

STOVE BUILDER INTERNATIONAL INC.

TEST REPORT

SCOPE OF WORK

EPA EMISSIONS TESTING/55 SERIES (ECO-55, ECO-55 ST, ECO-55 CT, OSBURN 2500)/ WOOD
PELLET ROOM HEATER

REPORT NUMBER

102747001MTL-001R2

TEST DATE(S)

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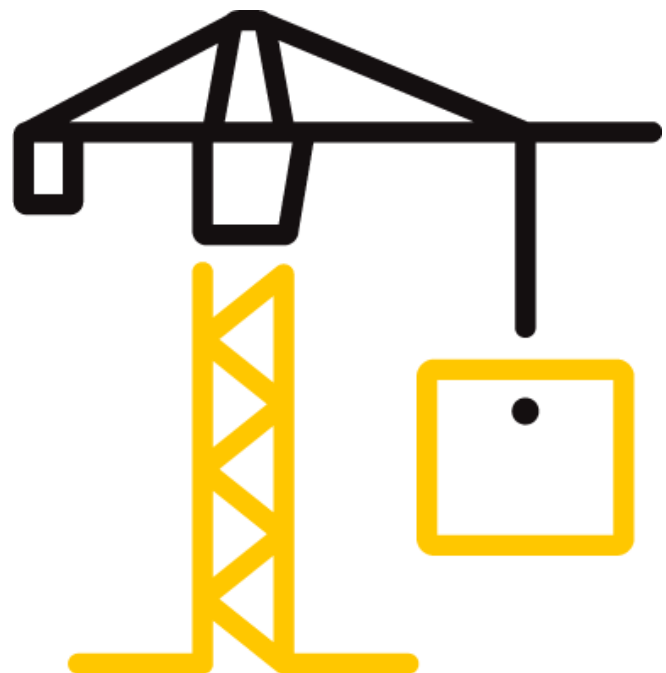
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Date: 03/21/2022

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REPORT ISSUED TO

STOVE BUILDER INTERNATIONAL, INC.

250 de Copenhague

St-Augustin-de-Desmaures, Qc, G3A 2H3, Canada

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by Stove Builder International Inc to perform testing in accordance with EPA 40 CFR Part 60, "Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces," ASTM E2515-11, "Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel," ASTM E2779-10, "Standard Test Method for Determining Particulate Matter Emissions from Pellet Heaters," and CSA B415.1-10, "Performance Testing of Solid-Fuel-Burning Heating Appliances" on their Eco-55 wood pellet room heater. Eco-55 is a representative model of the 55 Series. This series includes the following models: Eco-55, Eco-55 ST, Eco-55 CT and Osburn 2500. See PEV # 102747001MTL-002 for more details. Results obtained are tested values and were secured by using the designated test method(s). Testing was performed by the undersigned at client's facility.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2

SUMMARY OF TEST RESULTS

The appliance tests resulted in the following performance:

Particulate Emissions: 0.96 g/hr

Carbon Monoxide Emissions: 0.13 g/min



Heating Efficiency: 70% (Higher Heating Value Basis)

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For INTERTEK B&C:

| | | | |
|----------------------|---|---------------------|---|
| COMPLETED BY: | Claude Pelland, P.E. Manager B&C, Intertek, Quebec | REVIEWED BY: | Brian Ziegler Technical Team Leader - Hearth |
| TITLE: | | TITLE: | |
| SIGNATURE: |  | SIGNATURE: |  |
| DATE: | 03/25/22 | DATE: | 04/01/22 |

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SECTION 3

TEST METHOD(S)

The specimen was evaluated in accordance with the following:

EPA 40 CFR Part 60-2015, *Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces*

ASTM E2515-11, *Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel*

ASTM E2779-10, *Standard Test Method for Determining Particulate Matter Emissions from Pellet Heaters*

CSA B415.1-10, *Performance Testing of Solid-Fuel-Burning Heating Appliances*

SECTION 4

MATERIAL SOURCE

A sample was submitted to Intertek directly from the client. The sample was not independently selected for testing. The test unit was handed to the Intertek representative at client's facility in St-Augustin-de-Desmaures, Quebec. The unit was inspected upon receipt and found to be in good condition. The unit was set up following the manufacturer's instructions without difficulty.

Following assembly, the unit was placed on the test stand. Prior to begin the emissions tests, the manufacturer operated the unit for a minimum of 48 hours at medium burn rates to break-in the stove. This break-in period was witnessed by the SBI's staff. The unit was found to be operating satisfactory during this break-in. The 48 plus hours of pre-burning were conducted from

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September 8, 2016 to October 27, 2016. The fuel used for the break-in process was wood pellet of premium grade rated by the PFI and made by Energex. Table 1 shows the summary of the burn time in each test ran at medium burn rate; raw data is available on *Appendix F – Unit pre-burn documentation*.

Table 1 - Pre-burn time at medium burn rate summary

| DATE | DURATION | FUEL ADDED |
|-------------------------|-------------|----------------|
| | (MIN) | (LBS) |
| 09-08-2016 | 120 | 5.94 |
| 09-14-2016 | 60 | 1.48 |
| 09-20-2016 | 60 | 1.17 |
| 09-26-2016 | 120 | 3.76 |
| 09-27-2016 | 120 | 3.99 |
| 09-28-2016 | 120 | 4.26 |
| 10-18-2016 | 120 | 4.43 |
| 10-19-2016 | 120 | 4.51 |
| 10-19-2016 & 10-20-2016 | 930 | 35.29 |
| 10-20-2016 & 10-21-2016 | 930 | 36.01 |
| 10-21-2016 | 120 | 4.14 |
| 10-24-2016 | 120 | 4.14 |
| 10-27-2016 | 60 | 2.16 |
| Total | 3000 | Minutes |
| | 50 | Hours |

Following the pre-burn break-in process the unit was allowed to cool and ash and residue were removed from the firebox. The unit's chimney system and laboratory dilution tunnels were cleaned using standard wire brush chimney cleaning equipment. On October 28, 2016, the unit was set-up for testing.

**SECTION 5
EQUIPMENT**

| EQUIPMENT | INV NUMBER | CALIBRATION DUE | MU |
|-------------------------|---------------|--------------------|------------|
| Floor scale | SBI-014 | March 31, 2017 | ± 0.012 kg |
| DGM system 1 | SBI-046 | April 26, 2017 | ±2% F.S. |
| DGM System 2 | SBI-047 | April 26, 2017 | ±2% F.S. |
| Reference DGM | SBI-103 | September 23, 2017 | ±2% F.S. |
| Temperature acquisition | Test bench #4 | February 04, 2017 | ±0.5°F |

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| | | | |
|-------------------------------------|---------|-------------------|---------------|
| Pitot tube type S | SBI-204 | July 14, 2017 | ±0.003 in/H2O |
| Analytical scale | SBI-206 | March 31, 2017 | ±0.00017 g |
| Table scale | SBI-222 | March 31, 2017 | ±0.5 g |
| 100 mg weight | SBI-237 | July 24, 2018 | ±0.0017 g |
| 10 g weight | SBI-238 | July 24, 2018 | ±0.0079 mg |
| Mini-vane anemometer | SBI-240 | July 15, 2017 | ±15 ft/min |
| Magnesense (tunnel) | SBI-254 | April 07, 2017 | ±0.00015" H2O |
| Magnesense (draft) | SBI-253 | March 18, 2017 | ±0.00015" H2O |
| DGM system 3 | SBI-276 | December 01, 2016 | ±2% F.S. |
| Relative humidity temperature meter | SBI-212 | April 26, 2017 | ±3% |
| 200 g weight | SBI-312 | July 24, 2018 | ±0.036 mg |
| Moisture Content Standard | SBI-153 | April 19, 2017 | ±0.2% |
| Multimeter | SBI-188 | April 07, 2017 | ±0.5% V |
| Thermometer Calibrator | SBI-096 | April 07, 2017 | ±0.5°F |

SECTION 6

LIST OF OFFICIAL OBSERVERS

| NAME | COMPANY |
|----------------------------|----------------------------------|
| Guillaume Thibodeau-Fortin | Stove Builder International inc. |
| Claude Paré | Stove Builder International inc. |
| Claude Pelland, P.E. | Intertek B&C |

SECTION 7

TEST PROCEDURE

On November 1, 2016 the unit was tested for EPA emissions. For wood pellet stoves, the test was conducted in accordance with ASTM E2779-10 and ASTM E2515-11. The fuel used for the test run was Energex Wood Pellet.

The applicable EPA regulatory limits are:

Step 1 – 2015 – 4.5 grams per hour.

Step 2 – 2020 – 2.0 grams per hour.

TEST SET-UP DESCRIPTON

A 3” horizontal flue is connected by a Tee to a standard 3” diameter vertical double wall pipe 15’ above floor level.

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AIR SUPPLY SYSTEM

Combustion air enters a 3" inlet pipe located on the back of the heater, which is directed to the pellet burn pot. All gases exit through the 3" flue also located at the back of the heater. The exhaust gases are assisted by a combustion blower.

TEST FUEL PROPERTIES

Wood pellets used for the testing were manufactured by Energex. The pellets have a measured heating value of 8650 Btu/hr (20,236 kJ/kg) and a moisture content of 4.75% on a dry basis and 4.50% on a wet basis. Ash content is 0.615%.

SAMPLING LOCATIONS

Particulate samples are collected from the dilution tunnel at point 20 feet from the tunnel entrance. The collection hood is 40 inches in diameter. The mixing section started with a 10-inch diameter elbow, followed by a strait 10-inch diameter section. A 10 to 8-inch diameter reducer is installed upstream of the 8-inch diameter elbow (see Figure 1). The sampling section is a continuous 13-foot section of 8-inch diameter pipe straight over its entire length. Tunnel velocity pressure is determined by a type "S" Pitot tube located 100 inches from the beginning of the sampling section. The dry bulb thermocouple is located on the pitot tube. Tunnel samplers are located 48 inches downstream of the Pitot tube and 36 inches upstream from the end of this section (See Figure 2).

The dilution tunnel is fully compliant with ASTM E2515-11.

Stack gas samples are collected from the steel chimney section 8 feet ± 6 inches above the scale platform.

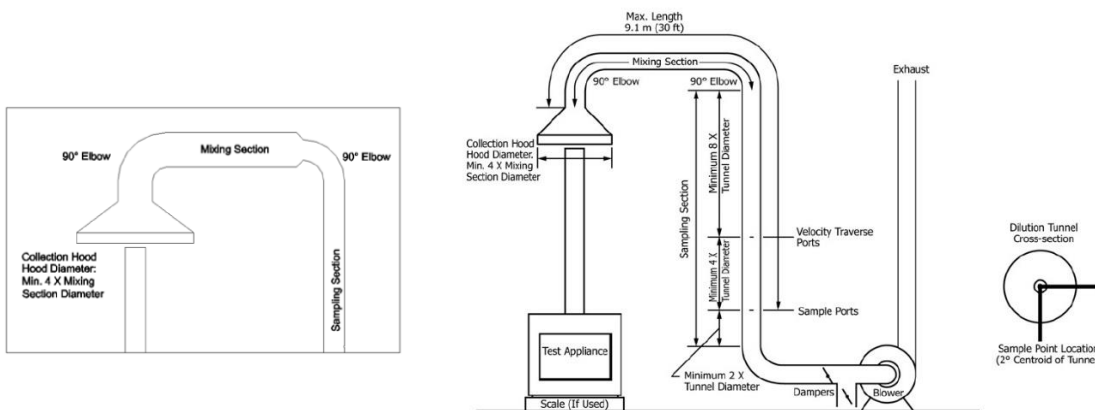


Figure 1 - Mixing Section with different diameter

Figure 2 - Dilution tunnel

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SAMPLING METHODS

PARTICULATE SAMPLING

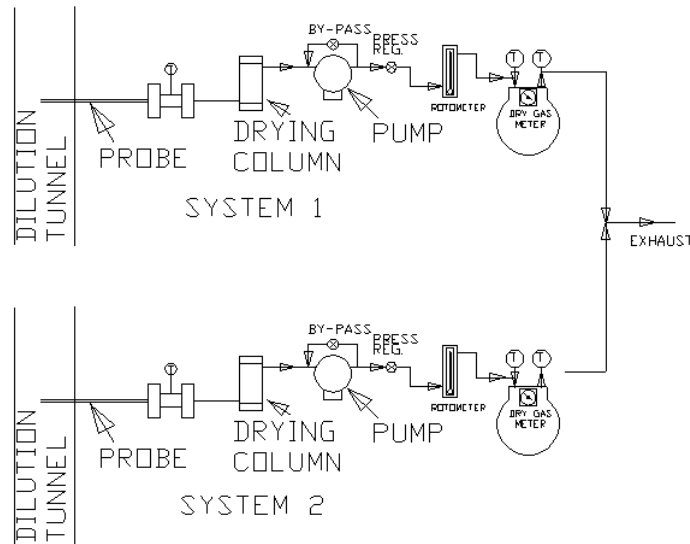


Figure 3 - Stack gas sample train

Particulates were sampled in strict accordance with ASTM E2515-2011. Schematic is presented on Figure 3. This method uses two identical sampling systems with Pall TX 40 binder free, 47-mm diameter filters. The dryers used in the sample systems are filled with “Drierite” before each test run. In order to measure first-hour emissions rates, a third filter set is installed between the two sample trains.

INSTRUMENT CALIBRATION

DRY GAS METERS

At the conclusion of each test program the dry gas meters are checked against our standard dry gas meter. Three runs are made on each dry gas meter used during the test program. The average calibration factors obtained are then compared with the six-month calibration factor and, if within 5%, the six-month factor is used to calculate standard volumes. Results of this calibration are contained in Appendix E.

An integral part of the post-test calibration procedure is a leak check of the pressure side by plugging the system exhaust and pressurizing the system to 10” W.C. The system is judged to be leak free if it retains the pressure for at least 10 minutes.

The standard dry gas meter is calibrated every 6 months using a Spirometer designed by the EPA Emissions Measurement Branch. The process involves sampling the train operation for 1 cubic foot of volume. With readings made to .001 ft³, the resolution is .1%, giving an accuracy higher than the ±2% required by the standard.

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STACK SAMPLE ROTAMETER

The stack sample rotameter is checked by running three tests at each flow rate used during the test program. The flow rate is checked by running the rotameter in series with one of the dry gas meters for 10 minutes with the rotameter at a constant setting. The dry gas meter volume measured is then corrected to standard temperature and pressure conditions. The flow rate determined is then used to calculate actual sampled volumes.

GAS ANALYZERS

The continuous analyzers are zeroed and spanned before each test with appropriate gases. A mid-scale multi-component calibration gas is then analyzed (values are recorded). At the conclusion of a test, the instruments are checked again with zero, span and calibration gases (values are recorded only). The drift in each meter is then calculated and must not exceed 5% of the scale used for the test.

At the conclusion of each unit test program, a three-point calibration check is made. This calibration check must meet accuracy requirements of the applicable standards. Consistent deviations between analyser readings and calibration gas concentrations are used to correct data before computer processing. Data is also corrected for interferences as prescribed by the instrument manufacturer's instructions.

TEST METHOD PROCEDURES**LEAK CHECK PROCEDURES**

Before and after each test, each sample train is tested for leaks. Leakage rates are measured and must not exceed 0.02 CFM or 4% of the sampling rate. Leak checks are performed checking the entire sampling train, not just the dry gas meters. Pre-test and post-test leak checks are conducted with a vacuum of 10 inches of mercury. Vacuum is monitored during each test and the highest vacuum reached is then used for the post-test vacuum value. If leakage limits are not met, the test run is rejected. During, these tests the vacuum was typically less than 2 inches of mercury. Thus, leakage rates reported are expected to be much higher than actual leakage during the tests.

TUNNEL VELOCITY/FLOW MEASUREMENT

The tunnel velocity is calculated from a center point Pitot tube signal multiplied by an adjustment factor. This factor is determined by a traverse of the tunnel as prescribed in EPA Method 1. Final tunnel velocities and flow rates are calculated from EPA Method 2, Equation 6.9 and 6.10. (Tunnel cross sectional area is the average from both lines of traverse.) Pitot tubes are cleaned before each test and leak checks are conducted after each test.

PM SAMPLING AND PROPORTIONALITY

Proportionality was calculated in accordance with ASTM E2515-11. The data and results are included in Appendix B. Negative sample probe catch are treated as zero when determining total particulate catch weight. The test run is treated as invalid if the negative value is greater than 5% of the total particulate catch weight (excluding the probe). For the room air sample probe

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assembly, negative particulate catch weights are treated as zero when determining total room air particulate weight.

DEVIATIONS FROM STANDARD METHOD

A deviation was performed for the measurement of first hour of particulate matter emissions. A third independent and complete sampling train was installed. During the development of ASTM WK47329, some labs observed that doing a filter switch on one of the sampling trains ended most of the time in a deviation between the two filter trains. That is the rationale for using a third independent sampling train.

No other deviations from the standard were performed, however, only applicable sections of standards were used during all testing.

SECTION 8

TEST CALCULATIONS

WEIGHT OF TEST FUEL BURNED (DRY) – ASTM E2779

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

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 (lb),

M_{Ewb} = weight of test fuel in hopper at end of test run, wet basis, kg (lb), and

M_{Bdb} = weight of test fuel burned during test run, dry basis, kg (lb).

WEIGHT OF TEST FUEL BURNED PER TEST SEGMENT (DRY) – ASTM E2779

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

where:

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

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

M_{BSidb} = weight of test fuel burned during test run segment i , dry basis, kg (lb), and

i = test run segments in accordance with 9.4, Table 1.

AVERAGE BURN RATE FOR FULL TEST (DRY) – ASTM E2779

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

where:

BR = average dry burn rate over the full integrated test run, kg/h (lb/h), and

θ = total length of full integrated test run, min.

AVERAGE BURN RATE PER TEST SEGMENT (DRY) – ASTM E2779

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

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where:

BR_{Si} = average dry burn rate over test run segment i , kg/h (lb/h), and

θ_{Si} = total length of test run segment i , min.

AVERAGE EMISSION RATE FOR FULL TEST (g/hr) – ASTM E2779

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

where:

E_T = total particulate emissions for full integrated test run measured using Test Method **E2515**, g (lb),

θ = total length of test run, min, and

PM_R = average particulate emission rate over the full integrated test run, g/h.

AVERAGE EMISSION FACTOR FOR FULL TEST (g/kg dry) – ASTM E2779

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

where:

PM_F = average particulate emission factor over the full integrated test run, g/dry kg of fuel burned.

AVERAGE EMISSIONS FOR FULL TEST (g/MJ or lb/MMBtu) – ASTM E2779

$$PM_H = E_T/E_O$$

where:

E_O = average measured overall heat output over the full integrated test run from **Annex A1**, MJ (MMBTU), and

PM_H = average particulate emissions in accordance with unit of average heat output over the full integrated test run, g/MJ (lb/MMBtu).

NOMENCLATURE FOR ASTM E2515:

A = Cross-sectional area of tunnel m² (ft²).

B_{ws} = Water vapor in the gas stream, proportion by volume (assumed to be 0.02 (2.0 %)).

C_p = Pitot tube coefficient, dimensionless (assigned a value of 0.99).

C_r = Concentration of particulate matter room air, dry basis, corrected to standard conditions, g/dscm (gr/dscf) (mg/dscf).

C_s = Concentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions, g/dscm (gr/dscf) (mg/dscf).

E_T = Total particulate emissions, g.

F_p = Adjustment factor for center of tunnel pitot tube placement.

$$F_p = V_{strav}/V_{scent}$$

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K_p = Pitot Tube Constant, $34.97 \frac{m}{sec} \left[\frac{\left(\frac{g}{mole} \right) (mm\ Hg)}{(K)(mm\ water)} \right]^{\frac{1}{2}}$
or

= Pitot Tube Constant, $85.49 \frac{ft}{sec} \left[\frac{\left(\frac{lb}{mole} \right) (in\ Hg)}{(R)(in\ water)} \right]^{\frac{1}{2}}$

L_a = Maximum acceptable leakage rate for either a pretest or post-test leak-check, equal to 0.0003 m³/min (0.010 cfm) or 4 % of the average sampling rate, whichever is less.

L_p = Leakage rate observed during the post-test leak-check, m³/min (cfm).

m_p = mass of particulate from probe, mg.

m_f = mass of particulate from filters, mg.

m_g = mass of particulate from filter gaskets, mg.

m_r = mass of particulate from the filter, filter gasket, and probe assembly from the room air blank filter holder assembly, mg.

m_n = Total amount of particulate matter collected, mg.

M_s = the dilution tunnel dry gas molecular weight (may be assumed to be 29 g/g mole (lb/lb mole)).

P_{bar} = Barometric pressure at the sampling site, mm Hg (in. Hg).

P_g = Static Pressure in the tunnel (in. water).

P_R = Percent of proportional sampling rate.

P_s = Absolute average gas static pressure in dilution tunnel, mm Hg (in. Hg).

P_{std} = Standard absolute pressure, 760 mm Hg (29.92 in. Hg).

Q_{std} = Average gas flow rate in dilution tunnel.

$$Q_{std} = 60 (1 - B_{ws}) V_s A [T_{std} P_s / T_s P_{std}]$$

dscm/min (dscf/min).

T_m = Absolute average dry gas meter temperature, K (R).

T_{mi} = Absolute average dry gas meter temperature during each 10-min interval, i , of the test run.

$$T_{mi} = (T_{mi(b)} + T_{mi(e)})/2$$

where:

$T_{mi(b)}$ = Absolute dry gas meter temperature at the beginning of each 10-min test interval, i , of the test run, K (R), and

$T_{mi(e)}$ = Absolute dry gas meter temperature at the end of each 10-min test interval, i , of the test run, K (R).

T_s = Absolute average gas temperature in the dilution tunnel, K (R).

T_{si} = Absolute average gas temperature in the dilution tunnel during each 10-min interval, i , of the test run, K (R).

$$T_{si} = (T_{si(b)} + T_{m=si(e)})/2$$

where:

$T_{si(b)}$ = Absolute gas temperature in the dilution tunnel at the beginning of each 10-min test interval, i , of the test run, K (R), and

$T_{si(e)}$ = Absolute gas temperature in the dilution tunnel at the end of each 10-min test interval, i , of the test run, K (R).

V_m = Volume of gas sample as measured by dry gas meter, dcm (dcf).

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V_{mc} = Volume of gas sampled corrected for the post test leak rate, dcm (dcf).

V_{mi} = Volume of gas sample as measured by dry gas meter during each 10-min interval, i , of the test run, dcm.

$V_{m(std)}$ = Volume of gas sample measured by the dry gas meter, corrected to standard conditions.

$$V_{m(std)} = K_1 V_m Y [(P_{bar} + (\Delta H/13.6))/T_m]$$

where:

K_1 = 0.3855 K/mm Hg for SI units and = 17.64 R/in. Hg for inch-pound units.

$$V_{m(std)} = K_1 V_{mc} Y [(P_{bar} + (\Delta H/13.6))/T_m]$$

where:

V_{mc} = $V_m - (L_p - L_a)u$

V_{mr} = Volume of room air sample as measured by dry gas meter, dcm (dcf), and

$V_{mr(std)}$ = Volume of room air sample measured by the dry gas meter, corrected to standard conditions.

$$V_{m(std)} = K_1 V_{mr} Y [(P_{bar} + (\Delta H/13.6))/T_m]$$

Where:

K_1 = 0.3855 K/mm Hg for SI units and = 17.64 R/in. Hg for inch-pound units, and

V_s = Average gas velocity in the dilution tunnel.

$$V_s = F_p K_p C_p (\sqrt{\Delta P_{avg}})(\sqrt{T_s/P_s M_s})$$

V_{si} = Average gas velocity in dilution tunnel during each 10-min interval, i , of the test run.

$$V_{si} = F_p K_p C_p (\sqrt{\Delta P_i})(\sqrt{T_{si}/P_s M_s})$$

V_{scent} = Average gas velocity at the center of the dilution tunnel calculated after the Pitot tube traverse.

V_{strav} = Average gas velocity calculated after the multipoint Pitot traverse.

Y = Dry gas meter calibration factor.

ΔH = Average pressure at the outlet of the dry gas meter or the average differential pressure across the orifice meter, if used, mm water (in. water).

ΔP_{avg} = Average velocity pressure in the dilution tunnel, mm water (in. water).

ΔP_i = Velocity pressure in the dilution tunnel as measured with the Pitot tube during each 10-min interval, i , of the test run.

$$\Delta P_i = (\Delta P_{i(b)} + \Delta P_{i(e)})/2$$

where:

$\Delta P_{i(b)}$ = Velocity pressure in the dilution tunnel as measured with the Pitot tube at the beginning of each 10-min interval, i , of the test run, mm water (in. water), and

$\Delta P_{i(e)}$ = Velocity pressure in the dilution tunnel as measured with the Pitot tube at the end of each 10-min interval, i , of the test run, mm water (in. water).

θ = Total sampling time, min.

10 = ten min, length of first sampling period.

13.6 = Specific gravity of mercury.

100 = Conversion to percent.

TOTAL PARTICULATE WEIGHT – ASTM E2515

$$M_n = m_p + m_f + m_g$$

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PARTICULATE CONCENTRATION – ASTM E2515

$$C_s = K_2(m_n/V_{m(std)}) \text{ g/dscm (g/dscf)}$$

where:

$$K_2 = 0.001 \text{ g/mg}$$

TOTAL PARTICULATE EMISSIONS (g) – ASTM E2515

$$E_T = (C_s - C_r)Q_{std}\theta$$

PROPORTIONAL RATE VARIATION (%) – ASTM E2515

$$PR = [\theta(V_{mi} V_s T_m T_{si}) / (10(V_m V_{si} T_s T_{mi}))] \times 100$$

MEASUREMENT OF UNCERTAINTY – ASTM E2515

$$MU_{\text{weighing}} = \sqrt{0.1^2} \cdot X$$

GENERAL FORMULA – ASTM E2515

$$u_Y = \sqrt{((\delta Y / \delta x_1) \times u_1)^2 + \dots + ((\delta Y / \delta x_n) \times u_n)^2}$$

Where:

$\delta Y / \delta x_i$ = Partial derivative of the combining formula with respect to individual measurement x_i ,

u_i = is the uncertainty associated with that measurement.

TOTAL PARTICULATE EMISSIONS – ASTM E2515

$$E_T = (C_s - C_r) Q_{std} \theta$$

where:

C_s = sample filter catch/(sample flow rate x test duration), g/dscf,

C_r = room background filter catch/(sample flow x sampling time), g/dscf,

Q_{std} = average dilution tunnel flow rate, dscf/min, and

θ = sampling time, minutes.

MU OF C_s

$$C_s = F_c / (Q_{\text{sample}} \times \theta) = 0.025 / (0.25 \times 180) = 0.0005555$$

$$\delta C_s / \delta F_c = 1 / Q_{\text{sample}} \cdot \theta = 1 / 0.25 \cdot 180 = 0.0222$$

$$\delta C_s / \delta Q_{\text{sample}} = -F_c / Q_{\text{sample}}^2 \cdot \theta = -0.025 / 0.25^2 \cdot 180 = -0.00222$$

$$\delta C_s / \delta \theta = -F_c / Q_{\text{sample}} \cdot \theta^2 = -0.025 / 0.25 \cdot 180^2 = -0.000003$$

$$MU_{C_s} = \sqrt{(0.00027 \cdot 0.0222)^2 + (0.0025 \cdot -0.00222)^2}$$

$$\sqrt{+ (0.1 \cdot -0.000003)^2} = 0.0000091\text{g}$$

Thus, C_s would be 0.555 mg/dscf \pm 0.0081 mg/dscf at 95% confidence level.

MU OF C_r

$$C_r = BG_c / (Q_{BG} \times \theta) = 0.002 / (0.15 \times 180) = 0.000074$$

$$\delta C_r / \delta BG_c = 1 / Q_{BG} \cdot \theta = 1 / 0.15 \cdot 180 = 0.03704$$

$$\delta C_r / \delta Q_{BG} = -BG_c / Q_{BG}^2 \cdot \theta = -0.002 / 0.15^2 \cdot 180 = -0.0004938$$

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$$\delta c_r / \delta \theta = -BG_c / Q_{BG} \cdot \theta^2 = -0.002 / 0.15 \cdot 180^2 = -0.0000004$$

$$MU_{C_r} = \sqrt{(0.00027 \cdot 0.03704)^2 + (0.0015 \cdot -0.0004938)^2 + (0.1 \cdot -0.0000004)^2} = 0.00001g$$

Thus, c_r would be 0.074 mg/dscf \pm 0.01 mg/dscf at 95% confidence level.

E_T AND MU_{ET}

$$E_T = (C_s - C_r) Q_{std} \theta = (0.000555 - 0.000074) \times 150 \times 180 = 13.00g$$

$$\delta E_T / \delta C_s = Q_{std} \cdot \theta = 150 \cdot 180 = 27,000$$

$$\delta E_T / \delta C_r = Q_{std} \cdot \theta = 150 \cdot 180 = 27,000$$

$$\delta E_T / \delta Q_{std} = C_s \cdot \theta - C_r \cdot \theta = 0.000555 \cdot 180 - 0.000074 \cdot 180 = 0.08667$$

$$\delta E_T / \delta \theta = C_s \cdot Q_{std} - C_r \cdot Q_{std} = 0.000555 \cdot 180 - 0.000074 \cdot 180 = 0.07222$$

$$MU_{ET} = \sqrt{(27,000 \cdot 0.0000081)^2 + (27,000 \cdot 0.00001)^2 + (0.08667 \cdot 3)^2 + (0.07222 \cdot 0.1)^2} = 0.436$$

Thus the result in this example would be:

ET = 13.00g \pm 0.44 g at a 95% confidence level.

EFFICIENCY – CSA B415.1

The change in enthalpy of the circulating air shall be calculated using the moisture content and temperature rise of the circulating air, as follows:

$$\Delta h = \Delta t (1.006 + 1.84x)$$

Where:

Δh = change in enthalpy, kJ/kg

Δt = temperature rise, °C

1.006 = specific heat of air, kJ/kg °C

1.84 = specific heat of water vapor, kJ/kg °C

x = humidity ratio, kg/kg

The equivalent duct diameter shall be calculated as follows:

$$ED = 2HW / (H+W)$$

Where:

ED = equivalent duct diameter

H = duct height, m

W = duct width, m

The air flow velocity shall be calculated as follows:

$$V = F_p \times C_p \times 34.97 \times \sqrt{T / 28.56(P_{baro} + P_s)}$$

where

V = velocity, m/s

F_p = Pitot tube calibration factor determined from vane anemometer measurements

TEST REPORT FOR STOVE BUILDER INTERNATIONAL INC.

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C_p = Pitot factor
= 0.99 for a standard Pitot tube or as determined by calibration for a Type S Pitot tube

34.97 = Pitot tube constant

Note: The Pitot tube constant is determined on the basis of the following units:
 $m/s [g/g \text{ mole } (mm \text{ Hg})/(K)(mm \text{ H}_2\text{O})]^{0.5}$

ΔP = velocity pressure, mm H₂O

T = temperature, K

28.56 = molecular weight of air

P_{Baro} = barometric pressure, mm Hg

P_s = duct static pressure, mm Hg

The mass flow rate shall be calculated as follows:

$$m = 3600VA\rho$$

where:

m = mass flow rate, kg/h

V = air flow velocity, m/s

3600 = number of seconds per hour

A = duct cross-sectional area, m²

ρ = density of air at standard temperature and pressure (use 1.204 kg/m³)

The rate of heat release into the circulating air shall be calculated using the air flow and change in enthalpy, as follows:

$$\Delta e = \Delta h \times m$$

Where:

Δe = rate of heat release into the circulating air, kJ/h

Δh = change in enthalpy of the circulating air, kJ/kg

m = mass air flow rate, kg/h

The heat output over any time interval shall be calculated as the sum of the heat released over each measurement time interval, as follows:

$$E_t = \sum(\Delta e \times i) \text{ for } i = t_1 \text{ to } t_2$$

Where:

E_t = delivered heat output over any time interval t_2-t_1 , kJ

i = time interval for each measurement, h

The average heat output rate over any time interval shall be calculated as follows:

$$e_t = E_t/t$$

where

TEST REPORT FOR STOVE BUILDER INTERNATIONAL INC.

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 e_t = average heat output, kJ/h t = time interval over which the average output is desired, h

The total heat output during the burn shall be calculated as the sum of all the heat outputs over each time interval, as follows:

$$E_d = \sum(E_t) \text{ for } t = t_0 \text{ to } t_{\text{final}}$$

Where:

 E_d = heat output over a burn, kJ/h (Btu/h) E_t = heat output during each time interval, kJ/h (Btu/h)

The efficiency shall be calculated as the total heat output divided by the total energy input, expressed as a percentage as follows:

$$\text{Efficiency, \%} = 100 \times E_d / I$$

Where:

 E_d = total heat output of the appliance over the test period, kJ/kg I = input energy (fuel calorific value as-fired times weight of fuel charge), kJ/kg (Btu/lb)**SECTION 9****TEST SPECIMEN DESCRIPTION**

The Eco-55 is a freestanding and automatically fed pellet stove constructed of carbon steel. The outer dimensions are 24.875-inches wide, 32.625-inches high and 29.525-inches deep. The unit has a front door with a viewing glass and a hopper to store the pellet.

SECTION 10**TEST RESULTS****GENERAL DISCUSSION:**

All runs have been found appropriate and they have been validated and found compliant. All burn rate categories were achieved, and all data were used in the calculation of the overall average. No anomalies were found in any test runs. Filters were not altered by the gasket in all runs. No negative weight was found on probes or filters. No attempt was made to collect ambient background particulate matter during the testing. The contribution of room air particulate matter could not be subtracted from dilution tunnel particulate matter; thus, considered zero. This results in a sample that is potentially biased high when the compliance determination is made.

DESCRIPTION OF TEST RUNS:

RUN #1 (November 1, 2016) - Control board was set at speed 6 out of 6 for the first hour, at speed 3 out of 6 for the following two hours and at speed 1 out of 6 for the following three hours. Combustion, exhaust and convection fan and fuel feed system settings can be found in Appendix H. Burn time was 360 minutes. Burn-rate was 0.915 kg/h. This test led to a 0.96 g/h emission rate.

TEST REPORT FOR STOVE BUILDER INTERNATIONAL INC.

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RESULT TABLES

Table 2 - EMISSION RESULTS

| RUN# | TEST DATE | BURN RATES (kg/hr)(Dry) | | PARTICULATE EMISSION RATE (g/hr) | 1 st HOUR EMISSIONS (g) | CO EMISSIONS (g/min) | HEATING EFFICIENCY (%HHV) |
|------|-------------|-------------------------|------|----------------------------------|------------------------------------|----------------------|---------------------------|
| 1 | Nov 1, 2016 | H* | 2.05 | 0.96 | 1.04 | 0.13 | 70 |
| | | M* | 0.96 | | | | |
| | | L* | 0.52 | | | | |
| | | OA* | 0.92 | | | | |

*Notes: H= High burn rate, M= Medium burn rate, L= low burn rate, OA= overall burn rate.

Table 3 - TEST LAB CONDITIONS

| # | AMB. TEMP. (°F) before | AMB. TEMP. (°F) after | PRESSURE (In. Hg) before | PRESSURE (In. Hg) after | R.H.% before | R.H.% after | AIR VEL. (Ft/min) before | AIR VEL. (Ft/min) after |
|---|------------------------|-----------------------|--------------------------|-------------------------|--------------|-------------|--------------------------|-------------------------|
| 1 | 72.0 | 71.2 | 30.4 | 30.2 | 38.5 | 39.70 | 0 | 0 |

Table 4 - DILUTION TUNNEL

| # | BURN TIME (min) | TUNNEL VELOCITY (ft/sec) | VOLUMETRIC FLOW RATE (dscf/min) | TUNNEL AVE. TEMP. (°R) | SAMPLE VOLUME (DSCF) | | PARTICULATE CATCH (MG) | |
|---|-----------------|--------------------------|---------------------------------|------------------------|----------------------|--------|------------------------|-----|
| | | | | | 1 | 2 | 1 | 2 |
| 1 | 360 | 15.06 | 302.57 | 546.23 | 51.224 | 54.424 | 2.8 | 2.8 |

Table 5 - DILUTION TUNNEL PRECISION

| # | SAMPLE RATIOS (-) | | TOTAL EMISSIONS (g) | | DEVIATION % | DEVIATION g/kg |
|---|-------------------|---------|---------------------|---------|-------------|----------------|
| | Train 1 | Train 2 | Train 1 | Train 2 | | |
| 1 | 2126.48 | 2001.42 | 5.95 | 5.60 | 3.03% | 0.06 |

Table 6 - GENERAL SUMMARY

| # | BURN RATE (kg/hr)(Dry) | INITIAL DRAFT (in. wc) | RUN TIME (min) | AVERAGE DRAFT (in. wc) |
|---|------------------------|------------------------|----------------|------------------------|
| 1 | 0.92 | 0.055 | 360 | 0.039 |

TEST REPORT FOR STOVE BUILDER INTERNATIONAL INC.

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Table 7 - CSA B415.1-10 SUMMARY

| BURN RATE (kg/hr)(dry) | CO EMISSIONS (g/min) | HEATING EFFICIENCY (% HHV) | HEATING EFFICIENCY (% LHV) | HEAT OUTPUT (Btu/hr) |
|---------------------------|----------------------------|----------------------------------|----------------------------------|-------------------------|
| High | 0.090 | 73 | 78 | 28,500 |
| Medium | 0.11 | 68 | 73 | 12,500 |
| Low | 0.16 | 67 | 73 | 6,600 |
| Overall | 0.13 | 70 | 76 | 12,400 |

SECTION 11

CONCLUSION

This test demonstrates that the Eco-55 (55 Series) wood pellet heater is an affected facility under the definition given in the regulation. The emission rate of 0.96 g/hr meets the EPA requirements for the Step 2 limits.

Eco-55 is a representative model of the 55 Series. This series includes the following models: Eco-55, Eco-55 ST, Eco-55 CT and Osburn 2500. All models have the same internal design, electrical components, and controls. The only differences are external cosmetic designs.

LIST OF APPENDICES

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| DATA AND CALCULATION FORMS..... | B |
| CALIBRATION DOCUMENTS..... | C |
| UNIT DRAWINGS AND INSTALLATION MANUAL..... | D |
| DRY GAS METER CALIBRATION DATA..... | E |
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| STACK LOSS EFFICIENCY DATA/RESULTS..... | G |
| TUNNEL CLEANING AND TEST LOAD PHOTOGRAPHS..... | H |
| EPA CORRESPONDENCE..... | I |

TEST REPORT FOR STOVE BUILDER INTERNATIONAL INC.

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SECTION 12

PHOTOGRAPHS



Figure 4 – Stove on the scale



Figure 5 - Typical burn

TEST REPORT FOR STOVE BUILDER INTERNATIONAL INC.

Report No.: 102747001MTL-001R2

Date: 03/21/2022

SECTION 13

REVISION LOG

| REVISION # | DATE | PAGES | REVISION |
|------------|----------|---------|---|
| 0 | 11/25/16 | N/A | Original Report Issue |
| | | All | Rebranding of test report. |
| | | 20 | Correct the BTU/h output of Low burn rate from 9,898 (input) to 6,600 (output). |
| | | 3 & 19 | Add names of all models of the series. |
| 1 | 12/23/21 | 17 | Add General discussion section |
| | | 9-10 | Add details about negative filter values |
| | | 17 | Add “no anomalies” sentence and “room air sampling” sentence. |
| | | 18 | Typo corrected on ambient pressure value when rebranding the report |
| | | 33 | Addition of Laboratory Technician Notes |
| 2 | 03/21/22 | 234,344 | Addition of improper fuel list |
| | | 398-462 | Addition of replacement instructions |
| | | 231,338 | Remove the word “pellet” in the federal warning |

STOVE BUILDER INTERNATIONAL PRODUCT EVALUATION

PRODUCT EVALUATED

ECO-55, ECO-55 ST, ECO-55 CT, OSBURN 2500

EVALUATION PROPERTY

U.S. ENVIRONMENTAL PROTECTION AGENCY 40 CFR PART 60

REPORT NUMBER

102747001MTL-002

ORIGINAL ISSUE DATE

12/23/21

LAST REVISED DATE

ORIGINAL

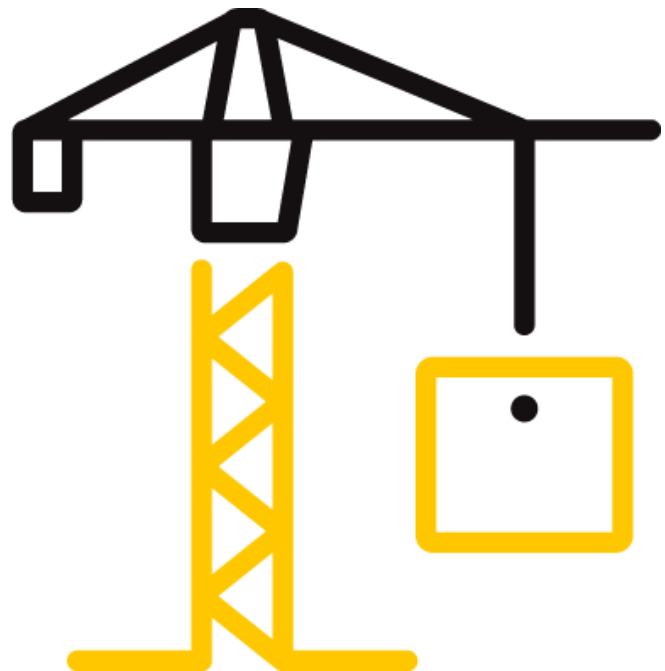
PAGES

11

DOCUMENT CONTROL NUMBER

SFT-BC-OP-19H

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PRODUCT EVALUATION FOR STOVE BUILDER INTERNATIONAL

Report No.: 102747001MTL-002

Date: 12/23/21

PRODUCT EVALUATION RENDERED TO:

| | |
|-----------------|--|
| Company Name: | Stove Builder International |
| Address: | 250 rue de Copenhague |
| | St-Augustin-de-Desmaures, QC |
| | G3A 2H3, Canada |
| Contact Person: | Guillaume Thibodeau-Fortin |
| Tel: | 1-418-878-3040 x5224 |
| Email: | gthibodeaufortin@sbi-international.com |

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PRODUCT EVALUATION FOR STOVE BUILDER INTERNATIONAL

Report No.: 102747001MTL-002

Date: 12/23/21

1 Introduction

Intertek Testing Services NA Ltd./Inc. (Intertek) is conducting a product evaluation for Stove Builder International, on Eco-55, Eco-55 ST, Eco-55 CT and Osburn 2500 to evaluate if the differences with the tested Eco-55 will increase particulate matter emission rate limit. The evaluation is being conducted to determine if items listed in *U.S. Environmental Protection Agency 40 CFR Part 60 Standards of Performance for New Residential Wood Heaters; Final Rule, SECTION 60.533(k)* will show equivalency with the previously tested Eco-55.

