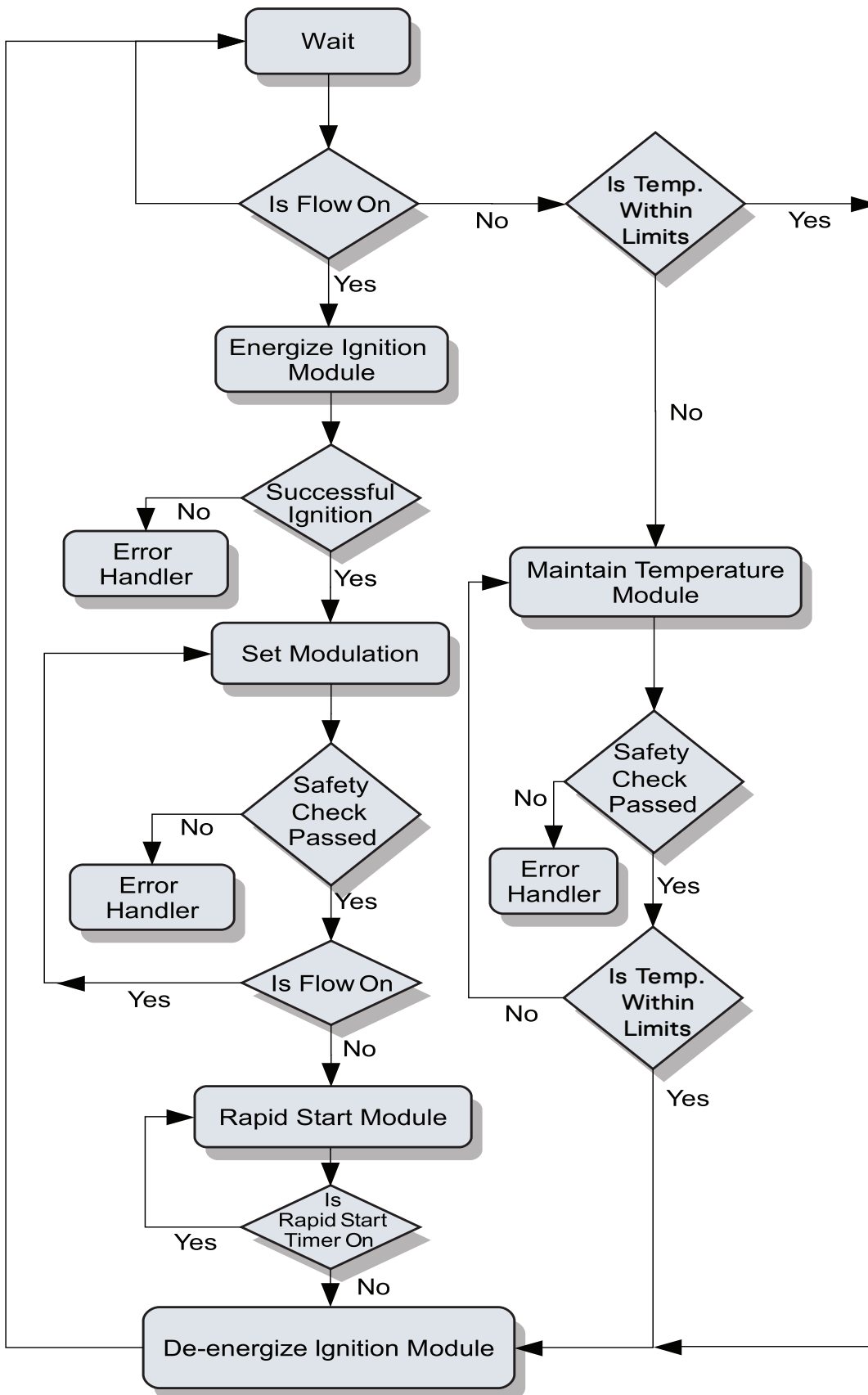


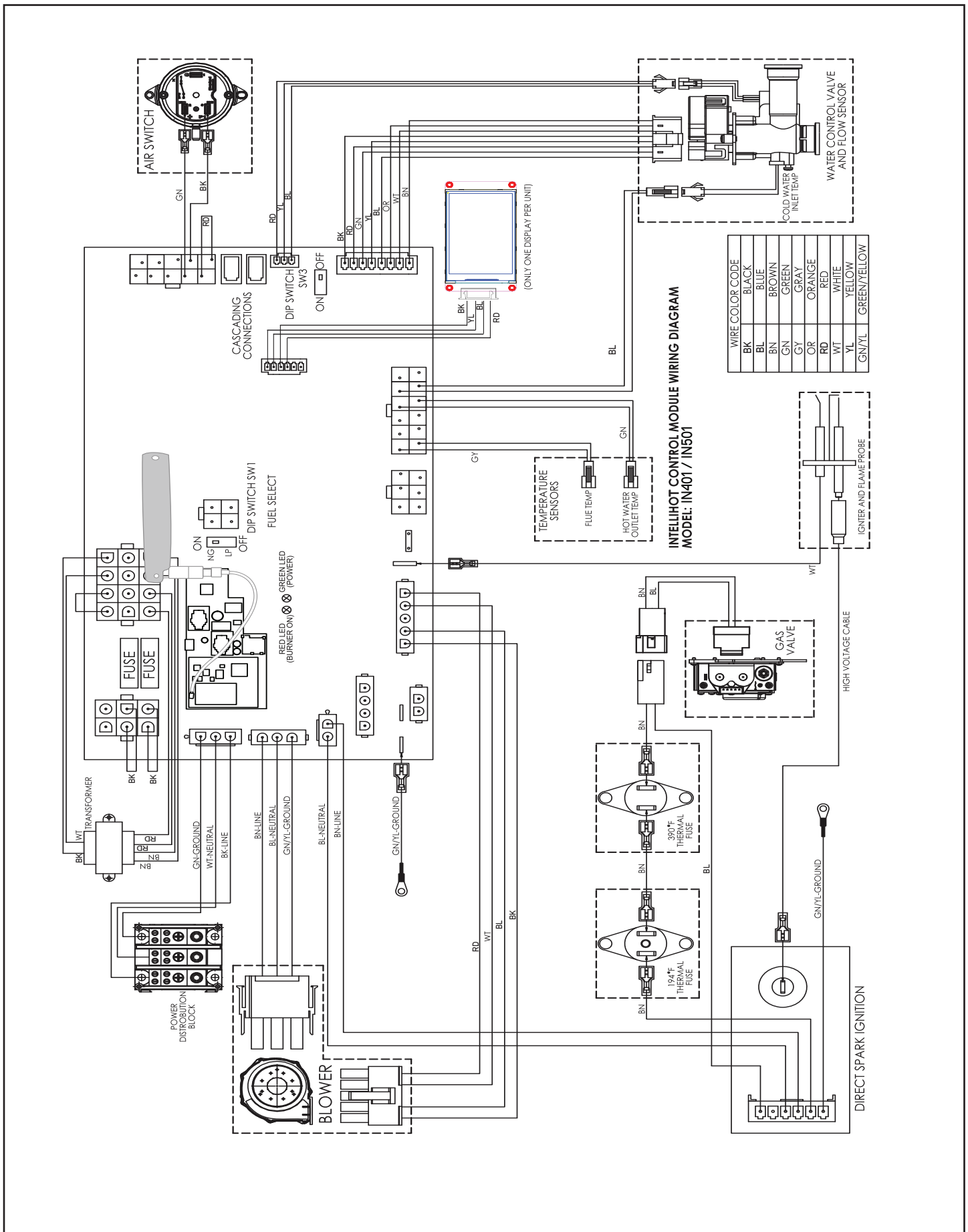
15. Wiring Diagrams and Troubleshooting

15.1 Operational Flow Chart

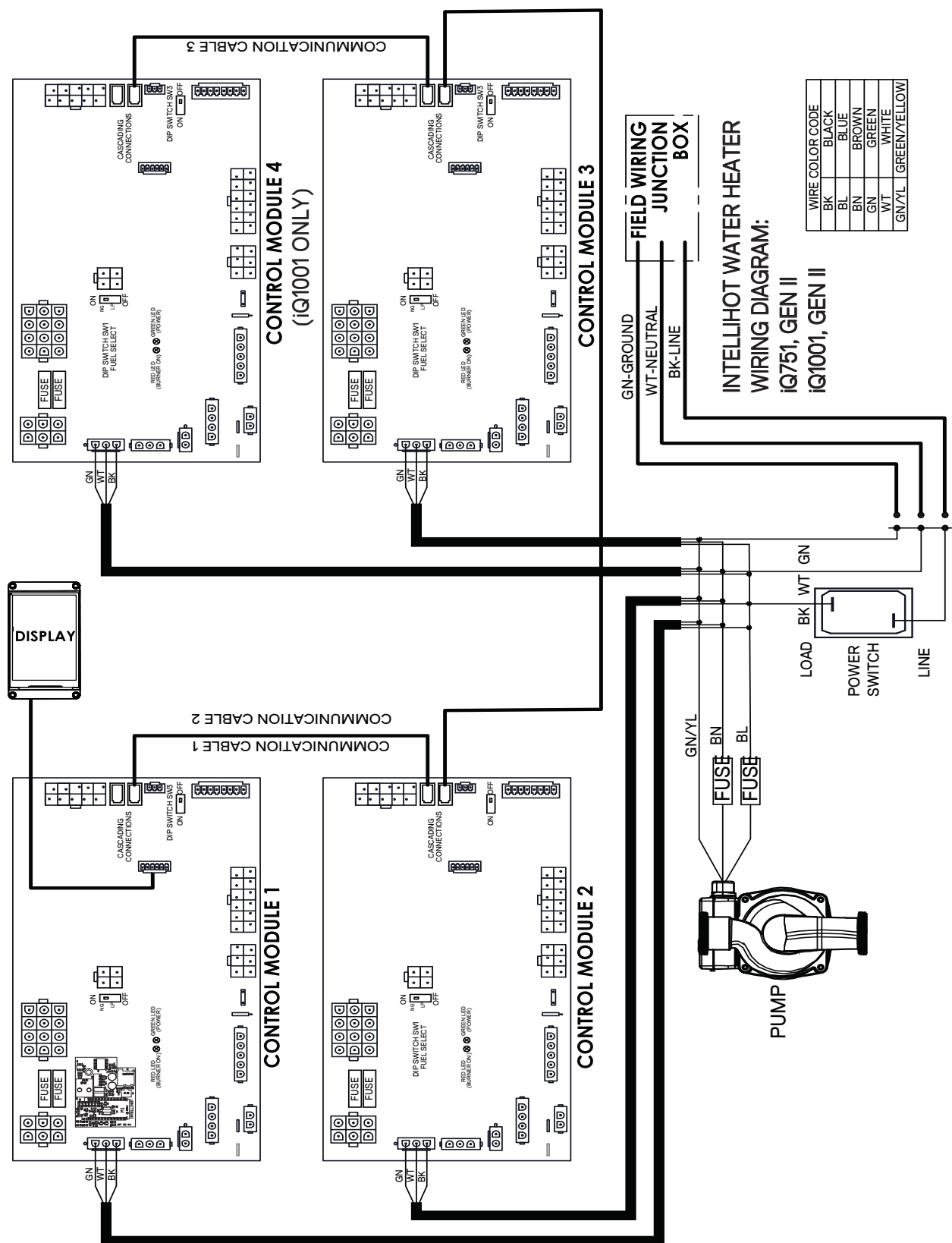


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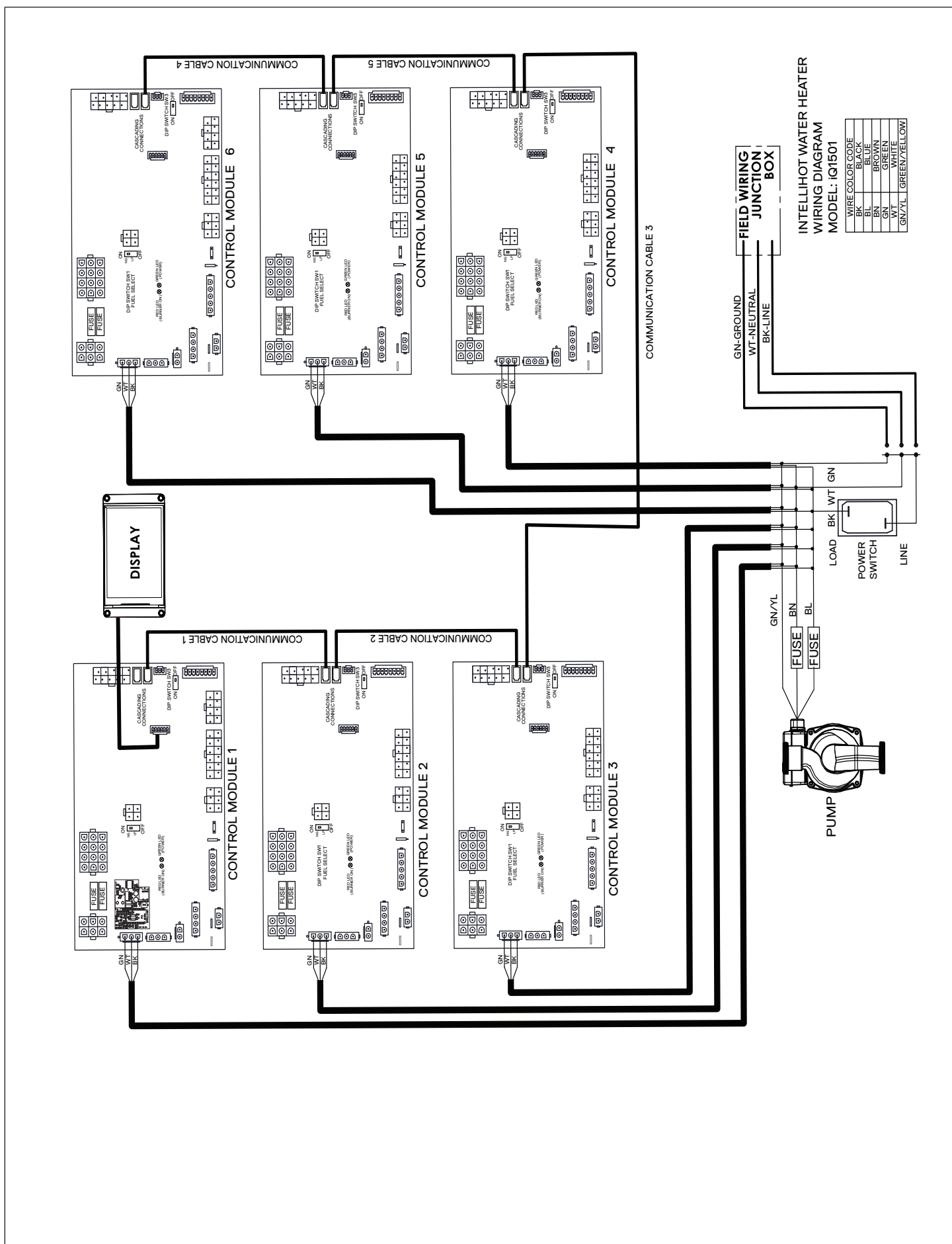
15.2 Complete Wiring Diagram (all models)



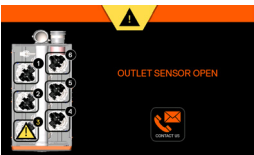
15.3 Control Board Wiring Diagram (iQ751 / iQ1001)

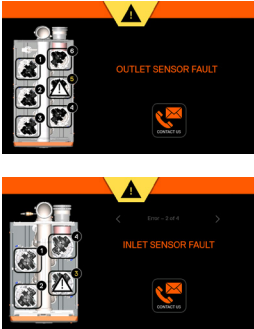
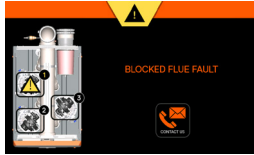
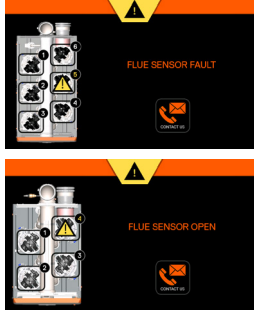


