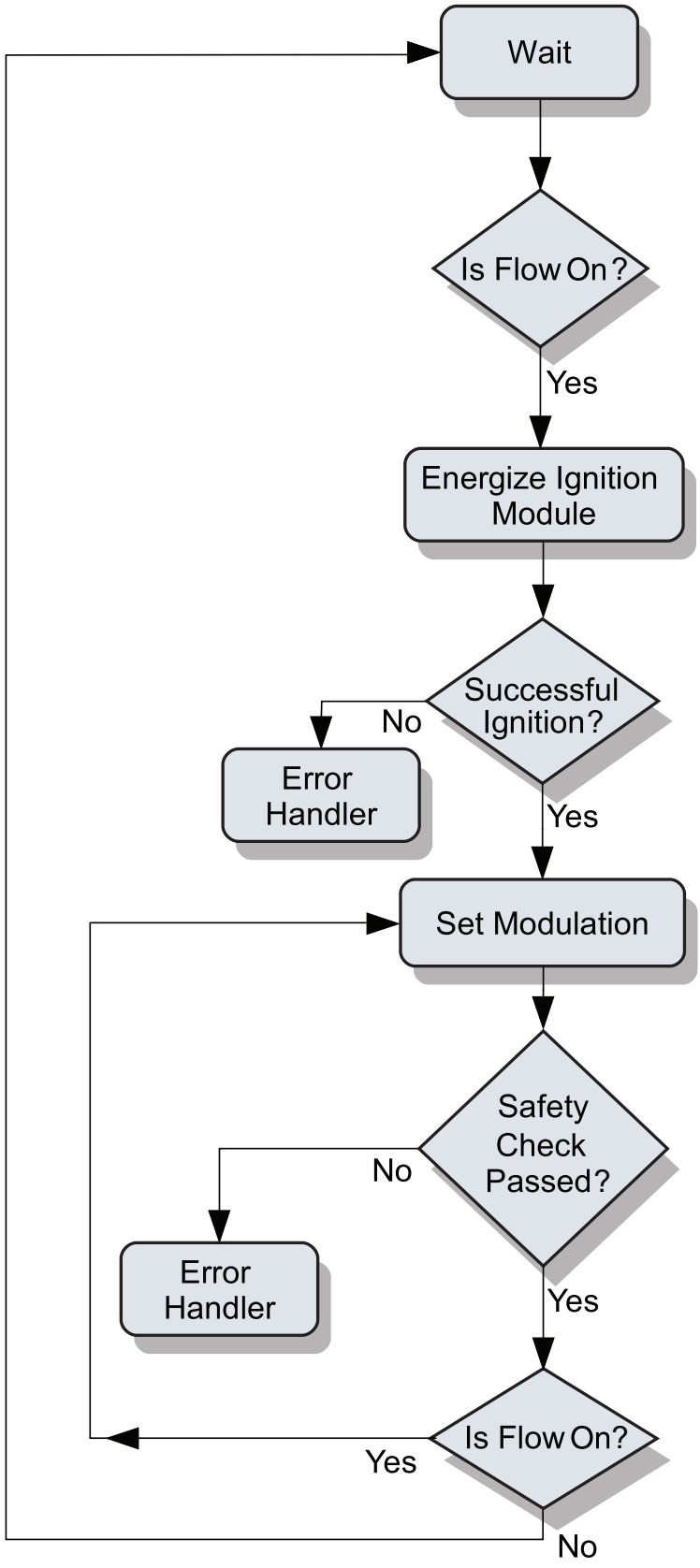
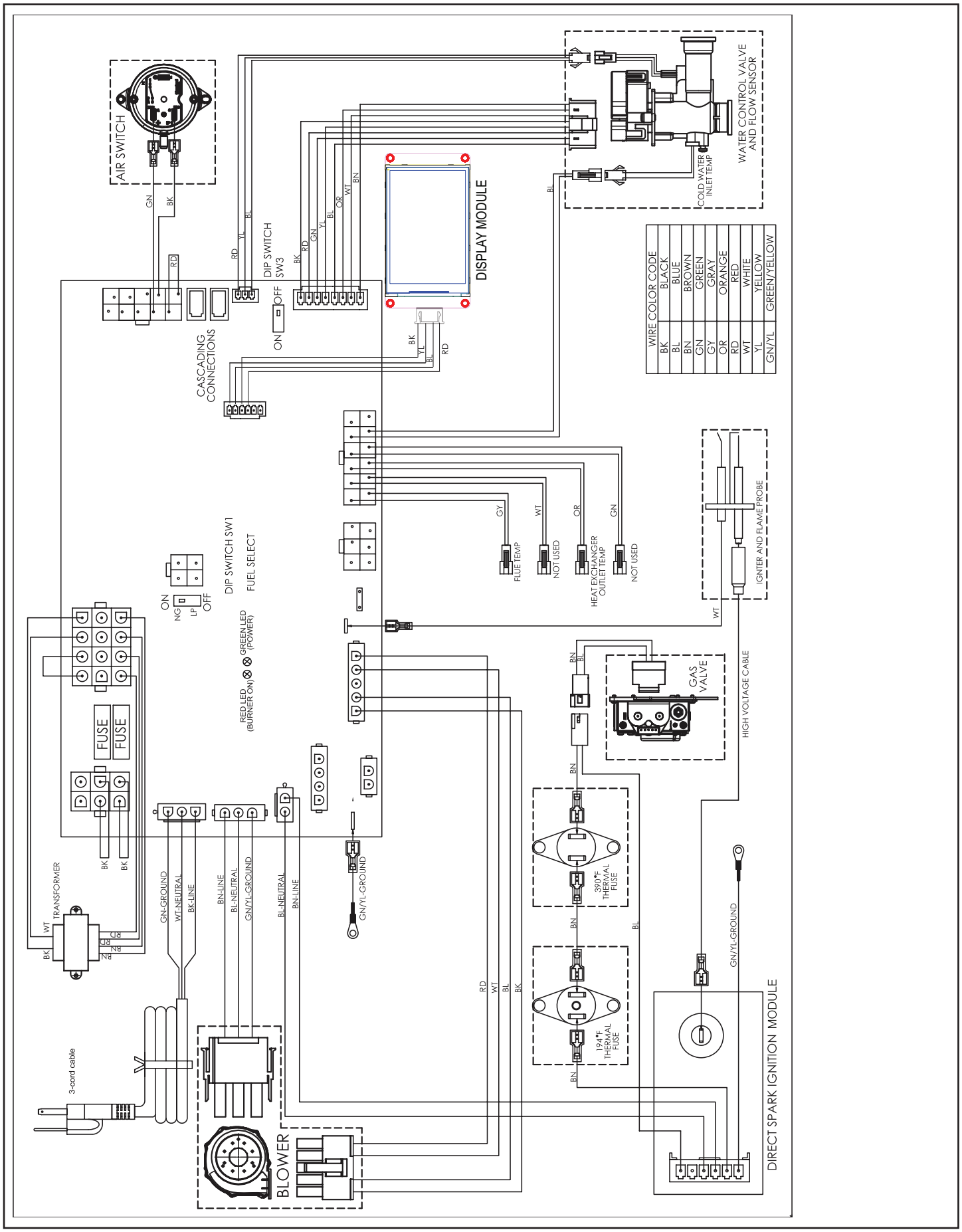
15. Wiring Diagrams and Troubleshooting

