OMNI-Test Laboratories, Inc.

EPA Standard of Performance for New Residential Wood Heaters

Certification Test Report

Non-Confidential Business Information (Non-CBI)

Manufacturer: Hearth & Home Technologies, LLC
Heater Type: Pellet-Fired, Freestanding
Models: PP60-B/PH35PS-B, OUTFITTER-I

Prepared for:
Hearth & Home Technologies, LLC
352 Mountain House Rd.
Halifax, PA 17032
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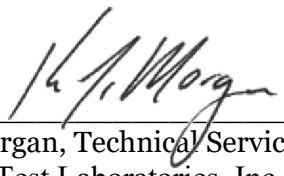
AUTHORIZED SIGNATORIES

This report has been reviewed and approved by the following authorized signatories:

Evaluator:



Ken Morgan, Technical Services Director
OMNI-Test Laboratories, Inc.

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1.1 - Summary Tables

Table 1 – Particulate Emissions

	One-Hour Filter	Integrated Total
Emission Rate (g/hr)	0.277	**0.740**
Emission Factor (g/dry kg)	0.167	0.9767

Table 2 – Efficiency and CO

	Burn Rate Segment			Integrated Total
	Maximum	Medium	Minimum	
Time (minutes)	60	120	180	360
Burn Rate (dry kg/hr)	1.659	0.723	0.482	0.758
Heat Input Rate (BTU/hr, HHV)	33,185	14,465	9,643	15,174
Heat Output Rate (BTU/hr, HHV)	26,020	10,665	6,815	11,314
Efficiency (%, HHV)	78.4%	73.7%	70.7%	74.6%
Efficiency (%, LHV)	83.5%	78.5%	75.2%	79.4%
CO Emission Rate (g/min)	0.02	0.10	0.36	0.22

1.1 - Summary Tables

Table 3 – Test Facility Conditions

	Initial	Middle	Final
Room Temperature (˚F)	74	78	76
Barometric Pressure (in Hg)	30.08	30.39	30.40
Air Velocity (ft/min)	<50	<50	<50
Induced Draft (in H2O)	Φ	Φ	Φ

Table 4 – Heater Configuration

	Pretest	Burn Rate Segment		
		Maximum	Medium	Minimum
Heat Output Setting	Heat setting on High (power level 5), Trim set to +4. (max), Fan is automatic	Heat setting on High (power level 5), Trim set to +4. (max), Fan is automatic	Heat setting on 3 (power level 2), Trim set to -3. Fan is Automatic	Heat setting on 1 (power level 1), Trim set to -4. Fan is Automatic

1.2 - Procedures and Results Summary

TESTING PROCEDURE

The PP60-B/PH35PS-B was tested in accordance with the U.S. EPA 40 CFR Part 60, Subpart AAA – Standards of Performance for New Residential Wood Heaters using ASTM E2515 and ASTM E2779. The model was tested for thermal efficiency and carbon monoxide (CO) emissions in accordance with CSA B415.1-10. The fuel used for certification testing was Pres-to-Log brand soft wood pellet fuel; this fuel was graded as Premium by the Pellet Fuels Institute and was produced at registered mill # 03208. Particulate emissions were measured using dual sampling trains consisting of two sets of filters (front and back).

A single test run was performed. The unit was installed and adjusted in accordance with the manufacturer's instructions

The manufacturer's instructions specified operating the preburn and high burn segments at maximum heat setting (power level 5), and the trim switch set to +4. The medium burn segment was operated at heat setting 3 (power level 2), and the trim switch set to -3. The low burn segment at minimum heat setting (power level 1), and the trim switch set to -4.

Efficiency results were calculated using spread sheet Version 2.2 created 12/14/2009 and distributed by CSA. Example calculations for CSA B415.1 were not provided by CSA; spreadsheet is protected from modifications by means of a password.

An ambient filter (Background) was not operated during this series, there were no operations in the area that would have generated additional particulate into the ambient air. Running an ambient filter can only reduce emissions by backing out any particulate not generated by fuel in the appliance, it can never increase emissions. Tests conducted without an ambient filter are considered worse case.

RESULTS SUMMARY

Proportionality results of the integrated test run, in addition to all other validity criteria, were within specified limits, and no sampling anomalies occurred. All burn rate categories were achieved. Therefore, this test run is considered valid and appropriate.

The PP60-B/PH35PS-B results indicate an average particulate emission rate of 0.74 g/hr. The results are within the emission limit of 2.0 g/h for affected appliances manufactured on or after May 15, 2020.

The heater demonstrated an average thermal efficiency of 74.6%. The calculated CO emission rate was 0.22 g/min.

Upon completion of emissions certification testing, the sample unit was sealed and will be stored by the manufacturer in accordance with the requirements of the CFR.

1.3 - Appliance Description

Appliance Manufacturer: Hearth & Home Technologies

Pellet Stove Model: PP60-B/PH35PS-B

Type: Freestanding, air-circulating type, pellet-fired room heater.

The PP60-B/PH35PS-B's principle elements include a fuel hopper, cold rolled steel burn pot, and electrical fuel feed, combustion air, and convection air supply systems. The frame of the unit is constructed of mild steel, as is the outer fascia.

Combustion products are routed out of the firebox chamber via a baffle-type heat exchanger through a 3-inch diameter flue outlet located on the rear of the unit.

Fuel is supplied from the hopper to the burn pot via a screw-type auger, mounted diagnolly. Fuel supply rate is varied by cycling the auger motor as needed.

Ashes fall through the burn pot into a removable ash drawer located at the bottom of the unit. The drawer is accessed through a mild steel door, distinct from the cast aluminum front firebox door, which also features a 12.5 x 9.0" glass panel.

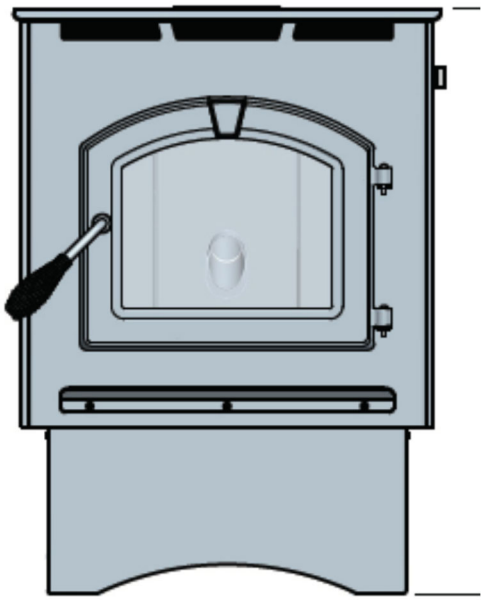
The electrical systems are regulated by a single user-operated rotating knob that can be set from low to high with 10 numbered graduations. An additional trim setting is located on the control panel, its primary function is to fine tune the settings to compensate for fuel and draft variances.

During certification testing at OMNI Test Labs, the PelPro PP60-B unit was tested for emissions and efficiency per the applicable standards detailed in the test report. The PP60-B is the PelPro branded 60 lb. hopper capacity embodiment of the unit, as shown in the photograph below.

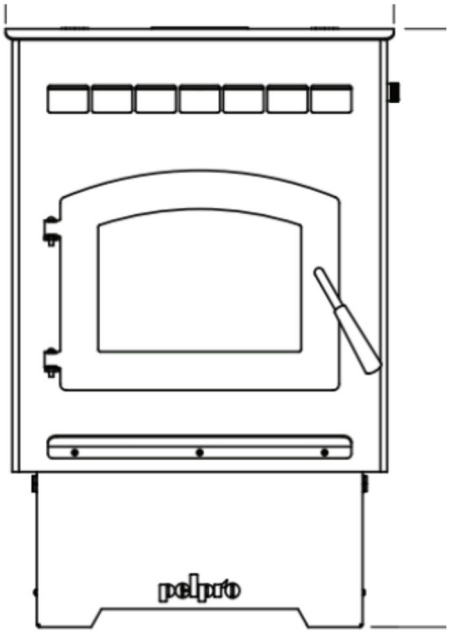
The Pleasant Hearth PH35PS-B is the Pleasant Hearth branded 45 lb. hopper capacity embodiment of the same firebox. Only slight changes were made to hopper capacity and appearance. Both units share an identical firebox volume and layout. The electrical components, electronic controls, critical air openings, viewing area and "k" list items are identical between the two units. These units were designed contemporaneously, and with the specific intention of a completely identical, shared firebox design. Based on this information, EPA Certification Testing was completed on the PelPro PP60-B with full understanding that the results are applicable to both units.

More detailed information is shown in the manufacturer's design drawings, Appendix C of this report. This information is considered confidential business information (CBI) by the manufacturer and is not included in the non-CBI version of this report.

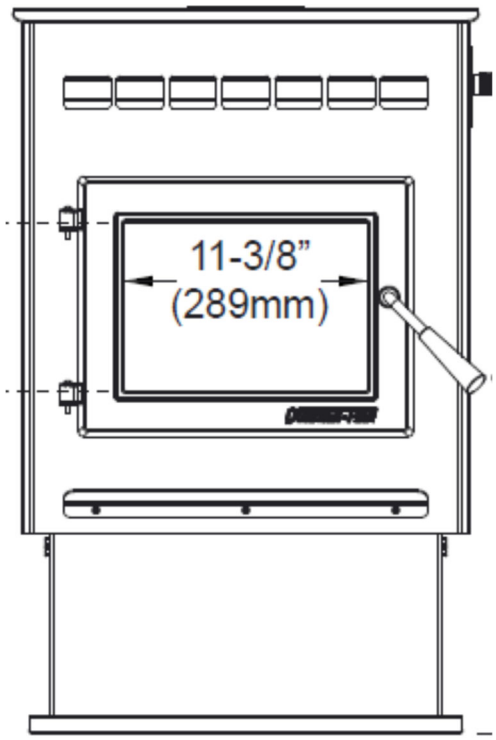
Model Similarity



PH35PS-B



PP60-B



OUTFITTER-I

Stove model OUTFITTER-I shares all electrical, and mechanical components as the originally certified PP60, cosmetic changes to the door and pedestal were the only external changes. Internally the ambient probe used on the tested model was replaced by a room thermostat. The new thermostat will operate the appliance using the same electronic parameters affecting feed rates and blower voltages as used on the originally tested appliance.

Control Photographs

PP60-B/PH35PS-B

Test Date: 12/18/2018

Control Position (Maximum)

Control Position (Medium)

Control Position (Minimum)

Appliance Photographs

PP60-B/PH35PS-B

Test Date: 12/18/2018

PP60-B/PH35PS-B Front (Sealed)

PP60-B/PH35PS-B Back (Sealed)

PP60-B/PH35PS-B Left (Sealed)

Note: photographs of the tested unit prior to sealing were lost due to a file transfer error. See drawings and owner's manual for additional images of unit.

Section 2
Test Data

Pellet Heater Conditioning Data - ASTM E2779

Manufacturer:	Hearth & Home
Model:	PP60/PH35
Tracking No.:	2344
Project No.:	0061PS095E
Test Date:	1/1/2019 - 1/09/2019
Operation Category:	Medium

Location: Hearth and Home Technologies
352 Mountain House Rd
Halifax, PA 17032

Elapsed Time (hours)	Weight (Lbs)	Stack (°F)
0	224.0	410
1	222.5	413
2	220.6	292
3	218.6	284
4	217.4	228
5	215.7	364
6	213.9	371
7	210.9	377
8	207.9	375
9	204.9	366
10	202.0	372
*11	199.3	347
12	223.3	453
*13	220.3	424
14	237.4	205
15	235.8	254
16	234.2	254
17	232.4	266
18	230.4	257
19	228.2	271
20	226.0	286
21	223.5	365
22	221.1	356
*23	218.6	356
24	277.3	230
25	271.1	238
26	269.0	111
27	266.9	110
28	265.4	94
*29	263.8	104
30	226.5	377

Operated for 50 hours at a medium burn rate.

Note*

*Underscore Indicates the last recorded data point of each conditioning run.

Pellet Heater Conditioning Data - ASTM E2779

Manufacturer:	Hearth & Home
Model:	PP60/PH35
Tracking No.:	2344
Project No.:	0061PS095E
Test Date:	1/1/2019 - 1/09/2019
Operation Category:	Medium

Location: Hearth and Home Technologies
352 Mountain House Rd
Halifax, PA 17032

Elapsed Time (hours)	Weight (Lbs)	Stack (°F)
31	222.7	371
32	220.7	273
33	218.9	265
34	217.7	205
35	216.6	208
*36	215.4	208
37	224.5	374
38	222.6	257
39	221.0	256
40	219.8	208
41	218.6	195
*42	217.4	207
43	226.6	371
44	224.9	254
45	223.2	245
46	221.9	203
47	220.8	208
*48	219.7	198
49	256.2	247
50	253.9	182

Operated for 50 hours at a medium burn rate.

Note*

*Underscore Indicates the last recorded data point of each conditioning run.

2.1 - Test Data by Run

Run 1 Notes & Results

Operating instructions for the PP60-B/PH35-B pellet fuel Appliances:

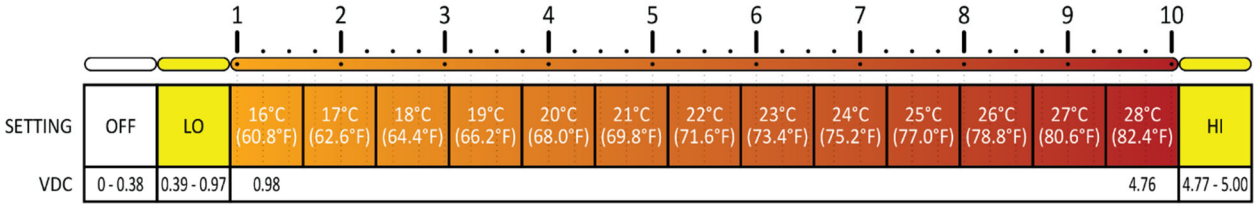
Maximum burn Rate: Control knob set to Power Level 5, +4 trim setting.

Medium burn Rate: Control knob to Power Level 2, -3 trim setting.

Minimum burn Rate: Control knob to Power Level 1, -4 trim setting.

PelPRO PP60/Quadrafire Outfitter I
Low Burn Narrative

The numbers on the dial control do not relate to a specific power level. 1 through 10 correlates to a temperature or “comfort level”. While set to a comfort level, the stove will automatically select the best power level to reach the desired room temperature based on the reading of the ambient probe. Once the desired room temperature rating has been achieved, the stove will transition to power level 1 and continue to run at power level 1 to maintain that comfort level. It will run at power level 1 until the room drops below the desired comfort level for more than 10 minutes. It will then transition to the next power level up until the room comfort level is achieved and then transition back to power level 1. The diagram below shows how the 1 – 10 scale corresponds to temperature settings.



Even though the dial was not turned to the “LO” setting, the dial set to between 1 and 1.5 would have set the desired comfort level to 61°F. Because the room was above the 61°F comfort level setting, the stove would have transitioned to power level 1, the lowest setting. The room remained above 61°F during the duration of the test and the stove continued running on power level 1, which can be verified by the ambient temperatures shown in the test run data.

ASTM E2779 / ASTM E2515 Emissions Results

Manufacturer:	Hearth & Home
Model:	PP60/PH35
Project No.:	0061PS095E
Tracking No.:	2344
Run:	1
Test Date:	01/22/19

Technician Signature: _____

Integrated Test Run	
Particulate Emission Rate	**0.74 g/hr**
Total Particulate Emissions - E_T	4.44 g
Emissisons Factor	0.98 g/kg
CSA B415 Efficiency	**74.6% HHV**

First Hour Emissions	
Particulate Emission Rate	0.28 g/hr
Total Particulate Emissions - E_T	0.28 g
Emissisons Factor	0.17 g/kg

Burn Rate (Composite)	**0.76 kg/hr dry**	
Burn Rate (High)	1.66 kg/hr dry	
Burn Rate (Medium)	0.72 kg/hr dry	43.6% Of High
Burn Rate (Low)	0.48 kg/hr dry	29.1% Of High
Average Tunnel Temperature	85 degrees F	
Avg.Velocity in Dilution Tunnel - v_s	13.23 ft/second	
Avg.Flow Rate in Dilution Tunnel - Q_{sd}	9014.1 dscf/hour	
Average Δp	0.046 inches H20	
Average ΔH	1.34 inches H20	
Total Time of Test	360 minutes	

ASTM E2779 / ASTM E2515 Emissions Results

Manufacturer:	Hearth & Home
Model:	PP60/PH35
Project No.:	0061PS095E
Tracking No.:	2344
Run:	1
Test Date:	01/22/19

Technician Signature: _____

	1st Hour	Sample Train 1	Sample Train 2	Sample	Unit
Total Sample Volume - V_m	9.510	57.609	58.599		ft^3
Average Gas Meter Temperature	74.56	79.47	1.11		°F
Sample Volume (Std. Conditions) - V_{mstd}	9.778	58.697	67.812		dsf^3
				N/A	
Total Particulates - m_n	0.3	5.4	4.9		mg
Particulate Concentration - C_r/C_s	3.068E-05	9.20E-05	7.23E-05		g/dsf^3
Total Particulate Emissions - E_T	0.28	4.98	3.91		g
Particulate Emission Rate	0.28	0.83	0.65		g/hr
Emissisons Factor	0.17	1.09	0.86		g/kg
Delta from Avg. Particulate Emissions		0.53	0.53		g

Quality Checks

Filter Temps < 90 °F	OK	Ambient Temp (55-90°F)	OK
Filter Face Velocity	OK	Negative Probe Weight	OK
Leakage Rate	OK	Pro-Rate Variation	OK
Medium Burn Rate < 50%	OK	Dual Train Comparison	OK
Train Precision ≤ 7.5%	12.02	Train Precision ±0.5 g/kg	0.23

CSA B415.1 Results - Overall & By Category

Manufacturer: Hearth & Home
Model: PP60/PH35
Date: 01/22/19

Run: 1
Control #: 0061PS095E
Test Duration: 360

Test Results in Accordance with CSA B415.1-09 - **Overall**

	HHV Basis	LHV Basis	
Overall Efficiency	74.6%	79.4%	
Combustion Efficiency	99.5%	99.5%	
Heat Transfer Efficiency	75%	79.8%	
Output Rate (kJ/h)	11,927	11,314	(Btu/h)
Burn Rate (kg/h)	0.76	1.67	(lb/h)
Input (kJ/h)	15,996	15,174	(Btu/h)
Test Load Weight (dry kg)	4.55	10.03	dry lb
MC wet (%)	6.27		
MC dry (%)	6.69		
Particulate (g)	4.44		
CO (g)	80		
Test Duration (h)	6.00		

Emissions	Particulate	CO
g/MJ Output	0.06	1.12
g/kg Dry Fuel	0.98	17.64
g/h	0.74	13.38
lb/MM Btu Output	0.14	2.61

Air/Fuel Ratio (A/F)	34.64

Test Results in Accordance with CSA B415.1-09 - **Maximum**

	HHV Basis	LHV Basis	
Overall Efficiency	78.4%	83.5%	
Combustion Efficiency	99.5%	99.5%	
Heat Transfer Efficiency	79%	83.9%	
Output Rate (kJ/h)	27,430	26,020	(Btu/h)
Burn Rate (kg/h)	1.66	3.66	(lb/h)
Input (kJ/h)	34,982	33,185	(Btu/h)
Test Load Weight (dry kg)	1.66	3.66	dry lb
MC wet (%)	6.27		
MC dry (%)	6.69		
Particulate (g)	0.30		
CO (g)	1		
Test Duration (h)	1.00		

Emissions	Particulate	CO
g/MJ Output	0.01	0.04
g/kg Dry Fuel	0.18	0.63
g/h	0.30	1.04
lb/MM Btu Output	0.03	0.09

Air/Fuel Ratio (A/F)	16.27

Test Results in Accordance with CSA B415.1-09 - **Medium**

	HHV Basis	LHV Basis	
Overall Efficiency	73.7%	99.5%	
Combustion Efficiency	99.5%	78.9%	
Heat Transfer Efficiency	74%	78.9%	
Output Rate (kJ/h)	11,242	10,665	(Btu/h)
Burn Rate (kg/h)	0.72	1.59	(lb/h)
Input (kJ/h)	15,249	14,465	(Btu/h)
Test Load Weight (dry kg)	1.45	3.19	dry lb
MC wet (%)	6.27		
MC dry (%)	6.69		
Particulate (g)	-		
CO (g)	12		
Test Duration (h)	2.00		

Emissions	Particulate	CO
g/MJ Output	-	0.53
g/kg Dry Fuel	-	8.17
g/h	-	5.91
lb/MM Btu Output	-	1.22

Air/Fuel Ratio (A/F)	35.83

Test Results in Accordance with CSA B415.1-09 - **Minimum**

	HHV Basis	LHV Basis	
Overall Efficiency	70.7%	99.5%	
Combustion Efficiency	99.5%	75.6%	
Heat Transfer Efficiency	71%	75.6%	
Output Rate (kJ/h)	7,184	6,815	(Btu/h)
Burn Rate (kg/h)	0.48	1.06	(lb/h)
Input (kJ/h)	10,166	9,643	(Btu/h)
Test Load Weight (dry kg)	1.45	3.19	dry lb
MC wet (%)	6.27		
MC dry (%)	6.69		
Particulate (g)	-		
CO (g)	65		
Test Duration (h)	3.00		

Emissions	Particulate	CO
g/MJ Output	-	3.04
g/kg Dry Fuel	-	45.27
g/h	-	21.82
lb/MM Btu Output	-	7.06

Air/Fuel Ratio (A/F)	53.78

~~**VERSION:** 2.2 12/14/2009~~ ***Modified to fit this Format***

Pellet Heater Preburn Data - ASTM E2779

Manufacturer:	Hearth & Home
Model:	PP60/PH35
Tracking No.:	2344
Project No.:	0061PS095E
Test Date:	1/22/2019

PB Length:	69 min
Recording Interval:	1 min

Averages:	335	65	-0.04		

Elapsed Time (min)	Scale Reading	Weight Change	Stack (F)	Ambient (F)	Draft ("H2O)	CO2 (%)	CO (%)
0	38.6	-	228	68	-0.03		
1	38.5	-0.1	244	68	-0.03		
2	38.5	0	257	68	-0.03		
3	38.4	-0.1	269	67	-0.03		
4	38.3	-0.1	280	67	-0.04		
5	38.3	0	290	67	-0.04		
6	38.2	-0.1	298	67	-0.04		
7	38.1	-0.1	307	66	-0.04		
8	38.1	0	313	65	-0.04		
9	38.0	-0.1	319	64	-0.04		
10	37.9	-0.1	322	65	-0.04		
11	37.9	0	328	64	-0.04		
12	37.8	-0.1	330	64	-0.04		
13	37.7	-0.1	334	63	-0.04		
14	37.7	0	339	63	-0.04		
15	37.6	-0.1	342	64	-0.04		
16	37.6	0	341	63	-0.04		
17	37.5	-0.1	343	63	-0.04		
18	37.5	0	342	63	-0.05		
19	37.4	-0.1	344	63	-0.04		
20	37.3	-0.1	345	63	-0.05		
21	37.3	0	344	64	-0.05		
22	37.2	-0.1	344	63	-0.05		
23	37.1	-0.1	342	62	-0.04		
24	37.1	0	356	63	-0.05		
25	37.1	0	354	62	-0.05		
26	37.0	-0.1	341	62	-0.04		
27	36.9	-0.1	337	61	-0.04		
28	36.9	0	335	62	-0.04		
29	36.8	-0.1	335	62	-0.04		

Pellet Heater Preburn Data - ASTM E2779

Manufacturer:	Hearth & Home
Model:	PP60/PH35
Tracking No.:	2344
Project No.:	0061PS095E
Test Date:	1/22/2019

PB Length:	69 min
Recording Interval:	1 min

		Averages:	335	65	-0.04		
30	36.8	0	335	62	-0.04		
31	36.7	-0.1	334	62	-0.04		
32	36.6	-0.1	336	62	-0.04		
33	36.6	0	338	62	-0.04		
34	36.5	-0.1	339	63	-0.04		
35	36.4	-0.1	340	62	-0.04		
36	36.4	0	341	64	-0.04		
37	36.3	-0.1	342	65	-0.04		
38	36.2	-0.1	345	65	-0.04		
39	36.2	0	346	65	-0.04		
40	36.1	-0.1	346	66	-0.04		
41	36.1	0	345	66	-0.04		
42	36.0	-0.1	347	66	-0.04		
43	35.9	-0.1	349	66	-0.05		
44	35.9	0	348	66	-0.04		
45	35.8	-0.1	348	66	-0.04		
46	35.7	-0.1	347	66	-0.04		
47	35.7	0	349	67	-0.05		
48	35.6	-0.1	350	66	-0.05		
49	35.5	-0.1	350	67	-0.05		
50	35.5	0	350	66	-0.05		
51	35.4	-0.1	350	67	-0.04		
52	35.3	-0.1	351	67	-0.05		
53	35.3	0	351	66	-0.05		
54	35.2	-0.1	352	67	-0.05		
55	35.1	-0.1	359	67	-0.05		
56	35.1	0	366	67	-0.05		
57	35.1	0	352	67	-0.04		
58	35.0	-0.1	347	67	-0.04		
59	34.9	-0.1	345	67	-0.04		
60	34.8	-0.1	341	67	-0.04		
61	34.8	0	340	67	-0.04		

Pellet Heater Preburn Data - ASTM E2779

Manufacturer:	Hearth & Home		
Model:	PP60/PH35		
Tracking No.:	2344	PB Length:	69 min
Project No.:	0061PS095E	Recording Interval:	1 min
Test Date:	1/22/2019		

		Averages:	335	65	-0.04		
62	34.7	-0.1	341	68	-0.04		
63	34.6	-0.1	344	67	-0.04		
64	34.5	-0.1	343	67	-0.05	7.70	0.00
65	34.4	-0.1	343	67	-0.05	6.54	0.00
66	34.3	-0.1	342	67	-0.05	6.47	0.00
67	34.4	0.1	346	68	-0.05	9.85	0.00
68	34.4	0	347	68	-0.05	8.80	0.00
69	34.3	-0.1	346	68	-0.05	6.98	0.00

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: PP60/PH35
Tracking No.: 2344
Project No.: 0061PS095E
Test Date: 22-Jan-19
Beginning Clock Time: 09:50

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 1.022 (1) 0.995 (2) 0 (Amb)

Barometric Pressure:

Begin	Middle	End	Average
30.38	30.39	30.40	30.39 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: -0.210 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.23 ft/sec.
Intial Tunnel Flow: 148.6 scfm
Average Tunnel Flow: 150.2 scfm
Post-Test Leak Check (1): 0.000 cfm @ 8 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 7 in. Hg
Fuel Moisture (%): 6.689 Dry Basis 6.270 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.046	0.044	0.030	0.036	0.040	0.048	0.030	0.046	"H2O
Temp:	94	94	94	94	94	94	94	94	94	°F

V_{strav} 13.30 ft/sec V_{scent} 14.45 ft/sec F_p 0.921

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
0	0.000	0.000			0.20	70	1.82	0.22	0.16	71.00	95	0.047			34.2		347	66	69	67	65	69	-0.046	8.34	0.003
1	0.153	0.149	0.15	0.15	1.36	70	1.95	0.15	1.16	71.00	95	0.046	98	93	34.1	-0.1	350	67	69	67	66	69	-0.046	9.41	0.004
2	0.311	0.312	0.16	0.16	1.35	70	1.96	0.16	1.15	71.00	95	0.045	103	102	34.0	-0.1	351	68	70	67	66	69	-0.046	8.96	0.003
3	0.470	0.477	0.16	0.17	1.35	70	1.95	0.16	1.15	71.00	95	0.046	102	103	34.0	0.0	351	68	70	68	66	69	-0.046	7.06	0.004
4	0.629	0.639	0.16	0.16	1.35	70	1.95	0.16	1.15	71.00	95	0.046	102	101	33.9	-0.1	351	69	70	68	66	69	-0.047	6.90	0.003
5	0.787	0.802	0.16	0.16	1.34	70	1.96	0.16	1.15	71.00	95	0.046	102	101	33.8	-0.1	351	69	70	68	66	69	-0.046	7.26	0.004
6	0.945	0.965	0.16	0.16	1.34	71	1.95	0.16	1.14	71.00	94	0.046	101	101	33.7	-0.1	351	69	70	68	66	69	-0.047	8.96	0.003
7	1.103	1.128	0.16	0.16	1.34	71	1.94	0.16	1.14	71.00	95	0.048	99	99	33.7	0.0	353	69	70	68	67	68	-0.046	8.91	0.003
8	1.260	1.292	0.16	0.16	1.34	71	1.95	0.16	1.14	71.00	95	0.047	100	101	33.6	-0.1	354	69	70	69	67	69	-0.047	7.28	0.003
9	1.418	1.455	0.16	0.16	1.34	71	1.95	0.16	1.13	71.00	95	0.046	102	101	33.5	-0.1	356	70	70	69	67	69	-0.047	8.31	0.003
10	1.576	1.617	0.16	0.16	1.34	71	1.95	0.16	1.14	72.00	94	0.046	101	101	33.5	0.0	354	70	70	69	67	68	-0.047	7.04	0.003
11	1.735	1.780	0.16	0.16	1.33	71	1.94	0.16	1.14	72.00	95	0.047	101	100	33.4	-0.1	353	70	70	69	67	69	-0.047	7.10	0.002
12	1.892	1.942	0.16	0.16	1.33	71	1.93	0.16	1.13	72.00	95	0.046	101	101	33.4	0.0	353	70	70	69	67	69	-0.046	7.04	0.002
13	2.049	2.106	0.16	0.16	1.33	72	1.93	0.16	1.14	72.00	95	0.047	100	101	33.3	-0.1	353	70	70	69	67	69	-0.046	6.57	0.003
14	2.206	2.268	0.16	0.16	1.33	72	1.94	0.16	1.13	72.00	95	0.048	99	99	33.2	-0.1	351	70	71	70	67	69	-0.046	7.50	0.003
15	2.364	2.430	0.16	0.16	1.33	72	1.94	0.16	1.13	72.00	95	0.047	100	100	33.2	0.0	352	71	71	70	67	69	-0.046	9.54	0.004
16	2.523	2.593	0.16	0.16	1.35	72	1.95	0.16	1.13	73.00	97	0.045	103	103	33.1	-0.1	364	71	71	70	68	70	-0.047	6.24	0.003
17	2.682	2.755	0.16	0.16	1.34	72	1.96	0.16	1.13	73.00	97	0.046	102	101	33.1	0.0	359	71	71	70	68	70	-0.046	5.15	0.006
18	2.841	2.918	0.16	0.16	1.34	73	1.96	0.16	1.13	73.00	95	0.045	103	102	33.0	-0.1	344	71	71	70	68	69	-0.045	3.95	0.030
19	2.999	3.080	0.16	0.16	1.34	73	1.95	0.16	1.13	73.00	95	0.047	100	100	33.0	0.0	342	71	71	70	68	69	-0.045	7.33	0.002
20	3.157	3.242	0.16	0.16	1.34	73	1.96	0.16	1.13	73.00	95	0.046	101	101	32.9	-0.1	341	71	71	70	68	69	-0.045	7.61	0.002
21	3.316	3.404	0.16	0.16	1.34	73	1.95	0.16	1.13	74.00	94	0.046	102	101	32.8	-0.1	342	72	71	71	68	69	-0.045	9.09	0.003
22	3.474	3.567	0.16	0.16	1.34	73	1.95	0.16	1.13	74.00	94	0.048	99	99	32.7	-0.1	341	72	72	71	68	69	-0.045	7.30	0.002
23	3.633	3.729	0.16	0.16	1.35	73	1.95	0.16	1.12	74.00	94	0.046	102	101	32.7	0.0	341	72	72	71	68	70	-0.045	7.66	0.003
24	3.792	3.892	0.16	0.16	1.35	74	1.95	0.16	1.12	74.00	94	0.046	101	101	32.6	-0.1	340	72	72	71	68	70	-0.045	6.74	0.002
25	3.951	4.054	0.16	0.16	1.35	74	1.95	0.16	1.12	74.00	94	0.046	101	101	32.5	-0.1	343	72	72	71	68	69	-0.045	9.30	0.003
26	4.110	4.217	0.16	0.16	1.34	74	1.96	0.16	1.13	75.00	94	0.046	101	101	32.5	0.0	345	72	72	71	69	69	-0.045	8.36	0.002
27	4.268	4.379	0.16	0.16	1.34	74	1.96	0.16	1.12	75.00	94	0.046	101	101	32.4	-0.1	343	72	72	71	69	69	-0.046	6.70	0.003
28	4.426	4.541	0.16	0.16	1.34	74	1.96	0.16	1.12	75.00	94	0.045	102	102	32.4	0.0	343	72	72	71	69	69	-0.046	6.86	0.002
29	4.585	4.703	0.16	0.16	1.34	75	1.95	0.16	1.12	75.00	94	0.047	100	100	32.3	-0.1	346	72	72	71	69	70	-0.046	8.55	0.006
30	4.743	4.866	0.16	0.16	1.34	75	1.96	0.16	1.12	75.00	94	0.046	101	101	32.2	-0.1	346	72	72	71	69	70	-0.046	8.26	0.002
31	4.902	5.029	0.16	0.16	1.34	75	1.96	0.16	1.12	75.00	94	0.045	102	102	32.2	0.0	347	72	72	72	69	70	-0.046	8.18	0.003
32	5.061	5.191	0.16	0.16	1.34	75	1.96	0.16	1.12	76.00	94	0.047	100	100	32.1	-0.1	347	72	73	72	69	70	-0.045	6.63	0.002
33	5.221	5.353	0.16	0.16	1.33	75	1.95	0.16	1.13	76.00	94	0.044	104	103	32.0	-0.1	349	72	73	72	69	71	-0.046	9.29	0.004
34	5.379	5.516	0.16	0.16	1.34	75	1.95	0.16	1.12	76.00	94	0.046	101	101	32.0	0.0	351	73	73	72	69	71	-0.046	9.65	0.007
35	5.538	5.679	0.16	0.16	1.33	76	1.96	0.16	1.13	76.00	94	0.045	102	102	31.9	-0.1	351	73	73	72	69	70	-0.046	8.38	0.002
36	5.696	5.841	0.16	0.16	1.34	76	1.97	0.16	1.12	76.00	94	0.047	99	100	31.8	-0.1	350	73	73	72	69	69	-0.047	7.23	0.003
37	5.855	6.003	0.16	0.16	1.34	76	1.96	0.16	1.12	77.00	94	0.046	101	101	31.8	0.0	350	73	73	72	69	69	-0.046	6.84	0.003
38	6.013	6.166	0.16	0.16	1.34	76	1.97	0.16	1.12	77.00	95	0.045	102	102	31.7	-0.1	352	73	73	72	69	70	-0.046	8.40	0.002
39	6.172	6.329	0.16	0.16	1.34	76	1.96	0.16	1.13	77.00	95	0.045	102	102	31.6	-0.1	353	73	73	72	70	70	-0.046	9.29	0.003
40	6.331	6.492	0.16	0.16	1.35	76	1.96	0.16	1.13	77.00	94	0.046	101	101	31.6	0.0	351	73	73	72	70	70	-0.046	7.11	0.003
41	6.491	6.654	0.16	0.16	1.34	77	1.97	0.16	1.12	77.00	94	0.045	103	102	31.5	-0.1	351	73	73	72	70	70	-0.046	6.47	0.003
42	6.650	6.816	0.16	0.16	1.34	77	1.97	0.16	1.12	77.00	94	0.045	102	102	31.4	-0.1	351	73	73	72	70	70	-0.046	7.67	0.002
43	6.809	6.979	0.16	0.16	1.33	77	1.98	0.16	1.13	77.00	95	0.046	101	101	31.4	0.0	352	73	73	72	70	70	-0.047	9.30	0.003
44	6.967	7.142	0.16	0.16	1.34	77	1.97	0.16	1.12	78.00	94	0.045	101	102	31.3	-0.1	353	73	74	72	70	70	-0.046	8.88	0.006
45	7.126	7.305	0.16	0.16	1.34	77	1.98	0.16	1.12	78.00	94	0.047	100	100	31.2	-0.1	352	73	74	72	70	70	-0.047	7.85	0.002
46	7.285	7.467	0.16	0.16	1.34	77	1.97	0.16	1.12	78.00	94	0.045	102	102	31.2	0.0	351	73	74	72	70	70	-0.047	6.26	0.003
47	7.444	7.630	0.16	0.16	1.34	77	1.97	0.16	1.13	78.00	96	0.046	101	101	31.1	-0.1	363	73	74	72	70	71	-0.046	7.35	0.003
48	7.603	7.792	0.16	0.16	1.34	78	1.97	0.16	1.12	78.00	97	0.046	100	100	31.1	0.0	365	73	74	72	70	71	-0.047	4.12	0.008

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: PP60/PH35
Tracking No.: 2344
Project No.: 0061PS095E
Test Date: 22-Jan-19
Beginning Clock Time: 09:50

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 1.022 (1) 0.995 (2) 0 (Amb)

Barometric Pressure:

Begin	Middle	End	Average
30.38	30.39	30.40	30.39 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: -0.210 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.23 ft/sec.
Intial Tunnel Flow: 148.6 scfm
Average Tunnel Flow: 150.2 scfm
Post-Test Leak Check (1): 0.000 cfm @ 8 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 7 in. Hg
Fuel Moisture (%): 6.689 Dry Basis 6.270 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.046	0.044	0.030	0.036	0.040	0.048	0.030	0.046	"H2O
Temp:	94	94	94	94	94	94	94	94	94	°F

V_{strav} 13.30 ft/sec V_{scent} 14.45 ft/sec F_p 0.921

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
49	7.760	7.953	0.16	0.16	1.34	78	1.97	0.16	1.12	78.00	95	0.045	101	101	31.0	-0.1	350	73	74	73	70	70	-0.046	5.32	0.005
50	7.919	8.115	0.16	0.16	1.34	78	1.98	0.16	1.12	78.00	95	0.046	101	101	31.0	0.0	345	73	74	73	70	70	-0.046	6.85	0.002
51	8.078	8.277	0.16	0.16	1.32	78	1.97	0.16	1.13	79.00	95	0.046	101	101	30.9	-0.1	343	73	74	73	70	70	-0.045	6.90	0.002
52	8.237	8.440	0.16	0.16	1.34	78	1.97	0.16	1.12	79.00	94	0.047	100	100	30.8	-0.1	343	73	74	73	71	70	-0.046	7.02	0.003
53	8.396	8.604	0.16	0.16	1.34	78	1.97	0.16	1.12	79.00	94	0.046	101	102	30.8	0.0	343	73	74	73	71	71	-0.045	7.75	0.003
54	8.555	8.766	0.16	0.16	1.34	78	1.97	0.16	1.12	79.00	94	0.045	102	102	30.7	-0.1	342	73	74	73	71	70	-0.045	7.52	0.002
55	8.714	8.928	0.16	0.16	1.34	78	1.98	0.16	1.12	79.00	94	0.047	100	100	30.6	-0.1	341	73	74	73	71	70	-0.045	7.45	0.002
56	8.873	9.091	0.16	0.16	1.34	78	1.98	0.16	1.12	79.00	94	0.045	102	102	30.6	0.0	342	73	74	73	71	70	-0.045	7.64	0.002
57	9.032	9.254	0.16	0.16	1.34	79	1.97	0.16	1.12	79.00	94	0.046	101	101	30.5	-0.1	342	73	74	73	71	70	-0.045	7.34	0.003
58	9.192	9.417	0.16	0.16	1.33	79	1.98	0.16	1.12	79.00	94	0.045	102	102	30.4	-0.1	343	73	74	73	71	70	-0.045	8.09	0.002
59	9.351	9.580	0.16	0.16	1.34	79	1.98	0.16	1.12	79.00	94	0.046	101	101	30.4	0.0	344	73	75	73	71	70	-0.046	7.61	0.003
60	9.510	9.742	0.16	0.16	1.34	79	1.98	0.16	1.12	79.00	94	0.047	99	100	30.3	-0.1	343	73	75	73	71	70	-0.046	5.59	0.004
61	9.672	9.905	0.16	0.16	1.34	79	1.96	0.16	1.12	79.00	94	0.046	102	101	30.3	0.0	345	74	75	73	71	71	-0.046	8.18	0.003
62	9.832	10.069	0.16	0.16	1.34	79	1.95	0.16	1.13	80.00	94	0.045	102	103	30.2	-0.1	347	74	75	73	71	71	-0.046	5.92	0.002
63	9.991	10.231	0.16	0.16	1.34	79	1.95	0.16	1.12	80.00	94	0.047	99	100	30.2	0.0	341	75	75	73	71	71	-0.045	4.18	0.004
64	10.151	10.394	0.16	0.16	1.35	79	1.95	0.16	1.13	80.00	94	0.045	102	102	30.1	-0.1	334	75	75	73	71	71	-0.044	5.74	0.002
65	10.311	10.557	0.16	0.16	1.34	79	1.95	0.16	1.13	80.00	93	0.046	101	101	30.1	0.0	326	75	75	73	71	71	-0.043	3.05	0.022
66	10.471	10.720	0.16	0.16	1.34	79	1.96	0.16	1.12	80.00	92	0.045	102	102	30.1	0.0	318	75	75	73	71	70	-0.042	3.49	0.016
67	10.630	10.884	0.16	0.16	1.35	79	1.96	0.16	1.12	80.00	92	0.045	101	103	30.1	0.0	311	75	75	73	71	70	-0.041	3.44	0.012
68	10.790	11.046	0.16	0.16	1.35	80	1.95	0.16	1.12	80.00	92	0.046	101	100	30.0	-0.1	306	75	75	73	71	70	-0.040	4.79	0.002
69	10.950	11.209	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	91	0.047	100	100	30.0	0.0	301	74	75	73	71	70	-0.040	4.55	0.008
70	11.110	11.372	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	90	0.046	101	101	30.0	0.0	296	74	75	73	71	70	-0.038	4.14	0.005
71	11.270	11.535	0.16	0.16	1.35	80	1.95	0.16	1.13	80.00	90	0.048	99	99	29.9	-0.1	290	74	75	73	71	70	-0.038	3.02	0.031
72	11.431	11.699	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	90	0.047	100	100	29.9	0.0	284	74	75	73	71	70	-0.038	2.71	0.058
73	11.591	11.861	0.16	0.16	1.34	80	1.96	0.16	1.12	80.00	89	0.045	102	101	29.9	0.0	283	74	75	73	71	71	-0.037	4.33	0.004
74	11.751	12.024	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	89	0.047	99	100	29.9	0.0	277	74	75	73	71	70	-0.036	2.81	0.060
75	11.911	12.187	0.16	0.16	1.35	80	1.96	0.16	1.13	80.00	88	0.046	100	101	29.8	-0.1	271	74	75	73	71	70	-0.036	2.66	0.032
76	12.071	12.350	0.16	0.16	1.34	80	1.95	0.16	1.12	80.00	88	0.048	98	99	29.8	0.0	270	74	75	73	71	69	-0.035	3.84	0.003
77	12.232	12.514	0.16	0.16	1.34	80	1.96	0.16	1.12	80.00	88	0.046	101	101	29.8	0.0	267	74	75	73	71	70	-0.035	3.00	0.044
78	12.391	12.677	0.16	0.16	1.34	80	1.95	0.16	1.12	80.00	89	0.046	100	101	29.7	-0.1	275	74	75	73	71	70	-0.035	4.57	0.003
79	12.551	12.840	0.16	0.16	1.35	80	1.95	0.16	1.12	80.00	90	0.046	101	101	29.7	0.0	277	74	75	73	71	69	-0.034	1.97	0.210
80	12.712	13.003	0.16	0.16	1.35	80	1.94	0.16	1.13	81.00	88	0.045	102	102	29.7	0.0	265	74	75	72	71	70	-0.034	1.75	0.150
81	12.872	13.166	0.16	0.16	1.34	80	1.95	0.16	1.12	81.00	88	0.045	102	102	29.7	0.0	258	73	75	72	71	70	-0.033	2.94	0.030
82	13.032	13.330	0.16	0.16	1.35	80	1.95	0.16	1.12	81.00	87	0.047	99	100	29.7	0.0	254	73	75	72	71	69	-0.032	2.59	0.045
83	13.192	13.493	0.16	0.16	1.35	80	1.95	0.16	1.12	81.00	86	0.045	101	102	29.6	-0.1	249	73	75	72	71	69	-0.032	2.50	0.041
84	13.352	13.656	0.16	0.16	1.35	80	1.95	0.16	1.12	81.00	86	0.045	101	102	29.6	0.0	248	73	75	72	71	69	-0.032	3.34	0.017
85	13.513	13.819	0.16	0.16	1.35	80	1.96	0.16	1.12	81.00	86	0.045	102	102	29.6	0.0	249	73	75	72	71	69	-0.032	3.77	0.012
86	13.673	13.983	0.16	0.16	1.35	80	1.95	0.16	1.12	81.00	86	0.045	101	102	29.5	-0.1	248	73	74	72	71	70	-0.032	3.29	0.034
87	13.833	14.146	0.16	0.16	1.35	80	1.95	0.16	1.12	81.00	86	0.047	99	99	29.5	0.0	247	73	74	72	71	69	-0.032	3.07	0.036
88	13.994	14.310	0.16	0.16	1.35	80	1.96	0.16	1.12	81.00	85	0.048	99	99	29.5	0.0	243	73	74	72	71	70	-0.031	2.30	0.046
89	14.154	14.473	0.16	0.16	1.34	80	1.95	0.16	1.12	81.00	85	0.046	100	100	29.5	0.0	240	73	74	72	71	69	-0.031	2.79	0.047
90	14.315	14.636	0.16	0.16	1.35	80	1.95	0.16	1.13	81.00	85	0.045	102	102	29.4	-0.1	240	73	74	72	71	69	-0.031	3.44	0.048
91	14.475	14.799	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	85	0.045	101	102	29.4	0.0	240	73	74	72	71	69	-0.030	3.09	0.020
92	14.636	14.963	0.16	0.16	1.36	81	1.95	0.16	1.13	81.00	84	0.047	99	100	29.4	0.0	235	73	74	72	71	69	-0.030	1.84	0.068
93	14.796	15.127	0.16	0.16	1.36	80	1.95	0.16	1.12	81.00	84	0.047	99	100	29.4	0.0	235	72	74	72	71	69	-0.030	3.35	0.013
94	14.956	15.290	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.046	100	100	29.3	-0.1	234	72	74	72	71	69	-0.030	2.63	0.033
95	15.117	15.453	0.16	0.16	1.34	81	1.95	0.16	1.12	81.00	84	0.046	101	100	29.3	0.0	230	72	74	72	71	70	-0.029	2.07	0.054
96	15.277	15.616	0.16	0.16	1.34	81	1.96	0.16	1.12	81.00	84	0.044	102	103	29.3	0.0	233	72	74	72	71	69	-0.030	4.41	0.018
97	15.437	15.779	0.16	0.16	1.35	81	1.95	0.16	1.13	81.00	84	0.046	101	101	29.3	0.0	233	72	74	72	71	69	-0.030	3.35	0.018

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: PP60/PH35
Tracking No.: 2344
Project No.: 0061PS095E
Test Date: 22-Jan-19
Beginning Clock Time: 09:50

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 1.022 (1) 0.995 (2) 0 (Amb)

Barometric Pressure:

Begin	Middle	End	Average
30.38	30.39	30.40	30.39 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: -0.210 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.23 ft/sec.
Intial Tunnel Flow: 148.6 scfm
Average Tunnel Flow: 150.2 scfm
Post-Test Leak Check (1): 0.000 cfm @ 8 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 7 in. Hg
Fuel Moisture (%): 6.689 Dry Basis 6.270 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.046	0.044	0.030	0.036	0.040	0.048	0.030	0.046	"H2O
Temp:	94	94	94	94	94	94	94	94	94	°F

V_{strav} 13.30 ft/sec V_{scent} 14.45 ft/sec F_p 0.921

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
98	15.597	15.943	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.046	100	101	29.2	-0.1	232	72	74	72	71	69	-0.030	3.32	0.007
99	15.758	16.106	0.16	0.16	1.35	81	1.95	0.16	1.12	81.00	84	0.047	99	99	29.2	0.0	233	72	74	72	71	69	-0.030	3.44	0.082
100	15.918	16.269	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.045	101	101	29.2	0.0	236	72	74	72	71	69	-0.030	4.00	0.006
101	16.078	16.433	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.047	99	100	29.1	-0.1	239	72	74	72	71	69	-0.031	3.97	0.004
102	16.239	16.596	0.16	0.16	1.36	81	1.96	0.16	1.13	81.00	84	0.048	98	98	29.1	0.0	241	72	74	72	71	70	-0.031	3.83	0.004
103	16.399	16.760	0.16	0.16	1.36	81	1.95	0.16	1.12	81.00	84	0.047	99	100	29.1	0.0	240	72	74	72	71	69	-0.031	2.69	0.055
104	16.560	16.923	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.045	102	101	29.1	0.0	242	72	74	72	71	69	-0.031	3.84	0.012
105	16.720	17.086	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.047	99	99	29.0	-0.1	242	72	74	72	70	69	-0.031	3.71	0.006
106	16.880	17.250	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.046	100	101	29.0	0.0	243	72	74	72	71	69	-0.032	3.36	0.026
107	17.041	17.413	0.16	0.16	1.35	81	1.95	0.16	1.12	81.00	84	0.044	103	103	29.0	0.0	241	72	74	72	71	69	-0.031	2.49	0.049
108	17.202	17.576	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.045	102	101	28.9	-0.1	242	72	74	71	70	69	-0.031	3.15	0.016
109	17.362	17.741	0.16	0.16	1.34	81	1.96	0.16	1.12	81.00	85	0.047	99	101	28.9	0.0	247	72	74	71	70	69	-0.031	3.27	0.013
110	17.523	17.903	0.16	0.16	1.35	81	1.95	0.16	1.12	81.00	87	0.045	102	101	28.9	0.0	258	72	74	71	70	69	-0.032	2.91	0.068
111	17.683	18.066	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	86	0.045	101	102	28.9	0.0	254	72	74	72	70	69	-0.033	2.86	0.015
112	17.844	18.230	0.16	0.16	1.35	81	1.96	0.16	1.13	81.00	86	0.045	102	102	28.8	-0.1	249	72	74	71	70	69	-0.032	3.00	0.033
113	18.004	18.393	0.16	0.16	1.35	81	1.95	0.16	1.12	81.00	85	0.045	101	102	28.8	0.0	245	72	73	71	70	69	-0.031	2.61	0.040
114	18.165	18.557	0.16	0.16	1.34	81	1.96	0.16	1.12	81.00	85	0.046	101	101	28.8	0.0	242	72	73	71	70	69	-0.031	2.95	0.022
115	18.325	18.720	0.16	0.16	1.34	81	1.95	0.16	1.12	81.00	85	0.046	100	100	28.7	-0.1	240	72	73	71	70	69	-0.031	3.66	0.021
116	18.485	18.883	0.16	0.16	1.35	81	1.95	0.16	1.12	81.00	85	0.048	98	98	28.7	0.0	237	72	73	71	70	69	-0.030	2.43	0.070
117	18.645	19.046	0.16	0.16	1.35	81	1.95	0.16	1.13	81.00	85	0.045	101	102	28.7	0.0	237	72	73	71	70	69	-0.030	3.64	0.012
118	18.806	19.209	0.16	0.16	1.35	81	1.95	0.16	1.12	81.00	84	0.045	102	101	28.7	0.0	235	72	73	71	70	69	-0.030	2.76	0.016
119	18.966	19.374	0.16	0.16	1.35	81	1.96	0.16	1.13	81.00	84	0.045	101	103	28.6	-0.1	237	72	73	71	70	69	-0.031	4.57	0.005
120	19.126	19.537	0.16	0.16	1.35	81	1.95	0.16	1.12	81.00	84	0.045	101	101	28.6	0.0	238	72	73	71	70	69	-0.031	3.26	0.013
121	19.287	19.700	0.16	0.16	1.35	81	1.95	0.16	1.12	81.00	84	0.046	101	100	28.6	0.0	238	72	73	71	70	69	-0.031	3.33	0.029
122	19.447	19.863	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.047	99	99	28.5	-0.1	236	72	73	71	70	69	-0.031	2.78	0.025
123	19.607	20.026	0.16	0.16	1.35	81	1.95	0.16	1.13	81.00	84	0.045	101	101	28.5	0.0	234	72	73	71	70	69	-0.030	2.27	0.070
124	19.768	20.190	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.045	102	102	28.5	0.0	234	72	73	71	70	69	-0.030	3.42	0.012
125	19.928	20.354	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.046	100	101	28.5	0.0	237	72	73	71	70	69	-0.030	4.60	0.004
126	20.089	20.517	0.16	0.16	1.35	81	1.95	0.16	1.12	81.00	84	0.049	97	97	28.4	-0.1	238	72	73	71	70	69	-0.030	3.49	0.006
127	20.249	20.680	0.16	0.16	1.35	81	1.95	0.16	1.12	81.00	84	0.047	99	99	28.4	0.0	239	72	73	71	70	69	-0.031	3.58	0.017
128	20.410	20.844	0.16	0.16	1.35	81	1.95	0.16	1.13	81.00	84	0.048	98	99	28.4	0.0	237	72	73	71	70	69	-0.031	3.11	0.013
129	20.571	21.007	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.046	101	100	28.3	-0.1	239	72	73	71	70	69	-0.031	3.87	0.007
130	20.731	21.171	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.047	99	100	28.3	0.0	241	72	73	71	70	69	-0.031	4.20	0.012
131	20.892	21.334	0.16	0.16	1.34	81	1.96	0.16	1.12	81.00	84	0.046	101	100	28.3	0.0	244	72	73	71	70	69	-0.032	4.32	0.007
132	21.052	21.497	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.047	99	99	28.3	0.0	244	72	73	71	70	69	-0.032	2.95	0.025
133	21.212	21.660	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.048	98	98	28.2	-0.1	246	72	73	71	70	69	-0.033	4.26	0.008
134	21.373	21.824	0.16	0.16	1.34	81	1.95	0.16	1.12	81.00	84	0.047	99	100	28.2	0.0	247	72	73	71	70	69	-0.032	3.40	0.025
135	21.533	21.988	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.047	99	100	28.2	0.0	243	72	73	71	70	69	-0.031	2.37	0.093
136	21.694	22.151	0.16	0.16	1.34	81	1.95	0.16	1.12	81.00	84	0.047	99	99	28.2	0.0	242	72	73	71	70	69	-0.032	2.93	0.033
137	21.854	22.314	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	85	0.047	99	99	28.1	-0.1	244	72	73	71	70	69	-0.032	4.06	0.009
138	22.014	22.477	0.16	0.16	1.34	81	1.96	0.16	1.12	81.00	84	0.048	98	98	28.1	0.0	240	72	73	71	70	69	-0.031	2.22	0.073
139	22.174	22.640	0.16	0.16	1.34	81	1.96	0.16	1.13	81.00	84	0.046	100	100	28.1	0.0	239	72	73	71	70	69	-0.031	3.39	0.049
140	22.335	22.804	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.048	98	99	28.0	-0.1	242	72	73	71	70	69	-0.029	4.45	0.005
141	22.495	22.968	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	86	0.047	99	100	28.0	0.0	253	72	73	71	70	69	-0.031	2.63	0.036
142	22.655	23.131	0.16	0.16	1.36	81	1.95	0.16	1.12	81.00	86	0.047	99	99	28.0	0.0	246	72	73	71	70	68	-0.031	1.48	0.180
143	22.816	23.294	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	85	0.046	101	100	28.0	0.0	243	72	73	71	70	68	-0.031	4.21	0.004
144	22.977	23.457	0.16	0.16	1.35	81	1.96	0.16	1.13	81.00	85	0.047	100	99	27.9	-0.1	239	72	73	71	70	68	-0.031	2.36	0.060
145	23.137	23.620	0.16	0.16	1.35	81	1.95	0.16	1.12	81.00	84	0.045	101	101	27.9	0.0	238	71	73	71	70	67	-0.031	3.59	0.004
146	23.298	23.785	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	85	0.047	100	100	27.9	0.0	241	71	73	71	70	68	-0.032	4.42	0.004

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: PP60/PH35
Tracking No.: 2344
Project No.: 0061PS095E
Test Date: 22-Jan-19
Beginning Clock Time: 09:50

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 1.022 (1) 0.995 (2) 0 (Amb)

Barometric Pressure:

Begin	Middle	End	Average
30.38	30.39	30.40	30.39 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: -0.210 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.23 ft/sec.
Intial Tunnel Flow: 148.6 scfm
Average Tunnel Flow: 150.2 scfm
Post-Test Leak Check (1): 0.000 cfm @ 8 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 7 in. Hg
Fuel Moisture (%): 6.689 Dry Basis 6.270 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.046	0.044	0.030	0.036	0.040	0.048	0.030	0.046	"H2O
Temp:	94	94	94	94	94	94	94	94	94	°F

V_{strav} 13.30 ft/sec V_{scent} 14.45 ft/sec F_p 0.921

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
147	23.458	23.948	0.16	0.16	1.36	81	1.96	0.16	1.12	81.00	84	0.045	101	101	27.8	-0.1	238	71	73	71	70	68	-0.030	2.38	0.056
148	23.619	24.111	0.16	0.16	1.35	81	1.96	0.16	1.12	81.00	84	0.048	98	98	27.8	0.0	239	71	73	71	70	68	-0.031	3.68	0.028
149	23.780	24.275	0.16	0.16	1.35	81	1.95	0.16	1.12	81.00	84	0.049	97	98	27.8	0.0	240	71	73	71	70	67	-0.031	3.29	0.016
150	23.941	24.439	0.16	0.16	1.36	81	1.95	0.16	1.13	81.00	84	0.048	98	99	27.8	0.0	240	71	73	70	70	67	-0.031	3.63	0.012
151	24.101	24.602	0.16	0.16	1.36	80	1.96	0.16	1.13	81.00	84	0.046	100	100	27.7	-0.1	240	71	73	70	70	67	-0.031	3.27	0.014
152	24.262	24.766	0.16	0.16	1.36	80	1.95	0.16	1.13	81.00	84	0.046	101	101	27.7	0.0	239	71	73	70	70	68	-0.031	3.22	0.018
153	24.423	24.930	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	84	0.045	102	102	27.7	0.0	239	71	73	70	70	68	-0.032	3.50	0.012
154	24.584	25.093	0.16	0.16	1.35	80	1.97	0.16	1.12	80.00	84	0.046	101	100	27.6	-0.1	238	71	73	70	70	68	-0.031	3.34	0.038
155	24.744	25.256	0.16	0.16	1.36	80	1.96	0.16	1.13	80.00	84	0.045	101	101	27.6	0.0	235	71	73	70	70	69	-0.030	2.50	0.037
156	24.905	25.420	0.16	0.16	1.36	80	1.96	0.16	1.12	80.00	84	0.045	102	102	27.6	0.0	233	71	73	70	70	68	-0.029	2.61	0.064
157	25.065	25.584	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	84	0.046	100	101	27.6	0.0	233	71	73	70	70	68	-0.030	3.17	0.021
158	25.226	25.747	0.16	0.16	1.34	80	1.96	0.16	1.12	80.00	84	0.048	99	98	27.5	-0.1	234	71	73	70	70	68	-0.030	3.49	0.007
159	25.386	25.910	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	84	0.047	99	99	27.5	0.0	235	71	73	70	70	68	-0.030	3.94	0.018
160	25.547	26.073	0.16	0.16	1.35	80	1.96	0.16	1.13	80.00	84	0.045	102	101	27.5	0.0	238	71	73	70	69	68	-0.031	4.32	0.003
161	25.707	26.237	0.16	0.16	1.35	80	1.97	0.16	1.12	80.00	84	0.046	100	101	27.5	0.0	239	71	73	70	69	68	-0.031	3.22	0.013
162	25.868	26.401	0.16	0.16	1.35	80	1.95	0.16	1.12	80.00	84	0.046	101	101	27.4	-0.1	241	71	72	70	69	69	-0.031	4.06	0.008
163	26.028	26.564	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	84	0.047	99	99	27.4	0.0	243	71	72	70	69	68	-0.032	3.96	0.005
164	26.188	26.727	0.16	0.16	1.35	80	1.95	0.16	1.12	80.00	84	0.044	102	103	27.4	0.0	242	71	72	70	69	69	-0.031	3.15	0.014
165	26.349	26.890	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	84	0.047	100	99	27.3	-0.1	242	71	72	70	69	68	-0.031	3.44	0.035
166	26.509	27.053	0.16	0.16	1.35	80	1.97	0.16	1.12	80.00	84	0.047	99	99	27.3	0.0	242	71	72	70	69	68	-0.032	3.28	0.022
167	26.669	27.217	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	84	0.047	99	100	27.3	0.0	241	71	72	70	69	69	-0.031	2.74	0.035
168	26.830	27.381	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	84	0.046	101	101	27.3	0.0	239	71	72	70	69	69	-0.031	2.71	0.031
169	26.990	27.544	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	84	0.045	101	101	27.2	-0.1	241	71	72	70	69	68	-0.031	4.08	0.010
170	27.151	27.706	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	84	0.046	101	100	27.2	0.0	241	71	72	70	69	69	-0.031	3.53	0.007
171	27.311	27.869	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	84	0.046	100	100	27.2	0.0	242	71	72	70	69	69	-0.031	3.55	0.012
172	27.472	28.033	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	86	0.046	101	101	27.1	-0.1	256	71	72	71	69	69	-0.032	3.34	0.021
173	27.633	28.197	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	87	0.045	102	102	27.1	0.0	258	71	72	71	69	69	-0.033	2.81	0.039
174	27.793	28.360	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	86	0.046	100	101	27.1	0.0	251	71	72	71	69	69	-0.033	3.78	0.024
175	27.954	28.522	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	85	0.046	101	100	27.0	-0.1	247	71	72	71	69	69	-0.032	2.99	0.016
176	28.114	28.685	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	85	0.045	101	102	27.0	0.0	245	71	72	71	69	69	-0.032	3.22	0.016
177	28.274	28.848	0.16	0.16	1.34	80	1.96	0.16	1.12	80.00	85	0.044	102	103	27.0	0.0	243	71	72	71	69	68	-0.032	3.59	0.033
178	28.435	29.012	0.16	0.16	1.34	80	1.96	0.16	1.12	80.00	85	0.045	102	102	26.9	-0.1	241	71	72	71	69	69	-0.031	2.74	0.026
179	28.595	29.175	0.16	0.16	1.34	80	1.96	0.16	1.11	80.00	84	0.048	98	98	26.9	0.0	239	71	72	71	69	69	-0.031	2.65	0.030
180	28.755	29.338	0.16	0.16	1.35	80	1.97	0.16	1.12	80.00	85	0.045	101	102	26.9	0.0	239	71	72	71	69	68	-0.031	3.24	0.025
181	28.915	29.501	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	85	0.046	100	100	26.9	0.0	242	71	72	71	69	69	-0.031	4.89	0.002
182	29.075	29.664	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	84	0.046	100	100	26.8	-0.1	240	71	72	71	69	69	-0.031	2.75	0.026
183	29.236	29.828	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	84	0.045	102	102	26.8	0.0	237	71	72	71	69	69	-0.030	2.59	0.074
184	29.396	29.990	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	84	0.045	101	101	26.8	0.0	234	71	72	71	69	69	-0.030	2.12	0.080
185	29.556	30.153	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	84	0.047	99	99	26.8	0.0	234	71	72	71	69	69	-0.030	3.28	0.023
186	29.716	30.316	0.16	0.16	1.35	80	1.95	0.16	1.12	80.00	84	0.047	99	99	26.8	0.0	230	71	72	71	69	69	-0.029	1.84	0.081
187	29.877	30.479	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	84	0.046	101	100	26.7	-0.1	228	71	72	71	69	69	-0.029	2.29	0.086
188	30.037	30.643	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	83	0.045	101	102	26.7	0.0	225	71	72	71	69	69	-0.028	2.02	0.080
189	30.197	30.805	0.16	0.16	1.35	80	1.95	0.16	1.11	80.00	83	0.046	100	100	26.7	0.0	220	71	72	71	69	69	-0.027	1.50	0.120
190	30.358	30.968	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	83	0.045	102	101	26.7	0.0	217	71	72	71	69	69	-0.027	1.73	0.078
191	30.518	31.131	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	83	0.048	98	98	26.7	0.0	215	71	72	71	69	69	-0.026	2.25	0.047
192	30.679	31.294	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	82	0.046	101	100	26.7	0.0	212	71	72	71	69	69	-0.027	2.38	0.042
193	30.840	31.458	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	82	0.046	101	101	26.6	-0.1	213	71	72	71	69	69	-0.026	2.54	0.069
194	31.000	31.620	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	82	0.046	100	100	26.6	0.0	213	71	72	71	69	68	-0.026	2.35	0.053
195	31.160	31.783	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	82	0.046	99	99	26.6	0.0	209	71	72	71	69	69	-0.026	1.75	0.097

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: PP60/PH35
Tracking No.: 2344
Project No.: 0061PS095E
Test Date: 22-Jan-19
Beginning Clock Time: 09:50

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 1.022 (1) 0.995 (2) 0 (Amb)

Barometric Pressure:	Begin	Middle	End	Average
	30.38	30.39	30.40	30.39 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: -0.210 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.23 ft/sec.
Intial Tunnel Flow: 148.6 scfm
Average Tunnel Flow: 150.2 scfm
Post-Test Leak Check (1): 0.000 cfm @ 8 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 7 in. Hg
Fuel Moisture (%): 6.689 Dry Basis 6.270 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.046	0.044	0.030	0.036	0.040	0.048	0.030	0.046	"H2O
Temp:	94	94	94	94	94	94	94	94	94	°F