15.4 Control Board Wiring Diagram (iQ1501)



15.5 Troubleshooting Guide

Description	Possible Cause	Remedy
Blower Blower Fault  Blower Speed Signal Fault 	• Blower noisy / impeller jammed. • Disconnected signal wire. • Wiring faulty. • Blower signal picking up noise. • Wiring faulty • Blower 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 gas valve, disconnect power from unit, and contact an authorized service technician. • Check Pin 3 & Pin 5 are connected together. If not connected together, please request ELC0305 • Replace blower signal wiring harness • Replace blower
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 pump, check cross-over solenoid. Electrical noise (DSI). • Replace part. • Adjust gas pressure at regulator, check / increase size of gas line, check for gas line blockage. • If the problem persists, turn control panel OFF, shut 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 kΩ at 50°F, 10 kΩ at 77°F, 3 kΩ at 140°F) • Replace controller.
Manifold Sensors 	• 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 kΩ at 50°F, 10 kΩ at 77°F, 3 kΩ at 140°F) • Replace controller.

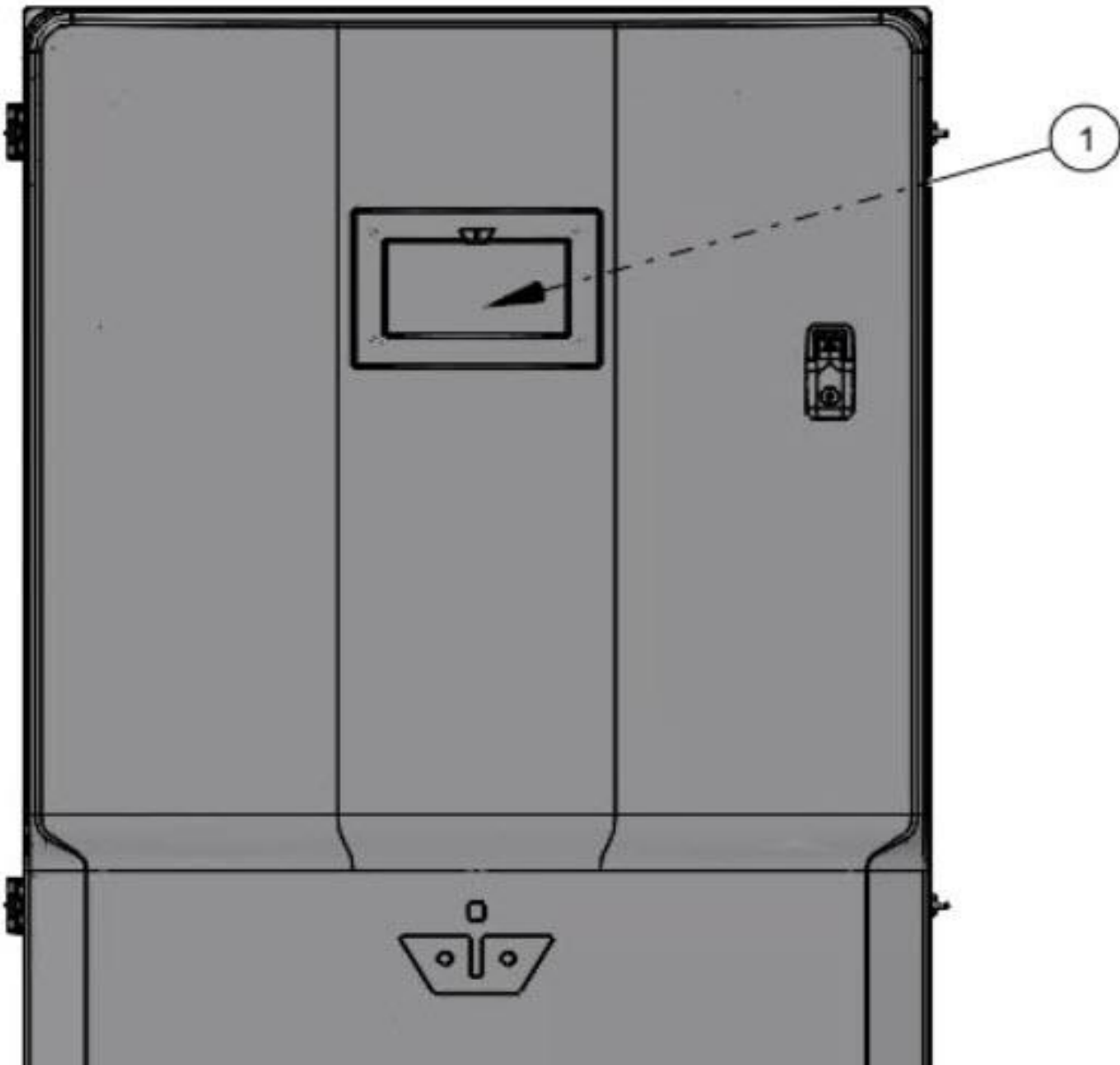
Description	Possible Cause	Remedy
Faulty Sensors Inlet / Outlet Sensors 	• Faulty sensor wiring or faulty sensor. • Inlet water temperature sensor. • Heat engine water outlet temperature sensor. • Faulty controller.	• Check for nicked or broken sensor wiring or connectors. Also check for corroded or wet connectors. • Measure resistance of sensor at connector (18 kΩ at 50°F, 10 kΩ at 77°F, 3 kΩ 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 2 GPM every 5 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.
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 kΩ at 50°F, 10 kΩ at 77°F, 3 kΩ 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 kΩ at 50°F, 10 kΩ at 77°F, 3 kΩ at 140°F) • Replace controller.

Description	Possible Cause	Remedy
Cascading Fault Fault  	• Loss of communication between the units. • Loss of communication between the HEXes.	• 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. • Check the connection between the HEXes • One or more HEX maybe with errors • Check software version on all control boards
Water Valve    	• Faulty flow sensor wiring (3 wires connection). • Water valve clogged or damaged. • Faulty controller board • Faulty water valve wiring (8 wires connection). • Damaged water valve • Faulty controller board • Faulty water valve wiring (8 wires connection). • Damaged water valve • Faulty controller board • Faulty water valve wiring (8 wires connection). • Damaged water valve • Faulty controller board	• Check for nicked or broken sensor wiring or connectors. Also check for corroded or wet connectors. • Replace water valve. Check & clean Wye Strainer • Replace controller board • Check for nicked or broken sensor wiring or connectors. Also check for corroded or wet connectors. • Replace water valve. Check & clean Wye Strainer • Replace controller board • Check for nicked or broken sensor wiring or connectors. Also check for corroded or wet connectors. • Replace water valve. Check & clean Wye Strainer • Replace controller board • Check for nicked or broken sensor wiring or connectors. Also check for corroded or wet connectors. • Replace water valve. Check & clean Wye Strainer • Replace controller board
Pump 	• Faulty pump wiring. • Pump fuse blown. • Faulty pump. • Faulty controller.	• Check for nicked or broken sensor wiring or connectors. Also check for corroded or wet connectors. • Replace fuse (5 Amp) • Replace pump. • Replace controller.