15.1 Operational Flow Chart

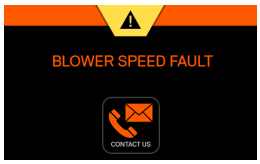
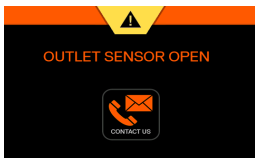
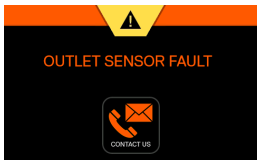


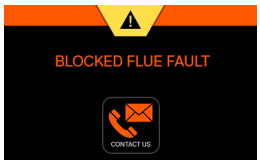
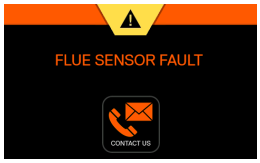
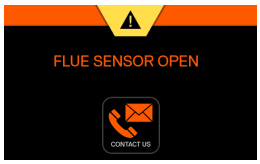
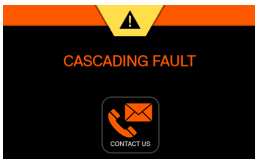
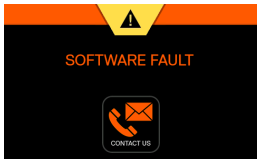
IQ-35

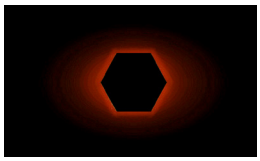
15.2 Complete Wiring Diagram (all models)



