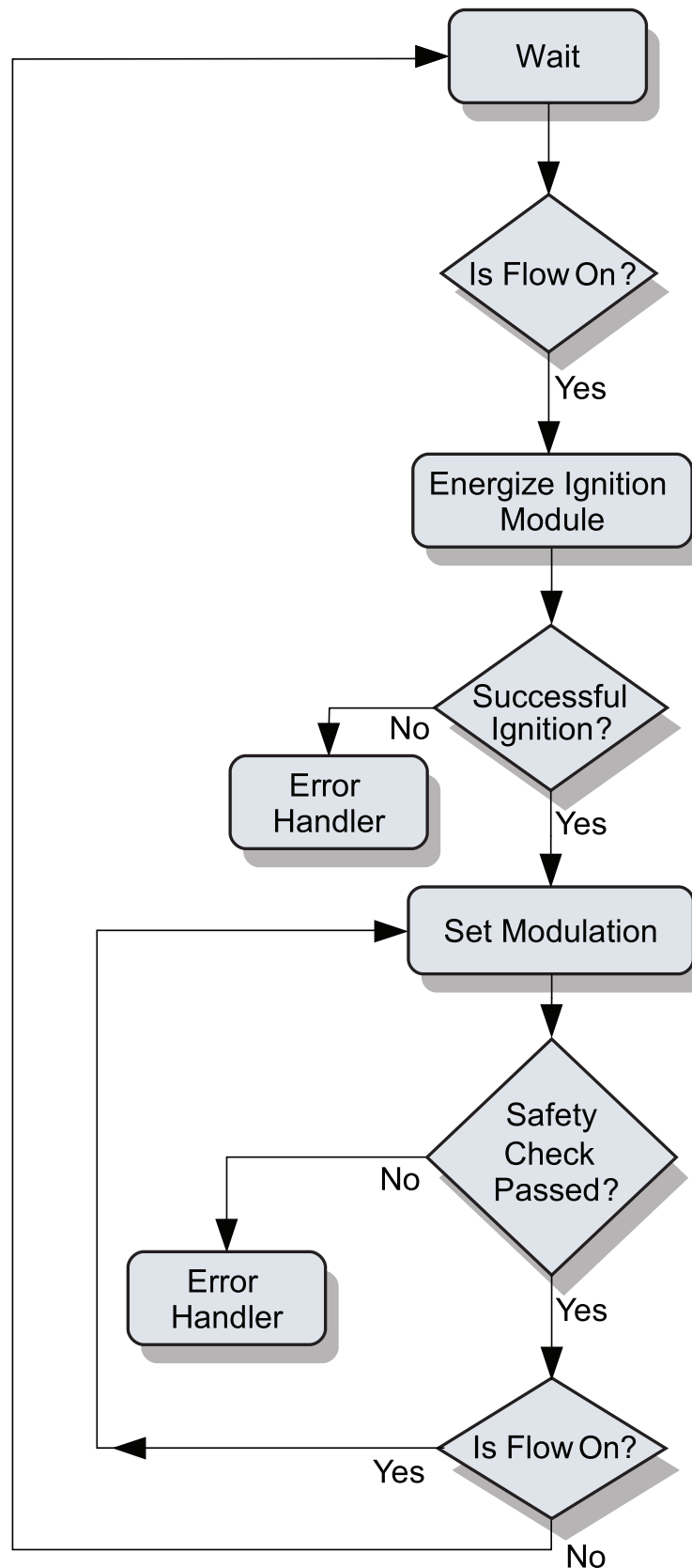


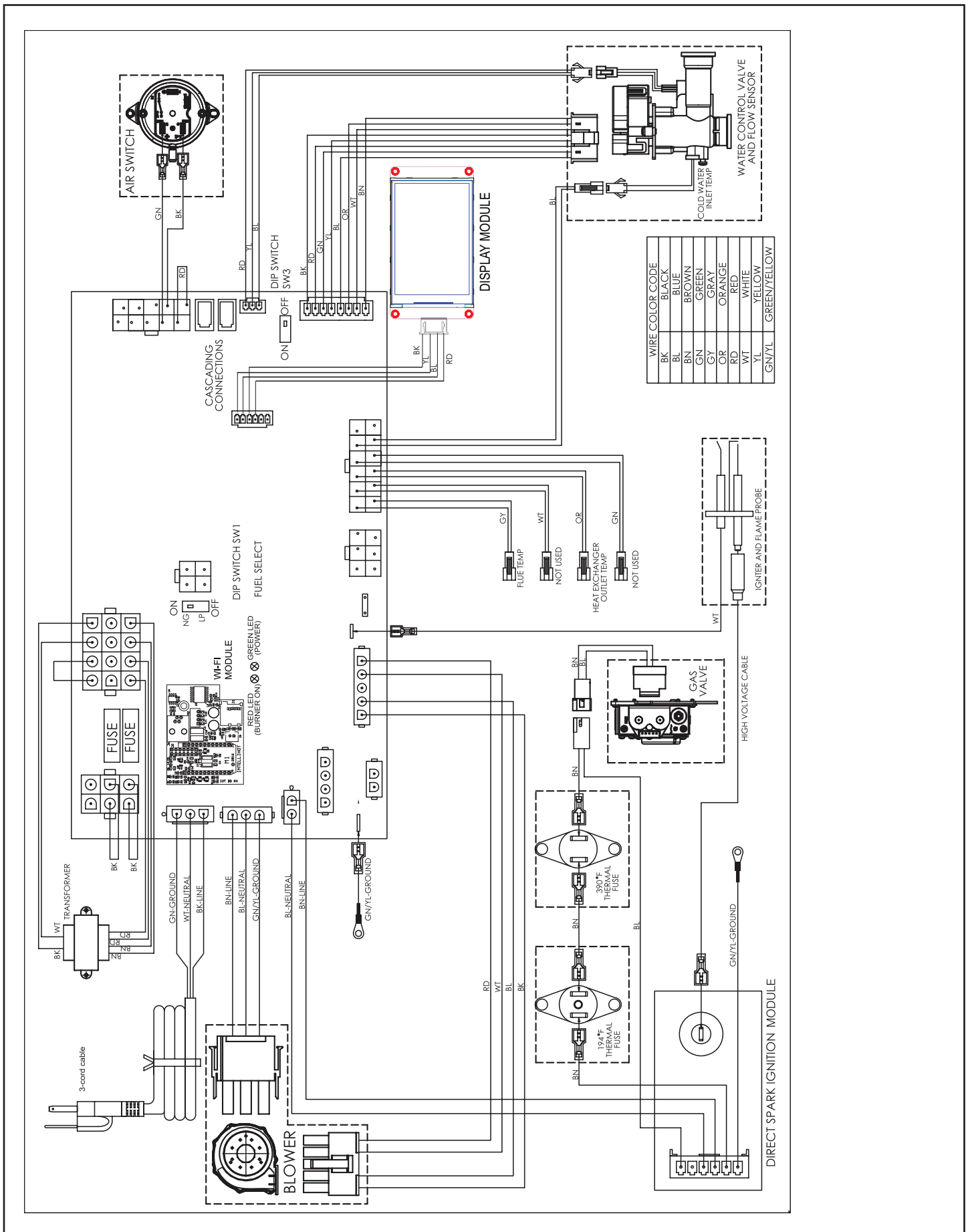
15. Wiring Diagrams and Troubleshooting

15.1 Operational Flow Chart

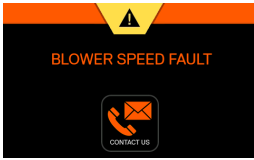
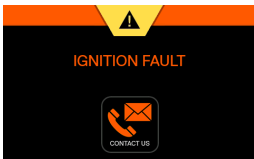
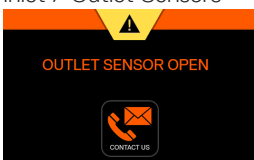
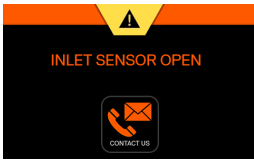
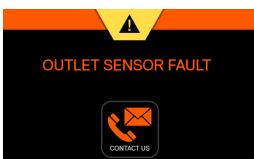
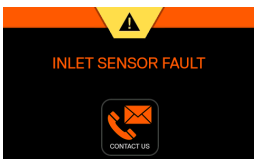
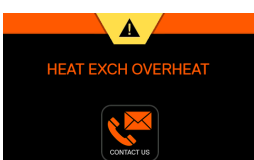


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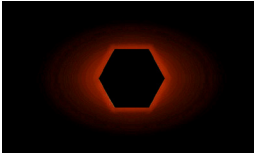