V_{strav} 13.30 ft/sec V_{scent} 14.45 ft/sec F_p 0.921

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
196	31.321	31.946	0.16	0.16	1.34	80	1.96	0.16	1.12	80.00	82	0.046	101	100	26.6	0.0	207	71	72	71	69	69	-0.025	1.71	0.089
197	31.481	32.109	0.16	0.16	1.34	80	1.96	0.16	1.12	80.00	82	0.045	101	101	26.6	0.0	211	71	72	71	69	69	-0.026	3.52	0.008
198	31.642	32.273	0.16	0.16	1.34	80	1.96	0.16	1.11	80.00	82	0.046	101	101	26.5	-0.1	213	71	72	71	69	69	-0.026	2.99	0.009
199	31.802	32.435	0.16	0.16	1.34	80	1.96	0.16	1.11	80.00	82	0.045	101	101	26.5	0.0	212	71	72	71	69	69	-0.026	2.32	0.065
200	31.962	32.598	0.16	0.16	1.35	80	1.96	0.16	1.12	80.00	82	0.046	100	100	26.5	0.0	210	71	72	71	69	69	-0.026	1.91	0.090
201	32.122	32.761	0.16	0.16	1.34	80	1.96	0.16	1.12	80.00	82	0.046	100	100	26.5	0.0	212	71	72	71	69	69	-0.026	2.93	0.031
202	32.283	32.924	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	82	0.047	99	99	26.5	0.0	210	71	72	71	69	69	-0.026	2.19	0.072
203	32.443	33.087	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	83	0.046	100	100	26.5	0.0	218	71	72	71	69	69	-0.026	2.12	0.084
204	32.603	33.250	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	84	0.046	100	100	26.4	-0.1	219	71	72	71	69	69	-0.027	1.61	0.110
205	32.763	33.412	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	83	0.047	99	99	26.4	0.0	213	71	72	71	69	69	-0.026	2.53	0.051
206	32.924	33.575	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	82	0.046	101	100	26.4	0.0	210	71	72	71	69	69	-0.026	2.13	0.056
207	33.084	33.738	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	82	0.046	100	100	26.4	0.0	208	71	72	71	69	69	-0.025	1.93	0.093
208	33.244	33.901	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	82	0.044	102	102	26.4	0.0	203	71	72	71	69	69	-0.024	1.46	0.120
209	33.405	34.063	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	82	0.047	99	98	26.3	-0.1	205	71	72	71	69	68	-0.025	3.31	0.061
210	33.565	34.226	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	81	0.046	100	100	26.3	0.0	205	71	72	71	69	68	-0.025	2.19	0.052
211	33.726	34.389	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	81	0.048	98	98	26.3	0.0	206	71	72	71	69	69	-0.025	2.58	0.032
212	33.887	34.553	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	81	0.045	102	102	26.3	0.0	202	71	72	71	69	69	-0.024	1.38	0.120
213	34.047	34.715	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	81	0.044	102	102	26.3	0.0	200	71	72	71	69	69	-0.025	1.69	0.100
214	34.207	34.878	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	81	0.047	99	99	26.2	-0.1	203	71	72	71	69	69	-0.025	2.91	0.012
215	34.367	35.040	0.16	0.16	1.35	80	1.97	0.16	1.12	80.00	81	0.046	100	99	26.2	0.0	200	71	72	71	69	69	-0.024	1.93	0.054
216	34.528	35.203	0.16	0.16	1.34	80	1.96	0.16	1.11	80.00	81	0.047	99	99	26.2	0.0	198	71	72	71	69	69	-0.023	1.73	0.072
217	34.688	35.367	0.16	0.16	1.34	80	1.96	0.16	1.11	80.00	81	0.047	99	100	26.2	0.0	198	71	72	71	69	68	-0.024	2.16	0.085
218	34.848	35.529	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	81	0.045	101	101	26.2	0.0	201	71	72	71	69	69	-0.024	2.91	0.030
219	35.008	35.692	0.16	0.16	1.34	80	1.96	0.16	1.11	80.00	81	0.045	101	101	26.1	-0.1	202	71	72	71	69	69	-0.024	2.34	0.051
220	35.169	35.855	0.16	0.16	1.34	80	1.96	0.16	1.12	80.00	81	0.046	100	100	26.1	0.0	203	71	72	71	69	69	-0.024	2.43	0.047
221	35.329	36.017	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	81	0.046	100	99	26.1	0.0	202	71	72	71	69	69	-0.024	2.13	0.064
222	35.489	36.181	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	81	0.047	99	100	26.1	0.0	200	71	72	71	69	69	-0.024	2.04	0.060
223	35.649	36.343	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	81	0.045	101	101	26.1	0.0	202	71	72	71	69	69	-0.025	3.00	0.026
224	35.810	36.506	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	81	0.046	100	100	26.0	-0.1	201	71	72	71	69	69	-0.024	2.16	0.044
225	35.970	36.669	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	81	0.046	100	100	26.0	0.0	198	71	72	71	69	69	-0.023	1.31	0.170
226	36.130	36.832	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	81	0.045	101	101	26.0	0.0	195	71	72	71	69	68	-0.023	1.24	0.150
227	36.290	36.995	0.16	0.16	1.34	80	1.96	0.16	1.12	80.00	81	0.047	99	99	26.0	0.0	198	71	72	71	69	69	-0.024	3.29	0.025
228	36.451	37.157	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	81	0.045	102	101	26.0	0.0	198	71	72	71	69	69	-0.023	2.37	0.056
229	36.612	37.320	0.16	0.16	1.34	80	1.96	0.16	1.11	80.00	80	0.046	100	100	26.0	0.0	194	71	72	71	69	69	-0.023	1.09	0.160
230	36.772	37.482	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	80	0.047	99	98	25.9	-0.1	194	71	72	71	69	69	-0.023	1.95	0.062
231	36.933	37.646	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	81	0.045	102	102	25.9	0.0	195	71	72	70	69	68	-0.023	2.32	0.064
232	37.093	37.808	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	80	0.047	99	98	25.9	0.0	197	71	72	71	69	68	-0.023	2.76	0.022
233	37.253	37.971	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	80	0.046	100	100	25.9	0.0	194	71	72	70	69	69	-0.023	1.54	0.085
234	37.414	38.133	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	82	0.046	101	100	25.9	0.0	205	71	72	70	69	69	-0.024	2.04	0.085
235	37.574	38.296	0.16	0.16	1.34	80	1.96	0.16	1.11	80.00	83	0.047	99	99	25.9	0.0	210	71	72	70	69	69	-0.025	1.65	0.110
236	37.734	38.459	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	82	0.048	98	98	25.8	-0.1	204	71	72	70	69	69	-0.024	2.58	0.026
237	37.894	38.622	0.16	0.16	1.34	80	1.97	0.16	1.1	80.00	81	0.047	99	99	25.8	0.0	200	71	72	70	69	69	-0.024	1.71	0.086
238	38.054	38.784	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	81	0.048	98	97	25.8	0.0	197	71	72	70	69	69	-0.023	1.90	0.061
239	38.214	38.947	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	81	0.047	99	99	25.8	0.0	196	71	72	70	69	69	-0.023	2.02	0.066
240	38.374	39.110	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	80	0.046	100	100	25.8	0.0	197	71	72	70	69	69	-0.023	2.46	0.045
241	38.535	39.273	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	80	0.046	100	100	25.7	-0.1	196	71	72	70	69	68	-0.023	2.09	0.054
242	38.695	39.435	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	80	0.046	100	99	25.7	0.0	192	71	72	70	69	69	-0.022	1.31	0.140
243	38.855	39.597	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	80	0.045	101	100	25.7	0.0	193	71	72	70	69	69	-0.023	2.61	0.057
244	39.015	39.760	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	80	0.046	101	101	25.7	0.0	192	71	72	70	69	69	-0.022	1.96	0.062

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: PP60/PH35
Tracking No.: 2344
Project No.: 0061PS095E
Test Date: 22-Jan-19
Beginning Clock Time: 09:50

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 1.022 (1) 0.995 (2) 0 (Amb)

Barometric Pressure:

Begin	Middle	End	Average
30.38	30.39	30.40	30.39 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: -0.210 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.23 ft/sec.
Intial Tunnel Flow: 148.6 scfm
Average Tunnel Flow: 150.2 scfm
Post-Test Leak Check (1): 0.000 cfm @ 8 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 7 in. Hg
Fuel Moisture (%): 6.689 Dry Basis 6.270 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.046	0.044	0.030	0.036	0.040	0.048	0.030	0.046	"H2O
Temp:	94	94	94	94	94	94	94	94	94	°F

V_{strav} 13.30 ft/sec V_{scent} 14.45 ft/sec F_p 0.921

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
245	39.175	39.924	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	80	0.046	100	101	25.7	0.0	193	71	72	70	69	68	-0.023	2.51	0.039
246	39.336	40.086	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	80	0.047	99	98	25.7	0.0	192	71	72	70	69	68	-0.022	1.68	0.079
247	39.496	40.248	0.16	0.16	1.35	80	1.97	0.16	1.1	80.00	80	0.049	97	96	25.6	-0.1	191	71	72	70	69	69	-0.022	1.82	0.098
248	39.657	40.411	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	80	0.048	98	98	25.6	0.0	193	71	72	70	69	68	-0.023	2.61	0.034
249	39.818	40.573	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	80	0.047	99	98	25.6	0.0	190	71	72	70	69	69	-0.022	1.48	0.130
250	39.978	40.737	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	80	0.048	98	98	25.6	0.0	191	71	72	70	69	69	-0.023	2.43	0.063
251	40.138	40.899	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	80	0.046	100	99	25.6	0.0	193	71	72	70	69	69	-0.023	2.55	0.043
252	40.298	41.061	0.16	0.16	1.34	80	1.96	0.16	1.11	80.00	80	0.049	97	96	25.6	0.0	191	71	72	70	69	68	-0.022	1.54	0.087
253	40.458	41.224	0.16	0.16	1.34	80	1.96	0.16	1.11	80.00	80	0.049	97	97	25.5	-0.1	193	71	72	70	69	68	-0.023	2.58	0.062
254	40.619	41.387	0.16	0.16	1.34	81	1.96	0.16	1.1	80.00	80	0.046	100	100	25.5	0.0	193	71	72	70	69	68	-0.023	2.02	0.064
255	40.778	41.549	0.16	0.16	1.34	81	1.96	0.16	1.11	80.00	80	0.047	98	98	25.5	0.0	194	71	72	70	69	69	-0.023	2.29	0.053
256	40.939	41.711	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	80	0.045	101	100	25.5	0.0	194	71	72	70	69	68	-0.023	2.12	0.071
257	41.099	41.874	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	80	0.047	99	99	25.4	-0.1	194	71	72	70	69	68	-0.023	2.52	0.079
258	41.259	42.037	0.16	0.16	1.34	81	1.96	0.16	1.11	80.00	80	0.045	101	101	25.4	0.0	195	71	72	70	69	68	-0.023	2.40	0.060
259	41.419	42.200	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	80	0.045	101	101	25.4	0.0	194	71	71	70	69	68	-0.023	1.62	0.100
260	41.580	42.362	0.16	0.16	1.35	80	1.97	0.16	1.1	80.00	80	0.046	100	99	25.4	0.0	193	71	72	70	69	68	-0.022	1.89	0.100
261	41.740	42.525	0.16	0.16	1.34	81	1.96	0.16	1.11	80.00	80	0.046	100	100	25.4	0.0	193	71	72	70	69	69	-0.022	2.25	0.056
262	41.900	42.687	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	80	0.049	97	96	25.4	0.0	191	71	71	70	69	69	-0.023	1.44	0.120
263	42.060	42.850	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	80	0.048	98	98	25.3	-0.1	193	71	71	70	69	69	-0.023	2.71	0.046
264	42.221	43.013	0.16	0.16	1.35	80	1.97	0.16	1.1	80.00	80	0.045	101	101	25.3	0.0	194	71	71	70	69	69	-0.023	2.43	0.027
265	42.382	43.175	0.16	0.16	1.35	81	1.97	0.16	1.11	80.00	82	0.046	100	100	25.3	0.0	206	71	71	70	69	69	-0.024	2.28	0.098
266	42.542	43.338	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	83	0.047	99	99	25.3	0.0	216	71	71	70	69	69	-0.026	2.30	0.041
267	42.703	43.500	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	82	0.046	101	100	25.3	0.0	207	71	71	70	69	68	-0.025	1.90	0.070
268	42.863	43.664	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	81	0.047	99	100	25.2	-0.1	202	71	71	70	69	69	-0.024	1.51	0.110
269	43.023	43.826	0.16	0.16	1.35	81	1.97	0.16	1.1	80.00	81	0.046	100	99	25.2	0.0	197	71	71	70	69	69	-0.023	1.30	0.110
270	43.184	43.988	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	81	0.046	100	99	25.2	0.0	199	71	71	70	69	69	-0.024	3.52	0.022
271	43.344	44.151	0.16	0.16	1.35	81	1.96	0.16	1.11	80.00	81	0.046	100	100	25.2	0.0	199	71	71	70	69	68	-0.024	2.29	0.058
272	43.504	44.314	0.16	0.16	1.34	80	1.96	0.16	1.11	80.00	80	0.046	100	100	25.2	0.0	197	71	71	70	69	69	-0.023	1.52	0.095
273	43.664	44.477	0.16	0.16	1.34	80	1.96	0.16	1.11	80.00	80	0.047	99	99	25.1	-0.1	194	71	71	70	69	68	-0.024	1.18	0.130
274	43.824	44.639	0.16	0.16	1.35	81	1.96	0.16	1.11	80.00	80	0.048	97	97	25.1	0.0	197	71	71	70	69	69	-0.024	3.06	0.013
275	43.985	44.801	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	80	0.047	99	98	25.1	0.0	197	71	71	70	69	68	-0.024	2.37	0.050
276	44.145	44.964	0.16	0.16	1.34	80	1.96	0.16	1.11	80.00	80	0.047	99	99	25.1	0.0	195	71	71	70	69	68	-0.023	1.59	0.120
277	44.305	45.127	0.16	0.16	1.35	80	1.96	0.16	1.1	80.00	80	0.047	99	99	25.1	0.0	194	71	71	70	69	69	-0.023	1.97	0.082
278	44.465	45.290	0.16	0.16	1.35	80	1.96	0.16	1.1	80.00	80	0.046	100	100	25.1	0.0	192	71	71	70	69	69	-0.023	1.39	0.094
279	44.625	45.452	0.16	0.16	1.35	80	1.96	0.16	1.11	80.00	80	0.048	98	97	25.0	-0.1	198	71	71	70	69	69	-0.025	4.07	0.007
280	44.786	45.614	0.16	0.16	1.35	81	1.96	0.16	1.11	80.00	80	0.045	101	100	25.0	0.0	197	71	71	70	69	69	-0.023	1.86	0.081
281	44.946	45.777	0.16	0.16	1.34	81	1.96	0.16	1.11	80.00	80	0.047	98	99	25.0	0.0	193	71	71	70	69	69	-0.023	1.25	0.120
282	45.106	45.940	0.16	0.16	1.35	80	1.97	0.16	1.11	80.00	80	0.047	99	99	25.0	0.0	195	71	71	70	69	69	-0.023	2.41	0.030
283	45.267	46.102	0.16	0.16	1.35	81	1.97	0.16	1.11	80.00	80	0.045	101	100	25.0	0.0	194	71	71	70	69	69	-0.023	2.36	0.031
284	45.427	46.265	0.16	0.16	1.34	80	1.97	0.16	1.11	80.00	80	0.046	100	100	24.9	-0.1	195	71	71	70	69	69	-0.023	2.38	0.049
285	45.588	46.427	0.16	0.16	1.34	81	1.97	0.16	1.11	80.00	80	0.047	99	98	24.9	0.0	201	71	71	70	69	69	-0.024	3.85	0.008
286	45.748	46.591	0.16	0.16	1.35	81	1.97	0.16	1.11	80.00	80	0.045	101	102	24.9	0.0	200	71	71	70	69	69	-0.024	2.09	0.090
287	45.908	46.753	0.16	0.16	1.35	81	1.97	0.16	1.11	80.00	81	0.046	100	99	24.9	0.0	201	71	71	70	69	69	-0.025	2.47	0.057
288	46.069	46.915	0.16	0.16	1.34	81	1.97	0.16	1.11	80.00	81	0.047	99	98	24.9	0.0	202	71	71	70	69	69	-0.024	2.37	0.045
289	46.229	47.078	0.16	0.16	1.35	81	1.96	0.16	1.11	80.00	80	0.047	98	99	24.8	-0.1	200	71	71	70	69	69	-0.024	1.65	0.078
290	46.389	47.240	0.16	0.16	1.34	81	1.97	0.16	1.11	80.00	81	0.047	99	98	24.8	0.0	201	71	71	70	69	69	-0.025	2.40	0.057
291	46.549	47.404	0.16	0.16	1.34	81	1.96	0.16	1.11	80.00	81	0.047	99	100	24.8	0.0	204	71	71	70	69	69	-0.025	3.06	0.037
292	46.709	47.566	0.16	0.16	1.35	81	1.97	0.16	1.1	80.00	81	0.048	98	97	24.8	0.0	202	71	71	70	69	69	-0.024	1.46	0.092
293	46.870	47.728	0.16	0.16	1.35	81	1.97	0.16	1.11	80.00	81	0.047	98	98	24.8	0.0	201	71	71	70	69	69	-0.024	2.04	0.096

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: PP60/PH35
Tracking No.: 2344
Project No.: 0061PS095E
Test Date: 22-Jan-19
Beginning Clock Time: 09:50

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 1.022 (1) 0.995 (2) 0 (Amb)

Barometric Pressure:

Begin	Middle	End	Average
30.38	30.39	30.40	30.39 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: -0.210 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

Avg. Tunnel Velocity: 13.23 ft/sec.
Intial Tunnel Flow: 148.6 scfm
Average Tunnel Flow: 150.2 scfm
Post-Test Leak Check (1): 0.000 cfm @ 8 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 7 in. Hg
Fuel Moisture (%): 6.689 Dry Basis 6.270 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.046	0.044	0.030	0.036	0.040	0.048	0.030	0.046	"H2O
Temp:	94	94	94	94	94	94	94	94	94	°F

V_{strav} 13.30 ft/sec V_{scent} 14.45 ft/sec F_p 0.921

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
294	47.030	47.890	0.16	0.16	1.34	81	1.97	0.16	1.11	81.00	81	0.047	99	98	24.8	0.0	200	71	71	70	69	69	-0.024	1.61	0.078
295	47.190	48.054	0.16	0.16	1.34	81	1.97	0.16	1.11	81.00	81	0.046	100	101	24.7	-0.1	202	71	71	70	69	69	-0.024	2.96	0.020
296	47.350	48.216	0.16	0.16	1.35	81	1.96	0.16	1.11	81.00	83	0.047	99	99	24.7	0.0	214	71	71	70	69	69	-0.025	2.81	0.032
297	47.510	48.378	0.16	0.16	1.35	81	1.97	0.16	1.11	81.00	84	0.046	100	100	24.7	0.0	221	71	71	70	69	69	-0.028	2.14	0.078
298	47.671	48.540	0.16	0.16	1.35	81	1.97	0.16	1.11	81.00	82	0.047	99	98	24.7	0.0	212	71	71	70	69	69	-0.025	1.58	0.140
299	47.831	48.703	0.16	0.16	1.34	81	1.96	0.16	1.11	81.00	82	0.047	99	99	24.6	-0.1	205	71	71	70	69	69	-0.024	1.27	0.120
300	47.991	48.866	0.16	0.16	1.35	81	1.97	0.16	1.11	81.00	82	0.046	100	100	24.6	0.0	206	71	71	70	69	69	-0.025	3.17	0.024
301	48.152	49.028	0.16	0.16	1.35	81	1.97	0.16	1.11	81.00	81	0.047	99	98	24.6	0.0	202	71	71	71	69	69	-0.024	1.86	0.056
302	48.312	49.190	0.16	0.16	1.35	81	1.97	0.16	1.11	81.00	81	0.045	101	101	24.6	0.0	197	71	71	71	69	69	-0.023	1.19	0.120
303	48.473	49.352	0.16	0.16	1.34	81	1.96	0.16	1.1	81.00	81	0.046	100	99	24.6	0.0	195	71	71	71	69	69	-0.023	1.61	0.110
304	48.633	49.516	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	81	0.045	101	102	24.5	-0.1	199	71	71	71	69	69	-0.024	3.63	0.012
305	48.793	49.678	0.16	0.16	1.35	81	1.96	0.16	1.1	81.00	81	0.045	101	101	24.5	0.0	199	71	71	70	69	69	-0.024	2.20	0.054
306	48.954	49.840	0.16	0.16	1.35	81	1.97	0.16	1.11	81.00	81	0.045	101	101	24.5	0.0	196	71	71	71	69	69	-0.023	1.58	0.130
307	49.114	50.002	0.16	0.16	1.34	81	1.97	0.16	1.11	80.00	81	0.046	100	99	24.5	0.0	196	71	71	70	69	69	-0.023	1.68	0.130
308	49.274	50.165	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	81	0.050	96	96	24.5	0.0	196	71	71	71	69	69	-0.023	2.14	0.047
309	49.434	50.327	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	81	0.047	99	98	24.4	-0.1	197	71	71	71	69	68	-0.024	2.17	0.077
310	49.594	50.489	0.16	0.16	1.34	81	1.97	0.16	1.11	81.00	81	0.043	103	103	24.4	0.0	197	71	71	71	69	69	-0.023	2.13	0.067
311	49.755	50.651	0.16	0.16	1.34	81	1.96	0.16	1.11	81.00	81	0.045	101	101	24.4	0.0	195	71	71	71	69	69	-0.023	1.57	0.093
312	49.915	50.814	0.16	0.16	1.34	81	1.97	0.16	1.11	81.00	81	0.046	100	100	24.4	0.0	198	71	71	71	69	69	-0.024	3.52	0.033
313	50.075	50.977	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	81	0.047	99	99	24.4	0.0	198	71	71	71	69	69	-0.024	2.31	0.070
314	50.235	51.139	0.16	0.16	1.35	81	1.96	0.16	1.1	81.00	81	0.045	101	101	24.4	0.0	197	71	71	71	69	69	-0.023	1.86	0.074
315	50.396	51.301	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	81	0.046	100	99	24.3	-0.1	197	71	71	71	69	69	-0.023	2.33	0.070
316	50.556	51.463	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	81	0.046	100	99	24.3	0.0	194	71	71	70	69	69	-0.023	1.46	0.080
317	50.716	51.627	0.16	0.16	1.34	81	1.97	0.16	1.11	81.00	81	0.048	98	99	24.3	0.0	196	71	71	70	69	69	-0.023	2.40	0.047
318	50.876	51.789	0.16	0.16	1.35	81	1.97	0.16	1.1	81.00	81	0.046	100	99	24.3	0.0	197	71	71	71	69	69	-0.023	2.79	0.022
319	51.037	51.951	0.16	0.16	1.35	81	1.97	0.16	1.1	81.00	81	0.044	102	102	24.3	0.0	195	71	71	70	69	69	-0.022	1.51	0.099
320	51.198	52.113	0.16	0.16	1.35	81	1.96	0.16	1.11	80.00	81	0.046	100	99	24.2	-0.1	194	71	71	70	69	69	-0.023	1.72	0.100
321	51.358	52.276	0.16	0.16	1.34	81	1.96	0.16	1.11	81.00	81	0.045	101	101	24.2	0.0	195	71	71	70	69	69	-0.024	2.56	0.029
322	51.519	52.438	0.16	0.16	1.35	81	1.96	0.16	1.1	81.00	81	0.046	100	99	24.2	0.0	193	71	71	70	69	69	-0.023	1.88	0.068
323	51.679	52.600	0.16	0.16	1.35	81	1.97	0.16	1.1	80.00	81	0.048	98	97	24.2	0.0	192	71	71	70	69	69	-0.022	1.71	0.110
324	51.839	52.762	0.16	0.16	1.35	81	1.97	0.16	1.1	80.00	81	0.045	101	101	24.2	0.0	192	71	71	70	69	69	-0.023	1.71	0.110
325	52.000	52.925	0.16	0.16	1.34	81	1.97	0.16	1.1	80.00	81	0.046	100	100	24.1	-0.1	195	71	71	70	69	69	-0.023	2.95	0.039
326	52.160	53.088	0.16	0.16	1.34	81	1.97	0.16	1.1	80.00	81	0.044	102	102	24.1	0.0	197	71	71	70	69	69	-0.023	3.34	0.018
327	52.320	53.249	0.16	0.16	1.33	81	1.97	0.16	1.1	80.00	82	0.045	101	100	24.1	0.0	205	71	71	70	69	69	-0.023	1.93	0.110
328	52.480	53.411	0.16	0.16	1.34	81	1.97	0.16	1.1	80.00	83	0.046	100	100	24.1	0.0	210	71	71	70	69	69	-0.024	1.60	0.130
329	52.640	53.573	0.16	0.16	1.34	81	1.97	0.16	1.1	80.00	82	0.045	101	101	24.1	0.0	207	71	71	71	69	69	-0.025	3.19	0.027
330	52.800	53.737	0.16	0.16	1.34	81	1.97	0.16	1.1	80.00	82	0.046	100	101	24.1	0.0	204	71	71	70	69	69	-0.024	2.27	0.070
331	52.961	53.898	0.16	0.16	1.34	81	1.97	0.16	1.1	80.00	81	0.047	99	98	24.0	-0.1	202	71	71	70	69	69	-0.024	2.09	0.065
332	53.121	54.060	0.16	0.16	1.35	81	1.97	0.16	1.1	81.00	81	0.045	101	101	24.0	0.0	198	71	71	70	69	69	-0.023	1.55	0.068
333	53.281	54.222	0.16	0.16	1.35	81	1.97	0.16	1.1	81.00	82	0.047	99	98	24.0	0.0	202	71	71	71	69	69	-0.025	3.34	0.058
334	53.441	54.385	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	82	0.046	100	100	24.0	0.0	204	71	71	71	69	69	-0.025	2.40	0.056
335	53.602	54.547	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	81	0.046	100	99	23.9	-0.1	204	71	71	71	69	69	-0.025	2.14	0.076
336	53.762	54.709	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	81	0.046	100	99	23.9	0.0	201	71	71	71	69	69	-0.024	1.63	0.110
337	53.922	54.871	0.16	0.16	1.35	81	1.97	0.16	1.1	81.00	81	0.046	100	99	23.9	0.0	198	71	71	71	69	69	-0.023	1.41	0.110
338	54.083	55.033	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	82	0.045	101	101	23.9	0.0	201	71	71	71	69	69	-0.025	2.98	0.036
339	54.243	55.196	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	81	0.045	101	101	23.9	0.0	203	71	71	71	69	69	-0.024	2.82	0.019
340	54.404	55.357	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	81	0.047	99	98	23.8	-0.1	203	71	71	71	69	69	-0.024	2.31	0.060
341	54.564	55.519	0.16	0.16	1.35	81	1.97	0.16	1.1	81.00	81	0.048	98	97	23.8	0.0	201	71	71	71	69	69	-0.024	1.77	0.084
342	54.724	55.681	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	81	0.046	100	101	23.8	0.0	203	71	71	71	69	69	-0.025	2.83	0.022

Pellet Heater Test Data - ASTM E2779 / ASTM E2515

Run: 1

Manufacturer: Hearth & Home
Model: PP60/PH35
Tracking No.: 2344
Project No.: 0061PS095E
Test Date: 22-Jan-19
Beginning Clock Time: 09:50

High Burn End Time: 60
Medium Burn End Time: 180
Total Sampling Time: 360 min
Recording Interval: 1 min
Background Sample Volume: 0 cubic feet

Meter Box Y Factor: 1.022 (1) 0.995 (2) 0 (Amb)

Barometric Pressure:	Begin	Middle	End	Average
	30.38	30.39	30.40	30.39 "Hg

PM Control Modules: 335, 336
Dilution Tunnel MW(dry): 29.00 lb/lb-mole
Dilution Tunnel MW(wet): 28.78 lb/lb-mole
Dilution Tunnel H2O: 2.00 percent
Dilution Tunnel Static: -0.210 "H_2O
Tunnel Area: 0.1963 ft^2
Pitot Tube Cp: 0.99

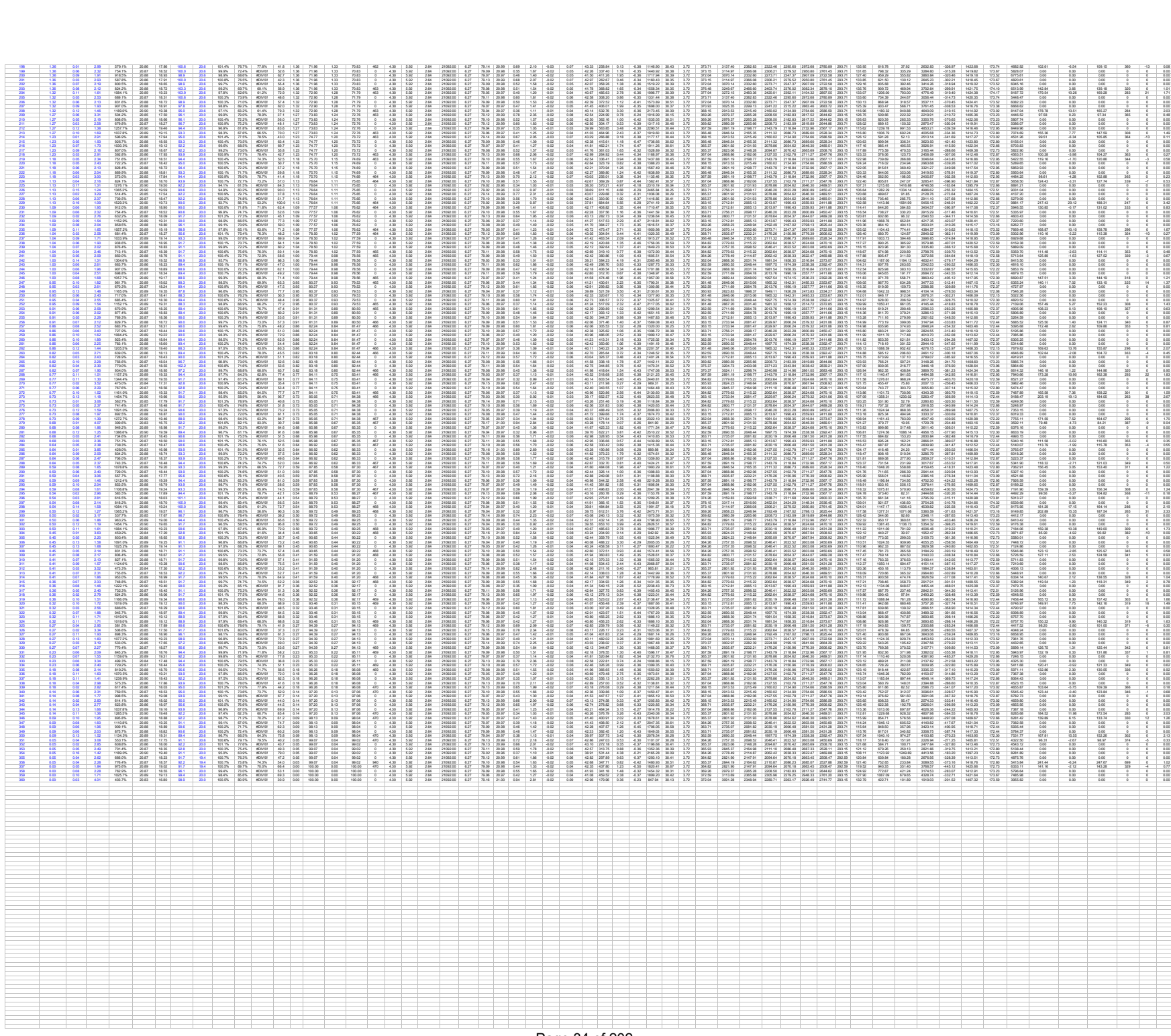
Avg. Tunnel Velocity: 13.23 ft/sec.
Intial Tunnel Flow: 148.6 scfm
Average Tunnel Flow: 150.2 scfm
Post-Test Leak Check (1): 0.000 cfm @ 8 in. Hg
Post-Test Leak Check (2): 0.000 cfm @ 7 in. Hg
Fuel Moisture (%): 6.689 Dry Basis 6.270 Wet Basis

Velocity Traverse Data

	Pt.1	Pt.2	Pt.3	Pt.4	Pt.5	Pt.6	Pt.7	Pt.8	Center	
Initial dP	0.040	0.046	0.044	0.030	0.036	0.040	0.048	0.030	0.046	"H2O
Temp:	94	94	94	94	94	94	94	94	94	°F

V_{strav} 13.30 ft/sec V_{scent} 14.45 ft/sec F_p 0.921

	Particulate Sampling Data														Fuel Weight (lb)		Temperature Data (°F)						Stack Gas Data		
Elapsed Time (min)	Gas Meter 1 (ft^3)	Gas Meter 2 (ft^3)	Sample Rate 1 (cfm)	Sample Rate 2 (cfm)	Orifice dH 1 ("H_2O)	Meter Temp 1 (°F)	Meter Vacuum 1 ("Hg)	Orifice dH 2 ("H_2O)	Meter Temp 2 (°F)	Meter Vacuum 2 ("Hg)	Dilution Tunnel (°F)	Tunnel Center dP	Pro. Rate 1	Pro. Rate 2	Scale Reading	Weight Change	Stack	Filter 1	Dryer 1	Filter 2	Dryer 2	Ambient	Draft ("H_2O)	CO_2 (%)	CO (%)
343	54.884	55.844	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	81	0.046	100	100	23.8	0.0	204	71	71	71	69	69	-0.025	2.77	0.044
344	55.044	56.006	0.16	0.16	1.33	81	1.96	0.16	1.1	81.00	81	0.046	100	99	23.8	0.0	201	71	71	71	69	69	-0.024	1.66	0.130
345	55.204	56.167	0.16	0.16	1.33	81	1.97	0.16	1.1	81.00	81	0.046	100	99	23.8	0.0	198	71	71	71	69	69	-0.023	1.36	0.110
346	55.364	56.330	0.16	0.16	1.33	81	1.97	0.16	1.1	81.00	81	0.047	99	99	23.7	-0.1	198	71	71	71	69	69	-0.024	1.95	0.095
347	55.524	56.492	0.16	0.16	1.34	81	1.96	0.16	1.1	81.00	81	0.046	100	99	23.7	0.0	196	71	71	71	69	69	-0.023	1.60	0.082
348	55.685	56.654	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	81	0.046	100	99	23.7	0.0	195	71	71	71	69	69	-0.023	1.96	0.058
349	55.845	56.815	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	81	0.047	99	98	23.7	0.0	195	71	71	71	69	69	-0.023	2.03	0.057
350	56.005	56.977	0.16	0.16	1.34	81	1.97	0.16	1.1	81.00	81	0.048	98	97	23.7	0.0	193	71	71	71	69	69	-0.023	1.52	0.130
351	56.165	57.140	0.16	0.16	1.34	81	1.97	0.16	1.09	81.00	81	0.050	96	96	23.6	-0.1	196	71	71	71	69	69	-0.024	3.08	0.038
352	56.325	57.302	0.16	0.16	1.35	81	1.97	0.16	1.1	81.00	81	0.049	97	96	23.6	0.0	198	71	72	71	69	68	-0.024	2.85	0.023
353	56.485	57.463	0.16	0.16	1.35	81	1.97	0.16	1.1	81.00	81	0.050	96	95	23.6	0.0	199	71	71	71	69	68	-0.024	2.49	0.051
354	56.646	57.625	0.16	0.16	1.35	81	1.97	0.16	1.1	81.00	81	0.051	95	94	23.6	0.0	196	71	72	70	69	68	-0.024	1.42	0.160
355	56.806	57.788	0.16	0.16	1.35	81	1.96	0.16	1.1	81.00	82	0.050	96	96	23.6	0.0	197	71	72	70	69	67	-0.024	2.62	0.039
356	56.967	57.950	0.16	0.16	1.35	81	1.96	0.16	1.09	81.00	82	0.049	97	96	23.6	0.0	198	71	71	70	69	67	-0.024	2.28	0.044
357	57.128	58.112	0.16	0.16	1.35	81	1.97	0.16	1.1	81.00	82	0.049	97	96	23.5	-0.1	197	71	72	70	69	67	-0.023	1.84	0.054
358	57.288	58.274	0.16	0.16	1.34	81	1.97	0.16	1.1	80.00	83	0.048	98	98	23.5	0.0	205	71	72	70	69	68	-0.023	2.28	0.080
359	57.448	58.437	0.16	0.16	1.35	81	1.97	0.16	1.1	80.00	84	0.047	99	99	23.5	0.0	211	71	72	70	69	68	-0.024	1.71	0.099
360	57.609	58.599	0.16	0.16	1.34	81	1.97	0.16	1.1	80.00	83	0.048	98	98	23.5	0.0	210	71	71	70	69	68	-0.026	4.01	0.033
Avg/Tot	57.609	58.599	0.16	0.16	1.34	79	1.96	0.16	1	79.52	85	0.05	100	100			243	71	72	71	69	69	-0.031	3.49	0.045



OMNI-Test Laboratories, Inc.

Pellet Heater Certification Run Sheets

Client: Hearth & Home Project Number: 0061PS095E Run Number: 1

Model: PP60/PP35 Tracking Number: 2344 Date: 1/22/19

Test Crew: B. Davis

OMNI Equipment ID numbers: 132, 2824, 335, 336, 410, 594, 559, 592, 637, 650

ASTM E2515 Sampling Information

Test Location: OMNI Portland Clock Time @ ET=0: 0950 - 1550

Span Gas Concentrations: CO_2(%): 17.06 CO(%): 4.29 CO(ppm): 901 50

Test Run Validation Checks	Pre Test	Post Test
Zero Stack Gas Leakage	good	good
Zero Pitot Line Leakage	good	good
Zero Induced Draft	0.0 "	
100% Smoke Capture	100 %	

Test Run Validation Measurements	Pre Test		Post Test	
Scale Audit (lbs)				
CO_2 % (Zero/Span)	0.00	17.06	-0.01	16.93
CO % (Zero/Span)	0.000	4.289	-0.001	4.27
CO ppm (Zero/Span)	0	52	0	49.5
Sample A Leakage (cfm @"Hg)			0.0 @ 8	
Sample B Leakage (cfm @"Hg)			0.0 @ 7	
Room Air Velocity (ft/min)	<50		<50	
Barometric Pressure ("Hg)	30.38		30.40	
Relative Humidity (%)	36.8		37.2	
Tunnel Static ("H_2O)	-.21		-.21	

Last Cleaning Dates

Flue Pipe	1/21/19
Dilution Tunnel	1/21/19
Sample Dryers	1/21/19

Dilution Tunnel Traverse

Traverse Point	1	2	Center	3	4	5	6	7	8
Δp ("H_2O)	.040	.046	.046	.044	.030	.036	.040	.048	.030
T (°F)	94	94	94	94	94	94	94	94	94

Technician Signature: [signature] Date: 1/22/19

OMNI-Test Laboratories, Inc.

Pellet Heater Certification Run Sheets

Client: Hearth & Home Project Number: 0061PS095E Run Number: 1
Model: PP60/PP35 Tracking Number: 2344 Date: 1/22/19
Test Crew: B. Davis
OMNI Equipment ID numbers:

ASTM E2779 Run Notes

Air Control Settings

High Burn Rate Target: 100%
Settings: Heat setting on High, trim setting +4. (Power level 5)

Medium Burn Rate Target: <50%
Settings: Heat setting 3. (Power Level 2), trim setting -3.

Low Burn Rate Target: Minimum
Settings: Heat setting 1 (Power level 1) Trim setting -4.

Additional Settings Notes:

Pellet Moisture Content:
Pellet Specifications:
Pellet Analysis Notes:

Preburn Notes

Time	Notes
0	Air control on high, trim setting +4.

Test Notes

Time	Notes
60	Changed front filter in train A.

Technician Signature: Date: 1/22/19

2.2 - Sample Analysis & Tares

Analysis Worksheets
Tared Filter, Probe, and O-Ring Data
Pellet Fuel Label
Pellet Fuel Analysis Report

OMNI-Test Laboratories, Inc.

Pellet Heater Certification Run Sheets

Client: Hearth & Home Project Number: 0061PS095E Run Number: 1

Model: PP60/PP35 Tracking Number: 2344 Date: 1/22/19

Test Crew: B. Davis

OMNI Equipment ID numbers: 637, 283A

ASTM E2515 Lab Sheet

Assembled By:

B Davis

Date/Time in Desiccator:

1/22/19 1610

	Weighing #1	Weighing #2	Weighing #3	Weighing #4
Date:	1/23/19	1/24/19	1/25/19	
Time:	1625	0856	0825	
R/H %:	22.8	19.7	11.8	
Temp (F):	72.2	72.1	72.2	
Audit 1:	200.0	200.0	200.0	
Audit 2:	2000.2	2000.2	2000.2	
Audit 3:	99997.8	99997.7	99997.8	
Initials:	BA	BA	AL	

Train	Item	ID #	Tare (mg)	Weight (mg)	Weight (mg)	Weight (mg)	Weight (mg)
A	Front Filter (60 min)	D658	120.8	121.1	121.1	✓	
A	Front Filter (Remainder)	D659	120.7	124.5	124.3	✓	
A	Rear Filter	D660	120.4	120.6	120.5	✓	
A	Probe	29	114277.5	114278.6	114278.3	114278.5	✓
A	O-Ring Set	R719	3588.7	3589.5	3589.3	3589.1	✓
B	Front Filter	D661	120.6	124.5	124.5	✓	
B	Rear Filter	D662	121.4	121.6	121.7	✓	
B	Probe	30	114328.2	114328.9	114328.5	114328.7	✓
B	O-Ring Set	R720	3324.7	3325.5	3325.1	3324.9	✓
BG	Filter						

Technician Signature: BC Date: 1/25/19

Pellet Heater Lab Data - ASTM E2779 / ASTM E2515

Manufacturer:	Hearth & Home	Equipment Numbers:	
Model:	PP60/PH35		
Tracking No.:	2344		
Project No.:	0061PS095E		
Run #:	1	Technician Signature:	
Date:	1/22/19		

TRAIN 1 (First Hour emissions)

Sample Component	Reagent	Filter, Probe or Seal #	Mass Readings Tare, mg	Final, mg	Particulate, mg
A. Front filter catch	Filter	D658	120.8	121.1	0.3
B. Rear filter catch	Filter				0.0
C. Probe catch*	Probe				0.0
D. Filter seals catch*	Seals				0.0
				1st hour Sub-Total, mg:	0.3

TRAIN 1 (Remainder of Test)

Sample Component	Reagent	Filter, Probe or Seal #	Mass Readings Tare, mg	Final, mg	Particulate, mg
A. Front filter catch	Filter	D659	120.7	124.3	3.6
B. Rear filter catch	Filter	D660	120.4	120.5	0.1
C. Probe catch*	Probe	29	114277.5	114278.5	1.0
D. Filter seals catch*	Seals	R719	3588.7	3589.1	0.4
				Remainder Sub-Total, mg:	5.1
				Train 1 Aggregate, mg:	5.4

TRAIN 2

Sample Component	Reagent	Filter, Probe or Seal #	Mass Readings Tare, mg	Final, mg	Particulate, mg
A. Front filter catch	Filter	D661	120.6	124.5	3.9
B. Rear filter catch	Filter	D662	121.4	121.7	0.3
C. Probe catch*	Probe	30.0	114328.2	114328.7	0.5
D. Filter seals catch*	Seals	R720	3324.7	3324.9	0.2
				Train 2 Aggregate, mg:	4.9

AMBIENT

Sample Component	Reagent	Filter, Probe or Seal #	Mass Readings Tare, mg	Final, mg	Particulate, mg
A. Front filter catch*	Filter				0.0
				Ambient Aggregate, mg:	0.0

*Particulate catch that results in a negative number, is assumed to be zero for probes and seals, negative numbers for filters are assumed to be included in O-ring seal weights.

Tare Sheet: (check one) Probes_____ 47mm Filters_____ 100mm Filters_____ O-Ring Pair ✓

Prepared By: A. Urawitz Balance ID #: 637 Thermohygrometer ID #: 592 Audit Weight ID #/Mass: 283A 1 2g

Placed in Dessicator: Date: 1/8/19 Time: 1700 ID #	Date: 1/11/19 Time: 2300 RH %: 3.1 T (°F): 72.1 Audit: 2000.1	Date: 1/14/19 Time: 0900 RH %: 12.8 T (°F): 70.5 Audit: 2000.2	Date: 1/15/19 Time: 0930 RH %: 13.8 T (°F): 70.6 Audit: 2000.2	Date: 1/16/19 Time: 10:25 RH %: 14.4 T (°F): 71.0 Audit: 2006.2	Date Used	Project Number	Run No.
R711	4105.1	4104.9			1/15/19	0135WS044E	1
R712	3414.3	3413.8	3413.6		↓	↓	↓
R713	3392.9	3392.0	3391.9		1/17/19		3
R714	3534.7	3534.3	3534.1		↓	↓	↓
R715	3322.1	3321.5	3321.4				
R716	3552.4	3552.2	3552.3				
R717	4092.2	4089.5	4089.3		1/18/19	0135WS044E	4
R718	3314.5	3314.1	3313.7	3313.8	↓	↓	↓
R719	3589.1	3588.9	3588.7		1/22/19	0061PS095E	1
R720	3325.5	3324.8	3324.7		↓	↓	↓
R721	3345.0	3344.2	3344.2		1/20/19	0061WP102E	1H
R722	3336.0	3335.3	3335.3		↓	↓	↓
R723	3356.9	3356.4	3356.2				1M
R724	4097.1	4096.2	4095.8	4095.7	↓	↓	↓
R725	3357.4	3356.7	3356.5		1/30/19	↓	2L
	Initials: AU	Initials: DL	Initials: DL	Initials: DN			

Final Technician Signature: _____ Date: 1/15/19 Evaluator signature: _____

Control No. P-SFDP-0002.xls, Effective date: 2/1/2017

Tare Sheet: (check one) Probes ✓ 47mm Filters____ 100mm Filters____ O-Ring Pair____

Prepared By: A. Krawiec Balance ID #: 637 Thermohygrometer ID #: 542 Audit Weight ID #/Mass: 283 A / 100 g

Placed in Dessicator: Date: 1/8/19 Time: 1200 ID #	Date: 1/14/19 Time: 230 RH %: 9.4 T (°F): 71.7 Audit: 99997.8	Date: 1/14/19 Time: 0910 RH %: 12.1 T (°F): 70.4 Audit: 99997.8	Date: 1/15/19 Time: 0930 RH %: 13.8 T (°F): 70.6 Audit: 99997.8	Date: 1/16/19 Time: 1025 RH %: 14.4 T (°F): 71.0 Audit: 99997.8	Date Used	Project Number	Run No.
13	114321.9	114322.1			1/14/19	0135PS013E.R2	1
15	114341.9	114341.7			↓	↓	↓
16	114267.1	114266.7	114267.0	114266.7	Not used		
17	114561.3	114561.0	114561.2		1/15/19	0135WS044E	1
18	114401.8	114401.4	114401.5		↓	↓	↓
20	114253.0	114252.9					
21	114392.6	114392.1	114392.6	114392.1	Not used		
22	114344.6	114344.4					
23	114076.8	114076.4	114076.7	114076.3	Not used		
24	114126.0	114126.3	114126.7	114126.5	1/17/19	0135WS044E	3
25	114298.9	114298.5	114298.7		↓	↓	↓
27	114273.1	114273.3			1/18/19	↓	4
29	114250.1	114250.1			↓	↓	↓
29	114277.0	114277.5			1/22/19	0061PS095E	1
30	114327.8	114328.0	114328.2		↓	↓	↓
	Initials: AK	Initials: BR	Initials: BR	Initials: BR			

Final Technician Signature: _____ Date: 1/22/19 Evaluator signature: _____

Tare Sheet: (check one) **Probes**____ **47mm Filters** ✓ **100mm Filters**____ **O-Ring Pair**____

Prepared By: BDAUS Balance ID #: OMNI-00637 Thermohygrometer ID #: OMNI-00592 Audit Weight ID #/Mass: 00283A 1 200 mg

Placed in Dessicator: Date: 1/16/19 Time: 0850 ID #	Date: 1/17/19 Time: 1215 RH %: 11.9 T (°F): 71.7 Audit: 199.9	Date: 1/18/19 Time: 0811 RH %: 10.8 T (°F): 70.1 Audit: 200.0	Date: Time: RH %: T (°F): Audit:	Date: Time: RH %: T (°F): Audit:	Date Used	Project Number	Run No.
D653	120.9	121.0			1/18/19	013546044E	4
D654	121.6	121.5					
D655	121.2	121.1					
D656	120.7	120.8					
D657	121.2	121.0					
D658	120.8	120.8			1/22/19	0061PS095E	1
D659	~~121.0~~ 120.8 GR	120.7					
D660	120.6	120.4					
D661	120.6	120.6					
D662	121.5	121.4					
D663	120.4	120.6					
D664	121.5	121.5					
D665	120.2	120.1					
D666	121.0	120.8					
D667	120.8	120.7					
D668	120.8	120.8					
D669	120.1	120.3					
D670	120.9	120.9					
D671	120.8	120.8					
D672	122.1	122.1					
	Initials: BDA	Initials: GR	Initials:	Initials:			

Final Technician Signature: BDA Date: 2/23/19 Evaluator signature:____

Twin Ports Testing, Inc.
1301 North 3rd Street
Superior, WI 54880
p: 715-392-7114
p: 800-373-2562
f: 715-392-7163
www.twinportstesting.com

Analytical Test Report

Report No: USR:W218-1227-01
Issue No: 1

Client: OMNI-TEST LABORATORIES INC.
13327 NE Airport Way
Portland, OR 97230
Attention: Finance Department

PO No: 180206

Signed: Katy Jahr
Katy Jahr
Chemistry Lab Supervisor
Date of Issue: 1/8/2019

Sample Details

Sample Log No:	W218-1227-01	**Sample Date:**	
Sample Designation:	013E-077E	**Sample Time:**	
Sample Recognized As:	Wood Pellets	**Arrival Date:**	12/27/2018

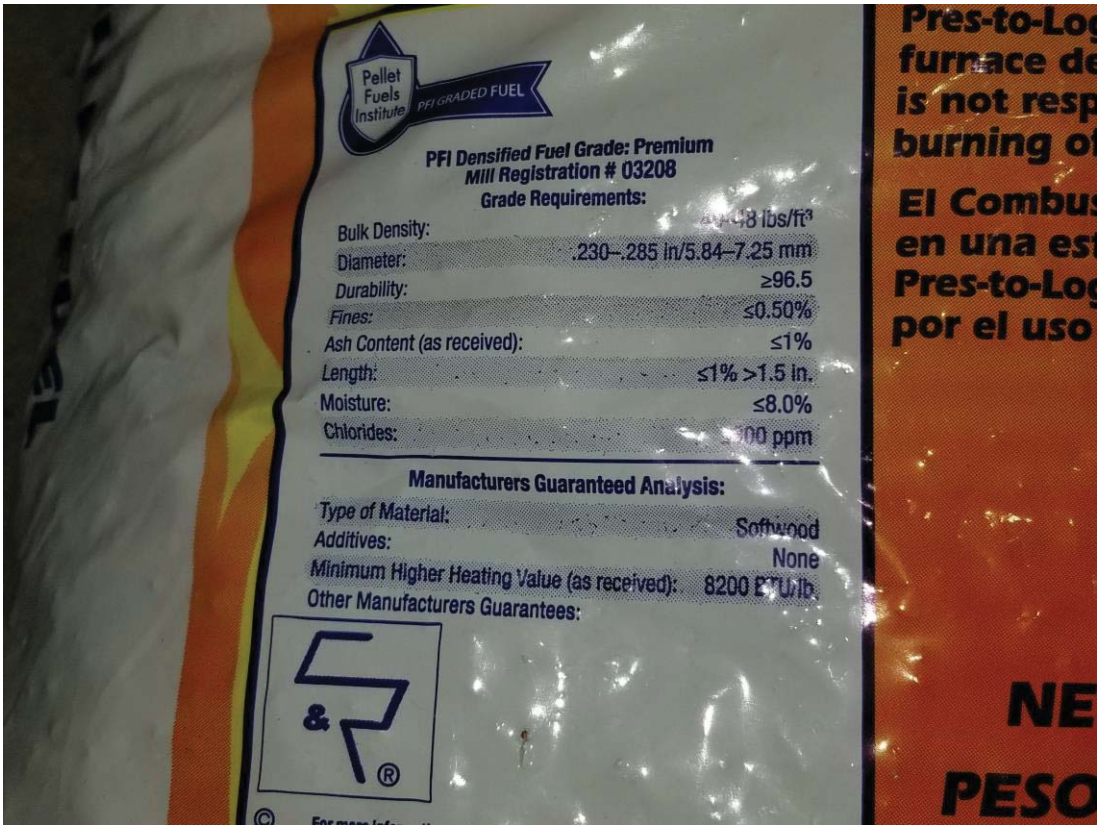
Test Results

	METHOD	UNITS	MOISTURE FREE	AS RECEIVED
Moisture Total	ASTM E871	wt. %		6.27
Ash	ASTM D1102	wt. %	0.26	0.25
Volatile Matter	ASTM D3175	wt. %		
Fixed Carbon by Difference	ASTM D3172	wt. %		
Sulfur	ASTM D4239	wt. %	0.006	0.006
SO_2	Calculated	lb/mmbtu		0.014
Net Cal. Value at Const. Pressure	ISO 1928	GJ/tonne	19.80	18.41
Net Cal. Value at Const. Pressure	ISO 1928	J/g	19803	18408
Gross Cal. Value at Const. Vol.	ASTM E711	J/g	21092	19770
Gross Cal. Value at Const. Vol.	ASTM E711	Btu/lb	9069	8500
Carbon	ASTM D5373	wt. %	51.57	48.33
Hydrogen*	ASTM D5373	wt. %	5.92	5.55
Nitrogen	ASTM D5373	wt. %	< 0.21	< 0.19
Oxygen*	ASTM D3176	wt. %	> 42.04	> 39.40
Chlorine	ASTM D6721	mg/kg		
Fluorine	ASTM D3761	mg/kg		
Mercury	ASTM D6722	mg/kg		
Bulk Density	ASTM E873	lbs/ft^3		
Fines (Less than 1/8")	TPT CH-P-06	wt.%		
Durability Index	Kansas State	PDI		
Sample Above 1.50"	TPT CH-P-06	wt.%		
Maximum Length (Single Pellet)	TPT CH-P-06	inch		
Diameter, Range	TPT CH-P-05	inch		to
Diameter, Average	TPT CH-P-05	inch		
Stated Bag Weight	TPT CH-P-01	lbs		
Actual Bag Weight	TPT CH-P-01	lbs		

*Note: As received values do not include hydrogen and oxygen in the total moisture.

Comments


Pres-to-Logs
WOOD PELLET FUEL
COMBUSTIBLE DE GRANULOS DE MADERA
• Clean/Limpio
• Efficient/Eficiente
• Economical/Economico


Pellet Fuels Institute
PFI GRADED FUEL
PFI Densified Fuel Grade: Premium
Mill Registration # 03208
Grade Requirements:
Bulk Density:
Diameter: .230–.285 in/5.84–7.25 mm
Durability: ≥96.5
Fines: ≤0.50%
Ash Content (as received): ≤1%
Length: ≤1% >1.5 in.
Moisture: ≤8.0%
Chlorides:
Manufacturers Guaranteed Analysis:
Type of Material: Softwood
Additives: None
Minimum Higher Heating Value (as received): 8200
Other Manufacturers Guarantees:
Pres-to-Log
furnace de
is not resp
burning of
El Combus
en una est
Pres-to-Log
por el uso
NE
PESO

Section 3
Laboratory Quality Assurance

3.1 - Quality Assurance/Quality Control
3.2 - Calibration Data
3.3 - Example Calculations

3.1 - Quality Assurance/Quality Control

OMNI follows the guidelines of ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories," and the quality assurance/quality control (QA/QC) procedures found in *OMNI*'s Quality Assurance Manual.

OMNI's scope of accreditation includes, but is not limited to, the following:

- ANSI (American National Standards Institute) for certification of product to safety standards.
- To perform product safety testing by the International Accreditation Service, Inc. (formerly ICBO ES) under accreditation as a testing laboratory designated TL-130.
- To perform product safety testing as a "Certification Organization" by the Standards Council of Canada (SCC).
- Serving as a testing laboratory for the certification of wood heaters by the U.S. Environmental Protection Agency.

This report is issued within the scope of *OMNI*'s accreditation. Accreditation certificates are available upon request.

The manufacturing facilities and quality control system for the production of the PP60-B/PH35PS-B at Hearth & Home Technologies were evaluated to determine if sufficient to maintain conformance with OMNI's requirements for product certification. OMNI has concluded that the manufacturing facilities, processes, and quality control system are adequate to produce the appliance congruous with the standards and model codes to which it was evaluated.

3.2 - Calibration Data

Equipment for ASTM E2515, ASTM E2779, & EPA Method 28R

ID #	Lab Name/Purpose	Log Name	Attachment Type
132	10 lb Weight	Weight Standard, 10 lb.	Calibration Certificate
283A	Audit Weights	Troemner 21pc Msas Set	Calibration Certificate
335	Sample Box / Dry Gas Meter	Apex Automated Emissions Sampling Box	Calibration Log
336	Sample Box / Dry Gas Meter	Apex Automated Emissions Sampling Box	Calibration Log
410	Microtector	Dwyer Microtector	Calibration Certificate
594	Combustion Gas Analyzer	CAI Gas Analyzer	See Run Sheet
559	Vaneometer	Dwyer Vaneometer	Equipment Record
579	Anemometer (Wind gauge)	Thermo-Anemometer	Calibration Certificate
592	Thermohygrometer	Omega Digital Thermohygrometer	Calibration Log
637	Milligram Balance	Analytical Balance - Mettler - Toledo	Calibration Certificate
[1]650	Barometer/Hygrometer	Digital Barometer	Calibration Certificate

[1]Barometer was used outside of biannual (6 month) calibration cycle. Subsequent calibration document indicating that calibration laboratory received device “in tolerance” has been added.

SCALE WEIGHT CALIBRATION DATA SHEET

Weight to be calibrated: 10 pounds

ID Number: OMNI-00132

Standard Calibration Weight: 10 pounds

ID Number: OMNI-00255

Scale Used: MTW-150K

ID Number: OMNI-00353

Date: 2/23/2018 By: B. Davis

Standard Weight (A) (Lb.)	Weight Verified (B) (Lb.)	Difference (A - B)	% Error
10.0	10.0	0.0	0

*Acceptable tolerance is 1%.

This calibration is traceable to NIST using calibrated standard weights.

Technician signature: _____ Date: 2/23/18

Certificate of Calibration

Certificate Number: **685888**

JJ Calibrations, Inc.
7007 SE Lake Rd
Portland, OR 97267-2105
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

A2LA ACCREDITED 0723.01 Calibration

PO: **180188**
Order Date: 10/09/2018
Authorized By: **N/A**

Property #: OMNI-00283A
User: N/A
Department: N/A
Make: Troemner Inc
Model: 1mg-100g (Class F)
Serial #: 47883
Description: Mass Set, 21pc
Procedure: DCN 500901
Accuracy: Class F

Calibrated on: 10/26/2018
*Recommended Due: 10/26/2023
Environment: 20 °C 57 % RH
* As Received: Within Tolerance
* As Returned: Within Tolerance
Action Taken: Calibrated
Technician: **139**

Remarks: * Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

This set meets Class F specifications.
Received and returned eight (8) masses in a black case secured by a rubber band.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
723A	Rice Lake	1mg-200g (Class 0)	Mass Set,	03/23/2019	668240
800A	Sartorius	MSA225W100DI	Analytical Balance	12/11/2018	663857

Measurement Data

Parameter / Measurement Description	Range Unit	Reference	Min	Max	ᵏError	UUT	Uncertainty Accredited = ✓
Before/After							
Mass							
Dot	200 mg	200.00030	199.4603	200.5403	0.0500	200.0503 mg	6.2E-01 ✓
	1 g	1.00000880	0.9991088	1.0009088	0.0000000	1.0000088 g	1E-03 ✓
	2 g	2.00001470	1.9989147	2.0011147	0.0003250	2.0003397 g	1.3E-03 ✓
	5 g	5.00000840	4.9985084	5.0015084	0.0000400	4.9999684 g	1.7E-03 ✓
	10 g	10.0000100	9.998010	10.002010	0.000245	9.999765 g	2.3E-03 ✓
Dot	20 g	20.0000140	19.996014	20.004014	0.000990	20.001004 g	4.6E-03 ✓
	50 g	49.9999660	49.989966	50.009966	0.000595	49.999371 g	1.1E-02 ✓
	100 g	100.000000	99.98000	100.02000	0.00194	99.99806 g	2.3E-02 ✓

Reviewer

3 Issued 10/29/2018 Rev # 15

Inspector

Certificate of Calibration

Certificate Number: **686722**

JJ Calibrations, Inc.
7007 SE Lake Rd
Portland, OR 97267-2105
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

0723.01
Calibration

PO: **180192**
Order Date: 10/22/2018
Authorized By: **N/A**

Property #: OMNI-00410
User: N/A
Department: N/A
Make: Dwyer
Model: 1430
Serial #: OMNI-00410
Description: Microtector
Procedure: DCN 500908
Accuracy: ±0.00025" WC

Calibrated on: 10/30/2018
*Recommended Due: 10/30/2019
Environment: 22 °C 44 % RH
* As Received: Limited
* As Returned: Limited
Action Taken: Calibrated
Technician: **111**

Remarks: * Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

Previous limitation of micrometer head calibrated only continued. .001" reading micrometer head ±.001" (LSD) tolerance applied.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
541A	Select	E8FED2	Gage Block Set, 8pc	12/18/2018	663864

Measurement Data

Parameter / Measurement Description	Range Unit	Reference	Min	Max	*Error	UUT	Uncertainty (Accredited = ✓)
Before/After							
Length							
	Inch	0.1300	0.129	0.131	0.001	0.129 Inch	1.1E-03 ✓
	Inch	0.3850	0.384	0.386	0.001	0.384 Inch	1.1E-03 ✓
	Inch	0.6150	0.614	0.616	0.001	0.614 Inch	1.1E-03 ✓
	Inch	0.8700	0.869	0.871	0.001	0.869 Inch	1.1E-03 ✓
	Inch	1.0000	0.999	1.001	0.001	0.999 Inch	1.1E-03 ✓

JJ Calibrations, Inc. certifies that this instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual with the stated procedure using standards that are traceable to the National Institute of Standards and Technology (NIST), or other National Measurement Institutes (NMI's), or by using natural physical constants, intrinsic standards or ratio calibration techniques. The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2005, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless otherwise stated, a test accuracy ratio (TAR) of 4:1, if achievable, is maintained. The results reported herein apply only to the calibration of the item described above. This report may not be reproduced, except in full, without prior written consent of JJ Calibrations, Inc.
JJ Calibrations, Inc. quality system has been assessed and accredited to ISO/IEC 17025:2005.

Reviewer

3 Issued 10/31/2018 Rev # 15

Inspector

Model 1430 Microtector® Electronic Point Gage

Installation and Operating Instructions

Model 1430 Microtector® Portable Electronic Point Gage combines modern, solid-state integrated circuit electronics with a time-proven point gage manometer to provide fast, accurate pressure measurements.

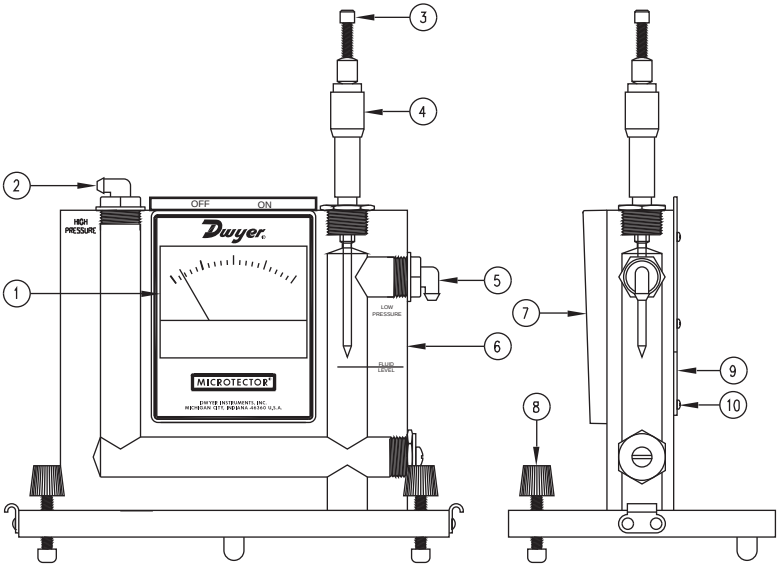
SPECIFICATIONS AND FEATURES

- Accurate and repeatable to ± .00025 inches water column
- Pressure range: 0 - 2″ w.c., positive, negative, or differential pressures
- Non-toxic and inexpensive gage fluid consists of distilled water mixed with a small amount of fluorescein green color concentrate
- Convenient, portable, lightweight and self-contained, the unit requires no external power connections and is operated by a 1.5 volt penlight cell
- A.C. detector current eliminates point plating, fouling and erosion
- Micrometers are manufactured in accordance with ASME B89.1.13-2001, and are traceable to a standard at the National Institute of Standards and Technology
- Three-point mounting, dual leveling adjustment, and circular level vial assure rapid setup
- Durablock® precision-machined acrylic plastic gage body
- Sensitive 0 - 50 microamp D.C. meter acts as a detector and also indicates battery and probe condition
- Heavy 2″ thick steel base plate provides steady mounting
- Top-quality glass epoxy circuit board and solid-state, integrated circuit electronics
- Electronic enclosure of tough, molded styrene acrylonitrile provides maximum protection to components yet allows easy access to battery compartment
- Rugged sheet steel cover and carrying case protects the entire unit when not in use
- Accessories included are (2) 3-foot lengths Tygon® tubing, (2) 1/8″ pipe thread adapters and 3/4 oz. bottle of fluorescein green color concentrate with wetting agent

Maximum pressure: 100 psig with optional pipe thread connections.

Tygon® is a registered trademark of Saint-Gobain Corporation

DWYER INSTRUMENTS, INC.
P.O. BOX 373
MICHIGAN CITY, INDIANA 46361,U.S.A
Phone: 219/879-8000
Fax: 219/872-9057
www.dwyer-inst.com
e-mail: info@dwyer-inst.com



Microtector® Gage

Precision Pressure Measurement

The Microtector® Gage combines the time-proven principles of the Hook Gage type manometer and modern solid-state integrated circuit electronics. It provides an inexpensive means of achieving accuracy and repeatability within ± .00025 inches water column throughout its 0 to 2 inches w.c. range. It is truly a new standard in precision measuring devices.

Principles of Operation

A pressure to be measured is applied to the manometer fluid which is displaced in each leg of the manometer by an amount equal to 1/2 the applied pressure. A micrometer mounted point is then lowered until it contacts the manometer gage fluid. The instant of contact is detected by completion of a low-power A.C. circuit. Current for this circuit is supplied by a 1.5 volt penlight cell feeding two semiconductor amplifiers which act as a free-running multivibrator operating at a frequency of approximately two kilohertz. Completion of the A.C. circuit activates a bridge rectifier which provides the signal for indication on a sensitive (0 to 50 microamps) D.C. microammeter.

On indication of contact, the operator stops lowering the point and reads the micrometer which indicates one half the applied pressure. By interpolating eight divisions (each being .000125″ w.c.) between .001 micrometer graduations, a total accuracy of .00025 can easily be achieved. The micrometer complies with Federal Specification GGG-C-105A and is traceable to a master at the NIST.

Locating and Opening

Stand the Microtector® Gage and case on a firm flat level surface. Remove cover by releasing the latches and lifting it straight up. If it is necessary to move the gage without case, handle only the base plate or clear acrylic block. (**CAUTION:** Do not handle gage by grasping meter-electronic package housing Item 7 on drawing.)

Fluid Level

Level the gage by adjusting the two front leveling screws (Item 8 on drawing) until the bubble in the spirit level is centered in the small circle. After leveling the gage, open both rapid shut-off valve tube connectors (Items 2 and 5). Back off the micrometer (Item 4), if necessary, to make sure that the point is not immersed in the gage fluid. The fluid level in the gage should now coincide with the mark on the right hand bore (Item 6) plus or minus approximately 1/32 inch. If the level of fluid is too high, fluid can be removed with an eye dropper pipette or carefully poured out of the right connection (Item 5).

If the level is too low, remove the top left rapid shut-off valve tube connector (Item 2) and add distilled water pre-mixed with the proper amount of green concentrate. (See maintenance instructions for proportions. After correcting the fluid level, re-install the rapid shut-off connectors and, with these in the open position, re-level the Microtector® Gage. The gage is now ready to be zeroed.

Zeroing

Turn the Micrometer barrel (Item 4) until its lower end just coincides with the zero mark on the scale and the zero on the barrel scale coincides with the vertical line on the internal scale. Note that the internal scale is graduated every .025″ from 0 to 1.00 inch and the barrel scale is graduated in one thousandths from 0 to .025″. Turn the meter circuit switch at the top of gage to the “on” position. While holding the barrel at the zero position (and with gage level), raise or lower the point by turning the knurled knob (Item 3) until the point is above, but near, the fluid.

Check to be sure that the meter registers zero. Watch the meter, hold the barrel, and lower the point slowly by turning the top knurled knob. As the knob is turned, the point will contact the fluid and the meter pointer will move from zero to some upscale position.

After making contact, turn the point out of the fluid by turning the micrometer barrel counterclockwise to a reading of .010 or more. Again, watch the meter and, this time, lower the point by turning the micrometer barrel. The point position where the meter pointer begins to move up scale is the zero position. This position should correspond to the zero reading on the micrometer. Adjust the point in relation to the micrometer barrel by turning the top knob while holding the barrel steady. Repeat lowering the point, watching the meter for contact, and adjusting the point until the zero position and zero reading exactly coincide. The gage is now zeroed and should not be moved.

An alternative method of zeroing and reading can be used wherein, instead of zeroing the gage completely, a zero correction reading is taken and recorded, then subtracted from the final reading. Comparable results can be obtained with either method.

Positive Pressure Measurement

With the fluid at its proper level, a pressure of 2.0″ water column maximum can be measured. Positive pressure should be applied to the top left connection (Item 2) with the micrometer zeroed as described above. This will permit a simple direct reading to be taken.

After an unknown pressure has been applied at the top left connection, the fluid level will drop in the left bore and rise over the point in the right bore. Note that the indicating meter point has moved upscale because the point is immersed in the fluid. Turn the micrometer counter-clockwise until the point leaves the fluid as indicated by the meter pointer dropping to zero on its scale. Then slowly turn the micrometer down until its point just touches the fluid surface, causing movement of the meter pointer. Withdraw the point and repeat several times, noting each time the micrometer reading where the meter pointer begins. The average of these readings multiplied by two is the pressure applied to the gage. (Avg. reading x 2 = pressure applied in inches w.c. The degree of uncertainty for the operator is indicated by the difference in these readings.

