

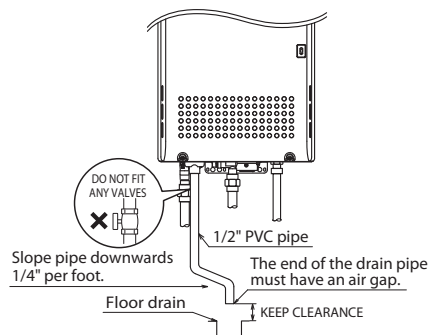
Electrical

- The electrical power supply to the unit should be installed by a qualified electrician.
 - Allocate 2A 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 (all MC models only)

- NCC199/N-0841MC/NRC111/N-0842MC series is a high efficiency, fully condensing appliance which produces condensate during operation. The water heater incorporates a collection, neutralization, and removal system which must be properly drained in order to ensure proper operation of this appliance.
- The water heater is supplied with a pre-installed condensate neutralization system. No additional neutralizer is required unless local code dictates otherwise.
- 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".
- Use plastic pipe, 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 water.
- 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 2 GPH from the water heater.
- Horizontal runs must be sloped 1/4" per foot towards the drain or condensate pump.
- The end of the drain pipe must not be submerged in water or blocked in any way.
- 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

