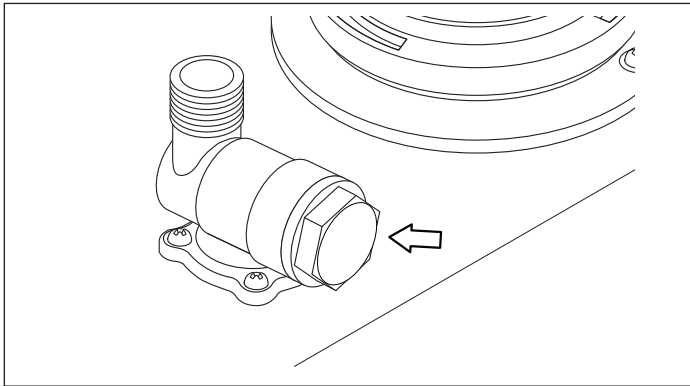


14. Maintenance

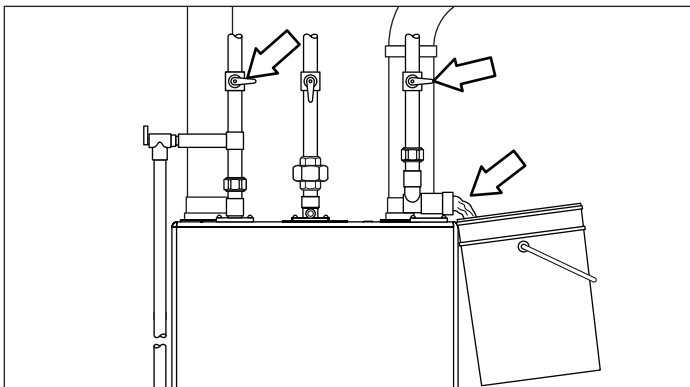
14.1 Cleaning the Inlet Water Strainer

All the water heaters are equipped with a sediment strainer on the inlet water connection.

Initially, this strainer should be inspected and cleaned every three months to establish a cleaning schedule.

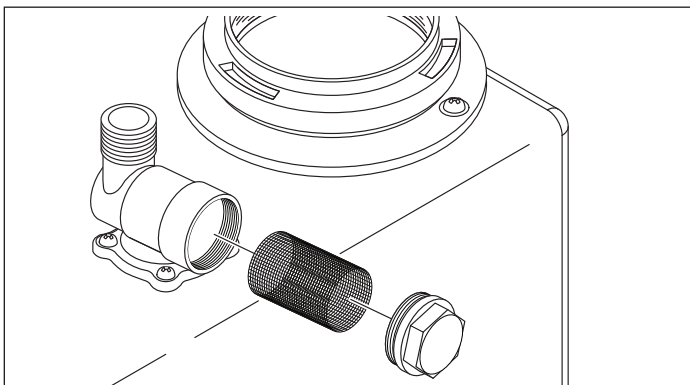


1. Turn OFF electrical power.
2. Position a container under the strainer on the water inlet pipe. The container must be large enough to hold the volume of water contained in the pipe coming to the water heater.
3. Close the water inlet and outlet valves (arrow) and remove the strainer's plug. Allow the water to drain from the pipe.



Note: If a water shut-off valve was not installed, shut OFF the main water supply valve.

4. Remove the strainer screen, clean it, and reinstall it in the housing.



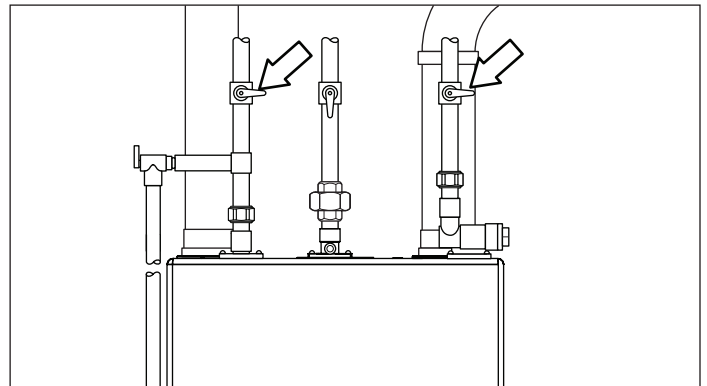
5. Replace the strainer's plug.

14.2 Draining the Water Heater

CAUTION

Hot water can cause burns to the skin. The water temperature is factory set to 120°F (49°C). To avoid burns, make sure the water heater is OFF and the power supply is disconnected. The water heater will remain hot for some time. Wait until the unit has completely cooled before draining the water heater or performing any other maintenance.

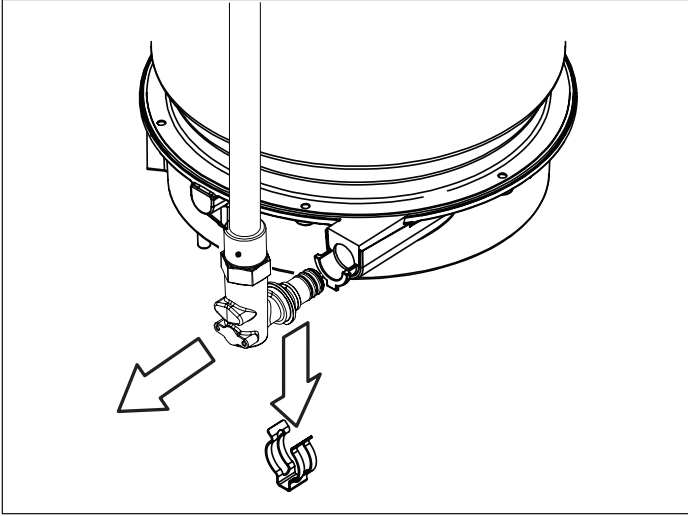
1. Press the Power button to turn OFF the water heater. Disconnect the electrical power.
2. Close the water supply inlet and outlet valves. The valve is closed typically when the handle is perpendicular to the pipe, as shown in the illustration.