15.2 Complete Wiring Diagram (all models)



15.3 Troubleshooting Guide

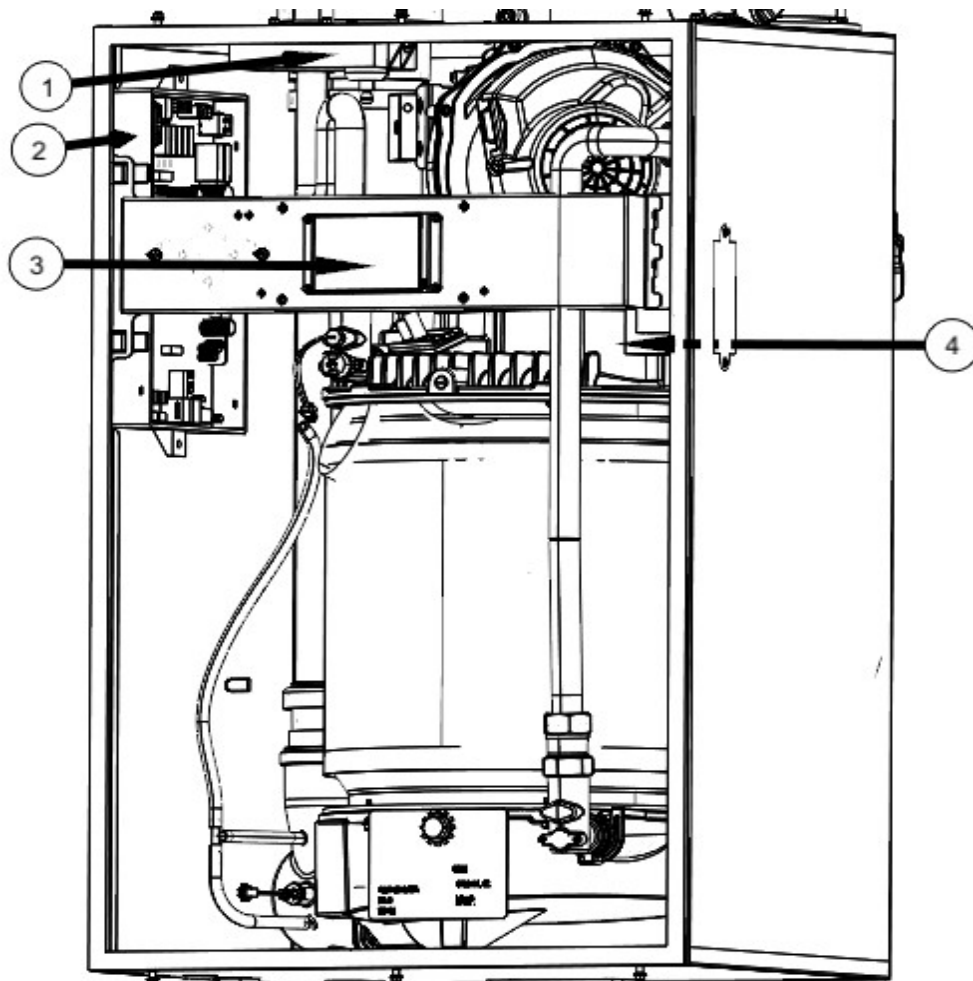
Description	Possible Cause	Remedy
Blower Speed Fault 	<ul style="list-style-type: none"> • Blower noisy / impeller jammed. • Disconnected signal wire. • Wiring faulty. 	<ul style="list-style-type: none"> • Inspect blower / impeller. Clean and remove any obstructions. • Check PWN signal. Check for loose 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.