2 Product and Assembly Description

2.1. Product Description:

The Eco-55 is a freestanding and automatically fed pellet stove constructed of carbon steel. The outer dimensions are 24.875-inches wide, 32.625-inches high and 29.525-inches deep. The unit has a front door with a viewing glass and a hopper to store the pellet.

Construction drawings are in appendix and named DP00070-V01.

This PEV refers to a product described in Intertek Test Report 102747001MTL-001R1. Consult that document for additional information and specific test conditions.

2.2. Product Traceability:

The test specimen identification is as provided by the client and Intertek accepts no responsibility for any inaccuracies therein.

2.3. Product Certification:

Stove Builder International is an Intertek testing client and an Intertek Listing and Follow-up Service client. Stove models Eco-55 CT and Osburn 2500 are in the process of listing within Intertek. Currently, Intertek does not have any Listings for these models contained in Intertek's Directory of Listed Building Products.

Authorities Having Jurisdiction (AHJ) should be consulted in all cases as to the particular requirements covering the installation and use of Intertek certified products, equipment, systems, devices and materials. The AHJ should be consulted before construction. Fire resistance assemblies and products are developed by the design submitter and have been investigated by Intertek for compliance with specific requirements. The published information (product and design listings) cannot always address every construction nuance encountered in the field. When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the test standard referenced for each Intertek certified product. The test standard includes specifics concerning alternate materials and alternate methods of construction. Only products which bear Intertek's Mark are considered as certified. The appearance of a company's name or product in Intertek Directory of Listed Building Products does not in itself assure that products so identified have been manufactured under Intertek's Follow-Up Service. Only those products bearing the Intertek Mark should be considered to be Listed and covered under Intertek's Follow-Up Service. Always verify the Mark on the product before using it.

PRODUCT EVALUATION FOR STOVE BUILDER INTERNATIONAL

Report No.: 102747001MTL-002

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3 Reference Documents

As part of this evaluation, Intertek has directly or indirectly used the following referenced documents:

- *U.S. Environmental Protection Agency 40 CFR Part 60 Standards of Performance for New Residential Wood Heaters; Final Rule, SECTION 60.533(k)*
- SBI drawings number: DP00070-V01, DP00070-O01_5, OP00025-O01-V01
- Intertek Testing Report No.: 102747001MTL-001R1

4 Evaluation Method

This PEV represents the results of an evaluation on wood pellet stove models listed in object when compared to the tested Eco-55. This investigation was authorized by SBI on December 23, 2021. Drawings number DP00070-V01, DP00070-O01_5, OP00025-O01-V01 were received on December 23, 2021 at the Intertek Lachine facility. Drawings can be found in appendix.

The models listed in subject are wood inserts manufactured based on the construction of the tested Eco-55. The combustion room and air intake of all the mentioned units are identical.

Some variations were noted during the investigation. The variations are esthetical only and they are as follows:

- The loading door has different trims;
- Ash tablet and ash drawer vary slightly;
- Decorative sides are with the Osburn Logo;
- Door glass has the Osburn Logo;
- Base is 1 inch taller;

Design drawings were evaluated to determine similarities between the above-mentioned models. Drawings show internal fire box size to be the same at 7 7/8" deep and 22 3/4" wide. All appliances share a 3" flue collar and have the same combustion air entrance area.

5 Conclusion

Intertek has conducted this product evaluation for Stove Builder International, on Eco-55, Eco-55 ST, Eco-55 CT and Osburn 2500, to evaluate if the differences with the tested Eco-55 will increase particulate matter emission rate limit. The evaluation was conducted to determine if items listed in *U.S. Environmental Protection Agency 40 CFR Part 60 Standards of Performance for New Residential Wood Heaters; Final Rule, SECTION 60.533(k)* will show equivalency with the tested Eco-55.

Based on the information contained and referenced herein, it is Intertek's professional judgment based on sound engineering principles that the following is true:

- Changes made are only aesthetical and do not increase particulate matter emission rate.

PRODUCT EVALUATION FOR STOVE BUILDER INTERNATIONAL

Report No.: 102747001MTL-002

Date: 12/23/21

INTERTEK TESTING SERVICES NA LTD.

Reported by:



Claude Pelland, P.Eng.
Manager
Intertek Lachine

Reviewed by:



Brian Ziegler
Project Team Leader
Building Products Division



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PRODUCT EVALUATION FOR STOVE BUILDER INTERNATIONAL

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6 APPENDIX

Drawings DP00070-V01,
Drawings DP00070-O01_5,
Drawings OP00025-O01-V0



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PRODUCT EVALUATION FOR STOVE BUILDER INTERNATIONAL

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7 LAST PAGE & REVISION SUMMARY

| DATE | SUMMARY | REPORTER | REVIEWER |
|----------|----------|-----------------|---------------|
| 12/23/21 | Original | Hussein Mortada | Brian Ziegler |
| | | | |
| | | | |
| | | | |

Date: 2016-11-01

Page ___ of ___

Manufacturer: SBI

Model: ECO-55

Project #: G102747001 Run: single

Engineer: C. Belland Reviewer: _____

u

COMMENTS

Induced draft

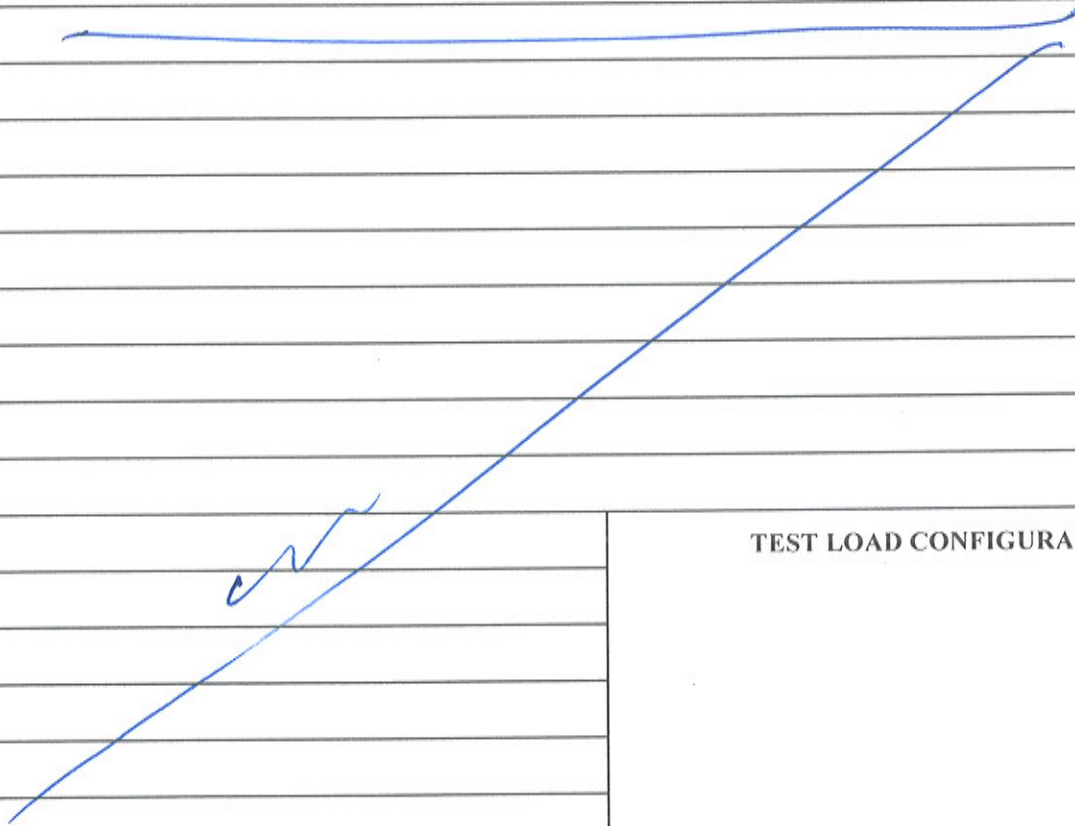
Before : -0.0005 "w.e.

After : 0.0010 "w.e.

Air velocity in front of unit (SBI-097)

Before : ϕ fpm

After : ϕ fpm



TEST LOAD CONFIGURATION

Date: 2016-11-01

Page 1 of 1

Manufacturer: SBC

Model: Eco 55

Project #: G102747001 Run: single

Tech: C. Pelland Reviewer: _____

PRETEST DILUTION TUNNEL TRAVERSE RUN

Barometric pressure (P_{bar}) 30.4 (inches Hg.) Static pressure (P_q) 0.078 (inches w.c.)

Inside diameter: Port A 8in. Port B 8in.

Tunnel cross sectional area: 0.349 Ft²

Pitot tube type: S-Type

| Traverse Point | Position (inches) | Velocity Head Δ _p (inches H ₂ O) | Tunnel Temperature (°F) |
|----------------|-------------------|--|-------------------------|
| A- Centroid | 4.00 | 0.051 | 66.40 |
| B - Centroid | 4.00 | 0.050 | 66.43 |
| A-1 | 0.54 | 0.042 | 65.59 |
| A-2 | 2.00 | 0.043 | 66.37 |
| A-3 | 6.00 | 0.052 | 66.41 |
| A-4 | 7.46 | 0.043 | 66.44 |
| B-1 | 0.54 | 0.032 | 65.88 |
| B-2 | 2.00 | 0.045 | 66.34 |
| B-3 | 6.00 | 0.052 | 66.45 |
| B-4 | 7.46 | 0.043 | 66.45 |
| AVERAGE | | | |

$$v_s = K_p C_p (\sqrt{\Delta p})_{avg} \sqrt{\frac{(T_s)_{avg}}{P_s M_s}}$$

Where,

C_p = pitot tube coefficient, dimension less = 0.99 for standard pitot.

Δ_p = manometer reading (inches H₂O)

T_s = average absolute dilution tunnel temperature (°F + 460)

P_s = absolute dilution tunnel gas pressure or P_{bar} + P_{qg}

P_q = static pressure in. H₂O
 { 13.6 }

M_s = 28.56, wet molecular weight of stack gas (alternatively, it may be measured)

K_p = 85.49 pitot tube constant, (conversion factor for English units)

Δ_pavg. = average of the square roots of the velocity heads (Δ_p) measured at each traverse point.

Date: 2016-11-01

Page 1 of 1

Manufacturer: SBI

Model: EC55

Project #: G102747001 Run: Single

Engineer: C. Pelland Reviewer: _____
[Signature]

SAMPLING EQUIPMENT CHECK OUT

Leakage Checks Tunnel Samplers

| | Train 1 | | Train 2 | | Train 3 | |
|---|----------------|----------------|----------------|----------------|----------------|----------------|
| | Pre-Test | Post-Test | Pre-Test | Post-Test | Pre-Test | Post-Test |
| Unplugged Flow Rate = cfm | | | | | | |
| Vacuum (inches Hg.) | <u>5.00</u> | <u>5.00</u> | <u>5.00</u> | <u>5.00</u> | <u>5.00</u> | <u>5.00</u> |
| Initial 1 minute DGM (ft ³) | <u>874.839</u> | <u>926.373</u> | <u>560.514</u> | <u>614.768</u> | <u>610.784</u> | <u>621.293</u> |
| Final 1 minute DGM (ft ³) | <u>874.840</u> | <u>926.375</u> | <u>560.514</u> | <u>614.768</u> | <u>610.785</u> | <u>621.294</u> |
| Change © (ft ³) | <u>0.001</u> | <u>0.002</u> | <u>0.000</u> | <u>0.000</u> | <u>0.001</u> | <u>0.001</u> |
| Allowable leakage .04 x Sample rate or .02cfm | <u>0.006</u> | <u>0.006</u> | <u>0.006</u> | <u>0.006</u> | <u>0.006</u> | <u>0.006</u> |
| Check OK | <u>o.k</u> | <u>o.k</u> | <u>o.k</u> | <u>o.k</u> | <u>o.k</u> | <u>o.k</u> |

Leakage Checks Flue Gas Sampler

| Plugged Probe | Pre Test | Post Test |
|---------------|------------|------------|
| Check OK | <u>o.k</u> | <u>o.k</u> |

Date: 2016.11.01

Page 1 of 1

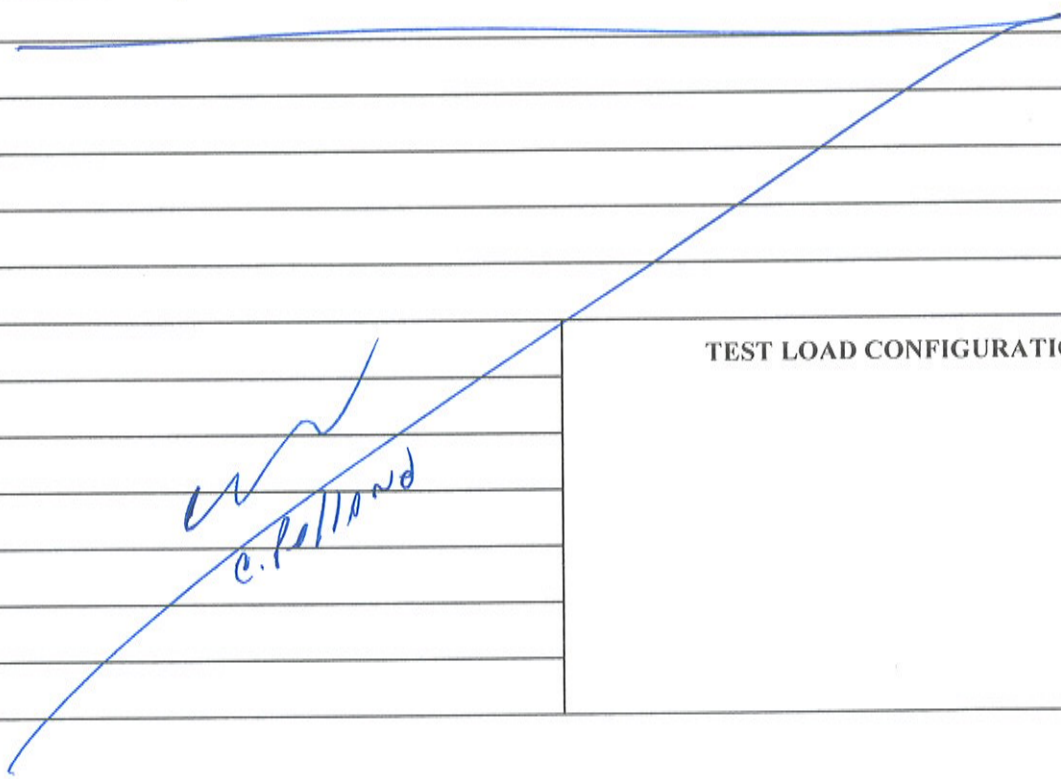
Manufacturer: SBi

Model: 6055

Project #: G102747001 Run: Single

Engineer: C. Pollard Reviewer: _____

COMMENTS

| | |
|--|--|
| Conditioning started @ 10:15 AM | |
| Setting 6/6 | |
| T=0 | Sampling started @ 11:15 Setting = 6/6 |
| T=60 | First hour sampling ends after 1 hour Pump #3 turned off Burn setting set to medium i.e. 3/6 |
| T:180 | Setting to low i.e. 1/6 |
| T:360 | test ended |
|  | |
| TEST LOAD CONFIGURATION | |

Date: 2016-11-01

Page 1 of 1

Manufacturer: S.P.L.

Model: G0055

Project #: G102747001 Run: Single

Engineer: C. Pelland Reviewer: _____

[Handwritten signature]

COMMENTS

| Conditions in Test bench | | | Power (kwh) current |
|--------------------------|------------|-------------------|------------------------|
| START | T: 0 Min | 72°F 38.5% R.H. | 0.30 |
| | T: 60 Min | 72.6°F 37.5% R.H. | 0.44 |
| | T: 180 Min | 71.7°F 37.4% R.H. | 0.67 |
| | T: 360 Min | 71.2 39.7% R.H. | 1.00 |

| | |
|--|--------------------------------|
| | TEST LOAD CONFIGURATION |
|--|--------------------------------|

Date: 2016-11-01

Page 1 of 2

Manufacturer: Sai

Model: Eco 55

Project #: G102747001 Run: Single

Tech: C. Pelland Reviewer: _____

COMMENTS

| Time (min) | DGM1 | DGM2 | DGM3 |
|------------|---------|---------|-------------------------|
| 0 | 874.988 | 560.667 | 610.685 |
| 10 | 876.450 | 562.180 | 612.030 |
| 20 | 877.875 | 563.670 | 614.750 |
| 30 | 879.300 | 565.150 | 616.285 |
| 40 | 880.725 | 566.660 | 617.850 |
| 50 | 882.137 | 568.150 | 619.525 |
| 60 | 883.555 | 569.650 | 621.250 |
| 70 | 884.975 | 571.145 | |
| 80 | 886.397 | 572.650 | |
| 90 | 887.820 | 574.135 | |
| 100 | 889.238 | 575.632 | |
| 110 | 890.658 | 577.127 | |
| 120 | 892.082 | 578.630 | |
| 130 | 893.505 | 580.140 | |
| 140 | 894.925 | 581.630 | |
| 150 | 896.340 | 583.120 | |
| 160 | 897.760 | 584.615 | |
| 170 | 899.190 | 586.120 | TEST LOAD CONFIGURATION |
| 180 | 900.614 | 587.609 | |
| 190 | 902.037 | 589.125 | |
| 200 | 903.460 | 590.620 | |
| 210 | 904.883 | 592.135 | |
| 220 | 906.310 | 593.622 | |
| 230 | 907.735 | 595.138 | |

Date: 2016-11-01

Page 2 of 2

Manufacturer: SBI

Model: ECO 55

Project #: G1-2727091 Run: single

Tech: C. Pelton Reviewer: _____

COMMENTS

| Time (Min) | DGM 1 | DGM 2 | DGM 3 |
|-------------------------|---------|---------|-------|
| 240 | 909.165 | 596.630 | |
| 250 | 910.590 | 598.140 | |
| 260 | 912.017 | 599.650 | |
| 270 | 913.445 | 601.150 | |
| 280 | 914.870 | 602.660 | |
| 290 | 916.305 | 604.170 | |
| 300 | 917.735 | 605.673 | |
| 310 | 919.163 | 607.175 | |
| 320 | 920.593 | 608.685 | |
| 330 | 922.020 | 610.188 | |
| 340 | 923.450 | 611.695 | |
| 350 | 924.880 | 613.213 | |
| 360 | 926.327 | 614.723 | |
| TEST LOAD CONFIGURATION | | | |

Date: 2016-11-01

Page of

Manufacturer: SBCi Model: ECO-55

Project #: G10 2747001

Category #: /

Run: single

Engineer: C. Rolland

Reviewer:

RAW DRY GAS METER READINGS

| | Start | End |
|---|----------------|----------------|
| System 1 (ft ³) Equipment #: <u>SBCi-046</u> | <u>874.588</u> | <u>926.327</u> |
| System 2 (ft ³) Equipment #: <u>SBCi-047</u> | <u>560.667</u> | <u>614.723</u> |
| System 3 (ft ³) Equipment #: <u>SBCi-276</u> | <u>610.685</u> | <u>621.250</u> |

AMBIENT CONDITIONS

| | Start | End |
|--|---|---|
| | Date <u>2016-11-01</u> Time <u>9:13 AM</u> | Date <u>2016-11-01</u> Time <u>5:00 PM</u> |
| Barometer. (inches Hg) Equipment #: <u>QNV CANADA</u> | <u>30.4 %</u> | <u>30.2 %</u> |
| Indoor Dry Bulb (EF) ^o F Equipment #: <u>SBC-212</u> | <u>72.0 °F</u> | <u>71.2 °F</u> |
| Indoor Humidity (%) Equipment #: <u>SBCi-212</u> | <u>38.5 %</u> | <u>39.7 %</u> |

Certification testing of ECO-55

Date scheduled: November 1, 2016

To: Claude Pelland, P. Eng

Instruction :

1. Condition stove on speed 6 (Max BTU output) for 1 hour before sampling starts.
2. Start sampling on speed 6 for 1 hour.
3. After the first hour, drop the speed to 3 out of 6 (Medium BTU output). Burn for 2 hours on that setting.
4. After 2 hours on speed 3, drop the speed to 1 out of 6 (minimum BTU output). Burn for 3 hours on that setting.
5. Stop sampling when the sampling time is 6 hours.

Guillaume Thibodeau-Fortin, Ing.

Appendix B Data and Calculation forms

APPENDIX B Data and Calculation Forms

Appendix B Data and Calculation forms

Outside weather data: Start

Québec, QC - Prévisions sur x

meteo.gc.ca/city/pages/qc-133_metric_f.html?unit=imperial

Emplois | Immigration | Voyage | Entreprises | Prestations | Santé | Impôts | Autres services

Accueil → Environnement et ressources naturelles → Information météo → Météo → Prévisions locales → Québec

Accéder à une ville | Sujets météorologiques

Québec, QC

Aucune alerte en vigueur

▼ Conditions actuelles [24 dernières heures](#) [Radar](#) [Satellite](#) [Foudre](#)

| | | |
|---------------------|---|--|
| 35°F °C °F | Enregistrées à : Aéroport int. Lesage de Québec Date : 9h00 HAE le mardi 1 novembre 2016 | |
| | Condition : Généralement nuageux Pression : 30,4 pouces Tendance : À la baisse | Température : 34,9°F Point de rosée : 26,8°F Humidité : 72% |
| | | Vent : SSE 7 mph Visibilité : 25 miles |

Outside weather data: End

Québec, QC - Prévisions sur x

meteo.gc.ca/city/pages/qc-133_metric_f.html?unit=imperial

Emplois | Immigration | Voyage | Entreprises | Prestations | Santé | Impôts | Autres services

Accueil → Environnement et ressources naturelles → Information météo → Météo → Prévisions locales → Québec

Accéder à une ville | Sujets météorologiques

Québec, QC

Aucune alerte en vigueur

▼ Conditions actuelles [24 dernières heures](#) [Radar](#) [Satellite](#) [Foudre](#)

| | | |
|---------------------|---|--|
| 39°F °C °F | Enregistrées à : Aéroport int. Lesage de Québec Date : 17h00 HAE le mardi 1 novembre 2016 | |
| | Condition : Faible averse de pluie Pression : 30,2 pouces Tendance : À la baisse | Température : 38,8°F Point de rosée : 29,8°F Humidité : 70% |
| | | Vent : NE 13 mph Visibilité : 15 miles |

Appendix B Data and Calculation forms

11/1/2016

Aéroport int. Lesage de Québec - Conditions des dernières 24 heures - Environnement Canada



Gouvernement du Canada

Government of Canada

Accueil → Environnement et ressources naturelles → Information météo → Météo → Prévisions locales → Québec → Sommaire provincial

Aéroport int. Lesage de Québec, Québec

Latitude 46.79° N | Longitude 71.39° O

| Conditions des dernières 24 heures | | | | | | | Unités métriques | Graphique |
|------------------------------------|----------------------|------------------|------------|-----------------------|---------------------|-------------------|------------------|-----------|
| Date / Heure (HAE) | Conditions | Température (°F) | Vent (mph) | Humidité relative (%) | Point de rosée (°F) | Pression (pouces) | Visibilité (mi) | |
| 01 novembre 2016 | | | | | | | | |
| 16:00 | Généralement nuageux | 40 (39,9) | ENE 11 | 65 | 29 | 30,2 | 25 | |
| 15:00 | Généralement nuageux | 41 (41,0) ↑ | E 7 | 60 | 28 | 30,3 | 25 | |
| 14:00 | Généralement nuageux | 40 (40,1) | ESE 8 | 60 | 27 | 30,3 | 30 | |
| 13:00 | Généralement nuageux | 39 (39,4) | ESE 4 | 61 | 27 | 30,3 | 25 | |

http://meteo.gc.ca/pest_conditions/index_f.html?station=yqb&unit=imperial 1/6

11/1/2016

Aéroport int. Lesage de Québec - Conditions des dernières 24 heures - Environnement Canada

| | | | | | | | |
|-------|----------------------|-------------|--------|----|----|------|----|
| | Généralement nuageux | | | | | | |
| 12:00 | Généralement nuageux | 38 (37,9) | ESE 8 | 63 | 26 | 30,3 | 30 |
| 11:00 | Généralement nuageux | 36 (36,3) | ESE 9 | 64 | 25 | 30,4 | 25 |
| 10:00 | Généralement nuageux | 35 (35,2) | SSE 10 | 68 | 26 | 30,4 | 25 |
| 9:00 | Généralement nuageux | 35 (34,9) | SSE 7 | 72 | 27 | 30,4 | 25 |
| 8:00 | Généralement nuageux | 34 (34,3) | S 5 | 77 | 28 | 30,4 | 20 |
| 7:00 | Généralement nuageux | 34 (34,0) ↓ | SE 4 | 74 | 27 | 30,4 | 15 |
| 6:00 | Généralement nuageux | 34 (34,0) ↓ | SE 4 | 80 | 28 | 30,4 | 15 |

http://meteo.gc.ca/pest_conditions/index_f.html?station=yqb&unit=imperial 2/6

Appendix B Data and Calculation forms

1st hour test data

| Time | Ambiant | Flue | Dilution Tunnel | DGM Outlet 1 | DGM Inlet 1 | DGM Inlet 2 | Probe Temp 1 | Probe Temp 2 | DGM Outlet 2 | Probe Temp 3 | Manomètre Draft | Manomètre Tunnel | Balance | Corrected balance |
|------|---------|--------|-----------------|--------------|-------------|-------------|--------------|--------------|--------------|--------------|-----------------|------------------|---------|-------------------|
| Min | °F | °F | °F | °F | °F | °F | °F | °F | °F | °F | "H2O | "H2O | lbs | lbs |
| 0 | 71.23 | 373.07 | 96.04 | 68.52 | 68.98 | 67.60 | 68.29 | 68.17 | 67.40 | 68.49 | 0.05 | 0.08 | 37.27 | 4.72 |
| 10 | 76.62 | 376.08 | 96.46 | 75.70 | 75.95 | 71.63 | 70.45 | 70.65 | 72.12 | 75.44 | 0.05 | 0.08 | 36.49 | 3.93 |
| 20 | 72.15 | 371.73 | 96.12 | 79.71 | 75.28 | 73.13 | 70.71 | 72.69 | 73.55 | 75.83 | 0.05 | 0.08 | 35.72 | 3.14 |
| 30 | 73.32 | 370.44 | 96.00 | 81.95 | 74.79 | 73.92 | 71.17 | 73.86 | 74.16 | 75.58 | 0.06 | 0.08 | 34.94 | 2.36 |
| 40 | 73.35 | 375.61 | 96.79 | 83.08 | 74.59 | 74.20 | 71.18 | 74.67 | 74.31 | 75.79 | 0.06 | 0.08 | 34.17 | 1.57 |
| 50 | 77.49 | 379.40 | 97.17 | 83.79 | 74.54 | 74.37 | 71.18 | 75.28 | 74.49 | 76.30 | 0.06 | 0.07 | 33.35 | 0.79 |
| 60 | 72.86 | 377.65 | 96.56 | 84.16 | 74.64 | 74.68 | 71.30 | 75.80 | 74.69 | 76.74 | 0.06 | 0.08 | 32.56 | 0.00 |

| Date/Hour | Duration | TA | CO | CO | CO ₂ IR | O ₂ | Pump | ExAir | Dilution factor |
|-----------------------|----------|------|-----|--------|--------------------|----------------|-------|-------|-----------------|
| YYYY-MM-DD / HH:MM:SS | S | °F | ppm | % | % | % | l/min | % | |
| 2016-11-01 11:15:43 | 0 | 82.4 | 122 | 0.0122 | 6.13 | 14.65 | 0.97 | 227.1 | x1 |
| 2016-11-01 11:25:43 | 600 | 82.4 | 178 | 0.0178 | 6.33 | 13.98 | 0.98 | 195.9 | x1 |
| 2016-11-01 11:35:43 | 1200 | 83.1 | 122 | 0.0122 | 6.42 | 14.37 | 0.97 | 213.3 | x1 |
| 2016-11-01 11:45:43 | 1800 | 83.5 | 131 | 0.0131 | 6.21 | 15.29 | 0.98 | 263.5 | x1 |
| 2016-11-01 11:55:43 | 2400 | 83.7 | 127 | 0.0127 | 6.61 | 13.85 | 0.98 | 191.0 | x1 |
| 2016-11-01 12:05:43 | 3000 | 84.6 | 120 | 0.012 | 6.78 | 13.62 | 0.98 | 181.8 | x1 |
| 2016-11-01 12:15:43 | 3600 | 85.1 | 127 | 0.0127 | 6.75 | 13.94 | 0.98 | 194.5 | x1 |

Appendix B Data and Calculation forms

Integrated test data

| Time | Ambiant | Flue | Dilution Tunnel | DGM Outlet 1 | DGM Inlet 1 | DGM Inlet 2 | Probe Temp 1 | Probe Temp 2 | DGM Outlet 2 | Probe Temp 3 | Manomètre Draft | Manomètre Tunnel | Balance | Corrected balance |
|------|---------|--------|-----------------|--------------|-------------|-------------|--------------|--------------|--------------|--------------|-----------------|------------------|---------|-------------------|
| Min | °F | °F | °F | °F | °F | °F | °F | °F | °F | °F | "H2O | "H2O | lbs | lbs |
| 0 | 71.23 | 373.07 | 96.04 | 68.52 | 68.98 | 67.60 | 68.29 | 68.17 | 67.40 | 68.49 | 0.05 | 0.08 | 37.27 | 12.71 |
| 10 | 76.62 | 376.08 | 96.46 | 75.70 | 75.95 | 71.63 | 70.45 | 70.65 | 72.12 | 75.44 | 0.05 | 0.08 | 36.49 | 11.92 |
| 20 | 72.15 | 371.73 | 96.12 | 79.71 | 75.28 | 73.13 | 70.71 | 72.69 | 73.55 | 75.83 | 0.05 | 0.08 | 35.72 | 11.16 |
| 30 | 73.32 | 370.44 | 96.00 | 81.95 | 74.79 | 73.92 | 71.17 | 73.86 | 74.16 | 75.58 | 0.06 | 0.08 | 34.94 | 10.38 |
| 40 | 73.35 | 375.61 | 96.79 | 83.08 | 74.59 | 74.20 | 71.18 | 74.67 | 74.31 | 75.79 | 0.06 | 0.08 | 34.17 | 9.61 |
| 50 | 77.49 | 379.40 | 97.17 | 83.79 | 74.54 | 74.37 | 71.18 | 75.28 | 74.49 | 76.30 | 0.06 | 0.07 | 33.35 | 8.78 |
| 60 | 72.86 | 377.65 | 96.56 | 84.16 | 74.64 | 74.68 | 71.30 | 75.80 | 74.69 | 76.74 | 0.06 | 0.08 | 32.56 | 7.99 |
| 70 | 72.23 | 320.04 | 92.49 | 84.56 | 74.73 | 74.47 | 71.35 | 76.24 | 74.30 | N/A | 0.05 | 0.09 | 32.14 | 7.57 |
| 80 | 69.12 | 287.59 | 89.75 | 84.80 | 74.88 | 73.81 | 71.50 | 76.68 | 73.55 | N/A | 0.05 | 0.08 | 31.78 | 7.21 |
| 90 | 68.12 | 280.73 | 88.39 | 85.02 | 75.00 | 73.18 | 71.58 | 76.91 | 72.88 | N/A | 0.04 | 0.08 | 31.39 | 6.82 |
| 100 | 69.86 | 271.29 | 87.84 | 84.97 | 75.02 | 72.77 | 71.59 | 76.96 | 72.55 | N/A | 0.04 | 0.08 | 31.02 | 6.46 |
| 110 | 71.37 | 268.39 | 87.94 | 84.93 | 74.98 | 72.71 | 71.62 | 76.90 | 72.36 | N/A | 0.04 | 0.08 | 30.71 | 6.14 |
| 120 | 72.01 | 266.06 | 87.69 | 84.80 | 74.99 | 72.76 | 71.72 | 76.78 | 72.33 | N/A | 0.04 | 0.07 | 30.37 | 5.80 |
| 130 | 72.21 | 266.16 | 87.94 | 84.95 | 75.04 | 72.73 | 71.96 | 76.69 | 72.50 | N/A | 0.04 | 0.08 | 30.00 | 5.43 |
| 140 | 72.46 | 265.25 | 87.80 | 84.83 | 75.02 | 72.66 | 72.10 | 76.62 | 72.51 | N/A | 0.04 | 0.07 | 29.64 | 5.07 |
| 150 | 72.48 | 269.51 | 88.06 | 84.73 | 75.13 | 72.71 | 72.25 | 76.63 | 72.57 | N/A | 0.04 | 0.08 | 29.26 | 4.69 |
| 160 | 72.73 | 271.89 | 88.41 | 84.80 | 75.22 | 72.76 | 72.05 | 77.00 | 72.77 | N/A | 0.04 | 0.08 | 28.88 | 4.32 |
| 170 | 72.60 | 271.12 | 88.27 | 85.05 | 75.26 | 72.88 | 72.10 | 77.29 | 72.86 | N/A | 0.04 | 0.08 | 28.52 | 3.95 |
| 180 | 73.04 | 273.54 | 88.92 | 85.06 | 75.33 | 72.95 | 72.17 | 77.44 | 72.92 | N/A | 0.04 | 0.08 | 28.14 | 3.57 |
| 190 | 72.67 | 212.45 | 83.38 | 85.15 | 75.44 | 72.65 | 72.29 | 77.62 | 72.41 | N/A | 0.04 | 0.08 | 27.97 | 3.41 |
| 200 | 72.54 | 195.84 | 81.68 | 85.27 | 75.51 | 72.02 | 72.35 | 77.75 | 71.84 | N/A | 0.03 | 0.08 | 27.78 | 3.22 |
| 210 | 72.45 | 196.72 | 81.26 | 85.50 | 75.55 | 71.61 | 72.38 | 77.86 | 71.48 | N/A | 0.03 | 0.08 | 27.56 | 2.99 |

Appendix B Data and Calculation forms

| | | | | | | | | | | | | | | |
|-----|-------|--------|-------|-------|-------|-------|-------|-------|-------|-----|------|------|-------|------|
| 220 | 72.33 | 197.32 | 81.07 | 85.48 | 75.55 | 71.41 | 72.38 | 77.94 | 71.30 | N/A | 0.03 | 0.08 | 27.34 | 2.77 |
| 230 | 72.75 | 194.97 | 80.88 | 85.51 | 75.55 | 71.35 | 72.39 | 78.00 | 71.26 | N/A | 0.03 | 0.08 | 27.12 | 2.55 |
| 240 | 71.95 | 186.47 | 80.25 | 85.48 | 75.57 | 71.23 | 72.37 | 78.00 | 71.15 | N/A | 0.03 | 0.08 | 26.94 | 2.37 |
| 250 | 72.06 | 190.94 | 80.50 | 85.46 | 75.58 | 71.23 | 72.44 | 78.02 | 71.10 | N/A | 0.03 | 0.08 | 26.73 | 2.16 |
| 260 | 71.83 | 181.85 | 79.93 | 85.37 | 75.59 | 71.15 | 72.49 | 78.11 | 71.03 | N/A | 0.03 | 0.08 | 26.53 | 1.97 |
| 270 | 71.93 | 193.00 | 80.42 | 85.54 | 75.65 | 71.14 | 72.63 | 78.16 | 71.06 | N/A | 0.03 | 0.08 | 26.34 | 1.77 |
| 280 | 72.33 | 189.44 | 80.26 | 85.40 | 75.69 | 71.19 | 72.61 | 78.20 | 71.10 | N/A | 0.03 | 0.08 | 26.14 | 1.57 |
| 290 | 72.53 | 192.89 | 80.52 | 85.46 | 75.73 | 71.24 | 72.65 | 78.25 | 71.20 | N/A | 0.03 | 0.08 | 25.93 | 1.36 |
| 300 | 72.04 | 184.00 | 80.12 | 85.49 | 75.80 | 71.31 | 72.73 | 78.31 | 71.28 | N/A | 0.03 | 0.08 | 25.75 | 1.18 |
| 310 | 72.36 | 195.33 | 80.64 | 85.48 | 75.81 | 71.34 | 72.58 | 78.30 | 71.25 | N/A | 0.03 | 0.08 | 25.51 | 0.94 |
| 320 | 72.09 | 187.51 | 80.29 | 85.39 | 75.80 | 71.31 | 72.54 | 78.26 | 71.14 | N/A | 0.03 | 0.08 | 25.33 | 0.76 |
| 330 | 72.17 | 180.75 | 79.73 | 85.41 | 75.78 | 71.26 | 72.57 | 78.26 | 71.06 | N/A | 0.03 | 0.08 | 25.15 | 0.58 |
| 340 | 72.15 | 195.11 | 80.44 | 85.40 | 75.76 | 71.24 | 72.51 | 78.20 | 71.02 | N/A | 0.03 | 0.08 | 24.93 | 0.36 |
| 350 | 71.84 | 185.51 | 79.90 | 85.66 | 75.80 | 71.27 | 72.69 | 78.25 | 71.16 | N/A | 0.03 | 0.08 | 24.73 | 0.17 |
| 360 | 72.37 | 189.71 | 80.46 | 85.76 | 75.81 | 71.31 | 72.83 | 78.35 | 71.22 | N/A | 0.03 | 0.08 | 24.57 | 0.00 |

Appendix B Data and Calculation forms

| Date/Hour | Duration | TA | CO | CO | CO ₂ IR | O ₂ | Pump | ExAir | Dilution factor |
|-----------------------|----------|------|-----|--------|--------------------|----------------|-------|--------|-----------------|
| YYYY-MM-DD / HH:MM:SS | S | °F | ppm | % | % | % | l/min | % | |
| 2016-11-01 11:15:43 | 0 | 82.4 | 122 | 0.0122 | 6.13 | 14.65 | 0.97 | 227.1 | x1 |
| 2016-11-01 11:25:43 | 600 | 82.4 | 178 | 0.0178 | 6.33 | 13.98 | 0.98 | 195.9 | x1 |
| 2016-11-01 11:35:43 | 1200 | 83.1 | 122 | 0.0122 | 6.42 | 14.37 | 0.97 | 213.3 | x1 |
| 2016-11-01 11:45:43 | 1800 | 83.5 | 131 | 0.0131 | 6.21 | 15.29 | 0.98 | 263.5 | x1 |
| 2016-11-01 11:55:43 | 2400 | 83.7 | 127 | 0.0127 | 6.61 | 13.85 | 0.98 | 191.0 | x1 |
| 2016-11-01 12:05:43 | 3000 | 84.6 | 120 | 0.012 | 6.78 | 13.62 | 0.98 | 181.8 | x1 |
| 2016-11-01 12:15:43 | 3600 | 85.1 | 127 | 0.0127 | 6.75 | 13.94 | 0.98 | 194.5 | x1 |
| 2016-11-01 12:25:43 | 4200 | 84.2 | 175 | 0.0175 | 4.85 | 17.62 | 0.98 | 511.1 | x1 |
| 2016-11-01 12:35:43 | 4800 | 82.6 | 174 | 0.0174 | 3.24 | 18.05 | 0.98 | 599.4 | x1 |
| 2016-11-01 12:45:43 | 5400 | 81.1 | 105 | 0.0105 | 2.91 | 17.78 | 0.98 | 543.4 | x1 |
| 2016-11-01 12:55:43 | 6000 | 80.4 | 133 | 0.0133 | 2.79 | 18.01 | 0.98 | 590.5 | x1 |
| 2016-11-01 13:05:43 | 6600 | 79.5 | 212 | 0.0212 | 2.60 | 17.95 | 0.97 | 578.2 | x1 |
| 2016-11-01 13:15:43 | 7200 | 78.8 | 170 | 0.017 | 2.66 | 18.46 | 0.98 | 711.0 | x1 |
| 2016-11-01 13:25:43 | 7800 | 78.6 | 198 | 0.0198 | 2.84 | 18.11 | 0.98 | 615.5 | x1 |
| 2016-11-01 13:35:43 | 8400 | 78.3 | 139 | 0.0139 | 2.73 | 17.98 | 0.97 | 583.6 | x1 |
| 2016-11-01 13:45:43 | 9000 | 78.3 | 156 | 0.0156 | 2.69 | 18.00 | 0.98 | 587.9 | x1 |
| 2016-11-01 13:55:43 | 9600 | 78.4 | 167 | 0.0167 | 2.83 | 18.08 | 0.98 | 608.3 | x1 |
| 2016-11-01 14:05:43 | 10200 | 78.4 | 303 | 0.0303 | 2.94 | 18.37 | 0.97 | 683.4 | x1 |
| 2016-11-01 14:15:43 | 10800 | 78.6 | 200 | 0.02 | 2.86 | 18.09 | 0.97 | 609.4 | x1 |
| 2016-11-01 14:25:43 | 11400 | 78.1 | 256 | 0.0256 | 2.07 | 18.83 | 0.97 | 846.2 | x1 |
| 2016-11-01 14:35:43 | 12000 | 77.4 | 262 | 0.0262 | 1.78 | 19.19 | 0.98 | 1037.0 | x1 |
| 2016-11-01 14:45:43 | 12600 | 76.8 | 320 | 0.032 | 1.75 | 19.28 | 0.97 | 1093.4 | x1 |
| 2016-11-01 14:55:43 | 13200 | 76.5 | 452 | 0.0452 | 1.82 | 19.64 | 0.97 | 1393.2 | x1 |
| 2016-11-01 15:05:43 | 13800 | 76.3 | 150 | 0.015 | 1.70 | 18.94 | 0.98 | 901.0 | x1 |
| 2016-11-01 15:23:13 | 14850 | 75.9 | 214 | 0.0214 | 1.67 | 18.80 | 0.98 | 834.1 | x1 |
| 2016-11-01 15:33:13 | 15450 | 75.7 | 350 | 0.035 | 1.63 | 19.47 | 0.98 | 1232.9 | x1 |
| 2016-11-01 15:43:13 | 16050 | 75.7 | 222 | 0.0222 | 1.55 | 19.07 | 0.98 | 964.5 | x1 |
| 2016-11-01 15:53:13 | 16650 | 75.7 | 193 | 0.0193 | 1.76 | 19.12 | 0.97 | 996.2 | x1 |
| 2016-11-01 16:03:13 | 17250 | 75.7 | 309 | 0.0309 | 1.61 | 19.42 | 0.97 | 1192.1 | x1 |
| 2016-11-01 16:13:13 | 17850 | 75.7 | 194 | 0.0194 | 1.69 | 19.25 | 0.98 | 1077.2 | x1 |
| 2016-11-01 16:23:13 | 18450 | 75.7 | 227 | 0.0227 | 1.71 | 19.18 | 0.97 | 1030.5 | x1 |