3. Remove the front cover panel. Place a container or other method to retain/divert the water under the heat engine inlet.

Note: The water heater contains approximately one-half gallon of water. Make sure there is enough capacity to contain or divert the water from inside the water heater cabinet.

4. Remove the clip holding the pipe into the heat engine.
Flex the pipe enough to allow the water to drain from the heat engine.



Note: Do not allow the water to pool or stand in the bottom of the water heater cabinet. Remove any spilled water with a clean, dry cloth.

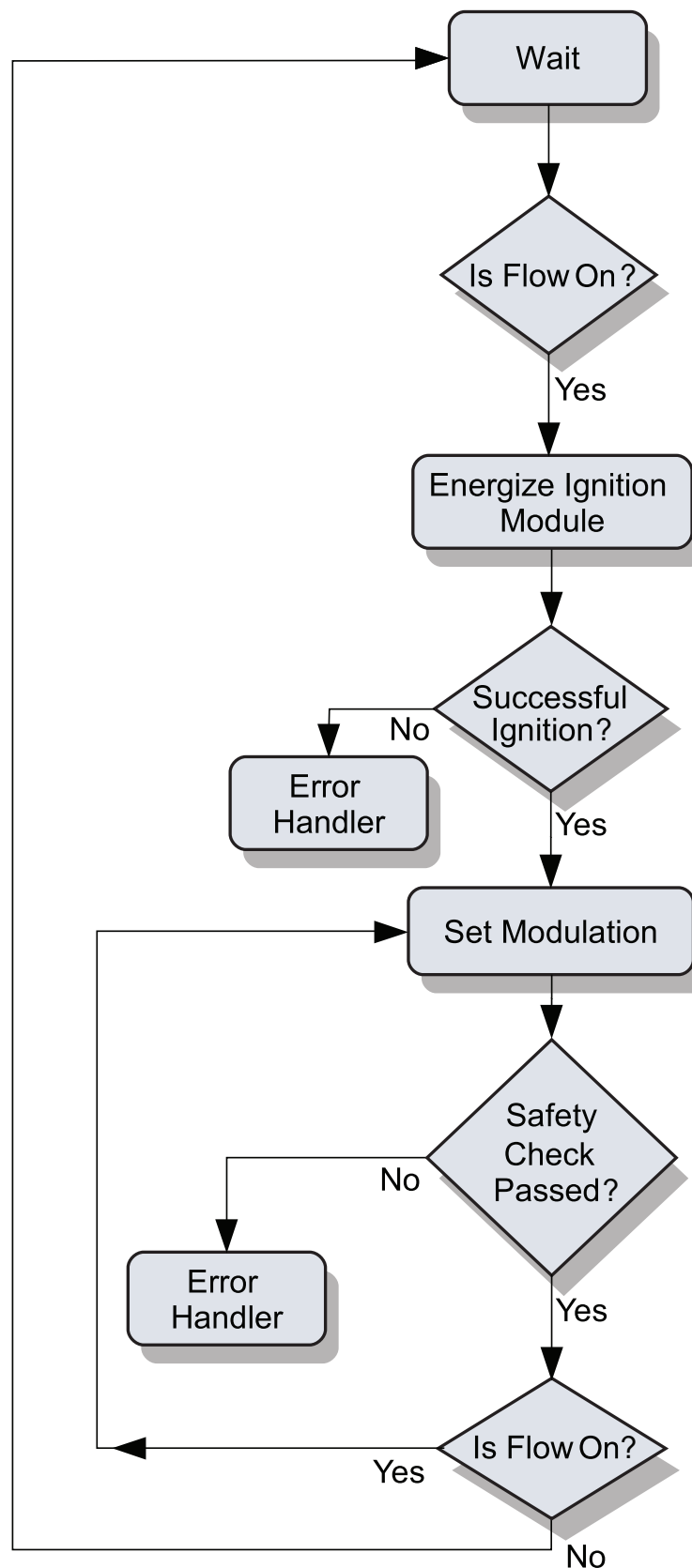
5. When all the water has drained from the water heater, replace the pipe and the clip.

14.3 Filling the Water Heater

1. Open the hot water outlet valve. Slowly open the cold water inlet valve.
2. Open a hot water faucet. Once a steady stream of water flows and all the trapped air is purged from the system, close the hot water faucet.
3. Plug the unit into an electrical power supply.
4. Open a hot water faucet. The water heater should operate normally.

