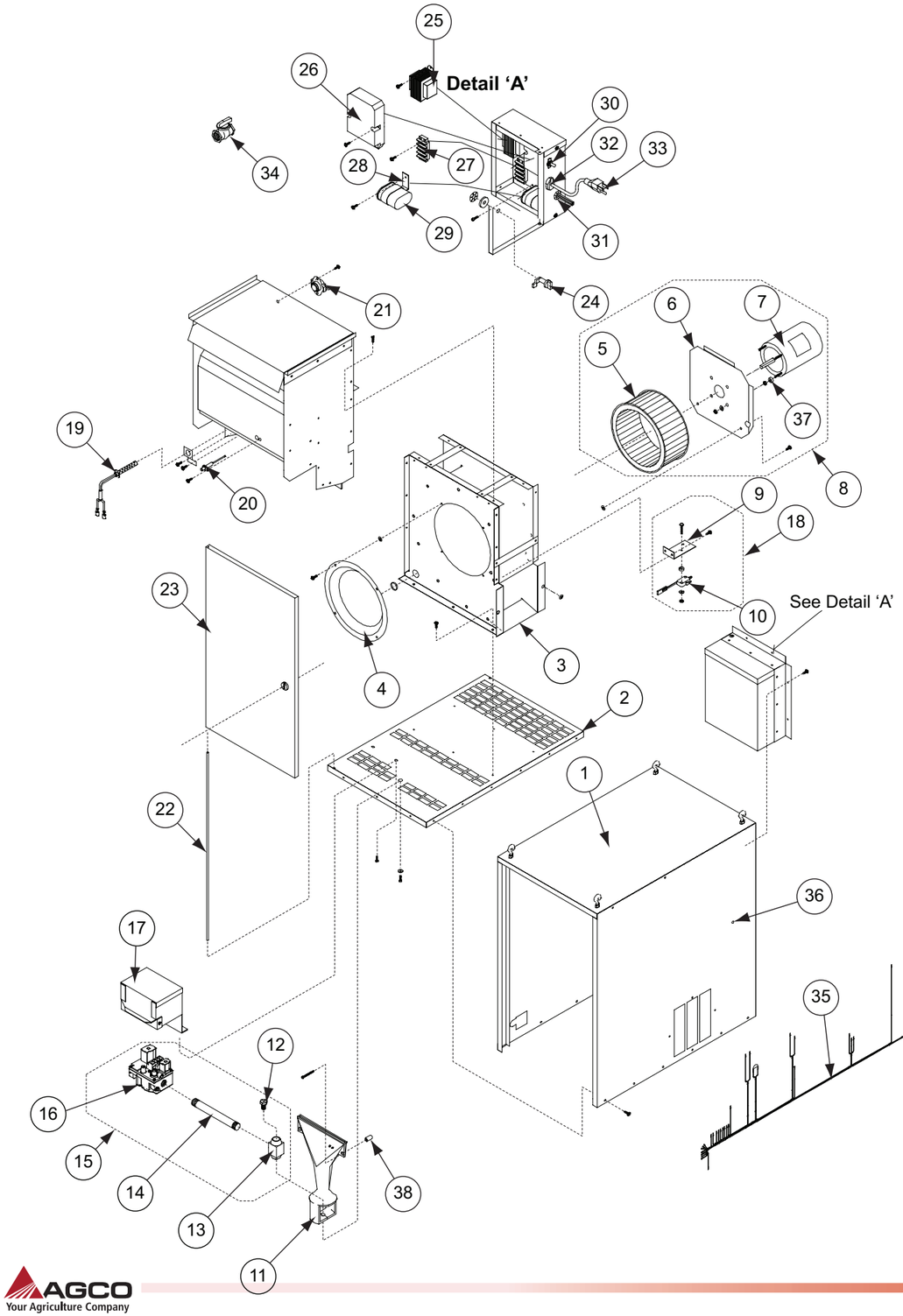
Purafire Heater



Purafire Heater Parts List

Ref #	Part #	Description
1	5420-1-914	Exterior Wrap Assembly (All C80, C80M)
1	5430-1-914	Exterior Wrap Assembly (All C225)
2	41-0211	Open Flow Base Panel Galv (C225, C225 NG/LP)
2	5420-1-108	Unit Base Panel (All C80, C80M)
3	5420-0-901	Scroll Assembly (All C80, C80M)
3	5430-1-901	Scroll Assembly (All C225, C225)
3	5430-2-901	Scroll Assembly-50 Hz (All C225, C225)
4	20-5005	Ring, Blower Inlet 6.76" x 3" (All C80)
4	20-5111	Ring, Inlet Blower 9.87" x 6" (C225 NG/LP)
4	20-5111X	Ring, Inlet For 50 Hz Purafire (C225 NG/LP X)
5	20-5008	Wheel, Blower / Small - C80M - 50/60 Hz (All C80)
5	20-5011X	Wheel, Blower / Large - C225M 50 Hz (C225 NG/LP X)
5	20-5110	Wheel, Blower / Large - C225M 60 Hz (C225 NG/LP)
6	5420-1-107	Motor Mounting Plate (C80, All C80)
6	5530-1-106	Motor Mounting Plate (C225, All C225)
7	20-5009	Motor, 1/8 HP, 1 PH, 60 Hz, 120V / C80M (C80 NG/LP)
7	20-5009X	Motor, .11 HP, 1 PH, 220V, 50 Hz / C80M (C80 NG/LP X)
7	20-5099D	Motor, 1/3 HP, 1 PH, 120V (C225)
7	20-5099XX	Motor, 1/3 HP, 1 PH, 200V 50/60 Hz