Appendix B Data and Calculation forms

| | | | | | | | | | |
|---------------------|-------|------|-----|--------|------|-------|------|--------|----|
| 2016-11-01 16:33:13 | 19050 | 75.7 | 233 | 0.0233 | 1.71 | 19.12 | 0.98 | 995.6 | x1 |
| 2016-11-01 16:43:13 | 19650 | 75.2 | 234 | 0.0234 | 1.66 | 19.42 | 0.98 | 1199.8 | x1 |
| 2016-11-01 16:53:13 | 20250 | 75.6 | 296 | 0.0296 | 1.62 | 19.35 | 0.97 | 1138.4 | x1 |
| 2016-11-01 17:03:13 | 20850 | 75.6 | 346 | 0.0346 | 1.68 | 19.43 | 0.98 | 1202.9 | x1 |
| 2016-11-01 17:13:13 | 21450 | 75.7 | 277 | 0.0277 | 1.63 | 19.32 | 0.97 | 1116.9 | x1 |
| 2016-11-01 17:23:13 | 22050 | 75.9 | 179 | 0.0179 | 1.71 | 19.12 | 0.97 | 995.3 | x1 |

Appendix B Data and Calculation forms

1st hour results

| ASTM E2779 Calculation Sheet | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------------|------------------|--|----------------|--|-----------------|--|----------------|--|----------|--|-----------|--|-----------------|--|---------------|--|---------------|--|----------------|--|---------------|--|-----------------|--|-------|--|-------|--|
| Manufacturer: | SBI | | Tech: | | Claude Pelland | | | | | | | | | | | | | | | | | | | | | | | |
| Model: | Eco-55 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Date: | 2016-11-01 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Run: | 1 | | Dry kilograms: | | 2.14 | | | | | | | | | | | | | | | | | | | | | | | |
| Control #: | G102747001 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test Duration: | 60.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Barometer (in.Hg): | Start | | End | | Pitot type | | Type S | | | | | | | | | | | | | | | | | | | | | |
| | 30.4 | | 30.3 | | | | 0.84 | | | | | | | | | | | | | | | | | | | | | |
| Dry Bulb (F): | 72 | | 72.6 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Humidity (%): | 38.5 | | 37.5 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moisture content of wood (wet basis): | 4.72 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Average | 0.00 | | 0.00 | | 0.00 | | 374.85 | | 73.86 | | 96.45 | | 74.11 | | 79.56 | | 70.61 | | 0.08 | | 0.022 | | | | | | | |
| Elapsed Time | Weight Remaining | | * | | * | | * | | *1 | | *2 | | *3 | | - | | - | | - | | - | | | | | | | |
| Actual Time | Lbs. | | CO | | CO ₂ | | O ₂ | | Flue Gas | | Room Temp | | Tunnel Dry Bulb | | DGM 3 Reading | | DGM 3 Inlet T | | DGM 3 Outlet T | | Filter 3 Temp | | Tunnel Velocity | | Draft | | | |
| 10:56:00 | 0.0 | | 4.72 | | 0.00 | | 0.00 | | 0.00 | | 373.07 | | 71.23 | | 96.04 | | 610.685 | | 68.98 | | 68.52 | | 68.29 | | 0.078 | | 0.024 | |
| 11:06:00 | 10.00 | | 3.93 | | 0.00 | | 0.00 | | 0.00 | | 376.08 | | 76.62 | | 96.46 | | 612.445 | | 75.95 | | 75.70 | | 70.45 | | 0.077 | | 0.021 | |
| 11:16:00 | 20.00 | | 3.17 | | 0.00 | | 0.00 | | 0.00 | | 371.73 | | 72.15 | | 96.12 | | 614.210 | | 75.28 | | 79.71 | | 70.71 | | 0.079 | | 0.023 | |
| 11:26:00 | 30.00 | | 2.39 | | 0.00 | | 0.00 | | 0.00 | | 370.44 | | 73.32 | | 96.00 | | 615.967 | | 74.79 | | 81.95 | | 71.17 | | 0.080 | | 0.022 | |
| 11:36:00 | 40.00 | | 1.62 | | 0.00 | | 0.00 | | 0.00 | | 375.61 | | 73.35 | | 96.79 | | 617.728 | | 74.59 | | 83.08 | | 71.18 | | 0.079 | | 0.020 | |
| 11:46:00 | 50.00 | | 0.79 | | 0.00 | | 0.00 | | 0.00 | | 379.40 | | 77.49 | | 97.17 | | 619.490 | | 74.54 | | 83.79 | | 71.18 | | 0.075 | | 0.021 | |
| 11:56:00 | 60.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 377.65 | | 72.86 | | 96.56 | | 621.250 | | 74.64 | | 84.16 | | 71.30 | | 0.082 | | 0.023 | |

Appendix B Data and Calculation forms

| | | | | | | | | | | | | | | | | | | |
|------------------------------|----------------------|----------------------|-----------------------|------------|------------------------|--------------------------|-----------------------|-------------------------------|--|---------------------------------------|----------------------------------|-----------------------------|---------------|----------------|--|--|-----|---------|
| | | | | 6" Tunnel | 0.1963 | ft ² | | | | | (ASTM E2515 Formula) | | | | | | | |
| Manufacturer: | | | | SBI | 12" Tunnel | 0.7854 | ft ² | Tunnel area (ft2): | | | | 0.3491 | Manufacturer: | | | | SBI | |
| Model: | | | | Eco-55 | | | | | Wood moisture (% wet): | | | | 4.75 | Model: | | | | Eco-55 |
| Date: | | | | 11-1-16 | | | | | Load Weight (lbs wet): | | | | 4.717441 | Date: | | | | 11-1-16 |
| Run: | | | | 1 | | | | | Burn Rate (Dry kg/hr): | | | | 2.038 | Run: | | | | 1 |
| Project #: | | | | G102747001 | | | | | Final Temperature (DGM #3) Degrees Rankin: | | | | 536.835 | | | | | |
| Test Duration: | | | | 60 | | | | | Final Tunnel Temperature Degrees Rankin: | | | | 556.448 | | | | | |
| Total Gas Volume (DGM 3): | | | | 10.331 | | | | | Final Tunnel Velocity (feet per second): | | | | 15.1131177 | | | | | |
| Average Barometric Pressure: | | | | 30.35 | | | | | Standardized Tunnel Flow (dscfm): | | | | 298.479034 | | | | | |
| Molecular Weight: | | | | 28.78 | | | | | Average Inlet + Outlet | | | | | | | | | |
| Pitot Correction: | | | | 0.941313 | | | | | Average #3 | | | | | | | | | |
| Calibration Factor (DGM #3): | | | | 0.9830 | | | | | Average Proportional Rates | | | | | | | | | |
| (3) VS: | | | | 0.157735 | | | | | Average PR3 | | | | | | | | | |
| | | | | | Filter Face | | | | Delta-P Tunnel | | | | Average #3 | | | | | |
| | | | | | Velocity | | | | (in. H2O) Velocity | | | | dDGM | | | | | |
| | | | | | DGM 1 | | | | Tunnel Ft/Sec | | | | Vol.Std. | | | | | |
| | | | | | DGM 1 | | | | Meter 3 | | | | SQRT | | | | | |
| | | | | | DGM 1 | | | | Deg. R | | | | Delta-P | | | | | |
| Elapsed Time | DGM 1 Reading | DGM 1 Inlet T | DGM 1 Outlet T | | Tunnel Dry Bulb | Filter Face DGM 1 | Delta-P Tunnel | Tunnel Velocity Ft/Sec | Temp. Meter 3 | Average Proportional Rates PR3 | Average #3 Vol.Std. (ft3) | Average SQRT Delta-P | Time | Delta-P | | | | |
| 0.00 | 610.69 | 68.98 | 68.52 | | 96.03779 | 9.24 | 0.078 | 15.02079 | 528.7 | | | | 0 | 0.2785 | | | | |
| 10.00 | 612.45 | 75.95 | 75.70 | | 96.45991 | 9.24 | 0.077 | 14.94336 | 535.8 | 101.43 | 1.729 | | 10 | 0.2770 | | | | |
| 20.00 | 614.21 | 75.28 | 79.71 | | 96.11873 | 9.24 | 0.079 | 15.19506 | 537.5 | 99.35 | 1.728 | | 20 | 0.2817 | | | | |
| 30.00 | 615.97 | 74.79 | 81.95 | | 95.99849 | 9.18 | 0.080 | 15.24150 | 538.4 | 98.26 | 1.718 | | 30 | 0.2826 | | | | |
| 40.00 | 617.73 | 74.59 | 83.08 | | 96.78786 | 9.20 | 0.079 | 15.18170 | 538.8 | 98.84 | 1.720 | | 40 | 0.2813 | | | | |
| 50.00 | 619.49 | 74.54 | 83.79 | | 97.1712 | 9.20 | 0.075 | 14.76449 | 539.2 | 101.64 | 1.720 | | 50 | 0.2735 | | | | |
| 60.00 | 621.25 | 74.64 | 84.16 | | 96.5629 | 9.18 | 0.082 | 15.44491 | 539.4 | 96.86 | 1.717 | | 60 | 0.2863 | | | | |

Appendix B Data and Calculation forms

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|--|---------------|--|------------------|--|--------------------------|--|-----------------------|--|-----------------------|--|----------------------------------|--|------------------------------------|--|---|--|-------------------------------|--|---|--|--------------------|--|-------------------------------|--|---------------|--|------------------|--|--------|--|----------|--|----------|--|-----------|--|----------|--|------------|--|------------|--|-------|--|----------|--|------|--|-------|--|
| Manufacturer: SBI | | Model: ECO-55 | | Date: 01-11-2016 | | Run: 1 | | Control #: G102747001 | | Test Duration: 60 min | | Air Fuel Ratio (A/F) | | Overall Heating Efficiency: 72.70% | | Dry Molecular Weight (M _d): 29.60 | | Combustion Efficiency: 99.50% | | Dry Moles Exhaust Gas (N _d): 584.22 | | %HC | | Combustion Efficiency: 99.50% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eff | | 72.70% | | 78.44% | | Ultimate CO ₂ | | CO _{2-ult} | | 19.63 | | Heat Transfer Efficiency: 73.06% | | Air Fuel Ratio (A/F) | | 16.78 | | 0.8 | | Total Input (kJ): | | 41,386 | | 39,253 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Comb Eff | | 99.50% | | 99.50% | | F ₀ | | 1.061 | | Heat Output: | | 28,540 Btu/h | | 30,086 kJ/h | | Heat Input: | | 39,260 Btu/h | | 41,386 kJ/h | | Total Output (kJ): | | 30,086 | | 28,535 | | | | | | | | | | | | | | | | | | | | | | | | | |
| HT Eff | | 73.06% | | 78.83% | | Burn Duration: | | 1.00 h | | Burn Rate: | | 4.51 lb/h | | 2.045 kg/h | | Stack Temp: | | 375.1 Deg. F | | 190.6 Deg. C | | Efficiency: | | 72.70% | | Total CO (g): | | 5.37 | | | | | | | | | | | | | | | | | | | | | | | |
| Output | | 30,086 | | kJ/h | | Averages | | 0.01 | | 6.46 | | 2.04 | | 20.51 | | 14.04 | | 190.47 | | 23.25 | | 100.5% | | 75.2% | | 75.6% | | 18.39 | | 1.07 | | 50.00 | | 1.02 | | 50.00 | | 44835 | | 4.06 | | 6.87 | | 2.74 | | 20236.00 | | 4.50 | | 79.49 | |
| Burn Rate | | 2.05 | | kg/h | | INPUT DATA | | Oxygen Calculation | | Input Data | | Combust | | Heat | | Net | | Air | | Wet Wt | | % Wet | | Dry Wt. | | % Dry | | Total | | Carbon | | Hydrogen | | Oxygen | | Calorific | | Moisture | | Mw | | | | | | | | | | | |
| Grams CO | | 5 | | g | | Excess | | Total | | Calc. % | | Flue | | Room | | Eff | | Transfer | | Eff | | Fuel | | Now | | Consumed | | Total | | Input | | /12= [a] | | /1= [b] | | /16= [c] | | Value | | Fuel Burnt | | [h] | | | | | | | | | |
| Input | | 41,386 | | kJ/h | | Air EA | | O ₂ | | O ₂ [g] | | Gas (°C) | | Temp (°C) | | % | | % | | % | | Ratio | | Wt | | x | | Wt _{dn} | | y | | Input | | /12= [a] | | /1= [b] | | /16= [c] | | Value | | Fuel Burnt | | [h] | | | | | | | |
| MC wet | | 4.50 | | | | 219.6% | | 20.53 | | 14.39 | | 189.5 | | 21.8 | | 100.5% | | 74.4% | | 74.8% | | 19.4 | | 2.14 | | 0.00 | | 2.05 | | 0.00 | | 0 | | 4.06 | | 6.87 | | 2.74 | | 20236.00 | | 4.50 | | 79.46 | | | | | | | |
| Averages | | 0.01 | | 6.46 | | 209.2% | | 20.52 | | 14.18 | | 191.2 | | 24.8 | | 100.4% | | 75.0% | | 75.3% | | 18.7 | | 1.78 | | 16.67 | | 1.70 | | 16.67 | | 10347 | | 4.06 | | 6.87 | | 2.74 | | 20236.00 | | 4.50 | | 79.47 | | | | | | | |
| 0 | | 2.14 | | 0.01 | | 205.2% | | 20.51 | | 14.08 | | 188.7 | | 22.3 | | 100.5% | | 75.2% | | 75.6% | | 18.5 | | 1.43 | | 33.33 | | 1.36 | | 33.33 | | 6898 | | 4.06 | | 6.87 | | 2.74 | | 20236.00 | | 4.50 | | 79.48 | | | | | | | |
| 10 | | 1.78 | | 0.02 | | 215.4% | | 20.52 | | 14.31 | | 188.0 | | 23.0 | | 100.5% | | 74.9% | | 75.2% | | 19.1 | | 1.07 | | 50.00 | | 1.02 | | 50.00 | | 6898 | | 4.06 | | 6.87 | | 2.74 | | 20236.00 | | 4.50 | | 79.47 | | | | | | | |
| 20 | | 1.43 | | 0.01 | | 196.4% | | 20.50 | | 13.88 | | 190.9 | | 23.0 | | 100.4% | | 75.5% | | 75.9% | | 18.0 | | 0.71 | | 66.67 | | 0.68 | | 66.67 | | 6898 | | 4.06 | | 6.87 | | 2.74 | | 20236.00 | | 4.50 | | 79.50 | | | | | | | |
| 30 | | 1.07 | | 0.01 | | 189.0% | | 20.49 | | 13.70 | | 193.0 | | 25.3 | | 100.4% | | 75.9% | | 76.2% | | 17.5 | | 0.36 | | 83.33 | | 0.34 | | 83.33 | | 10347 | | 4.06 | | 6.87 | | 2.74 | | 20236.00 | | 4.50 | | 79.51 | | | | | | | |
| 40 | | 0.71 | | 0.01 | | 190.3% | | 20.49 | | 13.73 | | 192.0 | | 22.7 | | 100.4% | | 75.7% | | 76.0% | | 17.6 | | 0.00 | | 100.00 | | 0.00 | | 100.00 | | 3449 | | 4.06 | | 6.87 | | 2.74 | | 20236.00 | | 4.50 | | 79.50 | | | | | | | |
| 50 | | 0.36 | | 0.01 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | | 0.00 | | 0.01 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note: In the "Input data", "Calc. % O₂", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a], [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3 to 13.7.5.

| | | | | | | | | | | | | | | | | | | | | | |
|--|---|--------|----------------------|--------------------------|--------------------------|----------------|------|-------|----------------|------------------|------|------------------|-----------------|--|---------|----------------|-----------------|------------------|--------|--|-----------|
| Moisture Content M _{Cwb} : | | 4.5 | | | | | | | | | | | | | | | | | | | |
| Moisture of Wood (wet basis): | | 4.5 | | | | | | | | | | | | | | | | | | | |
| Dry kg : | | 2.05 | | | | | | | | | | | | | | | | | | | |
| (Btu) | Initial Dry Weight Wt _{do} (kg): | 2.05 | CA: 48.73 | | | | | | | | | | | | | | | | | | |
| (Btu) | Moisture Content Dry | 4.71 | HY: 6.87 | | | | | | | | | | | | | | | | | | |
| | | | OX: 43.785 | | | | | | | | | | | | | | | | | | |
| Load Weight (kg): | 2.14 | | | | | | | | | | | | | | | | | | | | |
| Fuel Heating | HHV | LHV | | | | | | | | | | | | | | | | | | | |
| Value in kJ/kg - CV: | 20,236 | 18,755 | Btu/lb 8705.8 8068.5 | | | | | | | | | | | | | | | | | | |
| 21.08 | 1.59 | 5.50 | -0.02 | 0.16 | 40.91 | 89.07 | 0.08 | -0.13 | 503.90 | 34.82 | 2.62 | 463.62 | 6782.39 | 5050.30 | 4897.79 | 4846.29 | 6647.18 | 5856.78 | 296.40 | | |
| Mass Balance (moles/100 mole dry flue gas) | | | | kg Wood per 100 mole dfp | Moles per kg of Dry Wood | | | | | | | Moisture Present | Stack Temp | Heat Content Change - Ambient to Stack Temperature | | | | | | | Room Temp |
| [u] | [w] | [j] | [k] | Nk | CO ₂ | O ₂ | CO | HC | N ₂ | H ₂ O | | K | CO ₂ | O ₂ | CO | N ₂ | CH ₄ | H ₂ O | K | | |
| 21.08 | 1.51 | 5.22 | -0.02 | 0.15 | 40.92 | 96.09 | 0.08 | -0.14 | 530.46 | 34.85 | 2.62 | 462.63 | 6795.33 | 5062.54 | 4910.30 | 4858.54 | 6654.18 | 5871.95 | 294.94 | | |
| 21.08 | 1.56 | 5.39 | -0.02 | 0.15 | 40.88 | 91.55 | 0.11 | -0.13 | 513.20 | 34.82 | 2.62 | 464.30 | 6753.01 | 5026.11 | 4873.76 | 4822.63 | 6623.45 | 5827.86 | 297.94 | | |
| 21.08 | 1.58 | 5.47 | -0.02 | 0.16 | 40.92 | 89.76 | 0.08 | -0.13 | 506.55 | 34.83 | 2.62 | 461.88 | 6743.89 | 5024.46 | 4873.43 | 4822.04 | 6603.27 | 5827.87 | 295.46 | | |
| 21.08 | 1.53 | 5.29 | -0.02 | 0.15 | 40.91 | 94.26 | 0.09 | -0.14 | 523.55 | 34.84 | 2.62 | 461.17 | 6688.35 | 4983.15 | 4833.38 | 4782.41 | 6548.74 | 5779.98 | 296.11 | | |
| 21.09 | 1.63 | 5.63 | -0.02 | 0.16 | 40.91 | 85.91 | 0.08 | -0.13 | 491.98 | 34.82 | 2.62 | 464.04 | 6811.54 | 5071.88 | 4918.68 | 4866.97 | 6676.05 | 5881.75 | 296.12 | | |
| 21.09 | 1.67 | 5.77 | -0.02 | 0.17 | 40.91 | 82.67 | 0.07 | -0.12 | 479.74 | 34.81 | 2.62 | 466.15 | 6814.37 | 5069.33 | 4915.05 | 4863.62 | 6689.02 | 5877.04 | 298.42 | | |
| 21.09 | 1.66 | 5.74 | -0.02 | 0.17 | 40.91 | 83.22 | 0.08 | -0.12 | 481.80 | 34.81 | 2.62 | 465.17 | 6870.22 | 5114.65 | 4959.93 | 4907.83 | 6735.57 | 5931.00 | 295.85 | | |

Appendix B Data and Calculation forms

| SUMS | | | | | | | AVERAGE | SUMS | | | | | | |
|-----------------------------------|----------------|--------|----------------|-----------------|-----------------------|--------------------------|---------|----------|----------|--------------|---------|--------|----------------|-------|
| 1942.12 | 3147.78 | 169.39 | 17091.04 | -823.43 | 12146.24 | 913.05 | 4940.88 | 10892.62 | -200.81 | 11093.4 | 33942.7 | -200.8 | 5.4 | -4.6 |
| Energy Losses (kJ/kg of Dry Fuel) | | | | | | | Total | | | | | | | |
| Flue Gas Constituent | | | | | | | Loss | Total | Chemical | Sensible and | Total | Chem | Grams Produced | |
| CO ₂ | O ₂ | CO | N ₂ | CH ₄ | H ₂ O Comb | H ₂ O Fuel MC | Rate | Loss | Loss 1 | Latent Loss | Output | Loss 2 | CO | HC |
| 278.07 | 486.45 | 23.44 | 2577.27 | -128.12 | 1736.87 | 130.47 | 5104.47 | 0.00 | 0 | 0.00 | 0 | 0 | 0.00 | 0.00 |
| 276.03 | 460.14 | 33.09 | 2474.97 | -117.18 | 1734.12 | 130.36 | 4991.54 | 2552.16 | -43 | 2595.00 | 7794 | -43 | 1.65 | -1.07 |
| 275.93 | 451.01 | 22.38 | 2442.61 | -119.46 | 1734.37 | 130.36 | 4937.20 | 1682.92 | -33 | 1715.84 | 5215 | -33 | 0.74 | -0.73 |
| 273.64 | 469.74 | 24.84 | 2503.84 | -124.83 | 1733.30 | 130.23 | 5010.76 | 1707.99 | -34 | 1741.91 | 5190 | -34 | 0.82 | -0.76 |
| 278.65 | 435.73 | 22.63 | 2394.46 | -113.79 | 1735.62 | 130.50 | 4883.79 | 1664.71 | -31 | 1695.63 | 5233 | -31 | 0.75 | -0.69 |
| 278.77 | 419.08 | 20.85 | 2333.26 | -109.92 | 1735.03 | 130.49 | 4807.55 | 2458.09 | -45 | 2503.40 | 7889 | -45 | 1.04 | -1.00 |
| 281.03 | 425.64 | 22.16 | 2364.62 | -110.13 | 1736.93 | 130.63 | 4850.87 | 826.75 | -15 | 841.66 | 2622 | -15 | 0.37 | -0.33 |

Appendix B Data and Calculation forms

Intertek Testing Services

Manufacturer: SBI
Model: ECO-55
Date: 01-11-2016
Run: 1
Control #: G102747001
Test Duration: 60
Output Category: Max

Technicians: Claude Pelland

Test Results in Accordance with CSA B415.1-10

| | HHV Basis | LHV Basis |
|--------------------------|-----------|-----------|
| Overall Efficiency | 72.7% | 78.4% |
| Combustion Efficiency | 99.5% | 99.5% |
| Heat Transfer Efficiency | 73% | 78.8% |

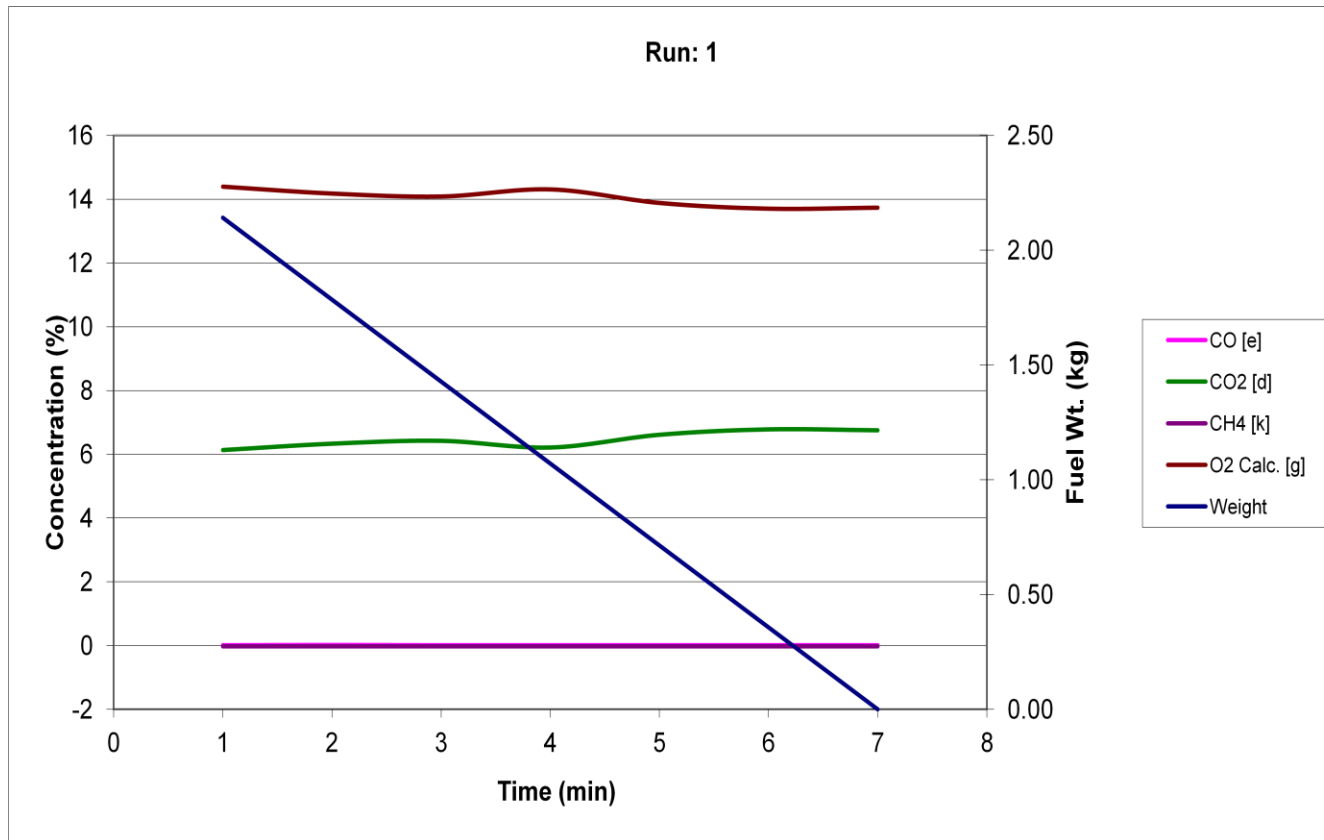
| | | | |
|--------------------|--------|--------|---------|
| Output Rate (kJ/h) | 30,086 | 28,540 | (Btu/h) |
| Burn Rate (kg/h) | 2.05 | 4.51 | (lb/h) |
| Input (kJ/h) | 41,386 | 39,260 | (Btu/h) |

| | | | |
|---------------------------|------|------|--------|
| Test Load Weight (dry kg) | 2.05 | 4.51 | dry lb |
| MC wet (%) | 4.5 | | |
| MC dry (%) | 4.71 | | |
| Particulate (g) | 1.04 | | |
| CO (g) | 5 | | |
| Test Duration (h) | 1.00 | | |

| Emissions | Particulate | CO |
|------------------|-------------|------|
| g/MJ Output | 0.03 | 0.18 |
| g/kg Dry Fuel | 0.51 | 2.62 |
| g/h | 1.04 | 5.37 |
| lb/MM Btu Output | 0.08 | 0.41 |

| | |
|----------------------|-------|
| Air/Fuel Ratio (A/F) | 16.78 |
|----------------------|-------|

Appendix B Data and Calculation forms



Note: In the legend, [d], [e], [g], and [k] refer to their respective variables in Clauses 13.7.3 and 13.7.5

Appendix B Data and Calculation forms

Integrated test results

| ASTM E2779 Calculation Sheet | | | | | | | | | | | | | | | | | | | |
|---------------------------------------|--------|------------------|----------------|-----------------|----------------|----------|-----------|-----------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|---------------|-----------------|-------|--------------|
| Manufacturer: | | SBI | Eng: | | Claude Pelland | | | | | | | | | | | | | | |
| Model: | | Eco-55 | | | | | | | | | | | | | | | | | |
| Date: | | 2016-11-01 | | | | | | | | | | | | | | | | | |
| Run: | | 1 | Dry kilograms: | | 5.76 | | | | | | | | | | | | | | |
| Control #: | | G102747001 | | | | | | | | | | | | | | | | | |
| Test Duration: | | 360.0 | | | | | | | | | | | | | | | | | |
| Barometer (in. Hg): | | Start: 30.4 | End: 30.2 | Pitot type: | | Type S | | | | | | | | | | | | | |
| Dry Bulb (F): | | 72 | 71.2 | | | | | | | | | | | | | | | | |
| Humidity (%): | | 38.5 | 39.7 | | | | | | | | | | | | | | | | |
| Moisture content of wood (wet basis): | | 12.71 | | | | | | | | | | | | | | | | | |
| Average | | 0.00 | 0.00 | 0.00 | 253.66 | 72.31 | 86.23 | 75.17 | 84.15 | 71.94 | 72.19 | 72.10 | 76.73 | 0.08 | 0.016 | | | | |
| Elapsed Time | | Weight Remaining | CO | CO ₂ | O ₂ | Flue Gas | Room Temp | Tunnel Dry Bulb | DGM 1 Reading | DGM 1 Inlet T | DGM 1 Outlet T | Filter 1 Temp | DGM 2 Reading | DGM 2 Inlet T | DGM 2 Outlet T | Filter 2 Temp | Tunnel Velocity | Draft | Elapsed Time |
| 10:56:00 | 0.0 | 12.71 | 0.00 | 0.00 | 0.00 | 373.07 | 71.23 | 96.04 | 874.988 | 68.98 | 68.52 | 68.29 | 560.667 | 67.60 | 67.40 | 68.17 | 0.078 | 0.024 | 0.00 |
| 11:06:00 | 10.00 | 11.92 | 0.00 | 0.00 | 0.00 | 376.08 | 76.62 | 96.46 | 876.450 | 75.95 | 75.70 | 70.45 | 562.180 | 71.63 | 72.12 | 70.65 | 0.077 | 0.021 | 10.00 |
| 11:16:00 | 20.00 | 11.16 | 0.00 | 0.00 | 0.00 | 371.73 | 72.15 | 96.12 | 877.875 | 75.28 | 79.71 | 70.71 | 563.670 | 73.13 | 73.55 | 72.69 | 0.079 | 0.023 | 20.00 |
| 11:26:00 | 30.00 | 10.38 | 0.00 | 0.00 | 0.00 | 370.44 | 73.32 | 96.00 | 879.300 | 74.79 | 81.95 | 71.17 | 565.150 | 73.92 | 74.16 | 73.86 | 0.080 | 0.022 | 30.00 |
| 11:36:00 | 40.00 | 9.61 | 0.00 | 0.00 | 0.00 | 375.61 | 73.35 | 96.79 | 880.725 | 74.59 | 83.08 | 71.18 | 566.660 | 74.20 | 74.31 | 74.67 | 0.079 | 0.020 | 40.00 |
| 11:46:00 | 50.00 | 8.78 | 0.00 | 0.00 | 0.00 | 379.40 | 77.49 | 97.17 | 882.137 | 74.54 | 83.79 | 71.18 | 568.150 | 74.37 | 74.49 | 75.28 | 0.075 | 0.021 | 50.00 |
| 11:56:00 | 60.00 | 7.99 | 0.00 | 0.00 | 0.00 | 377.65 | 72.86 | 96.56 | 883.555 | 74.64 | 84.16 | 71.30 | 569.650 | 74.68 | 74.69 | 75.80 | 0.082 | 0.023 | 60.00 |
| 12:06:00 | 70.00 | 7.57 | 0.00 | 0.00 | 0.00 | 320.04 | 72.23 | 92.49 | 884.975 | 74.73 | 84.56 | 71.35 | 571.145 | 74.47 | 74.30 | 76.24 | 0.086 | 0.022 | 70.00 |
| 12:16:00 | 80.00 | 7.21 | 0.00 | 0.00 | 0.00 | 287.59 | 69.12 | 89.75 | 886.397 | 74.88 | 84.80 | 71.50 | 572.650 | 73.81 | 73.55 | 76.68 | 0.079 | 0.017 | 80.00 |
| 12:26:00 | 90.00 | 6.82 | 0.00 | 0.00 | 0.00 | 280.73 | 68.12 | 88.39 | 887.820 | 75.00 | 85.02 | 71.58 | 574.135 | 73.18 | 72.88 | 76.91 | 0.078 | 0.019 | 90.00 |
| 12:36:00 | 100.00 | 6.46 | 0.00 | 0.00 | 0.00 | 271.29 | 69.86 | 87.84 | 889.238 | 75.02 | 84.97 | 71.59 | 575.632 | 72.77 | 72.55 | 76.96 | 0.078 | 0.016 | 100.00 |
| 12:46:00 | 110.00 | 6.14 | 0.00 | 0.00 | 0.00 | 268.39 | 71.37 | 87.94 | 890.658 | 74.98 | 84.93 | 71.62 | 577.127 | 72.71 | 72.36 | 76.90 | 0.081 | 0.015 | 110.00 |
| 12:56:00 | 120.00 | 5.80 | 0.00 | 0.00 | 0.00 | 266.06 | 72.01 | 87.69 | 892.082 | 74.99 | 84.80 | 71.72 | 578.630 | 72.76 | 72.33 | 76.78 | 0.074 | 0.015 | 120.00 |
| 13:06:00 | 130.00 | 5.43 | 0.00 | 0.00 | 0.00 | 266.16 | 72.21 | 87.94 | 893.505 | 75.04 | 84.95 | 71.96 | 580.140 | 72.73 | 72.50 | 76.69 | 0.077 | 0.014 | 130.00 |
| 13:16:00 | 140.00 | 5.07 | 0.00 | 0.00 | 0.00 | 265.25 | 72.46 | 87.80 | 894.925 | 75.02 | 84.83 | 72.10 | 581.630 | 72.66 | 72.51 | 76.62 | 0.074 | 0.016 | 140.00 |
| 13:26:00 | 150.00 | 4.69 | 0.00 | 0.00 | 0.00 | 269.51 | 72.48 | 88.06 | 896.340 | 75.13 | 84.73 | 72.25 | 583.120 | 72.71 | 72.57 | 76.63 | 0.077 | 0.014 | 150.00 |
| 13:36:00 | 160.00 | 4.32 | 0.00 | 0.00 | 0.00 | 271.89 | 72.73 | 88.41 | 897.760 | 75.22 | 84.80 | 72.05 | 584.615 | 72.76 | 72.77 | 77.00 | 0.076 | 0.014 | 160.00 |
| 13:46:00 | 170.00 | 3.95 | 0.00 | 0.00 | 0.00 | 271.12 | 72.60 | 88.27 | 899.190 | 75.26 | 85.05 | 72.10 | 586.120 | 72.88 | 72.86 | 77.29 | 0.078 | 0.017 | 170.00 |
| 13:56:00 | 180.00 | 3.57 | 0.00 | 0.00 | 0.00 | 273.54 | 73.04 | 88.92 | 900.614 | 75.33 | 85.06 | 72.17 | 587.609 | 72.95 | 72.92 | 77.44 | 0.079 | 0.016 | 180.00 |
| 14:06:00 | 190.00 | 3.41 | 0.00 | 0.00 | 0.00 | 212.45 | 72.67 | 83.38 | 902.037 | 75.44 | 85.15 | 72.29 | 589.125 | 72.65 | 72.41 | 77.62 | 0.078 | 0.015 | 190.00 |
| 14:16:00 | 200.00 | 3.22 | 0.00 | 0.00 | 0.00 | 195.84 | 72.54 | 81.68 | 903.460 | 75.51 | 85.27 | 72.35 | 590.620 | 72.02 | 71.84 | 77.75 | 0.085 | 0.016 | 200.00 |
| 14:26:00 | 210.00 | 2.99 | 0.00 | 0.00 | 0.00 | 196.72 | 72.45 | 81.26 | 904.883 | 75.55 | 85.50 | 72.38 | 592.135 | 71.61 | 71.48 | 77.86 | 0.084 | 0.013 | 210.00 |
| 14:36:00 | 220.00 | 2.77 | 0.00 | 0.00 | 0.00 | 197.32 | 72.33 | 81.07 | 906.310 | 75.55 | 85.48 | 72.38 | 593.622 | 71.41 | 71.30 | 77.94 | 0.079 | 0.014 | 220.00 |
| 14:46:00 | 230.00 | 2.55 | 0.00 | 0.00 | 0.00 | 194.97 | 72.75 | 80.88 | 907.735 | 75.55 | 85.51 | 72.39 | 595.138 | 71.35 | 71.26 | 78.00 | 0.081 | 0.014 | 230.00 |
| 14:56:00 | 240.00 | 2.37 | 0.00 | 0.00 | 0.00 | 186.47 | 71.95 | 80.25 | 909.165 | 75.57 | 85.48 | 72.37 | 596.630 | 71.23 | 71.15 | 78.00 | 0.082 | 0.014 | 240.00 |

Appendix B Data and Calculation forms

| | | | | | | | | | | | | | | | | | | | |
|----------|--------|------|------|------|------|--------|-------|-------|---------|-------|-------|-------|---------|-------|-------|-------|-------|-------|--------|
| 15:06:00 | 250.00 | 2.16 | 0.00 | 0.00 | 0.00 | 190.94 | 72.06 | 80.50 | 910.590 | 75.58 | 85.46 | 72.44 | 598.140 | 71.23 | 71.10 | 78.02 | 0.075 | 0.015 | 250.00 |
| 15:16:00 | 260.00 | 1.97 | 0.00 | 0.00 | 0.00 | 181.85 | 71.83 | 79.93 | 912.017 | 75.59 | 85.37 | 72.49 | 599.650 | 71.15 | 71.03 | 78.11 | 0.080 | 0.013 | 260.00 |
| 15:26:00 | 270.00 | 1.77 | 0.00 | 0.00 | 0.00 | 193.00 | 71.93 | 80.42 | 913.445 | 75.65 | 85.54 | 72.63 | 601.150 | 71.14 | 71.06 | 78.16 | 0.084 | 0.015 | 270.00 |
| 15:36:00 | 280.00 | 1.57 | 0.00 | 0.00 | 0.00 | 189.44 | 72.33 | 80.26 | 914.870 | 75.69 | 85.40 | 72.61 | 602.660 | 71.19 | 71.10 | 78.20 | 0.078 | 0.014 | 280.00 |
| 15:46:00 | 290.00 | 1.36 | 0.00 | 0.00 | 0.00 | 192.89 | 72.53 | 80.52 | 916.305 | 75.73 | 85.46 | 72.65 | 604.170 | 71.24 | 71.20 | 78.25 | 0.082 | 0.012 | 290.00 |
| 15:56:00 | 300.00 | 1.18 | 0.00 | 0.00 | 0.00 | 184.00 | 72.04 | 80.12 | 917.735 | 75.80 | 85.49 | 72.73 | 605.673 | 71.31 | 71.28 | 78.31 | 0.080 | 0.015 | 300.00 |
| 16:06:00 | 310.00 | 0.94 | 0.00 | 0.00 | 0.00 | 195.33 | 72.36 | 80.64 | 919.163 | 75.81 | 85.48 | 72.58 | 607.175 | 71.34 | 71.25 | 78.30 | 0.081 | 0.016 | 310.00 |
| 16:16:00 | 320.00 | 0.76 | 0.00 | 0.00 | 0.00 | 187.51 | 72.09 | 80.29 | 920.593 | 75.80 | 85.39 | 72.54 | 608.685 | 71.31 | 71.14 | 78.26 | 0.077 | 0.014 | 320.00 |
| 16:26:00 | 330.00 | 0.58 | 0.00 | 0.00 | 0.00 | 180.75 | 72.17 | 79.73 | 922.020 | 75.78 | 85.41 | 72.57 | 610.188 | 71.26 | 71.06 | 78.26 | 0.080 | 0.016 | 330.00 |
| 16:36:00 | 340.00 | 0.36 | 0.00 | 0.00 | 0.00 | 195.11 | 72.15 | 80.44 | 923.450 | 75.76 | 85.40 | 72.51 | 611.695 | 71.24 | 71.02 | 78.20 | 0.085 | 0.014 | 340.00 |
| 16:46:00 | 350.00 | 0.17 | 0.00 | 0.00 | 0.00 | 185.51 | 71.84 | 79.90 | 924.880 | 75.80 | 85.66 | 72.69 | 613.213 | 71.27 | 71.16 | 78.25 | 0.079 | 0.012 | 350.00 |
| 16:56:00 | 360.00 | 0.00 | 0.00 | 0.00 | 0.00 | 189.71 | 72.37 | 80.46 | 926.327 | 75.81 | 85.76 | 72.83 | 614.723 | 71.31 | 71.22 | 78.35 | 0.080 | 0.014 | 360.00 |