When the readings are complete, the pressure should be removed and the zero setting of Microtector® Gage rechecked. Any change in the zero position will indicate inaccurate readings. Should this happen, the zero-set and pressure measurement procedure should be repeated.

Negative Pressure or Vacuum Measurement

Zero the gage. Connect the source of vacuum or negative pressure to the right-side gage connection (Item 5) and proceed as described under Positive Pressure Measurement section. Remember that the pressure measured in this way is negative.

Differential Pressure Measurement

Differential pressures may be measured by connecting the higher (more positive) pressure to the left connection (Item 2) and the lower pressure to the right connection (Item 5).

Storage

Turn meter circuit switch to "off" position and withdraw the point well clear of fluid (by turning micrometer clockwise) when gage is not in use. This will conserve the batteries and minimize build-up of oxides, etc., on the point. Keep the unit covered and in an area free of strong solvent fumes.

Maintenance

When the meter reading becomes reduced or the pointer movement gets sluggish (with the circuit on and the point in fluid), the following should be done:

(1) Remove the point (by unscrewing) and clean the tip lightly using fine crocus cloth. Wipe off all grit and dirt with a clean rag; reassemble and recheck meter operation.

(2) If the meter operation continues to be sluggish, replace the size AA, 1.5 volt battery. (Replace the battery at least once a year to avoid deterioration of battery and damage to gage. Leakproof alkaline battery is recommended.)

To replace the battery, remove center screw (Item 10) located in the back of the electronic enclosure. Cover (Item 9) will come off, exposing the battery. Pull the old battery out and push a new battery into the battery holder with the positive (center) terminal to the right (to the end marked with + on the holder).

If the fluid becomes contaminated and requires replacement: empty old fluid from gage; flush out with clear water and replace with distilled water and A-126 fluorescein green color concentrate mixed with 3/4 oz. concentrate to each quart of water.

CAUTION:

1. Do not substitute other gage fluids, as proper gage operation depends on use of the specified gage fluid to provide proper surface tension, wetting ability and electrolyte capability with unity specific gravity.

If the gage bore is very dirty, a mild soap solution may be used to aid in cleaning prior to flushing with clear water.

2. Do not clean with liquid soaps, special solvent, de-greasers, aromatic hydrocarbons, etc. Such cleaners and solvents may contain chlorine, fluorine, acetone and related compounds that will permanently damage the gage and prevent proper operation.

Printed in U.S.A. 7/09 FR# 38-440190-00 Rev. 8

DWYER INSTRUMENTS, INC.
P.O. BOX 373
MICHIGAN CITY, INDIANA 46361,U.S.A
Phone: 219/879-8000
Fax: 219/872-9057
www.dwyer-inst.com
e-mail: info@dwyer-inst.com

ZRE

NDIR/O_2

USER'S MANUAL

1312 West Grove Avenue
Orange, CA 92865-4134
Phone: 714-974-5560 Fax: 714-921-2531
www.gasanalyzers.com

Calibration Record

Vaneometer Air Velocity Meter OMNI-00559

Calibration Service Record			
Date	**By**	**Results**	**Date of next Calibration**
11/17/17	BR	Installed New Vane From Manufacturer	5/17/18
7/12/18	BR	Installed New Vane from Manufacturer	1/12/19
6/13/19	BR	Installed New Vane From Manufacture	6/15/19

Certificate of Calibration

Certificate Number: **663902**

JJ Calibrations, Inc.
7007 SE Lake Rd
Portland, OR 97267-2105
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

PO: **170159**
Order Date: **12/07/2017**
Authorized By: **N/A**

Property #: **OMNI-00579**
User: **N/A**
Department: **N/A**
Make: **Extech**
Model: **407113**
Serial #: **A012691**
Description: **Anemometer**
Procedure: **400331 / 403614**
Accuracy: **Refer to Mfg. Specs.**

Calibrated on: **02/02/2018**
*Recommended Due: **02/02/2019**
Environment: **20** °C **26** % RH
As Received: **Within Tolerance**
As Returned: **Within Tolerance**
Action Taken: **Calibrated**
Technician: **9**

Remarks: * Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit.

Unit sent to vendor for calibration up to 60mph.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID

JJ Calibrations, Inc. certifies that this instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual with the stated procedure using standards that are traceable to the National Institute of Standards and Technology (NIST), or other National Measurement Institutes (NMI's), or by using natural physical constants, intrinsic standards or ratio calibration techniques. The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2005, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless otherwise stated, a test accuracy ratio (TAR) of 4:1, if achievable, is maintained. The results reported herein apply only to the calibration of the item described above. This report may not be reproduced, except in full, without prior written consent of JJ Calibrations, Inc.
JJ Calibrations, Inc. quality system has been assessed and accredited to ISO/IEC 17025:2005.

Reviewer

Issued 02/07/2018 Rev # 15

Inspector

Trescal

Certificate #: ***4128140001 e*** ***T***

17025 Accredited Certificate of Calibration

ilac-MRA A2LA ACCREDITED
Calibration Laboratory
Certificate #: 2662.01

Acct #:	012970
Customer:	JJ Calibrations, Inc.
Shipper #:	
Address:	7007 SE Lake Road Portland, OR, 97267
Contact:	Eric Johansen
PO #:	

Manufacturer:	Extech Instruments, Corp.
Model:	407113
Description:	Anemometer
Serial Number:	A012691
Asset Number:	
Barcode:	

As Received		**As Returned**		**Action Taken**	
In Tolerance	X	In Tolerance	X	Full Calibration	X
Out of Tolerance		Out of Tolerance		Special Calibration	
Malfunctioning		Malfunctioning		Oper. Verification	
Operational		Operational		Adjusted	
Damaged		N/A		Repaired	
N/A				Charted	
				Returned As Is	

Cal Date:	01/03/2018
Due Date:	01/03/2019
Temperature:	68.00 **deg. F**
Humidity:	26.00 **%**
Baro. Press.:	
Procedure:	DCN 11028
Reference:	local procedure (5/15)
Dept:	

Incoming Remarks:

Calibrate unit from 0-60 mph, temperature between 25°- 35°C NDO w/ case, probe, and user guide

Technical Remarks:

Calibrated from 0-60 mph and 25°- 35°C

Calibration Standards Utilized

Cert. #	Manufacturer	Model #	Description	Cal Date	Due Date
3746340310	Geo Instruments	2000SP	Humidity Chamber	08/28/2017	08/28/2018
3746340370	Furness Controls, L	FCO510	Micromanometer	10/18/2017	10/18/2018
3746340372	TSI, Inc.	EPST	Ellipsoidal Pitot Static Tube	11/07/2017	11/07/2018
3746340446	Extech Instruments	445702	Thermohygrometer Clock	12/19/2017	12/19/2018

Customer Instrumentation Includes

ID	Description
04	6pts or more

The above identified unit was calibrated in our laboratory at the address shown below.

Technician Name/Date: Timothy Mitchum, 01/03/2018 Signatory: QA Approved: DTI SA 653

5965 Shiloh Road East, Suite A, Alpharetta, GA 30005 678-965-4660 FAX 678-965-4659

Report of Calibration

Report Number: 4128140001

Manufacturer: Extech Instruments, Corp
Model: 407113
Description: Anemometer
Serial Number: A012691

Account Number: 012970
Technician: T.Mitchum
Cal. Date: 1/3/2018
ID: A012691

Parameter	Range	Tolerance	Nominal	Low Limit	As Found	High Limit	As Left	U*
Air Velocity	1.1 to 78.3 mph	± 0.6 mph	10 mph	9	10.4	11	10.4	0.048 mph
		± 0.8 mph	20 mph	19	20.1	21	20.1	0.049 mph
		± 1.0 mph	30 mph	29	29.4	31	29.4	0.05 mph
		± 1.2 mph	40 mph	39	39.4	41	39.4	0.051 mph
		± 1.4 mph	50 mph	49	50.6	51	50.6	0.052 mph
		± 1.6 mph	60 mph	58	60.1	62	60.1	0.053 mph
Temperature	0 to 80 °C	± 0.8 °C	30.0 °C	29.2	30.6	30.8	30.6	*0.44 °C*

* The estimated measurement uncertainty represents an expanded uncertainty using a coverage factor (k = 2) approximating a 95% confidence level. This value excludes the uncertainty of the unit under test (UUT) resolution typically calculated as 0.6R, where R is the instrument resolution. It is the customer's responsibility to take the instrument resolution into account for its own evaluation of measurement uncertainty. Measurement uncertainty values that are italicized and underlined indicate a test uncertainty ratio (TUR) less than four to one (< 4:1); values that are bold, italicized and underlined indicate a TUR less than one to one (< 1:1).

VWR Temperature Hygrometer Calibration Procedure and Data Sheet

Frequency: Every Two Years

Step 1: Locate NIST traceable standard.

Step 2: Place unit to be calibrated, tracking No. OMNI-00592, inside OMNI desiccate box on the same shelf with the NIST traceable standard.

Step 3: After a period of not less than four hours record the temperature and humidity of both units in the spaces provide below.

Step 4: If the unit to be calibrated matches the NIST standard within ± 4%, it is acceptable. If not, the unit needs to be sent to a repair company or replaced.

Verification Data:

Date: 1/29/19 ~~1/28/19~~ pa Technician: B Davis

Time in desiccate: 0840 Recording time: 1415

NIST Standard Temperature: 70.2 °F NIST Standard Humidity: 14.6

Test Unit Temperature Reading: 69.9 °F Test Unit Humidity Reading: 12.1

Test unit OMNI- 00592 is X or was not ___ within acceptable limits.

Technician Signature: [signature]

Comments: A difference of 2.5% was found, with a full scale of 90% on the Instrument this gives a 2.77% deviation.

Certificate of Calibration

Certificate Number: **692254**

JJ Calibrations, Inc.
7007 SE Lake Rd
Portland, OR 97267-2105
Phone 503.786.3005
FAX 503.786.2994

OnSite

0723.01
Calibration

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

PO: **181203**
Order Date: **01/11/2019**
Authorized By: **N/A**

Property #: **OMNI-00637**
User: **N/A**
Department: **N/A**
Make: **Mettler Toledo**
Model: **MS104TS/00**
Serial #: **B729400181**
Description: **Analytical Scale, 120g**
Procedure: **DCN 500887**
Accuracy: **±0.0005g**

Calibrated on: **01/11/2019**
*Recommended Due: **07/11/2019**
Environment: **19** °C **43** % RH
* As Received: **Within Tolerance**
* As Returned: **Within Tolerance**
Action Taken: **Calibrated**
Technician: **123**

Remarks: * Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
256A	Rice Lake	W0133K	Mass Set,	05/30/2019	660578

Measurement Data

Parameter / Measurement Description	Range	Unit	Reference	Min	Max	*Error	UUT	Uncertainty
Before/After								Accredited = ✓
Force								
		g	10.00000	9.9995	10.0005	0.0000	10.0000 g	5.7E-04 ✓
		g	30.00000	29.9995	30.0005	0.0000	30.0000 g	5.7E-04 ✓
		g	60.00000	59.9995	60.0005	0.0002	59.9998 g	5.7E-04 ✓
		g	90.00000	89.9995	90.0005	0.0001	89.9999 g	5.7E-04 ✓
		g	120.00000	119.9995	120.0005	0.0002	119.9998 g	5.7E-04 ✓

JJ Calibrations, Inc. certifies that this instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual with the stated procedure using standards that are traceable to the National Institute of Standards and Technology (NIST), or other National Measurement Institutes (NMI's), or by using natural physical constants, intrinsic standards or ratio calibration techniques. The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2005, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless otherwise stated, a test accuracy ratio (TAR) of 4:1, if achievable, is maintained. The results reported herein apply only to the calibration of the item described above. This report may not be reproduced, except in full, without prior written consent of JJ Calibrations, Inc.
JJ Calibrations, Inc. quality system has been assessed and accredited to ISO/IEC 17025:2005.

Reviewer

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Inspector

Calibration complies with ISO/IEC 17025, ANSI/NCSL Z540-1, and 9001

ACCREDITED
A2LA Certificate No. 1750.01
Calibration

Cert. No.: 6530-9263396

Traceable® Certificate of Calibration for Digital Barometer

Manufactured for and distributed by : Control Company "Drawer 58307,Houston,TX,77258,USA"

Instrument Identification:

Model: 6530, S/N: 181062211 Manufacturer: Control Company

Standards/Equipment:

Description	Serial Number	Due Date	NIST Traceable Reference
Digital Barometer	D4540001	09 Oct 2018	1000415948
Digital Thermometer	130070752	02 Mar 2018	4000-8360837
Chilled Mirror Hygrometer	44654/2H3737	02 Nov 2019	15478
Climate Chamber	W613.0046		

Certificate Information:

Technician: 57 Procedure: CAL-31 Cal Date: 26 Feb 2018 Cal Due Date: 26 Feb 2020

Test Conditions: 54.9%RH 22.83°C 1023mBar

Calibration Data: (New Instrument)

Unit(s)	Nominal	As Found	In Tol	Nominal	As Left	In Tol	Min	Max	±U	TUR
%RH	N.A.	N.A.		51.21	52	Y	49	55	0.74	>4:1
°C	N.A.	N.A.		24.55	24.3	Y	24.15	24.96	0.051	>4:1
mb/hPa	N.A.	N.A.		1010.30	1010	Y	1007	1015	0.62	>4:1
mb/hPa	N.A.	N.A.		806.75	806	Y	803	811	0.62	>4:1
mb/hPa	N.A.	N.A.		908.50	908	Y	905	913	0.62	>4:1

This certificate indicates Traceability to standards provided by (NIST) National Institute of Standards and Technology and/or a National Standards Laboratory.

A Test Uncertainty Ratio of at least 4:1 is maintained unless otherwise stated and is calculated using the expanded measurement uncertainty. Uncertainty evaluation includes the instrument under test and is calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement : (GUM). The uncertainty represents an expanded uncertainty using a coverage factor k=2 to approximate a 95% confidence level. In tolerance conditions are based on test results falling within specified limits with no reduction by the uncertainty of the measurement. The results contained herein relate only to the item calibrated. This certificate shall not be reproduced except in full, without written approval of Control Company.

Nominal=Standard's Reading; As Left=Instrument's Reading; In Tol=In Tolerance; Min/Max=Acceptance Range; ± U=Expanded Measurement Uncertainty; TUR=Test Uncertainty Ratio; Accuracy=±(Max-Min)/2; Min=As Left Nominal(Rounded) – Tolerance; Max= As Left Nominal(Rounded) + Tolerance;

Nicol Rodriguez, Quality Manager

Aaron Judice, Technical Manager

Maintaining Accuracy:

In our opinion once calibrated your Digital Barometer should maintain its accuracy. There is no exact way to determine how long calibration will be maintained. Digital Barometer change little, if any at all, but can be affected by aging, temperature, shock, and contamination.

Recalibration:

For factory calibration and re-certification traceable to National Institute of Standards and Technology contact Control Company.

CONTROL COMPANY 12554 Galveston RD Suite B230 Webster TX USA 77598
Phone 281 482-1714 Fax 281 482-9448 sales@control3.com www.control3.com

Certificate of Calibration

Certificate Number: **698278**

JJ Calibrations, Inc.
7007 SE Lake Rd
Portland, OR 97267-2105
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

0723.01
Calibration

PO: **190231**
Order Date: 04/04/2019
Authorized By: **N/A**

Property #: OMNI-00650
User: **N/A**
Department: **N/A**
Make: Control Company
Model: 6530
Serial #: 181062211
Description: Thermohygrometer / Barometer
Procedure: 403406
Accuracy: ±3%RH, ±.4°C(0.8°F), ±4mbar(0.12inHg)

Calibrated on: 04/18/2019
*Recommended Due: 04/18/2020
Environment: **22** °C **53** % RH
* As Received: Within Tolerance
* As Returned: Within Tolerance
Action Taken: Calibrated
Technician: **146**

Remarks: * Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
847A	Fluke	RPM4	Reference Pressure Monitor	11/21/2019	688957
644A	Thunder Scientific	1200	Two Pressure Humidity Generator	07/30/2019	674006

Measurement Data

Parameter / Measurement Description	Range Unit	Reference	Min	Max	kError	UUT	Uncertainty
Before/After							Accredited = ✓
Humidity							
	%	13.0	10	16	1	14 %	5.8E-01 ✓
	%	50.0	47	53	2	48 %	5.8E-01 ✓
	%	80.0	77	83	3	77 %	5.8E-01 ✓
Temperature							
	°C	20.00	19.6	20.4	0.4	19.6 °C	8.1E-02 ✓
	°C	35.00	34.6	35.4	0.4	34.6 °C	8.1E-02 ✓
	°C	50.00	49.6	50.4	0.2	49.8 °C	8.1E-02 ✓
Barometer							
	29 inHg	29.6210	29.501	29.741	0.009	29.630 inHg	8.1E-02 ✓

JJ Calibrations, Inc. certifies that this instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual with the stated procedure using standards that are traceable to the National Institute of Standards and Technology (NIST), or other National Measurement Institutes (NMI's), or by using natural physical constants, intrinsic standards or ratio calibration techniques. The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2005, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless otherwise stated, a test accuracy ratio (TAR) of 4:1, if achievable, is maintained. The results reported herein apply only to the calibration of the item described above. This report may not be reproduced, except in full, without prior written consent of JJ Calibrations, Inc.
JJ Calibrations, Inc. quality system has been assessed and accredited to ISO/IEC 17025:2005.

Reviewer

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Inspector

3.3 - Example Calculations

Equations and Sample Calculations – ASTM E2779 & E2515

Manufacturer:	Hearth & Home
Model:	PP60/PH35
Run:	1
Category:	Integrated

Equations used to calculate the parameters listed below are described in this appendix. Sample calculations are provided for each equation. The raw data and printout results from a sample run are also provided for comparison to the sample calculations.

M_{Bdb} – Weight of test fuel burned during test run, dry basis, kg

M_{BSidb} – Weight of test fuel burned during test run segment *i* , dry basis, kg

BR – Average dry burn rate over full integrated test run, kg/hr

BR_{Si} – Average dry burn rate over test run segment *i* , kg/hr

V_s – Average gas velocity in the dilution tunnel, ft/sec

Q_{sd} – Average gas flow rate in dilution tunnel, dscf/hr

$V_{m(std)}$ – Volume of Gas Sampled Corrected to Dry Standard Conditions, dscf

m_n – Total Particulate Matter Collected, mg

C_s - Concentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions, g/dscf

E_T – Total Particulate Emissions, g

PR - Proportional Rate Variation

PM_R – Average particulate emissions for full integrated test run, g/hr

PM_F – Average particulate emission factor for full integrated test run, g/dry kg of fuel burned

Equations and Sample Calculations – ASTM E2779 & E2515

M_{Bdb} – Weight of test fuel burned during test run, dry basis, kg

ASTM E2779 equation (1)

$$M_{Bdb} = (M_{Swb} - M_{Ewb})(100/(100 + FM))$$

Where,

FM	=	average fuel moisture of test fuel, % dry basis
M_{Swb}	=	weight of test fuel in hopper at start of test run, wet basis, kg
M_{Ewb}	=	weight of test fuel in hopper at end of test run, wet basis, kg

Sample Calculation:

	6.27	%
M_{Swb} =	34.2	lbs
M_{Ewb} =	23.5	lbs
0.4536 =	Converstion factor from lbs to kg	

M_{Bdb} = [(34.2 x 0.4536) - (23.5 x 0.4536)] (100/(100 + 6.27)

M_{Bdb} = **4.57** kg

Equations and Sample Calculations – ASTM E2779 & E2515

M_{BSidb} – Weight of test fuel burned during test run segment *i* , dry basis, kg

ASTM E2779 equation (2)

$$M_{BSidb} = (MS_{Siwb} - M_{ESiwb})(100/(100 + FM))$$

Where,

M_{SSiwb} = weight of test fuel in hopper at start of test run segment *i* , wet basis, kg

M_{ESiwb} = weight of test fuel in hopper at end of test run segment *i* , wet basis, kg

Sample Calculation (from medium burn rate segment):

FM = 6.27 %

M_{SSiwb} = 30.3 lbs

M_{ESiwb} = 26.9 lbs

0.4536 = Converstion factor from lbs to kg

M_{BSidb} = [(30.3 x 0.4536) - (26.9 x 0.4536)] (100/(100 + 6)

M_{BSidb} = **1.5** kg

Equations and Sample Calculations – ASTM E2779 & E2515

BR – Average dry burn rate over full integrated test run, kg/hr

ASTM E2779 equation (3)

$$BR = \frac{60\ M_{Bdb}}{\theta}$$

Where,

θ = Total length of full intergrated test run, min

Sample Calculation:

M_{Bdb} = 4.57 kg

θ = 360 min

$$BR = \frac{60 \times 4.57}{360}$$

BR = **0.76** kg/hr

Equations and Sample Calculations – ASTM E2779 & E2515

BR_{Si} – Average dry burn rate over test run segment *i* , kg/hr

ASTM E2779 equation (4)

$$BR_{Si} = \frac{60\ M_{BSidb}}{\theta_{Si}}$$

Where,

θ_{Si} = Total length of test run segment *i* , min

Sample Calculation (from medium burn rate segment):

M_{BSidb} = 1.45 kg

θ = 120 min

$$BR = \frac{60 \times 1.45}{120}$$

BR = **0.73** kg/hr

Equations and Sample Calculations – ASTM E2779 & E2515

V_s – Average gas velocity in the dilution tunnel, ft/sec

ASTM E2515 equations (9)

$$V_s = F_p \times K_p \times C_P \times \left(\sqrt{\Delta P}\right)_{avg} \times \sqrt{\frac{T_s}{P_s \times M_s}}$$

Where:

F_p = djustment factor for center of tunnel pitot tube placement, Fp = $\frac{V_{strav}}{V_{scent}}$, ASTM E2515 Equation (1)

V_{scent} = Dilution tunnel velocity calculated after the multi-point pitot traverse at the center, ft/sec

V_{strav} = Dilution tunnel velocity calculated after the multi-point pitot traverse, ft/sec

k_p = Pitot tube constant, 85.49

C_p = Pitot tube coefficient: 0.99, unitless

ΔP* = Velocity pressure in the dilution tunnel, in H_2O

T_s = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)

P_s = Absolute average gas static pressure in diltuion tunnel, = P_{bar} + P_g , in Hg

P_{bar} = Barometric pressure at test site, in. Hg

P_g = Static pressure of tunnel, in. H_20; (in Hg = in H_20/13.6)

M_s = **The dilution tunnel wet molecular weight; M_s = 28.78 assuming a dry weight of 29 lb/lb-mole

Sample calculation:

$$Fp = \frac{13.30}{14.45} = 0.921$$

$$V_s = 0.921 \times 85.49 \times 0.99 \times 0.215 \times \left(\frac{84.9 + 460}{\left(30.39 + \frac{-0.21}{13.6} \right) \times 28.78} \right)^{1/2}$$

V_s = **13.23** ft/s

*The ASTM test standard mistakenly has the square root of the average delta p instead of the average of the square root of delta p. The current EPA Method 2 is also incorrect. This was verified by Mike Toney at EPA.

**The ASTM test standard mistakenly identifies Ms as the dry molecular weight. It should be the wet molecular weight as indicated in EPA Method 2.

Equations and Sample Calculations – ASTM E2779 & E2515

Q_{sd} – Average gas flow rate in dilution tunnel, dscf/hr

ASTM E2515 equation (3)

$$Q_{sd} = 3600 \times (1 - B_{ws}) \times v_s \times A \times \frac{T_{std}}{T_s} \times \frac{P_s}{P_{std}}$$

Where:

3600	=	Conversion from seconds to hours (ASTM method uses 60 to convert in minutes)
B_{ws}	=	Water vapor in gas stream, proportion by volume; assume 2%
A	=	Cross sectional area of dilution tunnel, ft^2
T_{std}	=	Standard absolute temperature, 528 °R
P_s	=	Absolute average gas static pressure in diltuion tunnel, = P_{bar} + P_g , in Hg
T_s	=	Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
P_{std}	=	Standard absolute pressure, 29.92 in Hg

Sample calculation:

$$Q_{sd} = 3600 \times (1 - 0.02) \times 13.23 \times 0.1963 \times \frac{528}{84.9 + 460} \times \frac{30.39 + \frac{-0.21}{13.6}}{29.92}$$

Q_{sd} = **9014.1** dscf/hr

Equations and Sample Calculations – ASTM E2779 & E2515

$V_{m(std)}$ – Volume of Gas Sampled Corrected to Dry Standard Conditions, dscf

ASTM E2515 equation (6)

$$V_{m(std)} = K_1 \times V_m \times Y \times \frac{P_{bar} + \left(\frac{\Delta H}{13.6}\right)}{T_m}$$

Where:

K_1	=	17.64 °R/in. Hg
V_m	=	Volume of gas sample measured at the dry gas meter, dcf
Y	=	Dry gas meter calibration factor, dimensionless
P_{bar}	=	Barometric pressure at the testing site, in. Hg
ΔH	=	Average pressure differential across the orifice meter, in. H_2O
T_m	=	Absolute average dry gas meter temperature, °R

Sample Calculation:

Using equation for Train 1:

$$V_{m(std)} = 17.64 \times 57.609 \times 1.022 \times \frac{\left(30.39 + \frac{1.34}{13.6}\right)}{(79.5 + 460)}$$

$V_{m(std)}$ = **58.697** dscf

Using equation for Train 2:

$$V_{m(std)} = 17.64 \times 58.599 \times 0.995 \times \frac{\left(30.39 + \frac{0.16}{13.6}\right)}{(1.1 + 460)}$$

$V_{m(std)}$ = **67.812** dscf

Using equation for ambient train:

$$V_{m(std)} = 17.64 \times 0.00 \times 0 \times \frac{\left(\underline{30.39} + \frac{0.00}{13.6}\right)}{(69.0 + 460)}$$

$V_{m(std)}$ = **0.000** dscf

Equations and Sample Calculations – ASTM E2779 & E2515

m_n – Total Particulate Matter Collected, mg

ASTM E2515 Equation (12)

$$m_n = m_p + m_f + m_g$$

Where:

m_p = mass of particulate matter from probe, mg

m_f = mass of particulate matter from filters, mg

m_g = mass of particulate matter from filter seals, mg

Sample Calculation:

Using equation for Train 1 (first hour):

m_n = 0.0 + 0.3 + 0.0

m_n = 0.3 mg

Using equation for Train 1 (remainder):

m_n = 1.0 + 3.7 + 0.4

m_n = 5.1 mg

Train 1 Aggregate = **5.4** mg

Using equation for Train 2:

m_n = 0.5 + 4.2 + 0.2

m_n = **4.9** mg

Equations and Sample Calculations – ASTM E2779 & E2515

C_s - Concentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions, g/dscf

ASTM E2515 equation (13)

$$C_s = K_2 \times \frac{m_n}{V_{m(std)}}$$

Where:

K_2	=	Constant, 0.001 g/mg
m_n	=	Total mass of particulate matter collected in the sampling train, mg
$V_{m(std)}$	=	Volume of gas sampled corrected to dry standard conditions, dscf

Sample calculation:

For Train 1:

$$C_s = 0.001 \times \frac{5.4}{58.70}$$

$C_s =$ **9.20E-05** g/dscf

For Train 2

$$C_s = 0.001 \times \frac{4.9}{67.81}$$

$C_s =$ **7.23E-05** g/dscf

For Ambient Train

$$C_r = 0.001 \times \frac{0.0}{0.00}$$

$C_r =$ **0.000000** g/dscf

Equations and Sample Calculations – ASTM E2779 & E2515

E_T – Total Particulate Emissions, g

ASTM E2515 equation (15)

$$E_T = \left(c_s - c_r\right) \times Q_{std} \times \theta$$

Where:

C_s	=	Concentration of particulate matter in tunnel gas, g/dscf
C_r	=	Concentration particulate matter room air, g/dscf
Q_{std}	=	Average dilution tunnel gas flow rate, dscf/hr
θ	=	Total time of test run, minutes

Sample calculation:

For Train 1

E_T = (0.000092 - 0.000000) x 9014.1 x 360 /60

E_T = 4.98 g

For Train 2

E_T = (0.000072 - 0.000000) x 9014.1 x 360 /60

E_T = 3.91 g

Average

E = 4.44 g

Total emission values shall not differ by more than 7.5% from the total average emissions

7.5% of the average =	0.33
Train 1 difference =	0.53
Train 2 difference =	0.53

Equations and Sample Calculations – ASTM E2779 & E2515

PR - Proportional Rate Variation

ASTM E2515 equation (16)

$$PR = \left[\frac{\theta \times V_{mi} \times V_s \times T_m \times T_{si}}{\theta_i \times V_m \times V_{si} \times T_{mi} \times T_s} \right] \times 100$$

Where:

θ = Total sampling time, min

θ_i = Length of recording interval, min

V_{mi} = Volume of gas sample measured by the dry gas meter during the “ith” time interval, dcf

V_m = Volume of gas sample as measured by dry gas meter, dcf

V_{si} = Average gas velocity in the dilution tunnel during the "ith" time interval, ft/sec

V_s = Average gas velocity in the dilution tunnel, ft/sec

T_{mi} = Absolute average dry gas meter temperature during the "ith" time interval, ^oR

T_m = Absolute average dry gas meter temperature, ^oR

T_{si} = Absolute average gas temperature in the dilution tunnel during the "ith" time interval, ^oR

T_s = Absolute average gas temperature in the dilution tunnel, ^oR

Sample calculation (for the first 1 minute interval of Train 1):

$$PR = \left(\frac{360 \times 0.153 \times 13.23 \times (95.0 + 460) \times (79.5 + 460)}{1 \times 57.609 \times 13.31 \times (84.9 + 460) \times (70.0 + 460)} \right) \times 100$$

PR = 98 %

Equations and Sample Calculations – ASTM E2779 & E2515

PM_R – Average particulate emissions for full integrated test run, g/hr

ASTM E2779 equation (5)

$$PM_R = 60 (E_T/\theta)$$

Where,

E_T = Tota particulate emissions, grams

θ = Total length of full intergrated test run, min

Sample Calculation:

E_T (Dual train average) = 4.44 g

θ = 360 min

$PM_R = 60$ x (4.44 / 360)

PM_R = **0.74** g/hr

Equations and Sample Calculations – ASTM E2779 & E2515

PM_F – Average particulate emission factor for full integrated test run, g/dry kg of fuel burned

ASTM E2779 equation (6)

$$PM_F = E_T / M_{Bdb}$$

Where,

E_T = Tota particulate emissions, grams

M_{Bdb} = Weight of test fuel burned during test run, dry basis, kg

Sample Calculation:

E_T (Dual train average) = 4.44 g

M_{Bdb} = 4.57 kg

PM_F = 4.44 / 4.57)

PM_F = **0.97** g/kg

Appendix A
Labeling & Owner's Manual
PP60-B

CAUTION: HOT WHILE IN OPERATION DO NOT TOUCH, KEEP CHILDREN, CLOTHING AND FURNITURE AWAY.
CONTACT MAY CAUSE SKIN BURNS. SEE NAMEPLATE AND INSTRUCTIONS.

ATTENTION: CHAUD LORS DE L'OPÉRATION. NE PAS TOUCHER. GARDEZ LES ENFANTS ET LES VÊTEMENTS LOIN DE L'ESPACE DÉSIGNÉ DE L'INSTALLATION. LE CONTACT PEUT CAUSER DES BRÛLURES À LA PEAU. VOIR L'ÉTIQUETTE ET LES INSTRUCTIONS.

c UL us LISTED
Solid Fuel Type Room Heater
Issue No. MH60687

0061PS095E

PP60-B

Serial No. / N° de série: VN

BARCODE LABEL

Listed Solid Fuel Room Heater/Pellet Type. Also suitable for Mobile Home Installation. This appliance has been tested and listed for use in Manufactured Homes in accordance with OAR 814-23-9000 through 814-23-909.

Appareil de chauffage de combustible solide/de type de boulettes. Accepté dans l'installation dans les maisons mobiles. Cet appareil a été testé et enregistré pour l'usage dans les Maisons Mobiles en accord avec OAR 814-23-9000 jusqu'à 814-23-909.

Listado de habitaciones de combustible sólido del calentador / Pellet Tipo. También es adecuado para la instalación de casas móviles. Este aparato ha sido probado y certificado para su uso en casas prefabricadas, de conformidad con OAR 814-23-9000 través de 814-23-909.

PREVENT HOUSE FIRES / PRÉVENTION DES FEUX DE MAISON

Install and use only in accordance with manufacturer's installation and operating instructions. Contact local building or fire officials about restrictions and inspection in our area.

WARNING - FOR MOBILE HOMES: Do not install appliance in a sleeping room. An outside combustion air inlet must be provided. The structural integrity of the mobile home floor, ceiling and walls must be maintained. Refer to manufacturer's instructions and local codes for precautions required for passing chimney through a combustible wall or ceiling. Inspect and clean vent system frequently in accordance with manufacturer's instructions. DO NOT CONNECT THIS UNIT TO A CHIMNEY SERVING ANOTHER APPLIANCE. Use a 3" or 4" diameter type "L" or "PL" venting system.

Installez et utilisez en accord avec les instructions d'installation et d'opération du fabricant. Contactez le bureau de la construction ou le bureau des incendies au sujet des restrictions et des inspections d'installation dans votre voisinage. Ne pas obstruez l'espace en dessous de l'appareil.

AVIS - Pour Les Maisons Mobiles: Ne pas installer dans une chambre à coucher. Un tuyau extérieur de combustion d'air doit être installé et ne doit pas être obstrué lorsque l'appareil est en usage. La structure intégrale du plancher, du plafond et des murs de la maison mobile doit être maintenue intacte. Référez vous aux instructions du fabricant et des codes locaux pour les précautions requises pour passer une cheminée à travers un mur ou un plafond combustibles, et les compensations maximums. Inspectez et nettoyez la cheminée fréquemment. Ne pas connecter cet appareil à une cheminée servant un autre appareil. Utilisez systèm de ventilation "L" ou "P" diamètre 76mm ou 102mm

Instale y use únicamente de acuerdo con la instalación del fabricante y las instrucciones de funcionamiento. Póngase en contacto con la construcción o de los bomberos sobre las restricciones y la inspección en nuestra área.

ADVERTENCIA - Para las casas móviles: No instale el aparato en una habitación para dormir. Una entrada de aire de combustión exterior debe ser proporcionada. La integridad estructural de la planta de casas móviles, techos y paredes deben ser mantenidos.
Consulte las instrucciones del fabricante y los códigos locales para la precauciones necesarias para pasar a través de una chimenea de pared o techo combustible. Inspeccione y limpie el sistema de ventilación con frecuencia, de conformidad con las instrucciones del fabricante. NO conecte esta unidad a UNA CHIMENEA DE SERVICIO otro aparato. Use un 3 "o 4" de diámetro tipo "L" o "PL" sistema de ventilación.

Conforms to ASTM Std E1509-12. Certified to ULC Std S627-00. Room Heating Pellet BurningType, (UM) 84-HUD FOR USE ONLY WITH PELLETIZED WOOD FUEL. Do not use any other type of fuel.

Input Rating: 33,200 Btu's/hr. Electrical Rating:120 VAC, 60 Hz, Start 2.6 Amps, Run 0.9 AMPS. Route power cord away from unit. Do not route cord under or in front of appliance. Do not obstruct the space beneath the heater.

DANGER: Risk of electrical shock. Disconnect power supply before servicing. Replace glass only with 5mm ceramic. To start, turn dial control to desired setting, the stove will light automatically. To shutdown, turn dial control to off position. For further instruction refer to owner's manual. Keep viewing doors tightly closed during operation.

Conforme à la norme ASTM E1509-12 Std. Certifié à la norme ULC S627-00 Std. Room Heating Pellet Burning Type, (UM) 84-HUD POUR USAGE AVEC LES BOULETTES DE BOIS. N'utiliser aucun autre genre de combustible.

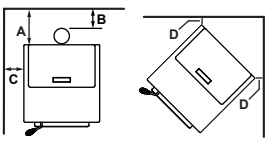
Puissance de Rendement: 33,200 Btu's/hr. Puissance Électrique: 120 VAC, 60 Hz, Début 2.6 Amps, Courir 0.9 Amps, Éloignez le fil électrique de l'appareil. Ne pas faire passer le fil électrique au dessus ou en dessous de l'appareil. Ne pas bloquer l'espace au dessous de l'appareil.

DANGER: Il y a risque de décharge électrique. Déconnectez le fil électrique de la prise de contact avant le service. Remplacez la vitre seulement avec une vitre céramique de 5 mm disponible chez votre fournisseur. Pour commencer, tourner le cadran de commande au réglage désiré, le poêle s'allume automatiquement. Pour l'arrêt, tourner le cadran de commande en position OFF. Pour des instructions supplémentaires, référez vous au manuel du propriétaire. Gardez la porte d'ouverture et la porte des cendres fermées hermétiquement durant l'opération.

Cumple con la norma ASTM Std E1509-12. Certificado de ULC S627-00 Std, cuarto de la calefacción de pellets BurningType, (UM), de 84 de HUD PARA USO EXCLUSIVO CON COMBUSTIBLE DE MADERA granulado. No utilice ningún otro tipo de combustible.

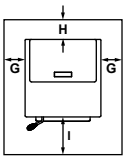
Clasificación de entrada: 33,200 BTU / hr. Clasificación eléctrica: 120 VAC, 60 Hz, 2,6 amperios Inicio, Ejecutar 0,9 amperios. Pase el cable de alimentación alejado de la unidad. No encamine el cordón por debajo o por delante del aparato. No obstruya el espacio debajo de la estufa.

PELIGRO: Riesgo de choque eléctrico. Desconecte el suministro eléctrico antes de darle servicio. Reemplace los vidrios sólo con cerámica de 5 mm. Para comenzar, gire el dial de control hasta la posición deseada, la estufa se encenderá automáticamente. Para apagar, gire el dial de control para la posición de apagado. Para obtener más instrucciones, consulte el manual del propietario. Mantenga las puertas de ver bien cerrados durante la operación.



MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS / ESPACES LIBRES MINIMUM DES MATÉRIAUX
DISTANCIAS MÍNIMAS a los materiales combustibles

A	Back Wall / Mur Arrière / Muro Posterior	(horizontal installation)	2 in [51 mm]
B	Flue Pipe / Conduit de fumée / Cañón de Humos		3 in [76 mm]
C	Side Wall / Mur De Côté / Muro Lateral		13 in [330 mm]
CORNER INSTALLATION / INSTALLATION DU COIN / RINCÓN DE LA INSTALACIÓN			
D	Side Wall / Mur De Côté / Muro Lateral		3 in [76 mm]



USA
G = 2 in
H* = 2 in
I = 6 in

CANADA
G = 203 mm
H* = 51 mm
I = 152 mm

FLOOR PROTECTION / PROTECTION DU SOL / PISO DE PROTECCION

Floor protector must be non-combustible material, extending beneath heater and to the front/sides/rear as indicated. Measure front distance (I) from the surface of the glass door.

Le poêle doit être placé sur une assise non combustible s'étendant tout autour de lui, comme les schémas l'indiquent. Mesurez la distance du devant (I) de la surface de la porte vitrée.

Protector de piso debe ser de material incombustible, se extiende por debajo del calentador y al frente / lado / trasero, como se indica. Medir la distancia frontal (I) de la superficie de la puerta de vidrio.

*Non-combustible floor protection must extend 2 inches (51mm) beneath the flue pipe when installed with horizontal venting or under the Top Vent Adapter with vertical installation. RECOMMENDED IN USA; REQUIRED IN CANADA.

*Un protecteur incombustible de plancher doit s'étendre 2 inches (51mm) sous le conduit de cheminée pour une installation de ventilation horizontale ou sous un adapteur de ventilation de dessus pour une installation verticale. RECOMMANDÉ AUX ÉTATS-UNIS; NÉCESSAIRE AU CANADA.

* No es combustible mínimo de protección debe extenderse 2 pulgadas (51mm) por debajo del conducto de humos cuando se instalan con la ventilación horizontal o en el adaptador de ventilación superior con instalación vertical. RECOMENDADO EN EE.UU.; REQUERIDA EN CANADÁ.

HEARTH & HOME technologies

Hearth & Home Technologies®
352 Mountain House Road
Halifax, PA 17032

1.877.427.3316
www.pelprostoves.com

U.S. ENVIRONMENTAL PROTECTION AGENCY
Certified to comply with 2020 particulate emission standards at 0.7 g/hr EPA method 28 and 5G.
This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

2020	2021	2022	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

DO NOT REMOVE THIS LABEL / NE PAS ENLEVER L'ÉTIQUETTE
Made in Vietnam / Fabriqué en Vietnam

7083-800D

PP60 Pellet Stove

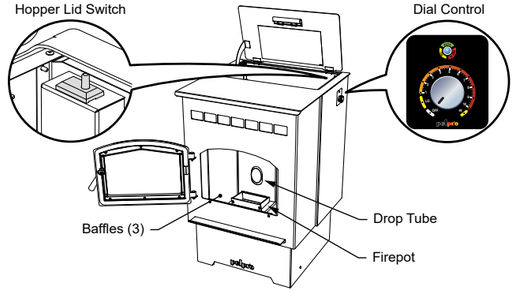
Owner's Manual

⚠ WARNING!

Please read this entire manual before installation and use of this pellet fuel-burning room Stove, and save for future reference. Failure to follow these instructions could result in property damage, bodily injury or even death. Contact local building or fire officials about restrictions and installation inspection requirements in your area.

Note: To obtain a French translation of this manual, please contact your dealer or visit www.pelprostoves.com. Pour obtenir une traduction francaise de ce manuel, s'il vous plait contracter votre revendeur ou visitez www.pelprostoves.com

Get to Know Your PelPro® Stove



Safety First!

Safety Alert Key: It is important to pay attention to alerts you will see throughout this manual to ensure your safety.

- ***DANGER!*** Indicates a hazardous situation which, if not avoided will result in death or serious injury.
- **WARNING!** Indicates a hazardous situation which, if not avoided could result in death or serious injury.
- **CAUTION!** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- **NOTICE:** Indicates practices which may cause damage to the Stove or to property.
- **Pro Tip:** Indicates additional information to help you better understand your Stove and optimize its performance.

NOTICE:

Fire Risk

Pelpro disclaims any responsibility, and the warranty and agency listing will be voided, by the below actions.

DO NOT:

- Install or operate damaged Stove
- Modify Stove
- Install other than as instructed by the manufacturer
- Operate the Stove without fully assembling all components
- Over fire (burning at higher temperatures than recommended causing permanent damage to the Stove)
- Install any component not approved by the manufacturer
- Install parts or components not listed or approved
- Disable safety switches

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. For assistance or additional information, consult a qualified installer, service agency or your dealer.

DANGER!

HOT SURFACES!

Glass and other surfaces are hot during operation AND cool down.

Hot glass will cause burns.

- Do not touch glass until it is cooled
- NEVER allow children to touch glass
- Keep children away; if you expect that children may come into contact with this Stove, we recommend a barrier such as a decorative screen (see your retailer for suggestions)
- CAREFULLY SUPERVISE children in same room as Stove
- Alert children and adults to hazards of high temperatures

High temperatures may ignite clothing or other flammable materials.

- Keep clothing, furniture, draperies and other flammable materials away

WARNING

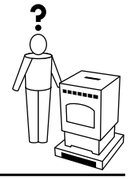
This product and the fuels used to operate this product (wood), and the products of combustion of such fuels, can expose you to chemicals including carbon black, which is known to the State of California to cause cancer, and carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to: WWW.P65Warnings.ca.gov

CAUTION

Tested and approved for use with wood pellets ONLY. Burning of any other fuel will void your warranty

Table of Contents

Getting Started



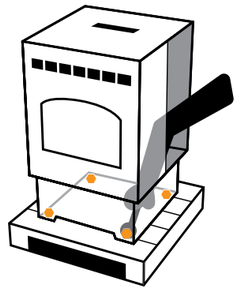
Pallet Removal

There are bolts holding your PelPro Stove in place on the pallet. To remove your Stove from the pallet:

Pallet Removal
Visit pelprostoves.com
or scan the code:

1

Using a 5/16-inch wrench, remove outside brackets.



WARNING!
Inspect Stove and components for damage. Damaged parts may impair safe operation.
- Do NOT install damaged components.
- Do NOT install incomplete components.
- Do NOT install substitute components.

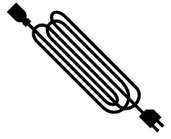
Report damaged parts to dealer.

CAUTION!
Risk of cuts, abrasions or flying debris. Wear protective gloves & safety glasses during install. Metal edges are sharp.

What's Included

Owner's manual

Cleaning tool



Power cord

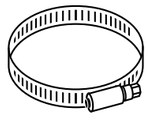
Door handle

Online Installation & Trouble Shooting Videos

Outside air kit components:

2" Flex hose

Termination Cap

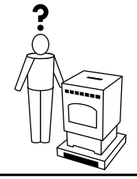


Hose clamp

Screws (4)

Getting Started

Getting Started



What You'll Need

Tools & Supplies

- High temperature silicone (500°F+)
- Level
- Phillips screwdriver
- Plumb line
- Tape measure
- Framing square
- Reciprocating saw
- Electric drill & bits
- Caulking gun
- Stud finder
- Utility knife
- Pliers
- Flashlight
- Hammer

Safety Equipment
Recommended for all installation and maintenance steps.

Gloves

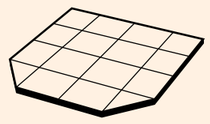
Safety glasses

Close-toed shoes

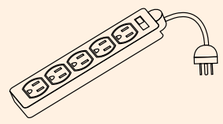
Pellet Vent Pipe
Must be an approved 3" or 4" diameter Type "L" or "PL" vent. Use 4" diameter vent if flue height is over 15' or if installation is over 3,000ft. above sea level.

WARNING!
Fire Risk. NO OTHER vent components may be used. Substitute or damaged vent components may impair safe operation.

Floor Protection
Non-combustible material (such as a hearth pad) is required underneath your Stove.



Surge Protector
Protect the electrical components of your Stove by using a surge protector.



Pellet Fuel
Use only wood pellets in your Stove. For best performance, use premium, low-ash pellets (<1%) less than 1.5" in length and avoid the dusty bits and pieces of pellets in the bottom of the bag.

Installing Your Stove

Getting Ready

Pro Tip
We highly recommend your Stove and pellet vent pipe be installed by a professional installer. Your retailer can make recommendations for you.
Installation MUST comply with local, regional, state and national codes and regulations.
Consult insurance carrier, local building inspector, fire officials or authorities having jurisdiction over restrictions, installation inspection and permits.

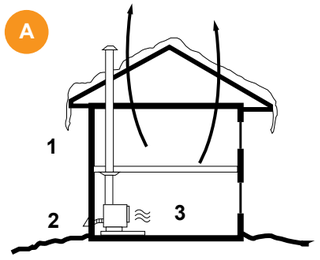
Placement
Where you place your Stove can significantly affect its performance and safety.

A **Your Home Acts Like a Chimney**
We recommend that you help your home by:
1. Using a minimum of 5 feet of vertical venting
2. Use the supplied outside air kit
3. Install your Stove on a main floor location

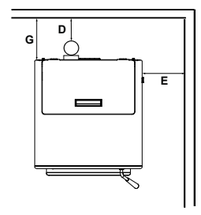
This will:
- Help your Stove breathe
- Minimize smoke leakage in the house
- Enhance performance

Clearance to Combustibles
The space between your Stove and the items in your home that could burn. Materials such as:
B
- Wood
- Sheet rock (drywall)
- Carpet

A



B



WARNING!
Asphyxiation Risk.
DO NOT INSTALL IN A SLEEPING ROOM. Consumes oxygen in the room.

For Canada, the installation must conform to CAN/CSA-B365

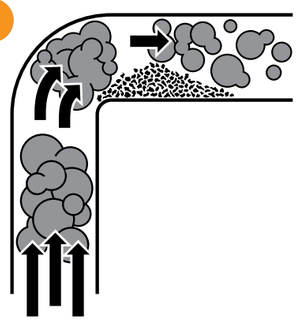
Installing Your Stove

Installing Your Stove

Getting Ready (Continued)

C **Pellet Venting**
Adding bends in the exhaust path restricts air flow, reduces performance and provides a collection point for ash deposits requiring more frequent cleaning.

C



CAUTION
- Do not connect to any air distribution duct or system
- Do not install a flue damper in the exhaust venting system of this Stove
- Do not connect this Stove to a chimney flue serving another Stove
- The structural integrity of the manufactured home floor, wall and ceiling/roof must be maintained

REQUIRED:
Use only 3” or 4” type “L” or “PL” pellet pipe.

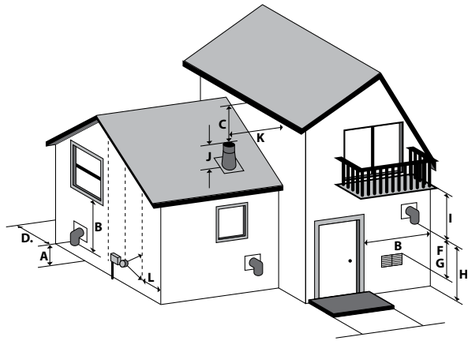
Pro Tip
This Stove can be installed with a 3 to 6 inch (76-152mm) Top Vent Offset Adapter Kit. The 3 to 6 inch (76-152mm) Top Vent Offset Adapter are tested to use 24 gauge single wall flue connector or Listed double wall flue connector to Class A Listed metal chimneys, or masonry chimneys meeting International Conference of Building Officials (ICBO) standards for solid fuel Stoves.

Installation Video

Visit pelprostoves.com or scan this code:

Installing Your Stove

Vent Termination Clearances



	Clearances	
A	12”	Clearance above grade, veranda porch, deck or balcony (Including vegetation and mulch)
B	12”	Clearance beside or below any windows or doors that open
	12”*	Clearance above any window or door that opens
C	18”	Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet from the center line of the terminal
D	12”	Clearance to an outside corner wall
F	12”, 48” no outside air kit	Clearance to a non-mechanical air supply inlet to the building or a combustion air inlet to any other Stove
G	36”	Clearance to a mechanical air supply inlet
H	84”**	Clearance above a paved sidewalk or paved driveway located on public property
I	12”**	Clearance under a veranda, porch, deck or balcony
J	12”	Clearance above the roof
K	24”	Clearance from an adjacent wall including neighboring buildings
L	36” within a height of 15 feet above the meter / regulator assembly	Clearance to each side of center line extended above natural gas or propane meter / regulator assembly or mechanical vent

*Recommended to prevent condensation on windows and thermal breakage. **This is a recommended distance. For additional requirements check local codes.

NOTICE:
Do NOT terminate vent:
- In any location that will allow flue gases or soot from entering or staining the building
- In any location which could create a nuisance or hazard
- In any enclosed or semi-enclosed area such as a carport, garage, attic, crawl space, under a sun deck or porch or narrow walkway
- Closely fenced area, or any location that can build up a concentration of fumes such as a stairwell, covered breezeway, etc.

NOTICE:
Do NOT terminate below an air inlet.
- It is recommended that at least 60” (1.52m) of vertical pipe be installed when Stove is vented directly through a wall—this will create a natural draft, which will help prevent the possibility of smoke or odor venting into the home during a power outage
- It will also keep exhaust from causing a nuisance or hazard by exposing people or shrubs to high temperatures
- The safest and preferred venting method is to extend the vent vertically through the roof or above the roof

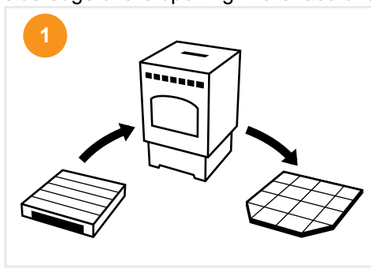
Installing Your Stove

Installing Your Stove

Placing Your Stove

1 It is necessary to install **EMBER PROTECTION**; a Type I floor protector for this Stove.

The Floor protector must be non-combustible material, extending beneath Stove with a minimum of 6 inches (152mm) in front of glass and 6 inches (152mm) to both sides of the fuel loading door. Open the door and measure 6 inches (152mm) from the side edge of the opening in the face of the Stove.



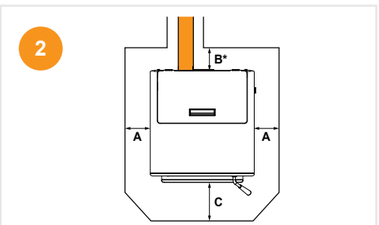
Notice: Be careful to protect the bottom of the Stove and floor surfaces when moving the Stove. Bottom edges of Stove are sharp and can scratch surfaces.

Notice: Clearances may only be reduced by means approved by the regulatory authority having jurisdiction.

2 Hearth pad minimum requirements:

USA Hearth Pad Requirements		Inches	mm
A	Sides	2	51
B	Back	2	51
C	Front	6	152

Canada Hearth Pad Requirements		Inches	mm
A	Sides	8	203
B	Back	2	51
C	Front	6	152



Non-combustible floor protection extending beneath the flue pipe is required with horizontal venting or under the top vent adapter with vertical installation.

*Non-combustible floor protection must extend 2 inches (51mm) beneath the flue pipe when installed horizontal venting or under the top vent adapter with vertical installation. CANADA REQUIRED, USA RECOMMENDED.

Installing Your Stove

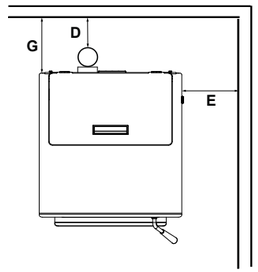
3 Confirm required clearances to combustibles:

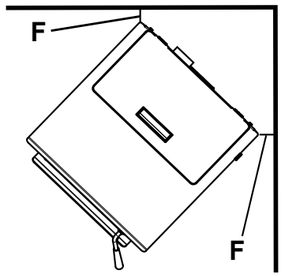
Vertical Installations (Interior Flue)			
Straight back against wall		Inches	mm
D	Back wall to pellet pipe	3	76
E	Side wall to Stove	13	330

Corner Installation			
Straight back against wall		Inches	mm
F	Walls to Stove	3	76

Horizontal Installations			
Straight back against wall		Inches	mm
G	Back wall to Stove	2	51
E	Side wall to Stove	13	330

3





Installing Your Stove

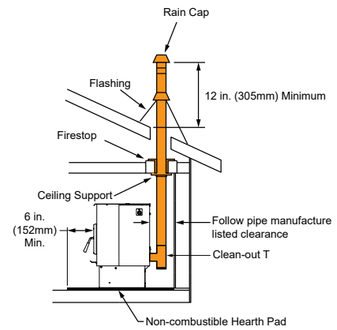
Installing Your Stove

Venting Your Stove

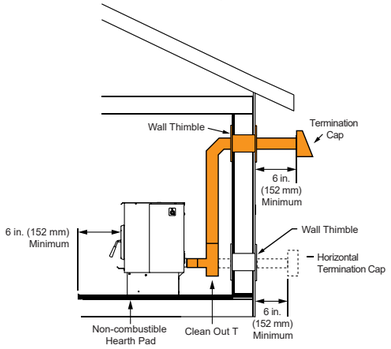
⚠ CAUTION!
Take appropriate precautions to locate utilities within the wall and avoid contact.

1. **Mark and cut wall for venting penetration on exterior wall (if needed).**
2. **Install wall thimble (sold separately) per manufacturer requirements.**
3. **Install venting. (For additional installation options visit pelprostoves.com)**
4. **Use silicone to create an effective vapor barrier at the location where the chimney or other component penetrates to the exterior of the structure.**

Vertical - Interior, Preferred Installation



Exterior - Optional Installations



NOTE: In Canada when using a factory-built chimney it must be safety listed, Type UL103 HT (2100°F) CLASS “A” or conforming to CAN/ULC-S629M, STANDARD FOR 650°C FACTORY-BUILT CHIMNEYS.

Pro Tips

- See venting manufacturer’s required clearances to combustibles
- For horizontal installations, the minimum clearance from exterior to termination cap is 6”—you may want to increase to 18” clearance to minimize soot blow back on home exterior.

Install vent at clearances specified by the manufacturer

⚠ WARNING!
Do not terminate venting in any enclosed or semi-enclosed area such as: a carport, garage, attic, crawl space, under a sun deck or porch, narrow walkway or closely fenced area, or any location that can build up a concentration of fumes such as a stairwell, covered breezeway, etc.

⚠ CAUTION!
Ensure that your Stove venting terminates above your Stove. The following may occur:
• Your Stove Stove will not draft properly
• Smoke may seep in your house
• Excessive sooting

Installing Your Stove

Venting Your Stove

The maximum horizontal venting allowed with no vertical venting attached is 48 inches including one 90° elbow or two 45° elbows. Addition of any horizontal venting beyond 48 inches requires a minimum 60 inches of additional vertical vent. Horizontal sections of vent pipe should have a 1/4 inch rise per foot. We recommend using the shortest venting and fewest elbows possible when venting horizontal.

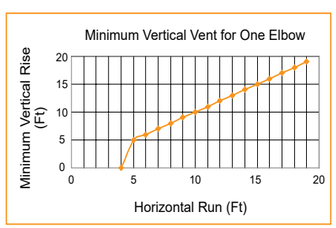
We recommend the use of 4 inch vent with any installation requiring more than two 90° elbows, or more than 15 feet of venting.

⚠ WARNING!
Fire Risk.
- Only LISTED venting components may be used
- NO OTHER vent components may be used. Substitute or damaged vent components may impair safe operation.

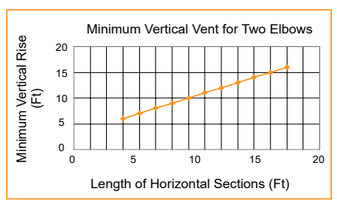
Notice:
These are guidelines for successful venting of your pellet Stove. The more vertical rise you can obtain in your system, the better it will perform. Horizontal vent runs can accumulate ash and will need to be cleaned more often. Try to keep them as short as possible.

- **45° elbow is equivalent to 1 foot of straight pipe**
- **90° elbow is equivalent to 3 feet of straight pipe**

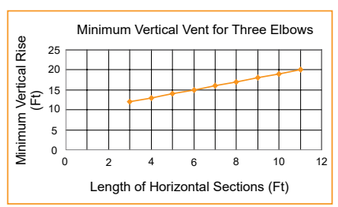
One 90° Elbow		
Total Horizontal	Minimum Vertical	Vent Diameter
4	0	3
5	5	3
6	6	3
7	7	3
8	8	4
9	9	4
10	10	4
11	11	4
12	12	4
13	13	4
14	14	4
15	15	4
16	16	4
17	17	4
18	18	4
19	19	4



Two 90° Elbows		
Total Horizontal	Minimum Vertical	Vent Diameter
2	5	3
3	6	3
4	7	3
5	8	3
6	9	3
7	10	4
8	11	4
9	12	4
10	13	4
11	14	4
12	15	4
13	16	4
14	17	4
15	18	4



Three 90° Elbows		
Total Horizontal	Minimum Vertical	Vent Diameter
2	11	4
3	12	4
4	13	4
5	14	4
6	15	4
7	16	4
8	17	4
9	18	4
10	19	4
11	20	4

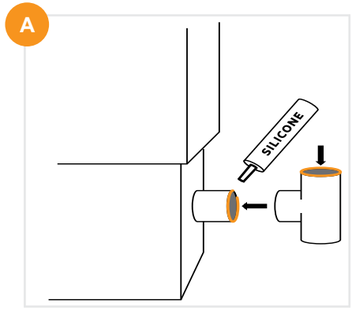


Installing Your Stove

Installing Your Stove

5 Install pellet venting through wall and connect vent/pipe to Stove A
- Some venting manufacturers offer pellet Stove adapters for their venting for easier installation
- Seal all pipe joints using high-temp silicone (500°+)
- Secure exhaust venting system to the Stove with at least 3 screws or rivets per the pipe manufacturer's instructions. Also secure all connector pipe joints with at least 3 screws through each joint.
- Install termination cap
- Confirm all required Stove clearances to combustibles

A



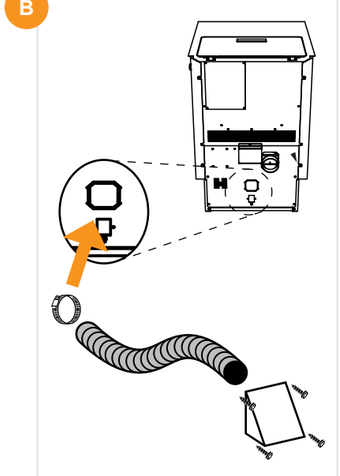
Pro Tip
Installing a clean-out "T" (sold separately) to the rear of your Stove, when venting vertically can save time during cleaning.

6 **Install outside air kit (included)**
For optimal performance, PelPro recommends the outside air kit for all installations. Outside air kit is required for all mobile/manufactured home installations.

Install through wall B
- Maintain clearances from exhaust
- Remove knock out in the rear of Stove
  - Attach flex pipe to outside air connection on Stove
  - Use hose clamp
  - Route tube outside the structure
  - Attach cap
  - Secure to outside wall with appropriate fasteners

Take a Break

B



Inspect your work:

_____ Confirm clearances to combustibles are maintained

_____ Pipe joints are secure and properly sealed

_____ Outside air kit installed properly

_____ Confirm termination clearances

⚠ CAUTION!
Never draw outside combustion air from:
- Wall, floor or ceiling cavity
- Enclosed space such as an attic, garage or crawl space.

Using Your Stove

Fuel Tips

Fuel Material and Fuel Storage
Pellet fuel quality can greatly fluctuate. We recommend that you buy fuel in multi-ton lots whenever possible. However, we do recommend trying various brands before purchasing multi-ton lots to ensure your satisfaction. Store fuel in dry location not within clearances to combustibles of your Stove.

Fuel Material

- Made from sawdust or wood by-products
- Depending on the source material it may have a high or low ash content.

Higher Ash Content Material

- Hardwoods with a high mineral content
- Fuel that contains bark
- Standard grade pellets or high ash pellets

Lower Ash Content Material

- Most softwoods
- Fuels with low mineral content
- Most premium grade pellets

Pro Tip
We recommend the use of Pellet Fuels Institute certified pellet fuel with this product.

Your Stove has a manufacture-set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate your Stove in a manner inconsistent with operation instructions in this manual.

CAUTION

USE OF IMPROPER FUELS, FIRESTARTERS OR ALTERING THE STOVE FOR HIGHER HEAT OUTPUT MAY CAUSE DAMAGE TO THE STOVE AND COULD RESULT IN A HOUSE FIRE. USE ONLY APPROVED FUELS AND OPERATION GUIDELINES

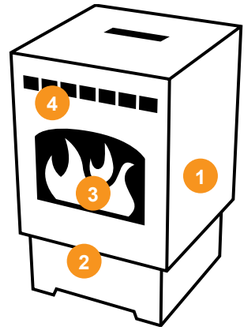
Using Your Stove

Using Your Stove

Starting your Stove the first time

What to Expect

1. Combustion blower will turn on
2. Igniter will turn on
3. Pellets will drop, smoke may occur in firebox but will evacuate, and flame will appear in fire pot.
4. Convection blower will automatically turn on after the Stove heats up. Convection blower will continue to run even after your Stove has been shut down.



Pro Tips

- Odors and vapors are released during initial startup after purchase; burning your Stove on HI for 30 minutes will allow the paint to cure. Open windows or doors for air circulation until burn off is complete.
- During start up and normal operation your Stove's front door must be closed
- Priming is only required the first time your Stove is lit, or after a FUEL FEED ALARM.

WARNING!
Fire Risk
Keep combustible materials, gasoline and other flammable vapors and liquids clear of Stove.

- Do NOT operate Stove with door open
- Do NOT operate Stove with fire pot floor open
- Do NOT store flammable materials in the Stove's vicinity
- Do NOT use gasoline, lantern fuel, kerosene, charcoal lighter fluid or similar liquids or gels to start or "freshen up" a fire in this Stove

Keep all such liquids well away from the Stove while it is in use as combustible materials may ignite.

WARNING!
HOT SURFACES! Glass and other surfaces are hot during operation AND cool down.
Hot glass will cause burns.

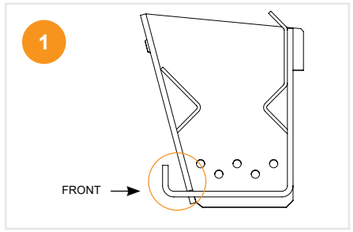
- Do not touch glass until it is cooled
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as fireplace
- Alert children and adults to hazards of high temperatures
- High temperatures may ignite clothing or other flammable materials
- Keep clothing, furniture, draperies and other flammable materials away

Using Your Stove

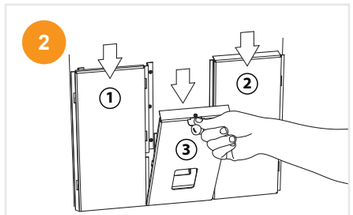
Use and Care
Visit pelprostoves.com or scan this code:

Important:
Allow up to 20 minutes for your Stove to start.

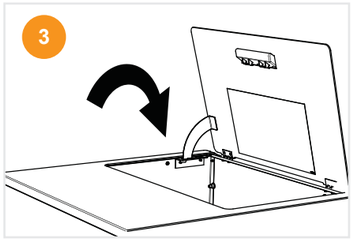
1. Confirm fire pot is properly positioned



2. Confirm three baffles inside firebox are secure, placing the side baffles before the center



3. Add some pellets to hopper and fully close lid



4. Ensure dial control is set in off position.

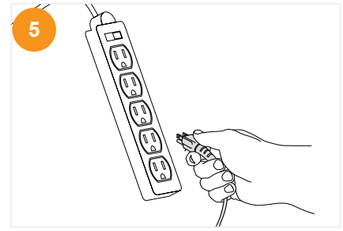
WARNING! Shock hazard.
- Plug directly into properly grounded 3 prong receptacle
- Do NOT route cord under or in front of Stove
- Recommend the use of a surge protector

Using Your Stove

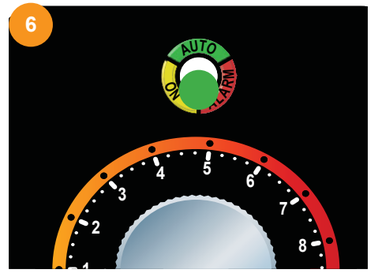
Using Your Stove

Starting your Stove from an empty hopper

5. Plug in your Stove

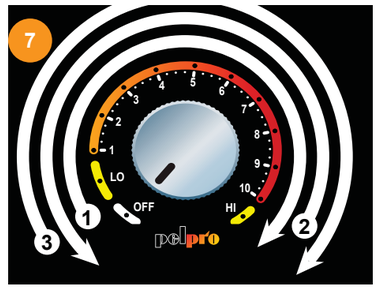


6. Wait 1 minute - LED light will start flashing green once per second.



7. **Prime your Stove:**
1. Quickly turn the dial control from OFF to HI
2. Back to OFF
3. Then back to HI

The feed motor will run continuously for two minutes and the LED light will be solid green. Once primed, pellets will drop into the fire pot and the LED light will blink green as ignition starts. This process can take up to 20 minutes.



CAUTION:
During this process DO NOT:
- Try to restart, manually add pellets or use any type of accelerant

Using Your Stove

What Do the Blinking Lights Mean?

Green & Amber - Normal Operation

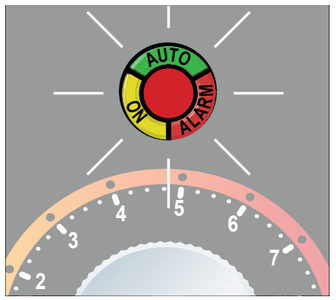
- Green, Steady On - Feed system is priming
- Green, 1 Blink - Stove is off and ready
- Green, Continuous Blinking - Stove is in the start up/ignition sequence
- Green, Varies Blinks - Varies depending on burn rate
- Amber, Steady On - Stove is set and running at either the minimum or maximum power levels
- Amber, Continuous Blinking - Stove is in the shutdown sequence. *Early models may have a green continuous blinking light during shutdown sequence.

Red - Operational Issue - Refer to troubleshooting

- Red, 1 Blink - Empty hopper, refer to troubleshooting
- Red, 2 Blinks - Exhaust probe alarm, check connections or refer to troubleshooting
- Red, 3 Blinks - Ambient probe alarm, check connections or refer to troubleshooting
- Red, 4 Blinks - Missed ignition, refer to troubleshooting
- Red, 8 Blinks - Exhaust gas over temperature, refer to troubleshooting

If your Stove does not ignite on the initial burn, the LED light will blink red 4 times indicating a missed ignition.