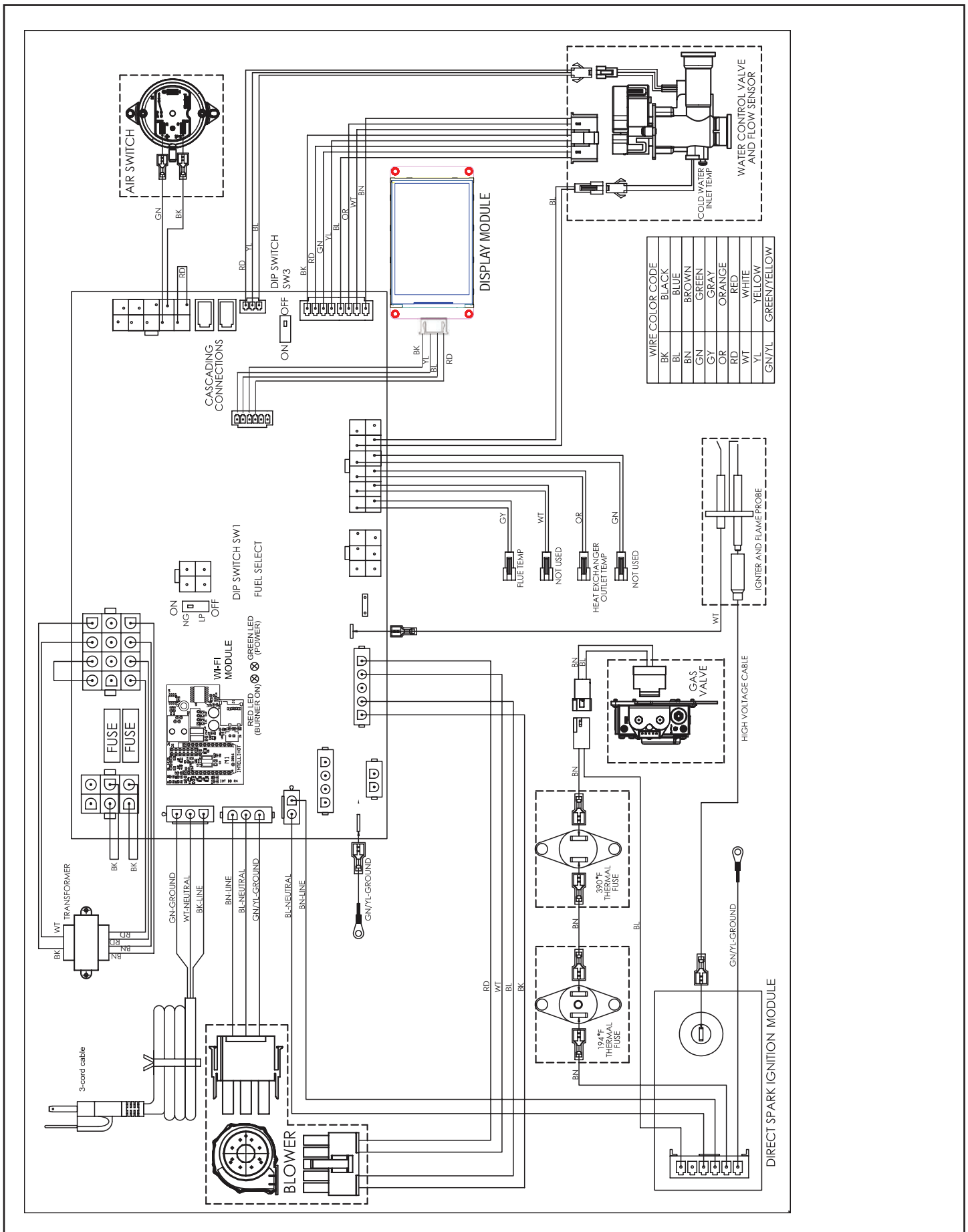
15. Wiring Diagrams and Troubleshooting

15.1 Operational Flow Chart



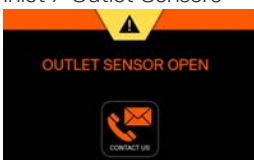

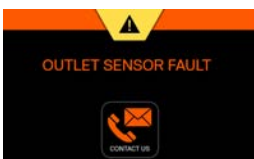
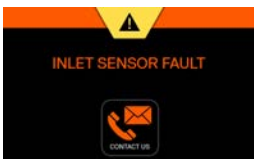



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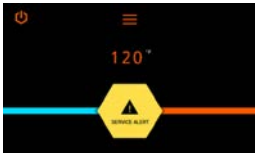
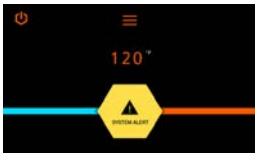