15.3 Troubleshooting Guide

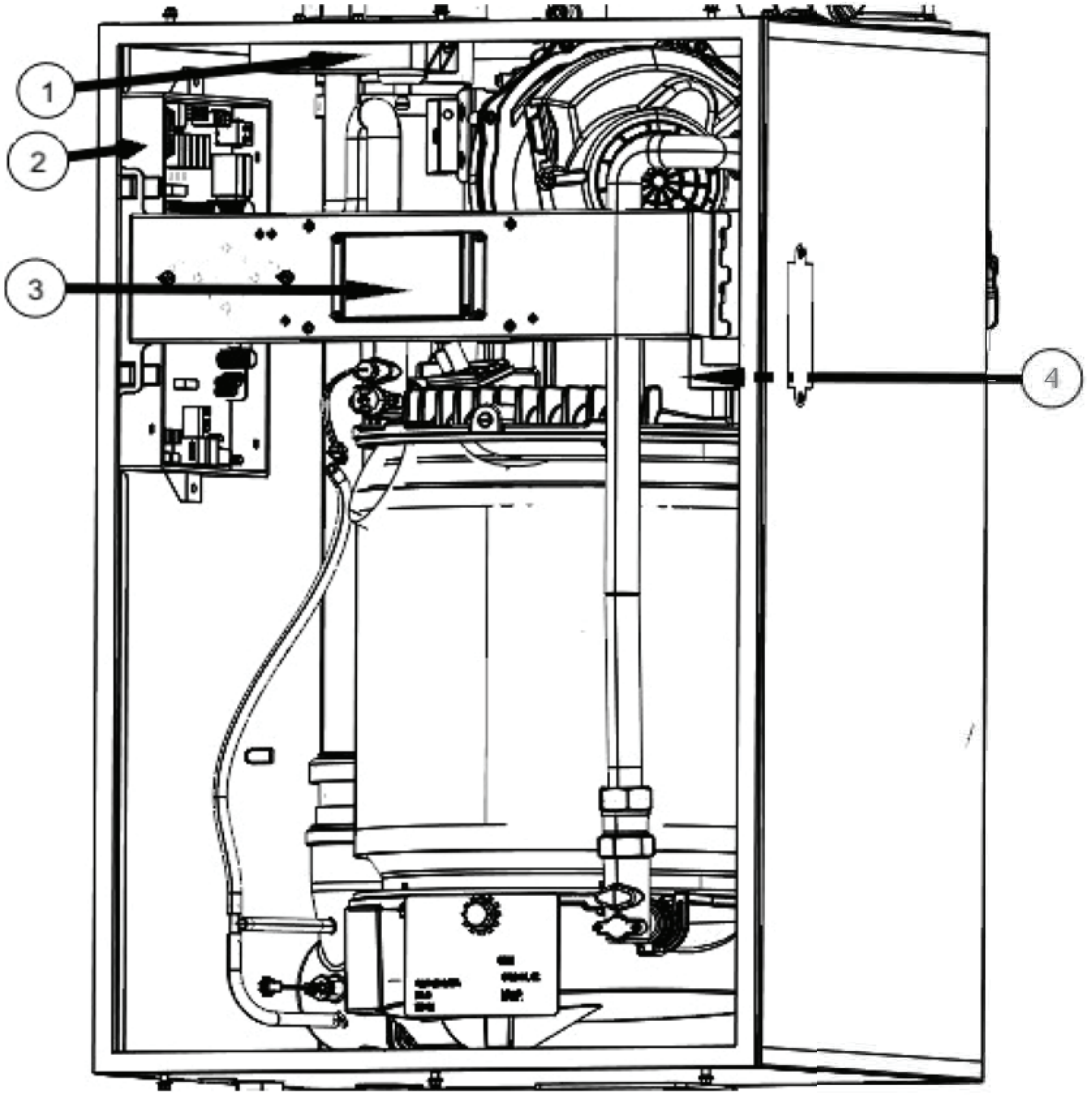
Description	Possible Cause	Remedy
Blower Speed Fault 	· Blower noisy / impeller jammed. · Disconnected signal wire. · Wiring faulty.	· Inspect blower / impeller. Clean and remove any obstructions. · Check PWN signal. Check for loose wires / pins, and repair. · If the problem persists, turn control panel OFF, shut OFF gas valve, disconnect power from unit, and contact an authorized service technician.
Igniter Ignition Failure 	· Water over-heat switch tripped. · Faulty DSI, faulty igniter wire, faulty ignition connection, faulty PCB, bad igniter. · Low gas pressure. · Wiring faulty.	· 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  	· Unplugged connectors. · Faulty sensor wiring. · Faulty sensor. · Heat engine water outlet temperature sensor. · Flue temperature sensor. · Inlet water temperature sensor. · Faulty controller.	· 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 Kohm at 50°F, 10 Kohm at 77°F, 3 Kohm at 140°F). · Replace controller.
Faulty Sensors Inlet / Outlet Sensors  	· Faulty sensor wiring or faulty sensor. · Inlet water temperature sensor. · Heat engine water outlet temperature sensor. · Faulty controller.	· Check for nicked or broken sensor wiring or connectors. Also check for corroded or wet connectors. · Measure resistance of sensor at connector (18 Kohm at 50°F, 10 Kohm at 77°F, 3 Kohm at 140°F). · Replace controller.
Heat Engine Outlet temperature exceeded set limit 	· Flow rate changes excessive. · Faulty sensor wiring. · Faulty sensor. · Faulty controller.	· 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 Kohm at 50°F, 10 Kohm at 77°F, 3 Kohm at 140°F). · Replace controller.

Description	Possible Cause	Remedy
Flue Temperature Exceeded Set Limit 	· Incorrect vent set up. · High inlet temperature. · Faulty sensor wiring. · Faulty sensor. · Faulty controller.	· 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 Kohm at 50°F, 10 Kohm at 77°F, 3 Kohm at 140°F). · Replace controller.