1. Turn your Stove to off, remove and clean the fire pot
2. Confirm fire pot is properly positioned
3. Prime your Stove per previous instructions



Is this your first start-up after purchase?
If you just bought this Stove, once a fire has been established in your Stove, leave the Stove burning on HI for 30 minutes to allow paint to cure.

After 30 minutes, turn the dial control to OFF and allow your Stove to cool completely. Once cooled, clean the fire pot. Your Stove is now ready to resume normal use.

Using Your Stove

Comfort Settings

Control your comfort with a single dial:

- **OFF setting** - Used to turn your Stove off
- **LO setting** – Your Stove will continue to run on low regardless of room temperature. LED light will be steady amber
- **1 through 10 settings** – Set to your desired comfort level. Once the desired comfort level is achieved the Stove will automatically shut down. When the temperature in the room drops below the desired comfort level, your Stove will automatically restart.

- **HI setting** - Your Stove will continue to run on high regardless of room temperature. LED light will be steady amber.

Pro Tip
If the dial control is turned to the off position and then back on, even if by mistake, your Stove will go through the shutdown process (approximately 15 minutes) and restart.

Trim Adjustment

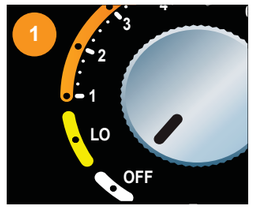
Trim adjustment is the small dial located below the main dial control. Rotating this dial will adjust the air/fuel ratio and below are examples of when to use it:

- If the fire is too large, lazy or producing black soot, rotate the dial counterclockwise one level at a time and allow 15 minutes for stabilization before making another adjustment
- If your fire is too small and sometimes goes out when there are pellets in the hopper, rotate the dial clockwise one level at a time and allow 15 minutes for stabilization before making another adjustment.

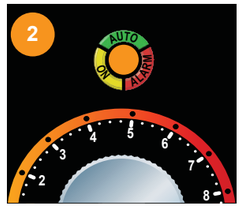
Thermostat
Your PelPro Stove comes with a built-in thermostat system that provides easy temperature adjustments. The Stove is not designed to use a remote control or external thermostat.

Using Your Stove

Turning Your Stove Off

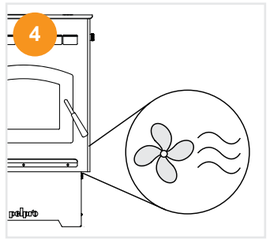


Turn dial to OFF position

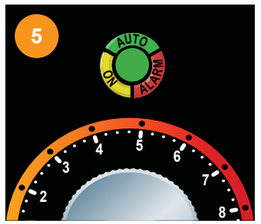


LED light will flash amber rapidly *Early models may have a green continuous blinking light during shutdown sequence.

Auger stops feeding pellets



Blowers continue to run until after the exhaust temperature has cooled



LED light will flash once per second

⚠ CAUTION!
Smoke Hazard

- Turn dial control to OFF, let Stove completely cool and exhaust blower must be off. Now you can unplug Stove before servicing
- Smoke spillage into room can occur if Stove is not cool before unplugging

Maintaining Your Stove

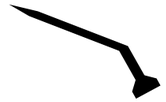
Cleaning & Maintenance

Important:
Regular cleaning helps to assure optimal performance of your Stove. Please refer to page 29 to log your maintenance and cleaning.

Cleaning your Stove
Visit pelprostoves.com or scan this code:

Maintaining your Stove
Visit pelprostoves.com or scan this code:

What You'll Need



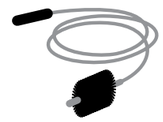
Cleaning tool

Phillips head screwdriver

Safety glasses

Gloves

Ceramic glass cleaner & non-abrasive cloth



Flue cleaning brush

Metal container with lid

Drop cloth

Ash vacuum

Where, When and How

Disposal of Ashes
Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have been thoroughly cooled.

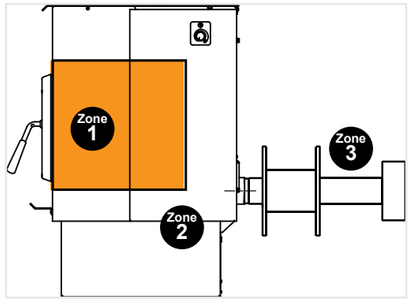
WARNING!
Disconnect Stove from power supply before servicing

Zone 1 - Firebox

WEEKLY OR AS NEEDED

Fire pot
- Remove the fire pot
- Scrape clean and remove ashes
- Replace fire pot

Firebox
- Remove baffles and vacuum residual ash
- Remove ashes from firebox floor



WARNING!
If using a vacuum to clean Stove, be sure embers are thoroughly cooled to prevent a fire in the vacuum.

Glass
- Apply ceramic glass cleaner
- Use non-abrasive cloth to remove residue

Door Inspection
- The gasket between the glass and firebox should be inspected periodically to make sure there is a good seal.

Maintaining Your Stove

Pro Tip
The type of fuel you are burning will dictate how often you have to clean your fire pot.

If the fuel you are burning has a high dirt or ash content, it may be necessary to clean the fire pot more than once a day.

Poor quality fuel will cause clinkers to form in the fire pot. Clinkers are formed when dirt, ash or a non-burnable substance is heated to 2000 deg. F (1093 deg. C) and becomes glass-like.

Always burn dry fuel. Burning fuel with high moisture content take heat from the fuel and tends to cool the Stove, robbing heat from your home.

Damp pellet fuel can clog the feed system.

CAUTION!
Handle glass assembly with care and refer to maintenance instructions. **When cleaning glass:**
- Avoid striking, scratching or slamming glass.
- Do NOT clean glass when hot
- Do NOT use abrasive cleaners
- Do NOT operate with glass cracked, broken or scratched

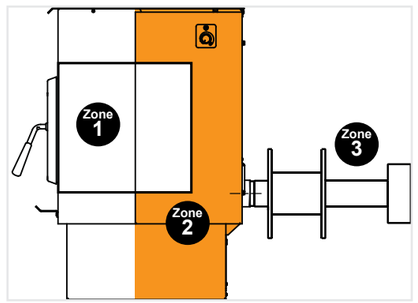
WARNING!
Glass is 5mm thick high temperature heat resistant ceramic glass.
- DO NOT REPLACE with any other material
- Alternate material may shatter and cause injury

Zone 2 - Stove Body

MONTHLY OR AS NEEDED

Convection Blower
- Remove right and left side panel to access and remove convection blower
- Vacuum any debris from the fan blades and blower housing

Hopper
- Empty hopper of any pellets
- Vacuum any remaining pellets/debris from the hopper



Maintaining Your Stove

Electrical Components
- Identify and remove any debris
- Verify all connections are secure

ANNUALLY OR AS NEEDED

Exhaust Blower
- Remove left side panel to access and remove exhaust blower
- Vacuum any debris from the fan blades and blower housing

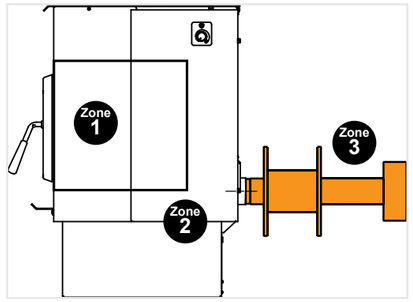
Zone 3 - Venting

ANNUALLY OR AS NEEDED

Termination Cap
- Remove termination cap
- Brush out to remove dust and hard buildup

Vent Components
- Soot, creosote, and fly ash will collect in the exhaust venting system and restrict the flow of the flue gases. This build up will occur more quickly in horizontal sections and elbows.
- Use the appropriate sized chimney brush to remove ash and buildup from the venting

Outside Air Kit
- Ensure there are no obstructions in the outside air kit cap



Having Trouble?
Visit the Troubleshooting section of this manual.

⚠ Caution!

When wood pellets are burned at a low temperature, they produces organic vapors which combine with moisture to form creosote vapors.

Creosote vapors condense in the relatively cool chimney flue of a newly-started or a low-temperature fire. As a result, creosote residue accumulates on the flue lining. When more heat is called for, this residue can be ignited, which creates an extremely hot fire in the chimney flue; this may damage the chimney or even destroy your home.

Your chimney should be inspected once every few months during the heating season to determine if a creosote or soot buildup has occurred. If creosote or soot has accumulated, it should be removed to reduce the risk of a chimney fire.

Replacement Parts

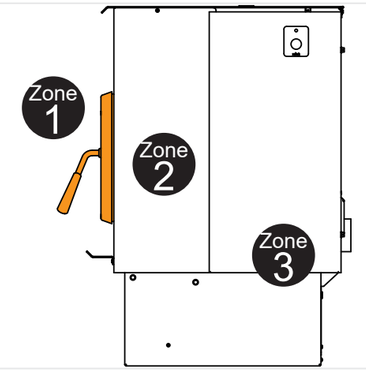
Replacement part for your Stove
Visit pelprostoves.com

Zone 1 - Front of Stove

Glass

1. Open the door from the appliance by lifting door off of hinge pins and lay on a flat surface face down.
2. Using a Phillips head screwdriver, remove the 3 brackets and set aside.
3. Remove old glass and gasket from door.
4. Replace gasket to door and add glass.
5. Re-install the brackets using the same screws.

Glass replacement kit: SRV7081-173
Door assembly replacement kit: SRV7086-021



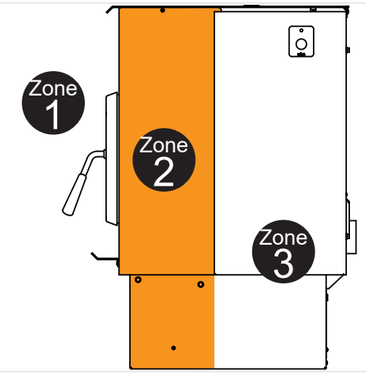
⚠ WARNING!
Glass is 5mm thick high temperature heat resistant ceramic glass.
- DO NOT REPLACE with any other material
- Alternate material may shatter and cause injury

Zone 2 - Firebox

Baffles

1. Turn the dial control to the off position. Make sure the unit is cool.
2. Remove the center baffle first by using the handle at the top of the baffle and pull up and then towards you. The hooks on the baffle will slide out of the slots in the bracket.
3. Remove the left baffle and then the right baffle by pulling up and then towards you. The left and right baffles have similar hooks and slots.

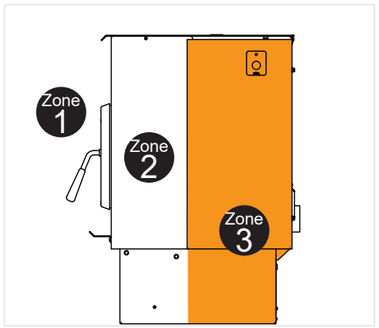
Replacement kit: SRV7077-006



Zone 3 - Back of Stove

Combustion Blower

1. Turn the dial control to the off position. Unplug the power to the unit.
2. Remove the right side panel by loosening the three screws attaching it to the back of the appliance.
3. Using a 7/16 wrench or socket, remove the 2 nuts holding the blower to the convection plenum
4. Lower the back of the blower and lift out.
5. With the blower removed, unplug its wires from the wire harness.
6. Remove the screws holding the retainer plate to the convection blower housing.
7. To replace, put the bottom lip of the blower into the lower slot. Attach the top of the blower to nuts. Reattach the metal plate and screw nuts onto bolts.
8. Attach wires to wire harness.
9. Attach the right side panel and tighten screws.



Replacement kit: KS-5020-1052

Exhaust Blower

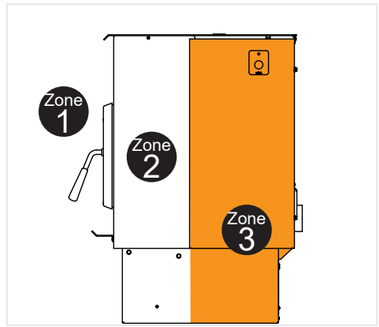
1. Turn the dial control to the off position. Unplug the power to the unit.
2. Remove the left side panel by loosening the three screws attaching it to the back of the appliance.
3. Disconnect 2 white wires from the blue wires of the exhaust blower.
4. Remove the blower motor attached to a removable plate on the exhaust blower. Depending on the model, use a 1/4 inch socket, or 1/4 inch Nut Driver or #2 Phillips Head screw driver to loosen the 6 screws in the keyhole shaped holes and rotate the plate. It is only necessary to loosen screws.
5. Remove the exhaust blower and gasket.
6. Check for degradation on the gasket and replace if necessary using the gasket included in the kit.
7. Re-install in reverse order.

Replacement kit: 812-4400

Replacement Parts

Snap Disc

1. Turn the dial control to the off position. Unplug the power to the unit.
2. Using #2 Phillips screwdriver, loosen the bolts on the rear of the unit holding on the left side panel. You do not need to remove the screws. Remove side panel by lifting up and out.
3. Locate the snap disk on the top side of the feed tube where it meets the hopper. Disconnect the wire leads from the snap disk.
4. Using a #1 Phillips screwdriver, remove two 6-32 fasteners retaining the snap disk onto the side of the feed tube.
5. Using the same fasteners, attach the new snap disk. Attach the wire leads.
6. Restore power.



Replacement kit: SRV230-0080

Igniter

1. Turn the dial control to the off position. Unplug the power to the unit.
2. Unplug the wire leads to the igniter.
3. Loosen the thumb screw in the side of the igniter chamber.
4. If there is difficulty in removing the igniter from the chamber, the chamber can be removed from the rear of the firebox by removing the 1/4-20 bolt.
5. Re-install the new igniter into the chamber. Ensure igniter flange it flush with back of chamber.
6. Tightening the thumb screw.
7. Re-attach wire to terminals.

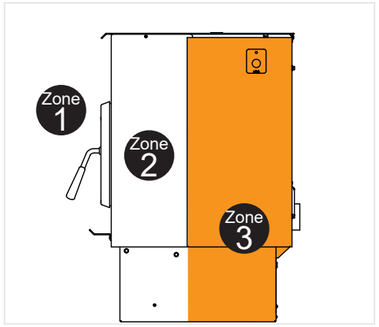
Replacement kit: SRV7000-660

Replacement Parts

Control Board

1. Turn the dial control to the off position. Unplug the power to the unit.
2. Unplug the wires from the control board. The connectors are locking connectors. Pinch the release tab on each connector and gently tug and rock loose.
3. Pinch the 4 plastic pins from the rear of the unit with needle nose pliers to release the control board connectors.
4. Install new board following the steps in reverse.

Replacement kit: SRV7079-050



Feed Motor Assembly

1. Turn the dial control to the off position and unplug the appliance. Remove the right side panel and feed motor cover plate in the rear of the appliance.
2. Remove the 4 screws and cover plate.
3. Remove remaining pellets in feed assembly.
4. Unplug feed motor from wire harness.
5. Remove silicone from around bushing end cap. Using Phillips head screwdriver remove 2 screws retaining the end cap to the feed tube.
6. From inside the hopper, lightly tap on the end cap alternating side to side to remove feed assembly from feed tube.
7. Re-install new feed assembly in reverse order; ensuring that the top of the feed bushing is in place and the bushing end cap is symmetrical in the feed tube chamber prior to final tightening of the retaining screws. Silicone the end cap to the feed tube.
8. Plug the feed motor leads back in and restore power.

Replacement kit: SRV7077-014

Troubleshooting

Troubleshooting your Stove
Visit pelprostoves.com or scan the code:

Power Related

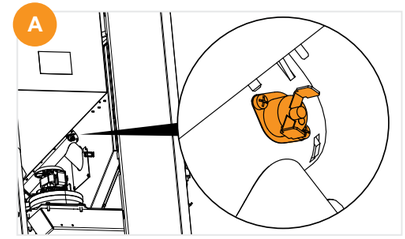
In the event of a power outage:

- If using a generator, PelPro recommends a steady state generator for best Stove performance.
- This Stove needs 110v to run properly. This Stove has not been tested for use with a third party battery backup.

Pro Tip
Check passages to assure they are clear of ash and obstructions. Poor airflow leads to poor performance of your Stove.

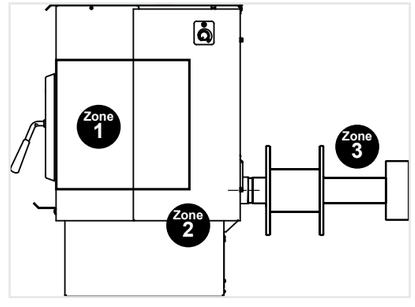
Stove plugged in but no response

- Unplug your Stove
- Check your home's circuit breaker
- Reset snap disc (located between drop tube and hopper (Zone 2) A
- Visually inspect wires, blowers and power cord for breaks or wear to find cause of possible short circuit (Zone 2)



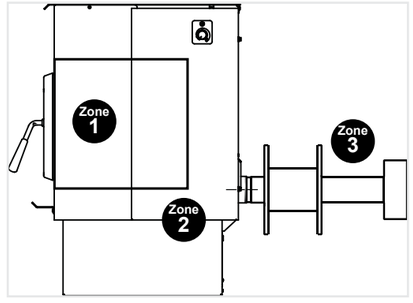
Component (i.e. blower) fails to start or fails to turn off

- Unplug your Stove
- Check all connections and power plugs are secure
- Visually inspect wires, blowers and power cord to find cause of possible short circuit



Troubleshooting

Blockage Related



Black soot on outside of house

- Confirm exhaust path is clean and clear (Zone 1 and 3)
  - Adjust air/fuel ratio using trim adjustment dial (See page 23 for trim adjustment instructions)
- Ensure termination cap has at least 18” clearance to reduce the effects of soot blow-back on home exterior (ie. siding)—if not able, refer to page 10 for alternate installation options

Rumbling/whistling noise during operation

- Confirm exhaust path is clean and clear (Zone 1 and 3)
  - Adjust air/fuel ratio using trim adjustment dial (See page 18 for trim adjustment instructions)

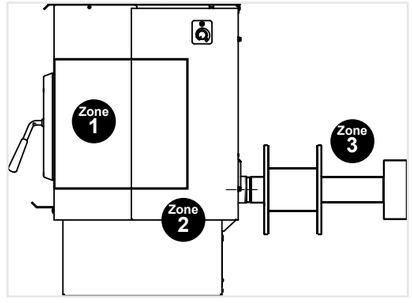
Stove will not light

- Confirm firebox is clean and clear (Zone 1)
  - Igniter is getting hot (glows orange)
- Inspect Stove body (Zone 2)
  - Confirm fuel is in hopper, close lid securely
  - Remove right side panel to access and confirm vacuum switch is clear and connected at both ends
  - Confirm all exhaust blower connections .....secure
  - Confirm the feed assembly and motor are clean and clear of debris
- Confirm exhaust path is clean and clear (Zone 3)

Troubleshooting

Troubleshooting

Blockage Related



Fire starts but goes out

- Confirm firebox is clean and clear (Zone 1)
  - Ensure fire pot holes are clear
- Inspect Stove body (Zone 2)
  - Confirm exhaust probe is connected
  - Inspect and clean the exhaust outlet
- Confirm exhaust path is clean and clear (Zone 3)

Starts and stops frequently in automatic mode

- Determine if your room is experiencing varying temperatures due to repeated opening/closing of doors or windows—correct if necessary
- Examine Stove body (Zone 2)
  - Inspect ambient probe and confirm that at least 2” is exposed outside of Stove body

Slow or smoky start-up and/or lazy flame

- Confirm exhaust path is clean and clear (Zone 3)
- Examine Stove body (Zone 2)
  - Align igniter so it is properly placed and centered
  - Review fuel quality (see Pellet Fuel information on page 13)

Troubleshooting

Symptom	Possible Cause	Corrective Action
Igniter does not turn off	Igniter short circuit. The fuse will be blown and upon replacement of the fuse, the igniter will remain on when Stove has power.	Inspect wires, blowers, and power cord to find cause of short circuit. Replace board and failed component.
Feed motor does not shut off	Feed motor short circuit. The fuse will be blown and upon replacement of the fuse, the feed motor will remain on when Stove has power.	Open hopper to stop the feed motor. Inspect wires feed motor, control board, and power cord to find source of short circuit. Replace control board and failed component.
Stove fails to shut off.	Stove running in maximum or minimum	Turn dial control to Off position. See Also, “Feed Motor Does Not Shut Off”. The Stove should go into a shutdown.
Large, lazy flame, orange color. Black ash on glass.	Dirty Stove. Poor fuel quality, high ash content. Incorrect air-fuel adjustment Excessive feeding/Feed Motor locked on	Clean Stove, including fire pot and venting system. Clean exhaust path. Try a different brand of pellets. Turn fuel adjustment trim dial to COUNTERCLOCK-WISE to increase combustion air speed; see trim pot adjustment section. Follow corrective action for feed motor does not turn off symptom.
Excessive fuel spilling over the fire pot into the ash wells and/or excessive flame	Excessive feeding/Feed Motor locked on	Follow corrective action for feed motor does not turn off.

Troubleshooting

Troubleshooting

Following correction of any alarm, turn the dial control to the OFF position, wait 10 seconds and turn back to desired setting OR unplug the Stove, wait 10 seconds then restore power.

Alarm (LED Flashing RED)	Possible Cause	Corrective Action
1 Flash: Empty Hopper	No fuel is delivered to the fire pot to sustain flame Hopper empty (most likely) Auger Jam (next likely) No vacuum Hopper lid open Flame is evident but the exhaust probe is not able to recognize the hot exhaust temperature Exhaust probe not attached to outlet Exhaust path is dirty	Fill the hopper, inspect the feed tube for jams, inspect the venting and firebox for obstructions and clean if necessary, inspect the exhaust blower to make sure it runs, or close the hopper lid. Inspect and clean the exhaust outlet, firebox, fire pot, and behind the baffles. Inspect the exhaust probe to see if it is securely attached to the side of the exhaust outlet.
2 Flashes: Exhaust Probe Fail *The exhaust probe senses a temperature of less than negative 20 degrees Celsius or above 300 degrees Celsius.*	The exhaust temperature is above or below the acceptable range. Exhaust Probe Failure Not plugged in Failed component	Plug the probe into the board Replace the component
3 Flashes: Ambient Probe Alarm *The ambient probe senses a temperature of less than negative 20 degrees Celsius or above 70 degrees Celsius.*	The ambient temperature is above or below the acceptable range. Ambient Probe Failure Not plugged in Failed component	Plug the probe into the board Replace the component
4 Flashes: Missed Ignition *During the ignition sequence the load does not ignite. The Stove will automatically retry once from the first failed attempt.*	Fuel No fuel Hopper Empty Feed Jam Feed doesn’t turn Feed motor disconnected or failed Fire pot Fire pot Dirty so fuel is not near ignition hole in the fire pot Igniter No power Debris in the end of the igniter chamber	Fill the hopper Inspect and clear jam in the feed tube Inspect the feed motor circuit (hopper lid must be closed, vacuum switch must be closed (ie exhaust blower on), and feed motor must be plugged in. Clean the fire pot Check leads and if the igniter works. Clean the end of the igniter chamber from inside the firebox (removal of the fire pot required for this step).
8 Flashes: Exhaust Over Temperature *The exhaust tempera-ture has exceeded the allowable temperature.*	Fuel Feed Motor Locked On Non-approved fuel used Convection blower Dirty Failed Installation Installation configuration is tight allowing for limited air circulation around the Stove.	Review the feed motor and feed rates. Normal feed motor operation is on between 1* and 4* seconds out of every 7 seconds. (*Depending on model and burn rate setting) If the feed motor does not turn off, replace the control board. Review the fuel being used. Clean Replace Review the installation and move if necessary.

Troubleshooting

Still having trouble?

Access additional resources at:
pelprostoves.com/troubleshooting

Warranty

If replacement parts are needed, please note warranty coverage begins on the date of purchase. Retain your original receipt as proof of purchase. The warranty period for covered components is as follows:

Components Covered	Warranty Period (Parts only, Labor not included)
Electrical	1 Year
Steel Parts (excluding fire pot)	5 Years
All replacement parts are covered for remainder of original warranty period or 90 days, whichever is longer	90 Days

Additional terms and limitations apply. See page 28 for complete warranty information.

Support

Please review the “Maintaining Your Stove” and “Troubleshooting” sections in this manual.

Visit pelprostoves.com to access:

- Order replacement parts
- Installation videos
- Troubleshooting videos
- Use and care videos
- Manuals and more

Listings and Certifications

Stove Certification

Series	PP60-B
Laboratory	UL LLC
Report No.	MH60687
Type	Solid Fuel Room Stove/Pellet Fuel Burning Type
Standard	ASTM E1509-12 and ULC S627-00, Room Stove Pellet Fuel Burning type and (UM) 84-HUD, Mobile Home Approved.

Pellet Fuels Institute

c UL us LISTED

Note
This installation must conform with local codes.
In the absence of local codes you must comply with **ASTM E1509-12, ULC S627-00, (UM) 84-HUD**

WARNING!
- It is critical to have a working smoke detector installed in the home of Stove operation.
- Smoke alarms that are properly installed and maintained play a vital role in reducing fire deaths and injuries. Having a working smoke alarm reduces the chance of fire related injuries.
- Install at least one carbon monoxide detector on each floor of your home.

WARNING! Asphyxiation Risk.
DO NOT INSTALL IN A SLEEPING ROOM. Your Stove consumes oxygen in the room.

Note
This wood stove needs periodic inspection and repair for proper operation. It is against federal regulations to operate this wood heater in a manner inconsistent with operating instructions in this manual.

Mobile Home Approved

This Stove is approved for mobile home
Installations **when not installed in a sleeping room and when an outside combustion air inlet is provided**.
- The structural integrity of the mobile home floor, ceiling, and walls must be maintained
- The Stove must be properly grounded to the frame of the mobile home with #8 copper ground wire, and use only listed double-wall connector pipe
- Outside Air Kit provided with each Stove must be installed in a mobile home installation and must remain clear of leaves, debris, ice and/or snow. It must be unrestricted while the Stove is in use to prevent room air starvation which causes smoke spillage.
- The Stove must be secured to the mobile home structure by bolting it to the floor through holes provided at bottom of your cast legs on your Stove.

Listings and Certifications

Glass Specifications

This Stove is equipped with 5mm ceramic glass.
Replace glass only with 5mm ceramic glass. Please contact PelPro for replacement glass.

Electrical Rating (On High)

PP60-B: 115 VAC, 60 Hz, Start 2.6 Amps,
Run 0.9 Amps

BTU & Efficiency Specifications

Emissions Report Number:	0061PS095E
EPA Certification Number:	Number: 907
EPA Certified Emissions:	0.7 grams per hour
***LHV Tested Efficiency:**	79.4%
****HHV Tested Efficiency:**	74.6%
*****EPA BTU Output:**	6,800 to 26,000 / hr
******BTU Input:**	9,600 to 33,200 / hr
*******Heating Capacity:**	Up to 1,500 sq. ft. depending on climate zone
Vent Size:	3” or 4” L or PL
Hopper Capacity:	60 lbs (Approximate)
Fuel:	Premium Wood pellets
Shipping Weight:	205 lbs

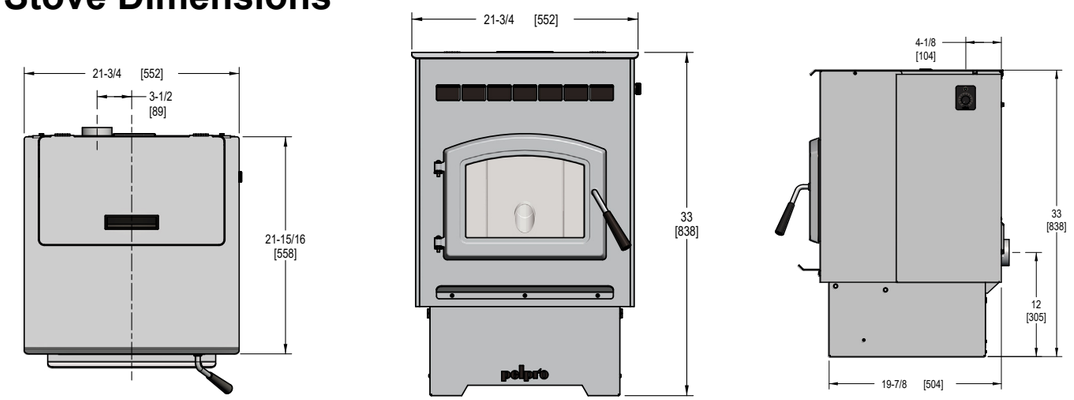
EM O-TL C US

The PP60-B is Certified to comply with 2020 particulate emission standards.

EPA CERTIFIED 2020

*Weighted average LHV efficiency using data collected during EPA emissions test.
**Weighted average HHV efficiency using data collected during EPA emissions test.
***Maximum BTU output based on HHV efficiency and the high burn section of the EPA emissions test.
****Maximum BTU input based on the high burn section of the EPA emissions test.
*****Heating capacity depencs on climate zone, structure layout, insulation, windows, etc.

Stove Dimensions



Listing and Code Approvals

Listings and Certifications

Hearth & Home Technologies, Inc. - PelPro Limited Warranty

Hearth & Home Technologies, Inc. (HHT), on behalf of its PelPro brand, extends the following warranty for PelPro Stoves purchased from an authorized retailer.

If you experience issues with your PelPro Stove, Consumer Care is available to assist you with troubleshooting technical issues.

This warranty covers components of the PelPro Stoves as listed in the table below.

Warranty Coverage:

Subject to the table below, HHT warrants to the owner of the PelPro Stove that the Stove will be free from defects in materials and workmanship at the time of manufacture. After installation, if covered components are found to be defective in materials or workmanship during the applicable warranty period, HHT will replace the covered components.

HHT, at its own discretion, may fully discharge all of its obligations under such warranties by replacing the product itself or refunding the verified purchase price of the product itself. The maximum amount recoverable under this warranty is limited to the purchase price of the product. This warranty is subject to conditions, exclusions, and limitations as described below.

Warranty Period:

Warranty coverage begins on the date of original purchase. The warranty period for covered components is as follows:

Components Covered	Warranty Period (Parts only, Labor not included)
Electrical	1 Year
Steel Parts (excluding fire pot)	5 Years
All replacement parts are covered for remainder of original warranty period or 90 days, whichever is longer	90 Days

Parts Service & Returns:

HHT is proud to offer the best technical and sales support in the industry. If you have any questions about how to operate your Stove or if you need service parts, please visit PelProstoves.com.

Warranty Exclusions:

Warranty does not cover damage or breakage due to misuse, improper handling or modifications. There is no warranty on the paint, glass, fire pot, fire brick, or any gaskets, or against damage caused from corrosion. There is no expressed or implied performance warranty on PelPro units as HHT has no control over the installation, operation, cleaning, maintenance, or type of fuel burned.

Some states do not allow exclusion or limitation of incidental or consequential damages, or limitations of implied warranties, so the limitations or exclusions set forth in this limited warranty may not apply to you. This limited warranty gives you specific legal rights and you may have other rights, which vary from state to state. Warranty is void if the PelPro Stove has not been installed, operated, cleaned and maintained in strict accordance with HHT's instructions.

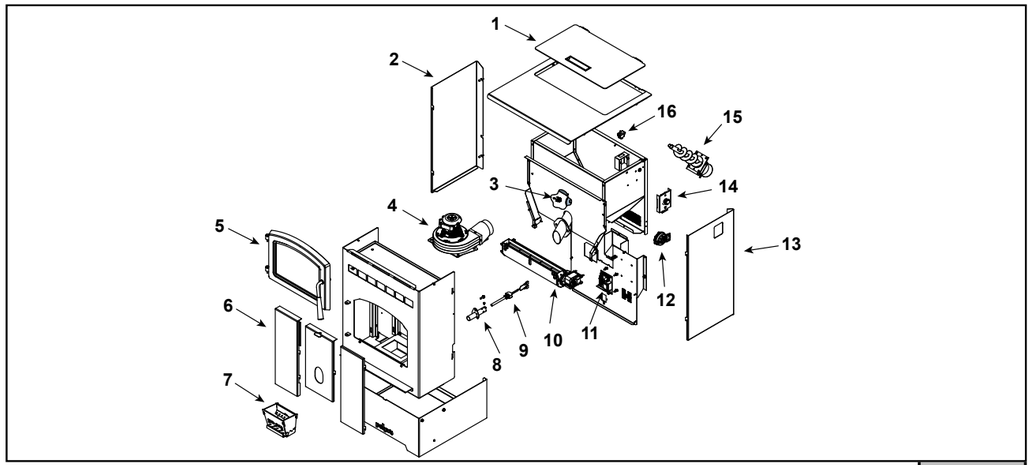
NEITHER HHT NOR THE RETAILER FROM WHO YOU PURCHASED YOUR PELPRO UNIT SHALL BE RESPONSIBLE, LEGALLY OR OTHERWISE, FOR THE INCIDENTAL OR CONSEQUENTIAL DAMAGE TO PROPERTY OR PERSONS RESULTING FROM THE USE OF THIS PRODUCT. ANY WARRANTY IMPLIED BY LAW, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF THE MERCHANTABILITY OR FITNESS, SHALL BE LIMITED TO ONE (1) YEAR ON THE BREACH OF THIS WARRANTY OR ANY TYPE OF WARRANTY EXPRESSED OR IMPLIED BY LAW. HHT SHALL IN NO EVENT BE LIABLE FOR ANY SPECIAL, INDIRECT, CONSEQUENTIAL OR OTHER DAMAGES OF ANY NATURE WHATSOEVER IN EXCESS OF THE ORIGINAL PURCHASE PRICE OF THIS PRODUCT. ALL WARRANTIES BY HHT ARE SET FORTH HEREIN AND NO CLAIM SHALL BE MADE AGAINST HHT ON ANY ORAL WARRANTY OR REPRESENTATION.

Reference Materials

Service Parts **PP60-B**

Pellet Stove

Beginning Manufacturing Date: April 2019
Ending Manufacturing Date: Active



IMPORTANT: THIS IS DATED INFORMATION. When requesting service or replacement parts for your appliance please provide model number and serial number.

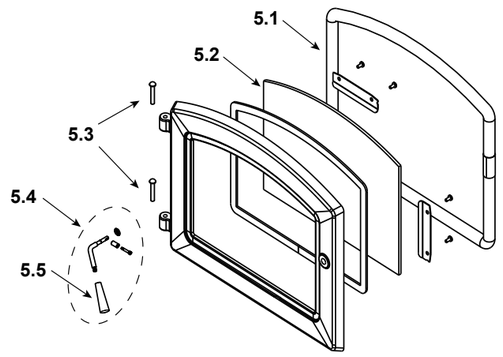
ITEM	DESCRIPTION	COMMENTS	PART NUMBER	Stocked at Depot
1	Hopper Lid Assembly		SRV7083-019	
	Handle, Hopper Lid		SRV200-0110	
2	Side Curtain, Left Hand		SRV7083-154	Y
3	Snap disc, Manual Reset		SRV230-0080	Y
4	Exhaust Combustion Blower		812-4400	Y
	Gasket, Between Blower Housing and Stove		SRV240-0812	Y
	Gasket, Between Blower Housing and Motor		812-4710	Y
5	Door Assembly		**See Following Page**	Y
6	Baffle Kit		SRV7079-006	
7	Firepot		SRV7077-003	Y
8	Igniter Chamber Kit		SRV7077-110	
9	Igniter Kit		SRV7000-660	Y
10	Convection Blower		SRV7000-659	Y
11	Control Board		SRV7079-050	Y
12	Vacuum Switch		SRV7000-531	Y
	Vacuum Hose, 5/32 ID	3 Ft	SRV240-0450	Y
	Hose, Barb Assembly		SRV229-0920	
13	Side Curtain, Right Hand		SRV7083-153	Y
14	Dial Control		SRV7083-036	Y
	Wire Harness, Dial Control		SRV7000-667	Y
15	Feed Assembly Kit		**See Following Page**	Y
16	Hopper Switch		SRV7000-612	Y

See Following page for additional servcie parts

Service Parts **PP60-B**

Beginning Manufacturing Date: April 2019
Ending Manufacturing Date: Active

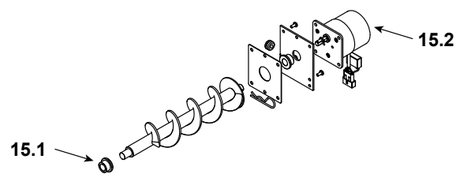
#5 Door Assembly



IMPORTANT: THIS IS DATED INFORMATION. When requesting service or replacement parts for your appliance please provide model number and serial number.

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	Stocked at Depot
5	Door Assembly		SRV7086-021	Y
5.1	Rope, Door, 3/4" x 84"		832-1680	Y
5.2	Glass Assemlby		SRV7081-173	Y
5.3	Hinge Pins	Pkg of 2	433-1590/2	Y
5.4	Threaded Handle Assembly Kit		SRV7093-024D	Y
	Shoulder Bolt, 1/4 x 1	No longer available	SRV7000-944	
5.5	Handle Black Phenolic Kit		KS-5140-1442	Y

#15 Feeder Assembly



15	Feed Assembly Kit		SRV7077-014	Y
15.1	Feed Shaft Bushing	Pkg of 2	7000-600/2	Y
15.2	Feed Motor		SRV7000-670	Y
	Bearing Assembly		SRV7000-820	
	Ambient Probe		SRV7000-668	Y
	Exhaust Probe		SRV7000-669	Y
	Wire Harness		SRV7093-184	Y
	Wire Clip	Pkg of 10	7000-400/10	Y
	Component Pack		SRV7083-062	
	Power Cord		812-1180	Y

We recommend that you record the following information for your heating stove:

Date Purchased / installed: _____
(Attach Proof of Purchase)

Serial Number: _____ Location on Stove: _____

Store Purchased From: _____

Store Location: _____

Maintenance Log:

Reference Materials

Maintenance Log:

Reference Materials

Maintenance Log:


pelpro
PELLET APPLIANCES

Appendix B
Labeling & Owner's Manual
PH35PS-B

CAUTION: HOT WHILE IN OPERATION DO NOT TOUCH, KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. SEE NAMEPLATE AND INSTRUCTIONS.

ATTENTION: CHAUD LORS DE L'OPÉRATION. NE PAS TOUCHER. GARDEZ LES ENFANTS ET LES VÊTEMENTS LOIN DE L'ESPACE DÉSIGNÉ DE L'INSTALLATION. LE CONTACT PEUT CAUSER DES BRÛLURES À LA PEAU. VOIR L'ÉTIQUETTE ET LES INSTRUCTIONS.

c UL us LISTED
Solid Fuel Type Room Heater
Issue No. MH60687

0061PS095E

PH35PS-B Pellet Stove

Serial No. / N° de série: VN

BARCODE LABEL

Refer to the Intertek Directory of Building Products (https://bpdirectory.intertek.com) for detailed information.
Reportez-vous au répertoire des produits de construction d'Intertek (https://bpdirectory.intertek.com) pour obtenir des informations détaillées.

Listed Solid Fuel Room Heater/Pellet Type. Also suitable for Mobile Home Installation. This appliance has been tested and listed for use in Manufactured Homes in accordance with OAR 814-23-9000 through 814-23-909.

Appareil de chauffage de combustible solide/de type de boulettes. Accepté dans l'installation dans les maisons mobiles. Cet appareil a été testé et enregistré pour l'usage dans les Maisons Mobiles en accord avec OAR 814-23-9000 jusqu'à 814-23-909.

Listado de habitaciones de combustible sólido del calentador / Pellet Tipo. También es adecuado para la instalación de casas móviles. Este aparato ha sido probado y certificado para su uso en casas prefabricadas, de conformidad con OAR 814-23-9000 través de 814-23-909.

PREVENT HOUSE FIRES / PRÉVENTION DES FEUX DE MAISON

Install and use only in accordance with manufacturer's installation and operating instructions. Contact local building or fire officials about restrictions and inspection in our area.

WARNING - FOR MOBILE HOMES: Do not install appliance in a sleeping room. An outside combustion air inlet must be provided. The structural integrity of the mobile home floor, ceiling and walls must be maintained. Refer to manufacturer's instructions and local codes for precautions required for passing chimney through a combustible wall or ceiling. Inspect and clean vent system frequently in accordance with manufacturer's instructions. DO NOT CONNECT THIS UNIT TO A CHIMNEY SERVING ANOTHER APPLIANCE. Use a 3" or 4" diameter type "L" or "PL" venting system.

Installez et utilisez en accord avec les instructions d'installation et d'opération du fabricant. Contactez le bureau de la construction ou le bureau des incendies au sujet des restrictions et des inspections d'installation dans votre voisinage. Ne pas obstruez l'espace en dessous de l'appareil.

AVIS - Pour Les Maisons Mobiles: Ne pas installer dans une chambre à coucher. Un tuyau extérieur de combustion d'air doit être installé et ne doit pas être obstrué lorsque l'appareil est en usage. La structure intégrale du plancher, du plafond et des murs de la maison mobile doit être maintenue intacte. Référez vous aux instructions du fabricant et des codes locaux pour les précautions requises pour passer une cheminée à travers un mur ou un plafond combustibles, et les compensations maximums. Inspectez et nettoyez la cheminée fréquemment. Ne pas connecter cet appareil à une cheminée servant un autre appareil. Utilisez systèm de ventilation "L" ou "P" diamètre 76mm ou 102mm

Instale y use únicamente de acuerdo con la instalación del fabricante y las instrucciones de funcionamiento. Póngase en contacto con la construcción o de los bomberos sobre las restricciones y la inspección en nuestra área.

ADVERTENCIA - Para las casas móviles: No instale el aparato en una habitación para dormir. Una entrada de aire de combustión exterior debe ser proporcionada. La integridad estructural de la planta de casas móviles, techos y paredes deben ser mantenidos.

Consulte las instrucciones del fabricante y los códigos locales para la precauciones necesarias para pasar a través de una chimenea de pared o techo combustible. Inspeccione y limpie el sistema de ventilación con frecuencia, de conformidad con las instrucciones del fabricante. NO conecte esta unidad a UNA CHIMENEA DE SERVICIO otro aparato. Use un 3 "o 4" de diámetro tipo "L" o "PL" sistema de ventilación.

Certified to: ASTM Std E1509, Certified to: ULC Std S627, Room Heating Pellet BurningType, (UM) 84-HUD FOR USE ONLY WITH PELLETIZED WOOD FUEL. Do not use any other type of fuel.

Input Rating: 33,200 Btu's/hr. Electrical Rating:115 VAC, 60 Hz, Start 2.6 Amps, Run 0.9 AMPS. Route power cord away from unit. Do not route cord under or in front of appliance. Do not obstruct the space beneath the heater.

DANGER: Risk of electrical shock. Disconnect power supply before servicing. Replace glass only with 5mm ceramic. To start, turn dial control to desired setting, the stove will light automatically. To shutdown, turn dial control to off position. For further instruction refer to owner's manual. Keep viewing doors tightly closed during operation.

Certifié: ASTM Std E1509, Certifié: ULC Std S627, Room Heating Pellet Burning Type, (UM) 84-HUD POUR USAGE AVEC LES BOULETTES DE BOIS. N'utiliser aucun autre genre de combustible.

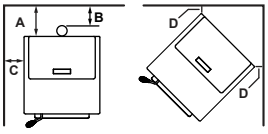
Puissance de Rendement: 33,200 Btu's/hr. Puissance Électrique: 115 VAC, 60 Hz, Début 2.6 Amps, Courir 0.9 Amps, Éloignez le fil électrique de l'appareil. Ne pas faire passer le fil électrique au dessus ou en dessous de l'appareil. Ne pas bloquer l'espace au dessous de l'appareil.

DANGER: Il y a risque de décharge électrique. Déconnectez le fil électrique de la prise de contact avant le service. Remplacez la vitre seulement avec une vitre céramique de 5 mm disponible chez votre fournisseur. Pour commencer, tourner le cadran de commande au réglage désiré, le poêle s'allume automatiquement. Pour l'arrêt, tourner le cadran de commande en position OFF. Pour des instructions supplémentaires, référez vous au manuel du propriétaire. Gardez la porte d'ouverture et la porte des cendres fermées hermétiquement durant l'opération.

Certificado para: ASTM Std E1509, Certificado para: ULC Std S627, cuarto de la calefacción de pellets BurningType, (UM) de 84 de HUD PARA USO EXCLUSIVO CON COMBUSTIBLE DE MADERA granulado. No utilice ningún otro tipo de combustible.

Clasificación de entrada: 33,200 BTU / hr. Clasificación eléctrica: 115 VAC, 60 Hz, 2,6 amperios Inicio, Ejecutar 0,9 amperios. Pase el cable de alimentación alejado de la unidad. No encamine el cordón por debajo o por delante del aparato. No obstruya el espacio debajo de la estufa.

PELIGRO: Riesgo de choque eléctrico. Desconecte el suministro eléctrico antes de darle servicio. Reemplace los vidrios sólo con cerámica de 5 mm. Para comenzar, gire el dial de control hasta la posición deseada, la estufa se encenderá automáticamente. Para apagar, gire el dial de control para la posición de apagado. Para obtener más instrucciones, consulte el manual del propietario. Mantenga las puertas de ver bien cerrados durante la operación.



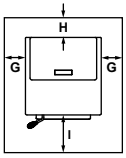
MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS / ESPACES LIBRES MINIMUM DES MATÉRIAUX
DISTANCIAS MÍNIMAS a los materiales combustibles

A	Back Wall / Mur Arrière / Muro Posterior	(horizontal installation) 2 in [51 mm]
B	Flue Pipe / Conduit de fumée / Cañón de Humos	3 in [76 mm]
C	Side Wall / Mur De Côté / Muro Lateral	13 in [330 mm]

CORNER INSTALLATION / INSTALLATION DU COIN / RINCÓN DE LA INSTALACIÓN

D	Side Wall / Mur De Côté / Muro Lateral	3 in [76 mm]

FLOOR PROTECTION / PROTECTION DU SOL / PISO DE PROTECCION



USA
G = 2 in
H* = 2 in
I = 6 in

CANADA
G = 203 mm
H* = 51 mm
I = 152 mm

Floor protector must be non-combustible material, extending beneath heater and to the front/sides/rear as indicated. Measure front distance (I) from the surface of the glass door.

Le poêle doit être placé sur une assise non combustible s'étendant tout autour de lui, comme les schémas l'indiquent. Mesurez la distance du devant (I) de la surface de la porte vitrée.

Protector de piso debe ser de material incombustible, se extiende por debajo del calentador y al frente / lado / trasero, como se indica. Medir la distancia frontal (I) de la superficie de la puerta de vidrio.

*Non-combustible floor protection must extend 2 inches (51mm) beneath the flue pipe when installed with horizontal venting or under the Top Vent Adapter with vertical installation. RECOMMENDED IN USA; REQUIRED IN CANADA.

*Un protecteur incombustible de plancher doit s'étendre 2 inches (51mm) sous le conduit de cheminée pour une installation de ventilation horizontale ou sous un adapteur de ventilation de dessus pour une installation verticale. RECOMMANDÉ AUX ÉTATS-UNIS; NÉCESSAIRE AU CANADA.

* No es combustible mínimo de protección debe extenderse 2 pulgadas (51mm) por debajo del conducto de humos cuando se instalan con la ventilación horizontal o en el adaptador de ventilación superior con instalación vertical. RECOMENDADO EN EE.UU.; REQUERIDA EN CANADÁ.

GHP GROUP

GHP Group
6440 W. Howard St.
Niles, IL 60714

877-447-4768

www.ghpgroupinc.com

U.S. ENVIRONMENTAL PROTECTION AGENCY

Certified to comply with 2020 particulate emission standards at 0.7 g/hr EPA method 28R and ASTM 2779 using premium wood pellets. This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

2019	2020	2021	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

DO NOT REMOVE THIS LABEL / NE PAS ENLEVER L'ÉTIQUETTE

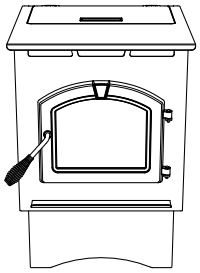
Made in Vietnam / Fabriqués au Vietnam

7079-802A

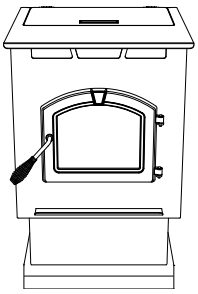
Pleasant Hearth™

Warming Your Home. Warming Your Heart.

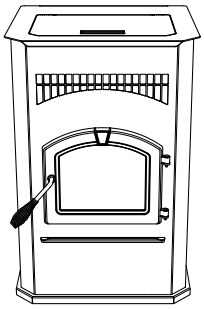
High Efficiency Pellet Stove



PH35PS



PH50PS



PH50CABPS

MODELS:
PH35PS SERIES - MEDIUM PELLET STOVE WITH PEDESTAL
PH50PS SERIES - LARGE PELLET STOVE WITH PEDESTAL AND BASE PAN
PH50CABPS SERIES - CABINET PELLET STOVE

Pellet Fuels Institute

Owner's Manual

Installation and Operation

SAFETY NOTICE: PLEASE READ THIS ENTIRE MANUAL BEFORE INSTALLATION AND USE OF THIS PELLET FUEL BURNING ROOM HEATER. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN PROPERTY DAMAGE, BODILY INJURY OR EVEN DEATH. CONTACT LOCAL BUILDING OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.

SAVE THESE INSTRUCTIONS

Questions, problems, missing parts? Before returning to your retailer, call our customer service department at 877-447-4768 8:30 a.m – 4:30 p.m. CST, Monday – Friday or email us at customerservice@ghpgroupinc.com.

GHP GROUP
6440 W. Howard St.
Niles, IL 60714
877-447-4768

EM O-TL

PH35PS-B, Emissions Report No: 0061PS095E
PH50PS & PH50CABPS, Emissions Report No: 10072262PRT-001

ETL C US LISTED
Intertek
Certified to ULC S627 and ASTM E1509

Lighting Instruction Guide

⚠ CAUTION ⚠

All material needs to be removed from the door glass and firebox before operation.

Follow all instructions and warnings for safe startup of stove. Failure to follow instructions could result in injury or damage.

During startup and normal operation your appliance's front door must be closed.

Odors and vapors are released during initial startup after purchase. Burning your appliance on HI for 30 minutes will allow the paint to cure. Open windows or doors for air circulation until burn-off is complete.

1. Turn Dial Control to OFF and ensure appliance is completely shut down, **Figure 2.1**.

2. Ensure appliance is completely cooled and clean fire pot (**see Cleaning Fire pot in the General Maintenance section of Owner's Manual under Maintaining and Servicing the Appliance)**

3. Open front door and ensure all baffle are installed properly, **Figure 2.2** (also **see Clean the Exhaust Path, Baffles, and Drop Tube in the General Maintenance section of Owner's Manual under Maintaining and Servicing the Appliance)**.

Once verified, close door.

4. Inspect hopper and ensure there is pellet fuel in the hopper. If there is fuel in the hopper, close lid and proceed to step 5, **Figure 2.3**.

NOTE: If the hopper is completely empty, the appliance will need to have pellet fuel added to the hopper and may need to be primed **(see Priming The Feed Tube in the General Operating Information section of Owner's Manual)**.

5. Turn dial control to desired setting.
-Green light will start blinking rapidly to indicate startup sequence.

NOTE: If the appliance fails to ignite, the LED light will blink red 4 times continuously indicating a missed ignition alarm; repeat lighting steps 1 through 5.

NOTE: It may take up to 20 minutes for a missed ignition alarm.

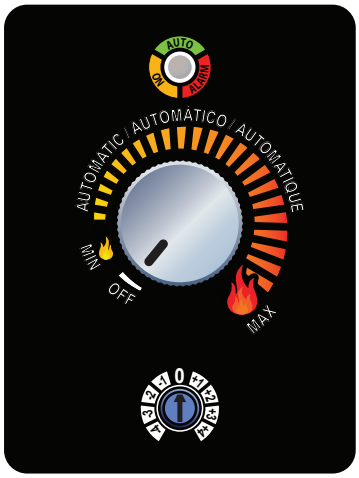


Figure 2.1

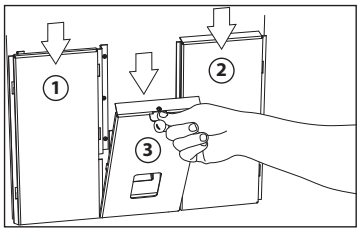


Figure 2.2

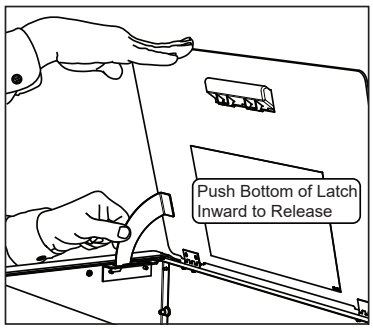


Figure 2.3

Safety Alert Key:

- **DANGER!** Indicates a hazardous situation which, if not avoided will result in death or serious injury.
- **WARNING!** Indicates a hazardous situation which, if not avoided could result in death or serious injury.
- **CAUTION!** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- **NOTICE:** Indicates practices which may cause damage to the appliance or to property.

TABLE OF CONTENTS

CAUTION

After reading these instructions, if you have any doubt about your ability to complete your installation in a professional manner you should obtain the services of an installer versed in all aspects as to the correct and safe installation. Do not use temporary makeshift compromises during installation.

BEFORE INSTALLATION OF YOUR APPLIANCE

1. Check with the building inspector's office for compliance with local codes; a permit may be required.
2. Use 3" or 4" (76-102mm) diameter type "L" or "PL" venting system. It can be vented vertically or horizontally. Approved adaptors can be used to connect the "L" or" PL" to approved wood stove venting such as single wall or double wall venting previously used to vent a wood burning appliance. INSTALL VENT AT CLEARANCES SPECIFIED BY THE VENT MANUFACTURE.
3. Always connect this unit to an approved chimney system and NEVER vent to another room or inside a building.
4. DO NOT INSTALL A FLUE DAMPER IN THE EXHAUST VENTING SYSTEM OF THIS UNIT.
5. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.
6. The connector pipe and chimney should be inspected periodically and cleaned if necessary. Review additional information located in the maintenance section of this Owner's Manual.
7. Remember the clearance distances when you place furniture or other objects within the area. This includes heat sensitive materials such as candles, seasonal decorations or draperies. DO NOT STORE WOOD, FLAMMABLE LIQUIDS OR OTHER COMBUSTIBLE MATERIALS TOO CLOSE TO THE UNIT.
8. Be aware of the required clearances when locating the unit. Refer to the label on the rear of the unit for required clearances.
9. Contact your local municipal or provincial fire authority for information of how to handle a chimney fire. Have a clear understood plan to handle a chimney fire. In the event of a chimney fire, CALL THE FIRE DEPARTMENT.
10. Prior to burning the unit for the first time make sure the hardware kit has been removed from the firebox.

IMPORTANT

It is highly recommended that the pellet heater and chimney be installed by a qualified installer. A qualified installer is a person or entity who regularly installs solid burning fuel products and chimneys in the course of their ordinary business.

⚠ WARNING

If the information in these instructions is not followed exactly, a fire may result causing property damage, personal injury, or death.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Do not over fire - If heater or chimney connector glows, you are over firing. Over firing will void your warranty.
- Comply with all minimum clearances to combustibles as specified. Failure to comply may cause house fire.

⚠ WARNING

HOT SURFACES!
Glass and other surfaces are hot during operation AND cool down.

Hot glass will cause burns.

- Do not touch glass until it is cooled
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as fireplace.
- Alert children and adults to hazards of high temperatures.
- **High temperatures may ignite clothing or other flammable materials.**
- Keep clothing, furniture, draperies and other flammable materials away.

⚠ WARNING

Fire Risk.
Tested and approved for wood pellets. Burning of any over type of fuel will void your warranty.

1 Listing and Code Approvals

A. Appliance Certification

Series:	PH35PS, PH50PS, PH50CABPS
Safety Laboratory:	Intertek
Safety Report No.	10072262PRT-001
Type:	Solid Fuel Room Heater/Pellet Fuel Burning Type
Standard:	ASTM E1509-04 and ULC S627-00, Room Heater Pellet Fuel Burning type and (UM) 84-HUD, Mobile Home Approved.

B. BTU & Efficiency Specifications

	PH35PS	PH50PS PHCAB50PS
Emissions Report No:	0061PS095E	10072262PRT-001
Emissions Laboratory:	OMNI	Intertek
EPA Certification No:	N.A.	904
EPA Certified Emissions:	0.7 g/hr	0.7 g/hr
***LHV Tested Efficiency:**	79.4%	N/A
****HHV Tested Efficiency:**	74.6%	84.4%
*****EPA BTU Output:**	6,800 to 26,000/hr	9,300 to 32,400/hr
******BTU Input:**	9,600 to 33,200 /hr	12,500 to 43,900/hr
Vent Size:	3 or 4 inches, “L” or “PL”	
Hopper Capacity:	40 lbs.	80/120 lbs.
Fuel	Premium Wood Pellets	
* Weighted average LHV efficiency using data collected during EPA emissions test.		
**Weighted average HHV efficiency using data collected during EPA emissions test.		
***A range of BTU outputs based on EPA Default Efficiency and the burn rates from the low and high EPA tests.		
******Based on the maximum feed rate per hour multiplied by approximately 8600 BTU’s which is the average BTU’s from a pound of pellets.		

The PH35PS, is Certified to comply with 2020 particulate emission standards.

PH50PS & PH50CABPS stoves meets the 2015 U.S. Environmental Protection Agency’s for pellet heaters sold after May 15, 2015.

This pellet heater needs periodic inspection and repair for proper operation. It is against federal regulations to operate this pellet heater in a manner inconsistent with operating instructions in this manual.

NOTE: This installation must conform with local codes. In the absence of local codes you must comply with the **ASTM E1509-04, ULC S627-00, (UM) 84-HUD**,

C. Glass Specifications

This appliance is equipped with 5mm ceramic glass. Replace glass only with 5mm ceramic glass. Please contact GHP for replacement glass.

D. Electrical Rating (On High)

Stove Series	Electrical Rating
PH35PS	115 VAC, 60 Hz, Start 2.6 Amps, Run 0.9 Amps
PH50PS	
PH50CABPS	

E. Mobile Home Approved

- This appliance is approved for mobile home installations when not installed in a sleeping room and when an outside combustion air inlet is provided.
- The structural integrity of the mobile home floor, ceiling, and walls must be maintained.
- The appliance must be properly grounded to the frame of the mobile home with #8 copper ground wire, and use only listed double-wall connector pipe.
- Outside Air Kit provided with each unit must be installed in a mobile home installation.

NOTE: This appliance is approved for installation in a workshop.

F. Non-Combustible Materials

Material which will not ignite and burn, composed of any combination of the following:

- Steel
- Plaster
- Brick
- Iron
- Concrete
- Tile
- Glass
- Slate

Materials reported as passing **ASTM E 136, Standard Test Method for Behavior of Metals**, in a Vertical Tube Furnace of 750° C.

G. Combustible Materials

Material made of/or surfaced with any of the following materials:

- Wood
- Compressed Paper
- Plant Fibers
- Plastic
- Plywood/OSB
- Sheet Rock (drywall)

Any material that can ignite and burn: flame proofed or not, plastered or non-plastered.

H. Sleeping Room

When installed in a sleeping room it is recommended that 3ft of vertical be installed prior to horizontally exiting the room and a smoke/CO alarm be installed in the bedroom. The size of the room must be at least 50ft³ per 1,000 Btu/hr stove input, if the stove exceeds the room size, out air must be installed.

I. California - PROP65

WARNING

This product and the fuels used to operate this product (wood), and the products of combustion of such fuels, can expose you to chemicals including carbon black, which is known to the State of California to cause cancer, and carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to: WWW.P65Warnings.ca.gov

WARNING!
RISK OF FIRE!

GHP disclaims any responsibility for, and the warranty and agency listing will be voided by the below actions.

DO NOT:

- *Install or operate damaged appliance*
- *Modify appliance*
- *Install other than as instructed by the manufacturer.*
- *Operate the appliance without fully assembling all components*
- *Over fire*
- *Install any component not approved by the manufacturer*
- *Install parts or components not Listed or approved*
- *Disable safety switches*

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.

For assistance or additional information, consult a qualified installer, service agency or your dealer.

2 General Information

A. Fire Safety

To provide reasonable fire safety, the following should be given serious consideration:

- Install at least one smoke detector on each floor of your home.
- Install at least one carbon monoxide detector on each floor of your home.
- Locate smoke detector away from the heating appliance and close to the sleeping areas.
- Follow the smoke detector manufacturer's placement and installation instructions and maintain regularly.
- Follow the carbon monoxide manufacturer's placement and installation instructions and maintain regularly.
- Conveniently locate a Class A fire extinguisher to contend with small fires.
- In the event of a hopper fire:
  - Evacuate the house immediately.
  - Notify fire department.

B. Combustible/Non-Combustible Materials

- **Combustible Material**
  - Material made of or surfaced with wood, compressed paper, plant fibers, plastics, or any material capable of igniting and burning, whether flame-proofed or not, plastered or non plastered.
- **Non-combustible Material**
  - Material which will not ignite and burn. Such materials are those consisting entirely of steel, iron, brick, tile, slate, glass or plasters, or any combination thereof.
- **Non-combustible Sealant Material**
  - Sealants which will not ignite and burn: Rutland, Inc. Fireplace Mortar #63, Rutland 76R, Nuflex 304, GE RTV106 or GE RTB116 (or equivalent).

C. Fuel Material and Fuel Storage

Pellet fuel quality can greatly fluctuate. We recommend that you buy fuel in multi-ton lots whenever possible. However, we do recommend trying various brands before purchasing multi-ton lots to ensure your satisfaction.

Fuel Material

- Made from sawdust or wood by-products
- Depending on the source material it may have a high or low ash content.

Higher Ash Content Material

- Hardwoods with a high mineral content
- Fuel that contains bark
- Standard grade pellets or high ash pellets

Lower Ash Content Material

- Most softwoods
- Fuels with low mineral content
- Most premium grade pellets

Clinkers

Minerals and other non-combustible materials such as sand will turn into a hard, glass-like substance called a clinker when heated in the firepot.

Trees from different areas will vary in mineral content. That is why some fuels produce more clinkers than others.

Moisture

Always burn dry fuel. Burning fuel with high moisture content takes heat from the fuel and tends to cool the appliance, robbing heat from your home. Damp pellet fuel can clog the feed system.

Size

- Pellets are either 1/4 inch or 5/16 inch (6-8mm) in diameter
- Length should be no more that 1-1/2 inches (38mm)
- Pellet lengths can vary from lot to lot from the same manufacturer
- Due to length variations, the feed rate may need adjusting occasionally

Performance

- Higher ash content requires the firepot and the ash drawer to be emptied more frequently
- Hardwoods require more air to burn properly
- Premium wood pellets produce the highest heat output
- Burning pellets longer than 1-1/2 inches (38mm) can cause an inconsistent fuel feed rate and/or missed ignitions of feed jams.

Storage

- Wood pellets should be left in their original sealed bag until using to prevent moisture absorption
- Do not store any pellet fuel within the clearance requirements or in an area that would hinder routine cleaning and maintenance

D. Before Your First Fire

1. First, make sure your appliance has been properly installed and that all safety requirements have been met. Pay particular attention to the fire protection and venting.
2. Double check that the firebox is empty and the firepot is in place!
3. Close and latch the door.

3 General Operating Information

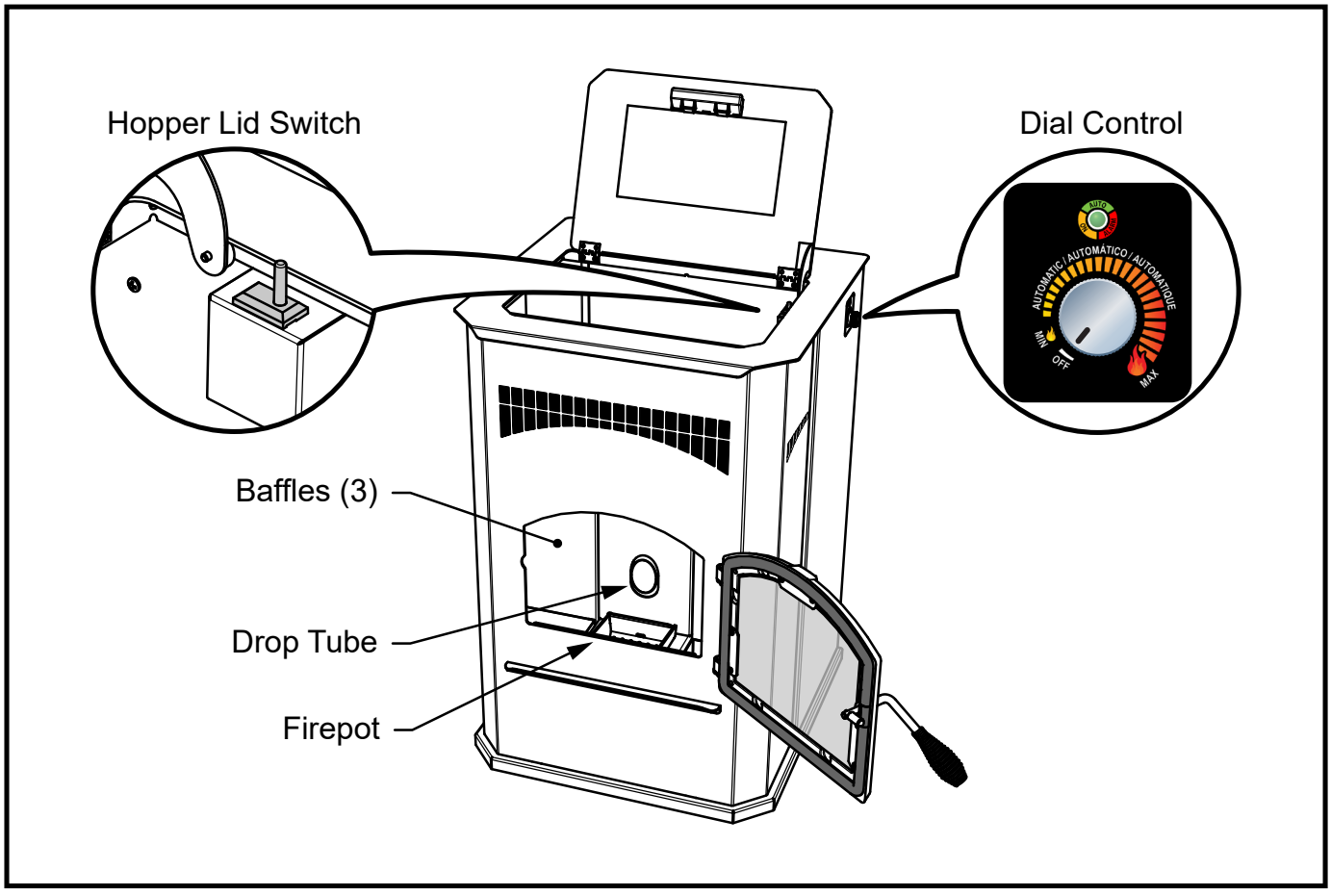
WARNING

HOT SURFACES!
Glass and other surfaces are hot during operation AND cool down.
Hot glass will cause burns.

- Do not touch glass until it is cooled
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as appliance.
- Alert children and adults to hazards of high temperatures.
- **High temperatures may ignite clothing or other flammable materials.**
- Keep clothing, furniture, draperies and other flammable materials away.

NOTICE: If you expect that children may come into contact with this appliance, we recommend a barrier such as a decorative screen (See your retailer for suggestions).

A. Your Pellet Appliance - General Operating Parts



B. User Dial Control

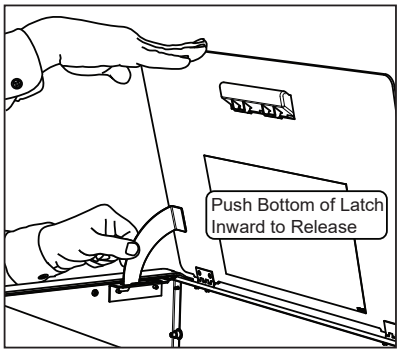
The appliance has one dial control located on the side of the unit used for daily operation. There are four primary settings on this dial.