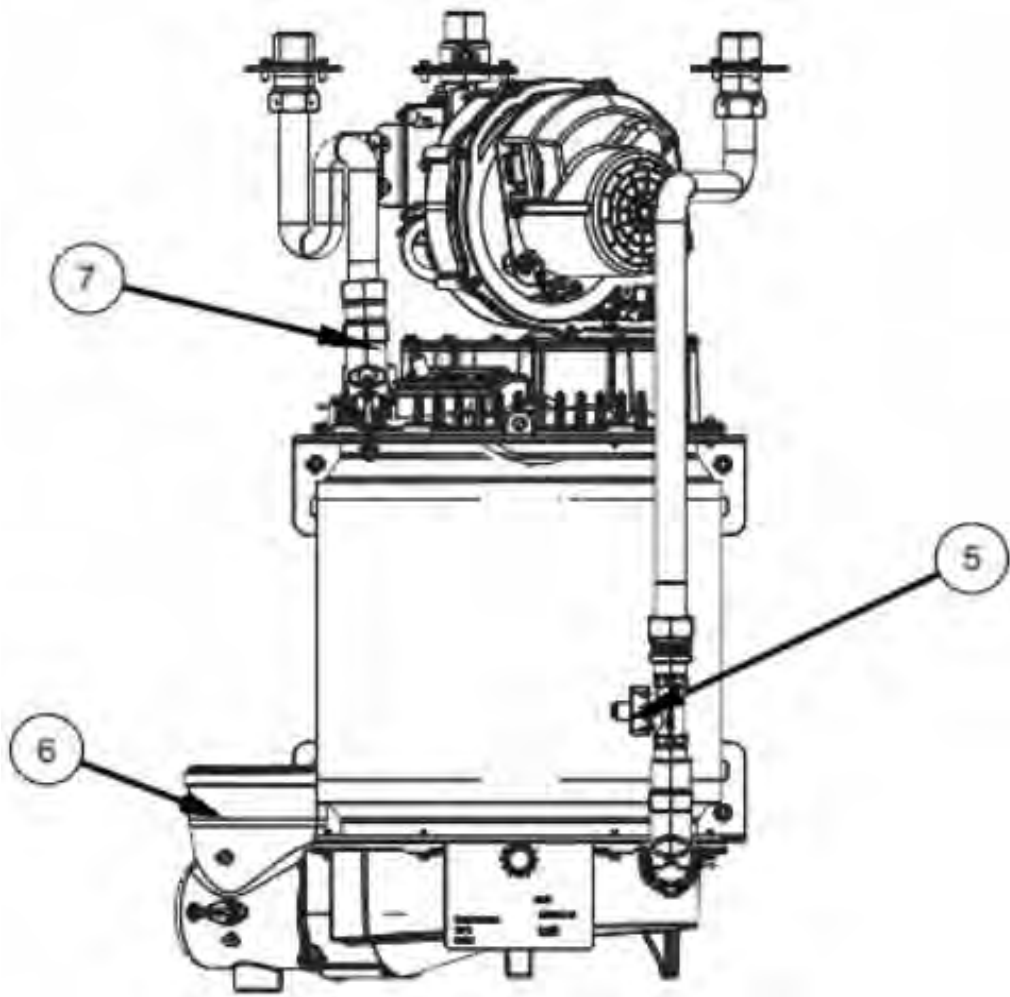
Description	Possible Cause	Remedy
System Alert 	<ul style="list-style-type: none"> • A system alert is present (main menu screen). • Malfunction of monitored part or system. 	<ul style="list-style-type: none"> • Refer to the remedy for indicated part or system.
Fault 	<ul style="list-style-type: none"> • 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

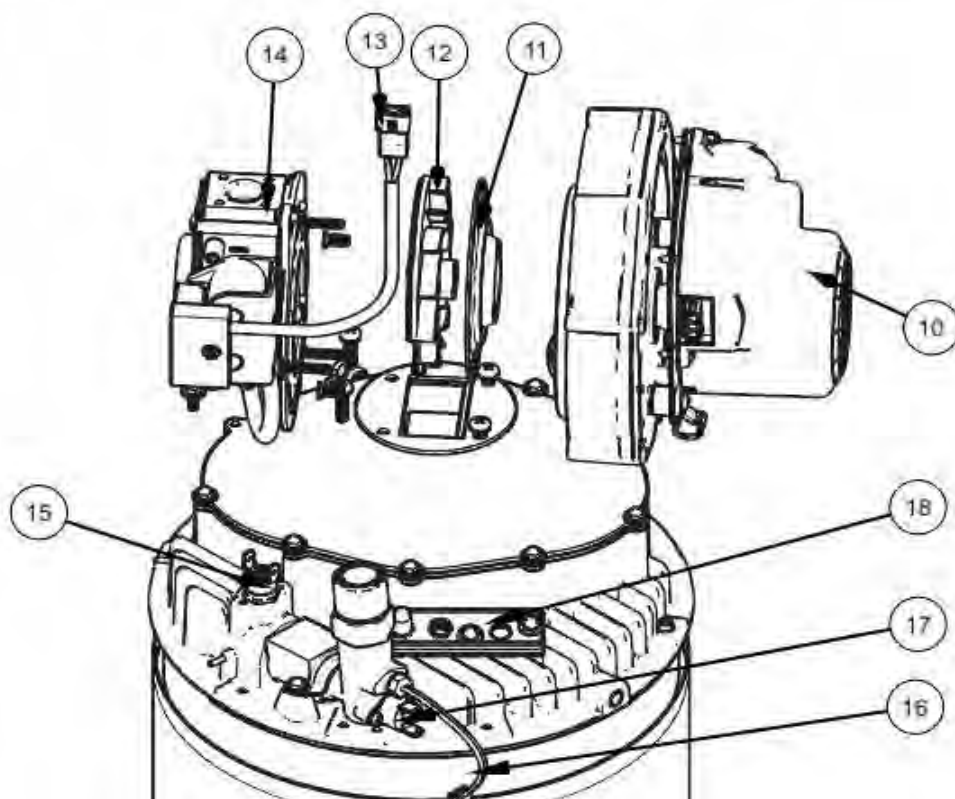


Item	Part Number	Description
1	IGT-SPR0005	Igniter Module (DSI)
2	IGT-SPR0002	Control Board
3	IGT-SPR0089	Small Screen Display Kit
4	IGT-SPR0065	Transformer