Blocked Flue Fault 	· Exhaust blocked (bird, etc). · Backed up condensate. · Wiring loose (switch open).	· 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  	· Unplugged connectors. · Faulty sensor wiring. · Faulty sensor. · Flue temperature sensor. · Inlet water temperature sensor. · Faulty controller.	· 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 Kohm at 50°F, 10 Kohm at 77°F, 3 Kohm at 140°F). · Replace controller.
Cascading Fault 	· Loss of communication between units.	· 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 	· Faulty sensor wiring. · Water valve is damaged or inlet strainer is clogged.	· Check for nicked or broken sensor wiring or connectors. Also check for corroded or wet connectors. · Replace water valve and/or clean strainer.
Software  	· Incorrect settings. · Incompatible settings. · Incorrect software version. · Faulty wiring.	· 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 	· A system alert is present (main menu screen). · Malfunction of monitored part or system.	· Refer to the remedy for indicated part or system.
Fault 	· A fault or error is present (main menu screen). · Malfunction of monitored part or system.	· Refer to the remedy for indicated part or system.
Alert / Error / Fault  	· An alert, fault, or error is present (active screen). · Malfunction of monitored part or system.	· Refer to the remedy for indicated part or system.
Alive 	· Shows status of water heater. · Sleep mode.	· Touch display screen to awake.
	· Sleep mode passcode protected.	· Touch display screen to awake and enter passcode.
	· Indicates a service problem exists within the monitored parts.	· Refer to the remedy for indicated part or system.
	· Indicates an alert exists within the monitored systems.	· Refer to the remedy for indicated part or system.
	· Indicates a fault exists within the monitored parts or system.	· Refer to the remedy for indicated part or system.