- **Off:**
  - When the dial indicator is in the off position the unit will go into a shut down and remain off until the dial is turned to one of the other three settings. The LED will flash green once per second when in the off position.
- **MIN:**
  - When the dial indicator is directed to the MIN setting (small flame on the label) the unit will burn on low until the hopper runs out of pellets or the dial control is turned to a different setting. When in this setting the LED will be amber in color and continuously on. When burning in this mode, the unit should be turned off at least once daily for cleaning. If lower quality fuels are used, additional daily shut downs may be required for cleaning.
- **MAX:**
  - Similar to the MIN mode, the unit will run continuously at the high burn rate until the unit has run out of fuel or the dial is turned to a different setting. To operate in this mode, turn the dial clockwise until it stops. The dial indicator will point to the large flame. When in this setting the LED will be amber in color and continuously on. Follow the daily cleaning recommendations when operating in this mode. If lower quality fuels are used, additional daily shut downs may be required for cleaning.
- **AUTO:**
  - To burn in the Automatic mode, turn the dial control clockwise to the desired comfort level. When operating in the automatic mode, the unit changes the burn setting based on the difference between the room temperature and the desired set point. In other words, the unit will burn on High if the difference between the desired and room temperature is greater than 8 degrees Fahrenheit. As the room heats up and the gap closes, the unit will automatically reduce the burn rate. When the room temperature is close to the set point the light will stop flashing stay solid green. At this time the stove will be burning on the lowest burn rate. When the desired temperature is achieved the unit will shut down. As the room cools, the unit will restart automatically. When burning in this mode the LED will be blinking green. The number of green flashes corresponds to the current burn rate.

C. Filling the Hopper

Slowly open the hopper lid by lifting the handle. The medium and large units have a locking latch that will engage when the hopper lid is fully opened. The hopper lid for the cabinet will open past ninety degrees and stay open automatically. Fill the hopper with fuel. **FOR USE WITH ONLY WOOD PELLET FUEL.** Slowly close the hopper lid. See figure below for releasing the latch.

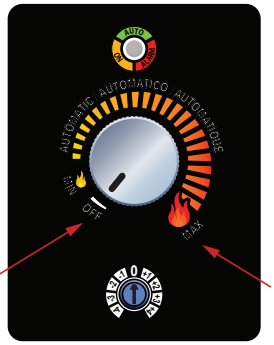
NOTE: The unit will not feed with the hopper lid open. If left open, the fire will go out.



D. Priming the Feed Tube

STOP!
Please Read Prior to Attempting Prime Function

When attempting Prime function it is NECESSARY to operate the dial control QUICKLY in a single fluid motion. If this is not performed properly, the appliance will not prime.



This is the position for the dial control when starting the prime feature.

This is the position for the dial control when completing the prime function.

WARNING

A FIREPOT THAT IS MORE THAN HALF FULL IS OVERFILLED AND CAN BE DANGEROUS. DO NOT OVERFILL FIREPOT FOR IGNITION.

Overfilling the firepot could cause an unsafe ignition resulting in injury or damage. Firepot must be emptied.

The feed tube may need to be primed only if the hopper is being filled for the first time or if the appliance has run out of pellets. To prime the appliance, turn the dial control QUICKLY from the OFF position to the HI position, to OFF to HI in one fluid motion. The LED light will be a solid green color to indicate a successful prime function. When the feed motor is running continuously, the LED light will be a solid green color. When pellets start to drop into the firepot, the feed tube is primed. Turn the dial control to the desired position and the appliance will begin its ignition sequence with a blinking green light. Allow the appliance up to 20 minutes for ignition to occur.

CAUTION

Do not restart or manually add pellets or any type of fuel to the burn pot during this process.

If the appliance does not ignite, the LED light will blink red four times showing a missed ignition alarm. Turn the appliance to off and remove and EMPTY the firepot.

Return the firepot to the appliance in the correct orientation. See figure in Cleaning Fire pot in the General Maintenance section of Owner's Manual under Maintaining and Servicing the Appliance.

Attempt relighting sequence (see Lighting Instructions Guide).

E. Firepot Burn Down

A feature of these pellet appliances is the firepot burn down cycle. The frequency of the cycle is once every hour the appliance is burning. During this event, the feed is reduced to the lowest setting and the exhaust blower ramps up to the highest setting. The purpose of the burn down cycle is to help remove debris from the firepot and help the appliance burn as efficient as possible. The cycle lasts 99 seconds. Please be aware that the burn down does not replace daily cleaning activities but makes them easier.

F. Shutdown

To shut the appliance down, turn the dial control counter clockwise to the OFF position. During the shutdown process, the LED will flash amber or green rapidly just like the ignition sequence. The firepot burn down cycle will begin but without the feed motor running. The feed will be terminated during this shutdown process. The exhaust and convection blowers will remain on during the shutdown process until the exhaust has cooled.

If maintenance or daily cleaning is going to be conducted immediately following a shutdown, please use caution as components especially those inside the firebox may still be hot.

Please note that if the dial control is turned to the off position and back on even if by mistake, the appliance will go through the shutdown sequence.

G. Starting Your First Fire

1. Turn the dial control to "OFF".
2. Make sure the firepot is clean, in place, and free of debris.
3. Plug the appliance into the wall and fill the hopper with wood pellets. Shut the hopper lid.
4. Turn the dial control to the desired burn setting.

The appliance will go into the ignition sequence followed by start up (The green LED will flash rapidly). The ignition sequence involves the exhaust blower turning on, the igniter turning on, and the feed motor running in two stages. The first stage involves the feed motor running continuously for about a minute to preload pellets into the firepot. Following the preload and a delay, the feed motor will begin cycling on and off. When the pellets are warming up and on the verge of igniting, it is not uncommon for the firebox to fill with smoke. Once ignition actually happens, the smoke should evacuate quickly. During this stage as well as any part during the burn process, the front door should not be opened. This cycle continues until the appliance senses ignition by a rise in the exhaust temperature or the appliance times out. Following the ignition cycle the appliance begins to feed additional pellets gradually for a few minutes to build up the fire. This is important to have a controlled start up to keep the appliance in balance.

H. Fire Characteristics

The overall height of the flame will vary throughout the burn for a couple of reasons. First is that the flame will vary based on type of fuel or even batch of fuel. Secondly, the appliance adjusts the burn rate according to the how far away the room temperature is from the set temperature. This should not cause alarm. The third characteristic that affects the fire relates to general maintenance and cleaning. Infrequent or poor general maintenance will result is poorer performance. Indicators of the need for additional maintenance activities include a lazy flame, black sooted glass, pellets not igniting, or pellets falling to the side of the firepot. See the maintenance section for additional information.

CAUTION

Odors, vapors, and smoke released during initial operation.

- Curing of high temperature paint.
- Open windows for air circulation.

Odors may be irritating to sensitive individuals.

I. Ignition Cycles

1. At the beginning of each ignition cycle, it is normal to see some smoke in the firebox. The smoke will stop once the fire starts.
2. The convection blower will automatically turn on after your appliance has been burning for approximately 10 minutes.
3. This blower transfers heat from your appliance into the room, and will continue to run even after the unit has shutdown. It will turn off after the exhaust temperature has cooled.
4. Occasionally the appliance may run out of fuel and shut itself down. When this happens the empty hopper alarm will be triggered.

J. Running in Minimum or Maximum

When the dial control is set to run on the minimum or maximum setting, the appliance will continue to run without regard to the actual temperature in the room. The appliance will shut off only if the dial control is set to a different setting or there is an error such as an empty hopper.

When running on minimum or maximum it is important to follow the daily cleaning activities especially cleaning the firepot. Failure to do so will reduce the performance of the appliance.

K. Running in the Automatic Mode

When the dial control is set to run in the automatic mode the unit will adjust the actual burn rate based on the difference between the room temperature as sensed by the probe located in the rear of the unit and the desired comfort level as set on the dial control.

The comfort level range is from 65 degrees Fahrenheit to 82 degrees Fahrenheit.

Once the desired comfort level is achieved the appliance will automatically shut down and turn off. When the temperature in the room drops 3 degrees below the desired comfort level, the appliance will automatically restart.

L. Trim Adjustment

Trim adjustment is the small dial located below the main dial control. Rotating this dial will adjust the air/fuel ratio and below are examples of when to use it:

- If the fire is too large, lazy or producing black soot, rotate the dial counterclockwise one level at a time and allow 15 minutes for stabilization before making another adjustment
- If your fire is too small and sometimes goes out when there are pellets in the hopper, rotate the dial clockwise one level at a time and allow 15 minutes for stabilization before making another adjustment.

M. Clear Space

WARNING!

RISK OF FIRE!
Do NOT place combustible objects in front or to the sides of the appliance. High temperatures may ignite clothing, furniture or draperies.

Mantel: Avoid placing candles and other heat-sensitive objects on mantel or hearth. Heat may damage these objects.

NOTICE: Clearances may only be reduced by means approved by the regulatory authority having jurisdiction.

WARNING!

RISK OF FIRE!
Keep combustible materials, gasoline and other flammable vapors and liquids clear of appliance.

- Do NOT store flammable materials in the appliance's vicinity.
- Do NOT use gasoline, lantern fuel, kerosene, charcoal lighter fluid or similar liquids to start or "freshen up" a fire in this heater.

Keep all such liquids well away from the heater while it is in use as combustible materials may ignite.

N. LED Color Coding Chart and Explanation

LED Color	Number of Flashes between pauses	Description	Notes
Green	Steady ON while priming feed tube (max time 2 minutes)	Feed Motor is running continuously. (This primes the feed tube).	When priming the feed system and filling the firepot, **DO NOT OVERFILL FIREPOT FOR IGNITION**. The unit will automatically go into start up following the prime function.
Green	Steady ON while burning	Room temperature is close to set point and burning on lowest burnt rate.	
Green	1x	Unit is off and ready.	To start appliance, follow start up sequence.
Green	Blinks Continuously	Appliance is in the start up/ignition sequence or in shutdown.	During shut down, the blowers will shut off when the exhaust temperature has cooled.
Green	Varies	When in the automatic mode, the number of flashes between pauses indicates the burn rate (1 for low up to 5 for high).	Adjust the dial control to change the desired room temperature.
Amber	Steady ON	Appliance is set and running at either the minimum or maximum power levels.	The unit will shut off only when the hopper runs out of fuel, the user changes the dial control to a different state, or the unit senses an error.
Amber	Blinks Continuously	Appliance is in the in shutdown sequence.	During shut down, the blowers will shut off when the exhaust temperature has cooled.
Red	1x	Empty Hopper Alarm	This alarm is caused by the fire going out from lack of fuel. See troubleshooting section for more information.
Red	2x	Exhaust Probe Alarm	Failed component error. See troubleshooting section for more information.
Red	3x	Ambient Probe Alarm	Failed component error. See troubleshooting section for more information.
Red	4x	Missed Ignition	There are a total of 2 tries per ignition sequence. If after 2 tries there is no rise in exhaust temperature this error will occur. See the troubleshooting section for additional information and correction.
Red	8x	Exhaust Gas Over Temperature Alarm	The exhaust temperature exceed the allowable limit. See the troubleshooting section for more information and correction.

WARNING

Fire Risk

Do NOT operate appliance:

- With appliance door open.
- Firepot floor open.

Do NOT store fuel:

- Closer than required clearances to combustibles to appliance
- Within space required for loading or ash removal.

4 Maintaining & Servicing Your Appliance

When properly maintained, your appliance will give you many years of trouble-free service. Contact your GHP dealer to answer questions regarding proper operation, troubleshooting and service for your appliance.

CAUTION

Shock and Smoke Hazard

- Smoke spillage into room can occur if appliance is not cool before unplugging.
- Risk of shock if appliance not unplugged before servicing appliance.

A. Proper Shutdown Procedure

Turn dial control to off, let appliance completely cool and exhaust blower must be off. After cooling unplug appliance before servicing.

Follow the detailed instructions found in this section for each step listed as referenced in the chart below.

B. Quick Reference Maintenance Chart

Cleaning or Inspection	Frequency		Daily	Weekly	Monthly	Yearly
Firepot	Every 3 bags of fuel	OR	X			
Ash Removal from Firebox	Every 5 bags of fuel or more frequently depending on ash build-up	OR		X		
Glass	When clear view of firepot becomes obscure	OR		X		
Hopper	Every 25 bags of fuel	OR			X	
Exhaust Path, Drop Tube and Behind Baffles	Every 25 bags or more frequently depending on ash build-up	OR			X	
Door Handle & Gasket Inspection	Prior to heating season	OR			X	
Blower, Convection	Every 25 bags or more frequently depending on operating environment.	OR			X	
Blower, Exhaust	More frequently depending on the fuel type	OR				X
Firebox - Prepare for Non-Burn Season	At end of heating season	OR				X
Venting System	Every 3 tons or more frequently depending on the fuel type	OR				X

NOTICE: *These are recommendations. Clean more frequently if you encounter heavy build-up of ash at the recommended interval or you see soot coming from the vent.* **Not properly cleaning your appliance on a regular basis will void your warranty.**

C. General Maintenance

1. Types of Fuel

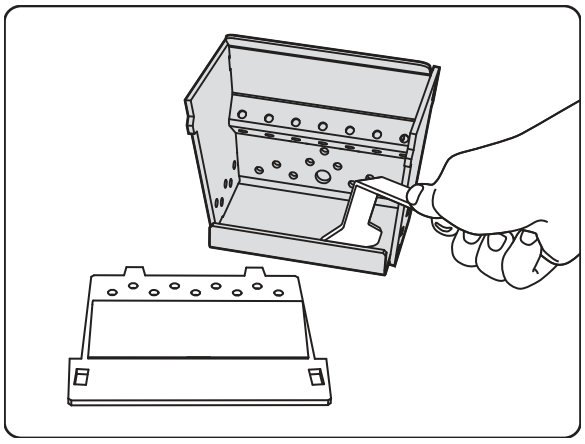
The type of fuel you are burning will dictate how often you have to clean your firepot.

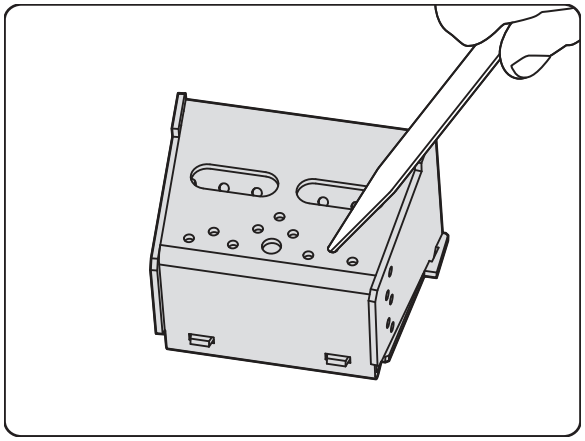
If the fuel you are burning has a high dirt or ash content, it may be necessary to clean the firepot more than once a day.

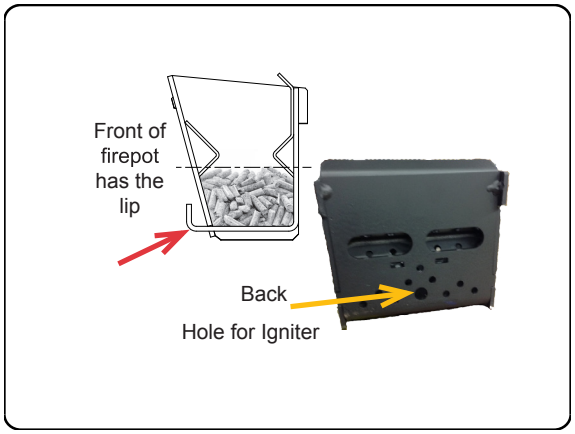
Poor quality fuel will cause clinkers to form in the firepot. A clinker is formed when dirt, ash or a non-burnable substance is heated to 2000°F (1093°C) and becomes glass-like. See section D following for more details on fuels with high ash content.

2. Cleaning Firepot with the Firepot Clean-Out Tool

- **Frequency:** Daily or more often as needed
- **By:** Homeowner
  a. The appliance must be in complete shutdown and cool and the exhaust blower off. If you are just cleaning the firepot, there is no need to unplug the appliance.
  b. Open the front door of the appliance and lift out the firepot. Use the firepot cleaning tool to break up deposits inside the firepot and dispose in an approved container. Depending on the quality of fuel used, the front of the firepot may need to be removed for better access for cleaning.
  c. Use the narrow end of the firepot cleaning tool to clean the holes.
  d. With the firepot out clean the area below the firepot.
  e. Reassemble the firepot and place back inside the firepot riser. Make sure the firepot is in the correct direction with the slanted lip in the rear. Failure to install the firepot correctly may result in missed ignitions.







3. Ash Removal from Firebox

- **Frequency:** Weekly or more frequently depending on ash build-up.
- **By:** Homeowner
  a. There must not be any hot ashes in the firebox during cleaning so allow the appliance to completely cool. The firebox ash should be removed every time the exhaust path is cleaned. Frequent cleaning of the ash in the firebox will help slow down the build-up of ash in the exhaust blower and vent system.
  b. Vacuum out the firebox thoroughly on both sides of the firebox and the floor and ceiling. Remember to place the ash and debris into a metal or non-combustible container.

See Disposal of Ashes.

4. Disposal of Ashes

- **Frequency:** As needed
- **By:** Homeowner

Ashes should be placed in a metal container with a tight-fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from all combustible materials, pending final disposal.

If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have been thoroughly cooled.

WARNING

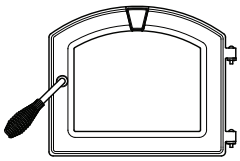
Disposal of Ashes

- Ashes should be placed in metal container with tight fitting lid.
- Ashes should be retained in closed container until all cinders have thoroughly cooled.

5. Cleaning the Glass

- **Frequency:** When clear view of the firepot becomes obscure
- **By:** Homeowner
  a. Appliance must be completely cool before cleaning glass.
  b. Vacuum fly ash from glass and door rope.
  c. Use a damp paper towel or any non-abrasive glass cleaner. Wipe off with dry towel.

CAUTION



Handle glass assembly with care.
When cleaning glass:

- Avoid striking, scratching or slamming glass.
- Do NOT clean glass when hot.
- Do NOT use abrasive cleaners.
- Refer to maintenance instructions.
- Do NOT operate with glass cracked, broken or scratched.

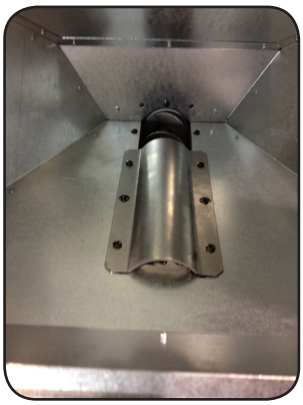
6. Cleaning the Hopper

- **Frequency:** Monthly or after burning 25 bags of fuel
- **By:** Homeowner

After burning approximately 25 bags of fuel you will need to clean the hopper to prevent sawdust build-up.

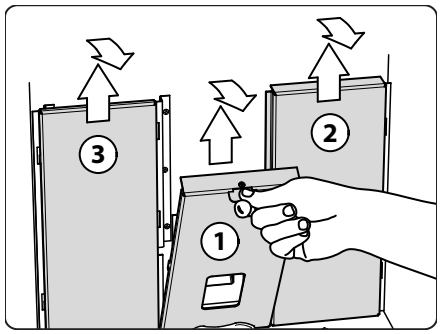
A combination of sawdust and pellets on the bottom end of the auger reduces the amount of fuel supply to the firepot. This can result in nuisance shutdowns and mis-starts.

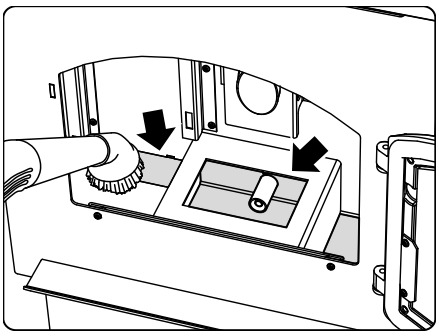
a. The appliance must be in complete shutdown. Allow the appliance to completely run out of pellets and cool down.
b. Empty the hopper of any remaining pellets.
c. Vacuum the hopper and feed tube. To access the feed tube remove the four screws from the auger cover located inside of the hopper.



7. Cleaning the Exhaust Path, Baffles & Drop Tube

- **Frequency:** Monthly or every 25 bags or more frequently depending on ash build-up.
- **By:** Homeowner
  a. Appliance must be completely cool.
  b. Open the door and remove the center baffle first and then the right and left baffles. Thoroughly vacuum the exhaust path and drop tube and continue throughout the rest of the firebox. Also vacuum the front and back of the baffles.
  c. Using a small brush, clean the inner walls of the exhaust outlet from the access hole inside the firebox. The access hole will be visible following the removal of the left side baffle. After loosening up debris on the inner walls of the outlet, vacuum out.
     – This is important as the exhaust temperature probe is attached to the right side of the outlet. If this is not maintained on a regular basis, the appliance will experience nuisance shut downs and/or missed ignitions.
  d. Replace the right and left baffles and then the center baffle and close and latch the door.





8. Door Handle Inspection

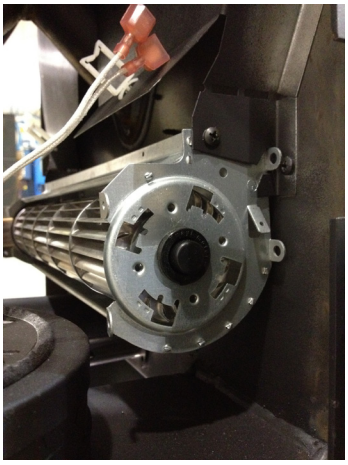
- **Frequency:** Monthly or prior to heating season
- **By:** Homeowner

The gasket between the glass and firebox should be inspected periodically to make sure there is a good seal.

NOTE: GHP recommends using a heavy duty vacuum cleaner specifically designed for solid fuel appliance cleaning.

9. Cleaning Convection Blower - Requires No Lubrication

- **Frequency:** Monthly depending on Dust/Dirt build-up
- **By:** Homeowner or Qualified Service Technician
  a. Be sure the appliance is allowed to cool and has been unplugged.
  b. Remove the right side panel.
  c. Sweep or vacuum out any build-up on the impellers. Use a brush or compressed air to loosen dirt if needed.
     – Avoid damaging the impellers.



10. Cleaning Exhaust Blower - Requires No Lubrication

- **Frequency:** Yearly or more frequently depending on ash build-up
- **By:** Homeowner or Qualified Service Technician
  a. Be sure the appliance is allowed to cool, has been unplugged and the exhaust blower is off.
  b. Remove the left side panel.
  c. Remove the six screws holding the exhaust blower motor to the housing and remove the motor. Using caution as to not damage the gasket when removing the blower. If damage occurs, install a new gasket available as a replacement part.
  d. Vacuum the blower's impellers. Use care not to bend or damage the blower fins.
  e. Using a brush or vacuum attachment, clean the inside of the exhaust outlet.
  f. Reattach the motor. Make sure the wires are attached to the terminals on the blower.

11. <u>Preparing Firebox for Non-Burn Season</u>

- **Frequency:** Yearly
- **By:** Homeowner
  a. Be sure the appliance is allowed to cool, has been unplugged and the exhaust blower is off.
  b. Remove all ash from the firebox and vacuum thoroughly.
  c. Paint all exposed steel, including cast-iron.
     – Purchase high temperature paint from your local retailer.
     – Must use a high-temperature paint made specifically for heating appliances.

12. <u>Soot and Fly Ash: Formation & Need for Removal in Exhaust Venting System.</u>

- **Frequency:** Yearly or more frequently depending on ash build-up.
- **By:** Qualified Service Technician/Homeowner

Be sure the appliance is allowed to cool, has been unplugged and the exhaust blower is off.

The products of combustion will contain small particles of fly ash. The fly ash will collect in the exhaust venting system and restrict the flow of the flue gases.

At start-up if there is incomplete combustion, or if there is a shutdown or incorrect operation of the appliance it will lead to some soot formation. This will collect in the exhaust venting system.

The venting (chimney) system may need to be cleaned at least once a year or more often depending upon the quality of your fuel or if there are any horizontal pipe sections. Ash will build up more quickly in the horizontal sections and elbows.

D. High Ash Fuel Content Maintenance

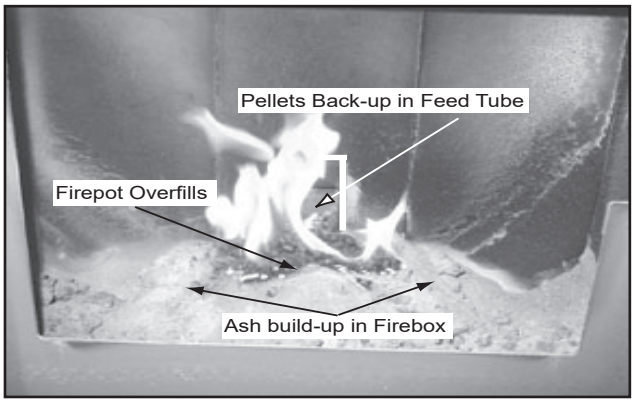
- **Frequency:** As needed
- **By:** Homeowner

Poor quality pellet fuel, lack of maintenance, or if the small dial control is set to a less than optimum setting, poor combustion conditions that make the firepot fill quickly with ashes and clinkers.

This condition makes the appliance susceptible to overfilling the firepot with pellets which may result in smoking, sooting and possible hopper fires. The figure below shows an example where the firepot overfills, pellets back up into the feed tube and ash has accumulated in the firebox.

An inefficient and non-economical method of burning of fuel caused by poor quality pellet fuel is shown below.

If the ash buildup exceeds the half way point in the firepot **IMMEDIATE ATTENTION AND CLEANING IS REQUIRED**.



E. Frequently Asked Questions

What causes my glass to become dirty?
If the glass has white ash build up it is normal and the glass should be cleaned. If it is a black soot build up airflow through the unit may be restricted. The most often cause is overdue maintenance and cleaning. See “Maintaining and Servicing Appliance” in the owner’s manual and/or make adjustments to the trim control.

How can I get more heat out of the appliance?
The most often cause of diminished heat output is overdue maintenance and cleaning. See “Maintaining and Servicing Appliance” in the owner’s manual.

What should I do if I smell smoke or there is ash/soot coming from the appliance?
While there will always be some smoke smell from wood burning appliances (including pellet) you should investigate all venting to make sure it is sealed properly. Most venting requires silicone to seal the seams. In addition most homes are built very tight today and with exhaust systems can create negative pressure in the home. See “Negative Pressure” under “Getting Started” in the owner’s manual if you have checked the venting but still have smoke coming from the appliance. For ash or soot check the above and the exhaust blower housing and seals.

Why would my appliance run fine last winter but not start this fall?
It is possible that the stove was not properly prepared for the Non-burn season. See “Troubleshooting” in the owner’s manual.

Why would the metal on the inside of the appliance begin to flake?
There are some pellet mills that get their raw materials from lumber mills that purchase logs that are transported in sea water. These pellets can have a higher salt content and cause the metals in the unit to corrode prematurely and deteriorate. If you are seeing any components inside the firebox deteriorate it is recommended to change pellet brands immediately.

Is there a place to lubricate the blowers to quiet them down?
The most often cause of noisy blowers is from the impellers becoming dirty over time. See “General Maintenance & Cleaning” under “Maintaining & Servicing Appliance” in the owner’s manual. No form of lubrication should ever need applied to the blowers.

What is the metal object with the bend in it for that came inside the plastic bag?
It is a clean-out tool used to help clean the firepot and remove any jams in the rare event they occur in the feed tube.

Why is there a black residue building up on the outside of my home?
Wind can cause this to happen. If the appliance is operating correctly very little soot should ever exit the termination cap. Also check to be sure the venting is installed per the owner’s manual and local codes.

Do I need an outside air kit?
Outside air is required for mobile home installs and in some jurisdictions. Refer to “Listing & Code Approvals”,“ Mobile Home Installation” and “ Appliance Set-up” owner’s manual. Also refer to local building codes.

I am seeing sparks coming out of my pipe (termination cap) outside is this safe?
This is normal. As long as clearances to combustibles were followed this is safe.

I have no power to anything. Does this unit have a circuit breaker or fuse or a reset button?
This unit has one serviceable fuse on the control board and a resetable snap switch mounted to the feed tube.

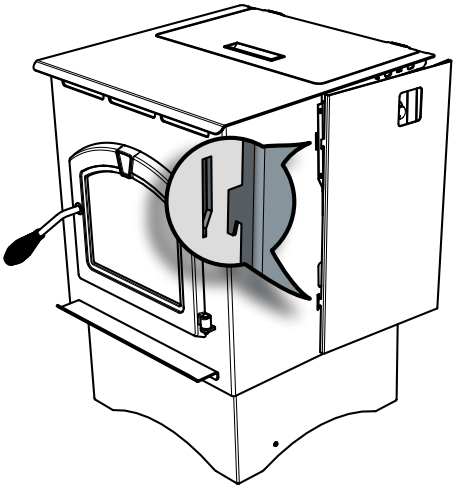
Can I burn corn in my unit?
NO, corn is not an approved fuel.

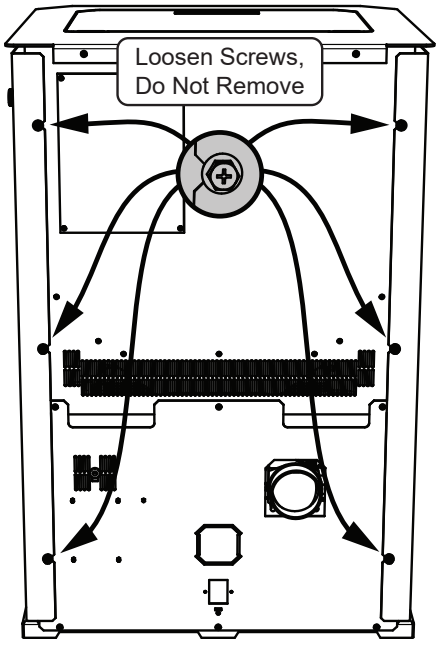
Where is the serial # of my unit is located?
The serial # is located on the back of the stove.

5 Replacement Parts

A. Convection Blower Replacement

1. Turn the dial control to the off position. Unplug the power to the unit.
2. The convection blower is located in the rear of the unit.
3. Using #2 Phillips screwdriver, loosen the bolts on the rear of the unit holding on the side panels. You do not need to remove the screws. Remove side panels by lifting up and out.
4. Unplug the wires from the convection blower motor from the right side of the unit.
5. Remove the two screws holding the convection blower housing to the sheet metal plenum. Using a slight twisting motion, rotate the blower back and it will release.





B. Exhaust Blower Replacement

1. Turn the dial control to the off position. Unplug the power to the unit.
2. Remove the left side panel by loosening the two or three bolts in the rear of the unit.
3. Disconnect 2 white wires from the white and blue wires of the exhaust blower.
4. Remove the blower motor attached to a removable plate on the exhaust blower. Depending on the model, use a 1/4 inch socket, or 1/4 inch Nut Driver or #2 Phillips Head screw driver to loosen the 6 screws in the keyhole shaped holes and rotate the plate. It is only necessary to loosen screws.
5. Remove the exhaust blower and gasket.
6. Check for degradation on the gasket and replace if necessary using the gasket included in the kit.
7. Re-install in reverse order.

C. Snap Disc Replacement

Power - Manual Reset

1. Turn the dial control to the off position. Unplug the power to the unit.
2. Using #2 Phillips screwdriver, loosen the bolts on the rear of the unit holding on the left side panel. You do not need to remove the screws. Remove side panels by lifting up and out.
3. Locate the snap disk on the top side of the feed tube where it meets the hopper. Disconnect the wire leads from the snap disk.
4. Using a #1 Phillips screwdriver, remove two 6-32 fasteners retaining the snap disk onto the side of the feed tube.
5. Using the same fasteners, attach the new snap disk. Attach the wire leads.
6. Restore power.

D. Igniter Replacement

1. Turn the dial control to the off position. Unplug the power to the unit.
2. Unplug the wire leads to the igniter.
3. Loosen the thumb screw in the side of the igniter chamber.
4. If there is difficulty in removing the igniter from the chamber, the chamber can be removed from the rear of the firebox by removing the 1/4-20 bolt.
5. Re-install the new igniter into the chamber. Ensure igniter flange it flush with back of chamber.
6. Tightening the thumb screw.
7. Re-attach wire to terminals.

E. Baffle Removal & Replacement

1. Turn the dial control to the off position. Make sure the unit is cool.
2. Remove the center baffle first by using the handle at the top of the baffle and pull up and then towards you. The hooks on the baffle will slide out of the slots in the bracket.
3. Remove the left baffle and then the right baffle by pulling up and then towards you. The left and right baffles have similar hooks and slots.

F. Glass Replacement

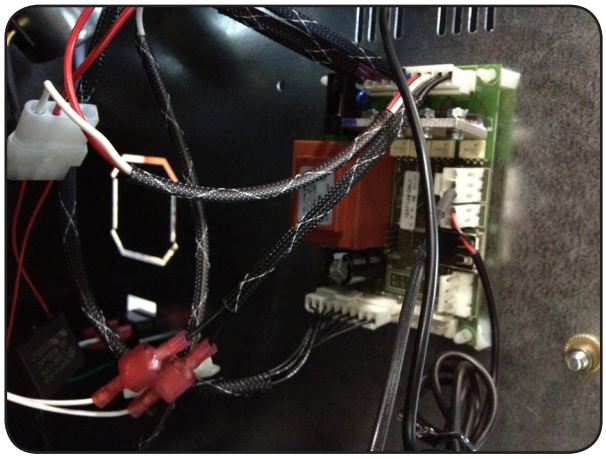
WARNING

- Glass is 5mm thick high temperature heat-resistant ceramic glass.
- DO NOT REPLACE with any other material.
- Alternate material may shatter and cause injury.

1. Open the door from the appliance by lifting door off of hinge pins and lay on a flat surface face down.
2. Using a Phillips Head screw driver, remove the 3 brackets and set aside.
3. Remove old glass and replace with the new glass.
4. Re-install the brackets using the same screws.

G. Control Board Replacement

1. Turn the dial control to the off position. Unplug the power to the unit.
2. Unplug the wires from the control board. The connectors are locking connectors. Pinch the release tab on each connector and gently tug and rock loose.
3. Pinch the 4 plastic pins from the rear of the unit to release the control board connectors.
4. Install new board following the steps in reverse.

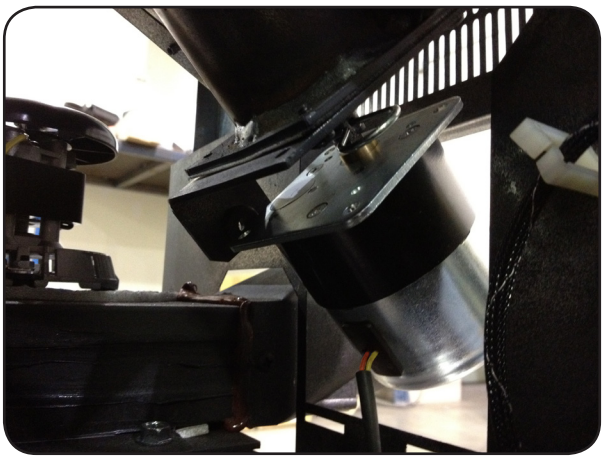


H. Fuse Replacement

1. Turn the dial control to the off position. Unplug the power to the unit.
2. Pull the plastic fuse holder cover off the control board.
3. Replace fuse with 5AMP 120VAC fuse only.
4. Replace the cover on the fuse holder and restart unit.

I. Feed Motor Replacement

1. Turn the dial control to the off position and unplug the unit. Remove the right side panel and feed motor cover plate in the rear of the unit.
2. Unplug the connector from the feed motor.
3. Using pliers, remove the cotter pin.
4. Remove the feed motor from the feed shaft.
5. Reinstall the new feed motor by aligning the clearance hole in the feed motor shaft with the auger spring shaft.
6. Plug the feed motor leads back in and restore power.



J. Feed Spring Replacement

1. Empty the hopper of all pellets then follow the steps to remove the feed motor above.
2. Remove the four screws holding the feed motor bracket on.
3. Slide the auger assembly out from the bottom in the rear of the unit.
4. Inspect the bronze bearings, replace if needed.
5. Install new spring assembly following reverse steps including reattaching the feed motor.

Install Guide

6 Getting Started

A. Design, Installation & Location Considerations

1. Appliance Location

NOTICE: Check building codes prior to installation.

- Installation MUST comply with local, regional, state and national codes and regulations.
- Consult insurance carrier, local building inspector, fire officials or authorities having jurisdiction over restrictions, installation inspection and permits.

It is a good idea to plan your installation on paper, using exact measurements for clearances and floor protection, before actually beginning the installation. Location of the stove and chimney will affect performance.

Consideration must be given to:

- Safety, convenience, and traffic flow
- Placement of the chimney and chimney connector and to minimize the use of chimney offsets.
- Place the stove where there will be a clear passage for a listed chimney through the ceiling and roof (vertical) or through exterior wall (horizontal).
- Installing the required outside air kit will affect the location of the vent termination.

When locating vent and venting termination, the ideal location is to vent above the roof line when possible. This minimizes the affects of wind loading.

NOTICE: Locating the appliance in a location of considerable air movement can cause intermittent smoke spillage from appliance. Do not locate appliance near:

- Frequently open doors
- Central heat outlets or returns

Since pellet exhaust can contain ash, soot or sparks, you must consider the location of:

- Windows
- Air Intakes
- Air Conditioner
- Overhang, soffits, porch roofs, and adjacent walls
- Landscaping, vegetation
- Horizontal or vertical vent termination

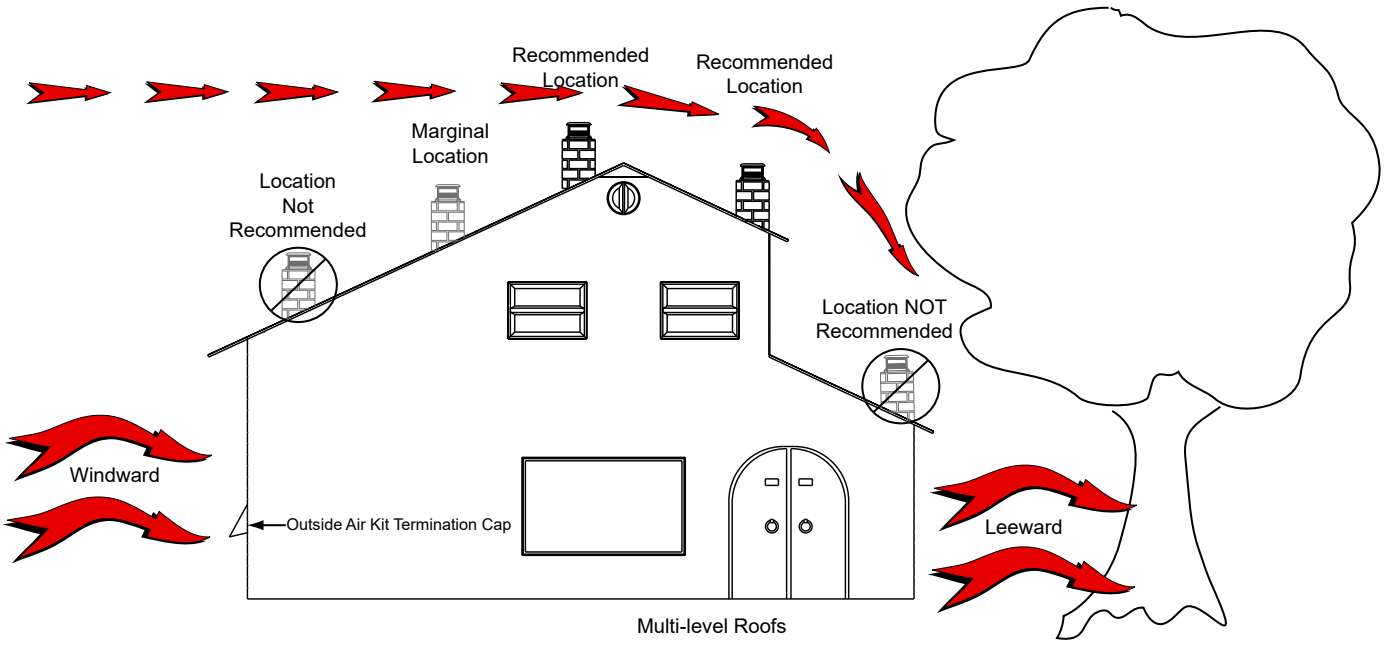
2. Floor Support

The supporting floor under the appliance must be able to handle the weight of the appliance, fuel load and the weight of the chimney.

Ensure that your floor will support these weights prior to installation. Add sufficient additional support to meet this weight requirement prior to installation. The weight of the stove is 195 pounds and with a full load of fuel the maximum weight is 145 pounds.

WARNING

Risk of Fire.
Damaged parts could impair safe operation. Do NOT install damaged, incomplete or substitute components.



B. Draft

Draft is the pressure difference needed to vent appliances successfully. When an appliance is drafting successfully, all combustion by products are exiting the home through the chimney.

Considerations for successful draft include:

- Preventing negative pressure
- Location of appliance and chimney

To measure the draft or negative pressure on your appliance use a magnehelic or a digital pressure gauge capable of reading 0 - .25 inches of water column (W.C.).

The appliance should be running on high for at least 15 minutes for the test. With the stove running on high you should have a negative pressure equal to or greater than the number given in the chart. If you have a lower reading than you find on the chart, your stove does not have adequate draft to burn the fuel properly.

MODEL	Minimum Vacuum Requirements
PH35PS	0.17 inches W.C.
PH50PS	0.17 inches W.C.
PH50CAB	0.17 inches W.C.

Correct low draft or low vacuum problems by doing one of the following:

- Thoroughly clean the exhaust path and venting **(See Maintenance Section)**.
- Inspect for worn or broken gaskets. Repair any gaskets suspected of leaking, or adjust the trim.

NOTICE: GHP assumes no responsibility for the improper performance of the chimney system caused by:

- Inadequate draft due to environmental conditions
- Downdrafts
- Tight sealing construction of the structure
- Mechanical exhausting devices

C. Negative Pressure

WARNING!

Risk of Asphyxiation!
Negative pressure can cause spillage of combustion fumes and soot.

Negative pressure results from the imbalance of air available for the appliance to operate properly. It can be strongest in lower levels of the house.

Causes include:

- Exhaust fans (kitchen, bath, etc.)
- Range hoods
- Combustion air requirements for furnaces, water heaters and other combustion appliances
- Clothes dryers
- Location of return-air vents to furnace or air conditioning
- Imbalances of the HVAC air handling system
- Upper level air leaks such as:
  - Recessed lighting
  - Attic hatch or open windows
  - Duct leaks

To minimize the effects of negative air pressure:

- Install the outside air kit with the intake facing prevailing winds during the heating season
- Ensure adequate outdoor air for all combustion appliances and exhaust equipment
- Ensure furnace and air conditioning return vents are not located in the immediate vicinity of the appliance
- Avoid installing the appliance near doors, walkways or small isolated spaces
- Recessed lighting should be a “sealed can” design
- Attic hatches weather stripped or sealed
- Attic mounted duct work and air handler joints and seams taped or sealed

D. Inspect Appliance & Components

- Remove appliance and components from packaging and inspect for damage.
- Report to your dealer any parts damaged in shipment.
- **Read all the instructions before starting the installation. Follow these instructions carefully during the installation to ensure maximum safety and benefit.**

WARNING

Inspect appliance and components for damage.
Damaged parts may impair safe operation.

- Do NOT install damaged components.
- Do NOT install incomplete components.
- Do NOT install substitute components.

Report damaged parts to dealer.

E. Tools And Supplies Needed

Tools and building supplies normally required for installation, unless installing into an existing masonry fireplace:

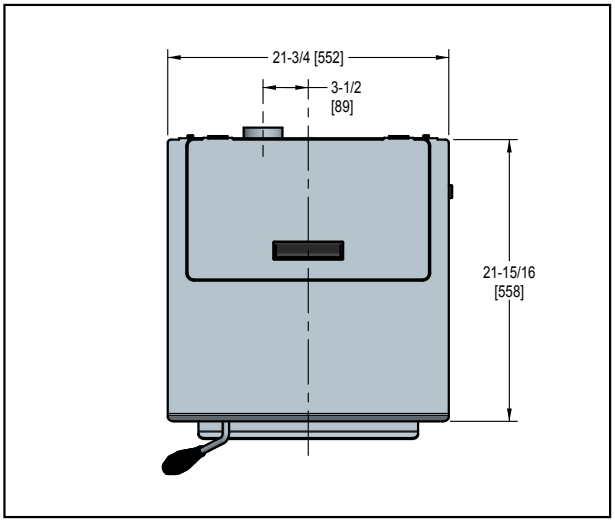
- Reciprocating Saw
- Channel Locks
- Hammer
- Phillips Screwdriver
- Tape Measure
- Plumb Line
- Level
- Framing Material
- Hi-temp Caulking Material
- Gloves
- Safety Glasses
- Framing Square
- Electric Drill & Bits (1/4”)
- 1/4” Self-Tapping Screws

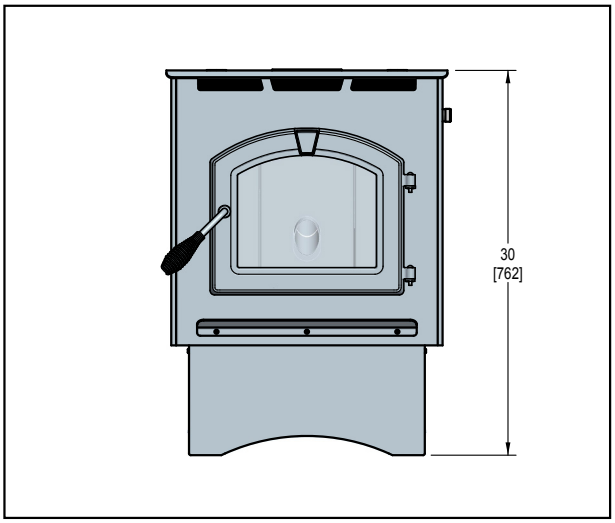
May also need:

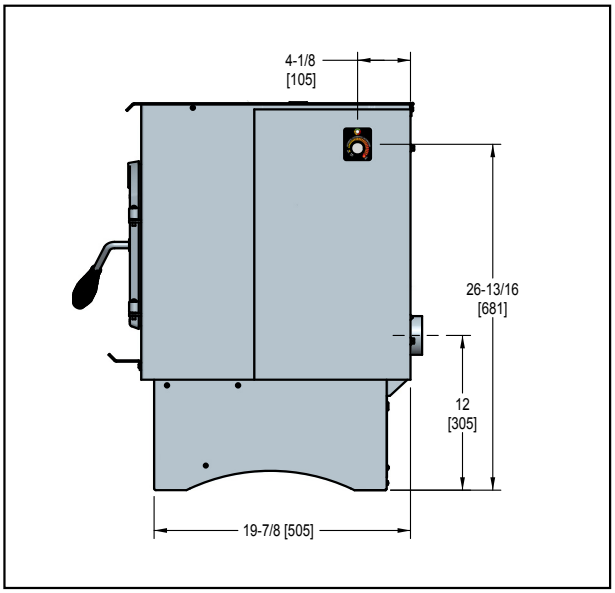
- Vent Support Straps
- Venting Paint

7 Dimensions & Clearances

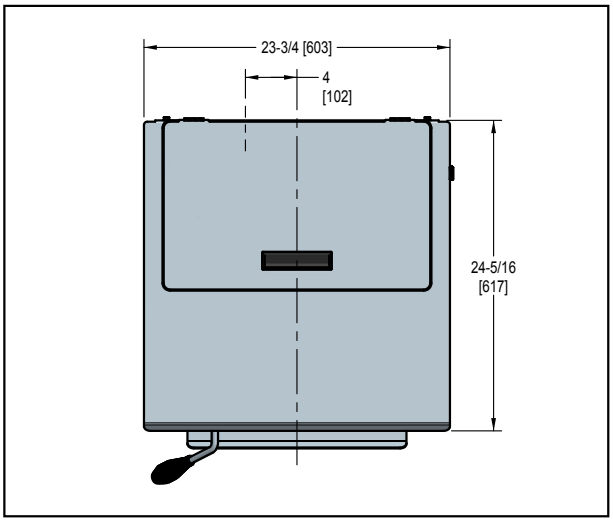
A. Appliance Dimensions: PH35PS

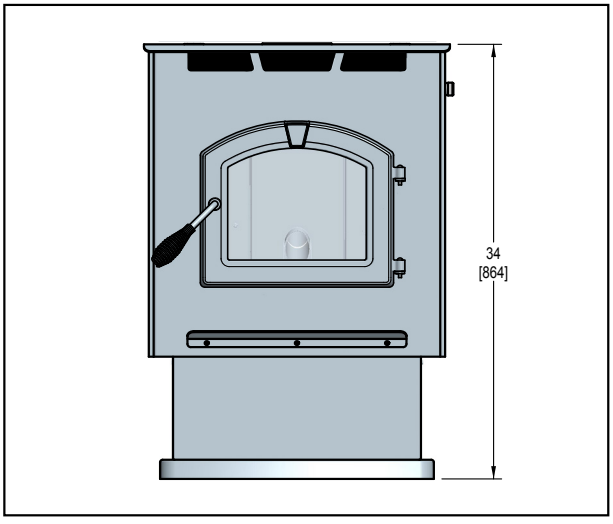


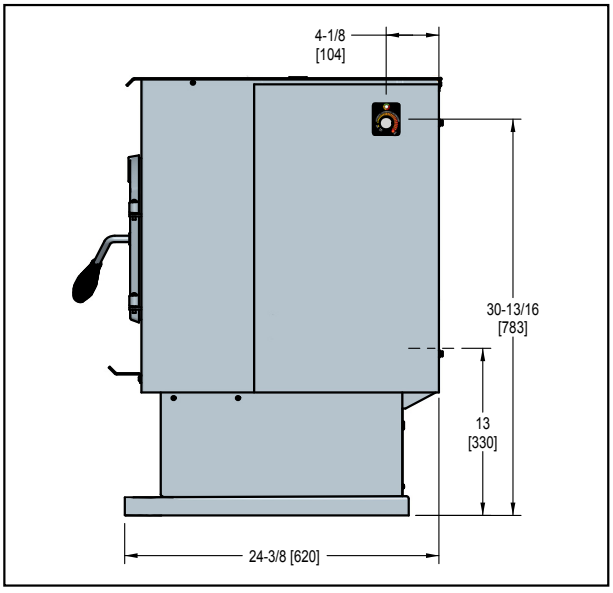




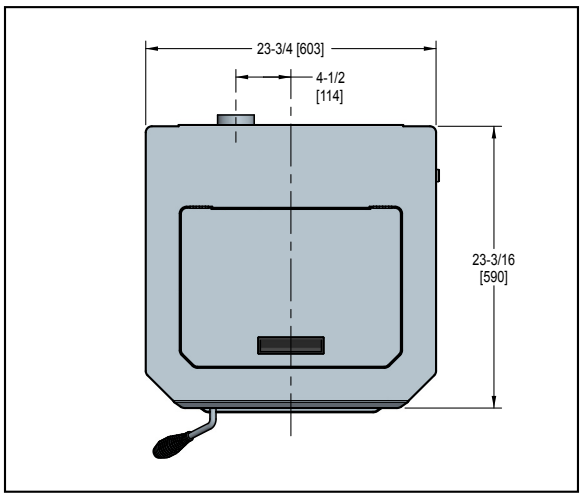
B. Appliance Dimensions: PH50PS

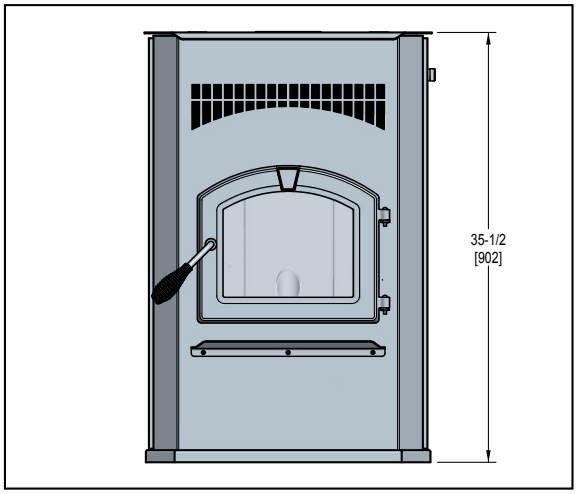


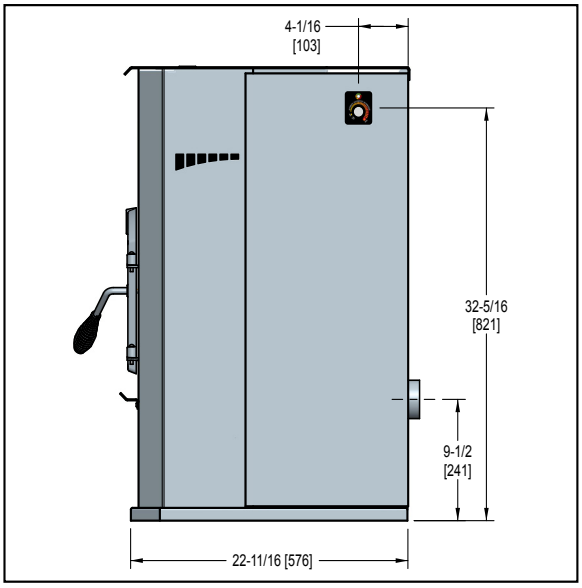




C. Appliance Dimensions: PH50CAB

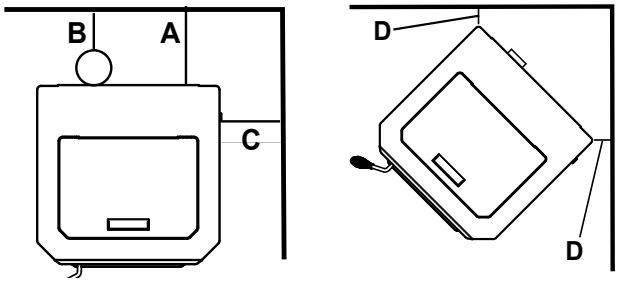






NOTE: Turn to pages 29, 30 and 31 for side views and more detailed images of clearances and installation types.

D. Clearances to Combustibles (UL and ULC)



Vertical Installations (Interior Flue)			
Straight Back Against Wall		**Inches**	**Millimeters**
A	Back Wall to Appliance	2	51
B	Back Wall to Flue Pipe	3	76
C	Side Wall to Appliance	13	330

Corner Installation		**Inches**	**Millimeters**
D	Walls to Appliance	3	76

Horizontal Flue Installations			
Straight Back Against Wall		**Inches**	**Millimeters**
A	Back Wall to Appliance	2	51
B	Back Wall to Flue Pipe	3	76
C	Side Wall to Appliance	13	330

* Follow pipe manufacture listed clearance

CAUTION

- Do NOT connect this unit to a chimney flue servicing another appliance.
- Do NOT connect to any air distribution duct or system.

WARNING

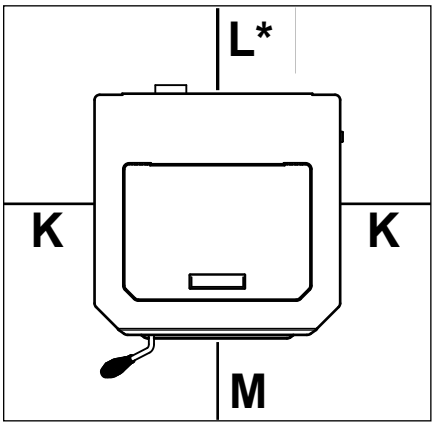
HOT SURFACES!
Glass and other surfaces are hot during operation AND cool down.

Hot glass will cause burns.

- Do not touch glass until it is cooled
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as fireplace.
- Alert children and adults to hazards of high temperatures.
- **High temperatures may ignite clothing or other flammable materials.**
- Keep clothing, furniture, draperies and other flammable materials away.

E. Hearth Pad Requirements (UL and ULC)

Use a non-combustible floor protector, extending beneath appliance and to the front, sides and rear as indicated. Measure front distance “M” from the surface of the glass door.

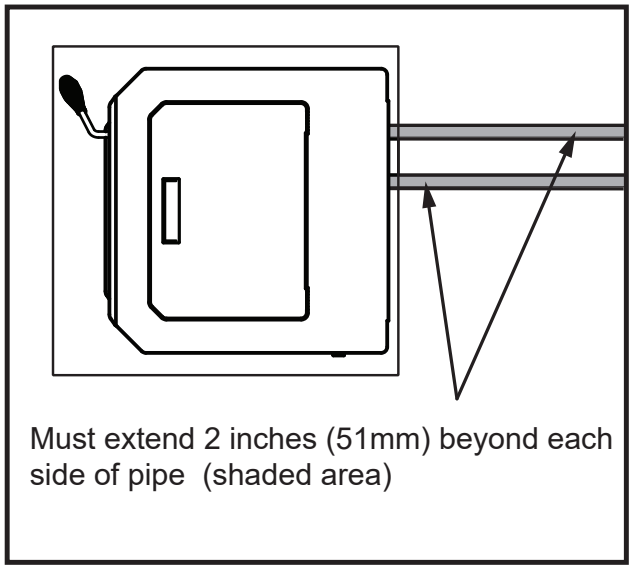


USA Hearth Pad Requirements

Hearth Pad Requirements		Inches
K	Sides	2
L*	Back	2
M	Front	6

Canada Hearth Pad Requirements

Hearth Pad Requirements		Millimeters
K	Sides	203
L*	Back	51
M	Front	152



***Exception for Horizontal Installations:**
CANADA INSTALLATIONS: A non combustible floor protections extending beneath the flue pipe is required with horizontal venting or under the top vent adapter with vertical installation.

USA INSTALLATIONS: A non-combustible floor protection extending beneath the flue pipe is recommended with horizontal venting or under the top vent adapter with vertical installation.

A non combustible floor protector is required.

WARNING

If the information in these instructions is not followed exactly, a fire may result causing property damage, personal injury, or death.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Do not over fire - If heater or chimney connector glows, you are over firing. Over firing will void your warranty.
- Comply with all minimum clearances to combustibles as specified. Failure to comply may cause house fire.

8 Vent Information

A. Chimney and Exhaust Connection

1. **Chimney & Connector:** Use 3 or 4 inch (76-102mm) diameter type "L" or "PL" venting system. It can be vented vertically or horizontally.
2. **Mobile Home:** Approved for all Listed pellet vent. If using the 3 inch (76mm) vertical Top Vent Adapter Kit or the 3 to 6 inch (76-152mm) Top Vent Offset Adapter, use Listed double wall flue connector. An authorized Outside Air Kit must be used with manufactured home installations.
3. **Residential:** The 3 inch (76mm) vertical Top Vent Adapter Kit and the 3 to 6 inch (76-152mm) Top Vent Offset Adapter are tested to use 24 gauge single wall flue connector or Listed double wall flue connector to Class A Listed metal chimneys, or masonry chimneys meeting International Conference of Building Officials (ICBO) standards for solid fuel appliances.
4. **Install vent at clearances specified by the vent manufacturer.**
5. Secure exhaust venting system to the appliance with at least 3 screws or rivets per the pipe manufacturer's instructions. Also secure all connector pipe joints with at least 3 screws through each joint.
6. DO NOT INSTALL A FLUE DAMPER IN THE EXHAUST VENTING SYSTEM OF THIS UNIT.
7. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.

NOTE: All pipe must be welded seam pipe whenever possible. Seal pipe joints with high temperature silicone (500°F [260°C] minimum rated only). Do not put silicone inside of pipe.

WARNING

Fire Risk.
Follow Chimney Connector Manufacturer's Instructions for Proper Installation.

ONLY use connector:

- Within the room, between appliance and ceiling or wall.
- Connector shall NOT pass through:
  - Attic or roof space
  - Closet or similar concealed space
  - Floor or ceiling

Maintain minimum clearances to combustibles

WARNING

Vent surfaces get HOT, can cause burns if touched. Non-combustible shielding or guards may be required.

B. Venting Termination Requirements

CAUTION

Do not terminate vent in any enclosed or semi-enclosed area such as a carport, garage, attic, crawl space, under a sun deck or porch, narrow walkway or closely fenced area, or any location that can build up a concentration of fumes such as a stairwell, covered breezeway, etc.

1. Termination must exhaust above air inlet elevation. **It is strongly recommended that at least 60 inches (1.5m) of vertical pipe be installed when appliance is vented directly through a wall.** This will create a natural draft, which will help prevent the possibility of smoke or odor venting into the home during a power outage. It will also keep exhaust from causing a nuisance or hazard by exposing people or shrubs to high temperatures. The safest and preferred venting method is to extend the vent vertically through the roof.
2. Distance from doors and opening windows, or gravity or ventilation air inlets into building:
   - Not less than 48 inches (1.2m) below;
   - Not less than 48 inches (1.2m) horizontally from;
   - Not less than 12 inches (305mm) above.
3. Distance from permanently closed windows;
   - Not less than 12 inches (305mm) below; horizontally from or above.
4. Distance between bottom of termination and grade should be 12 inches (305mm) minimum. This is conditional upon plants in the area, and nature of grade surface. The grade surface must be a non-combustible material (i.e., rock, dirt). The grade surface must not be lawn. Distance between bottom of termination and public walkway should be 7 feet (2.13m) minimum.
5. Distance to combustible materials must be 24 inches (610mm) minimum. This includes adjacent buildings, fences, protruding parts of the structure, roof overhang, plants and shrubs, etc.
6. Termination Cap Location (Home Electrical Service)
   - Side-to-side clearance is to be the same as minimum clearance to vinyl inside corners.
   - Clearance of a termination cap below electrical service shall be the same as minimum clearance to vinyl soffits.
   - Clearance of a termination cap above electrical service will be 12 inches (305mm) minimum.
   - Location of the vent termination must not obstruct or interfere with access to the electrical service.

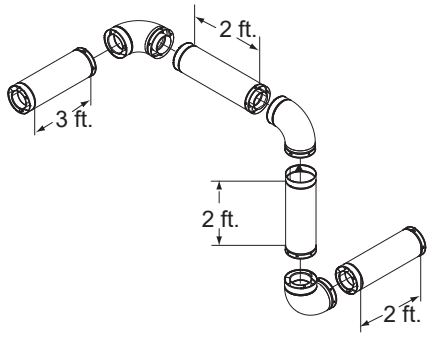
C. Equivalent Feet of Pipe

The table below can help you calculate the equivalent feet of pipe which is a method used to determine pellet vent size.

WARNING

Vent surfaces get HOT, can cause burns if touched. Non-combustible shielding or guards may be required.

Example of 3 Elbow-Rear Vent Termination Calculation



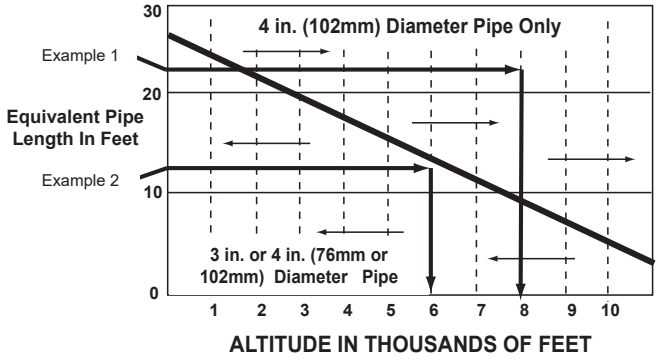
PELLET VENTING COMPONENT	# OF ELBOWS	FEET OF PIPE	MULTIPLIED BY	EQUIVALENT FEET	COMPONENTS EQUIVALENT FEET
90° Elbow or Tee	3		X	5	15
45° Elbow			X	3	
Horizontal Pipe		7	X	1	7
Vertical Pipe		2	X	0.5	1
				Total Equivalent Feet	23

NOTE: This is a generic example and is not intended to represent any specific fuel type.

D. Pipe Selection Chart

The chart will help you in determining proper venting size according to the equivalent feet of pipe calculated previously and the altitude above sea level of this installation.

a. Locate the calculated equivalent feet of pipe on the vertical left side of the chart.
b. Move to the right horizontally on the chart until you reach your altitude above sea level.
c. If you fall below the diagonal line, 3 or 4 inch (76 to 102mm) pipe may be used.
d. If it is anywhere above the diagonal line, a 4 inch (102mm) diameter pipe is required.



Example 1: If the equivalent length of pipe is 23 feet (7m) with altitude of 8,000 feet (2438m) you must use 4 inch (102mm) diameter type “L” or “PL” vent.

Example 2: If the equivalent length of pipe is 12 feet (3.7m) with altitude of 6,000 feet (1829m) you may use 3 or 4 inch (76 to 102mm) diameter type “L” or “PL” vent.

NOTICE:
- A 90° elbow is 5 times as restrictive to the flow of exhaust gases under positive pressure as 1 foot (305mm) of horizontal pipe.
- A foot of horizontal pipe is twice as restrictive as a foot of vertical pipe.

WARNING

Risk of Fire!
- Only LISTED venting components may be used.
- NO OTHER vent components may be used.
- Substitute or damaged vent components may impair safe operation.

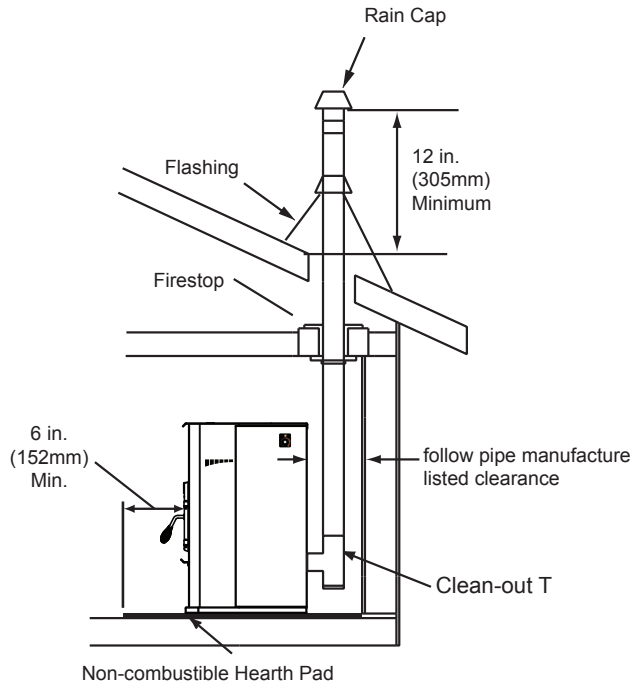
WARNING

Risk of Injury or Property Damage.
- Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.
- Refer to the owner’s information manual provided with this appliance.
- For assistance or additional information consult a qualified installer, service agency or your dealer.

9 Venting Systems

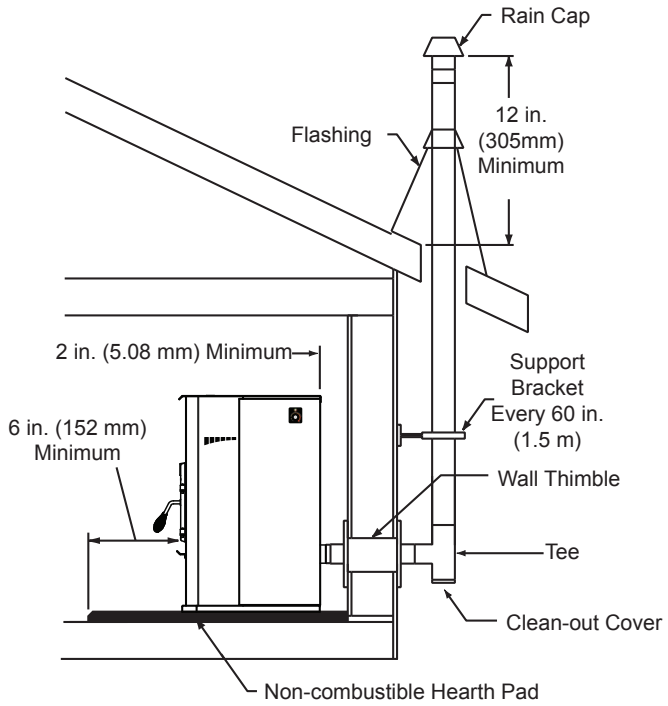
A. Vertical - Interior - Typical Installation

PREFERRED METHOD #1

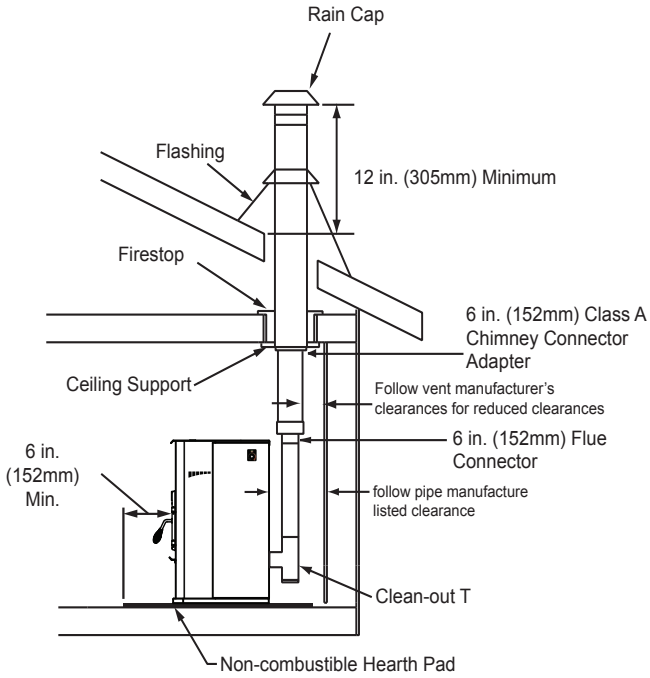


B. Through The Wall & Vertical - External - Horizontal

PREFERRED METHOD #2



C. Vertical into Existing Class A Chimney



We strongly recommend a minimum of 60 inches (1.5m) vertical, however above the eave is preferred.