Description	Possible Cause	Remedy
Alert 	• An alert 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. • Sleep mode passcode protected. • Indicates an alert exists within the monitored systems. • Indicates a fault exists within the monitored parts or system. • Indicates a fault exists within the monitored systems	• 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

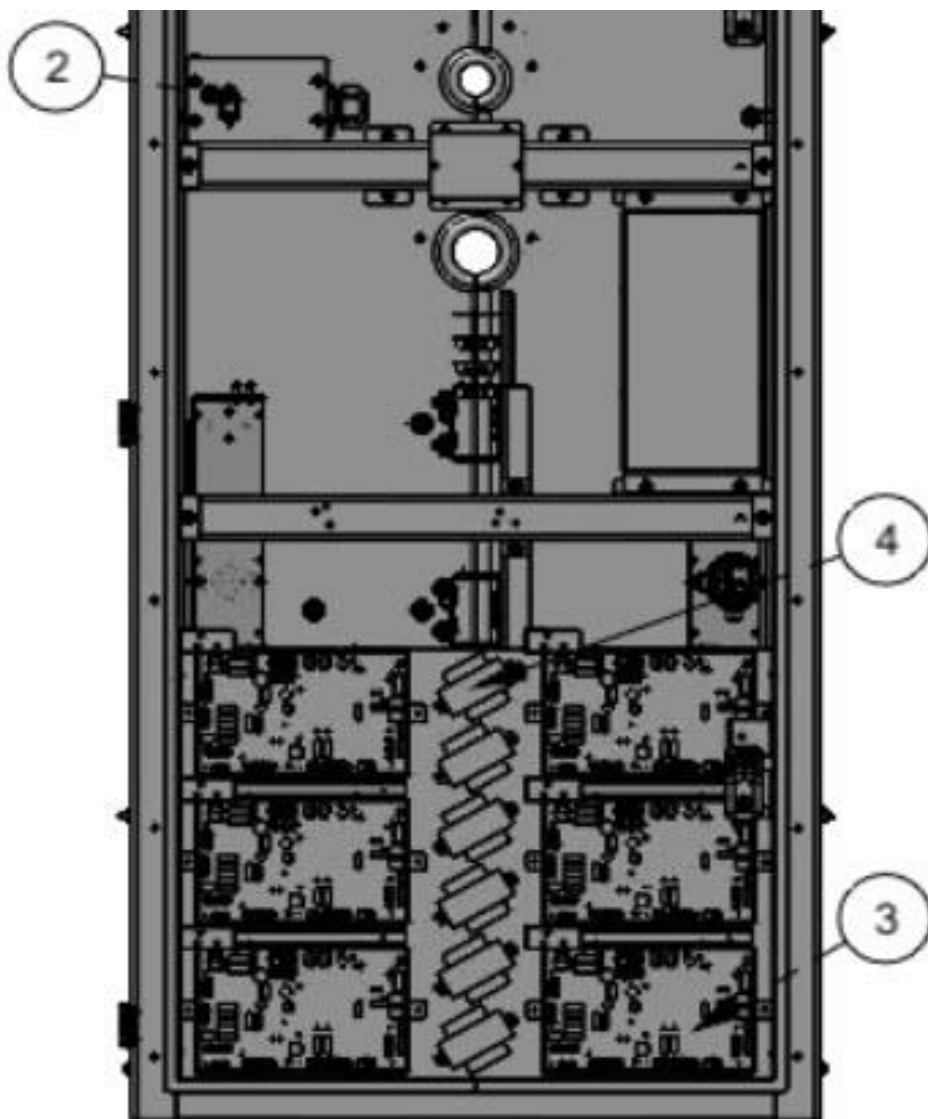
Display



Item	Part Number	Description
1	IGT-SPR0088	Display

16. Serviceable Parts

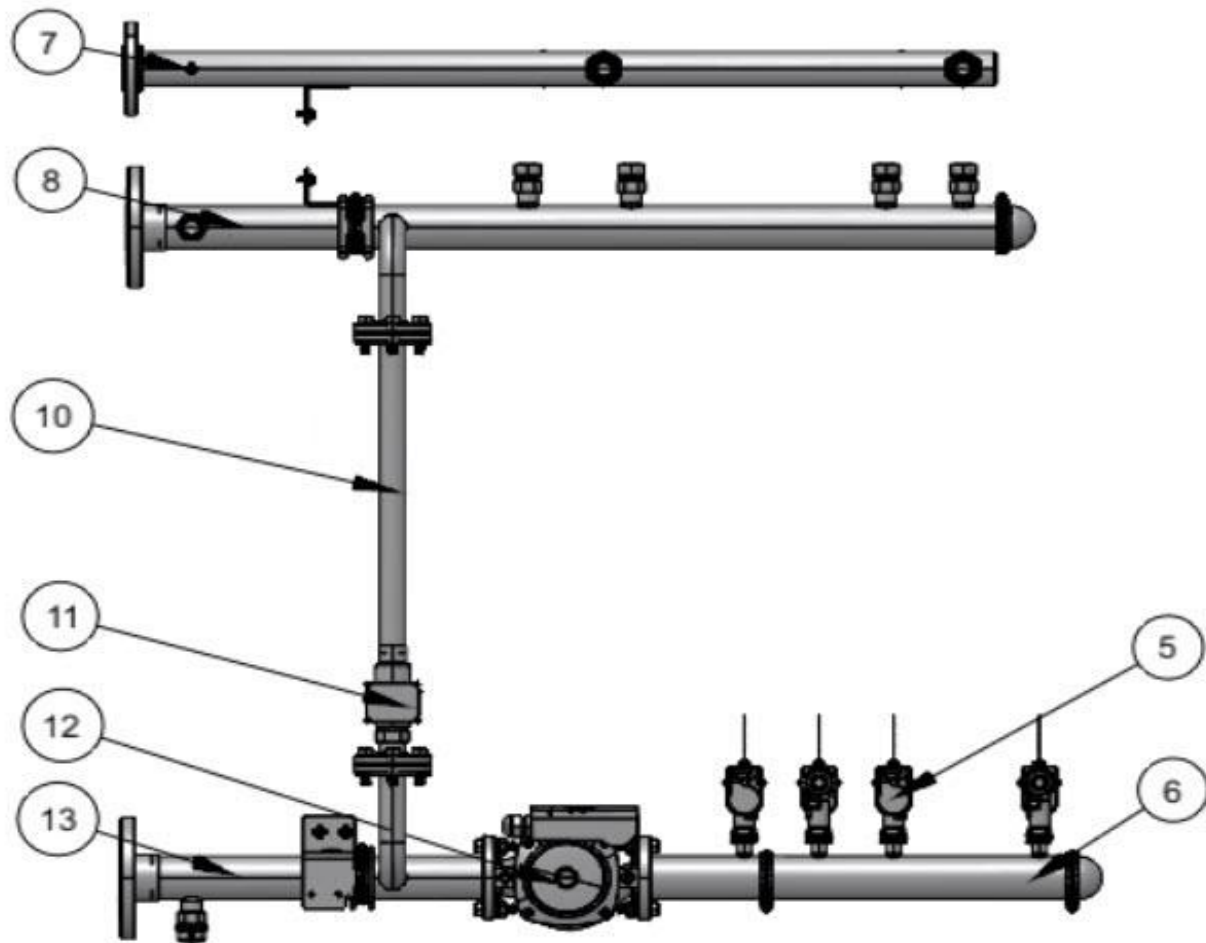
Control board & transformer



Item	Part Number	Description
2	IGT-ELC0138	Rocker Switch
3	IGT-SPR0002	Control Board
4	IGT-SPR0065	Transformer