Appendix B Data and Calculation forms

| | | | | | | | | | | 6" Tunnel | 0.1963 | ft ⁴ | (ASTM E2515 Formula) | | | | | | |
|------------------------------|---------|------------|---------|------------|----------|----------|----------|-----------------|---------|--|---------|-----------------|----------------------|--------------------|----------|----------|---------|--------|--|
| Manufacturer: | | SBI | | 12" Tunnel | | 0.7854 | | ft ² | | Tunnel area (ft2): | | 0.3491 | | Manufacturer: | | SBI | | | |
| Model: | | Eco-55 | | | | | | | | Wood moisture (% wet): | | 4.75 | | Model: | | Eco-55 | | | |
| Date: | | 11-1-16 | | | | | | | | Load Weight (lbs wet): | | 12.7058 | | Date: | | 11-1-16 | | | |
| Run: | | 1 | | | | | | | | Burn Rate (Dry kg/hr): | | 0.915 | | Run: | | 1 | | | |
| Project #: | | G102747001 | | | | | | | | | | | | | | | | | |
| Test Duration: | | 360 | | | | | | | | | | | | | | | | | |
| Total Gas Volume (DGM 1): | | 51.175 | | | | | | | | Final Temperature (DGM #1) Degrees Rankin: | | 539.662 | | | | | | | |
| Total Gas Volume (DGM 2): | | 54.390 | | | | | | | | Final Temperature (DGM #2) Degrees Rankin: | | 532.150 | | | | | | | |
| Average Barometric Pressure: | | 30.3 | | | | | | | | Final Tunnel Temperature Degrees Rankin: | | 546.226 | | | | | | | |
| Molecular Weight: | | 28.78 | | | | | | | | Final Tunnel Velocity (feet per second): | | 15.063728 | | | | | | | |
| Pitot Correction: | | 0.941313 | | | | | | | | Standardized Tunnel Flow (dscfm): | | 302.57166 | | | | | | | |
| Calibration Factor (DGM #1): | | 1.0070 | | | | | | | | Average | | Average | | | | | | | |
| Calibration Factor (DGM #2): | | 1.0020 | | | | | | | | Inlet + | | Inlet + | | | | | | | |
| (1) VS: | | 0.032334 | | | | | | | | Outlet | | Outlet | | | | | | | |
| (2) VS: | | 0.030422 | | | | | | | | Average | | Average | | #1 | | #2 | | | |
| | | | | | | | | | | 99.8 | | 99.9 | | dDGM | | dDGM | | | |
| | | | | | | | | | | Proportional Rates | | Vol.Std. | | Vol.Std. | | Average | | | |
| | | | | | | | | | | PR1 | | PR2 | | (ft3) | | (ft3) | | | |
| | | | | | | | | | | Time | | SQRT | | Delta-P | | | | | |
| DGM 1 | DGM 1 | DGM 1 | DGM 2 | DGM 2 | DGM 2 | Tunnel | Velocity | Velocity | Delta-P | Tunnel | Temp. | Temp. | Average | Average | #1 | #2 | Average | | |
| Reading | Inlet T | Outlet T | Reading | Inlet T | Outlet T | Dry Bulb | DGM 1 | DGM 2 | Tunnel | Velocity | Meter 1 | Meter 2 | Proportional Rates | Proportional Rates | Vol.Std. | Vol.Std. | SQRT | | |
| | | | | | | | | | | Ft/Sec | Deg. R | Deg. R | PR1 | PR2 | (ft3) | (ft3) | Delta-P | | |
| | | | | | | | | | | | | | | | | | | | |
| 874.99 | 68.98 | 68.52 | 560.67 | 67.600922 | 67.3952 | 96.0378 | | | 0.078 | 15.03318 | 528.7 | 527.5 | | | | | 0 | 0.2785 | |
| 876.45 | 75.95 | 75.70 | 562.18 | 71.629651 | 72.1239 | 96.4599 | 7.85 | 8.15 | 0.077 | 14.95568 | 535.8 | 531.9 | 106.66 | 103.46 | 1.469 | 1.523 | 10 | 0.2770 | |
| 877.88 | 75.28 | 79.71 | 563.67 | 73.128051 | 73.5536 | 96.1187 | 7.63 | 8.00 | 0.079 | 15.20759 | 537.5 | 533.3 | 101.54 | 99.59 | 1.427 | 1.496 | 20 | 0.2817 | |
| 879.30 | 74.79 | 81.95 | 565.15 | 73.916491 | 74.1555 | 95.9985 | 7.62 | 7.94 | 0.080 | 15.25407 | 538.4 | 534.0 | 100.88 | 98.34 | 1.425 | 1.484 | 30 | 0.2826 | |
| 880.73 | 74.59 | 83.08 | 566.66 | 74.204476 | 74.3149 | 96.7879 | 7.61 | 8.09 | 0.079 | 15.19422 | 538.8 | 534.3 | 101.25 | 100.79 | 1.423 | 1.514 | 40 | 0.2813 | |
| 882.14 | 74.54 | 83.79 | 568.15 | 74.37485 | 74.4914 | 97.1712 | 7.54 | 7.98 | 0.075 | 14.77666 | 539.2 | 534.4 | 103.11 | 102.26 | 1.410 | 1.493 | 50 | 0.2735 | |
| 883.56 | 74.64 | 84.16 | 569.65 | 74.682617 | 74.6878 | 96.5629 | 7.57 | 8.03 | 0.082 | 15.45765 | 539.4 | 534.7 | 98.79 | 98.22 | 1.415 | 1.502 | 60 | 0.2863 | |
| 884.98 | 74.73 | 84.56 | 571.15 | 74.468706 | 74.3026 | 92.4927 | 7.57 | 8.01 | 0.086 | 15.73311 | 539.6 | 534.4 | 96.40 | 95.58 | 1.416 | 1.498 | 70 | 0.2924 | |
| 886.40 | 74.88 | 84.80 | 572.65 | 73.812658 | 73.5456 | 89.7521 | 7.58 | 8.08 | 0.079 | 15.04642 | 539.8 | 533.7 | 100.37 | 100.37 | 1.418 | 1.510 | 80 | 0.2804 | |
| 887.82 | 75.00 | 85.02 | 574.14 | 73.183683 | 72.8779 | 88.3861 | 7.58 | 7.98 | 0.078 | 15.00450 | 540.0 | 533.0 | 100.40 | 99.31 | 1.418 | 1.492 | 90 | 0.2799 | |
| 889.24 | 75.02 | 84.97 | 575.63 | 72.76519 | 72.5545 | 87.8421 | 7.56 | 8.05 | 0.078 | 14.97234 | 540.0 | 532.7 | 100.17 | 100.37 | 1.413 | 1.505 | 100 | 0.2795 | |
| 890.66 | 74.98 | 84.93 | 577.13 | 72.713597 | 72.3646 | 87.9369 | 7.57 | 8.04 | 0.081 | 15.23915 | 540.0 | 532.5 | 98.59 | 98.54 | 1.415 | 1.503 | 110 | 0.2844 | |
| 892.08 | 74.99 | 84.80 | 578.63 | 72.757753 | 72.3297 | 87.6932 | 7.59 | 8.08 | 0.074 | 14.53877 | 539.9 | 532.5 | 103.61 | 103.79 | 1.420 | 1.512 | 120 | 0.2714 | |
| 893.51 | 75.04 | 84.95 | 580.14 | 72.731291 | 72.4974 | 87.9431 | 7.58 | 8.12 | 0.077 | 14.84633 | 540.0 | 532.6 | 101.40 | 102.14 | 1.418 | 1.518 | 130 | 0.2771 | |
| 894.93 | 75.02 | 84.83 | 581.63 | 72.659778 | 72.5069 | 87.7958 | 7.57 | 8.01 | 0.074 | 14.53322 | 539.9 | 532.6 | 103.36 | 102.94 | 1.416 | 1.498 | 140 | 0.2713 | |
| 896.34 | 75.13 | 84.73 | 583.12 | 72.709716 | 72.5733 | 88.0589 | 7.54 | 8.01 | 0.077 | 14.91316 | 539.9 | 532.6 | 100.42 | 100.34 | 1.411 | 1.498 | 150 | 0.2783 | |
| 897.76 | 75.22 | 84.80 | 584.62 | 72.76275 | 72.7703 | 88.413 | 7.57 | 8.04 | 0.076 | 14.80317 | 540.0 | 532.8 | 101.56 | 101.45 | 1.415 | 1.503 | 160 | 0.2762 | |
| 899.19 | 75.26 | 85.05 | 586.12 | 72.879364 | 72.858 | 88.2724 | 7.62 | 8.09 | 0.078 | 14.92402 | 540.2 | 532.9 | 101.37 | 101.23 | 1.425 | 1.513 | 170 | 0.2785 | |
| 900.61 | 75.33 | 85.06 | 587.61 | 72.945929 | 72.9215 | 88.9186 | 7.59 | 8.00 | 0.079 | 15.06646 | 540.2 | 532.9 | 100.09 | 99.30 | 1.419 | 1.496 | 180 | 0.2810 | |
| 902.04 | 75.44 | 85.15 | 589.13 | 72.650543 | 72.4111 | 83.3828 | 7.58 | 8.15 | 0.078 | 14.86020 | 540.3 | 532.5 | 100.35 | 101.63 | 1.418 | 1.525 | 190 | 0.2785 | |
| 903.46 | 75.51 | 85.27 | 590.62 | 72.020115 | 71.836 | 81.6758 | 7.58 | 8.05 | 0.085 | 15.50713 | 540.4 | 531.9 | 95.82 | 95.95 | 1.417 | 1.505 | 200 | 0.2911 | |
| 904.88 | 75.55 | 85.50 | 592.14 | 71.614878 | 71.4787 | 81.2648 | 7.58 | 8.16 | 0.084 | 15.46724 | 540.5 | 531.5 | 95.95 | 97.55 | 1.417 | 1.526 | 210 | 0.2905 | |
| 906.31 | 75.55 | 85.48 | 593.62 | 71.410653 | 71.3006 | 81.0656 | 7.60 | 8.01 | 0.079 | 15.01156 | 540.5 | 531.4 | 99.11 | 98.69 | 1.421 | 1.499 | 220 | 0.2820 | |
| 907.74 | 75.55 | 85.51 | 595.14 | 71.353373 | 71.2584 | 80.8768 | 7.59 | 8.17 | 0.081 | 15.17588 | 540.5 | 531.3 | 97.86 | 99.51 | 1.419 | 1.528 | 230 | 0.2851 | |
| 909.17 | 75.57 | 85.48 | 596.63 | 71.230335 | 71.1508 | 80.2502 | 7.61 | 8.04 | 0.082 | 15.22289 | 540.5 | 531.2 | 97.79 | 97.56 | 1.424 | 1.504 | 240 | 0.2861 | |

Appendix B Data and Calculation forms

| | | | | | | | | | | | | | | | | | | |
|--------|-------|-------|--------|-----------|---------|---------|------|------|-------|----------|-------|-------|--------|--------|------|------|-----|--------|
| 910.59 | 75.58 | 85.46 | 598.14 | 71.233435 | 71.0951 | 80.4998 | 7.59 | 8.14 | 0.075 | 14.58780 | 540.5 | 531.2 | 101.74 | 103.09 | 1419 | 1522 | 250 | 0.2741 |
| 912.02 | 75.59 | 85.37 | 599.65 | 71.146552 | 71.0256 | 79.9283 | 7.60 | 8.14 | 0.080 | 15.04146 | 540.5 | 531.1 | 98.72 | 99.91 | 1421 | 1523 | 260 | 0.2828 |
| 913.45 | 75.65 | 85.54 | 601.15 | 71.141172 | 71.064 | 80.4205 | 7.60 | 8.09 | 0.084 | 15.43997 | 540.6 | 531.1 | 96.28 | 96.77 | 1422 | 1513 | 270 | 0.2902 |
| 914.87 | 75.69 | 85.40 | 602.66 | 71.190173 | 71.0995 | 80.2631 | 7.59 | 8.14 | 0.078 | 14.82121 | 540.5 | 531.1 | 100.08 | 101.43 | 1419 | 1523 | 280 | 0.2786 |
| 916.31 | 75.73 | 85.46 | 604.17 | 71.241278 | 71.199 | 80.5168 | 7.64 | 8.14 | 0.082 | 15.22312 | 540.6 | 531.2 | 98.15 | 98.77 | 1429 | 1522 | 290 | 0.2861 |
| 917.74 | 75.80 | 85.49 | 605.67 | 71.31152 | 71.2786 | 80.1231 | 7.61 | 8.10 | 0.080 | 15.01520 | 540.6 | 531.3 | 99.07 | 99.58 | 1424 | 1515 | 300 | 0.2823 |
| 919.16 | 75.81 | 85.48 | 607.18 | 71.343021 | 71.2515 | 80.6375 | 7.60 | 8.10 | 0.081 | 15.18567 | 540.6 | 531.3 | 97.92 | 98.49 | 1422 | 1514 | 310 | 0.2853 |
| 920.59 | 75.80 | 85.39 | 608.69 | 71.306917 | 71.1429 | 80.2926 | 7.61 | 8.14 | 0.077 | 14.79642 | 540.6 | 531.2 | 100.59 | 101.58 | 1424 | 1522 | 320 | 0.2781 |
| 922.02 | 75.78 | 85.41 | 610.19 | 71.260955 | 71.0593 | 79.7331 | 7.60 | 8.10 | 0.080 | 15.02225 | 540.6 | 531.2 | 98.77 | 99.51 | 1421 | 1515 | 330 | 0.2825 |
| 923.45 | 75.76 | 85.40 | 611.70 | 71.244183 | 71.0217 | 80.4449 | 7.61 | 8.13 | 0.085 | 15.50186 | 540.6 | 531.1 | 96.04 | 96.82 | 1424 | 1520 | 340 | 0.2913 |
| 924.88 | 75.80 | 85.66 | 613.21 | 71.268417 | 71.158 | 79.8954 | 7.61 | 8.18 | 0.079 | 14.97369 | 540.7 | 531.2 | 99.28 | 100.84 | 1423 | 1530 | 350 | 0.2815 |
| 926.33 | 75.81 | 85.76 | 614.72 | 71.314563 | 71.2189 | 80.4598 | 7.70 | 8.14 | 0.080 | 15.00466 | 540.8 | 531.3 | 100.33 | 100.18 | 1440 | 1522 | 360 | 0.2820 |

Appendix B Data and Calculation forms

| | | | | | | | | | | | | | | | | |
|-------------------------------------|-----------------------------------|---------------------------------|-----------------------|------------------------|-------------------|------------------|----------------------------|-------------|--------|---------------|------------|--|--|--|--|--|
| VERSION: 2.4 | 2010-04-15 | | | | | | | | | | | | | | | |
| Manufacturer: SBI | | Appliance Type: Pellet | | (Cat, Non-Cat, Pellet) | | | | | | | | | | | | |
| Model: ECO-55 | | | | | | | | | | | | | | | | |
| Date: 01-11-2016 | | Temp. Units | | F | (F or C) | | Default Fuel Values | | | | | | | | | |
| Run: 1 | | Weight Units | | lb | (kg or lb) | | | | | D. Fir | Oak | | | | | |
| Control #: G102747001 | | | | | | | HHV (kJ/kg) | 19,810 | 19,887 | | | | | | | |
| Test Duration: 360 | | | | | | | %C | 48.73 | 50 | | | | | | | |
| Output Category: Integ | | | | | Fuel Data | | | %H | 6.87 | 6.6 | | | | | | |
| | | | | | D. Fir | | | %O | 43.9 | 42.9 | | | | | | |
| Wood Moisture (% wet): | 4.50 | | | | HHV | 20,236 | kJ/kg | %Ash | 0.5 | 0.5 | | | | | | |
| Load Weight (lb wet): | 12.71 | | | | %C | 48.73 | | | | | | | | | | |
| Burn Rate (dry kg/h): | 0.92 | | | | %H | 6.87 | | | | | | | | | | |
| Total Particulate Emissions: | 5.78 g | | | | %O | 43.785 | | | | | | | | | | |
| | | | | | %Ash | 0.615 | | | | | | | | | | |
| Averages | | 0.02 | 3.02 | 17.90 | 253.65 | 72.31 | | | | | | | | | | |
| | | | | | Temp. (°F) | | | | | | | | | | | |
| Elapsed Time (min) | Fuel Weight Remaining (lb) | Flue Gas Composition (%) | | | Flue Gas | Room Temp | | | | | | | | | | |
| | | CO | CO₂ | O₂ | | | | | | | | | | | | |
| 0 | 12.71 | 0.01 | 6.13 | 14.65 | 373.1 | 71.2 | | | | | | | | | | |
| 10 | 11.92 | 0.02 | 6.33 | 13.98 | 376.1 | 76.6 | | | | | | | | | | |
| 20 | 11.16 | 0.01 | 6.42 | 14.37 | 371.7 | 72.2 | | | | | | | | | | |
| 30 | 10.38 | 0.01 | 6.21 | 15.29 | 370.4 | 73.3 | | | | | | | | | | |
| 40 | 9.61 | 0.01 | 6.61 | 13.85 | 375.6 | 73.3 | | | | | | | | | | |
| 50 | 8.78 | 0.01 | 6.78 | 13.62 | 379.4 | 77.5 | | | | | | | | | | |
| 60 | 7.99 | 0.01 | 6.75 | 13.94 | 377.6 | 72.9 | | | | | | | | | | |
| 70 | 7.57 | 0.02 | 4.85 | 17.62 | 320.0 | 72.2 | | | | | | | | | | |
| 80 | 7.21 | 0.02 | 3.24 | 18.05 | 287.6 | 69.1 | | | | | | | | | | |
| 90 | 6.82 | 0.01 | 2.91 | 17.78 | 280.7 | 68.1 | | | | | | | | | | |
| 100 | 6.46 | 0.01 | 2.79 | 18.01 | 271.3 | 69.9 | | | | | | | | | | |
| 110 | 6.14 | 0.02 | 2.60 | 17.95 | 268.4 | 71.4 | | | | | | | | | | |
| 120 | 5.80 | 0.02 | 2.66 | 18.46 | 266.1 | 72.0 | | | | | | | | | | |
| 130 | 5.43 | 0.02 | 2.84 | 18.11 | 266.2 | 72.2 | | | | | | | | | | |
| 140 | 5.07 | 0.01 | 2.73 | 17.98 | 265.3 | 72.5 | | | | | | | | | | |
| 150 | 4.69 | 0.02 | 2.69 | 18.00 | 269.5 | 72.5 | | | | | | | | | | |
| 160 | 4.32 | 0.02 | 2.83 | 18.08 | 271.9 | 72.7 | | | | | | | | | | |
| 170 | 3.95 | 0.03 | 2.94 | 18.37 | 271.1 | 72.6 | | | | | | | | | | |
| 180 | 3.57 | 0.02 | 2.86 | 18.09 | 273.5 | 73.0 | | | | | | | | | | |
| 190 | 3.41 | 0.03 | 2.07 | 18.83 | 212.5 | 72.7 | | | | | | | | | | |
| 200 | 3.22 | 0.03 | 1.78 | 19.19 | 195.8 | 72.5 | | | | | | | | | | |
| 210 | 2.99 | 0.03 | 1.75 | 19.28 | 196.7 | 72.4 | | | | | | | | | | |
| 220 | 2.77 | 0.05 | 1.82 | 19.64 | 197.3 | 72.3 | | | | | | | | | | |
| 230 | 2.55 | 0.02 | 1.70 | 18.94 | 195.0 | 72.8 | | | | | | | | | | |
| 240 | 2.37 | 0.02 | 1.67 | 18.80 | 186.5 | 72.0 | | | | | | | | | | |

Note 1: For other fuels, use the heating value and fuel composition determined by analysis of fuel sample in accordance with Clause 9.2.

Note 2: In cases where the "Fuel Weight Remaining" is the same for three or more readings in a row, a "divide by zero error" will occur in the calculation sheet. In such cases, adjust the weight values by interpolation between the first occurrence and the next reading showing a decrease in weight

Appendix B Data and Calculation forms

| Manufacturer: SBI | | | Model: ECO-55 | | | Date: 01-11-2016 | | | Run: 1 | | | Control #: G102747001 | | | Test Duration: 360 min | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|--------------|---|--------------------------|--------|--|---------------------------|--|--|----------------------|--|--|-----------------------|--|--|------------------------|--|--|---------------|--|--|-------------------|--|--|-------------|--|--|---|--|--|-------|--|--|------|--|--|--|--|--|
| Overall Heating Efficiency: | 70.27% | Dry Molecular Weight (M _d) | 29.19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Combustion Efficiency: | 99.50% | Dry Moles Exhaust Gas (N _d) | 1105.08 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heat Transfer Efficiency: | 70.62% | Air Fuel Ratio (A/F) | 31.75 | 0.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heat Output: | 12,381 Btu/h | 13,052 kJ/h | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heat Input: | 17,620 Btu/h | 18,574 kJ/h | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Burn Duration: | 6.00 | h | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Burn Rate: | 2.02 | lb/h | 0.918 | kg/h | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stack Temp: | 250.3 | Deg. F | 121.3 | Deg. C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | Ultimate CO ₂ | | | CO _{2-ult} 19.63 | | | F _o 1.054 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | HHV 70.27% 75.82% | | | LHV 99.50% 99.50% | | | HT Eff 70.62% 76.20% | | | Output 13.052 kJ/h | | | Burn Rate 0.92 kg/h | | | Grams CO 46 g | | | Input 18.574 kJ/h | | | MC wet 4.50 | | | Averages 0.02 3.02 7.27 20.74 17.70 123.14 22.39 101.5% 70.0% 71.0% 50.39 2.08 63.91 1.99 63.91 112191 4.06 6.87 2.74 | | | ***** | | | 4.50 | | | | | |

| INPUT DATA | | | | | Oxygen Calculation | | | | | | Input Data | | | Combust | | | Heat | | | Net | | | Air | | | Wet Wt | | | % Wet | | | Dry Wt. | | | % Dry | | | Fuel Properties | | | Mw | | |
|--------------|-----------------------|----------|-----------------------|---------------|----------------------|----------------------------|---------------|----------------|--------|------------|------------|------------|---------|------------|-----------|------------|-------------|-----------------|------------------|-----------------|-----------------|----------|-----|--|--|--------|--|--|-------|--|--|---------|--|--|-------|--|--|-----------------|--|--|----|--|--|
| Elapsed Time | Weight Remaining (kg) | % CO [e] | % CO ₂ [d] | Excess Air EA | Total O ₂ | Calc. % O ₂ [g] | Flue Gas (°C) | Room Temp (°C) | Eff % | Transfer % | Net % | Fuel Ratio | Wet Now | Consumed x | Wet Now y | Consumed y | Total Input | Carbon #12= [a] | Hydrogen #1= [b] | Oxygen #16= [c] | Calorific Value | Moisture | | | | | | | | | | | | | | | | | | | | | |
| 0 | 5.77 | 0.01 | 6.13 | 219.6% | 20.53 | 14.39 | 189.5 | 21.8 | 100.5% | 74.4% | 74.8% | 19.4 | 5.77 | 0.00 | 5.51 | 0.00 | 0 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 10 | 5.41 | 0.02 | 6.33 | 209.2% | 20.52 | 14.18 | 191.2 | 24.8 | 100.4% | 75.0% | 75.3% | 18.7 | 5.41 | 6.22 | 5.16 | 6.22 | 10259 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 20 | 5.06 | 0.01 | 6.42 | 205.2% | 20.51 | 14.08 | 188.7 | 22.3 | 100.5% | 75.2% | 75.6% | 18.5 | 5.06 | 12.20 | 4.84 | 12.20 | 6752 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 30 | 4.71 | 0.01 | 6.21 | 215.4% | 20.52 | 14.31 | 188.0 | 23.0 | 100.5% | 74.9% | 75.2% | 19.1 | 4.71 | 18.33 | 4.50 | 18.33 | 6795 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 40 | 4.36 | 0.01 | 6.61 | 196.4% | 20.50 | 13.88 | 190.9 | 23.0 | 100.4% | 75.5% | 75.9% | 18.0 | 4.36 | 24.39 | 4.16 | 24.39 | 7015 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 50 | 3.98 | 0.01 | 6.78 | 189.0% | 20.49 | 13.70 | 193.0 | 25.3 | 100.4% | 75.9% | 76.2% | 17.5 | 3.98 | 30.92 | 3.80 | 30.92 | 7102 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 60 | 3.63 | 0.01 | 6.75 | 190.3% | 20.49 | 13.73 | 192.0 | 22.7 | 100.4% | 75.7% | 76.0% | 17.6 | 3.63 | 37.14 | 3.46 | 37.14 | 5305 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 70 | 3.43 | 0.02 | 4.85 | 303.3% | 20.62 | 15.76 | 160.0 | 22.3 | 100.6% | 74.1% | 74.6% | 24.4 | 3.43 | 40.44 | 3.28 | 40.44 | 3420 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 80 | 3.27 | 0.02 | 3.24 | 502.6% | 20.72 | 17.47 | 142.0 | 20.6 | 101.1% | 69.1% | 69.8% | 36.6 | 3.27 | 43.27 | 3.12 | 43.27 | 3288 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 90 | 3.09 | 0.01 | 2.91 | 572.1% | 20.75 | 17.83 | 138.2 | 20.1 | 101.5% | 67.3% | 68.3% | 40.8 | 3.09 | 46.34 | 2.96 | 46.34 | 3288 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 100 | 2.93 | 0.01 | 2.79 | 600.3% | 20.75 | 17.96 | 132.9 | 21.0 | 101.5% | 67.7% | 68.6% | 42.6 | 2.93 | 49.17 | 2.80 | 49.17 | 2981 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 110 | 2.79 | 0.02 | 2.60 | 648.9% | 20.77 | 18.15 | 131.3 | 21.9 | 101.3% | 66.5% | 67.4% | 45.5 | 2.79 | 51.69 | 2.66 | 51.69 | 2894 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 120 | 2.63 | 0.02 | 2.66 | 633.3% | 20.76 | 18.09 | 130.0 | 22.2 | 101.4% | 67.5% | 68.4% | 44.6 | 2.63 | 54.37 | 2.51 | 54.37 | 3113 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 130 | 2.46 | 0.02 | 2.84 | 586.4% | 20.75 | 17.90 | 130.1 | 22.3 | 101.2% | 69.0% | 69.8% | 41.7 | 2.46 | 57.28 | 2.35 | 57.28 | 3200 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 140 | 2.30 | 0.01 | 2.73 | 615.4% | 20.76 | 18.02 | 129.6 | 22.5 | 101.5% | 68.2% | 69.2% | 43.5 | 2.30 | 60.11 | 2.20 | 60.11 | 3244 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 150 | 2.13 | 0.02 | 2.69 | 625.5% | 20.76 | 18.06 | 132.0 | 22.5 | 101.5% | 67.3% | 68.3% | 44.1 | 2.13 | 63.10 | 2.03 | 63.10 | 3288 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 160 | 1.96 | 0.02 | 2.83 | 589.6% | 20.75 | 17.91 | 133.3 | 22.6 | 101.3% | 68.2% | 69.2% | 41.9 | 1.96 | 66.01 | 1.87 | 66.01 | 3244 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 170 | 1.79 | 0.03 | 2.94 | 560.9% | 20.74 | 17.79 | 132.8 | 22.6 | 100.9% | 69.2% | 69.8% | 40.1 | 1.79 | 68.92 | 1.71 | 68.92 | 3288 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 180 | 1.62 | 0.02 | 2.86 | 581.6% | 20.75 | 17.88 | 134.2 | 22.8 | 101.2% | 68.3% | 69.2% | 41.4 | 1.62 | 71.91 | 1.55 | 71.91 | 2367 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 190 | 1.55 | 0.03 | 2.07 | 836.7% | 20.80 | 18.72 | 100.3 | 22.6 | 101.6% | 69.6% | 70.7% | 57.1 | 1.55 | 73.17 | 1.48 | 73.17 | 1534 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 200 | 1.46 | 0.03 | 1.78 | 966.8% | 20.82 | 19.03 | 91.0 | 22.5 | 101.9% | 69.2% | 70.5% | 66.3 | 1.46 | 74.67 | 1.40 | 74.67 | 1641 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 210 | 1.36 | 0.03 | 1.75 | 1001.6% | 20.82 | 19.06 | 91.5 | 22.5 | 101.6% | 68.6% | 69.8% | 67.2 | 1.36 | 76.48 | 1.30 | 76.48 | 1973 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 220 | 1.26 | 0.05 | 1.82 | 952.4% | 20.82 | 18.97 | 91.8 | 22.4 | 100.9% | 69.4% | 70.0% | 64.1 | 1.26 | 78.21 | 1.20 | 78.21 | 1929 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 230 | 1.16 | 0.02 | 1.70 | 1044.6% | 20.83 | 19.12 | 90.5 | 22.6 | 102.5% | 68.4% | 70.1% | 70.0 | 1.16 | 79.94 | 1.10 | 79.94 | 1754 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 240 | 1.08 | 0.02 | 1.67 | 1060.6% | 20.83 | 19.15 | 85.8 | 22.2 | 102.3% | 69.5% | 71.1% | 70.9 | 1.08 | 81.35 | 1.03 | 81.35 | 1710 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 250 | 0.98 | 0.04 | 1.63 | 1079.0% | 20.83 | 19.18 | 88.3 | 22.3 | 101.6% | 68.1% | 69.2% | 72.0 | 0.98 | 83.01 | 0.94 | 83.01 | 1754 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 260 | 0.89 | 0.02 | 1.55 | 1148.6% | 20.84 | 19.27 | 83.3 | 22.1 | 102.4% | 68.8% | 70.4% | 76.4 | 0.89 | 84.50 | 0.85 | 84.50 | 1710 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 270 | 0.80 | 0.02 | 1.76 | 1003.3% | 20.82 | 19.05 | 89.4 | 22.2 | 102.2% | 69.4% | 70.9% | 67.4 | 0.80 | 86.07 | 0.77 | 86.07 | 1754 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 280 | 0.71 | 0.03 | 1.61 | 1096.3% | 20.83 | 19.21 | 87.5 | 22.4 | 101.8% | 68.2% | 69.4% | 73.1 | 0.71 | 87.65 | 0.68 | 87.65 | 1798 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 290 | 0.62 | 0.02 | 1.69 | 1048.4% | 20.83 | 19.13 | 89.4 | 22.5 | 102.3% | 68.6% | 70.2% | 70.2 | 0.62 | 89.30 | 0.59 | 89.30 | 1710 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 300 | 0.54 | 0.02 | 1.71 | 1032.9% | 20.82 | 19.10 | 84.4 | 22.2 | 102.1% | 70.5% | 72.0% | 69.2 | 0.54 | 90.72 | 0.51 | 90.72 | 1841 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 310 | 0.43 | 0.02 | 1.71 | 1032.5% | 20.82 | 19.10 | 90.7 | 22.4 | 102.1% | 68.4% | 69.8% | 69.2 | 0.43 | 92.60 | 0.41 | 92.60 | 1841 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 320 | 0.34 | 0.02 | 1.66 | 1066.1% | 20.83 | 19.16 | 86.4 | 22.3 | 102.2% | 69.2% | 70.7% | 71.3 | 0.34 | 94.02 | 0.33 | 94.02 | 1578 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 330 | 0.26 | 0.03 | 1.62 | 1090.0% | 20.83 | 19.20 | 82.6 | 22.3 | 101.9% | 70.0% | 71.4% | 72.7 | 0.26 | 95.44 | 0.25 | 95.44 | 1754 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 340 | 0.16 | 0.03 | 1.68 | 1044.9% | 20.83 | 19.13 | 90.6 | 22.3 | 101.6% | 68.0% | 69.0% | 69.9 | 0.16 | 97.17 | 0.16 | 97.17 | 1798 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 350 | 0.08 | 0.03 | 1.63 | 1084.2% | 20.83 | 19.19 | 85.3 | 22.1 | 102.0% | 69.1% | 70.5% | 72.4 | 0.08 | 98.66 | 0.07 | 98.66 | 2324 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |
| 360 | 0.00 | 0.02 | 1.71 | 1036.1% | 20.82 | 19.11 | 87.6 | 22.4 | 102.4% | 69.4% | 71.1% | 69.4 | 0.00 | 100.00 | 0.00 | 100.00 | 745 | 4.06 | 6.87 | 2.74 | 20236.00 | 4.50 | | | | | | | | | | | | | | | | | | | | | |

Appendix B Data and Calculation forms

| | | | | | | | | | | | Moisture Content M_{cwb} : | 4.5 | | | | | | | | | | | |
|---|-------|-----------------------------------|------|--------|-----------------------------|--------------------------|----------------|--------|-------|----------------|------------------------------|---------------------|--------------------|--|----------------|---------|----------------|-----------------|-------------------|--------|--|--|--|
| | | Moisture of Wood (wet basis): | | 4.5 | | Dry kg: | | 5.51 | | | | | | | | | | | | | | | |
| 105,701 (Btu) | | Initial Dry Weight W_{td} (kg): | | 5.51 | | CA: | | 48.73 | | | | | | | | | | | | | | | |
| 74,273 (Btu) | | Moisture Content Dry | | 4.71 | | HY: | | 6.87 | | | | | | | | | | | | | | | |
| | | | | | | OX: | | 43.785 | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Load Weight (kg): | | 5.77 | | | | | | | | | | | | | | | | | | | | | |
| Fuel Heating | | HHV | | LHV | | HHV | | LHV | | | | | | | | | | | | | | | |
| Value in kJ/kg - CV: | | 20,236 | | 18,755 | | Btu/lb | | 8705.8 | | 8068.5 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| 79.25 | 21.02 | 0.74 | 2.61 | -0.03 | 0.07 | 40.92 | 321.25 | 0.40 | -0.46 | 1381.12 | 35.48 | 2.62 | 396.29 | 4008.65 | 3018.66 | 2935.88 | 2903.24 | 3854.87 | 3513.39 | 295.54 | | | |
| Mass Balance (moles/100 mole dry flue gas) | | | | | kg Wood per 100 mole dfg | Moles per kg of Dry Wood | | | | | | Moisture Present | Stack Temp K | Heat Content Change - Ambient to Stack Temperature Flue Gas Constituent | | | | | Room Temp K | | | | |
| [h] | [u] | [w] | [j] | [k] | Nk | CO ₂ | O ₂ | CO | HC | N ₂ | H ₂ O | | | CO ₂ | O ₂ | CO | N ₂ | CH ₄ | H ₂ O | | | | |
| 79.46 | 21.08 | 1.51 | 5.22 | -0.02 | 0.15 | 40.92 | 96.09 | 0.08 | -0.14 | 530.46 | 34.85 | 2.62 | 462.63 | 6795.33 | 5062.54 | 4910.30 | 4858.54 | 6654.18 | 5871.95 | 294.94 | | | |
| 79.47 | 21.08 | 1.56 | 5.39 | -0.02 | 0.15 | 40.88 | 91.55 | 0.11 | -0.13 | 513.20 | 34.82 | 2.62 | 464.30 | 6753.01 | 5026.11 | 4873.76 | 4822.63 | 6623.45 | 5827.86 | 297.94 | | | |
| 79.48 | 21.08 | 1.58 | 5.47 | -0.02 | 0.16 | 40.92 | 89.76 | 0.08 | -0.13 | 506.55 | 34.83 | 2.62 | 461.88 | 6743.89 | 5024.46 | 4873.43 | 4822.04 | 6603.27 | 5827.87 | 295.46 | | | |
| 79.47 | 21.08 | 1.53 | 5.29 | -0.02 | 0.15 | 40.91 | 94.26 | 0.09 | -0.14 | 523.55 | 34.84 | 2.62 | 461.17 | 6688.35 | 4983.15 | 4833.38 | 4782.41 | 6548.74 | 5779.98 | 296.11 | | | |
| 79.50 | 21.09 | 1.63 | 5.63 | -0.02 | 0.16 | 40.91 | 85.91 | 0.08 | -0.13 | 491.98 | 34.82 | 2.62 | 464.04 | 6811.54 | 5071.88 | 4918.68 | 4866.97 | 6676.05 | 5881.75 | 296.12 | | | |
| 79.51 | 21.09 | 1.67 | 5.77 | -0.02 | 0.17 | 40.91 | 82.67 | 0.07 | -0.12 | 479.74 | 34.81 | 2.62 | 466.15 | 6814.37 | 5069.33 | 4915.05 | 4863.62 | 6689.02 | 5877.04 | 298.42 | | | |
| 79.50 | 21.09 | 1.66 | 5.74 | -0.02 | 0.17 | 40.91 | 83.22 | 0.08 | -0.12 | 481.80 | 34.81 | 2.62 | 465.17 | 6870.22 | 5114.65 | 4959.93 | 4907.83 | 6735.57 | 5931.00 | 295.85 | | | |
| 79.38 | 21.05 | 1.19 | 4.14 | -0.02 | 0.12 | 40.90 | 132.89 | 0.15 | -0.19 | 669.45 | 34.95 | 2.62 | 433.17 | 5521.43 | 4138.56 | 4020.34 | 3976.64 | 5351.80 | 4809.67 | 295.49 | | | |
| 79.27 | 21.03 | 0.80 | 2.78 | -0.03 | 0.08 | 40.96 | 220.92 | 0.22 | -0.32 | 1002.19 | 35.21 | 2.62 | 415.14 | 4832.96 | 3637.78 | 3537.63 | 3498.39 | 4651.06 | 4233.39 | 293.77 | | | |
| 79.25 | 21.02 | 0.71 | 2.50 | -0.03 | 0.07 | 41.10 | 251.79 | 0.15 | -0.38 | 1119.17 | 35.33 | 2.62 | 411.33 | 4695.82 | 3537.88 | 3441.29 | 3402.95 | 4511.83 | 4118.37 | 293.21 | | | |
| 79.24 | 21.02 | 0.68 | 2.40 | -0.03 | 0.07 | 41.06 | 264.27 | 0.20 | -0.40 | 1166.19 | 35.36 | 2.62 | 406.09 | 4441.97 | 3349.69 | 3259.00 | 3222.53 | 4261.21 | 3900.44 | 294.18 | | | |
| 79.22 | 21.01 | 0.64 | 2.25 | -0.03 | 0.06 | 40.94 | 285.85 | 0.33 | -0.41 | 1247.40 | 35.39 | 2.62 | 404.48 | 4343.50 | 3275.98 | 3187.41 | 3151.71 | 4165.55 | 3814.81 | 295.02 | | | |
| 79.23 | 21.02 | 0.65 | 2.30 | -0.03 | 0.06 | 41.01 | 278.93 | 0.26 | -0.41 | 1221.47 | 35.38 | 2.62 | 403.18 | 4276.32 | 3225.97 | 3138.92 | 3103.73 | 4099.69 | 3756.82 | 295.38 | | | |
| 79.24 | 21.02 | 0.70 | 2.45 | -0.03 | 0.07 | 40.95 | 258.08 | 0.29 | -0.37 | 1142.52 | 35.31 | 2.62 | 403.24 | 4274.61 | 3224.56 | 3137.51 | 3102.34 | 4098.31 | 3755.13 | 295.49 | | | |
| 79.24 | 21.02 | 0.67 | 2.35 | -0.03 | 0.07 | 41.06 | 271.00 | 0.21 | -0.41 | 1191.63 | 35.37 | 2.62 | 402.73 | 4248.69 | 3205.26 | 3118.80 | 3083.83 | 4072.90 | 3732.75 | 295.62 | | | |
| 79.23 | 21.02 | 0.66 | 2.32 | -0.03 | 0.07 | 41.03 | 275.49 | 0.24 | -0.41 | 1208.54 | 35.38 | 2.62 | 405.10 | 4345.90 | 3276.92 | 3188.11 | 3152.45 | 4169.75 | 3815.58 | 295.63 | | | |
| 79.24 | 21.02 | 0.69 | 2.44 | -0.03 | 0.07 | 41.00 | 259.50 | 0.24 | -0.38 | 1148.03 | 35.33 | 2.62 | 406.42 | 4395.01 | 3312.90 | 3222.87 | 3186.87 | 4219.16 | 3857.10 | 295.78 | | | |
| 79.24 | 21.02 | 0.73 | 2.54 | -0.02 | 0.07 | 40.78 | 246.69 | 0.42 | -0.34 | 1099.03 | 35.23 | 2.62 | 405.99 | 4380.07 | 3302.01 | 3212.35 | 3176.46 | 4204.02 | 3844.54 | 295.70 | | | |
| 79.24 | 21.02 | 0.70 | 2.47 | -0.03 | 0.07 | 40.94 | 255.94 | 0.29 | -0.37 | 1134.43 | 35.30 | 2.62 | 407.33 | 4426.11 | 3335.57 | 3244.73 | 3208.53 | 4250.71 | 3883.20 | 295.95 | | | |
| 79.19 | 21.00 | 0.51 | 1.80 | -0.03 | 0.05 | 40.88 | 369.61 | 0.51 | -0.52 | 1563.68 | 35.61 | 2.62 | 373.40 | 3047.41 | 2313.60 | 2254.78 | 2228.74 | 2889.33 | 2699.78 | 295.74 | | | |
| 79.17 | 21.00 | 0.44 | 1.56 | -0.03 | 0.04 | 40.87 | 436.90 | 0.60 | -0.62 | 1817.91 | 35.79 | 2.62 | 364.17 | 2678.66 | 2037.80 | 1986.99 | 1963.84 | 2530.63 | 2379.47 | 295.67 | | | |
| 79.16 | 21.00 | 0.43 | 1.54 | -0.03 | 0.04 | 40.72 | 443.39 | 0.74 | -0.61 | 1842.03 | 35.77 | 2.62 | 364.66 | 2700.61 | 2054.30 | 2003.03 | 1979.70 | 2551.80 | 2398.66 | 295.62 | | | |
| 79.16 | 21.00 | 0.45 | 1.61 | -0.02 | 0.05 | 40.39 | 421.04 | 1.00 | -0.53 | 1756.71 | 35.63 | 2.62 | 364.99 | 2716.31 | 2066.12 | 2014.53 | 1991.07 | 2566.91 | 2412.42 | 295.56 | | | |
| 79.17 | 21.00 | 0.42 | 1.48 | -0.03 | 0.04 | 41.19 | 463.21 | 0.36 | -0.69 | 1918.13 | 35.95 | 2.62 | 363.68 | 2654.83 | 2019.83 | 1969.52 | 1946.56 | 2507.76 | 2358.55 | 295.79 | | | |
| 79.16 | 21.00 | 0.41 | 1.46 | -0.03 | 0.04 | 41.01 | 470.23 | 0.53 | -0.68 | 1944.20 | 35.92 | 2.62 | 358.97 | 2483.02 | 1891.26 | 1844.67 | 1823.05 | 2340.77 | 2209.20 | 295.34 | | | |
| 79.15 | 21.00 | 0.40 | 1.44 | -0.03 | 0.04 | 40.63 | 478.12 | 0.87 | -0.64 | 1973.01 | 35.85 | 2.62 | 361.44 | 2579.98 | 1964.02 | 1915.37 | 1892.98 | 2434.57 | 2293.79 | 295.40 | | | |
| 79.15 | 21.00 | 0.38 | 1.36 | -0.03 | 0.04 | 41.01 | 509.92 | 0.59 | -0.74 | 2094.14 | 36.03 | 2.62 | 356.40 | 2383.33 | 1816.38 | 1771.89 | 1751.08 | 2244.48 | 2122.13 | 295.27 | | | |
| 79.17 | 21.00 | 0.43 | 1.54 | -0.03 | 0.04 | 41.06 | 444.46 | 0.45 | -0.65 | 1846.95 | 35.86 | 2.62 | 362.59 | 2628.56 | 2000.53 | 1950.85 | 1928.08 | 2481.46 | 2336.25 | 295.33 | | | |
| 79.15 | 21.00 | 0.40 | 1.42 | -0.03 | 0.04 | 40.75 | 486.05 | 0.78 | -0.67 | 2003.25 | 35.90 | 2.62 | 360.62 | 2540.93 | 1934.58 | 1886.73 | 1864.66 | 2397.10 | 2259.51 | 295.56 | | | |
| 79.16 | 21.00 | 0.41 | 1.48 | -0.03 | 0.04 | 41.07 | 464.78 | 0.47 | -0.68 | 1923.74 | 35.92 | 2.62 | 362.53 | 2613.40 | 1988.87 | 1939.46 | 1916.83 | 2467.40 | 2322.60 | 295.66 | | | |
| 79.16 | 21.00 | 0.42 | 1.50 | -0.03 | 0.04 | 40.97 | 457.73 | 0.54 | -0.66 | 1896.86 | 35.88 | 2.62 | 357.59 | 2426.10 | 1848.45 | 1803.04 | 1781.89 | 2285.93 | 2159.39 | 295.39 | | | |
| 79.16 | 21.00 | 0.42 | 1.50 | -0.03 | 0.04 | 40.96 | 457.54 | 0.56 | -0.66 | 1896.09 | 35.87 | 2.62 | 363.89 | 2671.54 | 2032.56 | 1981.92 | 1958.82 | 2523.53 | 2373.41 | 295.57 | | | |
| 79.16 | 21.00 | 0.41 | 1.46 | -0.03 | 0.04 | 40.96 | 472.66 | 0.58 | -0.68 | 1953.23 | 35.92 | 2.62 | 359.54 | 2503.35 | 1906.48 | 1859.44 | 1837.67 | 2360.54 | 2226.88 | 295.42 | | | |
| 79.16 | 21.00 | 0.40 | 1.43 | -0.03 | 0.04 | 40.78 | 483.24 | 0.75 | -0.67 | 1992.75 | 35.90 | 2.62 | 355.79 | 2351.77 | 1792.50 | 1748.63 | 1728.08 | 2214.39 | 2094.28 | 295.46 | | | |
| 79.16 | 21.00 | 0.42 | 1.48 | -0.03 | 0.04 | 40.65 | 462.79 | 0.84 | -0.62 | 1915.11 | 35.81 | 2.62 | 363.77 | 2671.09 | 2032.32 | 1981.72 | 1958.61 | 2522.87 | 2373.17 | 295.45 | | | |
| 79.16 | 21.00 | 0.40 | 1.43 | -0.03 | 0.04 | 40.84 | 480.68 | 0.69 | -0.67 | 1983.21 | 35.91 | 2.62 | 358.43 | 2463.82 | 1876.89 | 1830.71 | 1809.25 | 2322.13 | 2192.51 | 295.28 | | | |
| 79.17 | 21.00 | 0.42 | 1.49 | -0.03 | 0.04 | 41.11 | 459.28 | 0.43 | -0.68 | 1903.06 | 35.92 | 2.62 | 360.77 | 2546.29 | 1938.59 | 1890.62 | 1868.52 | 2402.32 | 2264.17 | 295.57 | | | |