15.2 Complete Wiring Diagram (all models)



15.3 Troubleshooting Guide

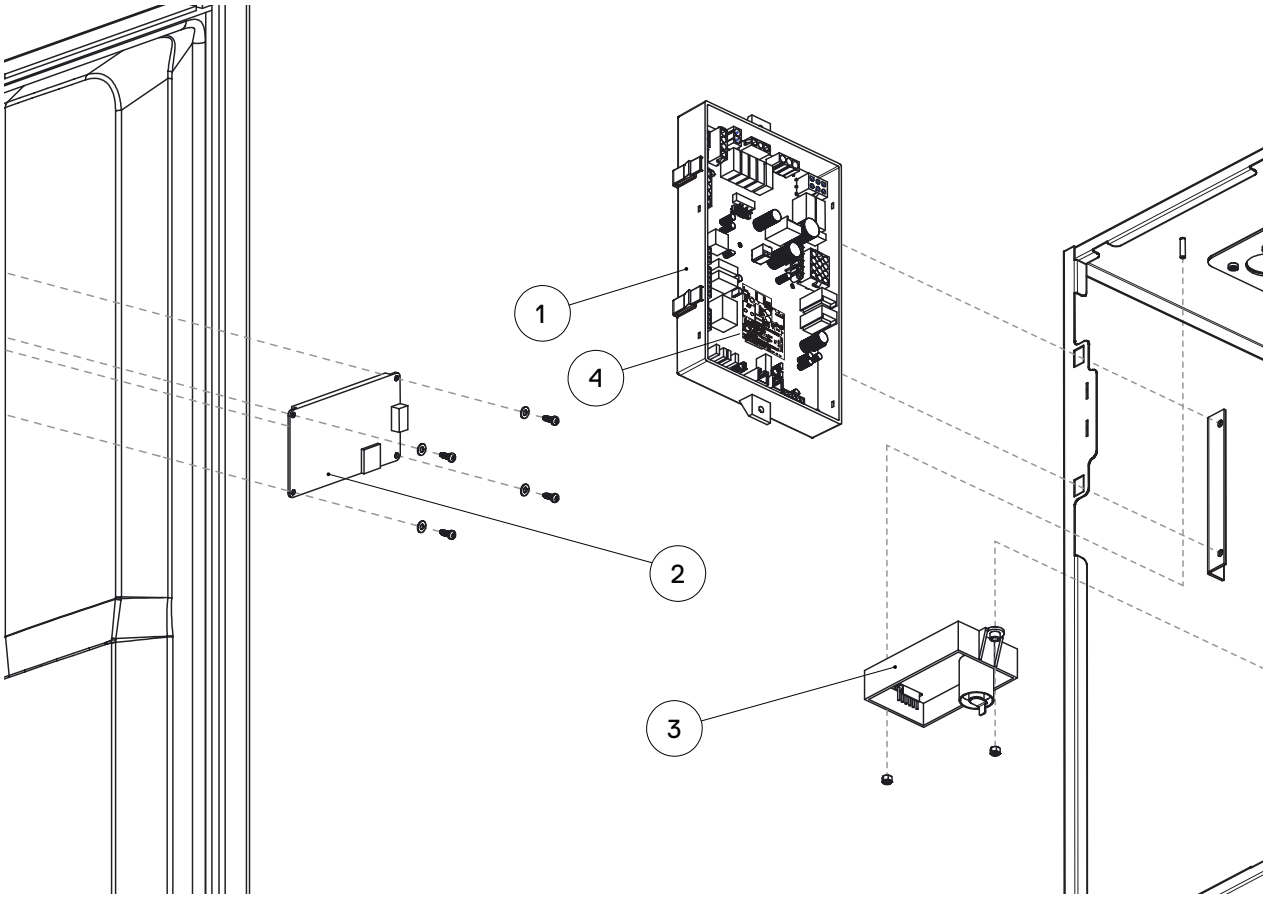
Description	Possible Cause	Remedy
Blower Speed Fault 	<ul style="list-style-type: none"> • Blower noisy / impeller jammed. • Disconnected signal wire. • Wiring faulty. 	<ul style="list-style-type: none"> • Inspect blower / impeller. Clean and remove any obstructions. • Check PWN signal. Check for loose wires / pins, and repair. • If the problem persists, turn control panel OFF, shut OFF gas valve, disconnect power from unit, and contact an authorized service technician.
Igniter Ignition Failure 	<ul style="list-style-type: none"> • Water over-heat switch tripped. • Faulty DSI, faulty igniter wire, faulty ignition connection, faulty PCB, bad igniter. • Low gas pressure. • Wiring faulty. 	<ul style="list-style-type: none"> • Check the pump, cross-over solenoid, and for electrical noise (DSI). • Replace part. • Adjust gas pressure at regulator, check / increase size of gas pipe, check for gas pipe blockage. • If the problem persists, turn control panel OFF, shut OFF gas valve, disconnect power from unit, and contact an authorized service technician.
Open Sensors Inlet / Outlet Sensors  	<ul style="list-style-type: none"> • Unplugged connectors. • Faulty sensor wiring. • Faulty sensor. • Heat engine water outlet temperature sensor. • Flue temperature sensor. • Inlet water temperature sensor. • Faulty controller. 	<ul style="list-style-type: none"> • Check connectors and ensure they are securely connected. • Check for nicked or broken sensor wiring or connectors. Also check for corroded or wet connectors. • Measure resistance of sensor at connector (18 kΩ at 50°F, 10 kΩ at 77°F, 3 kΩ at 140°F). • Replace controller.
Faulty Sensors Inlet / Outlet Sensors  	<ul style="list-style-type: none"> • Faulty sensor wiring or faulty sensor. • Inlet water temperature sensor. • Heat engine water outlet temperature sensor. • Faulty controller. 	<ul style="list-style-type: none"> • Check for nicked or broken sensor wiring or connectors. Also check for corroded or wet connectors. • Measure resistance of sensor at connector (18 kΩ at 50°F, 10 kΩ at 77°F, 3 kΩ at 140°F). • Replace controller.
Heat Engine Outlet temperature exceeded set limit 	<ul style="list-style-type: none"> • Flow rate changes excessive. • Faulty sensor wiring. • Faulty sensor. • Faulty controller. 	<ul style="list-style-type: none"> • Ensure the water flow rate does not change faster than 1 GPM every five seconds. • Check for nicked or broken sensor wiring or connectors. Also check for corroded or wet connectors. • Measure resistance of sensor at connector (18 kΩ at 50°F, 10 kΩ at 77°F, 3 kΩ at 140°F). • Replace controller.