16. Serviceable Parts

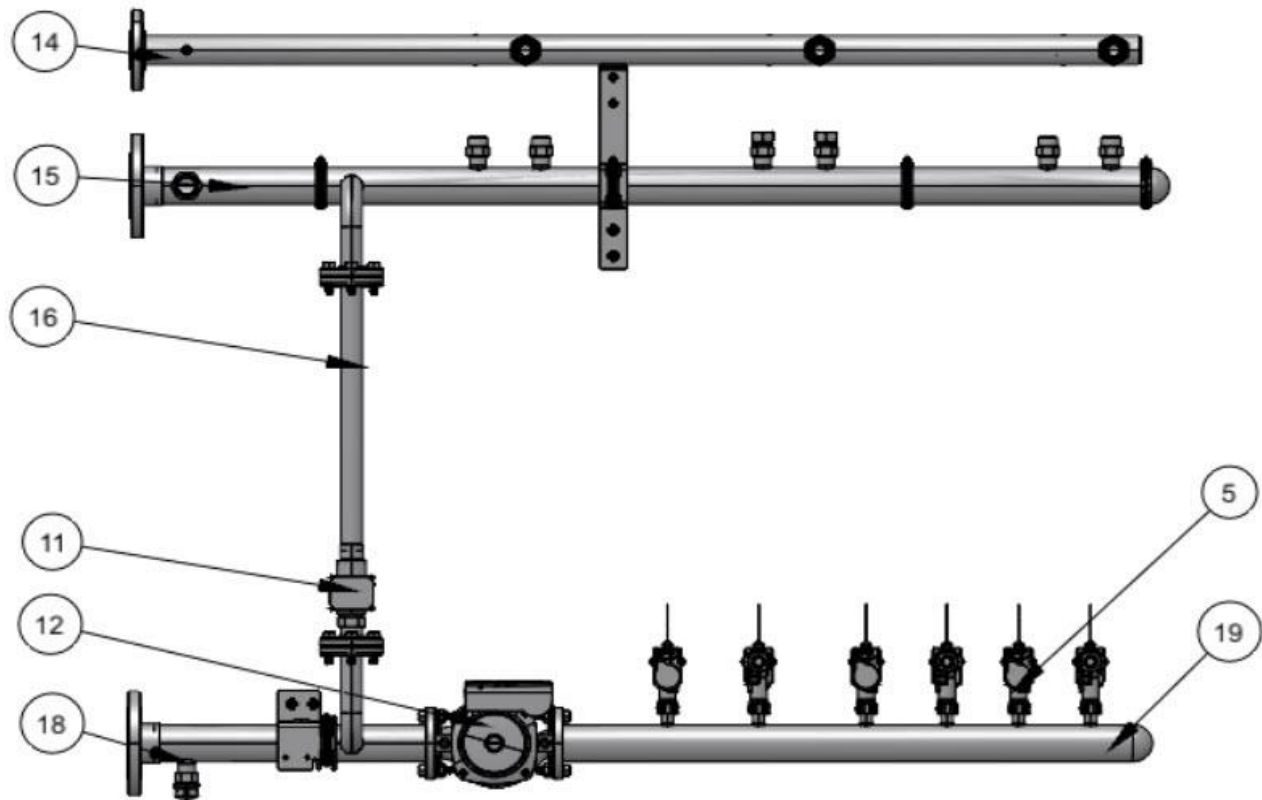
Gas & water circuit (iQ751/iQ1001)



Item	Part Number	Description
5	IGT-SPR0003	Water Valve (x3 for iQ751, x4 for iQ1001)
6	IGT-SPR0202	Cold side manifold kit
7	IGT-MANF0052	Gas manifold
8	IGT-SPR0203	Hot side manifold kit
10	IGT-SPR0121	Cross over assembly kit (incl bypass valve)
11	IGT-VL0019	Bypass valve
12	IGT-SPR0075	Pump Kit
13	IGT-SPR0206	Cold side inlet Header kit

16. Serviceable Parts

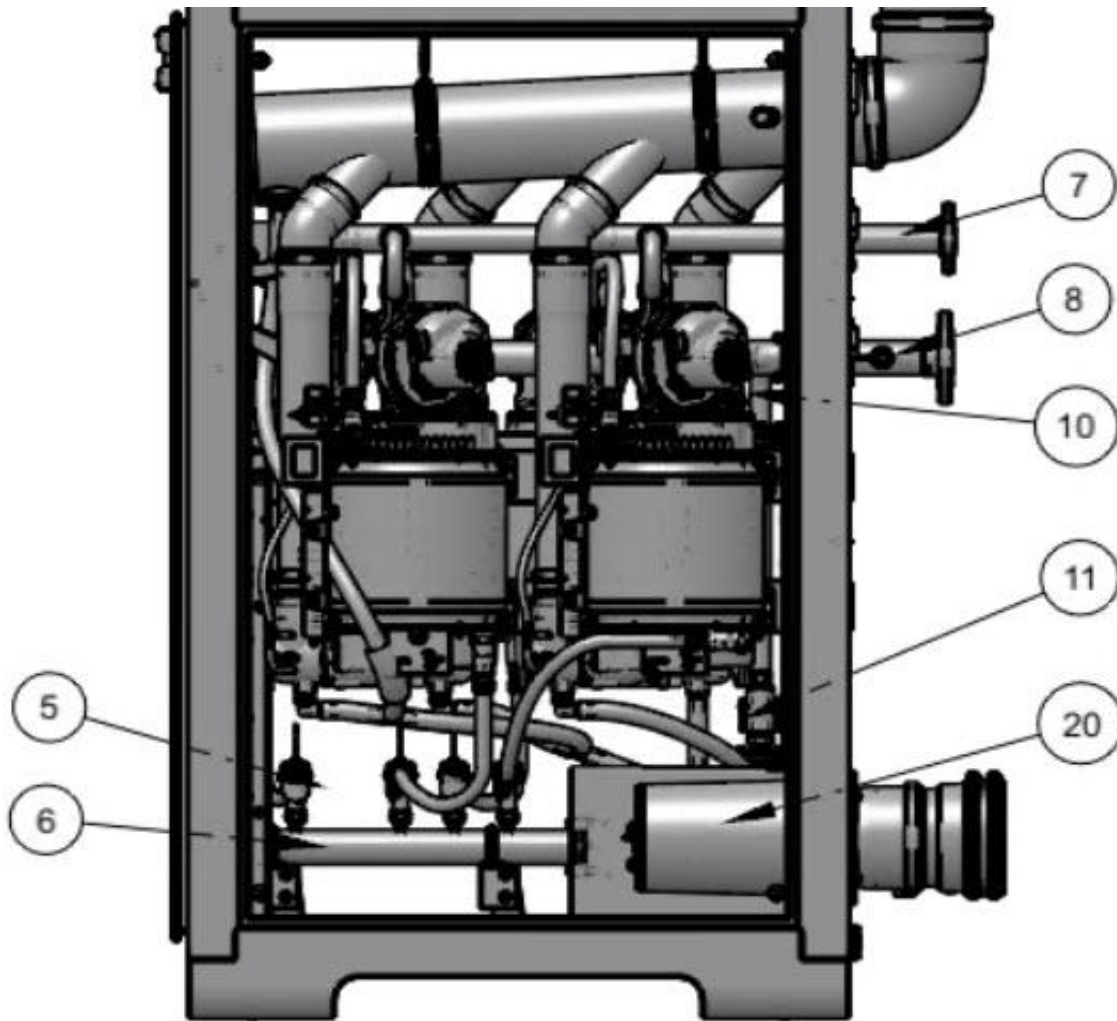
Gas & water circuit (iQ1501)



Item	Part Number	Description
5	IGT-SPR0003	Water Valve (x6)
11	IGT-VL0019	Bypass valve
12	IGT-SPR0075	Pump Kit
14	IGT-MANF0008	Gas manifold
15	IGT-SPR0205	Hot side manifold kit
16	IGT-SPR0121	Cross over assembly kit(incl bypass valve)
18	IGT-SPR0206	Cold side inlet Header kit
19	IGT-SPR0204	Cold side manifold kit