Appendix B Data and Calculation forms

| SUMS | | | | | | | AVERAGE | SUMS | | | | | | |
|-----------------------------------|----------------|---------|----------------|-----------------|-----------------------|--------------------------|---------|----------|----------|--------------|---------|--------|----------------|-------|
| 6069.68 | 29491.90 | 4242.50 | 125252.55 | -15161.54 | 62312.43 | 4599.12 | 5859.64 | 31300.19 | -1278.40 | 32578.6 | 80890.5 | ***** | 45.8 | -31.3 |
| Energy Losses (kJ/kg of Dry Fuel) | | | | | | | Total | | | | | | | |
| Flue Gas Constituent | | | | | | | Loss | Total | Chemical | Sensible and | Total | Chem | Grams Produced | |
| CO ₂ | O ₂ | CO | N ₂ | CH ₄ | H ₂ O Comb | H ₂ O Fuel MC | Rate | Loss | Loss 1 | Latent Loss | Output | Loss 2 | CO | HC |
| 278.07 | 486.45 | 23.44 | 2577.27 | -128.12 | 1736.87 | 130.47 | 5104.47 | 0.00 | 0 | 0.00 | 0 | 0 | 0.00 | 0.00 |
| 276.03 | 460.14 | 33.09 | 2474.97 | -117.18 | 1734.12 | 130.36 | 4991.54 | 2530.53 | -42 | 2573.01 | 7728 | -42 | 1.63 | -1.06 |
| 275.93 | 451.01 | 22.38 | 2442.61 | -119.46 | 1734.37 | 130.36 | 4937.20 | 1647.26 | -32 | 1679.49 | 5104 | -32 | 0.73 | -0.71 |
| 273.64 | 469.74 | 24.84 | 2503.84 | -124.83 | 1733.30 | 130.23 | 5010.76 | 1682.66 | -33 | 1716.08 | 5113 | -33 | 0.81 | -0.75 |
| 278.65 | 435.73 | 22.63 | 2394.46 | -113.79 | 1735.62 | 130.50 | 4883.79 | 1692.93 | -31 | 1724.37 | 5322 | -31 | 0.76 | -0.70 |
| 278.77 | 419.08 | 20.85 | 2333.26 | -109.92 | 1735.03 | 130.49 | 4807.55 | 1687.33 | -31 | 1718.43 | 5415 | -31 | 0.71 | -0.69 |
| 281.03 | 425.64 | 22.16 | 2364.62 | -110.13 | 1736.93 | 130.63 | 4850.87 | 1271.65 | -23 | 1294.59 | 4033 | -23 | 0.56 | -0.52 |
| 225.85 | 549.97 | 42.36 | 2662.17 | -172.36 | 1704.69 | 127.69 | 5140.37 | 868.66 | -22 | 890.56 | 2551 | -22 | 0.70 | -0.52 |
| 197.97 | 803.67 | 63.03 | 3506.06 | -289.63 | 1697.20 | 126.19 | 6104.50 | 991.91 | -37 | 1028.61 | 2296 | -37 | 1.00 | -0.84 |
| 192.98 | 890.82 | 42.47 | 3808.47 | -343.43 | 1698.94 | 125.88 | 6416.14 | 1042.55 | -49 | 1091.25 | 2246 | -49 | 0.67 | -1.00 |
| 182.39 | 885.21 | 56.03 | 3758.09 | -355.10 | 1692.50 | 125.31 | 6344.44 | 934.68 | -44 | 978.59 | 2047 | -44 | 0.81 | -0.94 |
| 177.81 | 936.42 | 95.53 | 3931.45 | -368.13 | 1690.87 | 125.09 | 6589.04 | 942.17 | -39 | 981.05 | 1951 | -39 | 1.34 | -0.94 |
| 175.37 | 899.83 | 74.99 | 3791.11 | -367.50 | 1688.75 | 124.94 | 6387.48 | 982.54 | -45 | 1027.40 | 2130 | -45 | 1.13 | -1.01 |
| 175.04 | 832.19 | 81.69 | 3544.50 | -334.42 | 1685.16 | 124.93 | 6109.09 | 966.19 | -40 | 1006.06 | 2234 | -40 | 1.26 | -0.95 |
| 174.44 | 868.63 | 59.81 | 3674.79 | -362.99 | 1687.42 | 124.87 | 6226.97 | 998.32 | -48 | 1046.77 | 2246 | -48 | 0.94 | -1.04 |
| 178.31 | 902.77 | 68.10 | 3809.86 | -365.73 | 1690.64 | 125.09 | 6409.04 | 1041.40 | -48 | 1089.60 | 2247 | -48 | 1.08 | -1.06 |
| 180.20 | 859.70 | 63.25 | 3658.63 | -342.19 | 1689.59 | 125.20 | 6240.37 | 1000.47 | -44 | 1044.09 | 2244 | -44 | 1.09 | -0.98 |
| 178.60 | 814.56 | 120.27 | 3491.04 | -300.46 | 1684.68 | 125.17 | 6113.86 | 993.43 | -29 | 1022.70 | 2295 | -29 | 1.91 | -0.87 |
| 181.22 | 853.70 | 81.96 | 3639.85 | -331.28 | 1689.34 | 125.27 | 6240.06 | 730.04 | -29 | 759.13 | 1637 | -29 | 0.94 | -0.69 |
| 124.56 | 855.12 | 144.20 | 3485.04 | -465.69 | 1661.66 | 122.17 | 5927.06 | 449.44 | -24 | 473.79 | 1085 | -24 | 1.07 | -0.63 |
| 109.49 | 890.31 | 171.45 | 3570.07 | -549.73 | 1659.01 | 121.33 | 5971.94 | 543.41 | -34 | 577.80 | 1298 | -34 | 1.53 | -0.90 |
| 109.97 | 910.85 | 212.21 | 3646.66 | -540.45 | 1658.73 | 121.38 | 6119.36 | 596.60 | -32 | 628.59 | 1376 | -32 | 2.03 | -0.94 |
| 109.71 | 869.91 | 285.88 | 3497.73 | -474.65 | 1652.38 | 121.42 | 6062.37 | 577.91 | -18 | 595.96 | 1351 | -18 | 2.68 | -0.81 |
| 109.35 | 935.61 | 103.56 | 3733.75 | -618.56 | 1665.40 | 121.28 | 6050.39 | 524.33 | -45 | 568.87 | 1229 | -45 | 0.88 | -0.96 |
| 101.84 | 889.33 | 149.70 | 3544.37 | -607.42 | 1658.89 | 120.89 | 5857.61 | 494.93 | -39 | 533.55 | 1215 | -39 | 1.24 | -0.92 |
| 104.82 | 939.04 | 248.56 | 3734.86 | -573.65 | 1658.43 | 121.11 | 6233.17 | 540.17 | -28 | 568.35 | 1213 | -28 | 2.12 | -0.89 |
| 97.73 | 926.22 | 167.25 | 3667.01 | -656.36 | 1660.83 | 120.66 | 5983.34 | 505.56 | -41 | 546.83 | 1204 | -41 | 1.39 | -0.99 |
| 107.93 | 889.15 | 128.30 | 3561.07 | -580.28 | 1660.63 | 121.22 | 5888.02 | 510.26 | -39 | 549.36 | 1243 | -39 | 1.09 | -0.90 |
| 103.53 | 940.29 | 222.78 | 3735.38 | -596.79 | 1659.60 | 121.02 | 6185.81 | 549.47 | -33 | 582.68 | 1248 | -33 | 1.95 | -0.95 |
| 107.33 | 924.38 | 134.33 | 3687.47 | -606.72 | 1662.89 | 121.18 | 6030.85 | 509.57 | -40 | 549.42 | 1200 | -40 | 1.12 | -0.92 |
| 99.41 | 846.09 | 154.91 | 3379.99 | -587.03 | 1655.00 | 120.76 | 5669.12 | 515.85 | -39 | 555.13 | 1325 | -39 | 1.39 | -0.96 |
| 109.42 | 929.97 | 159.04 | 3714.10 | -585.06 | 1662.46 | 121.32 | 6111.23 | 556.08 | -39 | 594.80 | 1285 | -39 | 1.42 | -0.95 |
| 102.54 | 901.11 | 164.47 | 3589.38 | -604.18 | 1659.19 | 120.93 | 5933.45 | 462.78 | -34 | 497.03 | 1116 | -34 | 1.26 | -0.84 |
| 95.91 | 866.21 | 212.19 | 3443.64 | -597.44 | 1653.74 | 120.59 | 5794.84 | 502.18 | -33 | 535.56 | 1251 | -33 | 1.81 | -0.93 |
| 108.57 | 940.53 | 238.55 | 3750.96 | -556.26 | 1659.46 | 121.32 | 6263.12 | 556.34 | -28 | 584.56 | 1241 | -28 | 2.08 | -0.89 |
| 100.62 | 902.18 | 197.67 | 3588.12 | -600.49 | 1657.58 | 120.84 | 5966.52 | 685.11 | -46 | 731.33 | 1638 | -46 | 2.23 | -1.24 |
| 104.67 | 890.35 | 122.58 | 3555.89 | -604.13 | 1660.52 | 121.03 | 5850.92 | 215.49 | -18 | 233.20 | 530 | -18 | 0.44 | -0.40 |

Appendix B Data and Calculation forms

Intertek Testing Services

Manufacturer: SBI
Model: ECO-55
Date: 01-11-2016
Run: 1
Control #: G102747001
Test Duration: 360
Output Category: Integ

Technicians: Claude Pelland

Test Results in Accordance with CSA B415.1-10

| | HHV Basis | LHV Basis |
|---------------------------------|------------------|------------------|
| Overall Efficiency | 70.3% | 75.8% |
| Combustion Efficiency | 99.5% | 99.5% |
| Heat Transfer Efficiency | 71% | 76.2% |

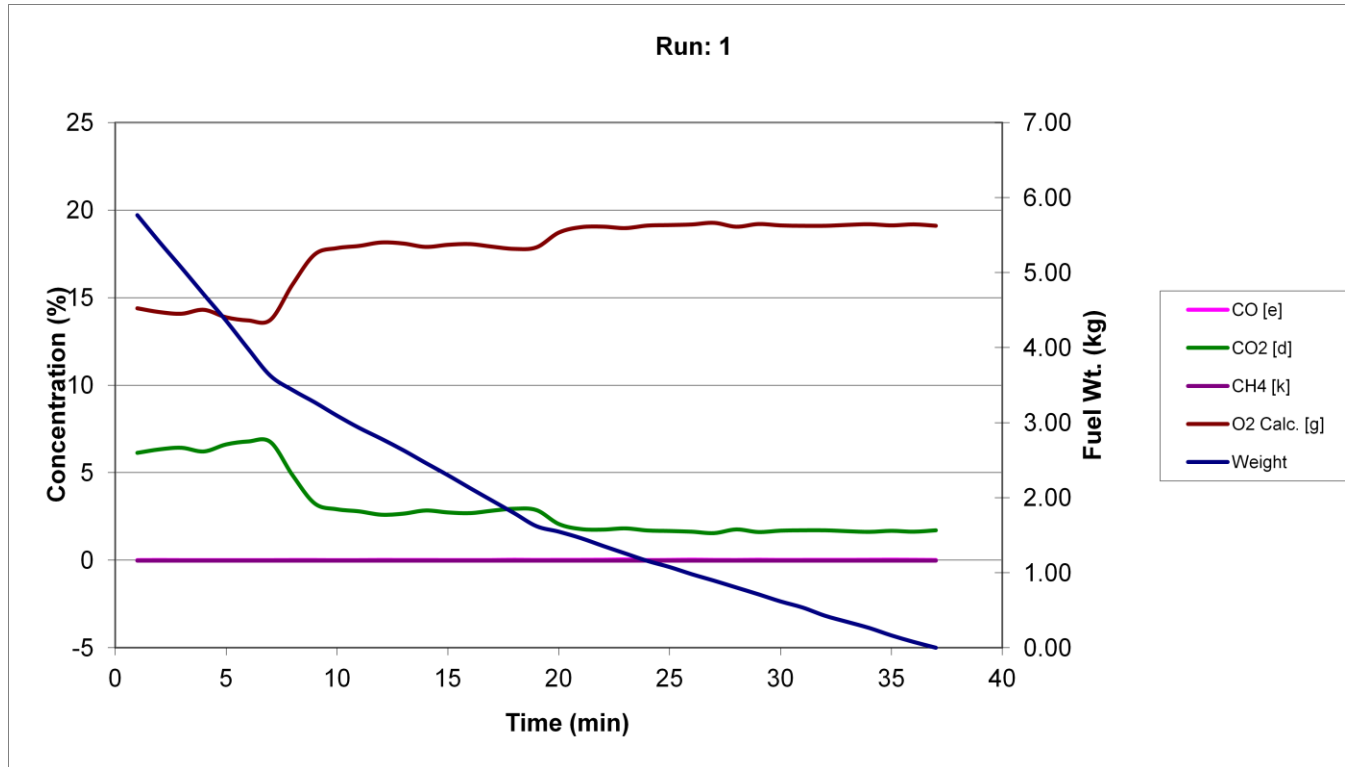
| | | | |
|---------------------------|--------|--------|----------------|
| Output Rate (kJ/h) | 13,052 | 12,381 | (Btu/h) |
| Burn Rate (kg/h) | 0.92 | 2.02 | (lb/h) |
| Input (kJ/h) | 18,574 | 17,620 | (Btu/h) |

| | | | |
|----------------------------------|------|-------|---------------|
| Test Load Weight (dry kg) | 5.51 | 12.14 | dry lb |
| MC wet (%) | 4.5 | | |
| MC dry (%) | 4.71 | | |
| Particulate (g) | 5.78 | | |
| CO (g) | 46 | | |
| Test Duration (h) | 6.00 | | |

| Emissions | Particulate | CO |
|-------------------------|--------------------|-----------|
| g/MJ Output | 0.07 | 0.58 |
| g/kg Dry Fuel | 1.05 | 8.32 |
| g/h | 0.96 | 7.64 |
| lb/MM Btu Output | 0.17 | 1.36 |

| | |
|-----------------------------|-------|
| Air/Fuel Ratio (A/F) | 31.75 |
|-----------------------------|-------|

Appendix B Data and Calculation forms



Note: In the legend, [d], [e], [g], and [k] refer to their respective variables in Clauses 13.7.3 and 13.7.5

Appendix B Data and Calculation forms

Medium burn rate results

| | | | | | | | | | | | | | | | | | | | |
|------------------------------|----------------|--------------------------|-----------------|----------------|------------------------|------------|--|--|--|---------------------|--------|------|--|--|--|--|--|--|--|
| VERSION: | 2.4 | 2010-04-15 | | | | | | | | | | | | | | | | | |
| Manufacturer: | SBI | | Appliance Type: | Pellet | (Cat, Non-Cat, Pellet) | | | | | | | | | | | | | | |
| Model: | ECO-55 | | | | | | | | | | | | | | | | | | |
| Date: | 01-11-2016 | | Temp. Units | F | (F or C) | | | | | Default Fuel Values | | | | | | | | | |
| Run: | 1 | | Weight Units | lb | (kg or lb) | | | | | | | | | | | | | | |
| Control #: | G102747001 | | | | | | | | | HHV (kJ/kg) | D. Fir | Oak | | | | | | | |
| Test Duration: | 120 | | | | | | | | | %C | 48.73 | 50 | | | | | | | |
| Output Category: | Med | | | | | | | | | %H | 6.87 | 6.6 | | | | | | | |
| | | | | | | | | | | %O | 43.9 | 42.9 | | | | | | | |
| | | | | | | | | | | %Ash | 0.5 | 0.5 | | | | | | | |
| Wood Moisture (% wet): | 4.50 | | HHV | 20,236 | kJ/kg | | | | | | | | | | | | | | |
| Load Weight (lb wet): | 4.42 | | %C | 48.73 | | | | | | | | | | | | | | | |
| Burn Rate (dry kg/h): | 0.96 | | %H | 6.87 | | | | | | | | | | | | | | | |
| Total Particulate Emissions: | 5.78 g | | %O | 43.785 | | | | | | | | | | | | | | | |
| | | | %Ash | 0.615 | | | | | | | | | | | | | | | |
| Averages | | 0.02 | 3.28 | 17.73 | 283.43 | 71.49 | | | | | | | | | | | | | |
| | | | | | | Temp. (°F) | | | | | | | | | | | | | |
| Elapsed | Fuel Weight | Flue Gas Composition (%) | | | Flue | Room | | | | | | | | | | | | | |
| Time (min) | Remaining (lb) | CO | CO ₂ | O ₂ | Gas | Temp | | | | | | | | | | | | | |
| 0 | 4.42 | 0.01 | 6.75 | 13.94 | 373.1 | 71.2 | | | | | | | | | | | | | |
| 10 | 4.05 | 0.02 | 4.85 | 17.62 | 320.0 | 72.2 | | | | | | | | | | | | | |
| 20 | 3.68 | 0.02 | 3.24 | 18.05 | 287.6 | 69.1 | | | | | | | | | | | | | |
| 30 | 3.32 | 0.01 | 2.91 | 17.78 | 280.7 | 68.1 | | | | | | | | | | | | | |
| 40 | 2.95 | 0.01 | 2.79 | 18.01 | 271.3 | 69.9 | | | | | | | | | | | | | |
| 50 | 2.58 | 0.02 | 2.60 | 17.95 | 268.4 | 71.4 | | | | | | | | | | | | | |
| 60 | 2.21 | 0.02 | 2.66 | 18.46 | 266.1 | 72.0 | | | | | | | | | | | | | |
| 70 | 1.84 | 0.02 | 2.84 | 18.11 | 266.2 | 72.2 | | | | | | | | | | | | | |
| 80 | 1.47 | 0.01 | 2.73 | 17.98 | 265.3 | 72.5 | | | | | | | | | | | | | |
| 90 | 1.11 | 0.02 | 2.69 | 18.00 | 269.5 | 72.5 | | | | | | | | | | | | | |
| 100 | 0.74 | 0.02 | 2.83 | 18.08 | 271.9 | 72.7 | | | | | | | | | | | | | |
| 110 | 0.37 | 0.03 | 2.94 | 18.37 | 271.1 | 72.6 | | | | | | | | | | | | | |
| 120 | 0.00 | 0.02 | 2.86 | 18.09 | 273.5 | 73.0 | | | | | | | | | | | | | |

Note 1: For other fuels, use the heating value and fuel composition determined by analysis of fuel sample in accordance with Clause 9.2.

Note 2: In cases where the "Fuel Weight Remaining" is the same for three or more readings in a row, a "divide by zero error" will occur in the calculation sheet. In such cases, adjust the weight values by interpolation between the first occurrence and the next reading showing a decrease in weight.

Appendix B Data and Calculation forms

Manufacturer: SBI
Model: ECO-55
Date: 01-11-2016
Run: 1
Control #: G102747001
Test Duration: 120 min

Note: In the "Input data", "Calc. % O₂", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a], [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3 to 13.7.5.

| | HHV | LHV |
|-----------|--------|--------|
| Eff | 67.88% | 73.24% |
| Comb Eff | 99.50% | 99.50% |
| HT Eff | 68.22% | 73.61% |
| Output | 13,154 | kJ/h |
| Burn Rate | 0.96 | kg/h |
| Grams CO | 13 | g |
| Input | 19,378 | kJ/h |
| MC wet | 4.50 | |

Ultimate CO₂
 CO_{2ult} 19.63
 F₀
 1.055

| | | Air Fuel Ratio (A/F) | | | |
|-----------------------------|--------------|---|---------|--------|------------------------|
| Overall Heating Efficiency: | 67.88% | Dry Molecular Weight (M _d) | 29.22 | | |
| Combustion Efficiency: | 99.50% | Dry Moles Exhaust Gas (N _d) | 1036.28 | %HC | Combustion Efficiency: |
| Heat Transfer Efficiency: | 68.22% | Air Fuel Ratio (A/F) | 29.77 | 0.8 | Total Input (kJ): |
| | | | | | Total Output (kJ): |
| Heat Output: | 12,478 Btu/h | 13,154 kJ/h | | | Efficiency: |
| Heat Input: | 18,382 Btu/h | 19,378 kJ/h | | | Total CO (g): |
| Burn Duration: | 2.00 | h | | | |
| Burn Rate: | 2.11 | lb/h | 0.958 | kg/h | |
| Stack Temp: | 276.0 | Deg. F | 135.5 | Deg. C | |

| Averages | | | | 0.02 | 3.28 | 5.39 | 20.72 | 17.43 | 139.68 | 21.94 | 101.2% | 69.1% | 69.9% | 38.82 | 1.00 | 50.00 | 0.96 | 50.00 | 38756 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | | |
|--------------|-----------------------|----------|-----------------------|--------------------|----------------------|----------------------------|---------------|----------------|--------|------------|--------|------------|-------|--------------|------------------|--------------|-------------|-----------------|------------------|-----------------|-----------------|---------|----------|-------|--|-----------------|--|--|--|
| INPUT DATA | | | | Oxygen Calculation | | | | Input Data | | Combust | | Heat | | Net | | Air | | Wet Wt | | % Wet | | Dry Wt. | | % Dry | | Fuel Properties | | | |
| Elapsed Time | Weight Remaining (kg) | % CO [e] | % CO ₂ [d] | Excess Air EA | Total O ₂ | Calc. % O ₂ [g] | Flue Gas (°C) | Room Temp (°C) | Eff % | Transfer % | Eff % | Fuel Ratio | Wt | Now Consumed | Wt _{dn} | Now Consumed | Total Input | Carbon /12= [a] | Hydrogen /1= [b] | Oxygen /16= [c] | Calorific Value | | | | | | | | |
| 0 | 2.01 | 0.01 | 6.75 | 190.3% | 20.49 | 13.73 | 189.5 | 21.8 | 100.4% | 75.9% | 76.2% | 17.6 | 2.01 | 0.00 | 1.92 | 0.00 | 0 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | | | | |
| 10 | 1.84 | 0.02 | 4.85 | 303.3% | 20.62 | 15.76 | 160.0 | 22.3 | 100.6% | 74.1% | 74.6% | 24.4 | 1.84 | 8.33 | 1.76 | 8.33 | 4844 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | | | | |
| 20 | 1.67 | 0.02 | 3.24 | 502.6% | 20.72 | 17.47 | 142.0 | 20.6 | 101.1% | 69.1% | 69.8% | 36.6 | 1.67 | 16.67 | 1.60 | 16.67 | 3230 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | | | | |
| 30 | 1.50 | 0.01 | 2.91 | 572.1% | 20.75 | 17.83 | 138.2 | 20.1 | 101.5% | 67.3% | 68.3% | 40.8 | 1.50 | 25.00 | 1.44 | 25.00 | 3230 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | | | | |
| 40 | 1.34 | 0.01 | 2.79 | 600.3% | 20.75 | 17.96 | 132.9 | 21.0 | 101.5% | 67.7% | 68.6% | 42.6 | 1.34 | 33.33 | 1.28 | 33.33 | 3230 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | | | | |
| 50 | 1.17 | 0.02 | 2.60 | 648.9% | 20.77 | 18.15 | 131.3 | 21.9 | 101.3% | 66.5% | 67.4% | 45.5 | 1.17 | 41.67 | 1.12 | 41.67 | 3230 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | | | | |
| 60 | 1.00 | 0.02 | 2.66 | 633.3% | 20.76 | 18.09 | 130.0 | 22.2 | 101.4% | 67.5% | 68.4% | 44.6 | 1.00 | 50.00 | 0.96 | 50.00 | 3230 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | | | | |
| 70 | 0.84 | 0.02 | 2.84 | 586.4% | 20.75 | 17.90 | 130.1 | 22.3 | 101.2% | 69.0% | 69.8% | 41.7 | 0.84 | 58.33 | 0.80 | 58.33 | 3230 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | | | | |
| 80 | 0.67 | 0.01 | 2.73 | 615.4% | 20.76 | 18.02 | 129.6 | 22.5 | 101.5% | 68.2% | 69.2% | 43.5 | 0.67 | 66.67 | 0.64 | 66.67 | 3230 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | | | | |
| 90 | 0.50 | 0.02 | 2.69 | 625.5% | 20.76 | 18.06 | 132.0 | 22.5 | 101.5% | 67.3% | 68.3% | 44.1 | 0.50 | 75.00 | 0.48 | 75.00 | 3230 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | | | | |
| 100 | 0.33 | 0.02 | 2.83 | 589.6% | 20.75 | 17.91 | 133.3 | 22.6 | 101.3% | 68.2% | 69.2% | 41.9 | 0.33 | 83.33 | 0.32 | 83.33 | 3230 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | | | | |
| 110 | 0.17 | 0.03 | 2.94 | 560.9% | 20.74 | 17.79 | 132.8 | 22.6 | 100.9% | 69.2% | 69.8% | 40.1 | 0.17 | 91.67 | 0.16 | 91.67 | 3230 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | | | | |
| 120 | 0.00 | 0.02 | 2.86 | 581.6% | 20.75 | 17.88 | 134.2 | 22.8 | 101.2% | 68.3% | 69.2% | 41.4 | 0.00 | 100.00 | 0.00 | 100.00 | 1615 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | | | | |

Appendix B Data and Calculation forms

| | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|-------------------------------|------------------------------------|--------|--------|--------|--------|----------|-----|--|------------------------------|-----|--------|-------|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | Moisture Content M_{owb} : | 4.5 | | | | | | | | | | | | |
| 99.50% | Moisture of Wood (wet basis): | | | | | 4.5 | Dry kg : | | | | | 1.92 | | | | | | | | | | | |
| 38,756 | 36,758 (Btu) | Initial Dry Weight W_{tdo} (kg): | | | | | 1.92 | CA: | | | | | 48.73 | | | | | | | | | | |
| 26,308 | 24,952 (Btu) | Moisture Content Dry | | | | | 4.71 | HY: | | | | | 6.87 | | | | | | | | | | |
| 67.88% | | | | | | | | | | | OX: | 43.785 | | | | | | | | | | | |
| 13.04 | | | | | | | | | | | | | | | | | | | | | | | |
| Load Weight (kg): | | 2.01 | | | | | | | | | | | | | | | | | | | | | |
| Fuel Heating Value in kJ/kg - CV: | | HHV | LHV | HHV | LHV | | | | | | | | | | | | | | | | | | |
| | | 20,236 | 18,755 | Btu/lb | 8705.8 | 8068.5 | | | | | | | | | | | | | | | | | |

| 4.50 | 79.27 | 21.03 | 0.81 | 2.82 | -0.03 | 0.08 | 40.97 | 237.27 | 0.24 | -0.35 | 1063.99 | 35.26 | 2.62 | 412.83 | 4690.61 | 3529.68 | 3432.26 | 3394.24 | 4516.19 | 4107.23 | 295.09 |
|------------|--|-------|------|------|-------|--------------------------|--------------------------|----------------|------|-------|----------------|------------------|------------------|------------|--|----------------|---------|----------------|-----------------|------------------|-----------|
| Mw | Mass Balance (moles/100 mole dry flue gas) | | | | | kg Wood per 100 mole dfg | Moles per kg of Dry Wood | | | | | | Moisture Present | Stack Temp | Heat Content Change - Ambient to Stack Temperature | | | | | | Room Temp |
| Fuel Burnt | [h] | [u] | [w] | [j] | [k] | Nk | CO ₂ | O ₂ | CO | HC | N ₂ | H ₂ O | Present | K | CO ₂ | O ₂ | CO | N ₂ | CH ₄ | H ₂ O | K |
| 4.50 | 79.50 | 21.09 | 1.66 | 5.74 | -0.02 | 0.17 | 40.91 | 83.22 | 0.08 | -0.12 | 481.80 | 34.81 | 2.62 | 462.63 | 6795.57 | 5062.71 | 4910.47 | 4858.70 | 6654.43 | 5872.15 | 294.94 |
| 4.50 | 79.38 | 21.05 | 1.19 | 4.14 | -0.02 | 0.12 | 40.90 | 132.89 | 0.15 | -0.19 | 669.45 | 34.95 | 2.62 | 433.17 | 5521.43 | 4138.56 | 4020.34 | 3976.64 | 5351.80 | 4809.67 | 295.49 |
| 4.50 | 79.27 | 21.03 | 0.80 | 2.78 | -0.03 | 0.08 | 40.96 | 220.92 | 0.22 | -0.32 | 1002.19 | 35.21 | 2.62 | 415.14 | 4832.96 | 3637.78 | 3537.63 | 3498.39 | 4651.06 | 4233.39 | 293.77 |
| 4.50 | 79.25 | 21.02 | 0.71 | 2.50 | -0.03 | 0.07 | 41.10 | 251.79 | 0.15 | -0.38 | 1119.17 | 35.33 | 2.62 | 411.33 | 4695.82 | 3537.88 | 3441.29 | 3402.95 | 4511.83 | 4118.37 | 293.21 |
| 4.50 | 79.24 | 21.02 | 0.68 | 2.40 | -0.03 | 0.07 | 41.06 | 264.27 | 0.20 | -0.40 | 1166.19 | 35.36 | 2.62 | 406.09 | 4441.97 | 3349.69 | 3259.00 | 3222.53 | 4261.21 | 3900.44 | 294.18 |
| 4.50 | 79.22 | 21.01 | 0.64 | 2.25 | -0.03 | 0.06 | 40.94 | 285.85 | 0.33 | -0.41 | 1247.40 | 35.39 | 2.62 | 404.48 | 4343.50 | 3275.98 | 3187.41 | 3151.71 | 4165.55 | 3814.81 | 295.02 |
| 4.50 | 79.23 | 21.02 | 0.65 | 2.30 | -0.03 | 0.06 | 41.01 | 278.93 | 0.26 | -0.41 | 1221.47 | 35.38 | 2.62 | 403.18 | 4276.32 | 3225.97 | 3138.92 | 3103.73 | 4099.69 | 3756.82 | 295.38 |
| 4.50 | 79.24 | 21.02 | 0.70 | 2.45 | -0.03 | 0.07 | 40.95 | 258.08 | 0.29 | -0.37 | 1142.52 | 35.31 | 2.62 | 403.24 | 4274.61 | 3224.56 | 3137.51 | 3102.34 | 4098.31 | 3755.13 | 295.49 |
| 4.50 | 79.24 | 21.02 | 0.67 | 2.35 | -0.03 | 0.07 | 41.06 | 271.00 | 0.21 | -0.41 | 1191.63 | 35.37 | 2.62 | 402.73 | 4248.69 | 3205.26 | 3118.80 | 3083.83 | 4072.90 | 3732.75 | 295.62 |
| 4.50 | 79.23 | 21.02 | 0.66 | 2.32 | -0.03 | 0.07 | 41.03 | 275.49 | 0.24 | -0.41 | 1208.54 | 35.38 | 2.62 | 405.10 | 4345.90 | 3276.92 | 3188.11 | 3152.45 | 4169.75 | 3815.58 | 295.63 |
| 4.50 | 79.24 | 21.02 | 0.69 | 2.44 | -0.03 | 0.07 | 41.00 | 259.50 | 0.24 | -0.38 | 1148.03 | 35.33 | 2.62 | 406.42 | 4395.01 | 3312.90 | 3222.87 | 3186.87 | 4219.16 | 3857.10 | 295.78 |
| 4.50 | 79.24 | 21.02 | 0.73 | 2.54 | -0.02 | 0.07 | 40.78 | 246.69 | 0.42 | -0.34 | 1099.03 | 35.23 | 2.62 | 405.99 | 4380.07 | 3302.01 | 3212.35 | 3176.46 | 4204.02 | 3844.54 | 295.70 |
| 4.50 | 79.24 | 21.02 | 0.70 | 2.47 | -0.03 | 0.07 | 40.94 | 255.94 | 0.29 | -0.37 | 1134.43 | 35.30 | 2.62 | 407.33 | 4426.11 | 3335.57 | 3244.73 | 3208.53 | 4250.71 | 3883.20 | 295.95 |

| SUMS | | | | | | | AVERAGE | | SUMS | | | | | | |
|-----------------------------------|----------|--------|----------|----------|----------|---------|-----------|----------|----------|--------------|---------|--------|----------------|-------|--|
| 2498.15 | 10518.79 | 877.64 | 45616.95 | -4043.34 | 22034.68 | 1636.12 | 6087.61 | 11773.93 | -480.25 | 12254.2 | 26982.0 | -480.3 | 13.0 | -11.0 | |
| Energy Losses (kJ/kg of Dry Fuel) | | | | | | | Total | Total | Chemical | Sensible and | Total | Chem | Grams Produced | | |
| Flue Gas Constituent | | | | | | | Loss Rate | Loss | Loss 1 | Latent Loss | Output | Loss 2 | CO | HC | |
| 277.98 | 421.31 | 22.15 | 2340.95 | -110.12 | 1734.88 | 130.48 | 4817.63 | 0.00 | 0 | 0.00 | 0 | 0 | 0.00 | 0.00 | |
| 225.85 | 549.97 | 42.36 | 2662.17 | -172.36 | 1704.69 | 127.69 | 5140.37 | 1230.61 | -31 | 1261.62 | 3614 | -31 | 0.99 | -0.74 | |
| 197.97 | 803.67 | 63.03 | 3506.06 | -289.63 | 1697.20 | 126.19 | 6104.50 | 974.28 | -36 | 1010.33 | 2255 | -36 | 0.98 | -0.83 | |
| 192.98 | 890.82 | 42.47 | 3808.47 | -343.43 | 1698.94 | 125.88 | 6416.14 | 1024.02 | -48 | 1071.85 | 2206 | -48 | 0.66 | -0.98 | |
| 182.39 | 885.21 | 56.03 | 3758.09 | -355.10 | 1692.50 | 125.31 | 6344.44 | 1012.57 | -48 | 1060.14 | 2217 | -48 | 0.87 | -1.01 | |
| 177.81 | 936.42 | 95.53 | 3931.45 | -368.13 | 1690.87 | 125.09 | 6589.04 | 1051.61 | -43 | 1095.01 | 2178 | -43 | 1.49 | -1.05 | |
| 175.37 | 899.83 | 74.99 | 3791.11 | -367.50 | 1688.75 | 124.94 | 6387.48 | 1019.44 | -47 | 1065.99 | 2210 | -47 | 1.17 | -1.05 | |
| 175.04 | 832.19 | 81.69 | 3544.50 | -334.42 | 1685.16 | 124.93 | 6109.09 | 975.01 | -40 | 1015.24 | 2255 | -40 | 1.28 | -0.95 | |
| 174.44 | 868.63 | 59.81 | 3674.79 | -362.99 | 1687.42 | 124.87 | 6226.97 | 993.82 | -48 | 1042.05 | 2236 | -48 | 0.93 | -1.04 | |
| 178.31 | 902.77 | 68.10 | 3809.86 | -365.73 | 1690.64 | 125.09 | 6409.04 | 1022.88 | -47 | 1070.23 | 2207 | -47 | 1.06 | -1.04 | |
| 180.20 | 859.70 | 69.25 | 3658.63 | -342.19 | 1689.59 | 125.20 | 6240.37 | 995.96 | -43 | 1039.39 | 2234 | -43 | 1.08 | -0.98 | |
| 178.60 | 814.56 | 120.27 | 3491.04 | -300.46 | 1684.68 | 125.17 | 6113.86 | 975.77 | -29 | 1004.52 | 2254 | -29 | 1.88 | -0.86 | |
| 181.22 | 853.70 | 81.96 | 3639.85 | -331.28 | 1689.34 | 125.27 | 6240.06 | 497.96 | -20 | 517.80 | 1117 | -20 | 0.64 | -0.47 | |

Appendix B Data and Calculation forms

Intertek Testing Services

Manufacturer: SBI
Model: ECO-55
Date: 01-11-2016
Run: 1
Control #: G102747001
Test Duration: 120
Output Category: Med

Technicians: Claude Pelland

Test Results in Accordance with CSA B415.1-10

| | HHV Basis | LHV Basis |
|---------------------------------|------------------|------------------|
| Overall Efficiency | 67.9% | 73.2% |
| Combustion Efficiency | 99.5% | 99.5% |
| Heat Transfer Efficiency | 68% | 73.6% |