8	5420-0-902	Motor Assembly (C80, C80 NG/LP)
8	5420-2-902	50Hz Motor Assembly (C80 NG/LP X, C80M)
8	5430-0-902	Motor Assembly (C225, C225 NG/LP)
8	5430-2-902	Motor Assembly-50Hz (C225, C225 NG/LP X)
9	41-9004	C225/C80M AirSwitch Mounting Plate
10	20-6016	Switch, Air Proving C80M - C225 (All Heaters)
11	20-5010	Burner, Small Cast Heater (All C80)
12	20-5019	Orifice / Natural Gas - 5/16" Hole - C225 (C225 NG/LP, C225 NG/LP X)
12	20-5019M	Orifice / Natural Gas - 11/32" Hole - C225 Modulating Heater (C225 NG/LP Mod)
12	20-5020	Orifice / Liquid Propane - #18 Hole - C225 (C225 NG/LP, C225 NG/LP X)
12	20-5020M	Orifice / Liquid Propane - #16 Hole - C225 Modulating Heater (C225 NG/LP Mod)
12	20-5136	Orifice / Natural Gas - #14 Hole - C80M (All NG C80)
12	20-5137	Orifice / Liquid Propane - #38 Hole - C80M (All LP C80)
13	20-5022	Elbow, Orifice .250" x .250" (All C80)
13	20-5095	Elbow, Orifice Steel .375 x.25 (All C225)
14	20-5028	Valve, 3/8" x 1/4" (LP) Modulating (All LP C80)
14	20-5029	Valve, 1/4" x 3/8 (NG) Modulating NPT Thrd Part #SDM-6-4-2 For C80M (All NG C80)