16. Serviceable Parts

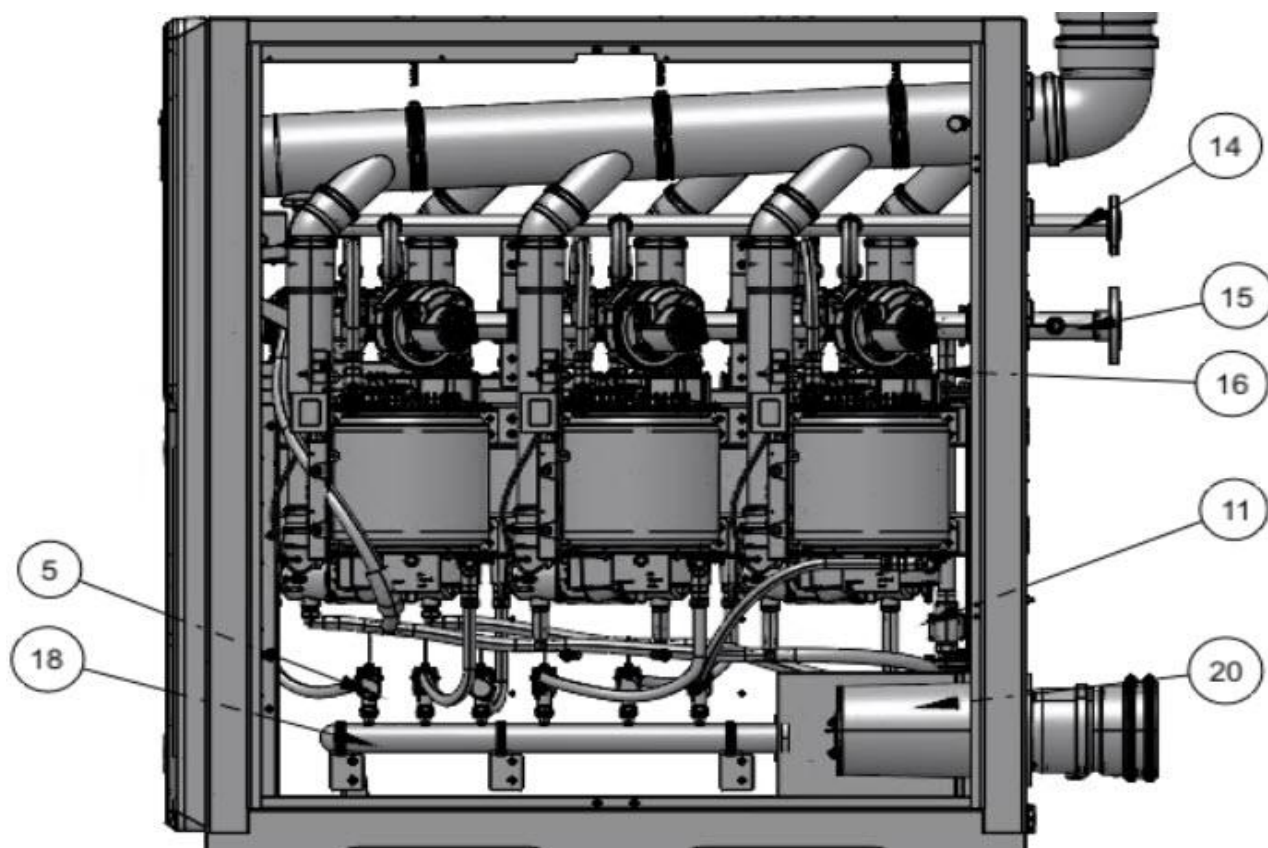
Right side (iQ1001)



Item	Part Number	Description
5	IGT-SPR0003	Water Valve (x3 for iQ751, x4 for iQ1001)
6	IGT-SPR0202	Cold side manifold kit
7	IGT-MANF0052	Gas manifold
8	IGT-SPR0203	Hot side manifold kit
10	IGT-SPR0121	Cross over assembly kit (incl bypass valve)
11	IGT-VL0019	Bypass valve
12	IGT-SPR0075	Pump Kit
13	IGT-SPR0206	Cold side inlet Header kit
20	IGT-FLTR0001	Air filter

16. Serviceable Parts

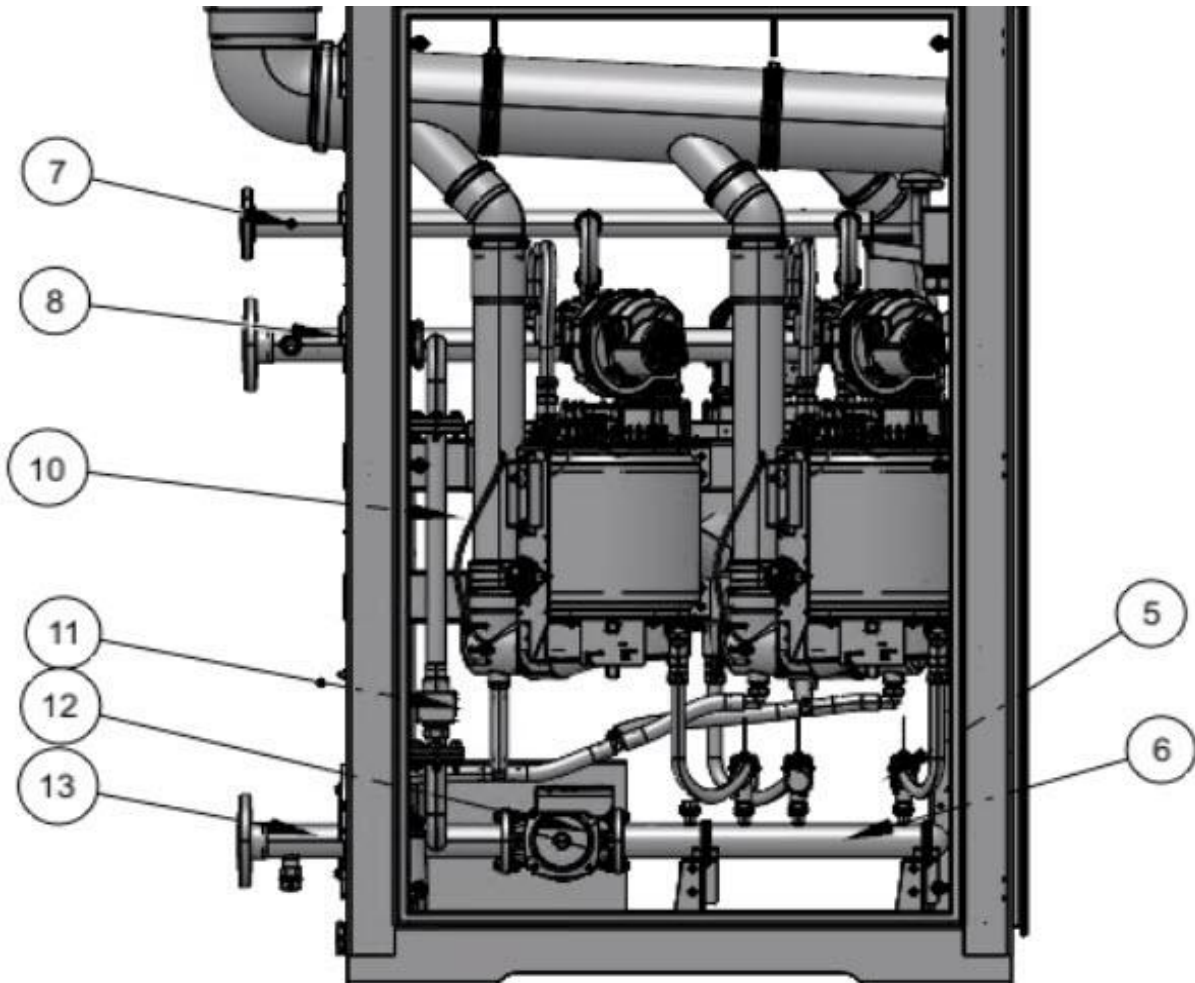
Right side (iQ1501)



Item	Part Number	Description
5	IGT-SPR0003	Water Valve (x6)
11	IGT-VL0019	Bypass valve
12	IGT-SPR0075	Pump Kit
14	IGT-MANF0008	Gas manifold
15	IGT-SPR0205	Hot side manifold kit
16	IGT-SPR0121	Cross over assembly kit (incl bypass valve)
18	IGT-SPR0206	Cold side inlet Header kit
19	IGT-SPR0204	Cold side manifold kit
20	IGT-FLTR0001	Air filter