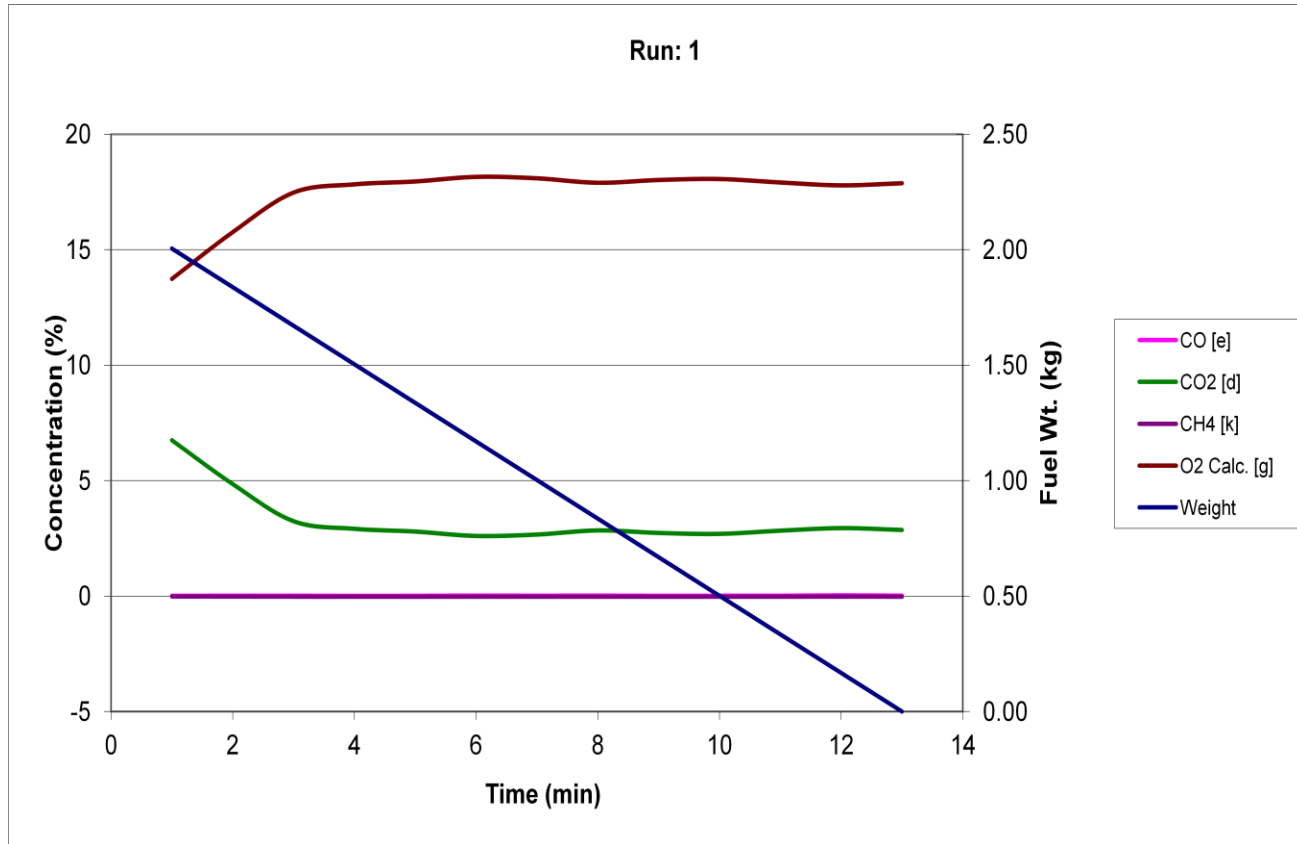
| | | | |
|---------------------------|--------|--------|----------------|
| Output Rate (kJ/h) | 13,154 | 12,478 | (Btu/h) |
| Burn Rate (kg/h) | 0.96 | 2.11 | (lb/h) |
| Input (kJ/h) | 19,378 | 18,382 | (Btu/h) |

| | | | |
|----------------------------------|------|------|---------------|
| Test Load Weight (dry kg) | 1.92 | 4.22 | dry lb |
| MC wet (%) | 4.5 | | |
| MC dry (%) | 4.71 | | |
| Particulate (g) | 5.78 | | |
| CO (g) | 13 | | |
| Test Duration (h) | 2.00 | | |

| Emissions | Particulate | CO |
|-------------------------|--------------------|-----------|
| g/MJ Output | 0.22 | 0.50 |
| g/kg Dry Fuel | 3.02 | 6.81 |
| g/h | 2.89 | 6.52 |
| lb/MM Btu Output | 0.51 | 1.15 |

| | |
|-----------------------------|-------|
| Air/Fuel Ratio (A/F) | 29.77 |
|-----------------------------|-------|

Appendix B Data and Calculation forms



Note: In the legend, [d], [e], [g], and [k] refer to their respective variables in Clauses 13.7.3 and 13.7.5

Appendix B Data and Calculation forms

Minimum burn rate results

| | | | | | | | | | | | | | | |
|------------------------------|----------------|--------------------------|-----------------|----------------|------------|------------------------|------------|-------|---------------------|--------|------|--|--|--|
| VERSION: | 2.4 | 2010-04-15 | | | | | | | | | | | | |
| Manufacturer: | SBI | | Appliance Type: | | Pellet | (Cat, Non-Cat, Pellet) | | | | | | | | |
| Model: | ECO-55 | | | | | | | | Default Fuel Values | | | | | |
| Date: | 01-11-2016 | | Temp. Units | F | (F or C) | | | | | | | | | |
| Run: | 1 | | Weight Units | lb | (kg or lb) | | | | | | | | | |
| Control #: | G102747001 | | | | | | | | HHV (kJ/kg) | D. Fir | Oak | | | |
| Test Duration: | 180 | | | | | | | | %C | 48.73 | 50 | | | |
| Output Category: | Min | | Fuel Data | | | | | | %H | 6.87 | 6.6 | | | |
| | | | | | | D. Fir | | | %O | 43.9 | 42.9 | | | |
| Wood Moisture (% wet): | 4.50 | | HHV | 20,236 | kJ/kg | | | | %Ash | 0.5 | 0.5 | | | |
| Load Weight (lb wet): | 3.57 | | %C | 48.73 | | | | | | | | | | |
| Burn Rate (dry kg/h): | 0.52 | | %H | 6.87 | | | | | | | | | | |
| Total Particulate Emissions: | 5.78 | g | %O | 43.785 | | | | | | | | | | |
| | | | %Ash | 0.615 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | Averages | 0.03 | 1.77 | 19.16 | 195.96 | 72.28 | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | Temp. (°F) | | | | | | | |
| Elapsed | Fuel Weight | Flue Gas Composition (%) | Flue | Room | | | | | | | | | | |
| Time (min) | Remaining (lb) | CO | CO ₂ | O ₂ | Gas | Temp | | | | | | | | |
| 0 | 3.57 | 0.02 | 2.86 | 18.09 | 273.5 | 73.0 | | | | | | | | |
| 10 | 3.41 | 0.03 | 2.07 | 18.83 | 212.5 | 72.7 | | | | | | | | |
| 20 | 3.22 | 0.03 | 1.78 | 19.19 | 195.8 | 72.5 | | | | | | | | |
| 30 | 2.99 | 0.03 | 1.75 | 19.28 | 196.7 | 72.4 | | | | | | | | |
| 40 | 2.77 | 0.05 | 1.82 | 19.64 | 197.3 | 72.3 | | | | | | | | |
| 50 | 2.55 | 0.02 | 1.70 | 18.94 | 195.0 | 72.8 | | | | | | | | |
| 60 | 2.37 | 0.02 | 1.67 | 18.80 | 186.5 | 72.0 | | | | | | | | |
| 70 | 2.16 | 0.04 | 1.63 | 19.47 | 190.9 | 72.1 | | | | | | | | |
| 80 | 1.97 | 0.02 | 1.55 | 19.07 | 181.9 | 71.8 | | | | | | | | |
| 90 | 1.77 | 0.02 | 1.76 | 19.12 | 193.0 | 71.9 | | | | | | | | |
| 100 | 1.57 | 0.03 | 1.61 | 19.42 | 189.4 | 72.3 | | | | | | | | |
| 110 | 1.36 | 0.02 | 1.69 | 19.25 | 192.9 | 72.5 | | | | | | | | |
| 120 | 1.18 | 0.02 | 1.71 | 19.18 | 184.0 | 72.0 | | | | | | | | |
| 130 | 0.94 | 0.02 | 1.71 | 19.12 | 195.3 | 72.4 | | | | | | | | |
| 140 | 0.76 | 0.02 | 1.66 | 19.42 | 187.5 | 72.1 | | | | | | | | |
| 150 | 0.58 | 0.03 | 1.62 | 19.35 | 180.8 | 72.2 | | | | | | | | |
| 160 | 0.36 | 0.03 | 1.68 | 19.43 | 195.1 | 72.1 | | | | | | | | |
| 170 | 0.17 | 0.03 | 1.63 | 19.32 | 185.5 | 71.8 | | | | | | | | |
| 180 | 0.00 | 0.02 | 1.71 | 19.12 | 189.7 | 72.4 | | | | | | | | |

Note 1: For other fuels, use the heating value and fuel composition determined by analysis of fuel sample in accordance with Clause 9.2.

Note 2: In cases where the "Fuel Weight Remaining" is the same for three or more readings in a row, a "divide by zero error" will occur in the calculation sheet. In such cases, adjust the weight values by interpolation between the first occurrence and the next reading showing a decrease in weight.

Appendix B Data and Calculation forms

Manufacturer: SBI
Model: ECO-55
Date: 01-11-2016
Run: 1
Control #: G102747001
Test Duration: 180 min

Note: In the "Input data", "Calc. % O₂", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a], [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3 to 13.7.5.

| | HHV | LHV |
|-----------|--------|--------|
| Eff | 67.16% | 72.46% |
| Comb Eff | 99.50% | 99.50% |
| HT Eff | 67.50% | 72.83% |
| Output | 7,008 | kJ/h |
| Burn Rate | 0.52 | kg/h |
| Grams CO | 28 | g |
| Input | 10,434 | kJ/h |
| MC wet | 4.50 | |

Ultimate CO₂ 19.63
 F₀ 1.044

| | Air Fuel Ratio (A/F) | | | |
|-----------------------------|----------------------|---|---------|--------|
| Overall Heating Efficiency: | 67.16% | Dry Molecular Weight (M _d) | 29.04 | |
| Combustion Efficiency: | 99.50% | Dry Moles Exhaust Gas (N ₂) | 1637.88 | %HC |
| Heat Transfer Efficiency: | 67.50% | Air Fuel Ratio (A/F) | 47.06 | 0.8 |
| Heat Output: | 6,648 Btu/h | 7,008 kJ/h | | |
| Heat Input: | 9,898 Btu/h | 10,434 kJ/h | | |
| Burn Duration: | 3.00 | h | | |
| Burn Rate: | 1.14 | lb/h | 0.516 | kg/h |
| Stack Temp: | 191.7 | Deg. F | 88.7 | Deg. C |

Combustion Efficiency:
 Total Input (KJ):
 Total Output (KJ):
 Efficiency:
 Total CO (g):

| Averages | | | | 0.03 | 1.77 | 10.12 | 20.82 | 19.04 | 91.09 | 22.38 | 101.9% | 69.0% | 70.3% | 67.90 | 0.80 | 50.32 | 0.77 | 50.32 | 32048 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | |
|--------------|-----------------------|----------|-----------------------|--------------------|----------------------|----------------------------|---------------|----------------|--------|------------|--------|-------|------------|--------|--------------|----------------------|--------------|-------------|-----------------|------------------|-----------------|-----------------|----------|-------|--|-----------------|--|
| INPUT DATA | | | | Oxygen Calculation | | | | Input Data | | Combust | | Heat | | Net | | Air | | Wet Wt | | % Wet | | Dry Wt. | | % Dry | | Fuel Properties | |
| Elapsed Time | Weight Remaining (kg) | % CO [e] | % CO ₂ [d] | Excess Air EA | Total O ₂ | Calc. % O ₂ [g] | Flue Gas (°C) | Room Temp (°C) | Eff % | Transfer % | Eff % | Net % | Fuel Ratio | Air Wt | Now Consumed | Now Wt _{dn} | Now Comsumed | Total Input | Carbon /12= [a] | Hydrogen /1= [b] | Oxygen /16= [c] | Calorific Value | | | | | |
| 0 | 1.62 | 0.02 | 2.86 | 581.6% | 20.75 | 17.88 | 134.2 | 22.8 | 101.2% | 68.3% | 69.2% | 69.2% | 41.4 | 1.62 | 0.00 | 1.55 | 0.00 | 0 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 10 | 1.55 | 0.03 | 2.07 | 836.7% | 20.80 | 18.72 | 100.3 | 22.6 | 101.6% | 69.6% | 70.7% | 70.7% | 57.1 | 1.55 | 4.48 | 1.48 | 4.48 | 2236 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 20 | 1.46 | 0.03 | 1.78 | 986.8% | 20.82 | 19.03 | 91.0 | 22.5 | 101.9% | 69.2% | 70.5% | 70.5% | 66.3 | 1.46 | 9.80 | 1.40 | 9.80 | 1841 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 30 | 1.36 | 0.03 | 1.75 | 1001.6% | 20.82 | 19.06 | 91.5 | 22.5 | 101.6% | 68.6% | 69.8% | 69.8% | 67.2 | 1.36 | 16.25 | 1.30 | 16.25 | 1973 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 40 | 1.26 | 0.05 | 1.82 | 952.4% | 20.82 | 18.97 | 91.8 | 22.4 | 100.9% | 69.4% | 70.0% | 70.0% | 64.1 | 1.26 | 22.41 | 1.20 | 22.41 | 1929 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 50 | 1.16 | 0.02 | 1.70 | 1044.6% | 20.83 | 19.12 | 90.5 | 22.6 | 102.5% | 68.4% | 70.1% | 70.1% | 70.0 | 1.16 | 28.57 | 1.10 | 28.57 | 1754 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 60 | 1.08 | 0.02 | 1.67 | 1060.6% | 20.83 | 19.15 | 85.8 | 22.2 | 102.3% | 69.5% | 71.1% | 71.1% | 70.9 | 1.08 | 33.61 | 1.03 | 33.61 | 1710 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 70 | 0.98 | 0.04 | 1.63 | 1079.0% | 20.83 | 19.18 | 88.3 | 22.3 | 101.6% | 68.1% | 69.2% | 69.2% | 72.0 | 0.98 | 39.50 | 0.94 | 39.50 | 1754 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 80 | 0.89 | 0.02 | 1.55 | 1148.6% | 20.84 | 19.27 | 83.3 | 22.1 | 102.4% | 68.8% | 70.4% | 70.4% | 76.4 | 0.89 | 44.82 | 0.85 | 44.82 | 1710 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 90 | 0.80 | 0.02 | 1.76 | 1003.3% | 20.82 | 19.05 | 89.4 | 22.2 | 102.2% | 69.4% | 70.9% | 70.9% | 67.4 | 0.80 | 50.42 | 0.77 | 50.42 | 1754 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 100 | 0.71 | 0.03 | 1.61 | 1096.3% | 20.83 | 19.21 | 87.5 | 22.4 | 101.8% | 68.2% | 69.4% | 69.4% | 73.1 | 0.71 | 56.02 | 0.68 | 56.02 | 1798 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 110 | 0.62 | 0.02 | 1.69 | 1048.4% | 20.83 | 19.13 | 89.4 | 22.5 | 102.3% | 68.6% | 70.2% | 70.2% | 70.2 | 0.62 | 61.90 | 0.59 | 61.90 | 1710 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 120 | 0.54 | 0.02 | 1.71 | 1032.9% | 20.82 | 19.10 | 84.4 | 22.2 | 102.1% | 70.5% | 72.0% | 72.0% | 69.2 | 0.54 | 66.95 | 0.51 | 66.95 | 1841 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 130 | 0.43 | 0.02 | 1.71 | 1032.5% | 20.82 | 19.10 | 90.7 | 22.4 | 102.1% | 68.4% | 69.8% | 69.8% | 69.2 | 0.43 | 73.67 | 0.41 | 73.67 | 1841 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 140 | 0.34 | 0.02 | 1.66 | 1066.1% | 20.83 | 19.16 | 86.4 | 22.3 | 102.2% | 69.2% | 70.7% | 70.7% | 71.3 | 0.34 | 78.71 | 0.33 | 78.71 | 1578 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 150 | 0.26 | 0.03 | 1.62 | 1090.0% | 20.83 | 19.20 | 82.6 | 22.3 | 101.9% | 70.0% | 71.4% | 71.4% | 72.7 | 0.26 | 83.75 | 0.25 | 83.75 | 1754 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 160 | 0.16 | 0.03 | 1.68 | 1044.9% | 20.83 | 19.13 | 90.6 | 22.3 | 101.6% | 68.0% | 69.0% | 69.0% | 69.9 | 0.16 | 89.92 | 0.16 | 89.92 | 1798 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 170 | 0.08 | 0.03 | 1.63 | 1084.2% | 20.83 | 19.19 | 85.3 | 22.1 | 102.0% | 69.1% | 70.5% | 70.5% | 72.4 | 0.08 | 95.24 | 0.07 | 95.24 | 2324 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |
| 180 | 0.00 | 0.02 | 1.71 | 1036.1% | 20.82 | 19.11 | 87.6 | 22.4 | 102.4% | 69.4% | 71.1% | 71.1% | 69.4 | 0.00 | 100.00 | 0.00 | 100.00 | 745 | 4.06 | 6.87 | 2.74 | 20236.00 | | | | | |

Appendix B Data and Calculation forms

| SUMS | | | | | | | AVERAGE | SUMS | | | | | | |
|-----------------------------------|----------------|---------|----------------|-----------------|-----------------------|--------------------------|---------|---------|----------|--------------|---------|--------|----------------|-------|
| 2088.62 | 17100.40 | 3299.57 | 68525.54 | -10736.16 | 31555.74 | 2305.70 | 6007.34 | 9500.93 | -622.47 | 10123.4 | 22547.3 | -622.5 | 28.2 | -16.3 |
| Energy Losses (kJ/kg of Dry Fuel) | | | | | | | Total | | | | | | | |
| Flue Gas Constituent | | | | | | | Loss | Total | Chemical | Sensible and | Total | Chem | Grams Produced | |
| CO ₂ | O ₂ | CO | N ₂ | CH ₄ | H ₂ O Comb | H ₂ O Fuel MC | Rate | Loss | Loss 1 | Latent Loss | Output | Loss 2 | CO | HC |
| 181.23 | 853.74 | 81.95 | 3640.03 | -331.28 | 1689.35 | 125.27 | 6240.29 | 0.00 | 0 | 0.00 | 0 | 0 | 0.00 | 0.00 |
| 124.56 | 855.12 | 144.20 | 3485.04 | -465.69 | 1661.66 | 122.17 | 5927.06 | 654.89 | -35 | 690.38 | 1581 | -35 | 1.56 | -0.92 |
| 109.49 | 890.31 | 171.45 | 3570.07 | -549.73 | 1659.01 | 121.33 | 5971.94 | 543.41 | -34 | 577.80 | 1298 | -34 | 1.53 | -0.90 |
| 109.97 | 910.85 | 212.21 | 3646.66 | -540.45 | 1658.73 | 121.38 | 6119.36 | 596.60 | -32 | 628.59 | 1376 | -32 | 2.03 | -0.94 |
| 109.71 | 869.91 | 285.88 | 3497.73 | -474.65 | 1652.38 | 121.42 | 6062.37 | 577.91 | -18 | 595.96 | 1351 | -18 | 2.68 | -0.81 |
| 109.35 | 935.61 | 103.56 | 3733.75 | -618.56 | 1665.40 | 121.28 | 6050.39 | 524.33 | -45 | 568.87 | 1229 | -45 | 0.88 | -0.96 |
| 101.84 | 889.33 | 149.70 | 3544.37 | -607.42 | 1658.89 | 120.89 | 5857.61 | 494.93 | -39 | 533.55 | 1215 | -39 | 1.24 | -0.92 |
| 104.82 | 939.04 | 248.56 | 3734.86 | -573.65 | 1658.43 | 121.11 | 6233.17 | 540.17 | -28 | 568.35 | 1213 | -28 | 2.12 | -0.89 |
| 97.73 | 926.22 | 167.25 | 3667.01 | -656.36 | 1660.83 | 120.66 | 5983.34 | 505.56 | -41 | 546.83 | 1204 | -41 | 1.39 | -0.99 |
| 107.93 | 889.15 | 128.30 | 3561.07 | -580.28 | 1660.63 | 121.22 | 5888.02 | 510.26 | -39 | 549.36 | 1243 | -39 | 1.09 | -0.90 |
| 103.53 | 940.29 | 222.78 | 3735.38 | -596.79 | 1659.60 | 121.02 | 6185.81 | 549.47 | -33 | 582.68 | 1248 | -33 | 1.95 | -0.95 |
| 107.33 | 924.38 | 134.33 | 3687.47 | -606.72 | 1662.89 | 121.18 | 6030.85 | 509.57 | -40 | 549.42 | 1200 | -40 | 1.12 | -0.92 |
| 99.41 | 846.09 | 154.91 | 3379.99 | -587.03 | 1655.00 | 120.76 | 5669.12 | 515.85 | -39 | 555.13 | 1325 | -39 | 1.39 | -0.96 |
| 109.42 | 929.97 | 159.04 | 3714.10 | -585.06 | 1662.46 | 121.32 | 6111.23 | 556.08 | -39 | 594.80 | 1285 | -39 | 1.42 | -0.95 |
| 102.54 | 901.11 | 164.47 | 3589.38 | -604.18 | 1659.19 | 120.93 | 5933.45 | 462.78 | -34 | 497.03 | 1116 | -34 | 1.26 | -0.84 |
| 95.91 | 866.21 | 212.19 | 3443.64 | -597.44 | 1653.74 | 120.59 | 5794.84 | 502.18 | -33 | 535.56 | 1251 | -33 | 1.81 | -0.93 |
| 108.57 | 940.53 | 238.55 | 3750.96 | -556.26 | 1659.46 | 121.32 | 6263.12 | 556.34 | -28 | 584.56 | 1241 | -28 | 2.08 | -0.89 |
| 100.62 | 902.18 | 197.67 | 3588.12 | -600.49 | 1657.58 | 120.84 | 5966.52 | 685.11 | -46 | 731.33 | 1638 | -46 | 2.23 | -1.24 |
| 104.67 | 890.35 | 122.58 | 3555.89 | -604.13 | 1660.52 | 121.03 | 5850.92 | 215.49 | -18 | 233.20 | 530 | -18 | 0.44 | -0.40 |

Appendix B Data and Calculation forms

Intertek Testing Services

Manufacturer: SBI
Model: ECO-55
Date: 01-11-2016
Run: 1
Control #: G102747001
Test Duration: 180
Output Category: Min

Technicians: Claude Pelland

Test Results in Accordance with CSA B415.1-10

| | HHV Basis | LHV Basis |
|--------------------------|-----------|-----------|
| Overall Efficiency | 67.2% | 72.5% |
| Combustion Efficiency | 99.5% | 99.5% |
| Heat Transfer Efficiency | 67% | 72.8% |

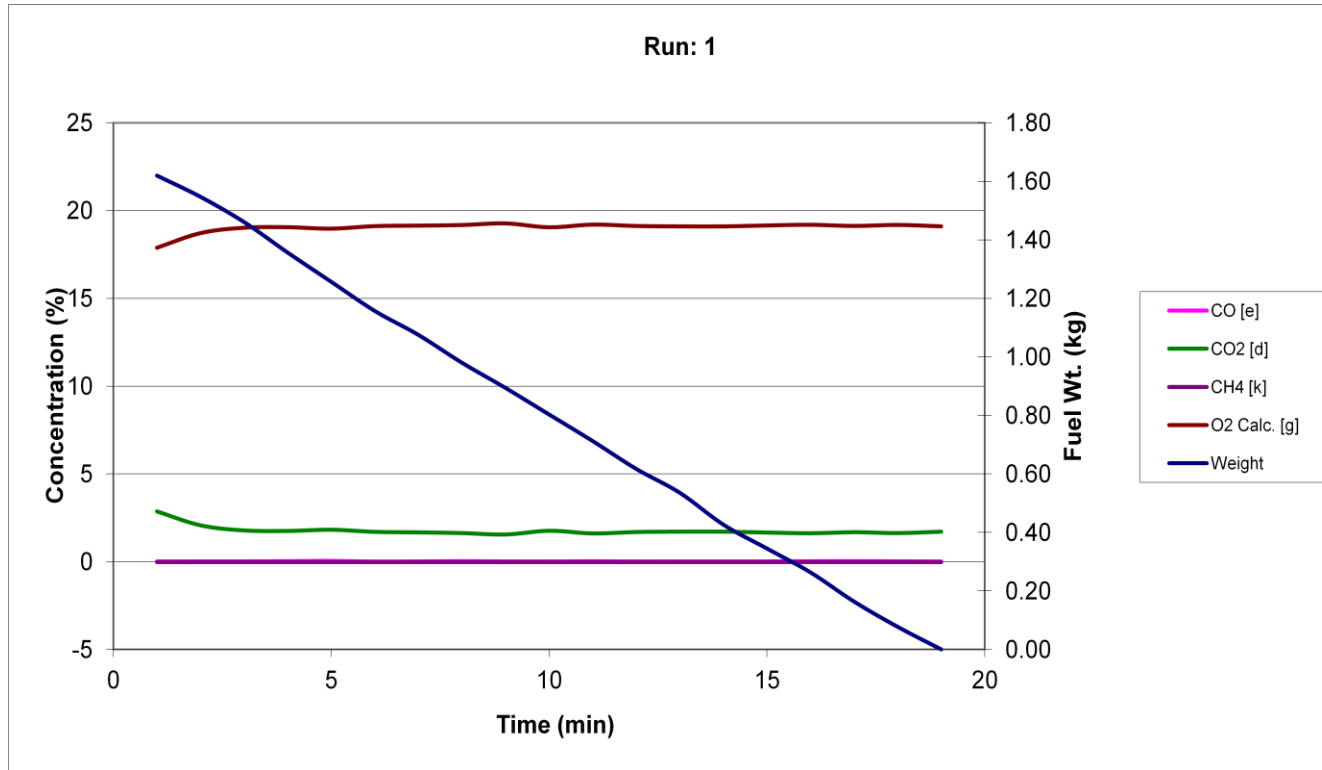
| | | | |
|--------------------|--------|-------|---------|
| Output Rate (kJ/h) | 7,008 | 6,648 | (Btu/h) |
| Burn Rate (kg/h) | 0.52 | 1.14 | (lb/h) |
| Input (kJ/h) | 10,434 | 9,898 | (Btu/h) |

| | | | |
|---------------------------|------|------|--------|
| Test Load Weight (dry kg) | 1.55 | 3.41 | dry lb |
| MC wet (%) | 4.5 | | |
| MC dry (%) | 4.71 | | |
| Particulate (g) | 5.78 | | |
| CO (g) | 28 | | |
| Test Duration (h) | 3.00 | | |

| Emissions | Particulate | CO |
|------------------|-------------|-------|
| g/MJ Output | 0.27 | 1.34 |
| g/kg Dry Fuel | 3.74 | 18.25 |
| g/h | 1.93 | 9.41 |
| lb/MM Btu Output | 0.64 | 3.12 |

| | |
|----------------------|-------|
| Air/Fuel Ratio (A/F) | 47.06 |
|----------------------|-------|

Appendix B Data and Calculation forms



Note: In the legend, [d], [e], [g], and [k] refer to their respective variables in Clauses 13.7.3 and 13.7.5

Appendix B Data and Calculation forms



SAMPLE WEIGHT DETERMINATION

Client: SBI **Model:** Eco-55 Series
Project #: DP-07 **Sample ID #** ECO-55-A1
Date: 2016-11-01 **Engineer:** Claude Pelland **Run #:** 1 **Sample Train #:** 1A
Balance Equipment #: SBI-206 **Thermo/Hygrometer Equipment #:** SBI-212

| | | | | | | |
|----------------------------------|-------------|--------------|------------------|-------------------------|--|-----------------|
| Front Filter # | 1 | Tare: | 0.1220 | Preliminary Wt : | 0.1242 | |
| Rear Filter # | 2 | Tare: | 0.1222 | Preliminary Wt : | 0.1223 | |
| Seal Set # | N/A | Tare: | N/A | Preliminary Wt : | N/A | |
| Date/Time in dessicator : | | | 2016-11-01/18:32 | | | |
| Date | Time | R/H % | Temp. (F) | Weight (grams) | Audit | Initials |
| 2016-11-03 | 11:46 | 4.0 | 68.7 | 0.1242 | 100mg Ref = 0.1000 Read. = 0.1000 | |
| | | | | 0.1223 | | |
| 2016-11-04 | 8:47 | 3.8 | 66.8 | 0.1242 | 100mg Ref = 0.1000 Read. = 0.1001 | |
| | | | | 0.1224 | | |
| | | | | | | |
| | | | | | | |
| Probe #: | 21 | Tare: | 147.7586 | Preliminary Wt : | 147.7606 | |
| Date/Time in dessicator : | | | 2016-11-01/18:36 | | | |
| Date | Time | R/H % | Temp. (F) | Weight (grams) | Audit | Initials |
| 2016-11-03 | 11:39 | 4.0 | 68.7 | 147.7593 | 200g Ref = 200.0011 Read. = 200.0008 | |
| 2016-11-04 | 8:42 | 3.8 | 66.8 | 147.7589 | 200g Ref = 200.0011 Read. = 200.0010 | |
| 2016-11-04 | 14:45 | 5.0 | 67.1 | 147.7590 | 200g Ref = 200.0011 Read. = 200.0010 | |
| | | | | | | |

Date: 2016-11-01

Engineer Signature: _____

Appendix B Data and Calculation forms



SAMPLE WEIGHT DETERMINATION

Client: SBI **Model:** Eco-55 Series
Project #: DP-07 **Sample ID #** ECO-55-A1
Date: 2016-11-01 **Engineer:** Claude Pelland **Run #:** 1 **Sample Train #:** 1B
Balance Equipment #: SBI-206 **Thermo/Hygrometer Equipment #:** SBI-212

| | | | | | | |
|----------------------------------|-------------|--------------|------------------|-------------------------|--|-----------------|
| Front Filter # | 3 | Tare: | 0.1216 | Preliminary Wt : | 0.1238 | |
| Rear Filter # | 4 | Tare: | 0.1224 | Preliminary Wt : | 0.1225 | |
| Seal Set # | N/A | Tare: | N/A | Preliminary Wt : | N/A | |
| Date/Time in dessicator : | | | 2016-11-01/18:40 | | | |
| Date | Time | R/H % | Temp. (F) | Weight (grams) | Audit | Initials |
| 2016-11-03 | 11:48 | 4.0 | 68.7 | 0.1239 | 100mg Ref = 0.1000 Read. = 0.1000 | |
| | | | | 0.1225 | | |
| 2016-11-04 | 8:49 | 3.8 | 66.8 | 0.1238 | 100mg Ref = 0.1000 Read. = 0.1001 | |
| | | | | 0.1226 | | |
| | | | | | | |
| | | | | | | |
| Probe #: | 22 | Tare: | 136.8113 | Preliminary Wt : | 136.8118 | |
| Date/Time in dessicator : | | | 2016-11-01/18:44 | | | |
| Date | Time | R/H % | Temp. (F) | Weight (grams) | Audit | Initials |
| 2016-11-03 | 11:41 | 4.0 | 68.7 | 136.8122 | 200g Ref = 200.0011 Read. = 200.0008 | |
| 2016-11-04 | 8:44 | 3.8 | 66.8 | 136.8117 | 200g Ref = 200.0011 Read. = 200.0010 | |
| 2016-11-04 | 14:46 | 5.0 | 67.1 | 136.8117 | 200g Ref = 200.0011 Read. = 200.0010 | |
| | | | | | | |

Date: 2016-11-01

Engineer Signature: _____

Appendix B Data and Calculation forms



SAMPLE WEIGHT DETERMINATION

Client: SBI **Model:** Eco-55 Series
Project #: DP-07 **Sample ID #** ECO-55-A1
Date: 2016-11-01 **Engineer:** Claude Pelland **Run #:** 1 **Sample Train #:** 1C
Balance Equipment #: SBI-206 **Thermo/Hygrometer Equipment #:** SBI-212

| | | | | | | |
|----------------------------------|-------------|--------------|------------------|-------------------------|--|-----------------|
| Front Filter # | 5 | Tare: | 0.1220 | Preliminary Wt : | 0.1223 | |
| Rear Filter # | 6 | Tare: | 0.1216 | Preliminary Wt : | 0.1216 | |
| Seal Set # | N/A | Tare: | N/A | Preliminary Wt : | N/A | |
| Date/Time in dessicator : | | | 2016-11-01/11:37 | | | |
| Date | Time | R/H % | Temp. (F) | Weight (grams) | Audit | Initials |
| 2016-11-03 | 11:51 | 4.0 | 68.7 | 0.1225 | 100mg Ref = 0.1000 Read. = 0.1000 | |
| | | | | 0.1216 | | |
| 2016-11-04 | 8:52 | 3.8 | 66.8 | 0.1225 | 100mg Ref = 0.1000 Read. = 0.1001 | |
| | | | | 0.1216 | | |
| | | | | | | |
| | | | | | | |
| Probe #: | 25 | Tare: | 136.2137 | Preliminary Wt : | 136.2165 | |
| Date/Time in dessicator : | | | 2016-11-01/11:40 | | | |
| Date | Time | R/H % | Temp. (F) | Weight (grams) | Audit | Initials |
| 2016-11-03 | 11:43 | 4.0 | 68.7 | 136.2151 | 200g Ref = 200.0011 Read. = 200.0008 | |
| 2016-11-04 | 8:45 | 3.8 | 66.8 | 136.2140 | 200g Ref = 200.0011 Read. = 200.0010 | |
| 2016-11-04 | 14:48 | 5.0 | 67.1 | 136.2139 | 200g Ref = 200.0011 Read. = 200.0010 | |
| | | | | | | |

Date: 2016-11-01

Engineer Signature: _____

Appendix B Data and Calculation forms

Calibration records

General information

| | |
|------------------------------------|----------------------------|
| Project: | ECO-55 Series (G102747001) |
| Project Engineer: | Claude Pelland |
| Project Engineer Signature: | |
| Scale ID: | SBI-206 |
| Hygrometer ID: | SBI-212 |

Calibration

| Date (YYYY-MM-DD) | Time (HH:MM) | Calibration weight ID | Calibration weight true mass | Reading (g) | Relative Humidity (%) | Ambiant temperature (°F) |
|----------------------|-----------------|--------------------------|---------------------------------|----------------|-----------------------------|--------------------------------|
| 2016-10-24 | 14:44 | SBI-238 | 200.0011 | 200.0013 | 43.6 | 66.9 |
| 2016-10-24 | 14:45 | SBI-238 | 10.0001 | 10.0002 | 44.9 | 67.1 |
| 2016-10-24 | 14:47 | SBI-237 | 0.1000 | 0.1000 | 44.4 | 67.3 |
| 2016-10-25 | 13:17 | SBI-238 | 200.0011 | 200.0011 | 41.6 | 67.6 |
| 2016-10-25 | 13:21 | SBI-238 | 10.0001 | 10.0001 | 41.6 | 67.6 |
| 2016-10-25 | 13:22 | SBI-237 | 0.1000 | 0.1000 | 41.6 | 67.6 |
| 2016-10-26 | 15:54 | SBI-238 | 200.0011 | 200.0007 | 40.9 | 67.7 |
| 2016-10-26 | 15:55 | SBI-238 | 10.0001 | 10.0000 | 40.9 | 67.7 |
| 2016-10-26 | 15:56 | SBI-237 | 0.1000 | 0.1000 | 40.9 | 67.7 |
| 2016-10-27 | 17:08 | SBI-238 | 200.0011 | 200.0007 | 46.3 | 68.4 |
| 2016-10-27 | 17:09 | SBI-238 | 10.0001 | 10.0000 | 46.3 | 68.4 |
| 2016-10-27 | 17:10 | SBI-237 | 0.1000 | 0.1001 | 46.3 | 68.4 |
| 2016-10-28 | 08:33 | SBI-238 | 200.0011 | 200.0009 | 41.9 | 66.9 |
| 2016-10-28 | 08:34 | SBI-238 | 10.0001 | 10.0001 | 41.9 | 66.9 |
| 2016-10-28 | 08:35 | SBI-237 | 0.1000 | 0.1000 | 41.9 | 66.9 |
| 2016-10-30 | 13:58 | SBI-238 | 200.0011 | 200.0013 | 37.6 | 67.1 |
| 2016-10-30 | 13:59 | SBI-238 | 10.0001 | 10.0001 | 37.6 | 67.1 |
| 2016-10-30 | 14:00 | SBI-237 | 0.1000 | 0.1001 | 37.6 | 67.1 |
| 2016-10-31 | 06:21 | SBI-238 | 200.0011 | 200.0011 | 36.7 | 67.5 |
| 2016-10-31 | 06:22 | SBI-238 | 10.0001 | 10.0000 | 36.7 | 67.5 |
| 2016-10-31 | 06:23 | SBI-237 | 0.1000 | 0.1000 | 36.7 | 67.5 |
| | | | | | | |

Appendix B Data and Calculation forms

Filters weights

General information

| | |
|------------------------------------|----------------------------|
| Project: | ECO-55 Series (G102747001) |
| Project Engineer: | Claude Pelland |
| Project Engineer Signature: | |
| Scale ID: | SBI-206 |

| Date (YYYY-MM-DD) | Time (HH:MM) | Filter ID | Reading (g) | Relative Humidity (%) | Ambiant temperature (°F) | Run number |
|----------------------|-----------------|-----------|----------------|-----------------------------|--------------------------------|---------------|
| 2016-10-25 | 13:30 | 1 | 0.1221 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:56 | 2 | 0.1224 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:57 | 3 | 0.1218 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:58 | 4 | 0.1227 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:59 | 5 | 0.1222 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:00 | 6 | 0.1218 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:01 | 7 | 0.1220 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:02 | 8 | 0.1221 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:03 | 9 | 0.1225 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:03 | 10 | 0.1221 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:04 | 11 | 0.1212 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:05 | 12 | 0.1225 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:07 | 13 | 0.1223 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:08 | 14 | 0.1215 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:09 | 15 | 0.1222 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:09 | 16 | 0.1226 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:10 | 17 | 0.1219 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:11 | 18 | 0.1226 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:12 | 19 | 0.1220 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:13 | 20 | 0.1224 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:27 | 21 | 0.1226 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:28 | 22 | 0.1222 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:33 | 23 | 0.1220 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:34 | 24 | 0.1232 | 2.5 | 65.9 | N/A |

Appendix B Data and Calculation forms

Filters weights 2

General information

| | |
|------------------------------------|----------------------------|
| Project: | ECO-55 Series (G102747001) |
| Project Engineer: | Claude Pelland |
| Project Engineer Signature: | |
| Scale ID: | SBI-206 |

| Date (YYYY-MM-DD) | Time (HH:MM) | Filter ID | Reading (g) | Relative Humidity (%) | Ambiant temperature (°F) | Run number |
|----------------------|-----------------|-----------|----------------|-----------------------------|--------------------------------|---------------|
| 2016-10-25 | 14:35 | 25 | 0.1225 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:36 | 26 | 0.1223 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:37 | 27 | 0.1227 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:37 | 28 | 0.1228 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:38 | 29 | 0.1223 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:39 | 30 | 0.1231 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:40 | 31 | 0.1219 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:40 | 32 | 0.1221 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:41 | 33 | 0.1219 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:42 | 34 | 0.1216 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:42 | 35 | 0.1229 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:43 | 36 | 0.1227 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:48 | 37 | 0.0846 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:48 | 38 | 0.0838 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:49 | 39 | 0.0832 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:49 | 40 | 0.0843 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:50 | 41 | 0.0830 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:50 | 42 | 0.0837 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:51 | 43 | 0.0843 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:51 | 44 | 0.0840 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:52 | 45 | 0.0844 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:52 | 46 | 0.0849 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:53 | 47 | 0.0848 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:53 | 48 | 0.0846 | 2.5 | 65.9 | N/A |

Appendix B Data and Calculation forms

Filters weights 3

General information

| | |
|------------------------------------|----------------------------|
| Project: | ECO-55 Series (G102747001) |
| Project Engineer: | Claude Pelland |
| Project Engineer Signature: | |
| Scale ID: | SBI-206 |

| Date (YYYY-MM-DD) | Time (HH:MM) | Filter ID | Reading (g) | Relative Humidity (%) | Ambiant temperature (°F) | Run number |
|----------------------|-----------------|-----------|----------------|-----------------------------|--------------------------------|---------------|
| 2016-10-25 | 14:54 | 49 | 0.1211 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:55 | 50 | 0.1209 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:56 | 51 | 0.1216 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:56 | 52 | 0.1213 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:57 | 53 | 0.1210 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:57 | 54 | 0.1221 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:58 | 55 | 0.1211 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:58 | 56 | 0.1215 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 14:59 | 57 | 0.1220 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 15:00 | 58 | 0.1220 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 15:00 | 59 | 0.1217 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 15:00 | 60 | 0.1212 | 2.5 | 65.9 | N/A |
| 2016-10-26 | 16:57 | 1 | 0.1221 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:58 | 2 | 0.1222 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:58 | 3 | 0.1217 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:59 | 4 | 0.1224 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:00 | 5 | 0.1222 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:00 | 6 | 0.1217 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:01 | 7 | 0.1219 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:02 | 8 | 0.1220 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:02 | 9 | 0.1225 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:03 | 10 | 0.1221 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:03 | 11 | 0.1211 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:04 | 12 | 0.1226 | 3.4 | 66.8 | N/A |