Ref #	Part #	Description
14	20-5112	Nipple, 3/8" x 5-5/8" SCH BLK (C225 NG/LP, C225 NG/LP X)
14	20-5112M	Nipple, 4" x 3/8" Mod (C225 NG/LP Mod)
15	5424-0-905	C80M Orifice/Gas Valve Assembly (All LP C80)
15	5425-0-905	C80MNG Orifice/Gas Valve Assembly (All NG C80)
15	5430-0-905	C225LP Orifice/Gas Valve Assembly (All LP C225)
15	5434-0-905	Gas Valve Assembly / C225 Natural Gas Orifice (All NG C225)
16	20-5070K	Valve, Gas, LP, C80/C225 Purafire Replacement Gas Valve (All LP Heaters)
16	20-5071K	Valve, Gas, NG, C80/C225 Purafire Replacement Gas Valve (All NG Heaters)
17	5420-1-128	Heater Valve Cap Top Panel (All Heaters)
18	5430-1-904	Air Proving Switch Assembly / C80M & C225 (All C225)
19	20-5047M	Ignitor, Gas Stainless Steel Replaces : 20-5047 (All Heaters)
20	20-5045	Probe, Flame, Purafire Heaters (All Heaters)
21	20-5046	Switch, High Limit 350° Thermostat (All Heaters)
22	20-5044	Rod, Hinge Small Door -21.0" (All C80)
22	20-5092	Hinge, Large Door Rod 27.0" (All C225)
23	5420-1-913	C80M Unit Door Assembly (All C80)
23	5430-1-913	C225 Unit Door Assembly (All C225)
24	20-5033	Latch, Enclosure Elec Door (All Heaters)
25	20-5036	Transformer, 120V/24V Class 2 / C80M/C225M - 60 Hz (All 60 Hz Heaters)
25	20-5036X	Transformer, 240V/24V / C80M/C225M - 50/60 Hz (All 50 Hz Heater)
26	20-5001	Relay, Flame Safeguard / C80M/C225M (All Heaters)
27	20-5038	Connector, Terminal Block 4 Post Replaces : 20-5039 (All Heaters)
28	5420-1-125	Heater Capacitor Bracket (All Heaters)
29	20-5037	Capacitor, 7.5MFD 370VAC - C225M (C225 NG/LP)
29	20-5037X	Capacitor, 10 MFD 370V (C225 NG/LP X)
29	20-6007	Capacitor, 5.0 MFD - 370V - C80M (All C80)
30	20-5060	Switch, Toggle SPST 15a with ON/OFF (All Heaters)
31	20-5061	Bushing, .875 Wire Universal (All Heaters)
32	20-5032	Bushing, Strn Relief.5" Heyco#1114 (All Heaters)
33	20-5052	Cord, 120" LG 18/3 SJT with Male 5" Cutback with Terminals (All Heaters)
34	20-5065	Valve, Ball - Gas 1/2" x 1/2" (All Heaters)
35	20-5430-1-HH	Hrns Airstream C225 And C80 Heater Wiring (All Heaters)
36	20-505-5	LED Lens Assembly (All Heaters)
37	20-5012	Spacer, Tubular .25 x .1875 (All Heaters)
38	20-5154	Spacer, Tubular .25 x .9375 (All C225)
N/S	41-9020	NG Metal Ignitor Bracket (All NG C225)

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Purafire Heater

Troubleshooting

Indicator	Possible Cause	Corrective Action
LED ON	Normal operation	No problem
LED OFF	Unit does not operate	See #1 of the Troubleshooting Guide
LED Flashes		
One (1) Flash	Air proving switch contacts closed before blower operation was initiated.	See # 6 of Troubleshooting Guide.
Two (2) Flashes	Air proving switch contacts did not close or air proving switch opened after flame was detected.	See #3, #5, and #7 of Troubleshooting Guide.
Three (3) Flashes	Burner does not light and/or does not stay lit.	See #9 and #10 of Troubleshooting Guide.
Four (4) Flashes	Flame signal interrupted during ignition trial, or defective flame safeguard relay module (FSR).	See #13 of the Troubleshooting Guide. Replace the FSR module.

Possible Cause	Corrective Action
1. Unit does not operate (No LED indication)	
No power to heater	Check electrical supply and repair
Thermostat open or malfunction	Reset or replace thermostat
Toggle switch open or malfunction	Turn toggle “ON” or replace switch
24 volt transformer	Check 24 volt power output of transformer on terminals 3 & 4. Replace transformer if no voltage is detected.
Flame safeguard relay module (FSR)	Check 24 volt power input on terminal 9 on FSR. If power is no detected, replace the red wire going to terminal 4 of the TB1. If power is detected at terminal 9 on the FSR, replace the FSR module.
2. Motor does not run (with LED indictation)	
Air proving switch closed (1 flash)	See symptom #6
Air proving switch does not close (2 flashes)	See symptom #7
Motor tripped on overload protector (2 flashes)	See symptom #4
Motor malfunction (2 flashes)	Replace motor
Burner fails to light (3 flashes)	See symptoms #9 & #10
Flame safeguard relay (FSR) malfunction (4 flashes)	FSR Failed, self-diagnostic check. Replace FSR.
3. Motor does not start, but hums or runs slowly (2 flashes)	
Blower wheel binding	Remove obstruction, realign and secure blower wheel or replace blower wheel.
Motor binding	Replace the motor
Capacitor inoperative	Replace the capacitor
4. Motor trips on thermal overload (2 flashes)	
Low voltage	Check power input with the heater running at terminals #1 & #2 on TB1. Voltage should be that specified on the name plate. In not correct value, check power source to determine if wiring to heater has excessive voltage drop.
Low gas flow	See symptom #13
High motor Amps (with burner operating)	Replace motor
Weak motor capacitor	Replace capacitor
5. Motor starts, then stops	
Air proving switch contacts do not close (2 flashes)	See symptom #7
Burner does not light and/or does not stay lit (3 flashes)	See symptoms #9 & #10
Motor trips on thermal protector (2 flashes)	See symptom #4
6. Air proving switch does not open (1 flash)	
Air proving switch binding	Adjust air proving switch to move freely or replace
Air proving switch malfunction	Replace air proving switch
7. Air proving switch does not close (2 flashes)	
Obstruction or flapper arm bent	Remove obstruction, or adjust air proving switch to move freely, or replace switch
Low air flow	Check for inlet and/or discharge obstruction and clean blower wheel. Realign and secure. Replace damaged blower wheel.
Motor does not run	See symptom #2
Motor trips on thermal protector	See symptom #4
Loose or broken wire	Repair or replace wire
8. High Limit open (3 flashes)	
High limit tripped	Reset the high limit and review additional possible cause shown below.
Low air flow	Check for inlet and/or discharge obstruction and clean blower wheel. Realign and secure. Replace damaged blower wheel.
Over firing.	Check gas type (LP or NG). Check supply gas pressure. Check manifold pressure and orfice size.
Malfunction high limit switch	Replace high limit switch
Burner flame does not shut off	See symptom #14