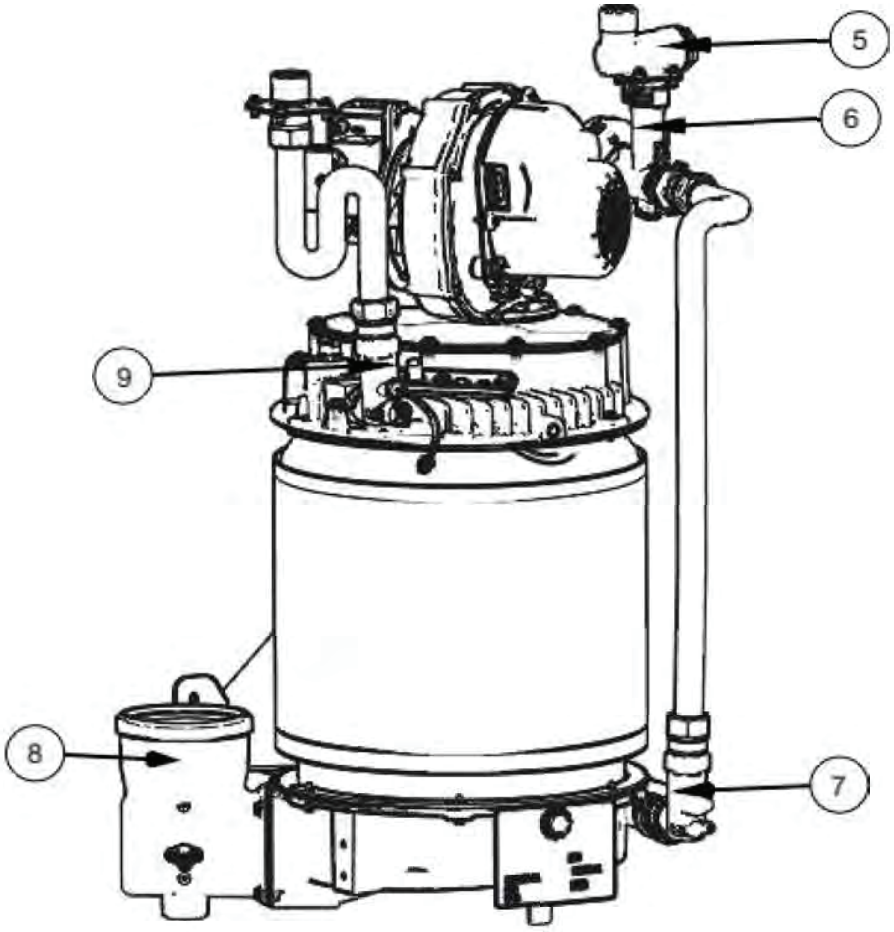
16. Serviceable Parts

16.1 Electrical Components



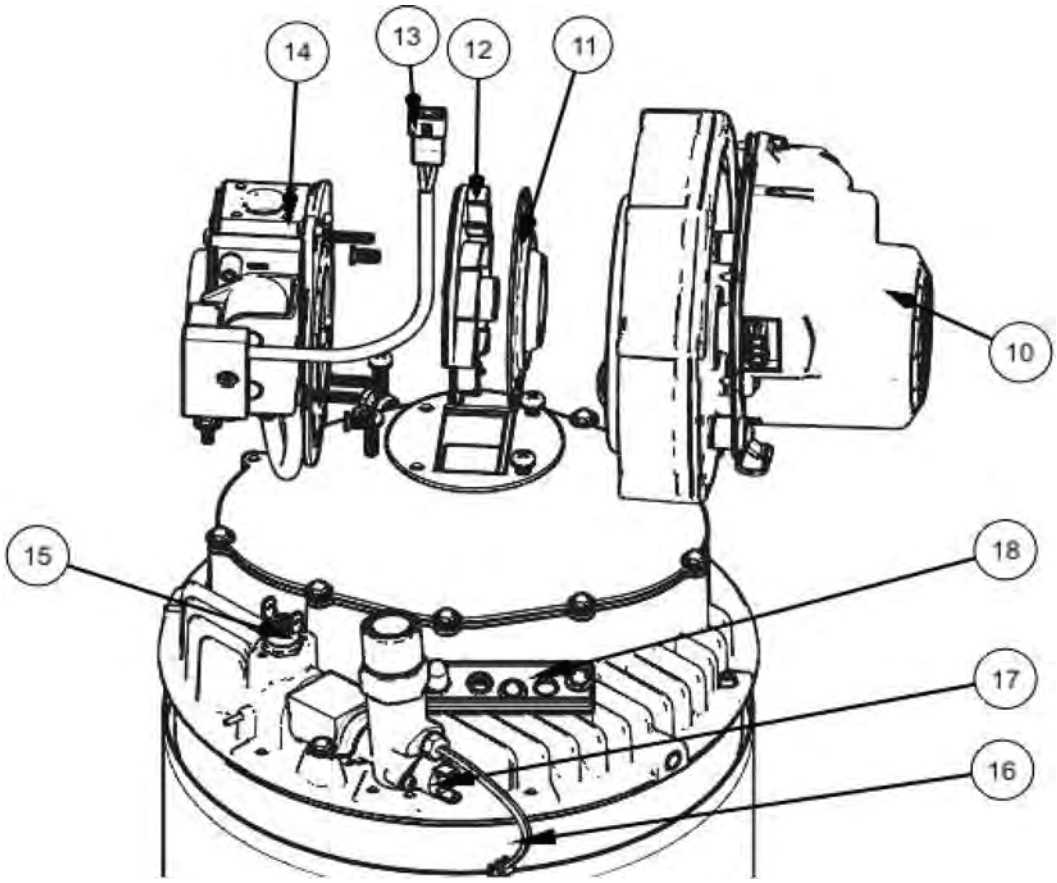
Item	Part Number	Description
1	IGT-SPR0005	Igniter Module (DSI)
2	IGT-SPR0002	Control Board
3	IGT-SPR0089	Small Screen Display Kit
4	IGT-SPR0065	Transformer