Appendix B Data and Calculation forms

Filters weights 4

General information

| | |
|------------------------------------|----------------------------|
| Project: | ECO-55 Series (G102747001) |
| Project Engineer: | Claude Pelland |
| Project Engineer Signature: | |
| Scale ID: | SBI-206 |

| Date (YYYY-MM-DD) | Time (HH:MM) | Filter ID | Reading (g) | Relative Humidity (%) | Ambiant temperature (°F) | Run number |
|----------------------|-----------------|-----------|----------------|-----------------------------|--------------------------------|---------------|
| 2016-10-26 | 17:06 | 13 | 0.1222 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:08 | 14 | 0.1214 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:08 | 15 | 0.1222 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:09 | 16 | 0.1226 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:09 | 17 | 0.1217 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:10 | 18 | 0.1226 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:11 | 19 | 0.1220 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:12 | 20 | 0.1225 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:12 | 21 | 0.1227 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:13 | 22 | 0.1223 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:14 | 23 | 0.1220 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:14 | 24 | 0.1233 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:15 | 25 | 0.1225 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:16 | 26 | 0.1222 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:17 | 27 | 0.1226 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:17 | 28 | 0.1227 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:18 | 29 | 0.1222 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:18 | 30 | 0.1230 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:19 | 31 | 0.1219 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:20 | 32 | 0.1221 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:21 | 33 | 0.1219 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:23 | 34 | 0.1216 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:23 | 35 | 0.1230 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:24 | 36 | 0.1226 | 3.4 | 66.8 | N/A |

Appendix B Data and Calculation forms

Filters weights 5

General information

| | |
|------------------------------------|----------------------------|
| Project: | ECO-55 Series (G102747001) |
| Project Engineer: | Claude Pelland |
| Project Engineer Signature: | |
| Scale ID: | SBI-206 |

| Date (YYYY-MM-DD) | Time (HH:MM) | Filter ID | Reading (g) | Relative Humidity (%) | Ambiant temperature (°F) | Run number |
|----------------------|-----------------|-----------|----------------|-----------------------------|--------------------------------|---------------|
| 2016-10-26 | 17:26 | 37 | 0.0846 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:26 | 38 | 0.0837 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:27 | 39 | 0.0833 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:28 | 40 | 0.0844 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:29 | 41 | 0.0831 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:29 | 42 | 0.0838 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:30 | 43 | 0.0843 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:31 | 44 | 0.0840 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:31 | 45 | 0.0844 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:32 | 46 | 0.0849 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:32 | 47 | 0.0848 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:33 | 48 | 0.0845 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:33 | 49 | 0.1211 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:34 | 50 | 0.1209 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:34 | 51 | 0.1217 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:35 | 52 | 0.1214 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:36 | 53 | 0.1211 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:36 | 54 | 0.1221 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:36 | 55 | 0.1210 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:37 | 56 | 0.1215 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:37 | 57 | 0.1220 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:38 | 58 | 0.1220 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:38 | 59 | 0.1217 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 17:39 | 60 | 0.1214 | 3.4 | 66.8 | N/A |

Appendix B Data and Calculation forms

Filters weights 6

General information

| | |
|------------------------------------|----------------------------|
| Project: | ECO-55 Series (G102747001) |
| Project Engineer: | Claude Pelland |
| Project Engineer Signature: | |
| Scale ID: | SBI-206 |

| Date (YYYY-MM-DD) | Time (HH:MM) | Filter ID | Reading (g) | Relative Humidity (%) | Ambiant temperature (°F) | Run number |
|----------------------|-----------------|-----------|----------------|-----------------------------|--------------------------------|---------------|
| 2016-10-28 | 16:56 | 1 | 0.1221 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:57 | 2 | 0.1222 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:57 | 3 | 0.1216 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:58 | 4 | 0.1224 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:59 | 5 | 0.1220 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 17:00 | 6 | 0.1216 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 17:00 | 7 | 0.1218 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 17:01 | 8 | 0.1219 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 17:02 | 9 | 0.1224 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 17:03 | 10 | 0.1220 | 3.5 | 66.7 | N/A |
| 2016-10-30 | 14:27 | 1 | 0.1220 | 2.6 | 66.3 | 1 |
| 2016-10-30 | 14:28 | 2 | 0.1222 | 2.6 | 66.3 | 1 |
| 2016-10-30 | 14:28 | 3 | 0.1216 | 2.6 | 66.3 | 1 |
| 2016-10-30 | 14:29 | 4 | 0.1224 | 2.6 | 66.3 | 1 |
| 2016-10-30 | 14:30 | 5 | 0.1220 | 2.6 | 66.3 | 1 |
| 2016-10-30 | 14:31 | 6 | 0.1216 | 2.6 | 66.3 | 1 |
| 2016-10-30 | 14:32 | 7 | 0.1219 | 2.6 | 66.3 | 1 |
| 2016-10-30 | 14:33 | 8 | 0.1219 | 2.6 | 66.3 | 1 |
| 2016-10-30 | 14:34 | 9 | 0.1223 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:34 | 10 | 0.1220 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:35 | 18 | 0.1225 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:36 | 30 | 0.1230 | 2.6 | 66.3 | N/A |
| | | | | | | |
| | | | | | | |

Appendix B Data and Calculation forms

Probe weights

General information

| | |
|------------------------------------|----------------------------|
| Project: | ECO-55 Series (G102747001) |
| Project Engineer: | Claude Pelland |
| Project Engineer Signature: | |
| Scale ID: | SBI-206 |

| Date (YYYY-MM-DD) | Time (HH:MM) | Probe ID | Reading (g) | Relative Humidity (%) | Ambiant temperature (°F) | Run number |
|----------------------|-----------------|----------|----------------|-----------------------------|--------------------------------|---------------|
| 2016-10-24 | 15:28 | 17 | 137.0198 | N/A | N/A | N/A |
| 2016-10-24 | 15:35 | 18 | 139.7196 | N/A | N/A | N/A |
| 2016-10-24 | 15:42 | 19 | 140.1499 | N/A | N/A | N/A |
| 2016-10-24 | 15:44 | 20 | 139.1616 | N/A | N/A | N/A |
| 2016-10-24 | 15:47 | 21 | 147.7610 | N/A | N/A | N/A |
| 2016-10-24 | 15:51 | 22 | 136.8146 | N/A | N/A | N/A |
| 2016-10-24 | 15:53 | 23 | 136.0041 | N/A | N/A | N/A |
| 2016-10-24 | 15:55 | 24 | 139.5794 | N/A | N/A | N/A |
| 2016-10-24 | 15:57 | 25 | 136.2166 | N/A | N/A | N/A |
| 2016-10-24 | 16:00 | 26 | 108.4413 | N/A | N/A | N/A |
| 2016-10-24 | 16:03 | 27 | 136.2286 | N/A | N/A | N/A |
| 2016-10-24 | 16:05 | 28 | 108.5198 | N/A | N/A | N/A |
| 2016-10-24 | 16:11 | 29 | 136.6485 | N/A | N/A | N/A |
| 2016-10-24 | 16:13 | 30 | 136.0147 | N/A | N/A | N/A |
| 2016-10-24 | 16:15 | 31 | 107.9008 | N/A | N/A | N/A |
| 2016-10-24 | 16:16 | 32 | 108.4076 | N/A | N/A | N/A |
| 2016-10-25 | 13:26 | 17 | 137.0188 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:28 | 18 | 139.7188 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:39 | 19 | 140.1492 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:40 | 20 | 139.1604 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:41 | 21 | 147.7609 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:42 | 22 | 136.8141 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:43 | 23 | 136.0027 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:44 | 24 | 139.5788 | 2.5 | 65.9 | N/A |

Appendix B Data and Calculation forms

Probe weights 2

General information

| | |
|------------------------------------|----------------------------|
| Project: | ECO-55 Series (G102747001) |
| Project Engineer: | Claude Pelland |
| Project Engineer Signature: | |
| Scale ID: | SBI-206 |

| Date (YYYY-MM-DD) | Time (HH:MM) | Probe ID | Reading (g) | Relative Humidity (%) | Ambiant temperature (°F) | Run number |
|----------------------|-----------------|----------|----------------|-----------------------------|--------------------------------|---------------|
| 2016-10-25 | 13:46 | 25 | 136.2164 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:48 | 26 | 108.4402 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:49 | 27 | 136.2260 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:50 | 28 | 108.5187 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:51 | 29 | 136.6479 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:52 | 30 | 136.0133 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:53 | 31 | 107.9001 | 2.5 | 65.9 | N/A |
| 2016-10-25 | 13:54 | 32 | 108.4070 | 2.5 | 65.9 | N/A |
| 2016-10-26 | 16:00 | 17 | 137.0172 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:00 | 18 | 139.7174 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:02 | 19 | 140.1478 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:02 | 20 | 139.1582 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:03 | 21 | 147.7600 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:05 | 22 | 136.8130 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:05 | 23 | 136.0007 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:06 | 24 | 139.5759 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:07 | 25 | 136.2153 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:08 | 26 | 108.4391 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:09 | 27 | 136.2223 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:09 | 28 | 108.5174 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:10 | 29 | 136.6466 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:11 | 30 | 136.0118 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:12 | 31 | 107.8983 | 3.4 | 66.8 | N/A |
| 2016-10-26 | 16:13 | 32 | 108.4058 | 3.4 | 66.8 | N/A |

Appendix B Data and Calculation forms

Probe weights 3

General information

| | |
|------------------------------------|----------------------------|
| Project: | ECO-55 Series (G102747001) |
| Project Engineer: | Claude Pelland |
| Project Engineer Signature: | |
| Scale ID: | SBI-206 |

| Date (YYYY-MM-DD) | Time (HH:MM) | Probe ID | Reading (g) | Relative Humidity (%) | Ambiant temperature (°F) | Run number |
|----------------------|-----------------|----------|----------------|-----------------------------|--------------------------------|---------------|
| 2016-10-27 | 17:24 | 17 | 137.0172 | 7.3 | 66.6 | N/A |
| 2016-10-27 | 17:26 | 18 | 139.7169 | 7.3 | 66.6 | N/A |
| 2016-10-27 | 17:27 | 19 | 140.1474 | 7.3 | 66.6 | N/A |
| 2016-10-27 | 17:29 | 20 | 139.1580 | 7.3 | 66.6 | N/A |
| 2016-10-27 | 17:30 | 21 | 147.7603 | 7.3 | 66.6 | N/A |
| 2016-10-27 | 17:31 | 22 | 136.8128 | 7.3 | 66.6 | N/A |
| 2016-10-27 | 17:33 | 23 | 136.0006 | 7.3 | 66.6 | N/A |
| 2016-10-27 | 17:34 | 24 | 139.5753 | 7.3 | 66.6 | N/A |
| 2016-10-27 | 17:35 | 25 | 136.2149 | 7.3 | 66.6 | N/A |
| 2016-10-27 | 17:37 | 26 | 108.4386 | 7.3 | 66.6 | N/A |
| 2016-10-27 | 17:38 | 27 | 136.2198 | 7.3 | 66.6 | N/A |
| 2016-10-27 | 17:39 | 28 | 108.5165 | 7.3 | 66.6 | N/A |
| 2016-10-27 | 17:40 | 29 | 136.6460 | 7.3 | 66.6 | N/A |
| 2016-10-27 | 17:42 | 30 | 136.0113 | 7.3 | 66.6 | N/A |
| 2016-10-27 | 17:43 | 31 | 107.8974 | 7.3 | 66.6 | N/A |
| 2016-10-27 | 17:44 | 32 | 108.4054 | 7.3 | 66.6 | N/A |
| 2016-10-28 | 08:40 | 17 | 137.0160 | 2.7 | 65.2 | N/A |
| 2016-10-28 | 08:41 | 18 | 139.7162 | 2.7 | 65.2 | N/A |
| 2016-10-28 | 08:42 | 19 | 140.1470 | 2.7 | 65.2 | N/A |
| 2016-10-28 | 08:44 | 20 | 139.1563 | 2.7 | 65.2 | N/A |
| 2016-10-28 | 08:45 | 21 | 147.7595 | 2.7 | 65.2 | N/A |
| 2016-10-28 | 08:46 | 22 | 136.8126 | 2.7 | 65.2 | N/A |
| 2016-10-28 | 08:47 | 23 | 135.9991 | 2.7 | 65.2 | N/A |
| 2016-10-28 | 08:48 | 24 | 139.5742 | 2.7 | 65.2 | N/A |

Appendix B Data and Calculation forms

Probe weights 4

General information

| | |
|------------------------------------|----------------------------|
| Project: | ECO-55 Series (G102747001) |
| Project Engineer: | Claude Pelland |
| Project Engineer Signature: | |
| Scale ID: | SBI-206 |

| Date (YYYY-MM-DD) | Time (HH:MM) | Probe ID | Reading (g) | Relative Humidity (%) | Ambiant temperature (°F) | Run number |
|----------------------|-----------------|----------|----------------|-----------------------------|--------------------------------|---------------|
| 2016-10-28 | 08:49 | 25 | 136.2150 | 2.7 | 65.2 | N/A |
| 2016-10-28 | 08:51 | 26 | 108.4386 | 2.7 | 65.2 | N/A |
| 2016-10-28 | 08:52 | 27 | 136.2187 | 2.7 | 65.2 | N/A |
| 2016-10-28 | 08:53 | 28 | 108.5162 | 2.7 | 65.2 | N/A |
| 2016-10-28 | 08:54 | 29 | 136.6460 | 2.7 | 65.2 | N/A |
| 2016-10-28 | 08:56 | 30 | 136.0114 | 2.7 | 65.2 | N/A |
| 2016-10-28 | 08:57 | 31 | 107.8974 | 2.7 | 65.2 | N/A |
| 2016-10-28 | 08:58 | 32 | 108.4053 | 2.7 | 65.2 | N/A |
| 2016-10-28 | 16:37 | 17 | 137.0161 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:38 | 18 | 139.7160 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:41 | 19 | 140.1470 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:41 | 20 | 139.1565 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:43 | 21 | 147.7600 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:43 | 22 | 136.8127 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:44 | 23 | 135.9993 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:45 | 24 | 139.5743 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:47 | 25 | 136.2151 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:48 | 26 | 108.4384 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:49 | 27 | 136.2182 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:50 | 28 | 108.5163 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:50 | 29 | 136.6461 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:51 | 30 | 136.0113 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:52 | 31 | 107.8973 | 3.5 | 66.7 | N/A |
| 2016-10-28 | 16:53 | 32 | 108.4055 | 3.5 | 66.7 | N/A |

Appendix B Data and Calculation forms

Probe weights 5

General information

| | |
|------------------------------------|----------------------------|
| Project: | ECO-55 Series (G102747001) |
| Project Engineer: | Claude Pelland |
| Project Engineer Signature: | |
| Scale ID: | SBI-206 |

| Date (YYYY-MM-DD) | Time (HH:MM) | Probe ID | Reading (g) | Relative Humidity (%) | Ambiant temperature (°F) | Run number |
|----------------------|-----------------|----------|----------------|-----------------------------|--------------------------------|---------------|
| 2016-10-30 | 14:03 | 17 | 137.0147 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:05 | 18 | 139.7150 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:07 | 19 | 140.1452 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:07 | 20 | 139.1549 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:08 | 21 | 147.7599 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:09 | 22 | 136.8122 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:10 | 23 | 135.9978 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:11 | 24 | 139.5722 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:12 | 25 | 136.2143 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:16 | 26 | 108.4355 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:17 | 27 | 136.2142 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:18 | 28 | 108.5153 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:18 | 29 | 136.6451 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:19 | 30 | 136.0103 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:20 | 31 | 107.8956 | 2.6 | 66.3 | N/A |
| 2016-10-30 | 14:21 | 32 | 108.4044 | 2.6 | 66.3 | N/A |
| 2016-10-31 | 06:24 | 17 | 137.0141 | 2.3 | 66.1 | N/A |
| 2016-10-31 | 06:25 | 18 | 139.7148 | 2.3 | 66.1 | N/A |
| 2016-10-31 | 06:26 | 19 | 140.1446 | 2.3 | 66.1 | N/A |
| 2016-10-31 | 06:27 | 20 | 139.1543 | 2.3 | 66.1 | N/A |
| 2016-10-31 | 06:28 | 21 | 147.7593 | 2.3 | 66.1 | N/A |
| 2016-10-31 | 06:30 | 22 | 136.8120 | 2.3 | 66.1 | N/A |
| 2016-10-31 | 06:31 | 23 | 135.9970 | 2.3 | 66.1 | N/A |
| 2016-10-31 | 06:32 | 24 | 139.5715 | 2.3 | 66.1 | N/A |

Appendix B Data and Calculation forms

Probe weights 6

General information

| | |
|------------------------------------|----------------------------|
| Project: | ECO-55 Series (G102747001) |
| Project Engineer: | Claude Pelland |
| Project Engineer Signature: | |
| Scale ID: | SBI-206 |

| Date (YYYY-MM-DD) | Time (HH:MM) | Probe ID | Reading (g) | Relative Humidity (%) | Ambiant temperature (°F) | Run number |
|----------------------|-----------------|----------|----------------|-----------------------------|--------------------------------|---------------|
| 2016-10-31 | 06:34 | 25 | 136.2141 | 2.3 | 66.1 | N/A |
| 2016-10-31 | 06:35 | 26 | 108.4348 | 2.3 | 66.1 | N/A |
| 2016-10-31 | 06:36 | 27 | 136.2124 | 2.3 | 66.1 | N/A |
| 2016-10-31 | 06:38 | 28 | 108.5147 | 2.3 | 66.1 | N/A |
| 2016-10-31 | 06:39 | 29 | 136.6444 | 2.3 | 66.1 | N/A |
| 2016-10-31 | 06:40 | 30 | 136.0098 | 2.3 | 66.1 | N/A |
| 2016-10-31 | 06:41 | 31 | 107.8950 | 2.3 | 66.1 | N/A |
| 2016-10-31 | 06:42 | 32 | 108.4042 | 2.3 | 66.1 | N/A |
| 2016-10-31 | 17:35 | 17 | 137.0139 | 3.0 | 67.7 | N/A |
| 2016-10-31 | 17:36 | 18 | 139.7143 | 3.0 | 67.7 | N/A |
| 2016-10-31 | 17:37 | 19 | 140.1440 | 3.0 | 67.7 | N/A |
| 2016-10-31 | 17:39 | 20 | 139.1537 | 3.0 | 67.7 | N/A |
| 2016-10-31 | 17:40 | 21 | 147.7588 | 3.0 | 67.7 | N/A |
| 2016-10-31 | 17:41 | 22 | 136.8115 | 3.0 | 67.7 | N/A |
| 2016-10-31 | 17:43 | 23 | 135.9967 | 3.0 | 67.7 | N/A |
| 2016-10-31 | 17:45 | 24 | 139.5709 | 3.0 | 67.7 | N/A |
| 2016-10-31 | 17:46 | 25 | 136.2139 | 3.0 | 67.7 | N/A |
| 2016-10-31 | 17:47 | 26 | 108.4348 | 3.0 | 67.7 | N/A |
| 2016-10-31 | 17:49 | 27 | 136.2117 | 3.0 | 67.7 | N/A |
| 2016-10-31 | 17:50 | 28 | 108.5142 | 3.0 | 67.7 | N/A |
| 2016-10-31 | 17:52 | 29 | 136.6444 | 3.0 | 67.7 | N/A |
| 2016-10-31 | 17:53 | 30 | 136.0098 | 3.0 | 67.7 | N/A |
| 2016-10-31 | 17:55 | 31 | 107.8949 | 3.0 | 67.7 | N/A |
| 2016-10-31 | 17:56 | 32 | 108.4038 | 3.0 | 67.7 | N/A |

Appendix C
Calibration Documents

Date: 2016-02-04

Equipment: Test bench #4

T2 (Ambiant)

Temperature: 68 F

Accuracy: 0.01

R.H.: 18%

Reference: SBI-096

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 0.59 | % | |
| | Ave A.D. | 0.29 | % |
| Standard | Reading | A.D. | |
| | | | |
| 70.0 | 69.79 | 0.30 | |
| 70.0 | 69.80 | 0.29 | |
| 70.0 | 69.75 | 0.36 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 0.28 | % | |
| | Ave A.D. | 0.14 | % |
| Standard | Reading | A.D. | |
| | | | |
| 200.0 | 199.73 | 0.14 | |
| 200.0 | 199.72 | 0.14 | |
| 200.0 | 199.64 | 0.18 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.03 | % | |
| | Ave A.D. | 0.02 | % |
| Standard | Reading | A.D. | |
| | | | |
| 600.0 | 599.89 | 0.02 | |
| 600.0 | 599.92 | 0.01 | |
| 600.0 | 599.86 | 0.02 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.01 | % | |
| | Ave A.D. | 0.01 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1000.0 | 1000.08 | 0.01 | |
| 1000.0 | 1000.04 | 0.00 | |
| 1000.0 | 1000.05 | 0.01 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.02 | % | |
| | Ave A.D. | 0.01 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1400.0 | 1400.12 | 0.01 | |
| 1400.0 | 1400.13 | 0.01 | |
| 1400.0 | 1400.08 | 0.01 | |



Vincent Pelletier

Date: 2016-02-04

Equipment: Test bench #4

T3 (Dilution tunnel)

Temperature: 68 F

Accuracy: 0.01

R.H.: 18%

Reference: SBI-096

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.01 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 0.98 | % | |
| | Ave A.D. | 0.49 | % |
| Standard | Reading | A.D. | |
| | | | |
| 70.0 | 69.64 | 0.51 | |
| 70.0 | 69.67 | 0.47 | |
| 70.0 | 69.70 | 0.43 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 0.44 | % | |
| | Ave A.D. | 0.22 | % |
| Standard | Reading | A.D. | |
| | | | |
| 200.0 | 199.56 | 0.22 | |
| 200.0 | 199.56 | 0.22 | |
| 200.0 | 199.56 | 0.22 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.09 | % | |
| | Ave A.D. | 0.04 | % |
| Standard | Reading | A.D. | |
| | | | |
| 600.0 | 599.76 | 0.04 | |
| 600.0 | 599.73 | 0.04 | |
| 600.0 | 599.75 | 0.04 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.02 | % | |
| | Ave A.D. | 0.01 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1000.0 | 999.92 | 0.01 | |
| 1000.0 | 999.93 | 0.01 | |
| 1000.0 | 999.91 | 0.01 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.01 | % | |
| | Ave A.D. | 0.00 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1400.0 | 1399.96 | 0.00 | |
| 1400.0 | 1399.96 | 0.00 | |
| 1400.0 | 1399.90 | 0.01 | |


Vincent Pelletier

Date: 2016-02-04

Equipment: Test bench #4
T4 (Firebox top)

Temperature: 68 F

Accuracy: 0.01

R.H.: 18%

Reference: SBI-096

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.01 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 1.16 | % | |
| | Ave A.D. | 0.58 | % |
| Standard | Reading | A.D. | |
| | | | |
| 70.0 | 69.58 | 0.60 | |
| 70.0 | 69.61 | 0.56 | |
| 70.0 | 69.61 | 0.56 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 0.48 | % | |
| | Ave A.D. | 0.24 | % |
| Standard | Reading | A.D. | |
| | | | |
| 200.0 | 199.53 | 0.24 | |
| 200.0 | 199.51 | 0.25 | |
| 200.0 | 199.54 | 0.23 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.10 | % | |
| | Ave A.D. | 0.05 | % |
| Standard | Reading | A.D. | |
| | | | |
| 600.0 | 599.70 | 0.05 | |
| 600.0 | 599.70 | 0.05 | |
| 600.0 | 599.72 | 0.05 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.03 | % | |
| | Ave A.D. | 0.01 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1000.0 | 999.84 | 0.02 | |
| 1000.0 | 999.87 | 0.01 | |
| 1000.0 | 999.88 | 0.01 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.02 | % | |
| | Ave A.D. | 0.01 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1400.0 | 1399.89 | 0.01 | |
| 1400.0 | 1399.88 | 0.01 | |
| 1400.0 | 1399.89 | 0.01 | |


Vincent Pelletier

Date: 2016-02-04

Equipment: Test bench #4
T5 (Firebox back) Temperature: 68 F
Accuracy: 0.01 R.H.: 18%
Reference: SBI-096

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.01 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 1.29 | % | |
| | Ave A.D. | 0.64 | % |
| Standard | Reading | A.D. | |
| | | | |
| 70.0 | 69.53 | 0.67 | |
| 70.0 | 69.57 | 0.62 | |
| 70.0 | 69.60 | 0.57 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 0.54 | % | |
| | Ave A.D. | 0.27 | % |
| Standard | Reading | A.D. | |
| | | | |
| 200.0 | 199.45 | 0.27 | |
| 200.0 | 199.46 | 0.27 | |
| 200.0 | 199.42 | 0.29 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.13 | % | |
| | Ave A.D. | 0.06 | % |
| Standard | Reading | A.D. | |
| | | | |
| 600.0 | 599.63 | 0.06 | |
| 600.0 | 599.60 | 0.07 | |
| 600.0 | 599.60 | 0.07 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.05 | % | |
| | Ave A.D. | 0.02 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1000.0 | 999.77 | 0.02 | |
| 1000.0 | 999.77 | 0.02 | |
| 1000.0 | 999.78 | 0.02 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.03 | % | |
| | Ave A.D. | 0.02 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1400.0 | 1399.80 | 0.01 | |
| 1400.0 | 1399.76 | 0.02 | |
| 1400.0 | 1399.82 | 0.01 | |


Vincent Pelletier

Date: 2016-02-04

Equipment: Test bench #4
T6 (Firebox right) Temperature: 68 F
Accuracy: 0.01 R.H.: 18%
Reference: SBI-096

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.01 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 1.57 | % | |
| | Ave A.D. | 0.79 | % |
| Standard | Reading | A.D. | |
| | | | |
| 70.0 | 69.43 | 0.81 | |
| 70.0 | 69.47 | 0.76 | |
| 70.0 | 69.48 | 0.75 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 0.62 | % | |
| | Ave A.D. | 0.31 | % |
| Standard | Reading | A.D. | |
| | | | |
| 200.0 | 199.36 | 0.32 | |
| 200.0 | 199.40 | 0.30 | |
| 200.0 | 199.38 | 0.31 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.14 | % | |
| | Ave A.D. | 0.07 | % |
| Standard | Reading | A.D. | |
| | | | |
| 600.0 | 599.57 | 0.07 | |
| 600.0 | 599.57 | 0.07 | |
| 600.0 | 599.55 | 0.07 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.06 | % | |
| | Ave A.D. | 0.03 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1000.0 | 999.73 | 0.03 | |
| 1000.0 | 999.72 | 0.03 | |
| 1000.0 | 999.72 | 0.03 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.04 | % | |
| | Ave A.D. | 0.02 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1400.0 | 1399.73 | 0.02 | |
| 1400.0 | 1399.73 | 0.02 | |
| 1400.0 | 1399.73 | 0.02 | |


Vincent Pelletier

Date: 2016-02-04

Equipment: Test bench #4
T7 (Firebox left)

Temperature: 68 F

Accuracy: 0.01

R.H.: 18%

Reference: SBI-096

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.01 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 1.55 | % | |
| | Ave A.D. | 0.78 | % |
| Standard | Reading | A.D. | |
| | | | |
| 70.0 | 69.50 | 0.71 | |
| 70.0 | 69.41 | 0.84 | |
| 70.0 | 69.41 | 0.85 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 0.67 | % | |
| | Ave A.D. | 0.33 | % |
| Standard | Reading | A.D. | |
| | | | |
| 200.0 | 199.36 | 0.32 | |
| 200.0 | 199.31 | 0.35 | |
| 200.0 | 199.33 | 0.34 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.17 | % | |
| | Ave A.D. | 0.09 | % |
| Standard | Reading | A.D. | |
| | | | |
| 600.0 | 599.48 | 0.09 | |
| 600.0 | 599.48 | 0.09 | |
| 600.0 | 599.49 | 0.08 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.07 | % | |
| | Ave A.D. | 0.03 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1000.0 | 999.66 | 0.03 | |
| 1000.0 | 999.67 | 0.03 | |
| 1000.0 | 999.68 | 0.03 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.05 | % | |
| | Ave A.D. | 0.02 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1400.0 | 1399.66 | 0.02 | |
| 1400.0 | 1399.65 | 0.02 | |
| 1400.0 | 1399.68 | 0.02 | |


Vincent Pelletier

Date: 2016-02-04

Equipment: Test bench #4

T8 (Firebox bottom)

Temperature: 68 F

Accuracy: 0.01

R.H.: 18%

Reference: SBI-096

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.01 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 1.74 | % | |
| | Ave A.D. | 0.87 | % |
| Standard | Reading | A.D. | |
| | | | |
| 70.0 | 69.37 | 0.89 | |
| 70.0 | 69.41 | 0.85 | |
| 70.0 | 69.53 | 0.67 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 0.71 | % | |
| | Ave A.D. | 0.35 | % |
| Standard | Reading | A.D. | |
| | | | |
| 200.0 | 199.29 | 0.35 | |
| 200.0 | 199.30 | 0.35 | |
| 200.0 | 199.24 | 0.38 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.18 | % | |
| | Ave A.D. | 0.09 | % |
| Standard | Reading | A.D. | |
| | | | |
| 600.0 | 599.47 | 0.09 | |
| 600.0 | 599.45 | 0.09 | |
| 600.0 | 599.42 | 0.10 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.08 | % | |
| | Ave A.D. | 0.04 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1000.0 | 999.61 | 0.04 | |
| 1000.0 | 999.62 | 0.04 | |
| 1000.0 | 999.62 | 0.04 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.06 | % | |
| | Ave A.D. | 0.03 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1400.0 | 1399.62 | 0.03 | |
| 1400.0 | 1399.60 | 0.03 | |
| 1400.0 | 1399.62 | 0.03 | |



Vincent Pelletier

Date: 2016-02-04

Equipment: Test bench #4

T11 (Probe temp 1)

Temperature: 68 F

Accuracy: 0.01

R.H.: 18%

Reference: SBI-096

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.01 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 2.05 | % | |
| | Ave A.D. | 1.02 | % |
| Standard | Reading | A.D. | |
| | | | |
| 70.0 | 69.27 | 1.05 | |
| 70.0 | 69.30 | 1.00 | |
| 70.0 | 69.31 | 0.99 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 0.80 | % | |
| | Ave A.D. | 0.40 | % |
| Standard | Reading | A.D. | |
| | | | |
| 200.0 | 199.21 | 0.39 | |
| 200.0 | 199.20 | 0.40 | |
| 200.0 | 199.19 | 0.40 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.20 | % | |
| | Ave A.D. | 0.10 | % |
| Standard | Reading | A.D. | |
| | | | |
| 600.0 | 599.41 | 0.10 | |
| 600.0 | 599.39 | 0.10 | |
| 600.0 | 599.36 | 0.11 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.09 | % | |
| | Ave A.D. | 0.05 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1000.0 | 999.54 | 0.05 | |
| 1000.0 | 999.52 | 0.05 | |
| 1000.0 | 999.53 | 0.05 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.07 | % | |
| | Ave A.D. | 0.03 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1400.0 | 1399.55 | 0.03 | |
| 1400.0 | 1399.54 | 0.03 | |
| 1400.0 | 1399.54 | 0.03 | |



Vincent Pelletier

Date: 2016-02-04

Equipment: Test bench #4

T14 (Probe temp 2)

Temperature: 68 F

Accuracy: 0.01

R.H.: 18%

Reference: SBI-096

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.01 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 1.95 | % | |
| | Ave A.D. | 0.98 | % |
| Standard | Reading | A.D. | |
| | | | |
| 70.0 | 69.35 | 0.93 | |
| 70.0 | 69.29 | 1.02 | |
| 70.0 | 69.29 | 1.02 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 0.79 | % | |
| | Ave A.D. | 0.40 | % |
| Standard | Reading | A.D. | |
| | | | |
| 200.0 | 199.21 | 0.40 | |
| 200.0 | 199.21 | 0.40 | |
| 200.0 | 199.21 | 0.40 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.21 | % | |
| | Ave A.D. | 0.10 | % |
| Standard | Reading | A.D. | |
| | | | |
| 600.0 | 599.37 | 0.10 | |
| 600.0 | 599.38 | 0.10 | |
| 600.0 | 599.35 | 0.11 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.10 | % | |
| | Ave A.D. | 0.05 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1000.0 | 999.55 | 0.04 | |
| 1000.0 | 999.41 | 0.06 | |
| 1000.0 | 999.55 | 0.05 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.06 | % | |
| | Ave A.D. | 0.03 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1400.0 | 1399.57 | 0.03 | |
| 1400.0 | 1399.57 | 0.03 | |
| 1400.0 | 1399.36 | 0.05 | |



Vincent Pelletier

Date: 2016-02-04

Equipment: Test bench #4

T15 (Spare 1)

Temperature: 68 F

Accuracy: 0.01

R.H.: 18%

Reference: SBI-096

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.01 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 1.75 | % | |
| | Ave A.D. | 0.87 | % |
| Standard | Reading | A.D. | |
| | | | |
| 70.0 | 69.37 | 0.90 | |
| 70.0 | 69.41 | 0.85 | |
| 70.0 | 69.37 | 0.89 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 0.70 | % | |
| | Ave A.D. | 0.35 | % |
| Standard | Reading | A.D. | |
| | | | |
| 200.0 | 199.29 | 0.35 | |
| 200.0 | 199.31 | 0.35 | |
| 200.0 | 199.29 | 0.35 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.18 | % | |
| | Ave A.D. | 0.09 | % |
| Standard | Reading | A.D. | |
| | | | |
| 600.0 | 599.45 | 0.09 | |
| 600.0 | 599.48 | 0.09 | |
| 600.0 | 599.46 | 0.09 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.07 | % | |
| | Ave A.D. | 0.04 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1000.0 | 999.64 | 0.04 | |
| 1000.0 | 999.62 | 0.04 | |
| 1000.0 | 999.62 | 0.04 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.05 | % | |
| | Ave A.D. | 0.02 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1400.0 | 1399.65 | 0.02 | |
| 1400.0 | 1399.65 | 0.02 | |
| 1400.0 | 1399.62 | 0.03 | |



Vincent Pelletier

Date: 2016-02-04

Equipment: Test bench #4

T2 (Spare 2)

Temperature: 68 F

Accuracy: 0.01

R.H.: 18%

Reference: SBI-096

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.01 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 1.33 | % | |
| | Ave A.D. | 0.66 | % |
| Standard | Reading | A.D. | |
| | | | |
| 70.0 | 69.51 | 0.69 | |
| 70.0 | 69.56 | 0.63 | |
| 70.0 | 69.61 | 0.56 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.01 | % | |
| O.M.U | 0.55 | % | |
| | Ave A.D. | 0.27 | % |
| Standard | Reading | A.D. | |
| | | | |
| 200.0 | 199.46 | 0.27 | |
| 200.0 | 199.45 | 0.28 | |
| 200.0 | 199.47 | 0.27 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.13 | % | |
| | Ave A.D. | 0.06 | % |
| Standard | Reading | A.D. | |
| | | | |
| 600.0 | 599.63 | 0.06 | |
| 600.0 | 599.60 | 0.07 | |
| 600.0 | 599.64 | 0.06 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.08 | % | |
| | Ave A.D. | 0.04 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1000.0 | 999.77 | 0.02 | |
| 1000.0 | 999.48 | 0.05 | |
| 1000.0 | 999.81 | 0.02 | |

| | | | |
|--------------|-------------|----------|---|
| S.D. | 0.00 | % | |
| R.M.U. | 0.00 | % | |
| O.M.U | 0.03 | % | |
| | Ave A.D. | 0.01 | % |
| Standard | Reading | A.D. | |
| | | | |
| 1400.0 | 1399.81 | 0.01 | |
| 1400.0 | 1399.84 | 0.01 | |
| 1400.0 | 1399.83 | 0.01 | |



Vincent Pelletier



Certificat d'étalonnage

Client

Société : SBI Fabricant De Poeles
Adresse : 250 Rue de Copenhague
Ville : Saint-Augustin-De-Desmaures *État/Province :* Quebec
Code postal : G3A 2H3 *Astea Customer ID:* 300276257

Instrument

Constructeur : Weigh-Tronix *Modèle de terminal :* IND560
Modèle : DSL 4848-05 *# série du terminal:* 00927386KL
No de série : B00927386KL *# série de l'imprimant* N/A
Capacité : 500 kg *N/A*
Résolution : 0,02 kg *Nbre de Divisions:* 25000
Classe : III *Procédure utilisée :* NIST Handbook 44
No./ID d'inventaire: SBI-014
Procédure: Le présent certificat est émis conformément aux conditions de certification accordées par l'A2LA, en vertu de la norme ISO/IEC 17025. A2LA a évalué la capacité de mesure du laboratoire et la traçabilité des normes nationales reconnues.

Date de calibrage : 1-avr-2016 *Date, prochaine Cal.* 31-mars-2017
Signataire autorisé (A2LA) : Dany Careau *Signature:* ELECTRONIC SIGNATURE

Étalons de travail

Retracabilité: Les poids de test utilisés se réfèrent au National Institute of Standards and Technology.

| <i>Jeu de poids no :</i> | <i>Traçabilité NIST No.:</i> | <i>Classe ASTM/OIML</i> | <i>Date d'étalonnage :</i> | <i>Date proch. étalonnage</i> |
|--------------------------|------------------------------|-------------------------|----------------------------|-------------------------------|
| 0718 | M15-050 | M1 | 22-avr-2015 | 22-avr-2016 |
| 142 | MT00997 | F1 | 7-mai-2014 | 30-avr-2016 |
| Q1 | 1415126 | M1 | 1-juin-2015 | 1-juin-2016 |

Résultats de mesure

La température : 22 °C

Les conditions ambiantes ont été vérifiées afin d'assurer l'exactitude de l'étalonnage.

Test de variation

| | |
|----------------------------|----------------------------|
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| <input type="checkbox"/> 4 | <input type="checkbox"/> 3 |

| Poids Appliqués | Position | Avant Réglage | Après Réglage |
|-------------------------|------------|---------------|---------------|
| | | Valeur lue | Valeur lue |
| 1: 100 kg | Position 1 | 99,92 kg | 99,96 kg |
| 2: 100 kg | Position 2 | 99,98 kg | 100,04 kg |
| 3: 100 kg | Position 3 | 99,94 kg | 99,98 kg |
| 4: 100 kg | Position 4 | 99,94 kg | 99,98 kg |
| Erreur maximum : | | 0,08 kg | 0,08 kg |
| Max Erreur Admissible : | | 0,10 kg | 0,1 kg |

Linéarité

| | Avant réglage | | | | | |
|-----------|-----------------|------------|----------|-----|-------------------|-------------------|
| | Poids Appliqués | Valeur lue | Erreur | | Erreur admissible | Dans la Tolérance |
| Zero 1,00 | 0,00 kg | 0,00 kg | 0,00 kg | 0 d | 1 d | OUI |
| 2,00 | 40,00 kg | 40,00 kg | 0,00 kg | 0 d | 2 d | OUI |
| 3,00 | 80,00 kg | 79,98 kg | -0,02 kg | 1 d | 3 d | OUI |
| 4,00 | 120,00 kg | 119,96 kg | -0,04 kg | 2 d | 5 d | OUI |
| 5,00 | 160,00 kg | 159,96 kg | -0,04 kg | 2 d | 5 d | OUI |
| Max 6,00 | 200,00 kg | 199,94 kg | -0,06 kg | 3 d | 5 d | OUI |

 Méthode de substitution utilisée

| | Après réglage | | | | | |
|-----------|-----------------|------------|---------|-----|-------------------|-------------------|
| | Poids Appliqués | Valeur lue | Erreur | | Erreur admissible | Dans la Tolérance |
| Zero 1,00 | 0,00 kg | 0,00 kg | 0,00 kg | 0 d | 1 d | OUI |
| 2,00 | 40,00 kg | 40,00 kg | 0,00 kg | 0 d | 2 d | OUI |
| 3,00 | 80,00 kg | 80,00 kg | 0,00 kg | 0 d | 3 d | OUI |
| 4,00 | 120,00 kg | 120,00 kg | 0,00 kg | 0 d | 5 d | OUI |
| 5,00 | 160,00 kg | 160,00 kg | 0,00 kg | 0 d | 5 d | OUI |
| Max 6,00 | 200,00 kg | 200,00 kg | 0,00 kg | 0 d | 5 d | OUI |

Méthode de substitution utilisée

Un réglage de la balance a été requis

Si non, les résultats "avant réglage" correspondent aux résultats tel que laissé.

OUI

NON

Répétabilité

Poids appliqués : 100,00 kg

| | Chargé | Vide | Différence |
|---|-------------------|---------|------------|
| 1 | 100,00 kg | 0,00 kg | 100 kg |
| 2 | 100,00 kg | 0,00 kg | 100 kg |
| 3 | 100,00 kg | 0,00 kg | 100 kg |
| | Erreur maximale : | 0,00 kg | 0,0 d |
| | Tolérance : | 0,10 kg | 5 d |

Incertitude

Mesure de l'incertitude = 0,012 kg

L'incertitude de mesure représente les incertitudes étendues selon un facteur de sécurité K=2 générant un niveau de confiance approximatif de 95 %. Des dispositions doivent être prises en matière d'environnement au lieu d'étalonnage, d'incertitude induite par l'article en étalonnage et d'effets indésirables causés par le transport du matériel d'étalonnage. Ces facteurs pourraient entraîner une incertitude plus grande que le CMC.

Remarques

Aucune.