Description	Possible Cause	Remedy
Flue Temperature Exceeded Set Limit 	<ul style="list-style-type: none"> • Incorrect vent set up. • High inlet temperature. • Faulty sensor wiring. • Faulty sensor. • Faulty controller. 	<ul style="list-style-type: none"> • If vent pipe material is CPVC or polypropylene, ensure that CPVC is selected in the vent material screen. • Ensure inlet temperature is lower than 150°F if vent pipe material is PVC or lower than 190°F if vent pipe material is CPVC or polypropylene. • Check for nicked or broken sensor wiring and connectors. Also check for corroded or wet connectors. • Measure resistance of sensor at connector (18 kΩ at 50°F, 10 kΩ at 77°F, 3 kΩ at 140°F). • Replace controller.
Blocked Flue Fault 	<ul style="list-style-type: none"> • Exhaust blocked (bird, etc). • Backed up condensate. • Wiring loose (switch open). 	<ul style="list-style-type: none"> • Check exhaust termination. Check exhaust connection at water heater. Install screens to prevent blockage. • Check slope of drain. Check for double loops, air locks, or debris in loop. • Check wiring.
Flue sensor  	<ul style="list-style-type: none"> • Unplugged connectors. • Faulty sensor wiring. • Faulty sensor. • Flue temperature sensor. • Inlet water temperature sensor. • Faulty controller. 	<ul style="list-style-type: none"> • Check connectors and ensure they are securely connected. • Check for nicked or broken sensor wiring or connectors. Also check for corroded or wet connectors. • Measure resistance of sensor at connector (18 kΩ at 50°F, 10 kΩ at 77°F, 3 kΩ at 140°F). • Replace controller.
Cascading Fault 	<ul style="list-style-type: none"> • Loss of communication between units. 	<ul style="list-style-type: none"> • Check for broken or nicked communication cable or loose connector. • Ensure that the communication cable is not bundled or tied to any high voltage lines. • Ensure dip switch (SW3) is ON in first and last units and OFF in all other units. • Ensure each unit numbering is unique.
Water Valve 	<ul style="list-style-type: none"> • Faulty sensor wiring. • Water valve is damaged or inlet strainer is clogged. 	<ul style="list-style-type: none"> • Check for nicked or broken sensor wiring or connectors. Also check for corroded or wet connectors. • Replace water valve and/or clean strainer.
Software  	<ul style="list-style-type: none"> • Incorrect settings. • Incompatible settings. • Incorrect software version. • Faulty wiring. 	<ul style="list-style-type: none"> • Review and correct settings. • Review and correct settings. • Update software version. • Check for nicked or broken sensor wiring or connectors. Also check for corroded or wet connectors.

Description	Possible Cause	Remedy
System Alert 	<ul style="list-style-type: none"> • A system alert is present (main menu screen). • Malfunction of monitored part or system. 	<ul style="list-style-type: none"> • Refer to the remedy for indicated part or system.
Fault 	<ul style="list-style-type: none"> • A fault or error is present (main menu screen). • Malfunction of monitored part or system. 	<ul style="list-style-type: none"> • Refer to the remedy for indicated part or system.
Alert / Error / Fault  	<ul style="list-style-type: none"> • An alert, fault, or error is present (active screen). • Malfunction of monitored part or system. 	<ul style="list-style-type: none"> • Refer to the remedy for indicated part or system.
Alive     	<ul style="list-style-type: none"> • Shows status of water heater. • Sleep mode. • Sleep mode passcode protected. • Indicates a service problem exists within the monitored parts. • Indicates an alert exists within the monitored systems. • Indicates a fault exists within the monitored parts or system. 	<ul style="list-style-type: none"> • Touch display screen to awake. • Touch display screen to awake and enter passcode. • Refer to the remedy for indicated part or system. • Refer to the remedy for indicated part or system. • Refer to the remedy for indicated part or system.