16.2 Water Line



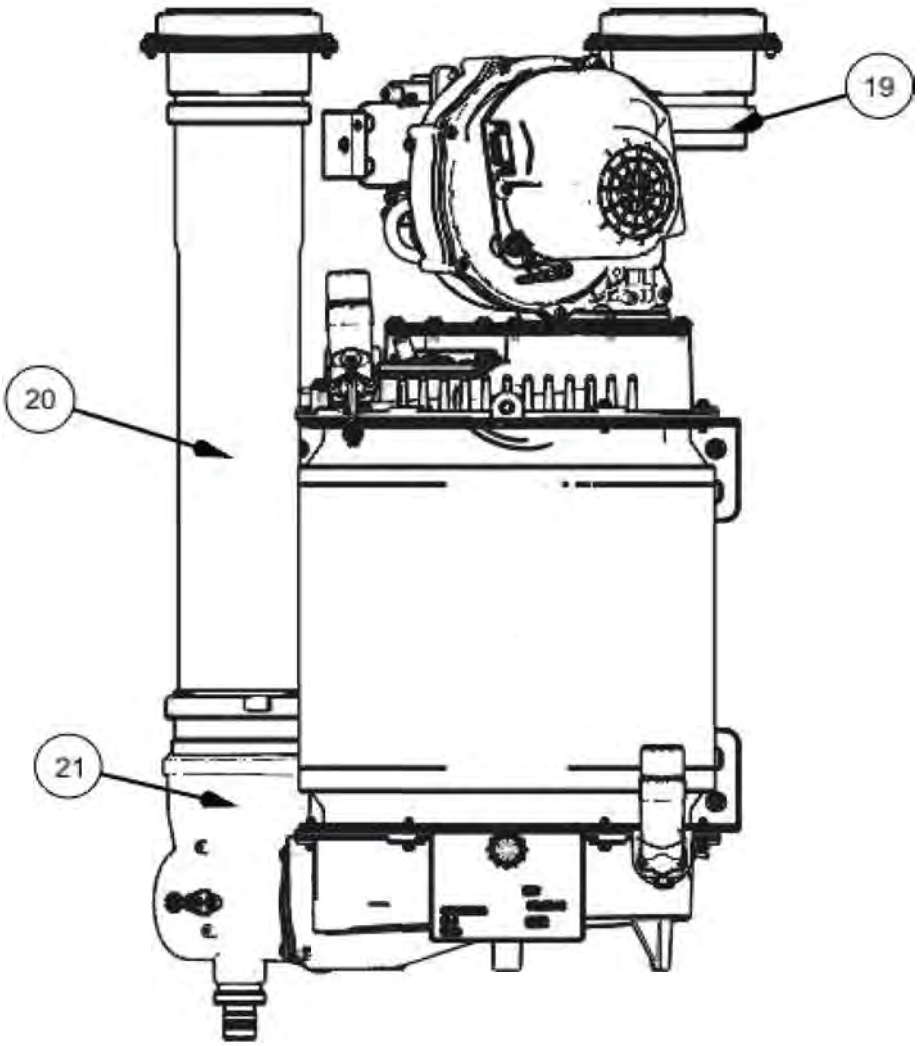
Item	Part Number	Description
5	IGT-SPR0018	Water lnelt Fitting
6	IGT-SPR0003	Flow Sensor Kit (Water Valve)
7	IGT-SPR0010	Heat Exchanger Inlet Fitting
8	IGT-CST0029	Side Cast
9	IGT-SPR0012	Water Outlet Fitting

16.3 Blower, and Gas Valve



Item	Part Number	Description
10	IGT-SPR0008	Blower Kit
11	IGT-ELC0012	Blower Adapter Plate
12	IGT-ELC0147	Gray Swirl Plate
13	IGT-ELC0020	Gas Valve Harness
14	IGT-SPR0011	Gas Valve Kit
15	IGT-SPR0097	High Temp Sesnor
16	IGT-SPR0110	Sensors Kit
17	IGT-SPR0066	Resettable Switch
18	IGT-SPR0106	Electrode Kit

16.4 Exhaust & Air Intake



Item	Part Number	Description
19	IGT-EX0002	Air Intake
20	IGT-EX0001	Exhaust
21	IGT- CST0029	Side Cast

16.5 Miscellaneous

Part Number	Description
IGT-ELC0092	25 ft cascading cable
IGT-ELC0232	50 ft cascading cable
IGT-SPR0109	O-Ring Kit
IGT-SPR0110	Sensors Kit
IGT-ELC0181	DSI to Electrode HV Cable
IGT-ELC0289	Display Harness
IGT-ELC0312	Wiring Harness
IGT-SPR0111	Burner Kit