Both installations are approved for mobile home installations. Must use 3 or 4 inch (76 to 102mm) “L” or “PL” Listed pellet venting or Listed double wall pipe and authorized Outside Air Kit in mobile homes. Single wall pipe is approved for residential installations only.

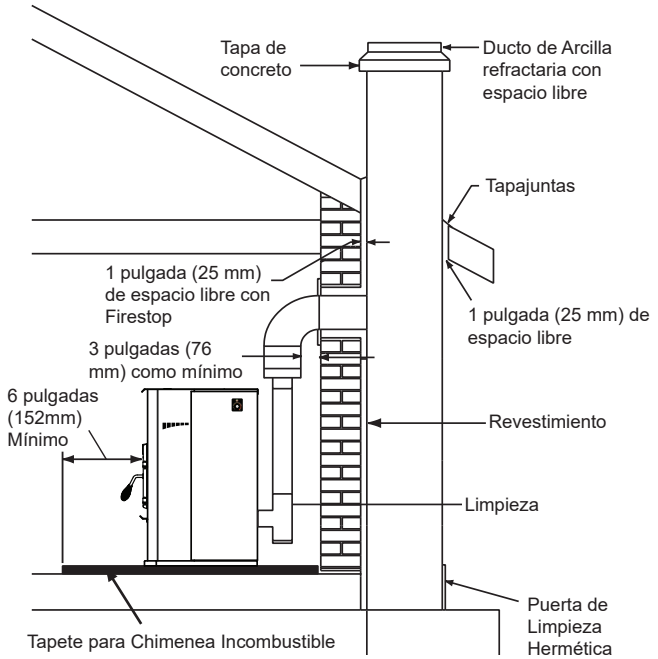
Air Clearance to Pipe:
This appliance was tested with standard 3 inch (76mm) Listed pellet vent.

Pellet pipe manufacturers Listed reduced clearance pipe may be use for reduce clearance from 3 inch (76mm) air clearance to no less than 1 inch (25mm) air clearance to combustibles for approved Listed pellet pipe.

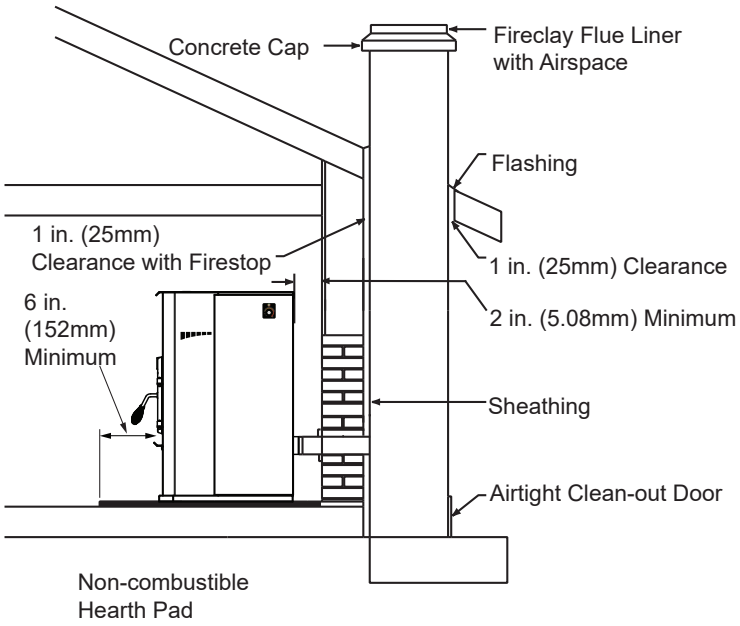
Follow pipe manufactures listed air clearances to combustibles and installation instructions for all reduced air clearances installations.

NOTICE: These are guidelines for successful venting of your pellet appliance. The more vertical rise you can obtain in your system, the better it will perform. Horizontal vent runs can accumulate ash and will need to be cleaned more often. Try to keep them as short as possible.

D. Masonry



E. Alternate Masonry



WARNING

Fire Risk

Inspection of Chimney:

- Masonry chimney must be in good condition.
- Meets minimum standard of **NFPA 211**
- Factory-built chimney must be minimum 6 inch (152mm) **UL103 HT**.

WARNING

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to the owner's information manual provided with this appliance. For assistance or additional information consult a qualified installer, service agency or your dealer.

F. Through The Wall

Horizontal termination cap must be a minimum of 6 inches. (152mm) from the wall. Approved for mobile home installations. Must use 3 or 4 inch (76-102mm) “L” or “PL” listed pellet venting or Listed double wall pipe and an authorized Outside Air Kit in mobile homes.

NOTICE: Please note that while the minimum clearance for the termination cap is 6 inches (152mm) there is the possibly of soot build-up around the termination area. If this occurs we suggest to move the termination further away from the house to prevent it. The suggested minimum is 12 inches.

NOTE: In Canada, where passage through a wall or partition of combustible construction is desired, the installation shall conform to **CAN/CSA-B365**

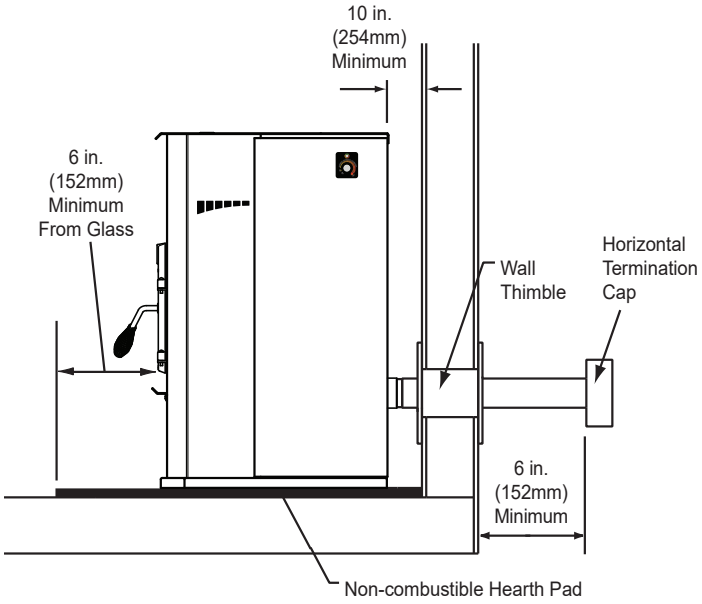
CAUTION

DO NOT DOWNWARD VENT.

The following will occur:

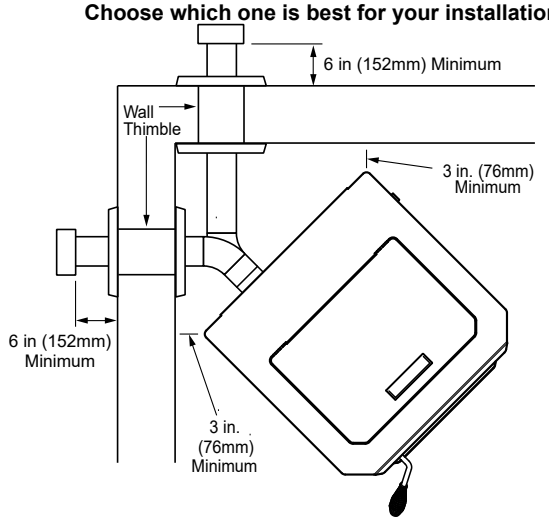
- The appliance will not vent properly
- Smoke spillage in the house
- Excessive sooting

Straight Out



45 Degrees

Illustration shows venting going in both directions. Choose which one is best for your installation.



10 Mobile Home

A. Mobile Home Installation

You must use an authorized Outside Air Kit for installation in a mobile home.

1. An outside air inlet must be provided for the combustion air and must remain clear of leaves, debris, ice and/or snow. It must be unrestricted while the appliance is in use to prevent room air starvation which causes smoke spillage. Smoke spillage can also set off smoke alarms.
2. The combustion air duct system must be made of metal. It must permit zero clearance to combustible construction and prevent material from dropping into the inlet or into the area beneath the dwelling and contain a rodent screen.
3. The appliance must be secured to the mobile home structure by bolting it to the floor (using lag bolts) with two attachment points. Use the same holes that secured the appliance to the shipping pallet.
4. The appliance must be grounded with #8 solid copper grounding wire or equivalent, terminated at each end with an NEC approved grounding device.
5. Refer to Clearances to Combustibles and floor protection requirements for listings to combustibles and appropriate chimney systems.
6. Use silicone to create an effective vapor barrier at the location where the chimney or other component penetrates to the exterior of the structure.
7. Follow the chimney manufacturer's instructions when installing the vent system for use in a mobile home.
8. Installation shall be in accordance with the **Manufacturers Home & Safety Standard (HUD) CFR 3280, Part 24**.

WARNING

Products of combustion generate carbon monoxide and different fuels generate different levels. Carbon monoxide

- Only use approved fuels in this appliance.
- Always keep door shut during operation. Operating this appliance with doors open can allow CO to leak into the home.

CO can kill you before you are aware it is in your home. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure.

WARNING

It is critical to have a working smoke detector installed in the home of appliance operation.

- Smoke alarms that are properly installed and maintained play a vital role in reducing fire deaths and injuries. Having a working smoke alarm reduces the chance of fire related injuries.

CAUTION

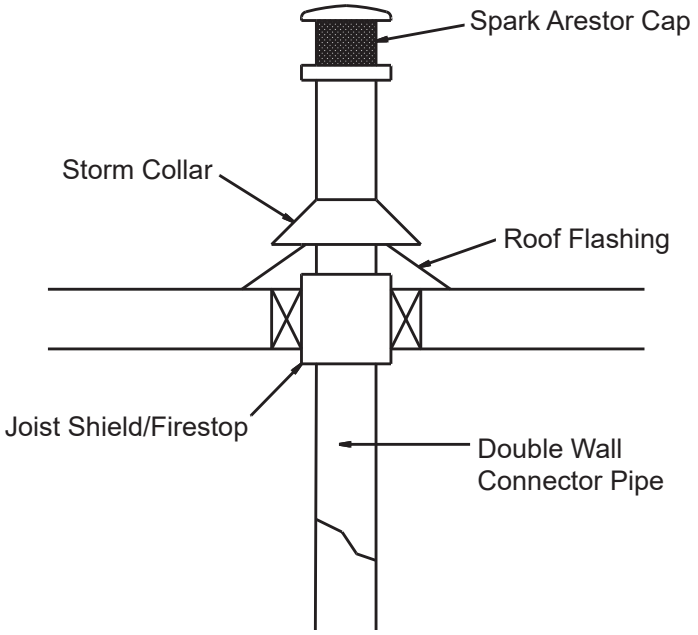
THE STRUCTURAL INTEGRITY OF THE MOBILE HOME FLOOR, WALL AND CEILING/ROOF MUST BE MAINTAINED

Do NOT cut through:

- Floor joist, wall, studs or ceiling trusses.
- Any supporting material that would affect the structural integrity.

This stove is to be connected to a factory-built chimney conforming to C**AN/ULC-S629, Standard for 650°C Factory-Built Chimneys**.

For removal of the chimney for mobile home transportation, contact the proper transportation officials.



CAUTION

Never draw outside combustion air from:

- Wall, floor or ceiling cavity
- Enclosed space such as an attic, garage or crawl space.

WARNING

Installation must comply with **Manufactured Home and Safety Standard (HUD), CFR 3280, Part 24**.

WARNING

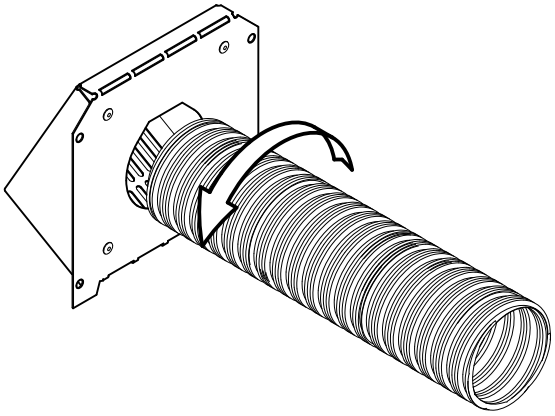
Asphyxiation Risk.
NEVER INSTALL IN A SLEEPING ROOM.
Consumes oxygen in the room.

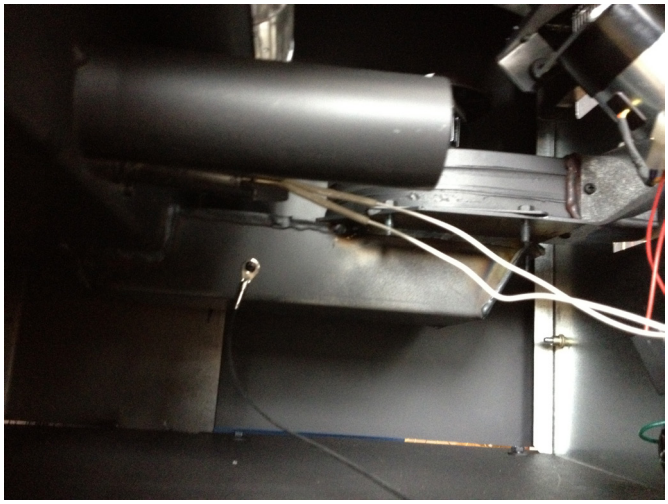
11 Appliance Set-Up

A. Outside Air Kit Instructions

An outside air kit has been provide standard with the appliance. It is highly recommended to use the outside air kit for maximum performance and to reduce effects from negative pressure in the home.

For attachment to this platform, knock out the rectangular plate in the rear of the unit and slide the tube in the rear of the unit. Using the hose clamp, attach the flex pipe to the 2” tube welded to the rear of the firebox as shown in the photo.





CAUTION

Never draw outside combustion air from:

- Wall, floor or ceiling cavity
- “Enclosed space such as an attic, garage or crawl space.

B. Power up the Unit

Plug the unit into 120VAC power.

CAUTION

Shock hazard.

- Do NOT remove grounding prong from plug.
- Plug directly into properly grounded 3 prong receptacle.
- Route cord away from appliance.
- Do NOT route cord under or in front of appliance.

WARNING

DISCONNECT ELECTRICAL SUPPLY BEFORE SERVICING.

12 Troubleshooting

With proper installation, operation, and maintenance your appliance will provide years of trouble-free service. If you do experience a problem, this troubleshooting guide will assist a qualified service person in the diagnosis of a problem and the corrective action to be taken. This troubleshooting guide can only be used by a qualified service technician.

Symptom	Possible Cause	Corrective Action
Plug in appliance - No response.	No Power to outlet. 5 amp fuse defective or blown Snap disc tripped or defective.	Check circuit breaker at service panel. Replace fuse. Reset or replace snap disc.
Unit Will Not Light	No Fuel Out of fuel. Vacuum switch not closing, no vacuum. Hopper lid open. Defective hopper switch. Feed System is Jammed Feed motor not plugged in No Igniter Igniter not plugged in Igniter not centered Igniter defective Firepot Plugged Firepot dirty Firepot in backwards Too much debris in the bottom of the firepot	Check hopper. Fill with fuel. Check exhaust blower is plugged in and operating. Check vacuum switch is plugged in Check vacuum hose is in good condition clear and connected at both ends Make sure venting system is clean Make sure front door is closed Check vacuum switch fitting on side of feed tube for blockage Close Hopper Lid Check hopper switch operation Inspect and un-jam the feed assembly Reconnect feed motor Plug the igniter in Center the igniter Igniter seated in chamber completely Replace igniter Clean firepot Clean below the firepot Put the firepot in the correct direction Clean firepot
Fire starts but goes out	Firepot is dirty Exhaust path and/or venting is plugged Exhaust sensor cannot read correct temperature Exhaust path is dirty Exhaust probe is not attached to outlet Exhaust probe is not plugged in to the board Exhaust probe is defective (error code may result)	Clean firepot. Check flue vent for obstruction Inspect and clean exhaust path and venting clean firebox including behind the baffles Inspect and clean the exhaust outlet especially the right side wall. Remove the right side panel and inspect to see if the exhaust probe is attached and tight against the exhaust outlet Plug the probe into the board Replace the exhaust probe
Unit start and stops frequently when operating in the automatic mode	Area were the unit is installed heats and cools quickly depending on installation configuration. Tight spaces also may have an effect on the on/off cycling of the unit. Ambient probe Probe touching heated surface	Check the proximity to doors and windows and/or insulation factor of the structure. If heat loss is quick the unit may need to run on max or minimum. Inspect the probe and make sure it is not touching a surface that heats and cools quickly. The ambient probe has additional wire inside rear cavity which can be used to increase the distance from the unit.

Symptom	Possible Cause	Corrective Action
Slow or smoky start-up and/or lazy flame	Dirty exhaust and/or venting system. Not enough combustion air Misaligned igniter Wet fuel / poor quality fuel	Check for ash build up in unit, including behind rear panels, firebox, exhaust blower and venting. Adjust the trim Center the igniter in the chamber Replace fuel
Convection blower fails to start.	Convection Blower Jammed Not plugged in Exhaust probe Not sensing correct temperature Control box is defective.	 Inspect, clean, and un-jam the blower. Plug the blower in Replace blower Clean the exhaust outlet especially the right side. Replace control box.
Exhaust blower fails to start	Exhaust Blower Jammed Not plugged in Control board is defective.	 Inspect, clean, and un-jam the blower. Plug the blower in Replace blower Replace control board.
Convection Blower Does Not Turn Off	Convection blower short circuit. The fuse will be blown and upon replacement of the fuse, the blower will run continuously.	Inspect wires, blowers, and power cord to find cause of short circuit. Replace board and failed component.
Convection Blower makes noise	Screws attaching convection blower to appliance have become loose. Convection blower is dirty	Tighten screws Clean blower impellers
Exhaust Blower Does Not Turn Off	Exhaust blower short circuit. The fuse will be blown and upon replacement of the fuse, the blower will run continuously.	Inspect wires, blowers, and power cord to find cause of short circuit. Replace board and failed component.
Igniter does not turn off	Igniter short circuit. The fuse will be blown and upon replacement of the fuse, the igniter will remain on when unit has power.	Inspect wires, blowers, and power cord to find cause of short circuit. Replace board and failed component.
Feed motor does not shut off	Feed motor short circuit. The fuse will be blown and upon replacement of the fuse, the feed motor will remain on when unit has power.	Open hopper to stop the feed motor. Inspect wires feed motor, control board, and power cord to find source of short circuit. Replace control board and failed component.
Unit fails to shut off.	Unit running in maximum or minimum	Turn dial control to Automatic or Off position. See Also, “Feed Motor Does Not Shut Off”. The unit should go into a shutdown.
Large, lazy flame, orange color. Black ash on glass.	Dirty appliance. Poor fuel quality, high ash content. Incorrect air-fuel adjustment Excessive feeding/Feed Motor locked on	Clean unit, including firepot and venting system. Clean exhaust path. Try a different brand of pellets. Turn fuel adjustment trim dial to LEFT to increase combustion air speed. Follow corrective action for feed motor does not turn off symptom.
Excessive fuel spilling over the firepot into the ash wells and/or excessive flame	Excessive feeding/Feed Motor locked on	Follow corrective action for feed motor does not turn off.
Black soot on the side of the house	Exhaust path is dirty. Excessive feeding/Feed Motor locked on Incorrect air-fuel ratio	Clean Exhaust path Follow corrective action for feed motor does not turn off symptom. Turn fuel adjustment trim dial to the LEFT to increase combustion air speed See “Trim Adjustment” section on Page 9.

Following correction of any Alarm, turn the dial control to the OFF position, wait 10 seconds and turn back to desired setting OR unplug the unit, wait 10 seconds then restore power.

Alarm (LED Flashing RED)	Possible Cause	Corrective Action
1 Flash: Empty Hopper	No fuel is delivered to the firepot to sustain flame Hopper empty (most likely) Auger Jam (next likely) No vacuum Hopper lid open Flame is evident but the exhaust probe is not able to recognize the hot exhaust temperature Exhaust probe not attached to outlet Exhaust path is dirty	Fill the hopper, inspect the feed tube for jams, inspect the venting and firebox for obstructions and clean if necessary, inspect the exhaust blower to make sure it runs, or close the hopper lid. Inspect and clean the exhaust outlet, firebox, firepot, and behind the baffles. Inspect the exhaust probe to see if it is securely attached to the side of the exhaust outlet.
2 Flashes: Exhaust Probe Fail The exhaust probe senses a temperature of less than negative 20 degrees Celsius or above 300 degrees Celsius.	The exhaust temperature is above or below the acceptable range. Exhaust Probe Failure Not plugged in Failed component	Plug the probe into the board Replace the component
3 Flashes: Ambient Probe Alarm The ambient probe senses a temperature of less than negative 20 degrees Celsius or above 70 degrees Celsius.	The ambient temperature is above or below the acceptable range. Ambient Probe Failure Not plugged in Failed component	Plug the probe into the board Replace the component
4 Flashes: Missed Ignition During the ignition sequence the load does not ignite. The unit will automatically retry once from the first failed attempt.	Fuel No fuel Hopper Empty Feed Jam Feed doesn't turn Feed motor disconnected or failed Firepot Firepot Dirty so fuel is not near ignition hole in the firepot Igniter No power Debris in the end of the igniter chamber	Fill the hopper Inspect and clear jam in the feed tube Inspect the feed motor circuit (hopper lid must be closed, vacuum switch must be closed (ie. exhaust blower on), and feed motor must be plugged in. Clean the firepot Check leads and if the igniter works. Clean the end of the igniter chamber from inside the firebox (removal of the firepot required for this step).
8 Flashes: Exhaust Over Temperature The exhaust temperature has exceeded the allowable temperature.	Fuel Feed Motor Locked On Non-approved fuel used Convection blower Dirty Failed Installation Installation configuration is tight allowing for limited air circulation around the unit.	Review the feed motor and feed rates. Normal feed motor operation is on between 1* and 4* seconds out of every 7 seconds. (*Depending on model and burn rate setting) If the feed motor does not turn off, replace the control board. Review the fuel being used. Clean Replace Review the installation and move if necessary.

13 Reference Materials

A. Component Function

When describing the location of a component, it is always AS YOU FACE THE FRONT OF THE APPLIANCE.

1. **Control Board**
   The control board is located on the right side of the appliance behind the lower right side panel.

2. **Convection Blower**
   The convection blower is mounted in the rear of the unit. It pushes air up the rear of the firebox, across the top and out the front. As the air moves past the firebox it is heated.

3. **Exhaust Blower**
   The exhaust blower is mounted on the left side of the appliance. The exhaust blower is designed to pull the exhaust from the appliance and push it out through the venting system.

4. **Feed System**
   The feed system can be accessed in two areas. To access the auger spring, remove the cover in the hopper. To remove the feed motor, remove the side panel and motor cover plate in the rear of the unit.

5. **Firepot**
   The firepot is made of a combination of stainless steel and heavy duty cold rolled steel. It is removable to aid in cleaning.

6. **Fuse**
   The fuse is located on the control board. The fuse will blow should a short occur and shut off power to the appliance.

7. **Dial Control**
   The dial control is attached to the right side of the appliance. The large dial controls the heat output where as the small dial below the large dial is the trim feature. The LED blinks according to the state of the appliance.

8. **Hopper Switch**
   The hopper switch is located in the upper right hand corner of the hopper. This switch is designed to shut down the feed motor whenever the hopper lid is opened.

9. **Igniter**
   The igniter is mounted in the chamber in the rear of the firebox below the convection blower. Combustion air travels over the red hot igniter creating super heated air that ignites the pellets.

10. **Power Supply**
    The power cord connector in the rear of the unit. Check the wall receptacle for 120 volt, 60 Hz (standard current). Make sure the outlet is grounded and has the correct polarity. A good surge protector is recommended.

11. **Exhaust Probe**
    The exhaust probe is mounted to the side of the exhaust outlet in the rear of the unit. It senses the temperature of the exhaust and allows the control system to make decisions.

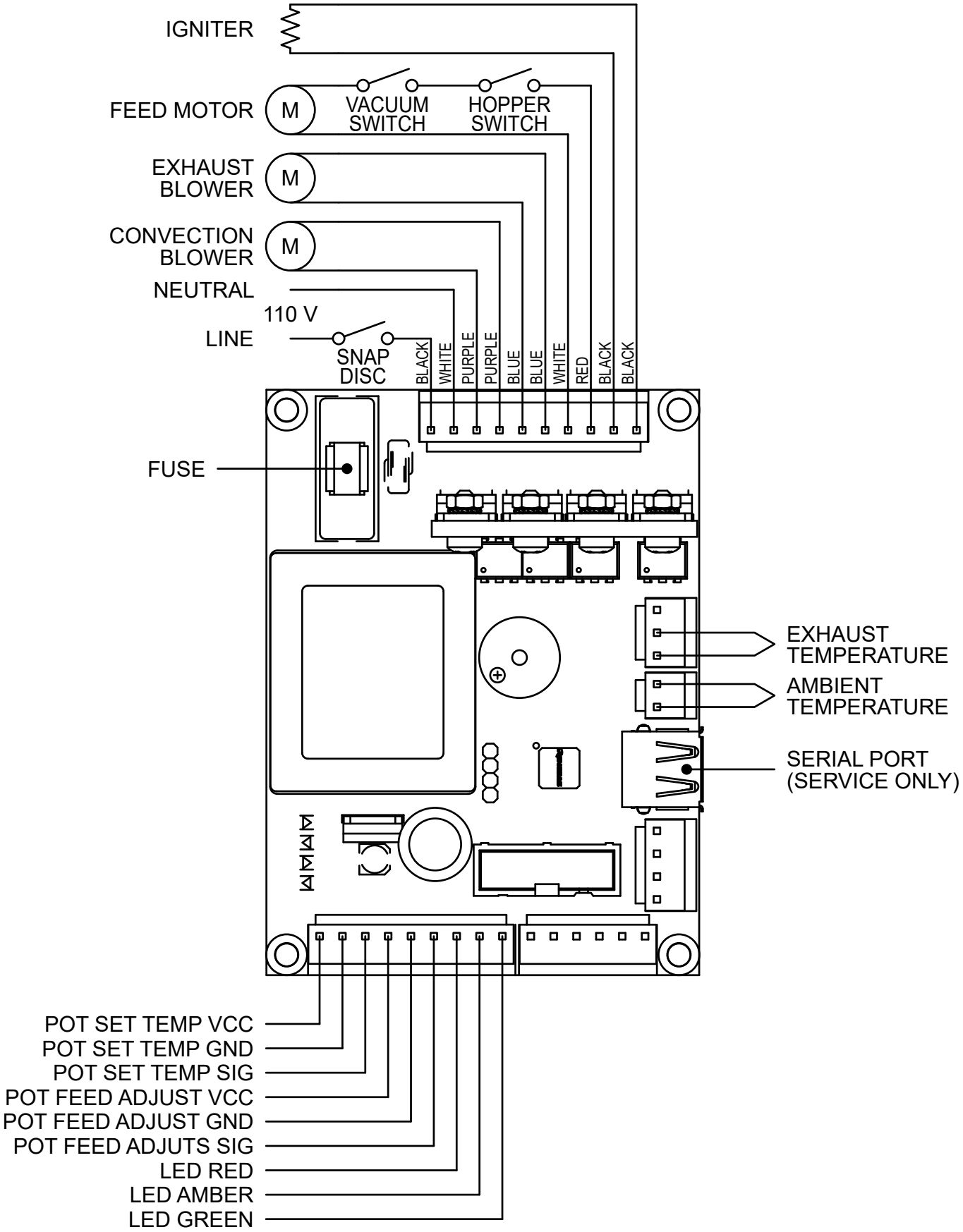
12. **Ambient Probe**
    The ambient probe is located in the back panel. It has extra wire to increase distance from appliance if needed.

13. **Snap Disc (Back Burn Protector) 200°F**
    Snap disc is mounted on the back of the auger tube in the center of the appliance and has a reset button. There are two grey wires connected to it. To access it remove the right side panel. If the fire tries to burn back into the feed system or push exhaust up the feed tube, this snap disc will shut the entire system off. Unplug the stove prior to resetting.

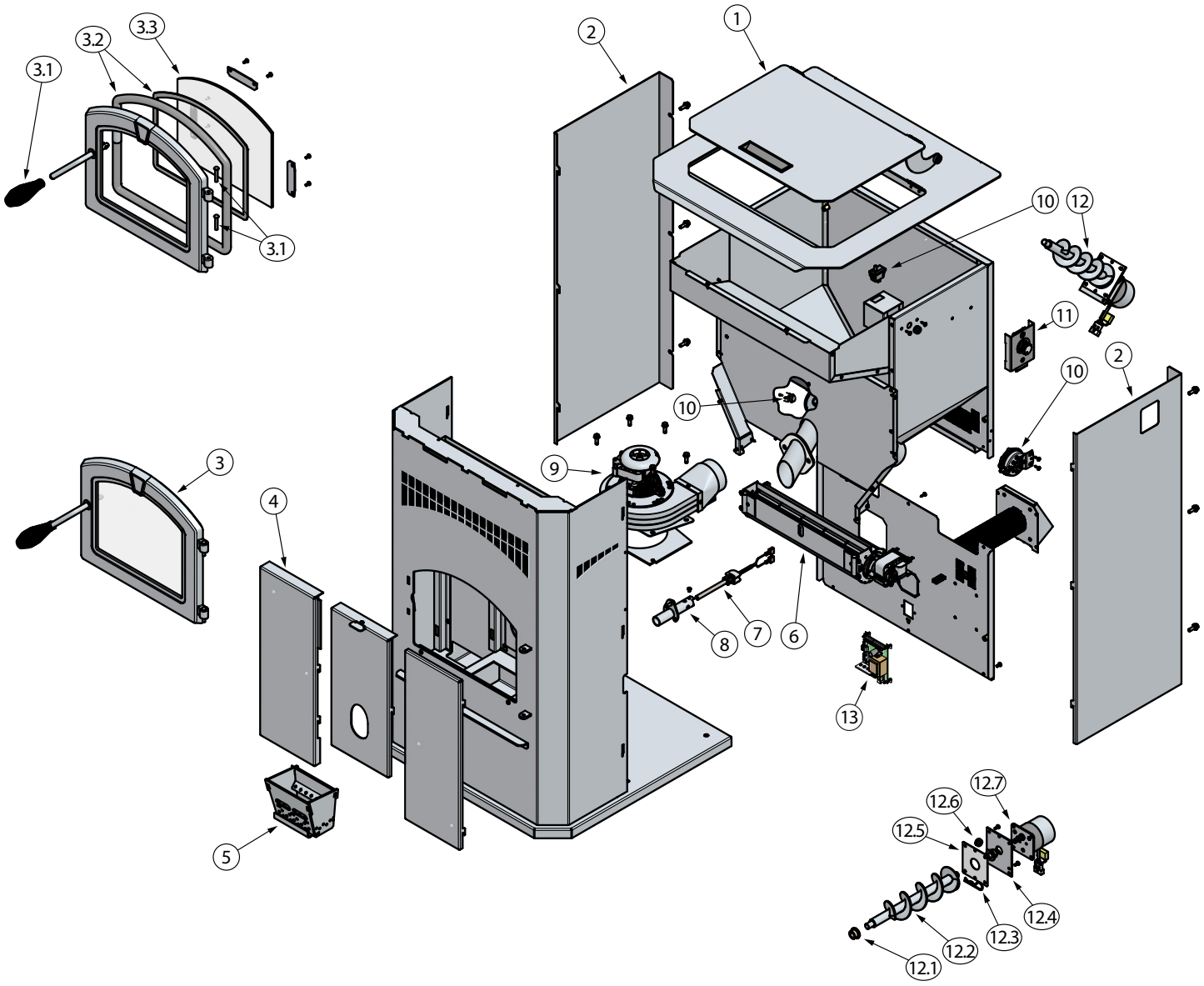
14. **Vacuum Switch**
    The vacuum switch is located on the lower right side of the appliance behind right side panel. There are two red wires attached to it. This switch turns the feed system on when vacuum is present in the firebox. The vacuum switch is a safety device to shut off the feed motor if the exhaust or the heat exchanger system is dirty or plugged or if the firebox door is open or exhaust blower failure.

15. **Outside air inlet**
    The outside air tube can be attached to the 2” OD inlet tube mounted to the rear of the firebox. To extend the hose outside the unit there is a knockout plate that must be removed.

B. Wiring Diagram



C. Replacement Parts



1. Hopper Lid (1 per unit)*
2. Side Panels (2 per unit)*
3. Front Door Assembly
   - 3.1 Spring handle and hinge pins
   - 3.2 Door Rope Gasket and Glass Tape
   - 3.3 5mm Ceramic Glass
4. Baffles (3 per unit)*
5. Firepot
6. Convection Blower
7. Igniter
8. Igniter Chamber
9. Exhaust Blower
10. Snap Disk, Vacuum Switch, Hopper Switch
11. Dial Control
12. Feed Assembly
    - 12.1 Bronze Bushings (2 per unit)
    - 12.2 Auger Assembly
    - 12.3 Feed Motor Hitch Pin
    - 12.4 Feed Motor Bracket
    - 12.5 Feed Motor Gasket
    - 12.6 Rubber Grommet
    - 12.7 Feed Motor
13. Control Board*
14. Exhaust Probe (not pictured)
15. Ambient Probe (not pictured)

*WHEN ORDERING REPLACEMENT PARTS, SPECIFY MODEL TO GET THE CORRECT PARTS.

D. Service & Maintenance Log

Date of Service	Performed By	Description of Service

E. 5 Year Warranty

GHP Group warrants that your new wood-burning stove, pellet-burning stove, or masonry wood insert is free from manufacturing and material defects for a period of five years from the date of sale, subject to the following conditions and limitations.

1. This warranty is extended to the original owner only, for residential use, and is subject to proof of purchase.
2. The new GHP Group product must be installed and operated at all times in accordance with the installation and operation instructions supplied with the appliance, and installation must be to local and national codes. Any alterations, willful abuse, accident, over firing or misuse will not be covered under warranty.

NOTE: Some minor movement of certain parts is normal and is not a defect and therefore, not covered under warranty.

3. The warranty is non-transferable, and is made to the original owner, provided that the purchase was made through an authorized GHP Group supplier. The serial number must be supplied along with the Bill of Sale, showing the date of purchase, at the time the claim is submitted.
4. This warranty is limited to the repair or replacement of parts only, found to be defective in material or construction, provided that such parts have been subjected to normal conditions of use and service, after a said defect has been confirmed by GHP Group, or an authorized representative's inspection. Defective parts must be shipped back (at GHP Group discretion), transportation prepaid, to the manufacturer. Credits will be issued upon receipt of return of the defective product to GHP Group.
5. GHP Group, at its discretion, can fully discharge all obligation with respect to this warranty by refunding the wholesale price of the defective part(s).
6. Any installation, labor, construction, transportation or other related costs or expenses arising from defective parts, repair, replacement or otherwise of same, will not be covered by this warranty nor will GHP Group assume responsibility for same. Further, GHP Group will not be responsible for any incidental, indirect or consequent damages, except as provided by law, and in no event shall they exceed the original purchase price.
7. All other warranties - expressed or implied - with respect to the product, its components and accessories, or any obligations/liabilities on the part of GHP Group are hereby expressly excluded.
8. GHP Group neither assumes, nor authorizes any third party to assume, on GHP Group's behalf, any other liabilities with respect to the sale of this GHP Group product.
9. The warranties as outlined within this document do not apply to chimney components or other products made by other manufacturers when used in conjunction with the installation of this product. Improper use or the use of non-approved components may nullify your warranty. If in doubt, contact your nearest GHP Group supplier or GHP Group Customer Service Department.
10. GHP Group will not be responsible for:
    - Downdrafts or spillage caused by environmental conditions such as nearby trees, buildings, rooftops, hills, mountains, or ineffective chimney design.
    - Inadequate ventilation, excessive offsets or negative air pressure caused by mechanical systems such as furnaces, clothes dryers, fans, etc.
11. This warranty is void if:
    - The appliance has been operated in atmospheres contaminated by chlorine, fluorine, or other damaging chemicals.
    - This appliance has been subjected to prolonged periods of dampness or condensation.
    - The appliance has any damage due to water, or weather damage that is the result of, but not limited to, improper chimney/venting installation.
    - The appliance has been subjected to will full or accidental abuse or misuse.
    - Corrosive driftwood, manufactured logs or other fuels are used other than as outlined in the installation and operating instructions.
    - The appliance is not maintained in good condition, including firebrick and gaskets.

Doors with Glass and Plated Parts

Glass is warranted against thermal breakage only. To clean glass, use a ceramic/glass cleaner or polish. Do not use ammonia based cleaners. A suitable cleaner is available at your nearest Pleasant Hearth dealer. **DO NOT CLEAN GLASS WHILE HOT AND DO NOT USE ABRASIVE CLEANERS.**

Plated parts will not be covered under this warranty. Plated parts should be cleaned by using denatured alcohol only and rubbed lightly with a lint-free non-abrasive cloth. Excessive rubbing or polishing may remove the plated finish. Plated parts may also be damaged by external chemicals.

Further Exclusions

WOOD-BURNING STOVE

Electrical components, such as the blower, are covered for five (5) years from the date of purchase if they are included with the purchase of your stove.

This warranty will not include or extend to paint, gaskets or firebrick components, and does not cover any removable firebox components such as brick retainers or stainless steel air tubes.

PELLET-BURNING STOVE:

Five Year Period:

1. Carbon steel and welded seams in the firebox are covered for five (5) years against splitting.
2. The steel door and hinges are covered for five (5) years against cracking.

One Year Period:

1. Component parts such as the hopper, auger, burn-pot, baffle plate, auger shaft and fasteners are covered for one (1) year against cracking, breakage and welded seam separation.
2. Electrical components, accessory items, glass and the painted surface of the stove are covered for one (1) year from the date of purchase.

IF WARRANTY SERVICE IS REQUIRED

Contact GHP Group Customer Service. Make sure you have your sales receipt and the model/serial number of your GHP Group product.
Do not attempt to do any service work yourself, unless pre-approved by GHP Group in writing as this will void the warranty.
GHP Group must authorize service and provide a Warranty Claim Number prior to any warranty related service calls. Without an authorization number, any service work will not be deemed warranty.

IMPORTANT NOTICE

BEFORE LIGHTING YOUR FIRST FIRE, REMOVE PLASTIC FILM OFF TRIM AND CLEAN THE PLATED SURFACES WITH DENATURED ALCOHOL OR A GOOD QUALITY, NON-ABRASIVE LIQUID GLASS CLEANER. APPLY WITH A VERY SOFT, CLEAN CLOTH. DO NOT USE PAPER TOWELS TO CLEAN THE PLATED PARTS. FAILURE TO CLEAN ALL MARKS AND FINGERPRINTS FROM THE PLATED SURFACES WILL CAUSE PERMANENT DAMAGE.

NOTE: Some states and provinces do not allow the exclusion or limitation of incidental or consequential damages. The above limitations may not apply to you.

GHP Group, Inc. • 6440 W. Howard St. • Niles, IL 60714

KEEP THIS WARRANTY

Serial #_____ Model #_____
Date Purchased_____

CONTACT INFORMATION:

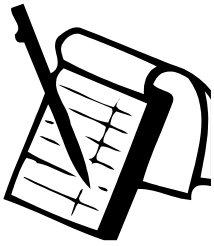
6440 W. Howard St.
Niles, IL 60714
877-447-4768

Please contact the GHP Group with any questions or concerns.

www.ghpgroupinc.com

For Customer Service 1-877-447-4768

Prior to calling, please have the model, serial number, and sales receipt of the unit you are calling about. This information can be found at the rear of the unit.



We recommend that you record the following pertinent information for your GHP Group Pellet Stove

Date purchased/installed: _____

Serial Number: _____ Location on appliance: _____

Store purchased from: _____ Store Location: _____

Notes: _____

_____

_____

Manufactured for GHP at
Qingdao Hichanse Group., ltd
No. 25, Wenhua Road
Jimo, Qingdao, China 266200
Made in China

Appendix C
Labeling & Owner's Manual
OUTFITTER-I

CAUTION: HOT WHILE IN OPERATION DO NOT TOUCH, KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. SEE NAMEPLATE AND INSTRUCTIONS.

ATTENTION: CHAUD LORS DE L'OPÉRATION. NE PAS TOUCHER. GARDEZ LES ENFANTS ET LES VÊTEMENTS LOIN DE L'ESPACE DÉSIGNÉ DE L'INSTALLATION. LE CONTACT PEUT CAUSER DES BRÛLURES À LA PEAU. VOIR L'ÉTIQUETTE ET LES INSTRUCTIONS.

c UL us LISTED
Solid Fuel Type Room Heater
Issue No. MH60687

0061PS095E

OUTFITTER-I

Serial No. / N°de série: **VN**

BARCODE LABEL

Listed Solid Fuel Room Heater/Pellet Type. Also suitable for Mobile Home Installation. This appliance has been tested and listed for use in Manufactured Homes in accordance with OAR 814-23-9000 through 814-23-909.

Appareil de chauffage de combustible solide/de type de boulettes. Accepté dans l'installation dans les maisons mobiles. Cet appareil a été testé et enregistré pour l'usage dans les Maisons Mobiles en accord avec OAR 814-23-9000 jusqu'à 814-23-909.

Listado de habitaciones de combustible sólido del calentador / Pellet Tipo. También es adecuado para la instalación de casas móviles. Este aparato ha sido probado y certificado para su uso en casas prefabricadas, de conformidad con OAR 814-23-9000 través de 814-23-909.

PREVENT HOUSE FIRES / PRÉVENTION DES FEUX DE MAISON

Install and use only in accordance with manufacturer's installation and operating instructions. Contact local building or fire officials about restrictions and inspection in our area.

WARNING - FOR MOBILE HOMES: Do not install appliance in a sleeping room. An outside combustion air inlet must be provided. The structural integrity of the mobile home floor, ceiling and walls must be maintained. Refer to manufacturer's instructions and local codes for precautions required for passing chimney through a combustible wall or ceiling. Inspect and clean vent system frequently in accordance with manufacturer's instructions. DO NOT CONNECT THIS UNIT TO A CHIMNEY SERVING ANOTHER APPLIANCE. Use a 3" or 4" diameter type "L" or "PL" venting system.

Installez et utilisez en accord avec les instructions d'installation et d'opération du fabricant. Contactez le bureau de la construction ou le bureau des incendies au sujet des restrictions et des inspections d'installation dans votre voisinage. Ne pas obstruez l'espace en dessous de l'appareil.

AVIS - Pour Les Maisons Mobiles: Ne pas installer dans une chambre à coucher. Un tuyau extérieur de combustion d'air doit être installé et ne doit pas être obstrué lorsque l'appareil est en usage. La structure intégrale du plancher, du plafond et des murs de la maison mobile doit être maintenue intacte. Référez vous aux instructions du fabricant et des codes locaux pour les précautions requises pour passer une cheminée à travers un mur ou un plafond combustibles, et les compensations maximums. Inspectez et nettoyez la cheminée fréquemment. Ne pas connecter cet appareil à une cheminée servant un autre appareil. Utilisez systèm de ventilation "L" ou "P" diamètre 76mm ou 102mm

Instale y use únicamente de acuerdo con la instalación del fabricante y las instrucciones de funcionamiento. Póngase en contacto con la construcción o de los bomberos sobre las restricciones y la inspección en nuestra área.

ADVERTENCIA - Para las casas móviles: No instale el aparato en una habitación para dormir. Una entrada de aire de combustión exterior debe ser proporcionada. La integridad estructural de la planta de casas móviles, techos y paredes deben ser mantenidos.

Consulte las instrucciones del fabricante y los códigos locales para la precauciones necesarias para pasar a través de una chimenea de pared o techo combustible. Inspeccione y limpie el sistema de ventilación con frecuencia, de conformidad con las instrucciones del fabricante. NO conecte esta unidad a UNA CHIMENEA DE SERVICIO otro aparato. Use un 3 "o 4" de diámetro tipo "L" o "PL" sistema de ventilación.

Conforms to ASTM Std E1509-12. Certified to ULC Std S627-00. Room Heating Pellet BurningType, (UM) 84-HUD FOR USE ONLY WITH PELLETIZED WOOD FUEL. Do not use any other type of fuel.

Input Rating: 33,200 Btu's/hr. Electrical Rating:120 VAC, 60 Hz, Start 2.6 Amps, Run 0.9 AMPS. Route power cord away from unit. Do not route cord under or in front of appliance. Do not obstruct the space beneath the heater.

DANGER: Risk of electrical shock. Disconnect power supply before servicing. Replace glass only with 5mm ceramic. To start, turn dial control to desired setting, the stove will light automatically. To shutdown, turn dial control to off position. For further instruction refer to owner's manual. Keep viewing doors tightly closed during operation.

Conforme à la norme ASTM E1509-12 Std. Certifié à la norme ULC S627-00 Std. Room Heating Pellet Burning Type, (UM) 84-HUD POUR USAGE AVEC LES BOULETTES DE BOIS. N'utiliser aucun autre genre de combustible.

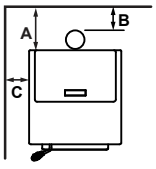
Puissance de Rendement: 33,200 Btu's/hr. Puissance Électrique: 120 VAC, 60 Hz, Début 2.6 Amps, Courir 0.9 Amps, Éloignez le fil électrique de l'appareil. Ne pas faire passer le fil électrique au dessus ou en dessous de l'appareil. Ne pas bloquer l'espace au dessous de l'appareil.

DANGER: Il y a risque de décharge électrique. Déconnectez le fil électrique de la prise de contact avant le service. Remplacez la vitre seulement avec une vitre céramique de 5 mm disponible chez votre fournisseur. Pour commencer, tourner le cadran de commande au réglage désiré, le poêle s'allume automatiquement. Pour l'arrêt, tourner le cadran de commande en position OFF. Pour des instructions supplémentaires, référez vous au manuel du propriétaire. Gardez la porte d'ouverture et la porte des cendres fermées hermétiquement durant l'opération.

Cumple con la norma ASTM Std E1509-12. Certificado de ULC S627-00 Std, cuarto de la calefacción de pellets BurningType, (UM), de 84 de HUD PARA USO EXCLUSIVO CON COMBUSTIBLE DE MADERA granulado. No utilice ningún otro tipo de combustible.

Clasificación de entrada: 33,200 BTU / hr. Clasificación eléctrica: 120 VAC, 60 Hz, 2,6 amperios Inicio, Ejecutar 0,9 amperios. Pase el cable de alimentación alejado de la unidad. No encamine el cordón por debajo o por delante del aparato. No obstruya el espacio debajo de la estufa.

PELIGRO: Riesgo de choque eléctrico. Desconecte el suministro eléctrico antes de darle servicio. Reemplace los vidrios sólo con cerámica de 5 mm. Para comenzar, gire el dial de control hasta la posición deseada, la estufa se encenderá automáticamente. Para apagar, gire el dial de control para la posición de apagado. Para obtener más instrucciones, consulte el manual del propietario. Mantenga las puertas de ver bien cerrados durante la operación.



MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS / ESPACES LIBRES MINIMUM DES MATÉRIAUX

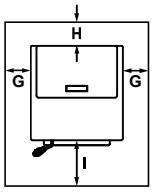
DISTANCIAS MÍNIMAS a los materiales combustibles

A	Back Wall / Mur Arrière / Muro Posterior	(horizontal installation)	2 in [51 mm]
B	Flue Pipe / Conduit de fumée / Cañón de Humos		3 in [76 mm]
C	Side Wall / Mur De Côté / Muro Lateral		13 in [330 mm]

CORNER INSTALLATION / INSTALLATION DU COIN / RINCÓN DE LA INSTALACIÓN

D	Side Wall / Mur De Côté / Muro Lateral	3 in [76 mm]

FLOOR PROTECTION / PROTECTION DU SOL / PISO DE PROTECCION



USA
G = 2 in
H* = 2 in
I = 6 in

CANADA
G = 203 mm
H* = 51 mm
I = 152 mm

Floor protector must be non-combustible material, extending beneath heater and to the front/sides/rear as indicated. Measure front distance (I) from the surface of the glass door.

Le poêle doit être placé sur une assise non combustible s'étendant tout autour de lui, comme les schémas l'indiquent. Mesurez la distance du devant (I) de la surface de la porte vitrée.

Protector de piso debe ser de material incombustible, se extiende por debajo del calentador y al frente / lado / trasero, como se indica. Medir la distancia frontal (I) de la superficie de la puerta de vidrio.

*Non-combustible floor protection must extend 2 inches (51mm) beneath the flue pipe when installed with horizontal venting or under the Top Vent Adapter with vertical installation. RECOMMENDED IN USA; REQUIRED IN CANADA.

*Un protecteur incombustible de plancher doit s'étendre 2 inches (51mm) sous le conduit de cheminée pour une installation de ventilation horizontale ou sous un adapteur de ventilation de dessus pour une installation verticale. RECOMMANDÉ AUX ÉTATS-UNIS; NÉCESSAIRE AU CANADA.

* No es combustible mínimo de protección debe extenderse 2 pulgadas (51mm) por debajo del conducto de humos cuando se instalan con la ventilación horizontal o en el adaptador de ventilación superior con instalación vertical. RECOMENDADO EN EE.UU.; REQUERIDA EN CANADÁ.

HEARTH & HOME technologies

Hearth & Home Technologies®
352 Mountain House Road
Halifax, PA 17032
www.quadrafire.com

U.S. ENVIRONMENTAL PROTECTION AGENCY

Certified to comply with 2020 particulate emission standards at 0.7 g/hr EPA method 28 and 5G.
This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

2020	2021	2022	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

DO NOT REMOVE THIS LABEL / NE PAS ENLEVER L'ÉTIQUETTE

Made in Vietnam / Fabriqué en Vietnam

7083-800D

Owner's Manual
Operation & Care

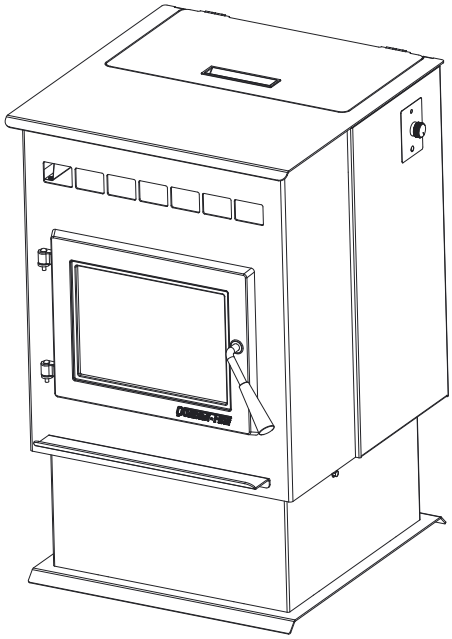
INSTALLER: Leave this manual with party responsible for use and operation.
OWNER: Retain this manual for future reference.

Contact your dealer with questions on installation, operation, or service.

QUADRA-FIRE®

PELLET BURNING APPLIANCE

MODEL NUMBER:
OUTFITTER-I



EM C US LISTED Pellet Fuels Institute

⚠ CAUTION

Tested and approved for wood pellets, Burning of any other type of fuel voids your warranty.

Installation and service of this appliance should be performed by qualified personnel. Hearth & Home Technologies recommends HHT Factory Trained or NFI certified professionals.

hearthED FACTORY TRAINING Fuel Your Fire

NFI NATIONAL FIREPLACE INSTITUTE® A CERTIFICATION AGENCY

⚠ WARNING

If the information in these instructions is not followed exactly, a fire could result causing property damage, personal injury, or death.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Do not over fire - If appliance or chimney connector glows, you are over firing. Over firing will void your warranty.
- Comply with all minimum clearances to combustibles as specified.

Failure to comply may cause house fire.

⚠ WARNING

HOT SURFACES!
Glass and other surfaces are hot during operation AND cool down.

Hot glass will cause burns.

- Do not touch glass until it is cooled
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as fireplace.
- Alert children and adults to hazards of high temperatures
- **High temperatures may ignite clothing or other flammable materials.**
- Keep clothing, furniture, draperies and other flammable materials away.

⚠ CAUTION

Check building codes prior to installation.

- Installation MUST comply with local, regional, state and national codes and regulations.
- Consult local building, fire officials or authorities having jurisdiction about restrictions, installation inspection, and permits.

NOTE: To obtain a French translation of this manual, please contact your dealer or visit www.quadrafire.com.

REMARQUE : Pour obtenir une traduction française de ce manuel, s'il vous plaît contacter votre revendeur ou visitez www.quadrafire.com.

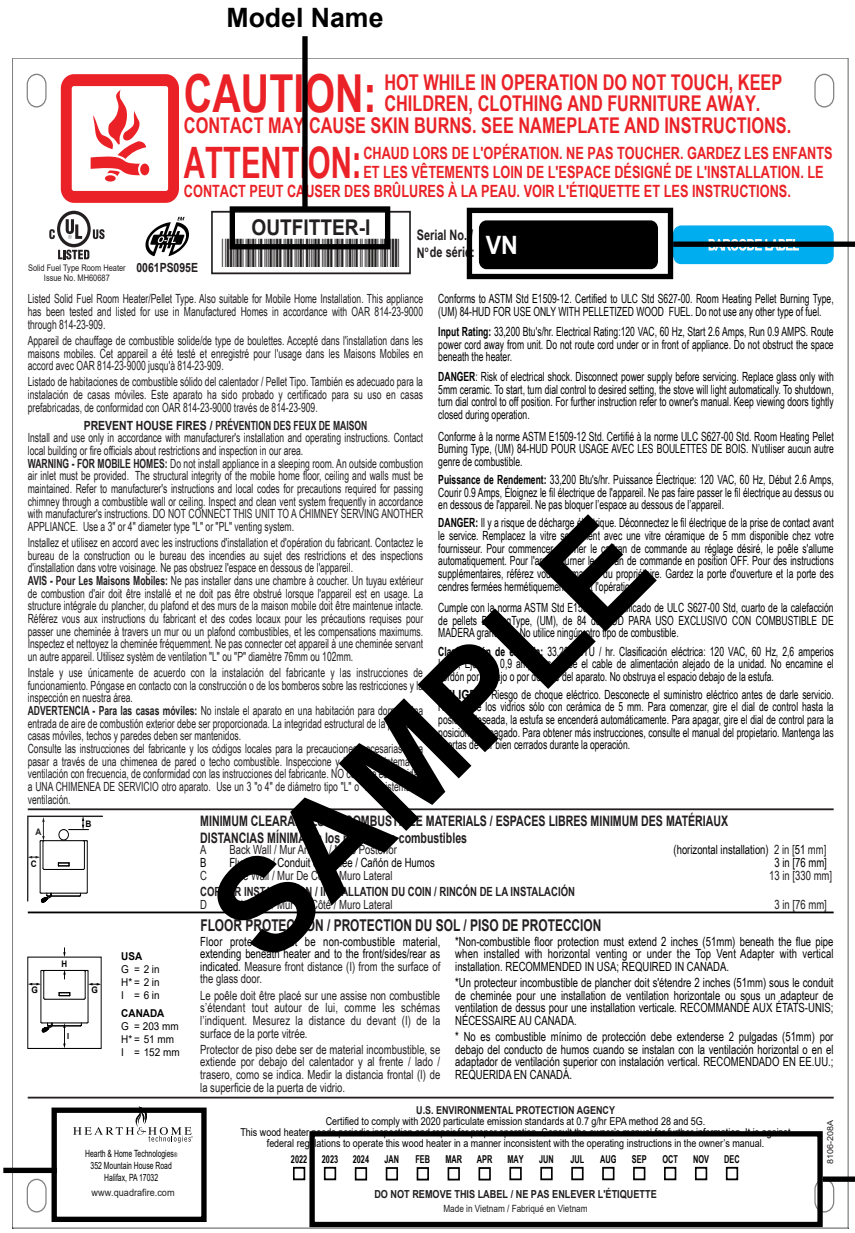
Congratulations

and Welcome to the Quadra-Fire Family!

NOTE: Clearances may only be reduced by means approved by the regulatory authority having jurisdiction

A. Sample of Serial Number / Safety Label

LOCATION: Back of appliance



Safety Alert Key:

- **DANGER!** Indicates a hazardous situation which, if not avoided will result in death or serious injury.
- **WARNING!** Indicates a hazardous situation which, if not avoided could result in death or serious injury.
- **CAUTION!** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- **NOTICE:** Indicates practices which may cause damage to the appliance or to property.

TABLE OF CONTENTS

➔ = Contains updated information

B. Warranty Policy

Hearth & Home Technologies LLC

LIMITED LIFETIME WARRANTY

Hearth & Home Technologies LLC ("HHT") extends the following warranty for HHT gas, wood, pellet and electric hearth appliances (each a "Product" and collectively, the "Product(s)") and certain component parts set forth in the table below ("Component Part(s)") that are purchased from a HHT authorized dealer or distributor.

WARRANTY COVERAGE:

HHT warrants that the Products and their Component Parts will be free from defects in materials and workmanship for the applicable period of Warranty coverage set forth in the table below ("Warranty Period"). If a Product or Component Parts are found to be defective in materials or workmanship during the applicable Warranty Period, HHT will, at its option, repair the applicable Component Part(s), replace the applicable Component Part(s), or refund the purchase price of the applicable Product(s). The maximum amount recoverable under this Warranty is limited to the purchase price of the Product. This Warranty is transferable from the original purchaser to subsequent owners, but the Warranty Period will not be extended in duration or expanded in coverage for any such transfer. This Warranty is subject to conditions, exclusions, and limitations as described below.

WARRANTY PERIOD:

Warranty coverage begins at the date of installation. In the case of new home constructions, Warranty coverage begins on the date of first occupancy of the dwelling or six months after the sale of the Product(s) by an independent, authorized HHT dealer or distributor, whichever occurs earlier. However, the Warranty coverage shall commence no later than 24 months following the date of Product shipment from HHT, regardless of the installation or occupancy date.

The term "Lifetime" in the table below is defined as: 20 years from the beginning date of warranty coverage for gas appliances, 10 years from the beginning date of warranty coverage for wood and pellet appliances, and 5 years from the beginning of warranty coverage for standalone gas log sets. These time periods reflect the minimum expected useful lives of the designated Component Parts under normal operating conditions.

Warranty Period		**HHT Manufactured Appliances and Venting**					
Component Parts	Labor	Gas	Pellet	Wood	Electric	Venting	Component Parts Covered by this Warranty
1 Year		X	X	X		X	All parts including handles, external enameled components and other material except as covered by Warranty Conditions, Warranty Exclusions, and Warranty Limitations listed
2 Years					X		All parts except as covered by Warranty Conditions, Warranty Exclusions, and Warranty Limitations listed
2 years			X	X			Igniters, Auger Motors, Electronic Components, and Glass
		X					Electrical components limited to modules, remotes/wall switches, valves, pilots, blowers, junction boxes, wire harnesses, transformers and lights (excluding light bulbs)
		X		X			Molded Refractory Panels, Glass Liners
3 years			X				Firepots, burnpots, mechanical feeders/auger assemblies
5 years		X					Burners and logs for standalone gas log sets (Vented and Vent Free gas log sets not sold as components of the fireplace or stove)
5 years	1 year	X					Vent Free Burners and Vent Free Log components of HHT manufactured fireplaces or stoves
			X	X			Castings, Medallions and Baffles
6 years	3 years			X			Catalysts
7 years	3 years		X	X			Manifold tubes, HHT Chimney and Terminations
10 years	1 year	X					Burners, logs and refractory components of HHT manufactured fireplaces or stoves
Limited Lifetime	3 years	X	X	X			Firebox and heat exchanger, FlexBurn® System (engine, inner cover, access cover and fireback)
1 Year	None	X	X	X	X	X	All purchased replacement parts

WARRANTY CONDITIONS:

- Because HHT cannot control the quality of any Products sold by unauthorized sellers, this Warranty only covers Products that are purchased through an HHT authorized dealer or distributor unless otherwise prohibited by law; a list of HHT authorized dealers is available on the HHT branded websites.
- This Warranty is only valid while the applicable Product remains at the site of original installation.
- This Warranty is only valid in the country in which the HHT authorized dealer or distributor that sold the applicable Product is authorized to sell applicable Product.
- Contact your installing distributor or dealer for Warranty service. If the installing dealer or distributor is unable to provide necessary parts, contact the nearest HHT authorized dealer or supplier. Additional service fees may apply if you are seeking Warranty service from a dealer other than the dealer from whom you originally purchased the applicable Product.
- No HHT consumer should bear cost of warranty service or costs incurred while servicing warranty claims (i.e., travel, gas, or mileage) when the service is performed within the terms of this Warranty. Check with your dealer or distributor in advance for any costs to you when arranging a warranty call. Travel and shipping charges for parts are not covered by this Warranty.

WARRANTY EXCLUSIONS:

This Warranty does not cover the following:

- Changes in surface finishes as a result of normal use. As a heating appliance, some changes in color of interior and exterior surface finishes may occur. This is not a flaw and is not covered under the Warranty.
- Damage to printed, plated, or enameled surfaces caused by fingerprints, accidents, misuse, scratches, melted items or other external sources and residues left on the plated surfaces from the use of abrasive cleaners or polishes.
- Repair or replacement of parts that are subject to normal wear and tear during the Warranty Period are not covered. These parts include: paint, wood and pellet gaskets, firebricks, grates, flame guides, batteries and the discoloration of glass.
- Minor expansion, contraction, or movement of certain parts causing noise. These conditions are normal and complaints related to this noise are not covered by this Warranty.
- Damages resulting from: (1) failure to install, operate, or maintain the applicable Product in accordance with the installation instructions, operating instructions, and listing agent identification label furnished with the applicable Product; (2) failure to install the applicable Product in accordance with local building codes; (3) shipping or improper handling; (4) improper operation, abuse, misuse, continued operation with damaged, corroded or failed components, accident, or improperly/incorrectly performed repairs; (5) environmental conditions, inadequate ventilation, negative pressure, or drafting caused by tightly sealed constructions, insufficient make-up air supply, or handling devices such as exhaust fans or forced air furnaces or other such causes; (6) use of fuels other than those specified in the operation instructions; (7) installation or use of components not supplied with the applicable Product or any other components not expressly authorized and approved by HHT; (8) modification of the appliance not expressly authorized and approved by HHT in writing; and/or (9) interruptions or fluctuations of electrical power supply to the applicable Product.
- Non-HHT venting components, hearth connections or other accessories used in conjunction with the applicable Product.
- Any part of a pre-existing fireplace system in which an insert or a decorative gas applicable Product is installed.
- HHT's obligation under this Warranty does not extend to the Product's capability to heat the desired space. Information is provided to assist the consumer and the dealer in selecting the proper Product for the application. Consideration must be given to the Product location and configuration, environmental conditions, insulation and air tightness of the structure.

This warranty is void if:

- The applicable Product has been over-fired, operated in atmospheres contaminated by chlorine, fluorine, or other damaging chemicals. Over-firing can be identified by, but not limited to, warped plates or tubes, deformation/warping of interior cast iron structure or components, rust colored cast iron, bubbling, cracking and discoloration of steel or enamel finishes.
- The applicable Product is subjected to prolonged periods of dampness or condensation.
- There is any damage to the applicable Product due to water or weather damage which is the result of, but not limited to, improper chimney or venting installation.

LIMITATIONS OF REMEDIES AND LIABILITY:

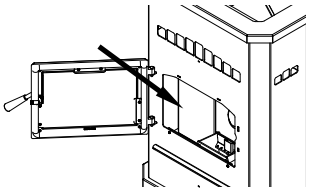
- **EXCEPT TO THE EXTENT PROVIDED BY LAW, HHT MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY SPECIFIED HEREIN. The owner's exclusive remedy and HHT's sole obligation under this Warranty or in contract, tort or otherwise, shall be limited to replacement of the Component Part(s), repair of the Component Part(s), or refund of the original purchase price of the applicable Product(s), as specified above; provided, however, that (i) if HHT is unable to provide replacement of the Component Part(s) and repair of the Component Part(s) is not commercially practicable or cannot be timely made, or (ii) the customer is willing to accept a refund of the purchase price of the applicable Product(s), HHT may discharge all such obligations by refunding the purchase price of the applicable Product. In no event will HHT be liable for any incidental or consequential damages caused by defects in the applicable Product. Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights and you may also have other rights which vary from State to State. THE DURATION OF ANY IMPLIED WARRANTY IS LIMITED TO DURATION OF THE EXPRESSED WARRANTY SPECIFIED ABOVE FOR THE APPLICABLE PRODUCT. Some States do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.**

QUICK START GUIDE

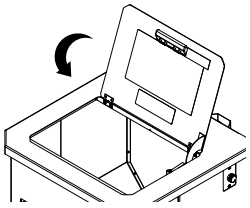
Before you plug in this appliance, follow these instructions

Set Up

1. Empty fire box of component packet and any other debris.



2. Add pellets and close lid.



3. Turn DIAL to OFF
4. Plug in the appliance
   - Exhaust blower will run for about 45 Seconds (wait for it to stop before priming)
   - Green light will start flashing
5. Ensure thermostat is connected properly per included instructions.

Prime

1. After the exhaust blower has stopped; quickly turn the dial from OFF to HI two times:

- The LIGHT will turn solid green and pellets will feed. Wait for 2 minutes
- If the LIGHT did not turn solid green:
- Turn dial back to OFF
- Unplug appliance, plug it back in and repeat

Priming is only needed for first fire or starting fire on empty hopper.
NOTE: The prime function is only required during initial set up of the unit, or after the unit has alarmed out due to an empty hopper. Priming while under normal operating conditions will cause the fire pot to overfill.

Run

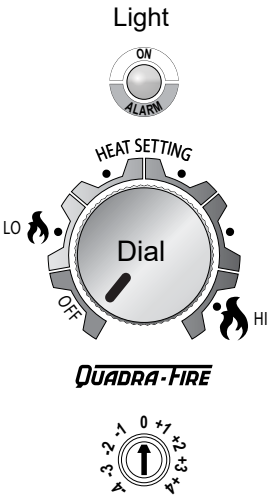
1. While thermostat is in RUN mode, the set temperature can be temporarily changed by pressing UP.
2. Choose Setting:

**Appliance will not turn on unless target temperature is a higher temperature than the room temperature.

- LO – HI*
- Green LIGHT will begin flashing and stove will start

It may take as long as 10 minutes to achieve a fire in the fire pot. Turning the knob or thermostat to off during this time will interrupt the startup process.

*For first fire, HHT recommends running on HI for first 30 minutes



Trim
Control Panel

1 Important Safety Information

A. Appliance Safety Certification

Model	Outfitter-I
Laboratory	UL LLC
Report No.	MH60687
Type	Solid Fuel Room Appliance/Pellet Fuel Burning Type
Standard	ASTM E1509 and ULC S627 Room Appliance Pellet Fuel Burning type and (UM) 84-HUD, Mobile Home Approved.

B. Appliance Emissions Certification

Model	Outfitter-I
Laboratory	OMNI Test Laboratories, Inc.
Report No.	0061PS095E
Standard	ASTM E2779 and ASTM E2515
Can be found at: www.quadrafire.com/about-us/epa-certification	

The Outfitter-I is Certified to comply with 2020 particulate emission standards.

This pellet appliance needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this pellet appliance in a manner inconsistent with operating instructions in this manual.

NOTICE: This installation must conform with local codes. In the absence of local codes you must comply with the **ASTM E1509, ULC S627 and (UM) 84-HUD**.