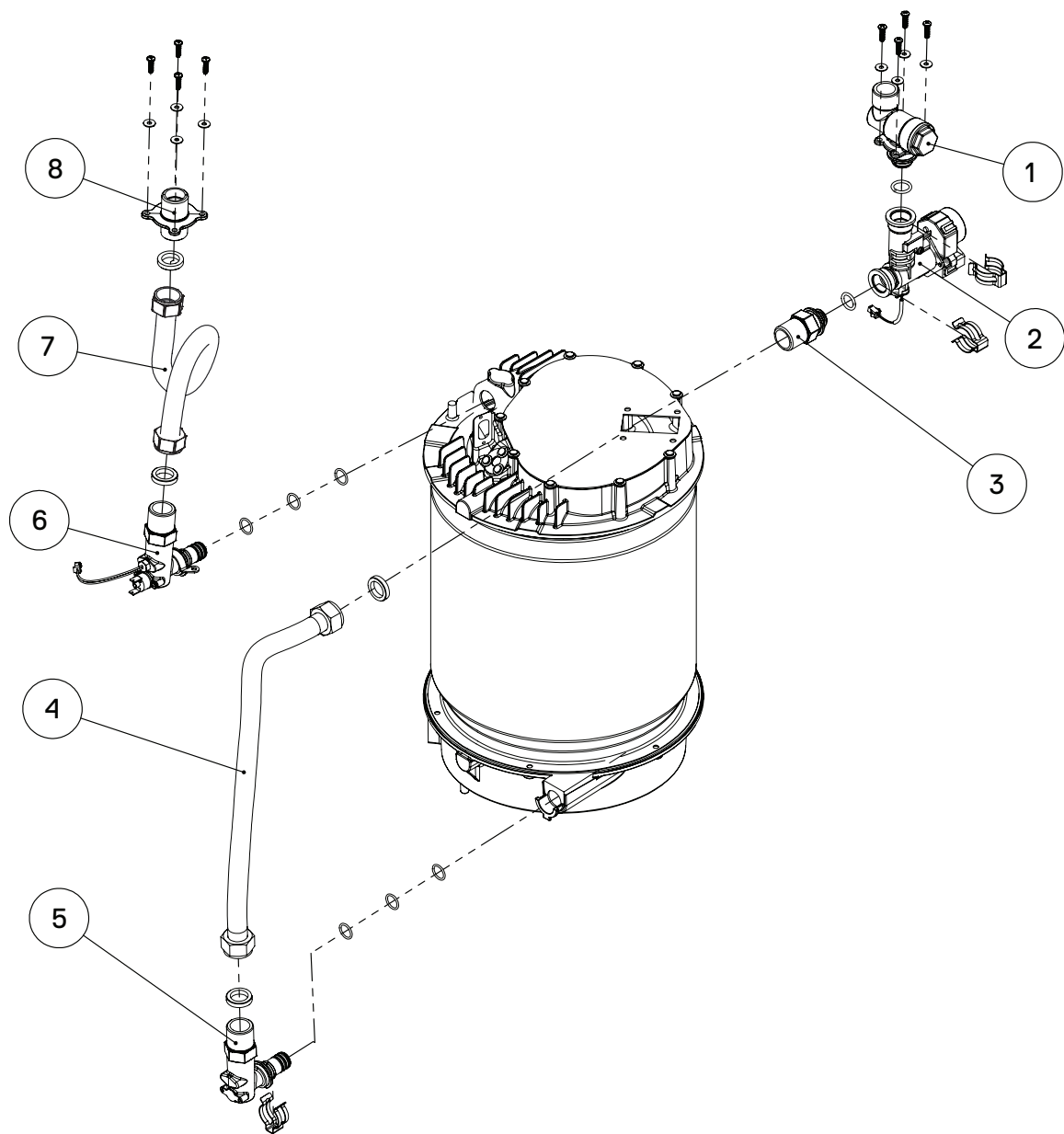
16. Serviceable Parts

16.1 Electrical Components



ITEM NO.	PART NUMBER	DESCRIPTION
1	IGT-SPR0002	CONTROLLER
2	IGT-SPR0089	DISPLAY
3	IGT-SPR0005	IGNITER MODULE
4	IGT-SPR0085	WI-FI MODULE