16. Serviceable Parts

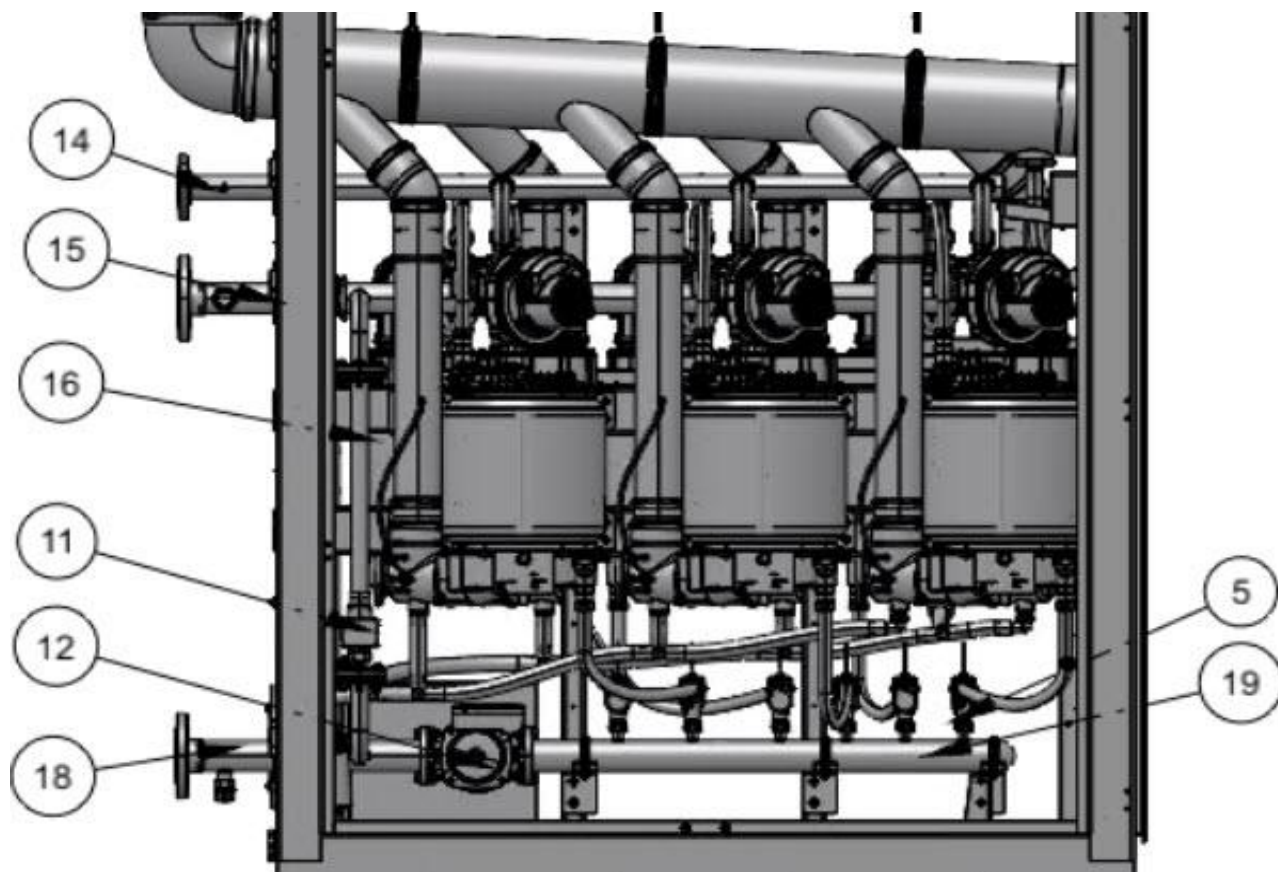
Left side (iQ751)



Item	Part Number	Description
5	IGT-SPR0003	Water Valve (x3 for iQ751, x4 for iQ1001)
6	IGT-SPR0202	Cold side manifold kit
7	IGT-MANF0052	Gas manifold
8	IGT-SPR0203	Hot side manifold kit
10	IGT-SPR0121	Cross over assembly kit(incl bypass valve)
11	IGT-VL0019	Bypass valve
12	IGT-SPR0075	Pump Kit
13	IGT-SPR0206	Cold side inlet Header kit

16. Serviceable Parts

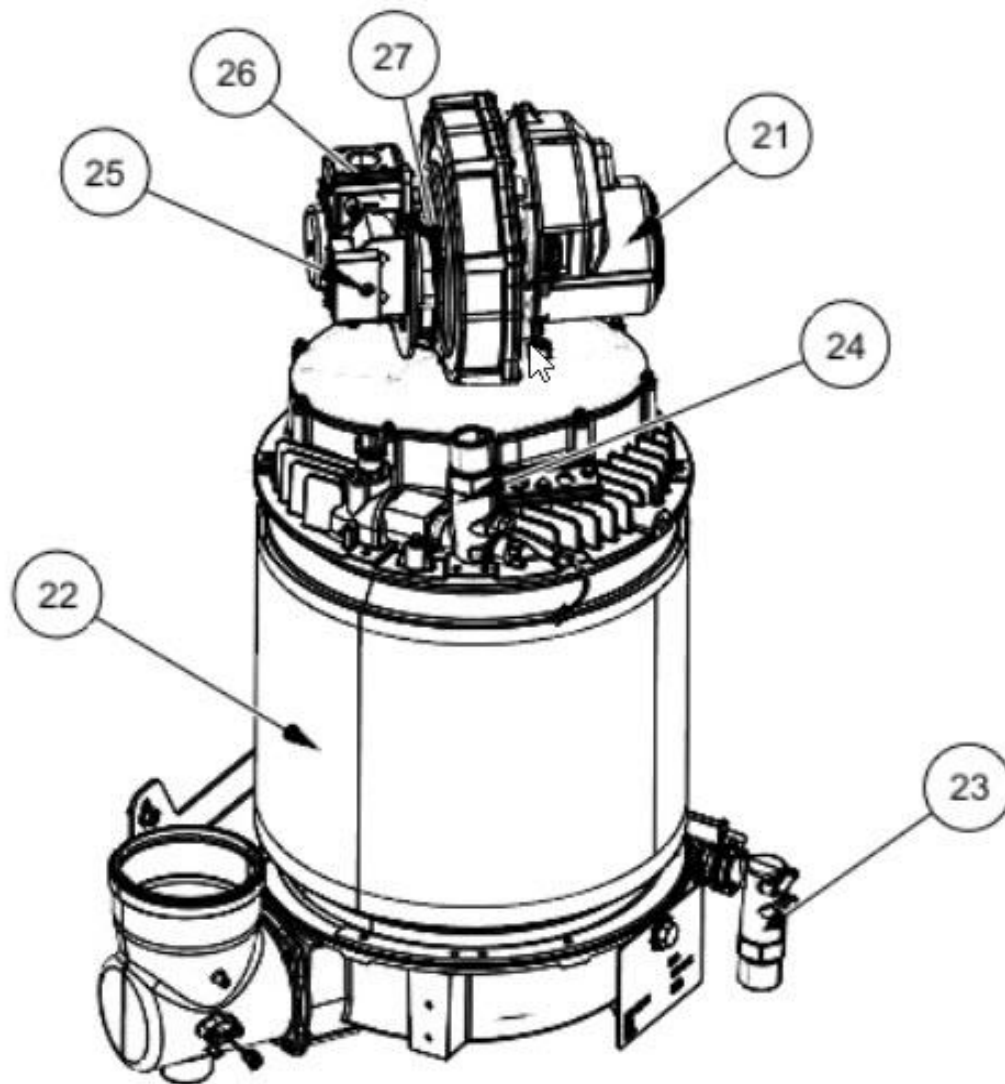
Left side (iQ1501)



Item	Part Number	Description
5	IGT-SPR0003	Water Valve (x6)
11	IGT-VL0019	Bypass valve
12	IGT-SPR0075	Pump Kit
14	IGT-MANF0008	Gas manifold
15	IGT-SPR0205	Hot side manifold kit
16	IGT-SPR0121	Cross over assembly kit (incl bypass valve)
18	IGT-SPR0206	Cold side inlet Header kit
19	IGT-SPR0204	Cold side manifold kit