C. BTU & Efficiency Specifications

EPA Certification Number:	184-19
EPA Certified Emissions:	0.7 grams per hour
***LHV Tested Efficiency:**	79.4%
****HHV Tested Efficiency:**	74.6%
*****EPA BTU Output:**	6,800 - 26,000 per hr
******BTU Input:**	9,600 to 33,200 per hr
Vent Size:	3" or 4" Type "L" or "PL"
Hopper Capacity:	60 lbs.
Fuel	Premium Wood Pellets
* Weighted average LHV (Low Heating Value) efficiency using data collected during EPA emissions tests in accordance with the requirements of CSA B415.1.	
** Weighted average HHV (High Heating Value) efficiency using data collected during EPA emissions tests in accordance with the requirements of CSA B415.1.	
*** A range of BTU outputs calculated using HHV efficiency and the burn rates from the EPA tests.	
**** Based on the maximum feed rate per hour multiplied by approximately 8600 BTU's which is the average BTU's from a pound of pellets.	

D. Glass Specifications

This appliance is equipped with 5mm ceramic glass. Replace glass only with 5mm ceramic glass. Please contact your dealer for replacement glass.

E. Electrical Rating (on high)

120 VAC, 60 Hz, Start 2.6 Amps, Run 0.9 Amps

F. Mobile Home Approved

- This appliance is approved for mobile home installations when not installed in a sleeping room and when an outside combustion air inlet is provided.
- The structural integrity of the mobile home floor, ceiling, and walls must be maintained.
- The appliance must be properly grounded to the frame of the mobile home with #8 copper ground wire, and use only listed double-wall connector pipe.
- Outside Air Kit, part 811-0872 or OAK-3 must be installed in a mobile home installation.
- Appliance must be secured to mobile home structure.

G. Sleeping Room

When installed in a sleeping room it is recommended that 3ft of vertical be installed prior to horizontally exiting the room and a smoke/CO alarm be installed in the bedroom; The size of the room must be at least 50ft³ per 1,000 Btu/hr stove input, if the stove exceeds the room size, outside air must be installed.

H. California - Prop65

⚠ WARNING

This product and the fuels used to operate this product (wood), and the products of combustion of such fuels, can expose you to chemicals including carbon black, which is known to the State of California to cause cancer, and carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to: WWW.P65Warnings.ca.gov

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.

For assistance or additional information, consult a qualified installer, service agency or your dealer.

NOTE: Hearth & Home Technologies, manufacturer of this appliance, reserves the right to alter its products, their specifications and/or price without notice.

Hearth & Home Technologies WILL NOT warranty appliances that exhibit evidence of over-firing. Evidence of over-firing includes, but is not limited to:

- Warped air tube
- Deteriorated refractory brick retainers
- Deteriorated baffle and other interior components

⚠ CAUTION

USE OF IMPROPER FUELS, FIRESTARTERS OR ALTERING THE STOVE FOR HIGHER HEAT OUTPUT MAY CAUSE DAMAGE TO THE STOVE AND COULD RESULT IN A HOUSE FIRE. USE ONLY APPROVED FUELS AND OPERATION GUIDELINES

⚠ WARNING

Fire Risk

Hearth & Home Technologies disclaims any responsibility for, and the warranty will be voided by, the following actions:

- Installation and use of any damaged appliance.
- Modification of the appliance.
- Installation other than as instructed by Hearth & Home Technologies.
- Installation and/or use of any component part not approved by Hearth & Home Technologies.
- Operating appliance without fully assembling all components.
- Operating appliance without legs attached (if supplied with appliance).
- Do NOT Over fire - If appliance or chimney connector glows, you are over firing.

Any such action that may cause a fire hazard.

2 General Information

A. Fire Safety

To provide reasonable fire safety, the following should be given serious consideration:

- Install at least one smoke detector on each floor of your home.
- Install at least one carbon monoxide detector on each floor of your home.
- Locate smoke detector away from the heating appliance and close to the sleeping areas.
- Follow the smoke detector manufacturer's placement and installation instructions and maintain regularly.
- Follow the carbon monoxide manufacturer's placement and installation instructions and maintain regularly.
- Conveniently locate a Class A fire extinguisher to contend with small fires.
- In the event of a hopper fire:
  - Evacuate the house immediately.
  - Notify fire department.

B. Combustible/Non-Combustible Materials

- **Combustible Material**
  - Material made of or surfaced with wood, compressed paper, plant fibers, plastics, or any material capable of igniting and burning, whether flame-proofed or not, plastered or non plastered.
- **Non-combustible Material**
  - Material which will not ignite and burn. Such materials are those consisting entirely of steel, iron, brick, tile, slate, glass or plasters, or any combination thereof.
- **Non-combustible Sealant Material**
  - Sealants which will not ignite and burn: Rutland, Inc. Fireplace Mortar #63, Rutland 76R, Nuflex 304, GE RTV106 or GE RTB116 (or equivalent).

C. Fuel Material and Fuel Storage

Pellet fuel quality can greatly fluctuate. We recommend that you buy fuel in multi-ton lots whenever possible. However, we do recommend trying various brands before purchasing multi-ton lots to ensure your satisfaction.

Fuel Material

- Made from sawdust or wood by-products
- Depending on the source material it may have a high or low ash content.

Higher Ash Content Material

- Hardwoods with a high mineral content
- Fuel that contains bark
- Standard grade pellets or high ash pellets

Lower Ash Content Material

- Most softwoods
- Fuels with low mineral content
- Most premium grade pellets

Clinkers

Minerals and other non-combustible materials such as sand will turn into a hard, glass-like substance called a clinker when heated in the firepot.

Trees from different areas will vary in mineral content. That is why some fuels produce more clinkers than others.

Moisture

Always burn dry fuel. Burning fuel with high moisture content takes heat from the fuel and tends to cool the appliance, robbing heat from your home. Damp pellet fuel can clog the feed system.

Size

- Pellets are either 1/4 inch or 5/16 inch (6-8mm) in diameter
- Length should be no more that 1-1/2 inches (38mm)
- Pellet lengths can vary from lot to lot from the same manufacturer
- Due to length variations, the feed rate may need adjusting occasionally

Performance

- Higher ash content requires the firepot and the ash drawer to be emptied more frequently
- Hardwoods require more air to burn properly
- Premium wood pellets produce the highest heat output
- Burning pellets longer than 1-1/2 inches (38mm) can cause an inconsistent fuel feed rate and/or missed ignitions of feed jams.

Storage

- Wood pellets should be left in their original sealed bag until using to prevent moisture absorption
- Do not store any pellet fuel within the clearance requirements or in an area that would hinder routine cleaning and maintenance.

D. Before Your First Fire

1. First, make sure your appliance has been properly installed and that all safety requirements have been met. Pay particular attention to the fire protection and venting.
2. Double check that the firebox is empty and the firepot is in place!
3. Close and latch the door.

3 General Operating Information

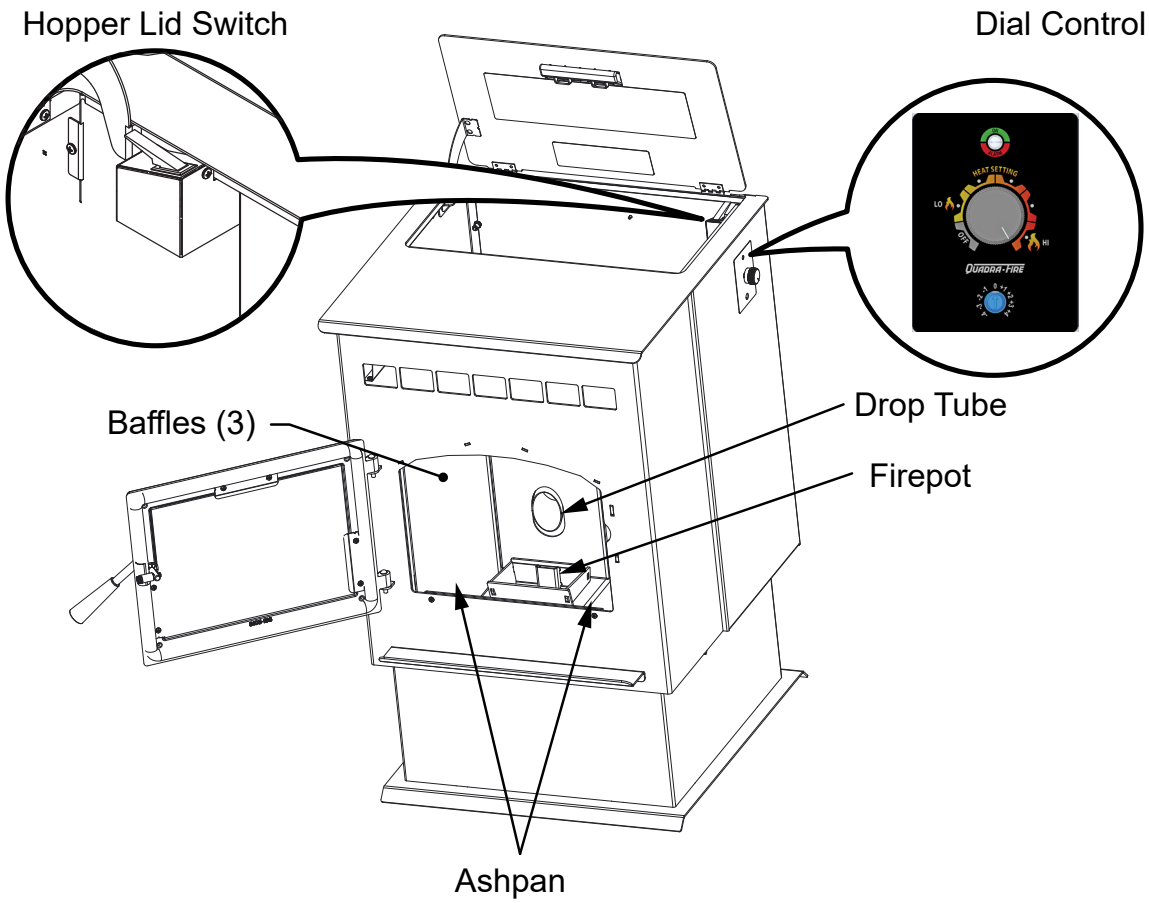
WARNING

HOT SURFACES!
Glass and other surfaces are hot during operation AND cool down.
Hot glass will cause burns.

- Do not touch glass until it is cooled
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as appliance.
- Alert children and adults to hazards of high temperatures.
- **High temperatures may ignite clothing or other flammable materials.**
- Keep clothing, furniture, draperies and other flammable materials away.

NOTICE: If you expect that children may come into contact with this appliance, we recommend a barrier such as a decorative screen (See your retailer for suggestions).

A. General Operating Parts

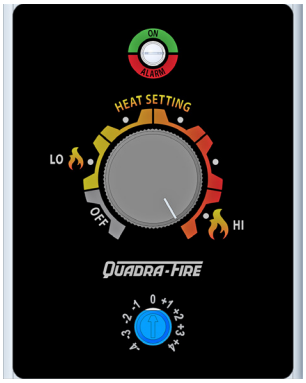


B. Priming the Feed Tube

STOP!

Please Read Prior to Attempting Prime Function

When attempting Prime function it is NECESSARY to operate the dial control QUICKLY in a single fluid motion. If this is not performed properly, the appliance will not prime.



WARNING

A FIREPOT THAT IS MORE THAN HALF FULL IS OVERFILLED AND CAN BE DANGEROUS. DO NOT OVERFILL FIREPOT FOR IGNITION.
Overfilling the firepot could cause an unsafe ignition resulting in injury or damage. Firepot must be emptied.

The feed tube may need to be primed only if the hopper is being filled for the first time or if the appliance has run out of pellets. To prime the appliance, turn the dial control QUICKLY from the OFF position to the HI position, to OFF to HI in one fluid motion. The LED light will be a solid green color to indicate a successful prime function. When the feed motor is running continuously, the LED light will be a solid green color. When pellets start to drop into the firepot, the feed tube is primed. Turn the dial control to the desired position and the appliance will begin its ignition sequence with a blinking green light. Allow the appliance up to 20 minutes for ignition to occur.

CAUTION

Do not restart or manually add pellets or any type of fuel to the burn pot during this process.

If the appliance does not ignite, the LED light will blink red four times showing a missed ignition alarm. Turn the appliance to off and remove and EMPTY the firepot.

Return the firepot to the appliance in the correct orientation. See figure in Cleaning Fire pot in the General Maintenance section of Owner's Manual under Maintaining and Servicing the Appliance.

Attempt relighting sequence (see Lighting Instructions Guide).

C. Firepot Burn Down

A feature of these pellet appliances is the firepot burn down cycle. The frequency of the cycle is once every hour the appliance is burning. During this event, the feed is reduced to the lowest setting and the exhaust blower ramps up to the highest setting. The purpose of the burn down cycle is to help remove debris from the firepot and help the appliance burn as efficient as possible. The cycle lasts 99 seconds. Please be aware that the burn down does not replace daily cleaning activities but makes them easier.

D. Shutdown

To shut the appliance down, turn the dial control counter clockwise to the OFF position. During the shutdown process, the LED will flash amber or green rapidly just like the ignition sequence. The firepot burn down cycle will begin but without the feed motor running. The feed will be terminated during this shutdown process. The exhaust and convection blowers will remain on during the shutdown process until the exhaust has cooled.

If maintenance or daily cleaning is going to be conducted immediately following a shutdown, please use caution as components especially those inside the firebox may still be hot.

Please note that if the dial control is turned to the off position and back on even if by mistake, the appliance will go through the shutdown sequence.

E. Starting Your First Fire

1. Turn the dial control to "OFF".
2. Make sure the firepot is clean, in place, and free of debris.
3. Plug the appliance into the wall and fill the hopper with wood pellets. Shut the hopper lid.
4. Turn the dial control to the desired burn setting.

The appliance will go into the ignition sequence followed by start up (The green LED will flash rapidly). The ignition sequence involves the exhaust blower turning on, the igniter turning on, and the feed motor running in two stages. The first stage involves the feed motor running continuously for about a minute to preload pellets into the firepot. Following the preload and a delay, the feed motor will begin cycling on and off. When the pellets are warming up and on the verge of igniting, it is not uncommon for the firebox to fill with smoke. Once ignition actually happens, the smoke should evacuate quickly. During this stage as well as any part during the burn process, the front door should not be opened. This cycle continues until the appliance senses ignition by a rise in the exhaust temperature or the appliance times out. Following the ignition cycle the appliance begins to feed additional pellets gradually for a few minutes to build up the fire. This is important to have a controlled start up to keep the appliance in balance.

F. Fire Characteristics

The overall height of the flame will vary throughout the burn for a couple of reasons. First is that the flame will vary based on type of fuel or even batch of fuel. Secondly, the appliance adjusts the burn rate according to the how far away the room temperature is from the set temperature. This should not cause alarm. The third characteristic that affects the fire relates to general maintenance and cleaning. Infrequent or poor general maintenance will result is poorer performance. Indicators of the need for additional maintenance activities include a lazy flame, black sooted glass, pellets not igniting, or pellets falling to the side of the firepot. See the maintenance section for additional information.

⚠ CAUTION

Odors, vapors, and smoke released during initial operation.

- Curing of high temperature paint.
- Open windows for air circulation.

Odors may be irritating to sensitive individuals.

G. Ignition Cycles

1. At the beginning of each ignition cycle, it is normal to see some smoke in the firebox. The smoke will stop once the fire starts.
2. The convection blower will automatically turn on after your appliance has reached a sufficient temperature.
3. This blower transfers heat from your appliance into the room, and will continue to run even after the appliance has shutdown. It will turn off after the exhaust temperature has cooled.
4. Occasionally the appliance may run out of fuel and shut itself down. When this happens the empty hopper alarm will be triggered.

H. Trim Adjustment

Trim adjustment is the small dial located below the main dial control. The function of the trim adjustment is to allow for variations in elevation, venting and installation configurations, and fuel types (hard wood/soft wood).

Rotating this dial will adjust the air/fuel ratio to the appliance:

- Clockwise adjustments increase the flame height.
- Counter-clockwise adjustments will decrease the flame height.
- When changing trim settings only adjust 1 level at a time, allowing 15 minutes for fire to stabilize before making another adjustment.
- The factory default trim adjustments are set to zero (0) for most fuels and recommended venting configurations.

A properly adjusted fire will have a bright, active flame pattern that extends out of the fire pot approximately 6 to 9 inches when burning on high. A properly adjusted fire will burn cleaner and have higher efficiencies.

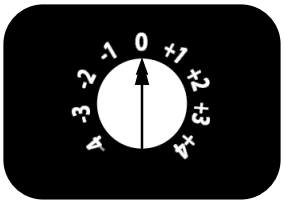


Figure 12.1

I. Clear Space

⚠ WARNING

RISK OF FIRE!
Do NOT place combustible objects in front or to the sides of the appliance. High temperatures may ignite clothing, furniture or draperies.

Mantel: Avoid placing candles and other heat-sensitive objects on mantel or hearth. Heat may damage these objects.

NOTICE: Clearances may only be reduced by means approved by the regulatory authority having jurisdiction.

⚠ WARNING

RISK OF FIRE!
Keep combustible materials, gasoline and other flammable vapors and liquids clear of appliance.

- Do NOT store flammable materials in the appliance's vicinity.
- Do NOT use gasoline, lantern fuel, kerosene, charcoal lighter fluid or similar liquids to start or "freshen up" a fire in this heater.

Keep all such liquids well away from the heater while it is in use as combustible materials may ignite.

J. Thermostat Controls

Reference instruction sheet supplied with thermostat

STATIC NOTICE
Thermostat is protected against normal static electric discharges, however to minimize the risk of damaging the thermostat in extremely dry weather, please touch a grounded metal object before touching the thermostat.

CONNECT THERMOSTAT WIRES TO APPLIANCE:

There is a 4 screw terminal block located on the back lower left corner of the stove directly above the power cord inlet. The center 2 screws are for the thermostat wires **(Figure 13.1)**.

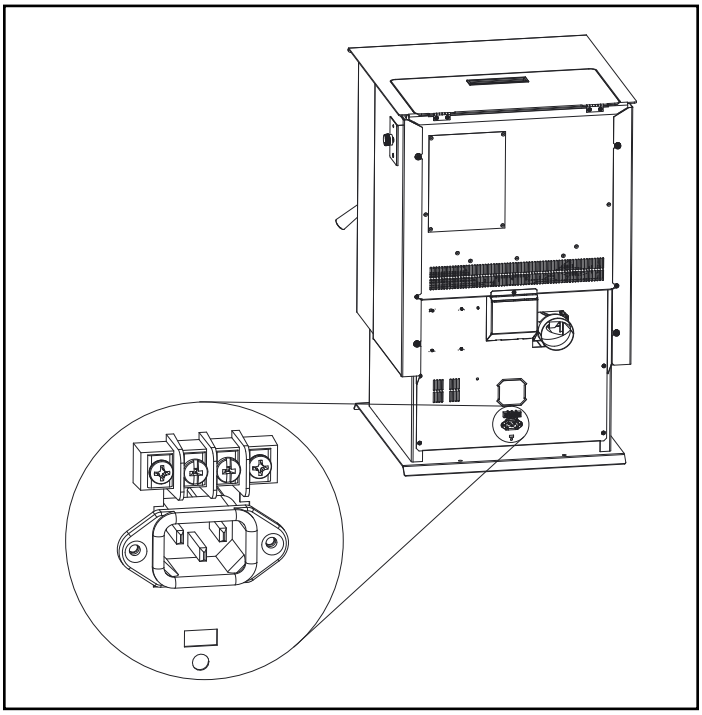


Figure 13.1

CAUTION

Shock hazard.

- Do NOT remove grounding prong from plug.
- Plug directly into properly grounded 3 prong receptacle.
- Route cord away from appliance.
- Do NOT route cord under or in front of appliance.

K. LED Color Coding Chart and Explanation

LED Color	Number of Flashes between pauses	Description	Notes
Green	Steady ON while priming feed tube (max time 2 minutes)	Feed Motor is running continuously. (This primes the feed tube).	When priming the feed system and filling the firepot, **DO NOT OVERFILL FIREPOT FOR IGNITION.** The appliance will automatically go into start up following the prime function.
Green	1x	Appliance is off and ready.	To start appliance, follow start up sequence.
Green	Blinks Continuously	Appliance is in the start up/ignition sequence or in shutdown.	During shut down, the blowers will shut off when the exhaust temperature has cooled.
Green	Varies	When in the automatic mode, the number of flashes between pauses indicates the burn rate (1 for low up to 5 for high).	Adjust the dial control to change the desired room temperature.
Amber	Blinks Continuously	Appliance is in the in shutdown sequence.	During shut down, the blowers will shut off when the exhaust temperature has cooled.
Red	1x	Empty Hopper Alarm	This alarm is caused by the fire going out from lack of fuel.
Red	2x	Exhaust Probe Alarm	Failed component error. See troubleshooting section for more information.
Red	4x	Missed Ignition	There are a total of 2 tries per ignition sequence. If after 2 tries there is no rise in exhaust temperature this error will occur. See the troubleshooting section for additional information and correction.
Red	8x	Exhaust Gas Over Temperature Alarm	The exhaust temperature exceeds the allowable limit. See the troubleshooting section for more information and correction.

⚠ WARNING

Fire Risk

Do NOT operate appliance:

- With appliance door open.
- Firepot floor open.

Do NOT store fuel:

- Closer than required clearances to combustibles to appliance
- Within space required for loading or ash removal.

4 Maintaining & Servicing Your Appliance

When properly maintained, your appliance will give you many years of trouble-free service. Contact your dealer to answer questions regarding proper operation, troubleshooting and service for your appliance.

A. Proper Shutdown Procedure

Turn dial control to off, let appliance completely cool and exhaust blower must be off. After cooling unplug appliance before servicing.

⚠ CAUTION

Shock and Smoke Hazard

- Smoke spillage into room can occur if appliance is not cool before unplugging.
- Risk of shock if appliance not unplugged before servicing appliance.

Follow the detailed instructions found in this section for each step listed as referenced in the chart below.

B. Quick Reference Maintenance Chart

Cleaning or Inspection	Frequency		Daily	Weekly	Monthly	Yearly
Firepot	Every 3 bags of fuel	OR	X			
Ash Removal from Firebox	Every 5 bags of fuel or more frequently depending on ash build-up	OR		X		
Glass	When clear view of firepot becomes obscure	OR		X		
Hopper	Every 25 bags of fuel	OR			X	
Exhaust Path, Drop Tube and Behind Baffles	Every 25 bags or more frequently depending on ash build-up	OR			X	
Door Handle & Gasket Inspection	Prior to heating season	OR			X	
Blower, Convection	Every 25 bags or more frequently depending on operating environment.	OR			X	
Blower, Exhaust	More frequently depending on the fuel type	OR				X
Firebox - Prepare for Non-Burn Season	At end of heating season	OR				X
Venting System	Every 3 tons or more frequently depending on the fuel type	OR				X

NOTICE: *These are recommendations. Clean more frequently if you encounter heavy build-up of ash at the recommended interval or you see soot coming from the vent.* **Not properly cleaning your appliance on a regular basis will void your warranty.**

C. General Maintenance

1. Types of Fuel

The type of fuel you are burning will dictate how often you have to clean your firepot.

If the fuel you are burning has a high dirt or ash content, it may be necessary to clean the firepot more than once a day.

Poor quality fuel will cause clinkers to form in the firepot. A clinker is formed when dirt, ash or a non-burnable substance is heated to 2000°F (1093°C) and becomes glass-like. See section D following for more details on fuels with high ash content.

2. Cleaning Firepot with the Firepot Clean-Out Tool

- **Frequency:** Daily or more often as needed
- **By:** Homeowner

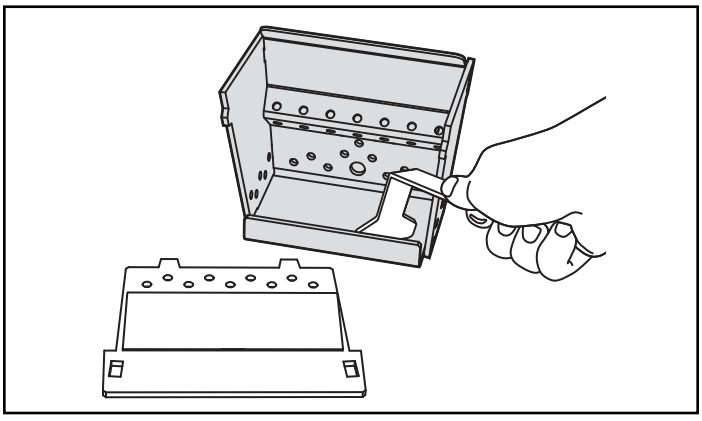
a. The appliance must be in complete shutdown and cool and the exhaust blower off. If you are just cleaning the firepot, there is no need to unplug the appliance.

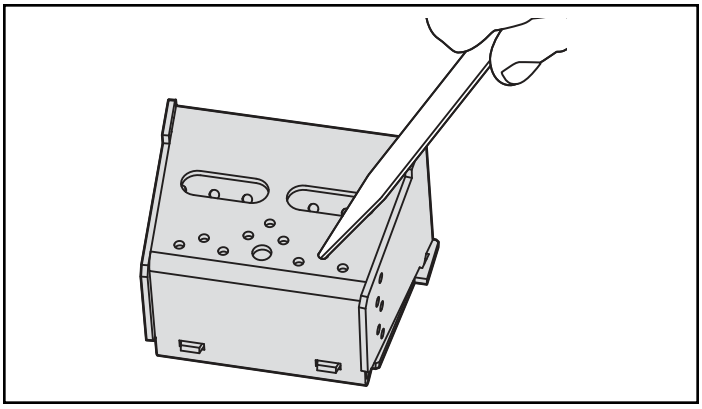
b. Open the front door of the appliance and lift out the firepot. Use the firepot cleaning tool to break up deposits inside the firepot and dispose in an approved container. Depending on the quality of fuel used, the front of the firepot may need to be removed for better access for cleaning.

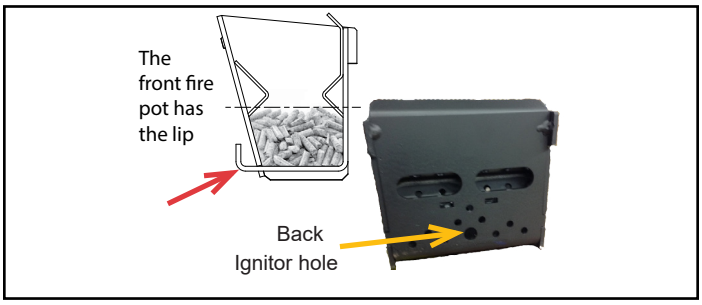
c. Use the narrow end of the firepot cleaning tool to clean the holes.

d. With the firepot out clean the area below the firepot.

e. Reassemble the firepot and place back inside the firepot riser. Make sure the firepot is in the correct direction with the slanted lip in the rear. Failure to install the firepot correctly may result in missed ignitions.







3. Ash Removal from Firebox

- **Frequency:** Weekly or more frequently depending on ash build-up.
- **By:** Homeowner

a. There must not be any hot ashes in the firebox during cleaning so allow the appliance to completely cool. The firebox ash should be removed every time the exhaust path is cleaned. Frequent cleaning of the ash in the firebox will help slow down the build-up of ash in the exhaust blower and vent system.

b. Vacuum out the firebox thoroughly on both sides of the firebox and the floor and ceiling. Remember to place the ash and debris into a metal or non-combustible container.

See Disposal of Ashes.

4. Disposal of Ashes

- **Frequency:** As needed
- **By:** Homeowner

Ashes should be placed in a metal container with a tight-fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from all combustible materials, pending final disposal.

If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have been thoroughly cooled.

⚠ WARNING

Disposal of Ashes

- Ashes should be placed in metal container with tight fitting lid.
- Ashes should be retained in closed container until all cinders have thoroughly cooled.

5. Cleaning the Glass

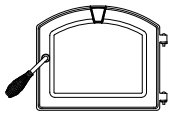
- **Frequency:** When clear view of the firepot becomes obscure
- **By:** Homeowner

a. Appliance must be completely cool before cleaning glass.

b. Vacuum fly ash from glass and door rope.

c. Use a damp paper towel or any non-abrasive glass cleaner. Wipe off with dry towel.

⚠ CAUTION



Handle glass assembly with care.

When cleaning glass:

- Avoid striking, scratching or slamming glass.
- Do NOT clean glass when hot.
- Do NOT use abrasive cleaners.
- Refer to maintenance instructions.
- Do NOT operate with glass cracked, broken or scratched.

6. Cleaning the Hopper

- **Frequency:** Monthly or after burning 25 bags of fuel
- **By:** Homeowner

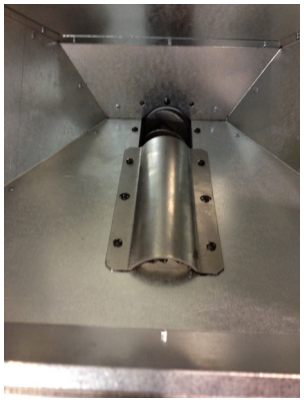
After burning approximately 25 bags of fuel you will need to clean the hopper to prevent sawdust build-up.

A combination of sawdust and pellets on the bottom end of the auger reduces the amount of fuel supply to the firepot. This can result in nuisance shutdowns and mis-starts.

a. The appliance must be in complete shutdown. Allow the appliance to completely run out of pellets and cool down.

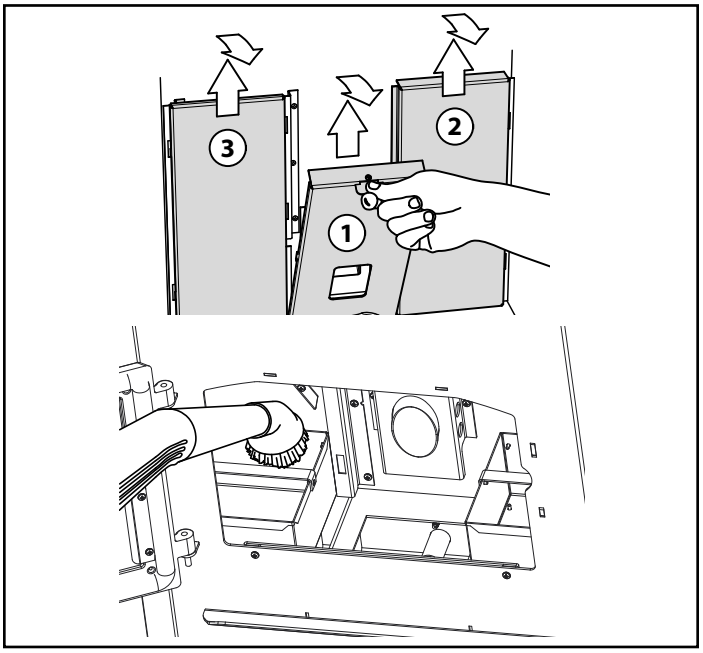
b. Empty the hopper of any remaining pellets.

c. Vacuum the hopper and feed tube. To access the feed tube remove the four screws from the auger cover located inside of the hopper.



7. Cleaning the Exhaust Path, Baffles & Drop Tube

- **Frequency:** Monthly or every 25 bags or more frequently depending on ash build-up.
- **By:** Homeowner
  a. Appliance must be completely cool.
  b. Open the door and remove the center baffle first and then the right and left baffles. Thoroughly vacuum the exhaust path and drop tube and continue throughout the rest of the firebox. Also vacuum the front and back of the baffles.
  c. Using a small brush, clean the inner walls of the exhaust outlet from the access hole inside the firebox. The access hole will be visible following the removal of the left side baffle. After loosening up debris on the inner walls of the outlet, vacuum out.
     — This is important as the exhaust temperature probe is attached to the right side of the outlet. If this is not maintained on a regular basis, the appliance will experience nuisance shut downs and/or missed ignitions.
  d. Replace the right and left baffles and then the center baffle and close and latch the door.
  e. Clean ash from ashpans by using a vacuum or by simply removing the ash pans located on the left and right hand side and disposing the ashes into a metal container.



8. Door Handle Inspection

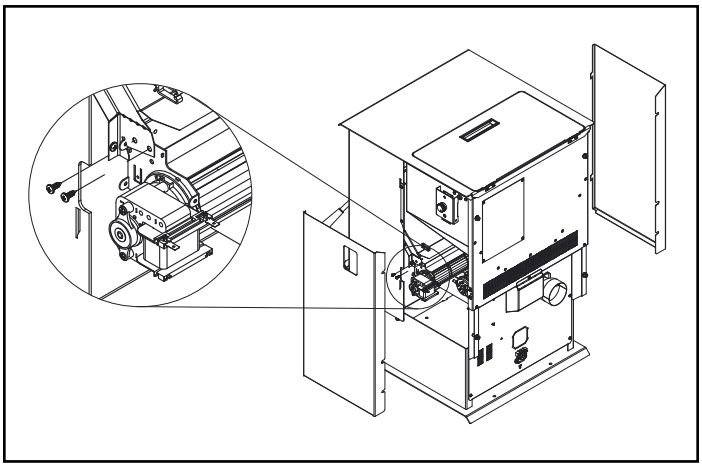
- **Frequency:** Monthly or prior to heating season
- **By:** Homeowner

The gasket between the glass and firebox should be inspected periodically to make sure there is a good seal.

NOTE: Quadra-Fire recommends using a heavy duty vacuum cleaner specifically designed for solid fuel appliance cleaning.

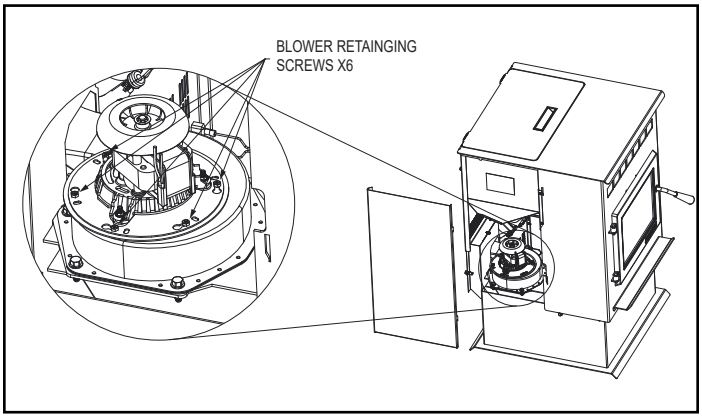
9. Cleaning Convection Blower - Requires No Lubrication

- **Frequency:** Monthly depending on Dust/Dirt build-up
- **By:** Homeowner or Qualified Service Technician
  a. Be sure the appliance is allowed to cool and has been unplugged.
  b. Remove the right and left side panels.
  c. Using phillips head screwdriver, remove screws from both sides of the blower (4x)
  d. Sweep or vacuum out any build-up on the impellers. Use a brush or compressed air to loosen dirt if needed.
     — Avoid damaging the impellers.



10. Cleaning Exhaust Blower - Requires No Lubrication

- **Frequency:** Yearly or more frequently depending on ash build-up
- **By:** Homeowner or Qualified Service Technician
  a. Be sure the appliance is allowed to cool, has been unplugged and the exhaust blower is off.
  b. Remove the left side panel.
  c. Loosen the six screws holding the exhaust blower motor to the housing and remove the motor. Using caution as to not damage the gasket when removing the blower. If damage occurs, install a new gasket available as a replacement part.
  d. Vacuum the blower's impellers. Use care not to bend or damage the blower fins.
  e. Using a brush or vacuum attachment, clean the inside of the exhaust outlet.
  f. Reattach the motor. Make sure the wires are attached to the terminals on the blower.



11. <u>Preparing Firebox for Non-Burn Season</u>

- **Frequency:** Yearly
- **By:** Homeowner

a. Be sure the appliance is allowed to cool, has been unplugged and the exhaust blower is off.

b. Remove all ash from the firebox and vacuum thoroughly.

c. Paint all exposed steel, including cast-iron.

— Purchase high temperature paint from your local retailer.

— Must use a high-temperature paint made specifically for heating appliances.

12. <u>Soot and Fly Ash: Formation & Need for Removal in Exhaust Venting System.</u>

- **Frequency:** Yearly or more frequently depending on ash build-up.
- **By:** Qualified Service Technician/Homeowner

Be sure the appliance is allowed to cool, has been unplugged and the exhaust blower is off.

The products of combustion will contain small particles of fly ash. The fly ash will collect in the exhaust venting system and restrict the flow of the flue gases.

At start-up if there is incomplete combustion, or if there is a shutdown or incorrect operation of the appliance it will lead to some soot formation. This will collect in the exhaust venting system.

The venting (chimney) system may need to be cleaned at least once a year or more often depending upon the quality of your fuel or if there are any horizontal pipe sections. Ash will build up more quickly in the horizontal sections and elbows.

D. High Ash Fuel Content Maintenance

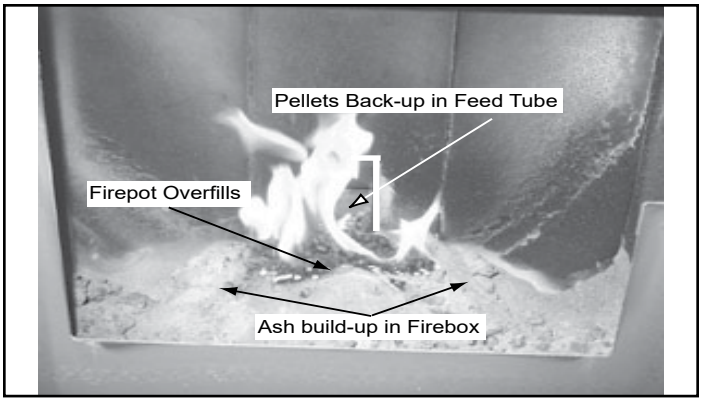
- **Frequency:** As needed
- **By:** Homeowner

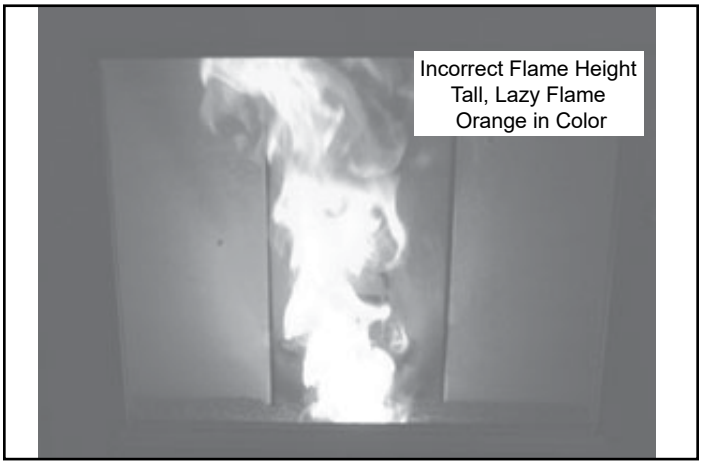
Poor quality pellet fuel, lack of maintenance, or if the small dial control is set to a less than optimum setting, poor combustion conditions that make the firepot fill quickly with ashes and clinkers.

This condition makes the appliance susceptible to overfilling the firepot with pellets which may result in smoking, sooting and possible hopper fires. The figure below shows an example where the firepot overfills, pellets back up into the feed tube and ash has accumulated in the firebox.

An inefficient and non-economical method of burning of fuel caused by poor quality pellet fuel is shown below.

If the ash buildup exceeds the half way point in the firepot **IMMEDIATE ATTENTION AND CLEANING IS REQUIRED**.





E. Frequently Asked Questions

What causes my glass to become dirty?

If the glass has white ash build up it is normal and the glass should be cleaned. If it is a black soot build up airflow through the appliance may be restricted. The most often cause is overdue maintenance and cleaning. See “Maintaining and Servicing Appliance” in the owner’s manual and/or make adjustments to the trim control.

How can I get more heat out of the appliance?

The most often cause of diminished heat output is overdue maintenance and cleaning. See “Maintaining and Servicing Appliance” in Section 4.

What should I do if I smell smoke or there is ash/soot coming from the appliance?

While there will always be some smoke smell from wood burning appliances (including pellet) you should investigate all venting to make sure it is sealed properly. Most venting requires silicone to seal the seams. In addition most homes are built very tight today and with exhaust systems can create negative pressure in the home. See “Negative Pressure” under Vent Information in the Installation Manual if you have checked the venting but still have smoke coming from the appliance. For ash or soot check the above and the exhaust blower housing and seals.

Why would my appliance run fine last winter but not start this fall?

It is possible that the stove was not properly prepared for the Non-burn season.

Why would the metal on the inside of the appliance begin to flake?

There are some pellet mills that get their raw materials from lumber mills that purchase logs that are transported in sea water. These pellets can have a higher salt content and cause the metals in the appliance to corrode prematurely and deteriorate. If you are seeing any components inside the firebox deteriorate it is recommended to change pellet brands immediately.

Is there a place to lubricate the blowers to quiet them down?

The most often cause of noisy blowers is from the impellers becoming dirty over time. See “General Maintenance & Cleaning” under “Maintaining & Servicing Appliance” in Section 4. No form of lubrication should ever need to be applied to the blowers.

What is the metal object with the bend in it for that came inside the plastic bag?

It is a clean-out tool used to help clean the firepot and remove any jams in the rare event they occur in the feed tube.

Why is there a black residue building up on the outside of my home?

Wind can cause this to happen. If the appliance is operating correctly very little soot should ever exit the termination cap. Also check to be sure the venting is installed per the owner’s manual and local codes.

Do I need an outside air kit?

Outside air is required for mobile home installations and in some jurisdictions. Refer to “Listing & Code Approvals” and “Mobile Home Installation”. Also refer to local building codes.

I am seeing sparks coming out of my pipe (termination cap) outside is this safe?

This is normal. As long as clearances to combustibles were followed this is safe.

I have no power to anything. Does this appliance have a circuit breaker or fuse or a reset button?

This appliance has one serviceable fuse on the control board and a resettable snap switch mounted to the feed tube.

Can I burn corn in my appliance?

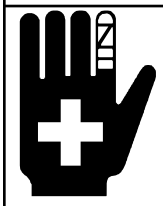
NO, corn is not an approved fuel.

Where is the serial # of my appliance is located?

The serial # is located on the back of the stove.

F. Glass Replacement

WARNING



- Glass is 5mm thick high temperature heat-resistant ceramic glass.
- DO NOT REPLACE with any other material.
- Alternate material may shatter and cause injury.

1. Open the door from the appliance by lifting door off of hinge pins and lay on a flat surface face down.
2. Using a Phillips Head screw driver, remove the 3 brackets and set aside.
3. Remove old glass and replace with the new glass.
4. Re-install the brackets using the same screws.

5 Troubleshooting

With proper installation, operation, and maintenance your appliance will provide years of trouble-free service. If you do experience a problem, this troubleshooting guide will assist a qualified service person in the diagnosis of a problem and the corrective action to be taken. This troubleshooting guide can only be used by a qualified service technician.

Symptom	Possible Cause	Corrective Action
Plug in appliance - No response.	No Power to outlet 5 amp fuse defective or blown Snap disc tripped or defective	Check circuit breaker at service panel. Replace fuse. Reset or replace snap disc.
Appliance Will Not Light	No Fuel Out of fuel Vacuum switch not closing, no vacuum Hopper lid open Defective hopper switch Feed System is Jammed Feed motor not plugged in No Igniter Igniter not plugged in Igniter not centered Igniter defective Firepot Plugged Firepot dirty Firepot in backwards Too much debris in the bottom of the firepot	Check hopper. Fill with fuel. Check exhaust blower is plugged in and operating. Check vacuum switch is plugged in Check vacuum hose is in good condition clear and connected at both ends Make sure venting system is clean Make sure front door is closed Check vacuum switch fitting on side of feed tube for blockage Close Hopper Lid Check hopper switch operation Inspect and un-jam the feed assembly Reconnect feed motor Plug the igniter in Center the igniter Igniter seated in chamber completely Replace igniter Clean firepot Clean below the firepot Put the firepot in the correct direction Clean firepot
Fire starts but goes out	Firepot is dirty Exhaust path and/or venting is plugged Exhaust sensor cannot read correct temperature / Exhaust path is dirty Exhaust probe is not attached to outlet Exhaust probe is not plugged in to the board Exhaust probe is defective (error code may result)	Clean firepot. Check flue vent for obstruction Inspect and clean exhaust path and venting clean firebox including behind the baffles Inspect and clean the exhaust outlet especially the right side wall. Remove the right side panel and inspect to see if the exhaust probe is attached and tight against the exhaust outlet Plug the probe into the board Replace the exhaust probe
Appliance start and stops frequently when operating in the automatic mode	Area were the appliance is installed heats and cools quickly depending on installation configuration. Tight spaces also may have an effect on the on/off cycling of the appliance. Ambient probe Probe touching heated surface	Check the proximity to doors and windows and/or insulation factor of the structure. If heat loss is quick the appliance may need to run on max or minimum. Inspect the probe and make sure it is not touching a surface that heats and cools quickly. The ambient probe has additional wire inside rear cavity which can be used to increase the distance from the appliance.

Symptom	Possible Cause	Corrective Action
Slow or smoky start-up and/or lazy flame	Dirty exhaust and/or venting system. Not enough combustion air Misaligned igniter Wet fuel / poor quality fuel	Check for ash build up in appliance, including behind rear panels, firebox, exhaust blower and venting. Adjust the trim Center the igniter in the chamber Replace fuel
Convection blower fails to start.	Convection Blower Jammed Not plugged in Exhaust probe Not sensing correct temperature Control box is defective.	 Inspect, clean, and un-jam the blower. Plug the blower in Replace blower Clean the exhaust outlet especially the right side. Replace control box.
Exhaust blower fails to start	Exhaust Blower Jammed Not plugged in Control board is defective.	 Inspect, clean, and un-jam the blower. Plug the blower in Replace blower Replace control board.
Convection Blower Does Not Turn Off	Convection blower short circuit. The fuse will be blown and upon replacement of the fuse, the blower will run continuously.	Inspect wires, blowers, and power cord to find cause of short circuit. Replace board and failed component.
Convection Blower makes noise	Screws attaching convection blower to appliance have become loose. Convection blower is dirty	Tighten screws Clean blower impellers
Exhaust Blower Does Not Turn Off	Exhaust blower short circuit. The fuse will be blown and upon replacement of the fuse, the blower will run continuously.	Inspect wires, blowers, and power cord to find cause of short circuit. Replace board and failed component.
Igniter does not turn off	Igniter short circuit. The fuse will be blown and upon replacement of the fuse, the igniter will remain on when appliance has power.	Inspect wires, blowers, and power cord to find cause of short circuit. Replace board and failed component.
Feed motor does not shut off	Feed motor short circuit. The fuse will be blown and upon replacement of the fuse, the feed motor will remain on when appliance has power.	Open hopper to stop the feed motor. Inspect wires feed motor, control board, and power cord to find source of short circuit. Replace control board and failed component.
Appliance fails to shut off.	Appliance running in maximum or minimum	Turn dial control to Automatic or Off position. See Also, “Feed Motor Does Not Shut Off”. The appliance should go into a shutdown.
Large, lazy flame, orange color. Black ash on glass.	Dirty appliance. Poor fuel quality, high ash content. Incorrect air-fuel adjustment Excessive feeding/Feed Motor locked on	Clean appliance, including firepot and venting system. Clean exhaust path. Try a different brand of pellets. Turn fuel adjustment trim dial to LEFT to increase combustion air speed. Follow corrective action for feed motor does not turn off symptom.
Excessive fuel spilling over the firepot into the ash wells and/or excessive flame	Excessive feeding/Feed Motor locked on	Follow corrective action for feed motor does not turn off.
Black soot on the side of the house	Exhaust path is dirty. Excessive feeding/Feed Motor locked on Incorrect air-fuel ratio	Clean Exhaust path Follow corrective action for feed motor does not turn off symptom. Turn fuel adjustment trim dial to the LEFT to increase combustion air speed See “Trim Adjustment” section on Page 12.

Following correction of any Alarm, turn the dial control to the OFF position, wait 10 seconds and turn back to desired setting OR unplug the appliance, wait 10 seconds then restore power.

Alarm (LED Flashing RED)	Possible Cause	Corrective Action
1 Red Flash: Empty Hopper Alarm	Hopper empty	Fill the hopper
	Auger jam	Inspect the feed tube for jams
	Vacuum switch not closing	Make sure firebox door is shut, vacuum hose is connected to switch and drop tube, wire connectors are connected to vacuum switch, control board, hopper switch, and safety snap disc.
	Hopper lid open	Close the hopper lid
	Exhaust probe does not sense temperature	Secure the exhaust probe keeping its wire away from hot surfaces and clean the exhaust plenum
	Snap disc tripped (#3)	Reset snap disc
	Exhaust probe not attached to outlet	Inspect the exhaust probe to see if it is securely attached to the side of the exhaust outlet - keeping its wire away from hot surfaces
	Exhaust path is dirty	Clean appliance including the fire pot, exhaust path, and venting system
2 Red Flashes: Exhaust Probe Fail	Not connected to the control board	Connect terminal end to control board
	Failed component	Replace exhaust probe – securing it to exhaust blower housing – keeping wire away from hot surfaces
4 Red Flashes: Missed Ignition	Hopper empty	Fill the hopper
	Feed motor doesn’t turn	Inspect feed motor circuit (hopper lid must be closed, vacuum switch must be closed, snap disc closed, and feed motor must be plugged in) Clear jam in feed tube
	Dirty appliance	Clean appliance including the fire pot, exhaust path, and venting system
	Igniter has no power or is defective	Check igniter lead connections or replace igniter
	Exhaust probe not properly installed	Secure exhaust probe to exhaust blower housing – keeping its wire away from hot surfaces
	Igniter chamber plugged with debris	Clean igniter chamber
8 Red Flashes: Exhaust Over-Temp	Feed Motor Locked On	Repair wire(s) and replace control board
	Non-approved fuel used	Only use wood pellet fuel. Do not enhance its performance with any other combustible substance.
	Convection blower dirty	Clean impellers

Table 23.1

6 Reference Materials

A. Maintenance and Service Log

Date of Service	Performed By	Description of Service

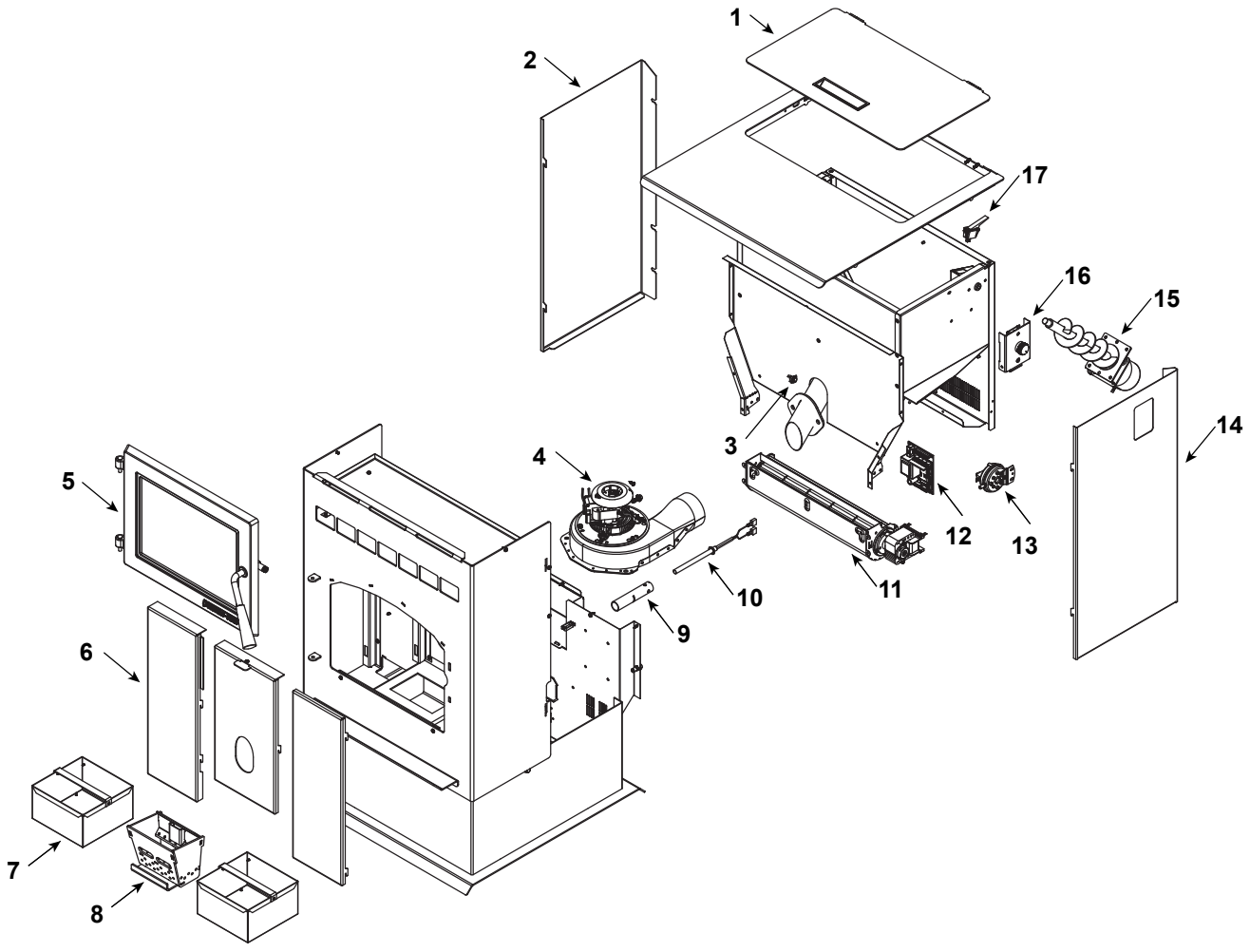
B. Service Parts List

QUADRA-FIRE® **Service Parts**

OUTFITTER-I

Pellet Cabinet Style Stove

Beginning Manufacturing Date: Jul 2022
Ending Manufacturing Date: Active



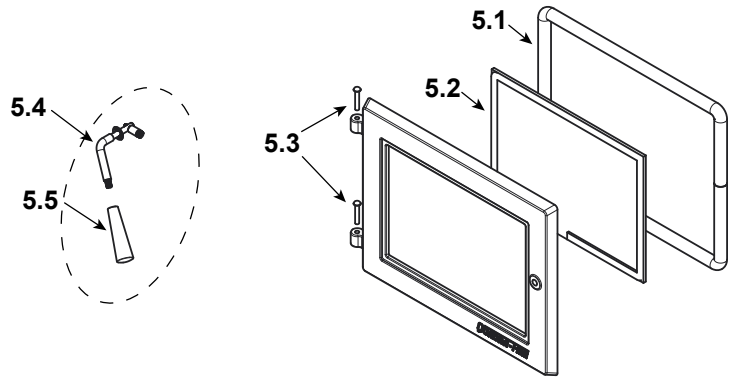
Part number list on following pages.

02/22

IMPORTANT: THIS IS DATED INFORMATION. When requesting service or replacement parts for your appliance please provide model number and serial number. All parts listed in this manual must be ordered from a dealer.

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	Stocked at Depot
1	Hopper Lid Assembly		SRV8106-019	
	Handle, Hopper Lid		SRV200-0110	
2	Side Curtain, Left Hand		SRV7086-154	Y
3	Snap disc, Manual Reset		SRV230-0080	Y
4	Exhaust Combustion Blower		812-4400	Y
	Gasket, Between Blower Housing and Stove		SRV240-0812	Y
	Gasket, Between Blower Housing and Motor		812-4710	Y

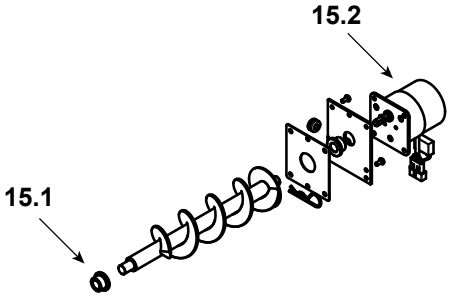
#5 Door Assembly



5	Door Assembly		SRV8105-021	Y
5.1	Rope, Door, 3/4” x 84”		832-1680	Y
5.2	Glass Assembly		SRV8105-173	Y
5.3	Hinge Pins	Pkg of 2	433-1590/2	Y
5.4	Threaded Handle Assembly Kit		SRV7093-024D	Y
5.5	Handle Black Phenolic Kit		KS-5140-1442	Y
6	Baffle Kit		SRV7079-006	
7	Ashpans	Pkg of 2	SRV8106-034	
8	Firepot		SRV7077-003	Y
9	Igniter Chamber Kit		SRV7077-110	
10	Igniter Kit		SRV7000-660	Y
11	Convection Blower		SRV7000-659	Y
	Bearing Assembly		SRV7000-820	
12	Control Board		SRV8106-050	Y
13	Vacuum Switch		SRV7000-531	Y
	Vacuum Hose, 5/32 ID	3 Ft	SRV240-0450	Y
	Hose, Barb Assembly		SRV229-0920	
14	Side Curtain, Right Hand		SRV7086-153	Y

See Following page for additional servcie parts

IMPORTANT: THIS IS DATED INFORMATION. When requesting service or replacement parts for your appliance please provide model number and serial number. All parts listed in this manual must be ordered from a dealer.

ITEM	DESCRIPTION	COMMENTS	PART NUMBER	Stocked at Depot
#15 Feed Assembly 				
15	Feed Assembly Kit		SRV7077-014	**Y**
15.1	Feed Shaft Bushing	Pkg of 2	7000-600/2	**Y**
15.2	Feed Motor		SRV7000-670	**Y**
16	Control Panel Assembly		SRV7080-036	**Y**
	Wire Harness, Dial Control		SRV7000-667	**Y**
17	Hopper Switch		SRV7000-612	**Y**
	Power Cord		812-1180	**Y**
	Exhaust Probe		SRV7000-669	**Y**
	Component Pack		SRV8106-028	
	Wire Harness		SRV7093-184	**Y**
	Wire Clip	Pkg of 10	7000-400/10	**Y**

QUADRA-FIRE®

NOTHING BURNS LIKE A QUAD

CONTACT INFORMATION

Hearth & Home Technologies
352 Mountain House Road
Halifax, PA 17032
Division of HNI INDUSTRIES

**Please contact your Quadra-Fire dealer with any questions or concerns.
For the number of your nearest Quadra-Fire dealer
log onto www.quadrafire.com**

CAUTION

DO NOT DISCARD THIS MANUAL

- Important operating and maintenance instructions included.
- Read, understand and follow these instructions for safe installation and operation.
- Leave this manual with party responsible for use and operation of this appliance.

We recommend that you record the following pertinent information for your heating appliance.

Date purchased/installed:	
Serial Number:	Location on appliance:
Dealership purchased from:	Dealer Phone: 1( ) -
Notes:	

HEARTH & HOME technologies™

Installation Manual
Installation & Appliance Set-Up

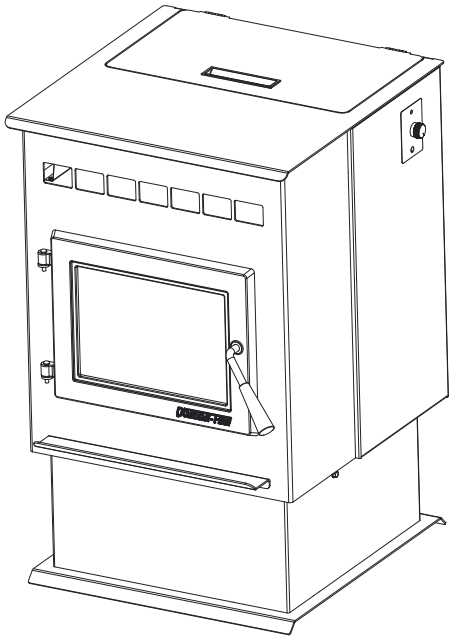
INSTALLER: Leave this manual with party responsible for use and operation.
OWNER: Retain this manual for future reference.

NOTICE: DO NOT DISCARD THIS MANUAL

QUADRA-FIRE®

PELLET BURNING APPLIANCE

MODEL NUMBER:
OUTFITTER-I



EM C-TL US

c UL US LISTED

Pellet Fuels Institute

⚠ CAUTION

Tested and approved for wood pellets, Burning of any other type of fuel voids your warranty.

Installation and service of this appliance should be performed by qualified personnel. Hearth & Home Technologies recommends HHT Factory Trained or NFI certified professionals.

hearthED FACTORY TRAINING Fuel Your Fire

NFI NATIONAL FIREPLACE INSTITUTE® A CERTIFICATION AGENCY

⚠ WARNING

If the information in these instructions is not followed exactly, a fire could result causing property damage, personal injury, or death.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Do not over fire - If appliance or chimney connector glows, you are over firing. Over firing will void your warranty.
- Comply with all minimum clearances to combustibles as specified.

Failure to comply may cause house fire.

⚠ WARNING

HOT SURFACES!
Glass and other surfaces are hot during operation AND cool down.

Hot glass will cause burns.

- Do not touch glass until it is cooled
- NEVER allow children to touch glass
- Keep children away
- CAREFULLY SUPERVISE children in same room as fireplace.
- Alert children and adults to hazards of high temperatures
- **High temperatures may ignite clothing or other flammable materials.**
- Keep clothing, furniture, draperies and other flammable materials away.

⚠ CAUTION

Check building codes prior to installation.

- Installation MUST comply with local, regional, state and national codes and regulations.
- Consult local building, fire officials or authorities having jurisdiction about restrictions, installation inspection, and permits.

NOTE: To obtain a French translation of this manual, please contact your dealer or visit www.quadrafire.com.

REMARQUE : Pour obtenir une traduction française de ce manuel, s'il vous plaît contacter votre revendeur ou visitez www.quadrafire.com.

Safety Alert Key:

- **DANGER!** Indicates a hazardous situation which, if not avoided will result in death or serious injury.
- **WARNING!** Indicates a hazardous situation which, if not avoided could result in death or serious injury.
- **CAUTION!** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- **NOTICE:** Indicates practices which may cause damage to the appliance or to property.

TABLE OF CONTENTS

➔ = Contains updated information

1 Important Safety Information

A. Appliance Safety Certification

Model	Outfitter-I
Laboratory	UL LLC
Report No.	MH60687
Type	Solid Fuel Room Appliance/Pellet Fuel Burning Type
Standard	ASTM E1509 and ULC S627 Room Appliance Pellet Fuel Burning type and (UM) 84-HUD, Mobile Home Approved.

B. Appliance Emissions Certification

Model	Outfitter-I
Laboratory	OMNI Test Laboratories, Inc.
Report No.	0061PS095E
Standard	ASTM E2779 and ASTM E2515
Can be found at: www.quadrafire.com/about-us/epa-certification	

The Outfitter-I is Certified to comply with 2020 particulate emission standards.

This pellet appliance needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this pellet appliance in a manner inconsistent with operating instructions in this manual.

NOTICE: This installation must conform with local codes. In the absence of local codes you must comply with the **ASTM E1509, ULC S627 and (UM) 84-HUD**.

C. BTU & Efficiency Specifications

EPA Certification Number:	184-19
EPA Certified Emissions:	0.7 grams per hour
***LHV Tested Efficiency:**	79.4%
****HHV Tested Efficiency:**	74.6%
*****EPA BTU Output:**	6,800 - 26,000 per hr
******BTU Input:**	9,600 to 33,200 per hr
Vent Size:	3" or 4" Type "L" or "PL"
Hopper Capacity:	60 lbs.
Fuel	Premium Wood Pellets
* Weighted average LHV (Low Heating Value) efficiency using data collected during EPA emissions tests in accordance with the requirements of CSA B415.1.	
** Weighted average HHV (High Heating Value) efficiency using data collected during EPA emissions tests in accordance with the requirements of CSA B415.1.	
*** A range of BTU outputs calculated using HHV efficiency and the burn rates from the EPA tests.	
**** Based on the maximum feed rate per hour multiplied by approximately 8600 BTU's which is the average BTU's from a pound of pellets.	

D. Glass Specifications

This appliance is equipped with 5mm ceramic glass. Replace glass only with 5mm ceramic glass. Please contact your dealer for replacement glass.

E. Electrical Rating (on high)

115 VAC, 60 Hz, Start 2.6 Amps, Run .9 Amps

F. Mobile Home Approved

- This appliance is approved for mobile home installations when not installed in a sleeping room and when an outside combustion air inlet is provided.
- The structural integrity of the mobile home floor, ceiling, and walls must be maintained.
- The appliance must be properly grounded to the frame of the mobile home with #8 copper ground wire, and use only listed double-wall connector pipe.
- Outside Air Kit, part 811-0872 or OAK-3 must be installed in a mobile home installation.
- Appliance must be secured to mobile home structure.

G. Non-Combustible Materials

Material which will not ignite and burn, composed of any combination of the following:

- Steel
- Plaster
- Brick
- Iron
- Concrete
- Tile
- Glass
- Slate

Materials reported as passing **ASTM E 136, Standard Test Method for Behavior of Metals, in a Vertical Tube Furnace of 750° C**.

H. Combustible Materials

Material made of/or surfaced with any of the following materials:

- Wood
- Compressed Paper
- Plant Fibers
- Plastic
- Plywood/OSB
- Sheet Rock (drywall)

Any material that can ignite and burn: flame proofed or not, plastered or non-plastered.

I. Sleeping Room

When installed in a sleeping room it is recommended that 3ft of vertical be installed prior to horizontally exiting the room and a smoke/CO alarm be installed in the bedroom. The size of the room must be at least 50ft³ per 1,000 Btu/hr stove input, if the stove exceeds the room size, outside air must be installed.

J. Stove Composition

These pellet burning stoves are made of steel, cast iron or a combination of both with a ceramic viewing glass. These stoves incorporate a self-feeding system including a fuel storage hopper and a mechanical feed system which is controlled by a micro-processing control board. Each model contains a variable speed distribution blower to circulate room air through the heat exchanger and out to the room and a combustion blower which forces the exhaust out of the stove.

K. California - Prop65

⚠ WARNING

This product and the fuels used to operate this product (wood), and the products of combustion of such fuels, can expose you to chemicals including carbon black, which is known to the State of California to cause cancer, and carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to: WWW.P65Warnings.ca.gov

⚠ WARNING

Fire Risk

Hearth & Home Technologies disclaims any responsibility for, and the warranty will be voided by, the following actions:

- Installation and use of any damaged appliance.
- Modification of the appliance.
- Installation other than as instructed by Hearth & Home Technologies.
- Installation and/or use of any component part not approved by Hearth & Home Technologies.
- Operating appliance without fully assembling all components.
- Operating appliance without legs attached (if supplied with appliance).
- Do NOT Over fire - If appliance or chimney connector glows, you are over firing.

Any such action that may cause a fire hazard.

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.

For assistance or additional information, consult a qualified installer, service agency or your dealer.

NOTE: Hearth & Home Technologies, manufacturer of this appliance, reserves the right to alter its products, their specifications and/or price without notice.

⚠ CAUTION

USE OF IMPROPER FUELS, FIRESTARTERS OR ALTERING THE STOVE FOR HIGHER HEAT OUTPUT MAY CAUSE DAMAGE TO THE STOVE AND COULD RESULT IN A HOUSE FIRE. USE ONLY APPROVED FUELS AND OPERATION GUIDELINES

2 Getting Started

A. Design, Installation & Location Considerations

1. Appliance Location

NOTICE: Check building codes prior to installation.

- Installation MUST comply with local, regional, state and national codes and regulations.
- Consult insurance carrier, local building inspector, fire officials or authorities having jurisdiction over restrictions, installation inspection and permits.

It is a good idea to plan your installation on paper, using exact measurements for clearances and floor protection, before actually beginning the installation. Location of the appliance and chimney will affect performance.

Consideration must be given to:

- Safety, convenience, traffic flow
- Placement of the chimney and chimney connector and to minimize the use of chimney offsets.
- Place the appliance where there will be a clear passage for a Listed chimney through the ceiling and roof (vertical) or through exterior wall (horizontal).
- Installing the required outside air kit will affect the location of the vent termination.

When locating vent and venting termination, the ideal location is to vent above roof line when possible. This minimizes the affects of wind loading.

Since pellet exhaust can contain ash, soot or sparks, you must consider the location of:

- Windows
- Air Intakes
- Air Conditioner
- Overhang, soffits, porch roofs, adjacent walls
- Landscaping, vegetation
- Horizontal or vertical vent termination

2. Floor Support

The supporting floor under the appliance must be able to handle the weight of the appliance, fuel load and the weight of the chimney.