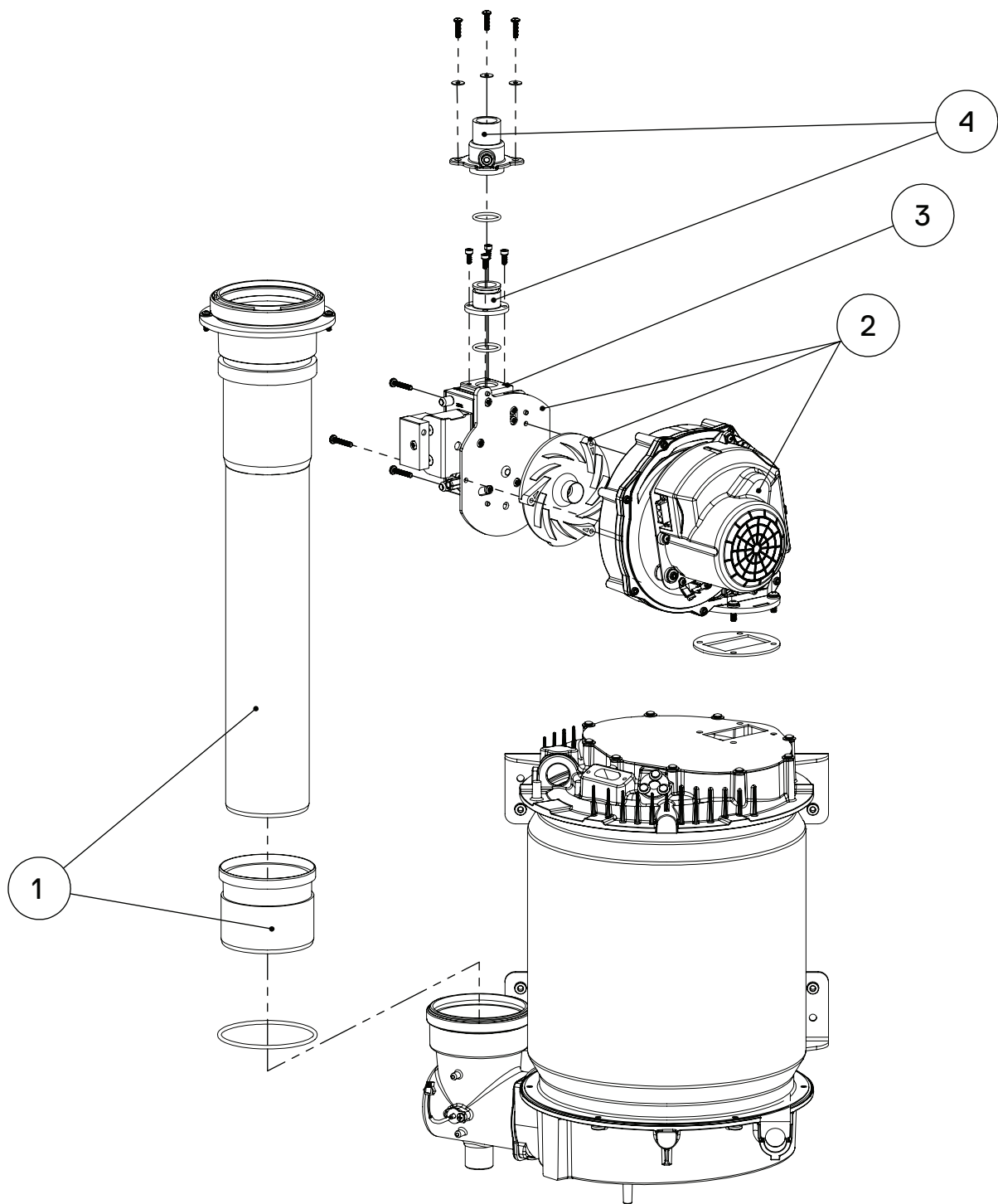
16.2 Water Lines and Fittings



ITEM NO.	PART NUMBER	DESCRIPTION
1	IGT-SPR0001	WATER INLET FITTING (3/4" NPT)
2	IGT-SPR0003	FLOW SENSOR ASSEMBLY
3	IGT-SPR0007	FLOW SENSOR OUTLET FITTING
4	IGR-SPR0009	HEAT EXCHANGER INLET LINE (SS)
5	IGT-SPR0010	HEAT EXCHANGER INLET FITTING
6	IGT-SPR0012	HEAT EXCHANGER OUTLET FITTING
7	IGT-SPR0013	HEAT EXCHANGER OUTLET LINE (SS)
8	IGT-SPR0014	WATER OUTLET FITTING (3/4" NPT)

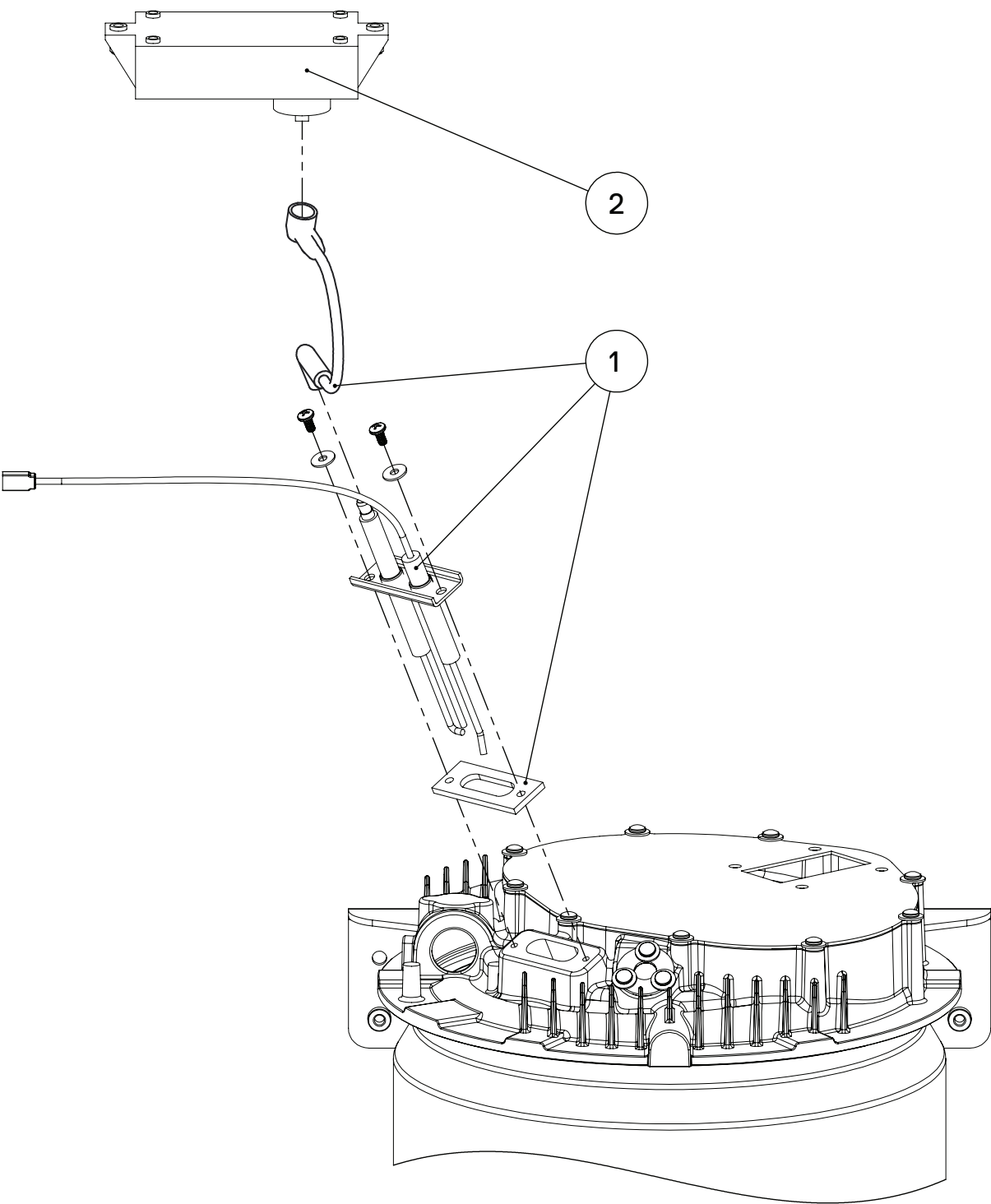
16.3 Blower, Gas Valve, and Exhaust

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ITEM NO.	PART NUMBER	DESCRIPTION
1	IGT-SPR0017	FLUE PIPE ASSEMBLY (PP)
2	IGT-SPR0008	BLOWER ASSEMBLY
3	IGT-SPR0011	GAS VALVE ASSEMBLY
4	IGT-SPR0016	GAS INLET FITTING