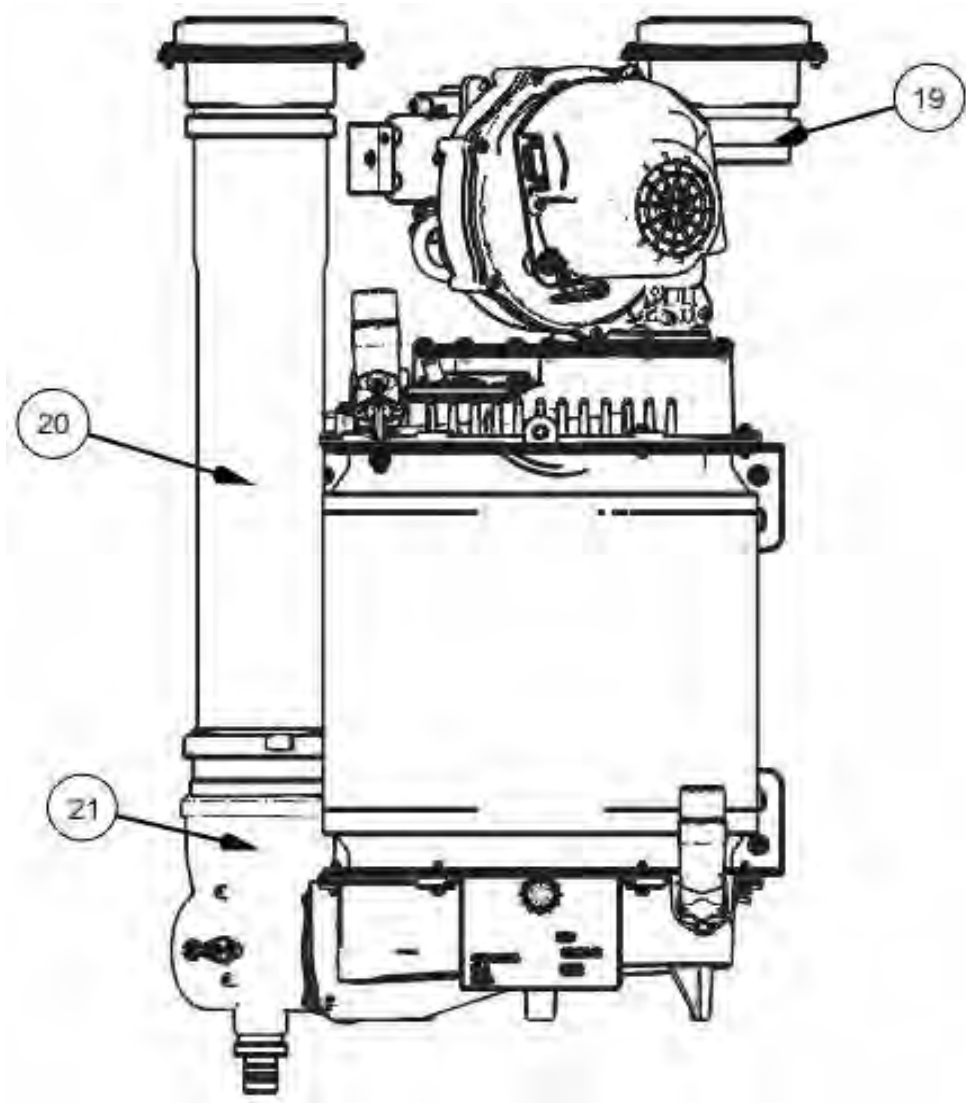
Item	Part Number	Description
5	IGT-SPR0021	Flow Sensor Kit
6	IGT-CST0029	Side Cast
7	IGT-SPR0012	Water Outl

16.3 Blower, 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 Sensor
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-SPR0085	iOT Kit
IGT-ELC0181	DSI to Electrode HV Cable
IGT-ELC0289	Display Harness
IGT-ELC0312	Wiring Harness
IGT-SPR0111	Burner Kit
IGT-ELC0087	iQ251D Flow Sensor Wiring Harness
IGT-SPR0067	BMS Kit
IGT-VL0039	Stainless Steel T&P Valve