Possible Cause	Corrective Action
9. Burner lights, but will not stay lit (3 flashes)	
Unit not properly grounded	Check tightness of ground wires at the blower and ground screws in the electrical control enclosure.
Oxidation/corrosion on the flame rod	Sand off oxidation/corrosion
Flame rod not sensing flame	Replace the flame rod. Flame rod grounded
Low gas flow	See symptom #13
10. Burner will not light (3 flashes)	
No fuel to heater	Check gas supply. Check all manual shut off cocks in the supply line.
Low gas flow	See symptom #13
Ignitor does not light burner	See symptom #11
Automatic gas valve not opening	See symptom #12
11. Ignitor does not light burner (3 flashes)	
High limit open	See symptom #8
Low voltage to ignitor	Check 24 volt power output to transformer across terminals 3 & 4. If meter reading is below 24 volts, see symptom #4. If transformer output is zero, but voltage terminals 1 & 2 is line voltage, replace transformer.
Flame safeguard relay (FSR) malfunction	Check output voltage on terminal #5 (FSR) during trial for ignition to ensure voltage exceeds 24 volts. If not, replace FSR module.
Low gas flow	See symptom #13
Ignitor misaligned	Check mounting of ignitor to ensure it is secure.
Ignitor malfunction	Replace ignitor
12. Automatic gas valve not opening (3 flashes)	
High limit open	See symptom #8
Flame safeguard relay module (FSR) malfunction	Check output voltage from terminal #5 (FSR) during trial for ignition to ensure voltage exceeds 24 volts. If not, replace FSR module.
Dirt or sediment in automatic gas valve	Clean and replace all gas supply lines and install a sediment trap at the heaters gas inlet. All automatic gas valves installed on contaminated supply lines without sediment traps must be replaced.
Loose or broken wire	Repair or replace wire
Gas valve malfunction	Replace gas valve
Ignition malfunction	Replace ignitor
13. Low gas flow/low operating pressure (2 flashes)	
Air in gas line	Purge gas line
High pressure regulator malfunction	Check regulator output setting, relief vent blockage, water or ice accumulation, regulator seat sticking or undersized regulator.
Closed or partially closed gas supply cock(s)	Check gas supply line to ensure all gas cocks are fully open.
Gas supply piping undersized	Analyze gas supply distribution system for proper sizing.
Improper fuel	Check heater nameplate for gas type (LP or NG).
Improper manifold pressure	Check automatic gas valve regulator setting for compliance with heater name plate.
Blockage between automatic gas valve and orifice	Check gas way between automatic gas valve and orifice outlet and clean as required.
Burner flow restriction	Clean burner passageway.
Orifice alignment	Check for proper orifice alignment.
Dirt or sediment in automatic gas valve	Clean and replace all gas supply lines and install a sediment trap at the heaters gas inlet. All automatic gas valves installed on contaminated supply lines without sediment traps must be replaced.
14. Burner does not shut off	
Dirt or sediment in automatic gas valve	Clean and replace all gas supply lines and install a sediment trap at the heaters gas inlet. All automatic gas valves installed on contaminated supply lines without sediment traps must be replaced.
Defective automatic gas valve	Replace automatic gas valve but check supply pressure to insure gas pressure is below 14" W.C. (1/2 PSI).