Ensure that your floor will support these weights prior to installation. Add sufficient additional support to meet this weight requirement prior to installation. The weight of the appliance is 240 lbs.

WARNING

Risk of Fire.
Damaged parts could impair safe operation. Do NOT install damaged, incomplete or substitute components.

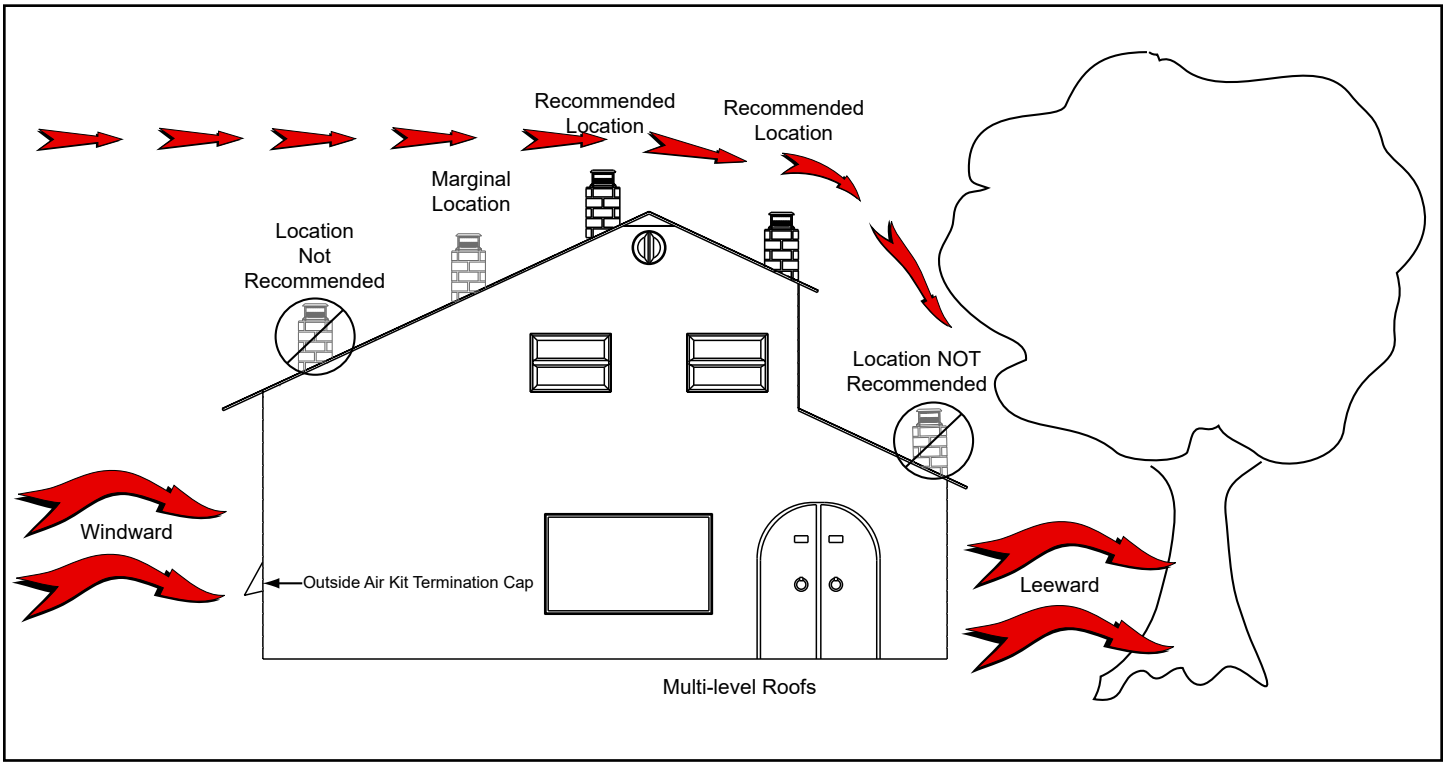


Figure 5.1

B. Thermostat Wall Control Location

The thermostat wall control's location will have some affect on the appliance's operation.

- If you need to run more than 25' make sure you use a continuous strand of 18 to 22 gauge thermostat wire.
- When located close to the appliance, it may require a slightly higher temperature setting to keep the rest of the house comfortable.
- When located in an adjacent room or on a different floor level, you will notice higher temperatures near the appliance.

C. Tools And Supplies Needed

Tools and building supplies normally required for installation, unless installing into an existing masonry fireplace:

- Reciprocating Saw
- Channel Locks
- Hammer
- Phillips Screwdriver
- Tape Measure
- Plumb Line
- 1/4" Self-Tapping Screws
- Framing Material
- Hi-temp Caulking Material
- Gloves
- Safety Glasses
- Framing Square
- Electric Drill & Bits (1/4")
- Level

May also need:

- Vent Support Straps
- Venting Paint

D. Inspect Appliance and Components

- Open the appliance and remove all the parts and articles packed inside the Component Pack. Inspect all the parts and glass for shipping damage.
- Report to your dealer any parts damaged in shipment.
- All labels have been removed from the glass door.
- Plated surfaces have been wiped clean with a soft cloth, if applicable.
- **Read all the instructions before starting the installation. Follow these instructions carefully during the installation to ensure maximum safety and benefit.**
- **Follow pipe manufacturer instructions for installation and air clearance requirements.**

WARNING

Risk of Fire!

- Damaged parts could impair safe operation.
- Do NOT install damaged, incomplete or substitute components.

WARNING

Hearth & Home Technologies disclaims any responsibility for, and the warranty will be voided by, the following actions:

- Installation and use of any damaged appliance.
- Modification of the appliance.
- Installation other than as instructed by Hearth & Home Technologies.
- Installation and/or use of any component part not approved by Hearth & Home Technologies.
- Operating appliance without fully assembling all components.
- Operating appliance without legs attached (if supplied with appliance).
- Do NOT Over fire!

Or any such action that may cause a fire hazard.

E. Removal of Appliance from Pallet

1. Remove box and 2x4 structural boards being careful not to damage product
2. Using 3/8 socket or wrench, loosen the (2) retaining bolts on the back of stove and remove right panel.
3. Using 7/16 socket or wrench, remove pallet mount bolts and washers.
4. Remove pallet from under stove
5. Assemble side panel back on stove

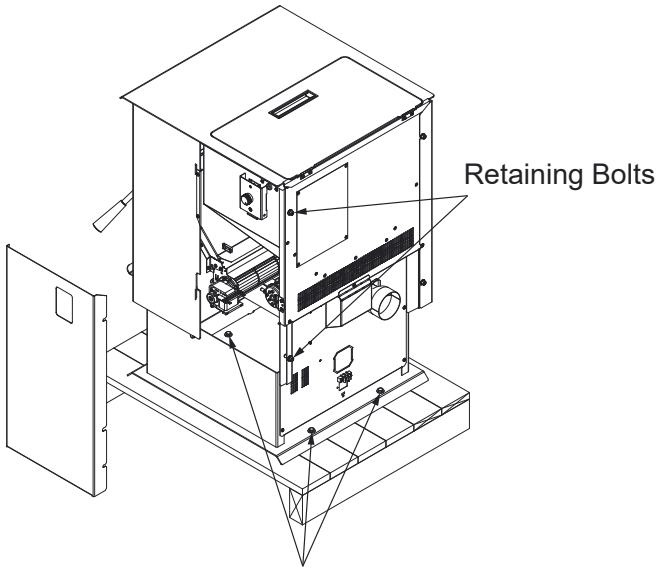


Figure 6.1

F. Install Checklist

ATTENTION INSTALLER:
Follow this Standard Work Checklist

This standard work checklist is to be used by the installer in conjunction with, not instead of, the instructions contained in this installation manual.

Customer: _____
Date Installed: _____
Lot/Address: _____
Location of Appliance: _____
Installer: _____
Dealer/Distributor Phone Number: _____
Serial Number: _____
Model Name: _____

WARNING! Risk of Fire or Explosion! Failure to install appliance to these instructions can lead to a fire or explosion.

Appliance Install	**YES**	**IF NO, WHY?**
Verified clearance to combustibles.	☐	
Appliance is leveled and connector is secured to appliance.	☐	
Hearth extension size/height decided.	☐	
Outside air kit installed.	☐	
Floor protection requirements have been met.	☐	
If appliance is connected to a masonry chimney, it should be cleaned and inspected by a professional. If installed to a factory built metal chimney, the chimney must be installed according to the manufacturer's instructions and clearances.	☐	
Venting/Chimney		
Chimney configuration complies with diagrams.	☐	
Chimney installed, locked and secured in place with proper clearance.	☐	
Chimney meets recommended height requirements (5 feet minimum vertical).	☐	
Roof flashing installed and sealed.	☐	
Terminations installed and sealed.	☐	
Electrical		
120 VAC unswitched power provided to the appliance.	☐	
Check outlet with multi-meter for proper polarity and voltage (115-120 VAC).	☐	
Record voltage reading: _____		
Clearances		
Verified all clearances meet installation manual requirements.	☐	
Mantels and wall projections comply with installation manual requirements.	☐	
Floor protection and heart extensions installed per manual requirements.	☐	
Appliance Setup		
All protective materials removed.	☐	
All labels have been removed from the door.	☐	
All packaging materials are removed from inside/under appliance.	☐	
Manual bag and all of its contents are removed from inside/under the appliance and given to the party responsible for use and operation.	☐	
Started appliance and verified that all motors and blowers operate as they should.	☐	
Checked draft using a Manometer. Record readings: _____	☐	
Checked vacuum using a Manometer. Record readings: _____	☐	

Hearth & Home Technologies recommends the following:
Photographing the installation and copying this checklist for your file.
That this checklist remain visible at all times on the appliance until the installation is complete.

Comments: Further description of the issues, who is responsible (Installer/Builder/Other Trades, ets.) and corrective action needed:
Comments communicated to party responsible _____ by _____ on _____
(Builder/Gen. Contractor) (Installer) (Date)

3 Dimensions and Clearances

A. Appliance Dimensions

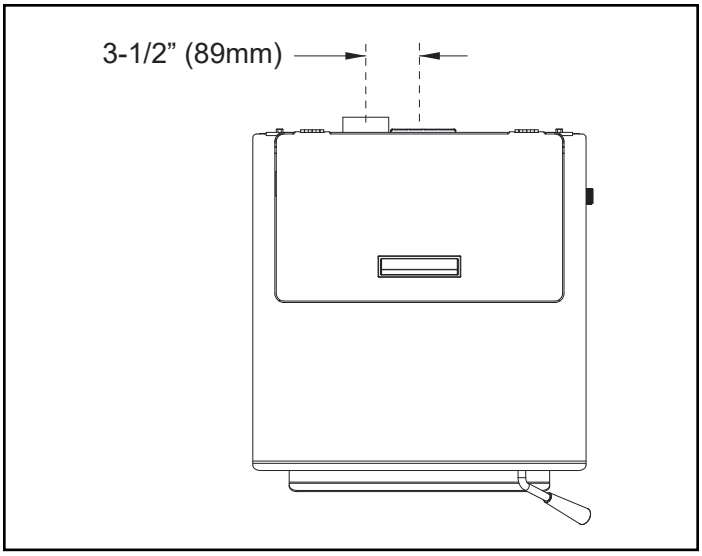


Figure 8.1 - Top View

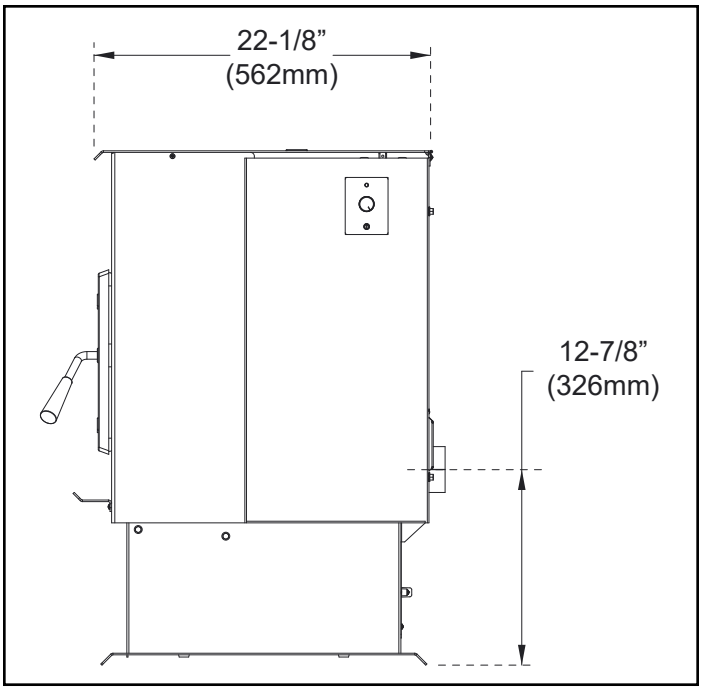


Figure 8.2 - Side View

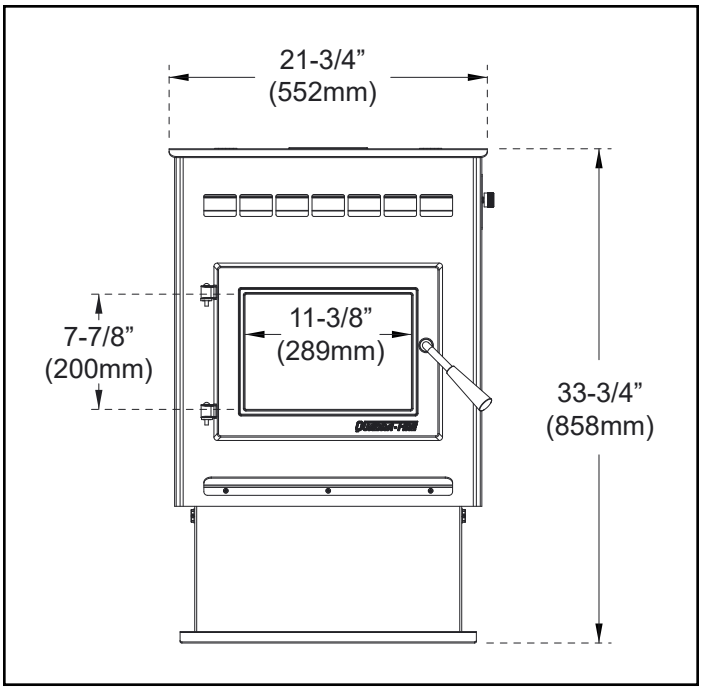


Figure 8.3 - Front View

B. Clearances to Combustibles (UL and ULC)

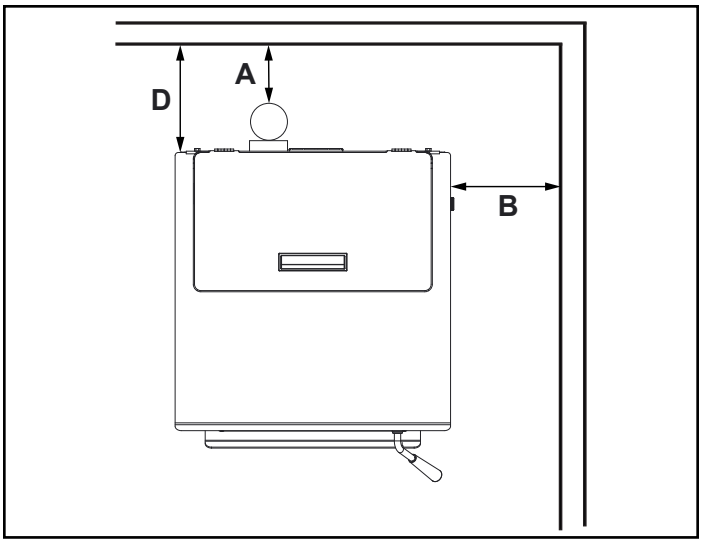


Figure 9.1

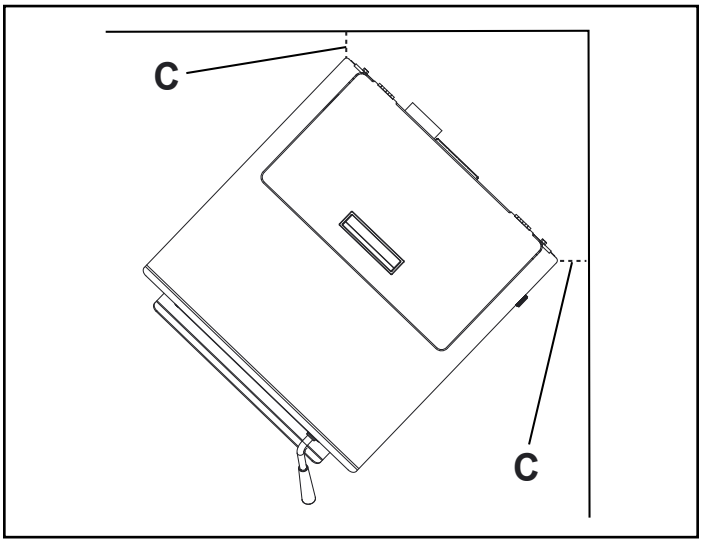


Figure 9.2

Straight Back Against Wall		Inches	Millimeters
A	Back Wall to Pellet Pipe	3	76
B	Side Wall to Appliance	13	330

Corner Installation			
Straight Back Against Wall		**Inches**	**Millimeters**
C	Walls to Appliance	3	76

Horizontal Installation			
Straight Back Against Wall		**Inches**	**Millimeters**
D	Back wall to Appliance	2	51
B	Side wall to Appliance	13	330

Table 9.1

NOTE:

- Illustrations reflect typical installations and are FOR DESIGN PURPOSES ONLY.
- Illustrations/diagrams are not drawn to scale.
- Actual installation may vary due to individual design preference.

C. Hearth Pad Requirements (UL and ULC)

EMBER PROTECTION: It is necessary to install a Type I floor protector.

Floor protector must be non-combustible material, extending beneath appliance with a minimum of 6 inches (152mm) in front of glass and 6 inches (152mm) to both sides of the fuel loading door. Open the door and measure 6 inches (152mm) from the side edge of the opening in the face of the appliance, Figures 10.1 thru 10.4.

USA INSTALLATIONS: A non-combustible floor protection is recommended extending beneath the flue pipe when installed with horizontal venting or under the Top Vent Adapter with vertical installation.

CANADA INSTALLATIONS: A non-combustible floor protection extending beneath the flue pipe is **required** with horizontal venting or under the Top Vent Adapter with vertical installation.

⚠ CAUTION

Hearth and Home Technologies does not recommend adhesive based vinyl flooring due to thermal expansion. Floating-style flooring (LVP - luxury vinyl plank or LVT – luxury vinyl tile) can be used, but it will reach temperatures up to 110 °F in a room with ambient temperature of 70 °F. Consult flooring specifications to ensure compatibility.

When using LVP/LVT flooring, pellet stove and inserts require 29 inches of alternative flooring in front of the stove or insert before using LVP/LVT (luxury vinyl plank/tile flooring). Whether the stove or insert sits flush on the floor or is elevated on a raised hearth, 29 inches of alternative flooring is required in front of the stove or insert.

For all other flooring, continue to follow clearance to combustible requirements in the installation manual.

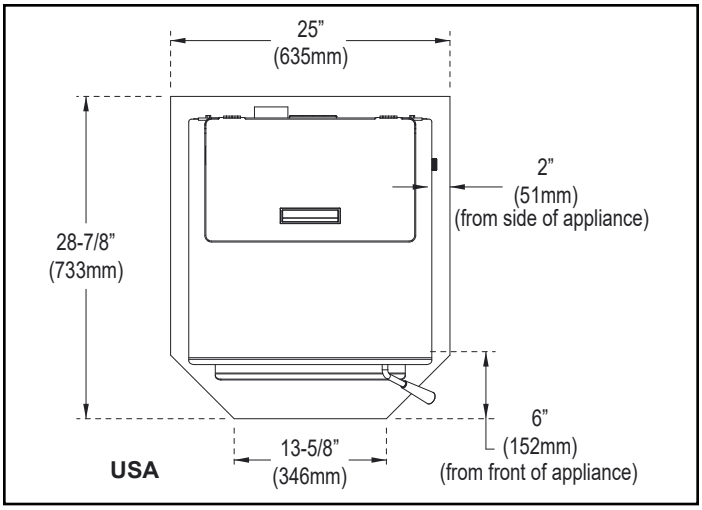


Figure 10.1

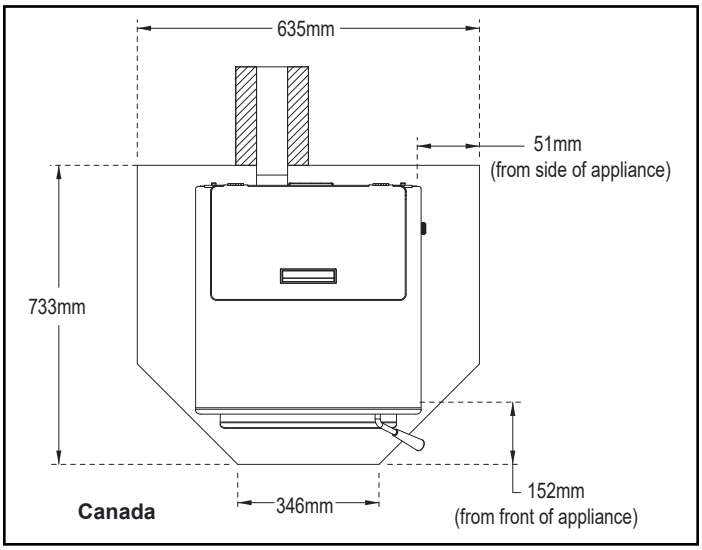


Figure 10.2

WARNING

Fire Risk

Comply with all minimum clearances to combustibles as specified.

Failure to comply may cause house fire.

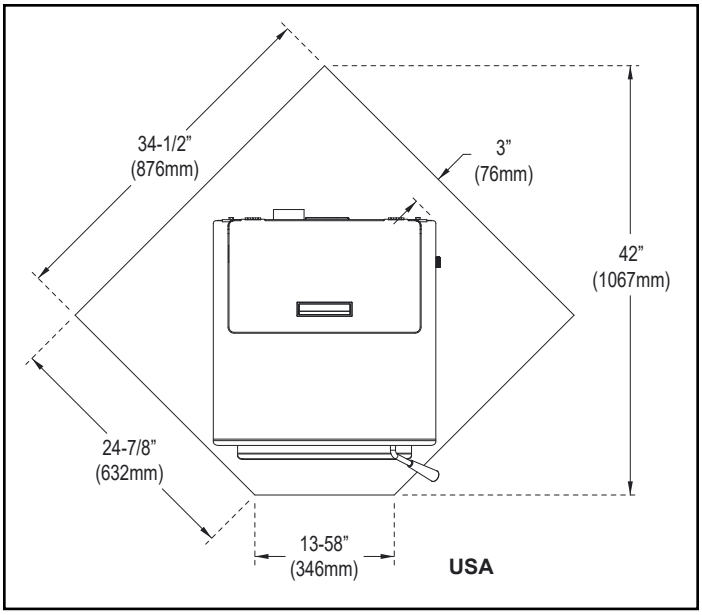


Figure 10.3

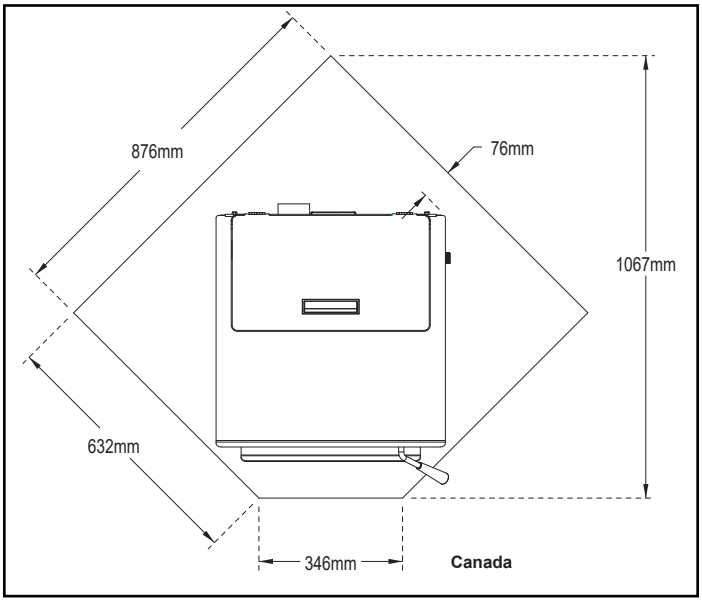
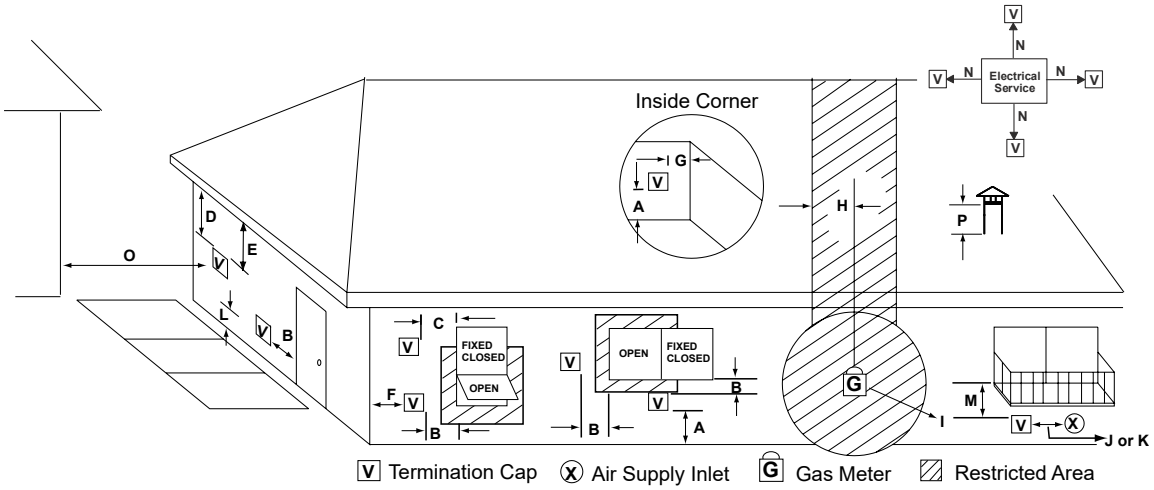


Figure 10.4

4 Vent Information

A. Venting Termination Minimum Requirements



All minimum clearances are listed with an Outside Air Kit (OAK) installed, unless otherwise noted in table below.

A	12 in.	Above Finish Grade (the grade surface must be a non-combustible material
B	12 in. 48 in. no OAK	Open door or window: below or to the side
B	12 in.	Open door or window: above
C	6 in.	Permanently closed window: above, below or to the side
D	18 in. 36 in. no OAK	Vertical clearance to a ventilated soffit located above the terminal within a horizontal distance of 2 ft from the center-line of the terminal
E	12 in.	Clearance to unventilated soffit
F	12 in.	Clearance to outside corner
G	12 in.	Clearance to inside corner
H	36 in.	Above gas meter/regulator measured from horizontal center-line of regulator
I	36 in. USA 72 in. Canada	Clearance to service regulator vent outlet
J	12 in. 48 in. no OAK	Clearance to non-mechanical air supply inlet to the building or the combustions air inlet to any other appliance
K	10 ft horizontal 3 ft vertical	Clearance to mechanical air supply
L	7 ft.	Above paved sidewalk, paved driveway located on **public** property
M	12 in.	Under an open veranda, porch, deck or balcony
N	See Note below*	Electric service: above, below or to the side (location must not obstruct or interfere with access)
O	24 in.	Adjacent building, fences and protruding parts of the structure
P	12 in.	Clearance above roof line for vertical terminations
	24 in.	Above grass, top of plants, wood or any other combustible
	12 in. 36 in. no OAK	Clearance from any forced air intake of other appliance
	12 in.	Clearance horizontally from combustible wall
	15 in.	Vented directly through a wall, minimum length of horizontal pipe
	6 in. horizontal 12 in. vertical	Minimum horizontal or vertical terminations must protrude from wall

***NOTE:** Consult local building, fire officials or authorities having jurisdiction. Local codes or regulations may require different clearances.

NOTICE: Termination must exhaust above air inlet elevation.

- It is recommended that at least 60 inches (1.52m) of vertical pipe be installed when appliance is vented directly through a wall. This will create a natural draft, which will help prevent the possibility of smoke or odor venting into the home during a power outage.
- It will also keep exhaust from causing a nuisance or hazard by exposing people or shrubs to high temperatures.
- The safest and preferred venting method is to extend the vent vertically through the roof or above the roof.

NOTICE: Do NOT Terminate Vent:

- In any location that will allow flue gases or soot from entering or staining the building.
- In any location which could create a nuisance or hazard.
- In any enclosed or semi-enclosed area such as a carport, garage, attic, crawl space, under a sun deck or porch, narrow walkway.
- Closely fenced area, or any location that can build up a concentration of fumes such as a stairwell, covered breezeway, etc.

B. Avoiding Smoke and Odors

Negative Pressure, Shut-Down and Electrical Power Failure

To reduce the probability of back-drafting or burn-back in the pellet appliance during power failure or shut down conditions, it must be able to draft naturally without exhaust blower operation.

Negative pressure in the house will resist this natural draft if not accounted for in the pellet appliance installation.

Heat rises in the house and leaks out at upper levels. This air must be replaced with cold air from outdoors which flows into lower levels of the house.

Vents and chimneys into basements and lower levels of the house can become the conduit for air supply and reverse under these conditions.

Outside Air

An outside air kit is recommended in all installations. The Outside Air Kit must be ordered separately.

Per national building codes, consideration must be given to combustion air supply to all combustion appliances. Failure to supply adequate combustion air for all appliance demands may lead to back-drafting of those and other appliances.

When the appliance is roof vented (strongly recommended):

The air intake is best located on the exterior wall oriented towards the prevailing wind direction during the heating season.

When the appliance is side-wall vented:

The air intake is best located on the same exterior wall as the exhaust vent outlet and located lower on the wall than the exhaust vent outlet.

The outside air supply kit can supply most of the demands of the pellet appliance, but consideration must be given to the total house demand.

House demand may consume the air needed for the appliance. It may be necessary to add additional ventilation to the space in which the pellet appliance is located.

Consult with your local HVAC professional to determine the ventilation demands for your house.

Vent Configurations

When installing a pellet appliance with a horizontal vent configuration the frequency of power outages should be considered:

- Power outages during operation will cause the appliance to immediately turn off and may create conditions where smoke will back draft into the house. In order to reduce the likelihood of smoke back drafting into the house during a power outage, Hearth and Home Technologies strongly suggests:
  - Installing the pellet venting with a minimum vertical run of 5 feet (1.52m).
  - Installing the outside air kit at least 4 feet (1.22m) below the vent termination.

To prevent soot damage to exterior walls of the house and to prevent re-entry of soot or ash into the house:

- Maintain specified clearances to windows, doors and air inlets, including air conditioners.
- Vents should not be placed below ventilated soffits. Run the vent above the roof.
- Avoid venting into alcove locations.
- Vents should not terminate under overhangs, decks or onto covered porches.
- Maintain minimum clearance of 12 inches (305mm) from the vent termination to the exterior wall. If you see deposits developing on the wall, you may need to extend this distance to accommodate your installation conditions.

CAUTION

- DO NOT CONNECT THIS Appliance TO A CHIMNEY FLUE SERVICING ANOTHER APPLIANCE.
- DO NOT CONNECT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.

Hearth & Home Technologies assumes no responsibility for, not does the warranty extend to, smoke damage caused by reverse drafting of pellet appliances under shut down or power failure conditions.

C. Negative Pressure

Negative pressure results from the imbalance of air available for the appliance to operate properly. It can be strongest in lower levels of the house.

Causes include:

- Exhaust fans (kitchen, bath, etc.)
- Range hoods
- Combustion air requirements for furnaces, water appliances and other combustion appliances
- Clothes dryers
- Location of return-air vents to furnace or air conditioning
- Imbalances of the HVAC air handling system
- Upper level air leaks such as:
  - Recessed lighting
  - Attic hatch
  - Duct leaks

To minimize the effects of negative air pressure:

- Install the outside air kit with the intake facing prevailing winds during the heating season
- Ensure adequate outdoor air for all combustion appliances and exhaust equipment
- Ensure furnace and air conditioning return vents are not located in the immediate vicinity of the appliance
- Avoid installing the appliance near doors, walkways or small isolated spaces
- Recessed lighting should be a “sealed can” design
- Attic hatches weather stripped or sealed
- Attic mounted duct work and air handler joints and seams taped or sealed

WARNING

Risk of Asphyxiation!
Negative pressure can cause spillage of combustion fumes and soot.

D. Draft

Draft is the pressure difference needed to vent an appliance successfully. When an appliance is drafting successfully, all combustion byproducts are exiting the home through the chimney.

Install through the warm airspace enclosed by the building envelope. This helps to produce more draft, especially during lighting and die-down of the fire.

Considerations for successful draft include:

- Preventing negative pressure
- Location of appliance and chimney

NOTICE: Hearth & Home Technologies assumes no responsibility for the improper performance of the chimney system caused by:

- Inadequate draft due to environmental conditions
- Down drafts
- Tight sealing construction of the structure
- Mechanical exhausting devices

E. Minimum Vacuum Requirements

.075 inches W.C.

F. Chimney and Exhaust Connection

1. **Chimney & Connector**: Use 3 or 4 inch (76-102mm) diameter type “L” or “PL” venting system. It can be vented vertically or horizontally.
2. **Mobile Home:** Approved for all Listed pellet vent. If using the 3 inch (76mm) vertical Top Vent Adapter Kit or the 3 to 6 inch (76-152mm) Top Vent Offset Adapter, use Listed double wall flue connector. A Quadra-Fire Outside Air Kit must be used with manufactured home installations.
3. **Residential:** The 3 inch (76mm) vertical Top Vent Adapter Kit and the 3 to 6 inch (76-152mm) Top Vent Offset Adapter are tested to use 24 gauge single wall flue connector or Listed double wall flue connector to Class A Listed metal chimneys, or masonry chimneys meeting International Residential Code standards for solid fuel appliances.
4. **INSTALL VENT AT CLEARANCES SPECIFIED BY THE VENT MANUFACTURER.**
5. Seal exhaust venting system to the appliance with High Temp 500ºF RTV silicone sealant. Secure the venting system to the appliance with at least (3) screws. All pellet vent pipe must be secured together either by means provided by the pipe manufacturer or by (3) screws at each joint.
6. DO NOT INSTALL A FLUE DAMPER IN THE EXHAUST VENTING SYSTEM OF THIS Appliance.
7. DO NOT CONNECT THIS Appliance TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.

NOTE: Follow venting manufacturers recommendations for sealing pipe joints.

G. Equivalent Feet of Pipe

The table below can help you calculate the equivalent feet of pipe which is a method used to determine pellet vent size **(Figure 14.1)**.

CAUTION

Vent surfaces get HOT, can cause burns if touched. Non-combustible shielding or guards may be required.

Example of 3 Elbow-Rear Vent Termination Calculation

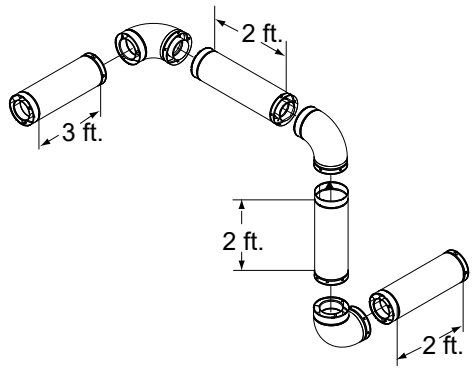


Figure 14.1

Pellet Venting Component	# of Elbows	Feet of Pipe	Multiplied By	Equivalent Feet	Components Equivalent Feet
90° Elbow or Tee	3		X	5	15
45° Elbow			X	3	
Horizontal Pipe		7	X	1	7
Vertical Pipe		2	X	0.5	1
				Total Equivalent Feet	23

Table 14.1

NOTE: This is a generic example and is not intended to represent any specific fuel type.

H. Pipe Selection Chart

The chart will help you in determining proper venting size according to the equivalent feet of pipe calculated previously and the altitude above sea level of this installation **(Figure 14.2)**.

1. Locate the calculated equivalent feet of pipe on the vertical left side of the chart.
2. Move to the right horizontally on the chart until you reach your altitude above sea level.
3. If you fall below the diagonal line, 3 or 4 inch (76 to 102mm) pipe may be used.
4. If it is anywhere above the diagonal line, a 4 inch (102mm) diameter pipe is required.

NOTICE:
- A 90° elbow is 5 times as restrictive to the flow of exhaust gases under positive pressure as 1 foot (305mm) of horizontal pipe.
- A foot of horizontal pipe is twice as restrictive as a foot of vertical pipe.

WARNING

Risk of Fire!
- Only LISTED venting components may be used.
- NO OTHER vent components may be used.
- Substitute or damaged vent components may impair safe operation.

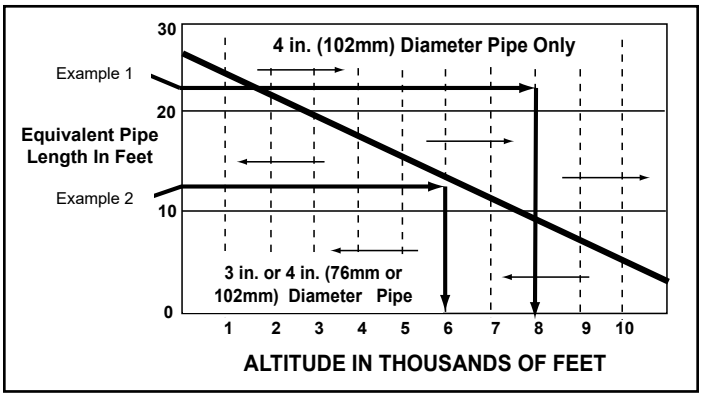


Figure 14.2

- **Example 1**: If the equivalent length of pipe is 23 feet (7m) with altitude of 8,000 feet (2438m) you must use 4 inch (102mm) diameter type “L” or “PL” vent.
- **Example 2**: If the equivalent length of pipe is 12 feet (3.7m) with altitude of 6,000 feet (1829m) you may use 3 or 4 inch (76 to 102mm) diameter type “L” or “PL” vent.

WARNING

Risk of Injury or Property Damage.
- Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.
- Refer to the owner’s information manual provided with this appliance.
- For assistance or additional information consult a qualified installer, service agency or your dealer.

5 Venting Systems

A. Through The Wall

Horizontal termination cap must be a minimum of 6 inches. (152mm) from the wall. Approved for mobile home installations. Must use 3 or 4 inch (76-102mm) “L” or “PL” listed pellet venting or Listed double wall pipe and an authorized Outside Air Kit in mobile homes.

NOTICE: Please note that while the minimum clearance for the termination cap is 6 inches (152mm) there is the possibility of soot build-up around the termination area. If this occurs we suggest to move the termination further away from the house to prevent it.

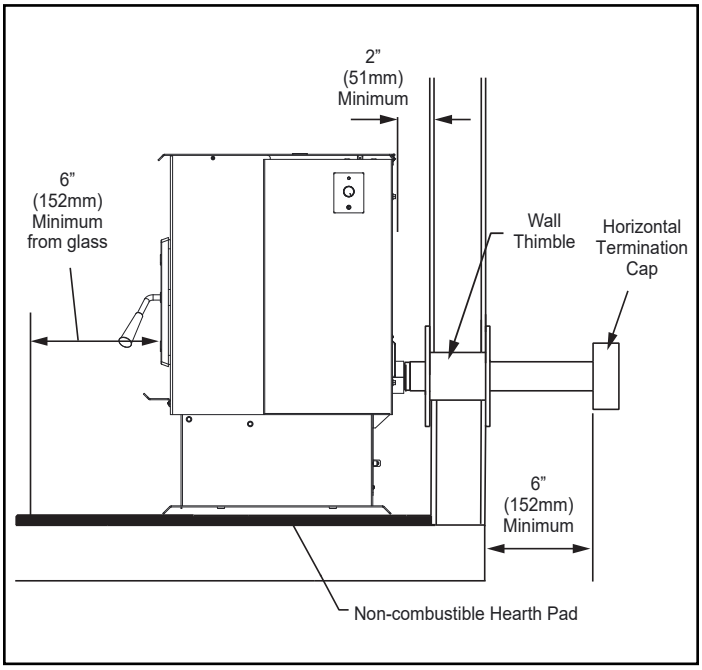


Figure 15.1 - Straight Out

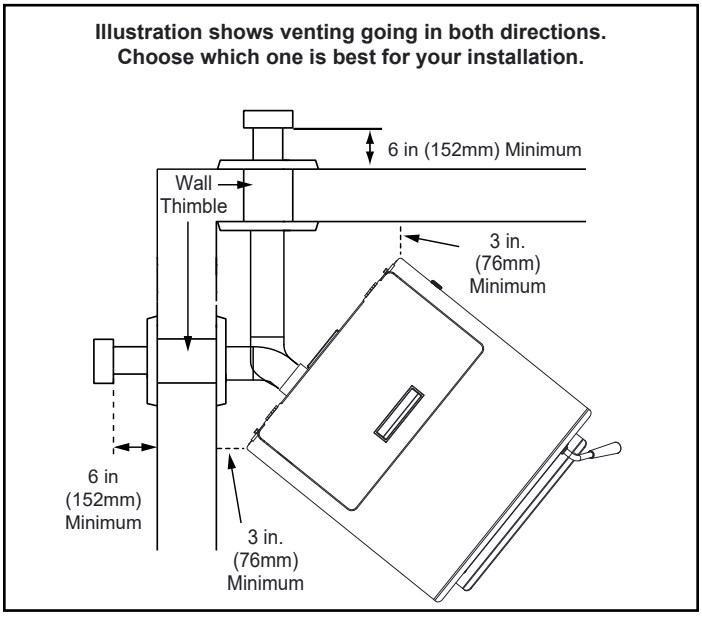


Figure 15.2 - 45 Degree

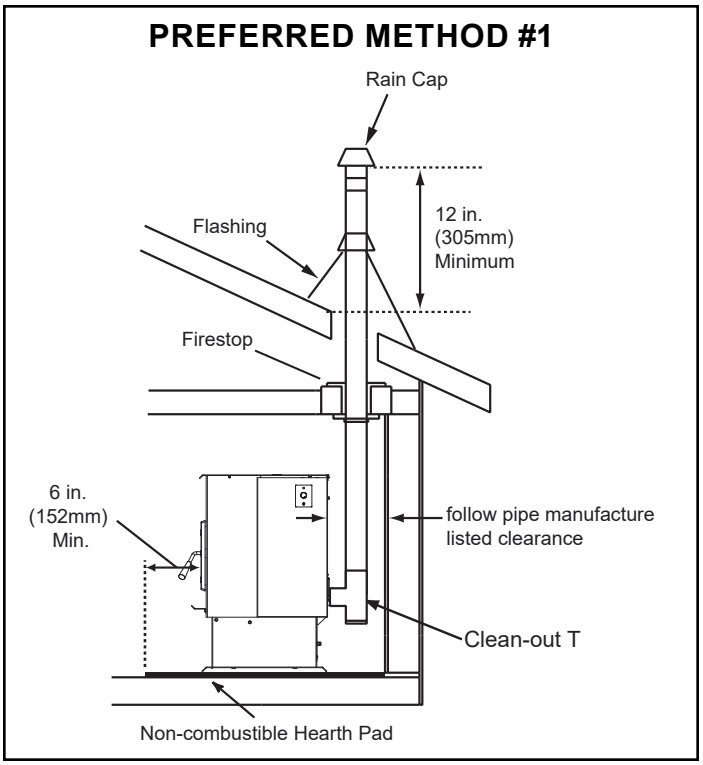
NOTE: In Canada, where passage through a wall or partition of combustible construction is desired, the installation shall conform to **CAN/CSA-B365**

CAUTION

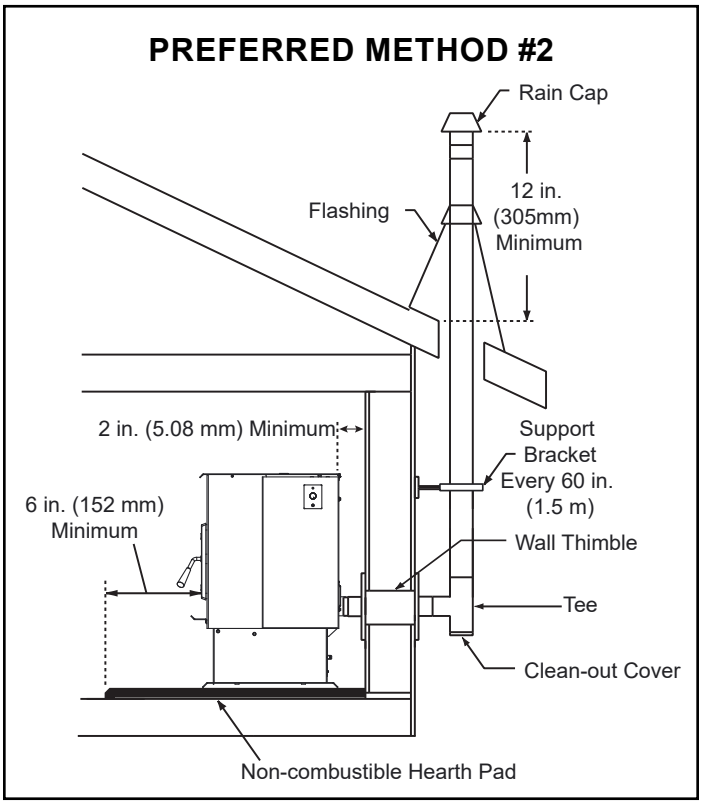
We strongly recommend that you DO NOT DOWNWARD VENT.
The following may occur:

- The appliance will not vent properly
- Smoke spillage in the house
- Excessive sooting

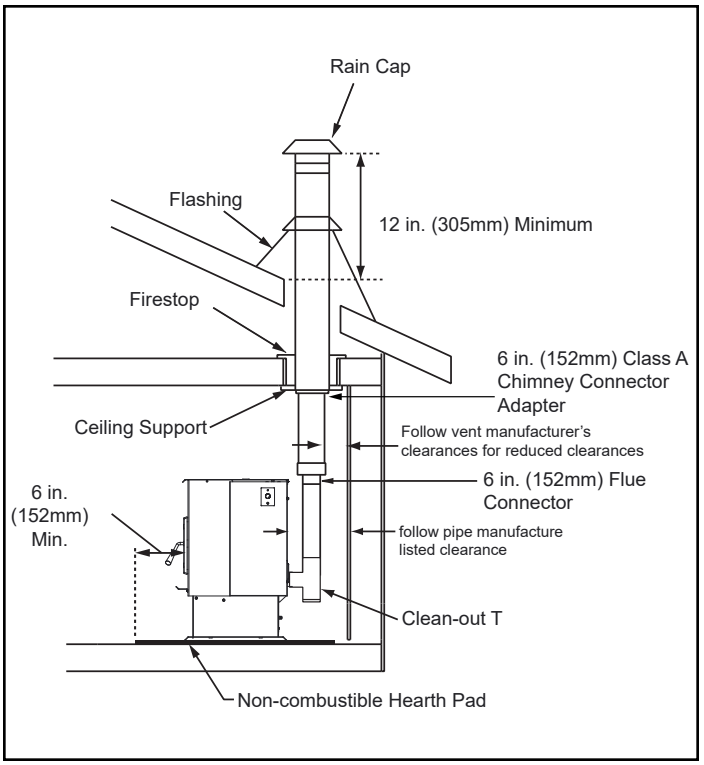
B. Vertical - Interior - Typical Installation



C. Through The Wall & Vertical - External - Horizontal



D. Vertical into Existing Class A Chimney



We strongly recommend a minimum of 60 inches (1.5m) vertical, however above the eave is preferred.

Both installations are approved for mobile home installations. Must use 3 or 4 inch (76 to 102mm) “L” or “PL” Listed pellet venting or Listed double wall pipe and authorized Outside Air Kit in mobile homes. Single wall pipe is approved for residential installations only.

<u>Air Clearance to Pipe:</u>

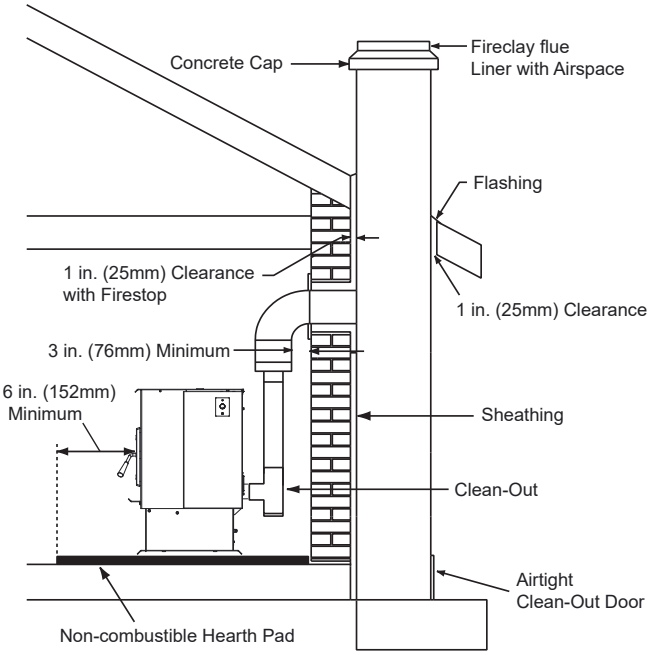
This appliance was tested with standard 3 inch (76mm) Listed pellet vent.

Pellet pipe manufacturers Listed reduced clearance pipe may be use for reduce clearance from 3 inch (76mm) air clearance to no less than 1 inch (25mm) air clearance to combustibles for approved Listed pellet pipe.

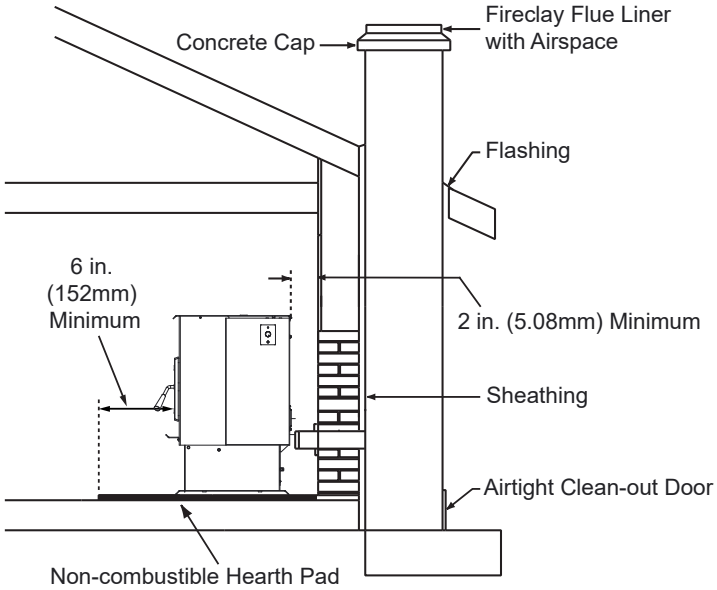
Follow pipe manufactures listed air clearances to combustibles and installation instructions for all reduced air clearances installations.

NOTICE: These are guidelines for successful venting of your pellet appliance. The more vertical rise you can obtain in your system, the better it will perform. Horizontal vent runs can accumulate ash and will need to be cleaned more often. Try to keep them as short as possible.

E. Masonry



F. Alternate Masonry



WARNING

Fire Risk

Inspection of Chimney:

- Masonry chimney must be in good condition.
- Meets minimum standard of **NFPA 211**
- Factory-built chimney must be minimum 6 inch (152mm) **UL103 HT**.

WARNING

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to the owner's information manual provided with this appliance. For assistance or additional information consult a qualified installer, service agency or your dealer.

G. Through The Wall

Horizontal termination cap must be a minimum of 6 inches. (152mm) from the wall. Approved for mobile home installations. Must use 3 or 4 inch (76-102mm) “L” or “PL” listed pellet venting or Listed double wall pipe and an authorized Outside Air Kit in mobile homes.

NOTICE: Please note that while the minimum clearance for the termination cap is 6 inches (152mm) there is the possibly of soot build-up around the termination area. If this occurs we suggest to move the termination further away from the house to prevent it. The suggested minimum is 12 inches.

NOTE: In Canada, where passage through a wall or partition of combustible construction is desired, the installation shall conform to **CAN/CSA-B365**

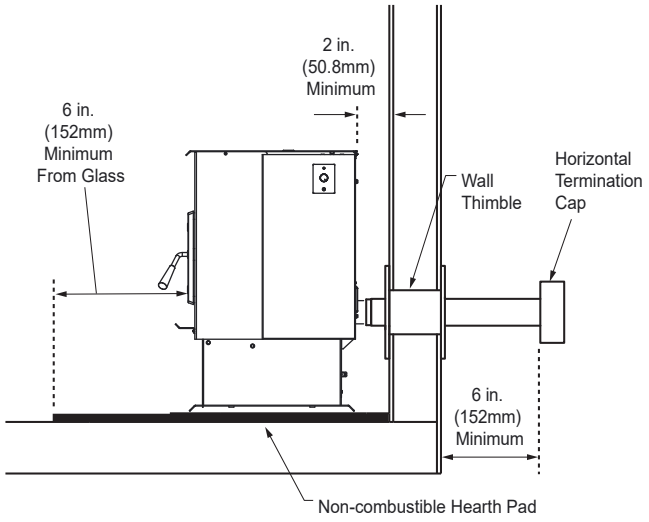
WARNING

DO NOT DOWNWARD VENT.

The following will occur:

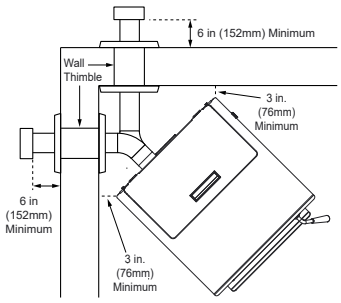
- The appliance will not vent properly
- Smoke spillage in the house
- Excessive sooting

Straight Out



45 Degrees

Illustration shows venting going in both directions.
Choose which one is best for your installation.



6 Appliance Set-Up

A. Outside Air Kit

Kit 811-0872 uses a 2 inch flex hose (which is included in the kit) and uses hose clamps to secure the hose.

Parts Included in 2 inch Kit 811-0872:

1 piece of 2 inch x 3 ft. flex hose, 2 hose clamps, 1 collar assembly, 1 termination cap assembly, trim ring, 1 intake air channel, fasteners.

Tools Needed:

Phillips Head screw driver; wire cutters; and hole saw or jig saw.

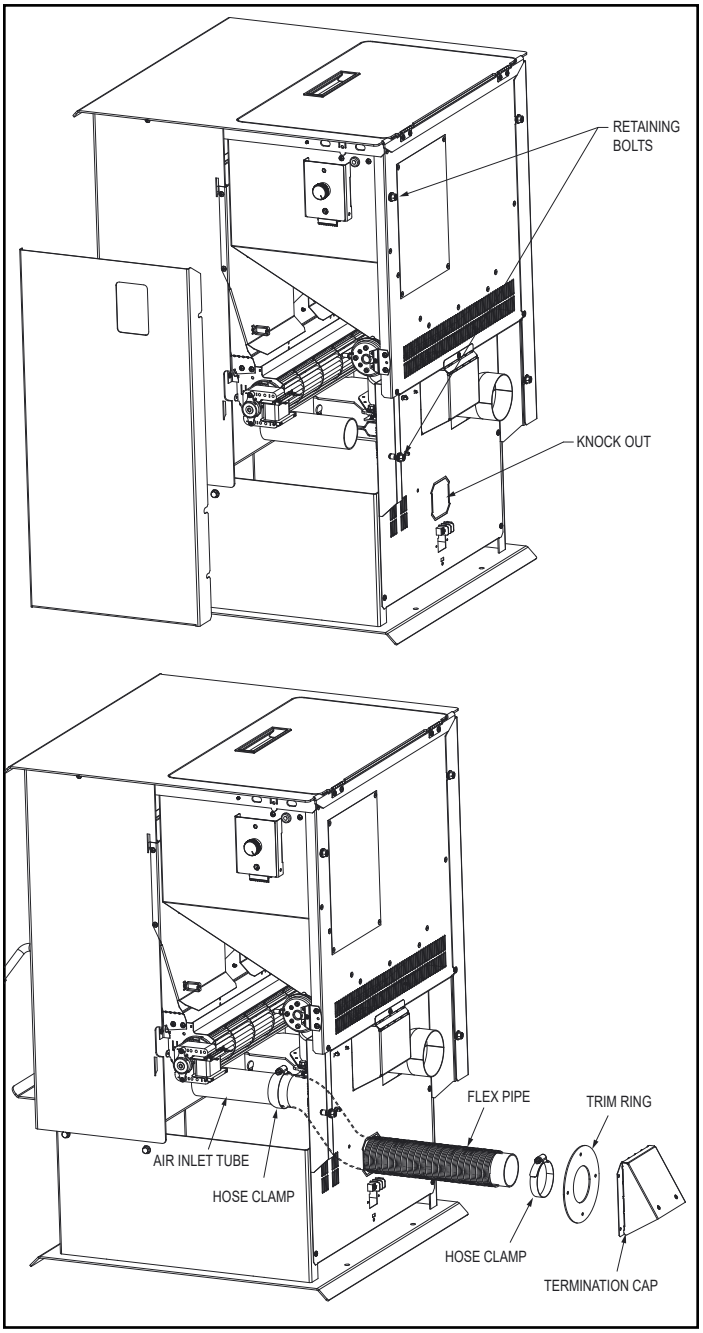


Figure 19.1

1. Measure distance from floor to air vent opening in appliance and mark location on wall.
2. Use a saw to cut opening in wall:
   - Cut a 2-1/2 to 3 inch opening on inside wall and a 3 to 3-1/2 inch opening on outside of house.
3. Use hose clamp to secure flex pipe to collar assembly.
4. Slide trim ring over flex pipe and run pipe through wall.
5. Attach flex pipe to outside termination cap with second hose clamp.
6. Secure termination cap to outside surface.
7. Secure trim ring to interior wall.

CAUTION

Never draw outside combustion air from:

- Wall, floor or ceiling cavity
- Enclosed space such as an attic or garage

B. Thermostat Installation and Operation

The kit comes with a programmable wall thermostat and 25’ of thermostat wire. If you need to run more than 25’ make sure you use a continuous strand of 18 to 22 gauge thermostat wire. For optimum performance your thermostat should be:

- Mounted on an inside wall, approximately 5’ above the floor
- Do not locate where there is poor air circulation such as in a corner, alcove, behind doors, bookcase or other objects
- Located away from drafts, direct sunlight, above a lamp, television, radiator, a wall next to a window, or direct heat from the appliance
- Avoid damp environments as this can lead to corrosion that may shorten thermostat life
- If painting or construction work around, cover the thermostat completely or wait until work is complete before installation.

1. Connect your thermostat wire to the W and R terminals

(Figure 20.1).

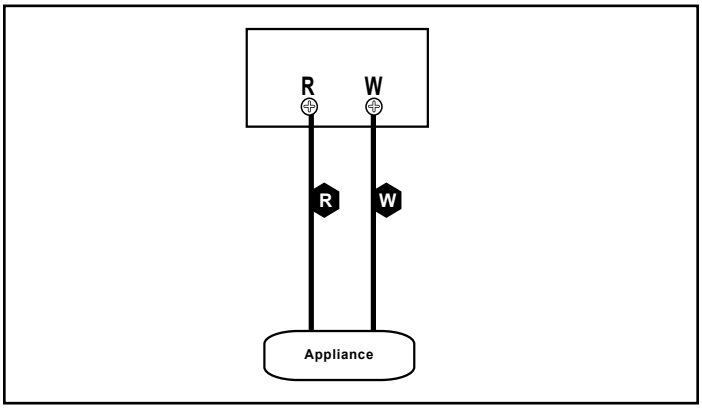


Figure 20.1

NOTE: Ensure bare wire ends are held ALL the way into the terminal block while the screws are being tightened.

There is a 4 screw terminal block located on the back lower left corner of the appliance directly above the power cord inlet. The center 2 screws are for the thermostat wires.

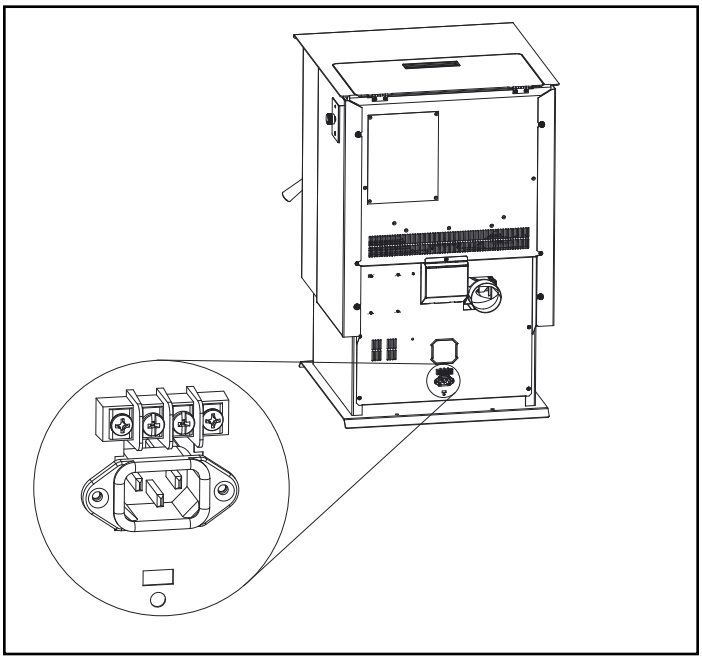


Figure 20.2

7 Mobile Home Installation

You must use a Quadra-Fire Outside Air Kit for installation in a mobile home.

1. An outside air inlet must be provided for the combustion air and must remain clear of leaves, debris, ice and/or snow. It must be unrestricted while the appliance is in use to prevent room air starvation which causes smoke spillage. Smoke spillage can also set off smoke alarms.
2. The combustion air duct system must be made of metal. It must permit zero clearance to combustible construction and prevent material from dropping into the inlet or into the area beneath the dwelling and contain a rodent screen.
3. The appliance must be secured to the mobile home structure by bolting it to the floor (using lag bolts). Use the same holes that secured the appliance to the shipping pallet.
4. The appliance must be grounded with #8 solid copper grounding wire or equivalent, terminated at each end with an NEC approved grounding device.
5. Refer to Clearances to Combustibles and floor protection requirements for listings to combustibles and appropriate chimney systems.
6. Use silicone to create an effective vapor barrier at the location where the chimney or other component penetrates to the exterior of the structure.
7. Follow the chimney manufacturer's instructions when installing the vent system for use in a mobile home.
8. Installation shall be in accordance with the **Manufacturers Home & Safety Standard (HUD) CFR 3280, Part 24**.

WARNING

Products of combustion generate carbon monoxide and different fuels generate different levels.

Carbon monoxide:

- Only use approved fuels in this appliance.
- Always keep door shut during operation. Operating this appliance with doors open can allow CO to leak into the home.

CO can kill you before you are aware it is in your home. At lower levels of exposure, CO causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of CO exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure.

CAUTION

THE STRUCTURAL INTEGRITY OF THE MOBILE HOME FLOOR, WALL AND CEILING/ROOF MUST BE MAINTAINED

Do NOT cut through:

- Floor joist, wall, studs or ceiling trusses.
- Any supporting material that would affect the structural integrity.

This appliance is to be connected to a factory-built chimney conforming to **CAN/ULC-S629, Standard for 650°C Factory-Built Chimneys**.

For removal of the chimney for mobile home transportation, contact the proper transportation officials.

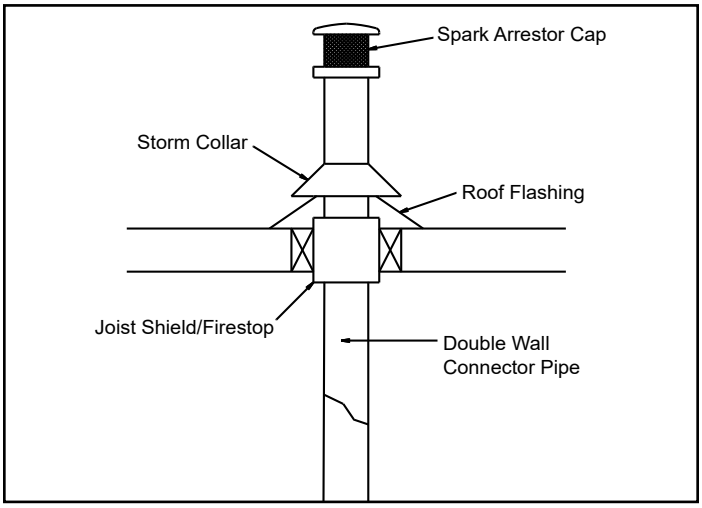


Figure 24.1

CAUTION

Never draw outside combustion air from:

- Wall, floor or ceiling cavity
- Enclosed space such as an attic or garage

WARNING

It is critical to have a working smoke detector installed in the home of appliance operation.

- Smoke alarms that are properly installed and maintained play a vital role in reducing fire deaths and injuries. Having a working smoke alarm reduces the chance of fire related injuries.

WARNING

NEVER INSTALL IN A SLEEPING ROOM.

8 Reference Materials

A. Service & Maintenance Log

Date of Service	Performed By	Description of Service

QUADRA-FIRE®

NOTHING BURNS LIKE A QUAD

CONTACT INFORMATION

Hearth & Home Technologies
352 Mountain House Road
Halifax, PA 17032
Division of HNI INDUSTRIES

**Please contact your Quadra-Fire dealer with any questions or concerns.
For the number of your nearest Quadra-Fire dealer
log onto www.quadrafire.com**

CAUTION

DO NOT DISCARD THIS MANUAL

- Important operating and maintenance instructions included.
- Read, understand and follow these instructions for safe installation and operation.
- Leave this manual with party responsible for use and operation of this appliance.

We recommend that you record the following pertinent information for your heating appliance.

Date purchased/installed:	
Serial Number:	Location on appliance:
Dealership purchased from:	Dealer Phone: 1( ) -
Notes:	

This product may be covered by one or more of the following patents: (United States) 5341794, 5263471, 6688302, 7216645, 7047962 or other U.S. and foreign patents pending.

HEARTH&HOME technologies™

Appendix D
Revision History

Appendix D - Revision History

Date	Project No.	Tech. & Evaluator	Report Sect.	Summary of Changes
3/12/19	0061PS095E	Bruce Davis	All	Original report was generated.
4/2/19	0061PS095E Edition 001	Bruce Davis	All	Spelling/grammar corrections.
12/1/21	0061PS095E.REV001 Edition 000	Bruce Davis	Preface 3 pages	Changed for update to include new model.
			1	Added the word appropriate to result summary on page 7. Model similarities added to page 9.
			2	Added statement "Operated for 50 hours at a medium burn rate" to conditioning data on page 14. Added low burn narrative to page 18. Train precision data added to page 20.
			3	Anemometer calibration certificate added to page 51.
			Appendix A Appendix B Appendix C	Updated labels/manual were added to pages 73/74, 98/99, and 142/143. Appendix C, page 141 added to include new model OUTFITTER-I manual and label.
			Appendix D	Appendix D, page 198 was added to show a revision history.
05/23/22	00061PS095E.REV001 Edition 001	Riley Tiegs	Preface 3 pages	Document Edition Updated, Signatories updated, revision date updated.
			Pg 33-34,	B415 Calculations added to test run
			Pg 14-15	Conditioning Data Included Weight loss, location, signature.
			Pg 18	Low Burn Narrative updated.
			Appendix A Appendix C	Updated manuals for the PP60 and OUTFITTER-I
			Pg 11	Updated Air setting photos to include Trim
3/14/24	00061PS095E.REV001 Edition 002	K. Morgan	Pages 50 and 51	Tunnel velocity during test was 794 ft/min. The standard specifies 800. As per section 9.3.1.1 of ASTM E2515, a more sensitive manometer was used as deemed suitable by the EPA for velocities below 800 ft/min. The manual indicating the brand and model of the manometer has been added (Page 51). The calibration certificate for this instrument can be found on page 50.
			Page 35	Post check leak checks of the pitot system is documented on page 35.
			Pages 47 and 63	Supplemental calibration documentation has been added for the barometer used on page 63.