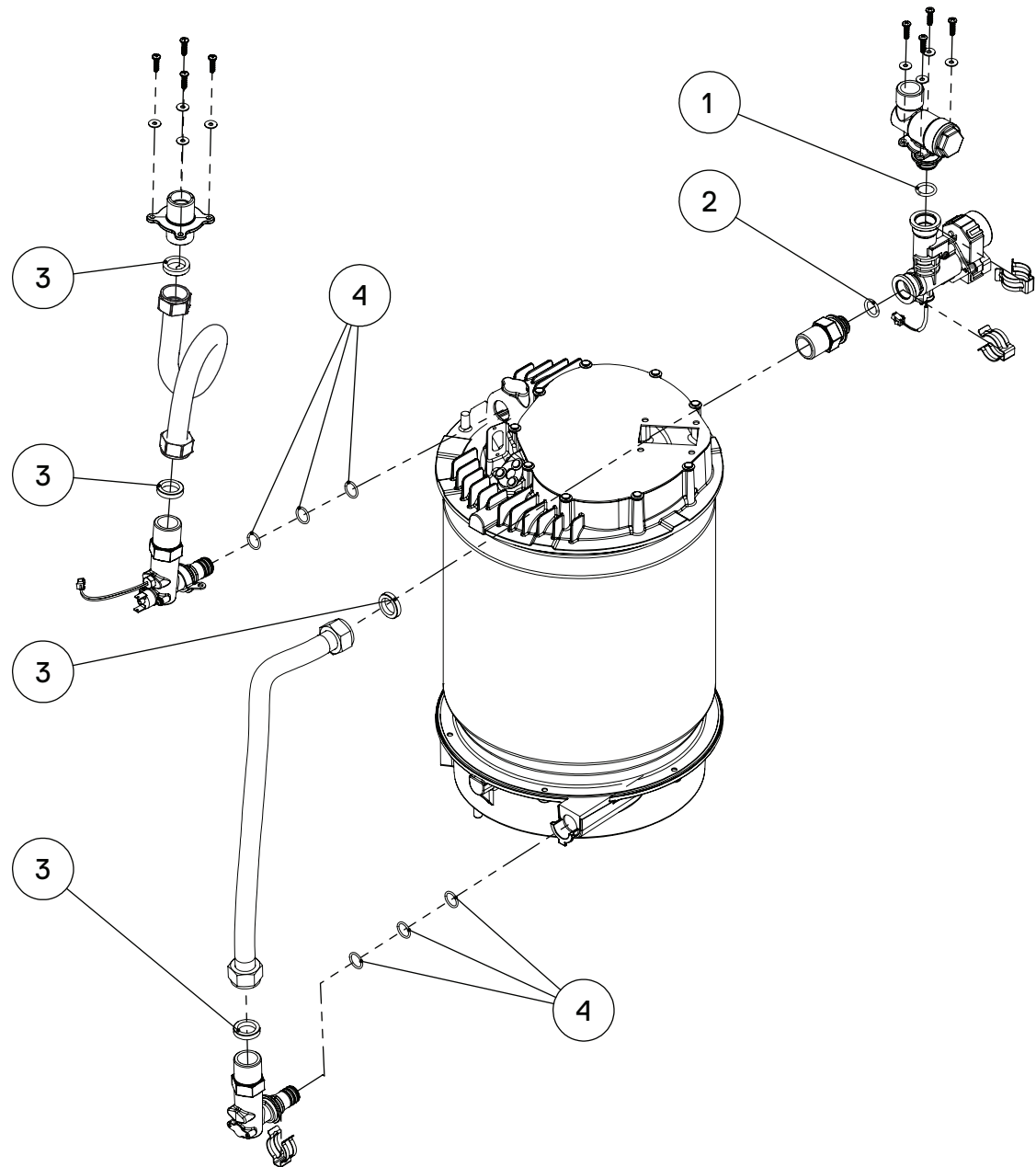
16.4 Ignition Components

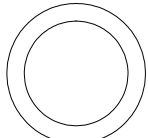


ITEM NO.	PART NUMBER	DESCRIPTION
1	IGT-SPR0006	ELECTRODE KIT
2	IGT-SPR0005	IGNITER MODULE

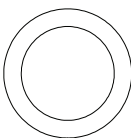
16.5 Water Side Seals

IQ-005

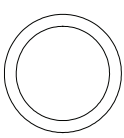




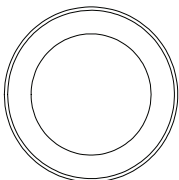
O-RING #114



O-RING #113



O-RING #015



FACE SEAL

O-RING LAYOUT
SCALE 1:1

O-RING KIT
IGT-SPR0015

ITEM NO.	DESCRIPTION	QTY.
1	O-RING #114	1
2	O-RING #113	1
3	FACE SEAL	4
4	O-RING #115	6