16. Serviceable Parts

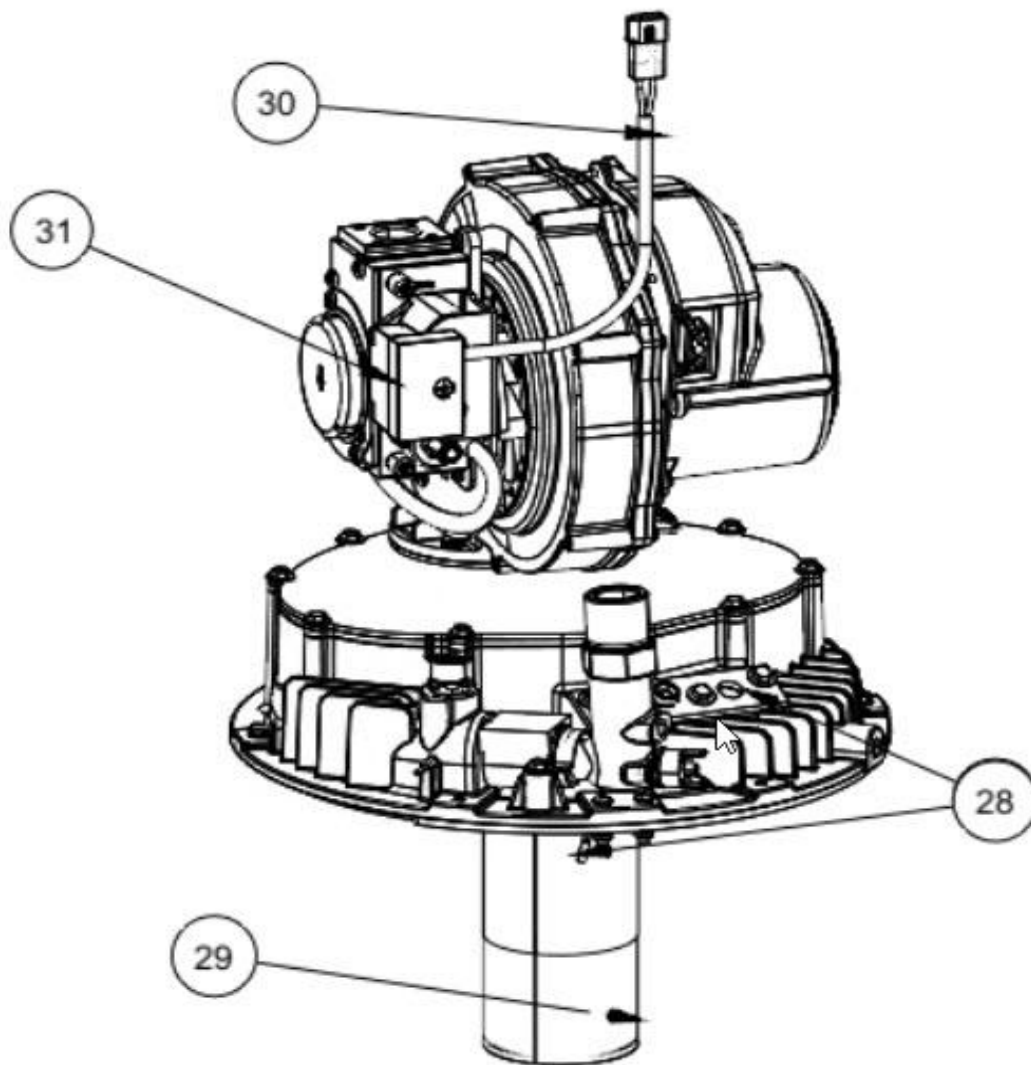
Blower & HEX Parts



Item	Part Number	Description
21	IGT-SPR0008	Blower Kit
22	IGT-SA0552	Complete HEX assembly
23	IGT-CST0010	Inlet Casting Adapter
24	IGT-CST0011	Outlet Casting Adapter
25	IGT-SPR0011	Gas Valve Kit
26	IGT-ELC0147	Gray Swirl Plate
27	IGT-ELC0012	Fan Adapter Plate

16. Serviceable Parts

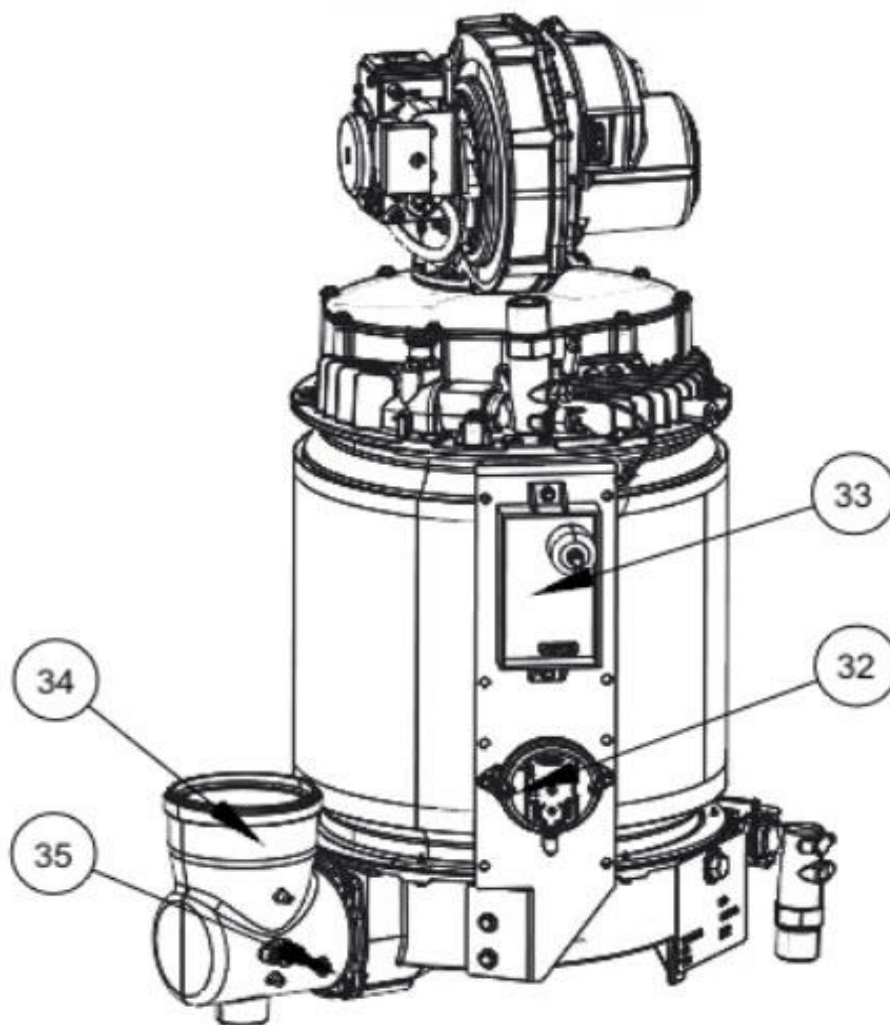
Burner, Electrode & Gas Valve



Item	Part Number	Description
28	IGT-SPR0106	Gen II V02 Electrode Kit
29	IGT-SPR0111	Gen II V02 Burner Kit
30	IGT-ELC0020	Gas Valve Harness
31	IGT-SPR0011	Gas Valve Kit

16. Serviceable Parts

DSI & Air Switch



Item	Part Number	Description
32	IGT-ELC0007	Air Switch
33	IGT-SPR0005	DSI
34	IGT-CST0029	Exhaust Sidecast
35	IGT-ELC0062	Flue Sensor

16. Serviceable Parts

Miscellaneous

Part Number	Description
IGT-ELC0092	25 ft cascading cable
IGT-ELC0232	50 ft cascading cable
IGT-SPR0109	Gen II V 2 O-Ring kit
IGT-SPR0110	Gen II V 2 Sensors Kit (includes Manifold inlet, Manifold outlet, Flue and Hotwater outlet sensors)
IGT-SPR0066	Resettable Overheat Switch
IGT-SPR0097	High temp sensor kit
IGT-SPR0085	iOT Kit
IGT-ELC0181	DSI to Electrode HV Cable
IGT-ELC0153	Display Harness
IGT-ELC0131	Heat Exchanger Harness
IGT-ELC0140	iQ751/iQ1001 Manifold Inlet/outlet and Air switch harness
IGT-ELC0137	iQ1501 Manifold Inlet/outlet and Air switch harness
IGT-ELC0214	Bypass Valve Harness
IGT-ELC0143A	iQ751/iQ1001 Power Harness
IGT-ELC0132A	iQ1501 Power Harness
IGT-FLTR0001	Air Filter
IGT-ELC0007	Air Switch
IGT-CST0031	Flapper