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ACCREDITATION
ISO 17025
 SCC Scope Number 220

CALIBRATION CERTIFICATE

Certificate no.: 525294
Identification: SBI-096
Description: CALIBRATOR, OMEGA CL23A
Size: TC K/J/T
Manufacturer: OMEGA
Model no.: CL23A
Serial no.: T-256137

Calibration date: April 07, 2016
Certificate issued: April 07, 2016
Interval: 12 months
Due date: April 07, 2017
Procedure no.: MET/CAL
Environment: CLAS Type 2 Laboratory
Temperature: 23 ± 2°C
Humidity: 35 - 55% RH
Metrologist: YUK

Property of: SBI
 250 RUE DE COPENHAGUE
 ST-AUGUSTIN-DE-DESMAURES, QC G3A 2H3

Approved by: 
 David Llorens, Quality Manager

This calibration certificate is issued in accordance with the applicable requirements of ISO/IEC 17025 and Ulrich Metrology's quality manual QM-09 Revision 9. Measurement results provided are traceable to either the National Research Council Canada (NRC), the National Institute of Standards and Technology (NIST), a national laboratory of another country signatory to the CIPM Mutual Recognition Arrangement (MRA), or a calibration laboratory accredited by an accrediting body with which Canada has an equivalence agreement.

CALIBRATION STANDARDS

See notes below.

MEASUREMENT UNCERTAINTY

The above listed instrument meets or exceeds all specifications as stated in the reference procedure, unless noted otherwise. For measurement results associated with the conformance to a tolerance, the uncertainty in the measurement system did not exceed 25% (4:1 test uncertainty ratio) of the acceptable tolerance for each characteristic calibrated, unless otherwise noted in the report.

CALIBRATION DATA

See next page for measurement results.

Notes:

9V battery replaced.





CALIBRATION DATA

Certificate no.: 525294
Identification: SBI-096
Description: CALIBRATOR THERMOMETER
Serial no.: T-256137
Procedure: Omega CL23A: 5520A-M

Result: PASS
Condition: FOUND-LEFT

CALIBRATION STANDARDS

| Identification | Description | Manufacturer | Model no. | Cal. Date | Due Date |
|----------------|-------------|--------------|-----------|------------|------------|
| 7870009 | CALIBRATOR | FLUKE | 5520A | 2016/01/06 | 2017/01/31 |

MEASUREMENT RESULTS (Per MET/CAL)

| PARAMETER | TRUE VALUE | TEST RESULT | ACCEPTANCE LIMITS LOW | ACCEPTANCE LIMITS HIGH | PASS/FAIL | TUR |
|--|------------|-------------|-----------------------|------------------------|-----------|-----|
| Temperature measurements are performed by electrical simulation. | | | | | | |
| DISPLAY CALIBRATION | | | | | | |
| Did all segments of the display illuminate? | | | | | | |
| Result of Operator Evaluation | | | | | PASS | |
| THERMOMETER CALIBRATION | | | | | | |
| K Type Thermocouple | | | | | | |
| -200.0degF | | -200.1 | -201.0 | -199.0 | PASS | 1.7 |
| -60.0degF | | -59.9 | -61.0 | -59.0 | PASS | 3.1 |
| -40.0degF | | -40.0 | -40.5 | -39.5 | PASS | 1.5 |
| 32.0degF | | 31.9 | 31.5 | 32.5 | PASS | 1.7 |
| 1240.0degF | | 1240.0 | 1239.5 | 1240.5 | PASS | 1.1 |
| 1260.0degF | | 1260.0 | 1259.5 | 1260.5 | PASS | 1.1 |
| 2500.0degF | | 2500.0 | 2499.0 | 2501.0 | PASS | 1.4 |
| J Type Thermocouple | | | | | | |
| -200.0degF | | -200.3 | -201.0 | -199.0 | PASS | 2.1 |
| -60.0degF | | -60.0 | -61.0 | -59.0 | PASS | 3.5 |
| -40.0degF | | -40.1 | -40.5 | -39.5 | PASS | 1.7 |
| 32.0degF | | 31.9 | 31.5 | 32.5 | PASS | 2.0 |
| 1240.0degF | | 1239.9 | 1239.5 | 1240.5 | PASS | 1.6 |
| 1260.0degF | | 1259.9 | 1259.5 | 1260.5 | PASS | 1.6 |
| 1400.0degF | | 1399.8 | 1399.4 | 1400.6 | PASS | 1.8 |
| T Type Thermocouple | | | | | | |
| -200.0degF | | -199.9 | -201.0 | -199.0 | PASS | 2.3 |
| -60.0degF | | -59.8 | -61.0 | -59.0 | PASS | 2.3 |
| -40.0degF | | -40.0 | -40.5 | -39.5 | PASS | 1.2 |
| 32.0degF | | 32.0 | 31.5 | 32.5 | PASS | 1.7 |
| 750.0degF | | 749.9 | 749.5 | 750.5 | PASS | 2.0 |
| CALIBRATOR CALIBRATION | | | | | | |
| K Type Thermocouple | | | | | | |
| -200.0degF | | -199.7 | -201.0 | -199.0 | PASS | 1.7 |
| -60.0degF | | -59.9 | -61.0 | -59.0 | PASS | 3.1 |
| -40.0degF | | -39.9 | -40.5 | -39.5 | PASS | 1.5 |
| 32.0degF | | 32.0 | 31.5 | 32.5 | PASS | 1.7 |



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www.ulrich.ca

| PARAMETER | TRUE | TEST | ACCEPTANCE LIMITS | | PASS/ | TUR |
|---------------------|-------|--------|-------------------|--------|-------|-----|
| | VALUE | RESULT | LOW | HIGH | FAIL | |
| 1240.0degF | | 1240.2 | 1239.5 | 1240.5 | PASS | 1.1 |
| 1260.0degF | | 1260.2 | 1259.5 | 1260.5 | PASS | 1.1 |
| 2500.0degF | | 2500.5 | 2499.0 | 2501.0 | PASS | 1.4 |
| J Type Thermocouple | | | | | | |
| -200.0degF | | -200.2 | -201.0 | -199.0 | PASS | 2.1 |
| -60.0degF | | -60.2 | -61.0 | -59.0 | PASS | 3.5 |
| -40.0degF | | -40.1 | -40.5 | -39.5 | PASS | 1.7 |
| 32.0degF | | 31.8 | 31.5 | 32.5 | PASS | 2.0 |
| 1240.0degF | | 1240.1 | 1239.5 | 1240.5 | PASS | 1.6 |
| 1260.0degF | | 1260.1 | 1259.5 | 1260.5 | PASS | 1.6 |
| 1400.0degF | | 1399.9 | 1399.4 | 1400.6 | PASS | 1.8 |
| T Type Thermocouple | | | | | | |
| -200.0degF | | -200.3 | -201.0 | -199.0 | PASS | 2.3 |
| -60.0degF | | -60.3 | -61.0 | -59.0 | PASS | 2.3 |
| -40.0degF | | -40.1 | -40.5 | -39.5 | PASS | 1.2 |
| 32.0degF | | 31.7 | 31.5 | 32.5 | PASS | 1.7 |
| 750.0degF | | 749.8 | 749.5 | 750.5 | PASS | 2.0 |

End of Test Data



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CALIBRATION CERTIFICATE

| | | | |
|-------------------------|---|----------------------------|------------------------|
| Certificate no.: | 525236 | Calibration date: | April 07, 2016 |
| Identification: | SBI-188 | Certificate issued: | April 07, 2016 |
| Description: | POWER METER, P3INTERNATIONAL P4400 KILL A | Interval: | 12 months |
| Size: | AC 1 PHASE | Due date: | April 07, 2017 |
| Manufacturer: | P3INTERNATIONAL | Procedure no.: | MET/CAL |
| Model no.: | P4400 KILL A WATT | Environment: | CLAS Type 2 Laboratory |
| Serial no.: | 3039508 | Temperature: | 23 ± 2°C |
| | | Humidity: | 35 - 55% RH |
| | | Metrologist: | YUK |

Property of: SBI
250 RUE DE COPENHAGUE
ST-AUGUSTIN-DE-DESMAUERS, QC G3A 2H3

Approved by: 
David Llorens, Quality Manager

This calibration certificate is issued in accordance with the applicable requirements of ISO/IEC 17025 and Ulrich Metrology's quality manual QM-09 Revision 9. Measurement results provided are traceable to either the National Research Council Canada (NRC), the National Institute of Standards and Technology (NIST), a national laboratory of another country signatory to the CIPM Mutual Recognition Arrangement (MRA), or a calibration laboratory accredited by an accrediting body with which Canada has an equivalence agreement.

CALIBRATION STANDARDS

See notes below.

MEASUREMENT UNCERTAINTY

The above listed instrument meets or exceeds all specifications as stated in the reference procedure, unless noted otherwise. For measurement results associated with the conformance to a tolerance, the uncertainty in the measurement system did not exceed 25% (4:1 test uncertainty ratio) of the acceptable tolerance for each characteristic calibrated, unless otherwise noted in the report.

CALIBRATION DATA

See next page for measurement results.



CALIBRATION DATA

Certificate no.: 525236
Identification: SBI-188
Description: POWER METER
Serial no.: 3039508
Procedure: P3 international P4400 KILL A WATT: Swift-e/187/355-M

Result: PASS
Condition: FOUND-LEFT

CALIBRATION STANDARDS

| Identification | Description | Manufacturer | Model no. | Cal. Date | Due Date |
|----------------|-------------|-----------------|-----------|------------|------------|
| UM-STW7 | STOPWATCH | CONTROL COMPANY | 1030 | 2015/12/31 | 2016/12/31 |
| UM2-187 | MULTIMETER | FLUKE | 187 | 2015/10/05 | 2016/10/31 |
| 95620062 | CLAMP METER | FLUKE | 355 | 2016/03/28 | 2017/03/28 |

MEASUREMENT RESULTS (Per MET/CAL)

| PARAMETER | TRUE | TEST | ACCEPTANCE LIMITS | | PASS/ | TUR |
|-----------|-------|--------|-------------------|------|-------|-----|
| | VALUE | RESULT | LOW | HIGH | FAIL | |

Since the power meter specifications are not available only test results and nominal values are given.

Measurement Uncertainty:

Voltage < .5%, Current < 1.6%, Power < 2.1%

Frequency < 0.03%, KWH < 2.2%

250W load

| | |
|----------------|-------|
| 119.6V @ 60Hz | 119.2 |
| 2.00A | 2.10 |
| 239.2W @ 60Hz | 250.0 |
| 239.2VA @ 60Hz | 252.0 |
| 1.00PF @ 60Hz | 0.99 |
| 60.00Hz | 59.90 |

500W load

| | |
|----------------|-------|
| 120V @ 60Hz | 120 |
| 4.01A | 4.07 |
| 481.2W @ 60Hz | 485.0 |
| 481.2VA @ 60Hz | 485.0 |
| 1.00PF @ 60Hz | 1.00 |

1000W load

| | |
|----------------|-------|
| 120V @ 60Hz | 120 |
| 8.12A | 8.16 |
| 974.4W @ 60Hz | 980.0 |
| 974.4VA @ 60Hz | 980.0 |
| 1.00PF @ 60Hz | 1.00 |

1700W load

| | |
|-----------------|--------|
| 120V @ 60Hz | 120 |
| 14.10A | 14.10 |
| 1692.0W @ 60Hz | 1695.0 |
| 1692.0VA @ 60Hz | 1697.0 |
| 1.00PF @ 60Hz | 0.99 |

KWH TEST

| | |
|---------|------|
| 0.50Kwh | 0.50 |
|---------|------|

End of Test Data



MICRO PRECISION CALIBRATION
 22835 INDUSTRIAL PLACE
 GRASS VALLEY CA 95949
 530-268-1860



Certificate of Calibration

Date: Jul 19, 2016

Cert No. 222200812427074

Customer:

STOVE BUILDERS INTERNATIONAL INC.
 PORTES 11-12
 250 DE COPENHAGUE
 SAINT-AUGUSTIN-DE-DESMAURES QC G3A 2H3

MPC Control #: DB6309
 Asset ID: SBI-204
 Gage Type: PITOT STATIC TUBE
 Manufacturer: DWYER INSTRUMENTS, INC.
 Model Number: 160S-24
 Size: N/A
 Temp/RH: 68.0°F / 45.0%

Work Order #: SAC-70080129
 Purchase Order #: 49495
 Serial Number: N/A
 Department: N/A
 Performed By: BARRY MORRIS
 Received Condition: IN TOLERANCE
 Returned Condition: IN TOLERANCE
 Cal. Date: July 14, 2016
 Cal. Interval: 12 MONTHS
 Cal. Due Date: July 14, 2017

Calibration Notes:

Test Points

| Seq. | Description | Standard | Tolerance - | Tolerance + | As Found | As Left | UOM | Result | Uncertainty |
|------|-------------|----------|-------------|-------------|----------|---------|--------|--------|-------------|
| 1 | Tested At: | 0.100 | 0.090 | 0.110 | 0.100 | 0.100 | in/H2O | Passed | 0.003 |
| 2 | Tested At: | 0.200 | 0.190 | 0.210 | 0.200 | 0.200 | in/H2O | Passed | 0.003 |
| 3 | Tested At: | 0.300 | 0.290 | 0.310 | 0.300 | 0.300 | in/H2O | Passed | 0.003 |
| 4 | Tested At: | 0.400 | 0.390 | 0.410 | 0.400 | 0.400 | in/H2O | Passed | 0.003 |

Standards Used to Calibrate Equipment

| I.D. | Description. | Model | Serial | Manufacturer | Cal. Due Date | Traceability # |
|--------|-----------------------------------|---------|----------|--------------|---------------|------------------|
| AW3587 | TIMER | N/A | N/A | SPORTLINE | Jun 2, 2017 | 222200812372718 |
| AW4419 | MULTI-FUNCTION PRESSURE INDICATOR | DPI 145 | 14501283 | DRUCK | Mar 18, 2018 | 2222008122754295 |
| CR6447 | PRECISION PRESSURE INDICATOR | DPI 740 | 74002329 | DRUCK | Feb 1, 2017 | 2222008122841105 |

Calibrating Technician:

Barry Morris

BARRY MORRIS

QC Approval:

Brian Gold

Brian Gold

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA's Publication and NIST Technical Note 1297, 1994 Edition. Services rendered comply with ISO 17025:2005, ANSI/NCCL Z540-1, MPC Quality Manual, MPC CSD and with customer purchase order instructions.

Calibration cycles and resulting due dates were submitted/approved by the customer. Any number of factors may cause an instrument to drift out of tolerance before the next scheduled calibration. Recalibration cycles should be based on frequency of use, environmental conditions and customer's established systematic accuracy. The information on this report, pertains only to the instrument identified.

All standards are traceable to SI through the National Institute of Standards and Technology (NIST) and/or recognized national or international standards laboratories. Services rendered include proper manufacturer's service instruction and are warranted for no less than thirty (30) days. This report may not be reproduced in part or in a whole without the prior written approval of the issuing MPC lab.



MICRO PRECISION CALIBRATION
 22835 INDUSTRIAL PLACE
 GRASS VALLEY CA 95949
 530-268-1860



Calibration Laboratory
 CERT # 935.01

Certificate of Calibration

Date: Jul 19, 2016

Cert No. 222200812427074

Procedures Used in this Event

Procedure Name
 MANUFACTURER

Description
 MANUAL REV CONTROL

Calibrating Technician:

Barry Morris

BARRY MORRIS

QC Approval:

Brian Gold

Brian Gold

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA's Publication and NIST Technical Note 1297, 1994 Edition. Services rendered comply with ISO 17025:2005, ANSI/NCCL Z540-1, MPC Quality Manual, MPC CSD and with customer purchase order instructions.

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Certificat d'étalonnage

Client

Société : SBI Fabricant De Poeles
Adresse : 250 Rue de Copenhague
Ville : Saint-Augustin-De-Desmaures *État/Province :* Quebec
Code postal : G3A 2H3 *Astea Customer ID:* 300276257

Instrument

Constructeur : SARTORIUS *Modèle de terminal :* N/A
Modèle : TE214S *# série du terminal:* N/A
No de série : 25851066 *# série de l'imprimant* N/A
Capacité : 210 g *N/A*
Résolution : 0,0001 g *Nbre de Divisions:* 2100000
Classe : I *Procédure utilisée :* NIST Handbook 44
No./ID d'inventaire: SBI-206
Procédure: Le présent certificat est émis conformément aux conditions de certification accordées par l'A2LA, en vertu de la norme ISO/IEC 17025. A2LA a évalué la capacité de mesure du laboratoire et la traçabilité des normes nationales reconnues.

Date de calibrage : 1-avr-2016 *Date, prochaine Cal.* 31-mars-2017
Signataire autorisé (A2LA) : Dany Careau *Signature:* ELECTRONIC SIGNATURE

Étalons de travail

Retracabilité: Les poids de test utilisés se réfèrent au National Institute of Standards and Technology.

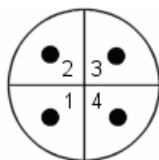
| <i>Jeu de poids no :</i> | <i>Traçabilité NIST No.:</i> | <i>Classe ASTM/OIML</i> | <i>Date d'étalonnage :</i> | <i>Date proch. étalonnage</i> |
|--------------------------|------------------------------|-------------------------|----------------------------|-------------------------------|
| 0718 | M15-050 | M1 | 22-avr-2015 | 22-avr-2016 |
| 142 | MT00997 | F1 | 7-mai-2014 | 30-avr-2016 |
| Q1 | 1415126 | M1 | 1-juin-2015 | 1-juin-2016 |

Résultats de mesure

La température : 22 °C

Les conditions ambiantes ont été vérifiées afin d'assurer l'exactitude de l'étalonnage.

Test de variation



| Poids Appliqués | Position | Avant Réglage |
|-------------------------|------------|---------------|
| | | Valeur lue |
| 1: 50 g | Position 1 | 50,0001 g |
| 2: 50 g | Position 2 | 50,0000 g |
| 3: 50 g | Position 3 | 50,0001 g |
| 4: 50 g | Position 4 | 50,0002 g |
| Erreur maximum : | | 0,0002 g |
| Max Erreur Admissible : | | 0,0003 g |

Linéarité

| | Avant réglage | | | | | |
|-----------|-----------------|------------|-----------|-----|-------------------|-------------------|
| | Poids Appliqués | Valeur lue | Erreur | | Erreur admissible | Dans la Tolérance |
| Zero 1,00 | 0,0000 g | 0,0000 g | 0,0000 g | 0 d | 1 d | OUI |
| 2,00 | 0,1000 g | 0,1000 g | 0,0000 g | 0 d | 1 d | OUI |
| 3,00 | 1,0000 g | 0,9999 g | -0,0001 g | 1 d | 1 d | OUI |
| 4,00 | 10,0000 g | 9,9999 g | -0,0001 g | 1 d | 2 d | OUI |
| 5,00 | 50,0000 g | 50,0001 g | 0,0001 g | 1 d | 3 d | OUI |
| 6,00 | 100,0000 g | 99,9999 g | -0,0001 g | 1 d | 3 d | OUI |
| 7,00 | 150,0000 g | 149,9998 g | -0,0002 g | 2 d | 3 d | OUI |
| Max 8,00 | 200,0000 g | 200,0001 g | 0,0001 g | 1 d | 3 d | OUI |

 Méthode de substitution utilisée

Un réglage de la balance a été requis

Si non, les résultats "avant réglage" correspondent aux résultats tel que laissé.

 OUI NON

Répétabilité

Poids appliqués : 10,0000 g

| | <i>Chargé</i> | <i>Vide</i> | <i>Différence</i> |
|---|--------------------------|-------------|-------------------|
| 1 | 9,9999 g | 0,0000 g | 9,9999 g |
| 2 | 10,0000 g | 0,0000 g | 10 g |
| 3 | 9,9999 g | 0,0000 g | 9,9999 g |
| | <i>Erreur maximale :</i> | 0,0001 g | 1,0 d |
| | <i>Tolérance :</i> | 0,0002 g | 2 d |

Incertitude

Mesure de l'incertitude = 0,00017 g

L'incertitude de mesure représente les incertitudes étendues selon un facteur de sécurité K=2 générant un niveau de confiance approximatif de 95 %. Des dispositions doivent être prises en matière d'environnement au lieu d'étalonnage, d'incertitude induite par l'article en étalonnage et d'effets indésirables causés par le transport du matériel d'étalonnage. Ces facteurs pourraient entraîner une incertitude plus grande que le CMC.

Remarques

Aucune.



Ulrich Métrologie Inc.
Ulrich Metrology Inc.
9912, Côte-de-Liesse
Montréal (Québec) H8T 1A1

Tél. (514) 631-6653
Fax (514) 631-6122
info@ulrich.ca
www.ulrich.ca



CALIBRATION CERTIFICATE

| | | | |
|-------------------------|---------------------------------|----------------------------|------------------------|
| Certificate no.: | 528221 | Calibration date: | April 26, 2016 |
| Identification: | SBI-212 | Certificate issued: | April 26, 2016 |
| Description: | THERMO-HYGROMETER, AMPROBE TH-3 | Interval: | 12 months |
| Manufacturer: | AMPROBE | Due date: | April 26, 2017 |
| Model no.: | TH-3 | Procedure no.: | MET/CAL |
| Serial no.: | 100906351 | Environment: | CLAS Type 2 Laboratory |
| | | Temperature: | 23 ± 2°C |
| | | Humidity: | 35 - 55% RH |
| | | Metrologist: | NFS |

Property of: SBI
250 RUE DE COPENHAGUE
ST-AUGUSTIN-DE-DESMAURES, QC G3A 2H3

Approved by: 
David Llorens, Quality Manager

This calibration certificate is issued in accordance with the applicable requirements of ISO/IEC 17025 and Ulrich Metrology's quality manual QM-09 Revision 9. Measurement results provided are traceable to either the National Research Council Canada (NRC), the National Institute of Standards and Technology (NIST), a national laboratory of another country signatory to the CIPM Mutual Recognition Arrangement (MRA), or a calibration laboratory accredited by an accrediting body with which Canada has an equivalence agreement.

CALIBRATION STANDARDS

See notes below.

MEASUREMENT UNCERTAINTY

The above listed instrument meets or exceeds all specifications as stated in the reference procedure, unless noted otherwise. For measurement results associated with the conformance to a tolerance, the uncertainty in the measurement system did not exceed 25% (4:1 test uncertainty ratio) of the acceptable tolerance for each characteristic calibrated, unless otherwise noted in the report.

CALIBRATION DATA

See next page for measurement results.



Ulrich Métrologie inc.
Ulrich Metrology inc.
9912, Côte-de-Liesse
Montréal (Québec) H8T 1A1

Tél. (514) 631-6653
Fax (514) 631-6122
info@ulrich.ca
www.ulrich.ca

CALIBRATION DATA

Certificate no.: 528221
Identification: SBI-212
Description: THERMO-HYGROMETER
Serial no.: 100906351
Procedure: Amprobe TH-3: 2500ST-LT-M

Result: PASS
Condition: FOUND-LEFT

CALIBRATION STANDARDS

| Identification | Description | Manufacturer | Model no. | Cal. Date | Due Date |
|----------------|--------------------|--------------------|-----------|------------|------------|
| 1304953 | HUMIDITY GENERATOR | THUNDER SCIENTIFIC | 2500ST-LT | 2015/06/19 | 2016/06/30 |

MEASUREMENT RESULTS (Per MET/CAL)

| PARAMETER | TRUE VALUE | TEST RESULT | ACCEPTANCE LOW | LIMITS HIGH | PASS/FAIL | TUR |
|---------------------------------------|------------|-------------|----------------|-------------|-----------|-----|
| TEMPERATURE CALIBRATION | | | | | | |
| 23°C | | | | | | |
| 22.94degC | | 23.30 | 22.14 | 23.74 | PASS | |
| RELATIVE HUMIDITY CALIBRATION AT 23°C | | | | | | |
| 20% RH | | | | | | |
| 19.95% | | 18.80 | 16.95 | 22.95 | PASS | |
| 50% RH | | | | | | |
| 50.01% | | 48.60 | 47.01 | 53.01 | PASS | |
| 80% RH | | | | | | |
| 79.98% | | 77.00 | 76.98 | 82.98 | PASS | |

End of Test Data

Certificate No: MT0056579

METTLER-TOLEDO, LLC

1900 Polaris Pkwy
Columbus, OH 43240
1-800-METTLER

METTLER TOLEDO



Calibration Cert # 1788.01

Mass Calibration Certificate

Customer Information

Customer Name: Stove Builder International Inc. *City:* Saint-Augustin-De-Dema
Address: 250 Rue Copenhagen *State / Province:* QC
Purchase Order: *Zip / Postal Code:* G3A 2H3

Measurement and Test Equipment Identification

Serial Number: B316238717 *Date Received:* 7/21/2016
Manufacturer: Mettler-Toledo *Condition:* Good
Asset number: SBI-237-100mg/SBI-238-10g, 200g *Tolerance Class:* OIML E2, F1, F2

Environmental Conditions

Temperature: 20.969 °C *Relative Humidity:* 47.79 %RH
Barometric Pressure: 983.68 hPa *Air Density:* 1.1602 kg/m³

The standards used to perform this calibration are traceable to NIST through METTLER TOLEDO traceability number: MT5061

This certificate is issued in accordance with the conditions granted by A2LA under Certificate number 1788.01, which is based on ISO/IEC17025. A2LA has assessed the measurement capability of the laboratory and its traceability to recognized national standards. All uncertainties in this certificate are reported at a 95% (k=2) confidence factor.

This certificate may not be partially reproduced, except with prior written permission of the issuing laboratory and A2LA.

Calibration Date: 07/25/2016

Next Calibration Due: 07/24/2018

Calibration Technician: Kathy Weatherbie

Signature:

07/25/2016

Metrology Specialist

Date

Certificate No: MT0056579

As Found Data

| Nominal Value&Suffix | Serial Number | True Mass (g) | Conv. Mass (g) | Uncertainty (mg, k = 2) | Tolerance (mg) | Density (g/cm ³) |
|----------------------|---------------|---------------|----------------|-------------------------|----------------|------------------------------|
| 200 g | (B316238717) | 200.001135 | 200.000947 | 0.036 | 3.0 | 7.95 |
| 10 g | (B316238717) | 10.0000642 | 10.0000548 | 0.0079 | 0.20 | 7.95 |
| 100 mg | (B316238717) | 0.1000001 | 0.1000000 | 0.0017 | 0.016 | 7.95 |

Certificate No: MT0056579

As Left Data

| Nominal Value&Suffix | Serial Number | True Mass (g) | Conv. Mass (g) | Uncertainty (mg, k = 2) | Tolerance (mg) | Density (g/cm ³) |
|----------------------|---------------|---------------|----------------|-------------------------|----------------|------------------------------|
| 200 g | (B316238717) | 200.001135 | 200.000947 | 0.036 | 3.0 | 7.95 |
| 10 g | (B316238717) | 10.0000642 | 10.0000548 | 0.0079 | 0.20 | 7.95 |
| 100 mg | (B316238717) | 0.1000001 | 0.1000000 | 0.0017 | 0.016 | 7.95 |

Certificate No: MT0056579

Comparators Used

| # | Equipment Used | Serial Number | Equipment Type | Calibration Due |
|-----|----------------|---------------|---------------------------|-----------------|
| #6 | : a5XL | B010016731 | Automated Mass Comparator | 06/30/2017 |
| 11# | : a200XL | B010016733 | Automated Mass Comparator | 04/30/2017 |

Comments

100 mg weight s/n B316239338 has been added to this set s/n B316238717

Definitions

Nominal Value - The value as labeled on the weight or defined by shape in accordance with OIML R111 for milligram weights. The number within the parentheses after the nominal value is the serial number of the set to which the weight belongs.

True Mass - The mass value of the weight if measured in a vacuum.

Conventional Mass - For a mass at 20 °C, "Conventional Mass" is the mass of a reference standard of density 8000 kg/m³ which it balances in air with a density of 1.2 kg/m³. This value should be referenced when testing the accuracy of a weighing device using any of the nominal values contained in this certificate. The As Found results will equal the As Left in cases where no adjustment or replacement was required.

Uncertainty - All Uncertainty values are reported at approximately 95% confidence level (k=2) . The uncertainty value does not include a component for the affects due to magnetism.

Tolerance - The acceptable range of deviation (positive and negative) from the nominal value, including the uncertainty, as defined by ASTM and OIML for the respective classes.

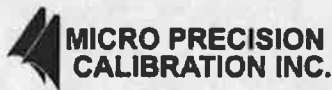
Density - The assumed density of the material used by the manufacturer.

Calibration Process - The procedures used to obtain the measurements results are based on SOPs as defined in NIST IR6969. The same process was used to obtain the As Found and As Left results.

OOT - The As Found measurement result combined with the uncertainty exceeded the tolerance for the specified weight class.

A - Weight was adjusted after As Found testing to within the appropriate tolerance class.

R - The received weight was replaced due to an out of tolerance condition and the weight was not adjustable or the weight for this nominal value was missing.



MICRO PRECISION CALIBRATION
 22835 INDUSTRIAL PLACE
 GRASS VALLEY CA 95949
 530-268-1860



Calibration Laboratory
 CERT # 935.01

Certificate of Calibration

Date: Jul 19, 2016

Cert No. 222200812427139

Customer:

STOVE BUILDERS INTERNATIONAL INC.
 PORTES 11-12
 250 DE COPENHAGUE
 SAINT-AUGUSTIN-DE-DESMAURES QC G3A 2H3

MPC Control #: DB6310
 Asset ID: SBI-240
 Gage Type: MINI-VANE ANEMOMETER
 Manufacturer: KESTREL
 Model Number: 3000
 Size: N/A
 Temp/RH: 68.0°F / 45.0%

Work Order #: SAC-70080129
 Purchase Order #: 49495
 Serial Number: 1959554
 Department: N/A
 Performed By: BARRY MORRIS
 Received Condition: IN TOLERANCE
 Returned Condition: IN TOLERANCE
 Cal. Date: July 15, 2016
 Cal. Interval: 12 MONTHS
 Cal. Due Date: July 15, 2017

Calibration Notes:

Test Points

| Seq. | Description | Standard | Tolerance - | Tolerance + | As Found | As Left | UOM | Result | Uncertainty |
|------|--------------------|----------|-------------|-------------|----------|---------|--------|--------|-------------|
| 1 | Velocity: | 500 | 485 | 515 | 498 | 498 | ft/min | Passed | 15 |
| 2 | | 1,000 | 970 | 1030 | 995 | 995 | ft/min | Passed | 29 |
| 3 | | 3,000 | 2910 | 3090 | 2,994 | 2,994 | ft/min | Passed | 87 |
| 4 | | 6,000 | 5820 | 6180 | 5,981 | 5,981 | ft/min | Passed | 120 |
| 5 | Temperature: | 21.0 | 20.0 | 22.0 | 21.0 | 21.0 | Deg C | Passed | 0.1 |
| 6 | Relative Humidity: | 45.0 | 43.6 | 46.3 | 45.2 | 45.2 | RH% | Passed | 0.65 |

Standards Used to Calibrate Equipment

| I.D. | Description. | Model | Serial | Manufacturer | Cal. Due Date | Traceability # |
|--------|-----------------------------|---------|---------|-------------------------|---------------|------------------|
| CJ5100 | WIND TUNNEL WITH CONTROLLER | JS-500 | 375/305 | INTERACTIVE INSTRUMENTS | Oct 29, 2016 | 2222008122715516 |
| AE2821 | ANEMOMETER | AM-4822 | N272316 | LANDTEK | Oct 29, 2016 | 2222008122715506 |

Calibrating Technician:

Barry Morris

BARRY MORRIS

QC Approval:

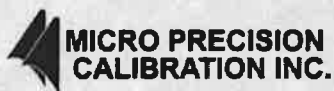
Brian Gold

Brian Gold

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA's Publication and NIST Technical Note 1297, 1994 Edition. Services rendered comply with ISO 17025:2005, ANSI/NCCL Z540-1, MPC Quality Manual, MPC CSD and with customer purchase order instructions.

Calibration cycles and resulting due dates were submitted/approved by the customer. Any number of factors may cause an instrument to drift out of tolerance before the next scheduled calibration. Recalibration cycles should be based on frequency of use, environmental conditions and customer's established systematic accuracy. The information on this report, pertains only to the instrument identified.

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MICRO PRECISION CALIBRATION
 22835 INDUSTRIAL PLACE
 GRASS VALLEY CA 95949
 530-268-1860



Calibration Laboratory
 CERT # 935.01

Certificate of Calibration

Date: Jul 19, 2016

Cert No. 222200812427139

Procedures Used in this Event

Procedure Name

Description

MPC-00182

Air Velocity, Temperature and Flow Meters, General, 9-9-2015 rev01

Calibrating Technician:

Barry Morris

BARRY MORRIS

QC Approval:

Brian Gold

Brian Gold

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA's Publication and NIST Technical Note 1297, 1994 Edition. Services rendered comply with ISO 17025:2005, ANSI/NCCL Z540-1, MPC Quality Manual, MPC CSD and with customer purchase order instructions.

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Report of Calibration

As Found / As Left



Procedure: Dwyer MS-121-LCD 0 to 0.1;0.25 inH2O/7520lp 8845A: Rev.1.0.A

Page 1 of 3

UUT

Made by: Dwyer
Model: MS-121-LCD
Serial No.: E51U01003612
ID No.: SBI-253
Description: Digital Pressure Gauge

Calibration

Report No.: AC16031301-E51U01003612
Adjusted: No
Condition: In Tolerance
Calibration Date: 18-Mar-2016
Calibration Due: 18-Mar-2017

Customer

STOVE BUILDER INTERNATIONAL INC.
250 RUE DE COPENHAGUE
ST-AUSTIN-DE-DESMAURES, QC
G3A 2H3

Environment

Temperature: 20.9°C
Humidity: 29%RH

STATEMENT OF UNCERTAINTY: The reported expanded uncertainty of measurement is stated as the standard measurement uncertainty multiplied by the coverage factor $K = 2$, which for a normal distribution corresponds to a coverage probability of approximately 95 percent. Alpha Controls & Instrumentation Inc. certifies this instrument was calibrated on the date shown using standards traceable to NIST/NRC or accepted intrinsic standards and in compliance with ISO/IEC-17025:2005 and ANSI/NCSL Z540-1.

Any statement of compliance is made without taking measurement uncertainty into account and is based on UUT performance against required tolerance only. The customer must ensure equipment calibrated meets the intended use.

Tolerance is based on manufacturer specification if not stated otherwise. Calibration results relate to items calibrated only.

This report shall not be reproduced except in full without written approval of Alpha Controls and Instrumentation Inc.

STANDARDS

| Instrument | Model | ID No./Serial No. | Traceability No. | Recall Date |
|-------------------------|--------------|-------------------|-----------------------|-------------|
| Low Pressure Calibrator | Ruska 7250LP | PRE-CAL-06 | 1500188474/1500188475 | 29-Sep-2016 |
| Multimeter | Fluke 8845A | ELC-MTR-04 | AC15121397-9366020 | 13-Jan-2017 |

REMARKS:

Calibrated in vertical position.

Performed by:

Tony Wheaton
Tony Wheaton

Reviewed by:

Slava Pecurov
Slava Pecurov

Quality Management System is assessed and registered by Intertek as conforming to the requirements of ISO9001:2008

Alpha Controls & Instrumentation Inc., Suite 6, 361 Steelcase Road West, Markham, Ontario L3R 3V8

www.alphacontrols.com

(800) 567-8686



Report of Calibration

As Found / As Left



Procedure: Dwyer MS-121-LCD 0 to 0.1;0.25 inH2O/7520lp 8845A: Rev.1.0.A

Page 2 of 3

| | | | |
|--------------|------------------------|--------------------|-------------------------|
| UUT | | Calibration | |
| Made by: | Dwyer | Report No.: | AC16031301-E51U01003612 |
| Model: | MS-121-LCD | Adjusted: | No |
| Serial No.: | E51U01003612 | Condition: | In Tolerance |
| ID No.: | SBI-253 | Calibration Date: | 18-Mar-2016 |
| Description: | Digital Pressure Gauge | Calibration Due: | 18-Mar-2017 |

| Test Description | STD | UUT | Error | Tolerance | Units | P/F | Uncertainty |
|---------------------------|--------|--------|---------|-----------|-------|------|-------------|
| Range: 0 to 0.1 inH2O | | | | | | | |
| Output signal: 4 to 20 mA | | | | | | | |
| PRESSURE TEST | | | | | | | |
| Display Reading | | 0.0000 | | | | | |
| Output @ 0.0000 inH2O, mA | | 3.998 | | | | | |
| 0.000 inH2O | 0.0000 | 0.0000 | 0.0000 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0244 | | | | | |
| Output @ 0.025 inH2O, mA | | 7.894 | | | | | |
| 0.025 inH2O | 0.0250 | 0.0243 | -0.0007 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0488 | | | | | |
| Output @ 0.050 inH2O, mA | | 11.803 | | | | | |
| 0.050 inH2O | 0.0500 | 0.0488 | -0.0012 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0737 | | | | | |
| Output @ 0.075 inH2O, mA | | 15.802 | | | | | |
| 0.075 inH2O | 0.0750 | 0.0738 | -0.0012 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0991 | | | | | |
| Output @ 0.100 inH2O, mA | | 19.905 | | | | | |
| 0.100 inH2O | 0.1000 | 0.0994 | -0.0006 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0735 | | | | | |
| Output @ 0.075 inH2O, mA | | 15.755 | | | | | |
| 0.075 inH2O | 0.0750 | 0.0735 | -0.0015 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0491 | | | | | |
| Output @ 0.050 inH2O, mA | | 11.891 | | | | | |
| 0.050 inH2O | 0.0500 | 0.0493 | -0.0007 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0247 | | | | | |
| Output @ 0.025 inH2O, mA | | 7.947 | | | | | |
| 0.025 inH2O | 0.0250 | 0.0247 | -0.0003 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0000 | | | | | |
| Output @ 0.0000 inH2O, mA | | 3.999 | | | | | |
| 0.000 inH2O | 0.0000 | 0.0000 | 0.0000 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Range: 0 to 0.25 inH2O | | | | | | | |
| Output signal: 4 to 20 mA | | | | | | | |
| PRESSURE TEST | | | | | | | |
| Display Reading | | 0.0002 | | | | | |
| Output @ 0.0000 inH2O, mA | | 3.999 | | | | | |
| 0.0000 inH2O | 0.0000 | 0.0000 | 0.0000 | ±0.0025 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0620 | | | | | |
| Output @ 0.0625 inH2O, mA | | 7.964 | | | | | |
| 0.0625 inH2O | 0.0625 | 0.0619 | -0.0006 | ±0.0025 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.1243 | | | | | |
| Output @ 0.1250 inH2O, mA | | 11.942 | | | | | |
| 0.1250 inH2O | 0.1250 | 0.1241 | -0.0009 | ±0.0025 | inH2O | Pass | 1.5e-04 |

Quality Management System is assessed and registered by Intertek as conforming to the requirements of ISO9001:2008



Report of Calibration

As Found / As Left



Procedure: Dwyer MS-121-LCD 0 to 0.1;0.25 inH2O/7520lp 8845A: Rev.1.0.A

Page 3 of 3

UUT

Made by: Dwyer
 Model: MS-121-LCD
 Serial No.: E51U01003612
 ID No.: SBI-253
 Description: Digital Pressure Gauge

Calibration

Report No.: AC16031301-E51U01003612
 Adjusted: No
 Condition: In Tolerance
 Calibration Date: 18-Mar-2016
 Calibration Due: 18-Mar-2017

| <u>Test Description</u> | <u>STD</u> | <u>UUT</u> | <u>Error</u> | <u>Tolerance</u> | <u>Units</u> | <u>P/F</u> | <u>Uncertainty</u> |
|---------------------------|------------|------------|--------------|------------------|--------------|------------|--------------------|
| Display Reading | | 0.1860 | | | | | |
| Output @ 0.1875 inH2O, mA | | 15.906 | | | | | |
| 0.1875 inH2O | 0.1875 | 0.1860 | -0.0015 | ±0.0025 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.2490 | | | | | |
| Output @ 0.2500 inH2O, mA | | 19.940 | | | | | |
| 0.2500 inH2O | 0.2500 | 0.2491 | -0.0009 | ±0.0025 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.1868 | | | | | |
| Output @ 0.1875 inH2O, mA | | 15.959 | | | | | |
| 0.1875 inH2O | 0.1875 | 0.1869 | -0.0006 | ±0.0025 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.1245 | | | | | |
| Output @ 0.1250 inH2O, mA | | 11.960 | | | | | |
| 0.1250 inH2O | 0.1250 | 0.1244 | -0.0006 | ±0.0025 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0618 | | | | | |
| Output @ 0.0625 inH2O, mA | | 7.943 | | | | | |
| 0.0625 inH2O | 0.0625 | 0.0616 | -0.0009 | ±0.0025 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0000 | | | | | |
| Output @ 0.0000 inH2O, mA | | 3.998 | | | | | |
| 0.0000 inH2O | 0.0000 | 0.0000 | 0.0000 | ±0.0025 | inH2O | Pass | 1.5e-04 |

END OF REPORT



Report of Calibration

As Left



Procedure: Dwyer MS-121-LCD 0 to 0.1;0.25 inH2O/7520lp 8845A: Rev. 1.0.A

Page 1 of 3

UUT

Made by: Dwyer
Model: MS-121-LCD
Serial No.: E52U01007512
ID No.: SBI-254
Description: Digital Pressure Gauge

Calibration

Report No.: AC16031712-E52U01007512
Adjusted: Yes
Condition: In Tolerance
Calibration Date: 7-Apr-2016
Calibration Due: 7-Apr-2017

Customer

STOVE BUILDER INTERNATIONAL INC.
250 RUE DE COPENHAGUE
ST-AUSTIN-DE-DESMAURES, QC
G3A 2H3

Environment

Temperature: 24.0°C
Humidity: 26%RH

STATEMENT OF UNCERTAINTY: The reported expanded uncertainty of measurement is stated as the standard measurement uncertainty multiplied by the coverage factor $K = 2$, which for a normal distribution corresponds to a coverage probability of approximately 95 percent. Alpha Controls & Instrumentation Inc. certifies this instrument was calibrated on the date shown using standards traceable to NIST/NRC or accepted intrinsic standards and in compliance with ISO/IEC-17025:2005 and ANSI/NCSL Z540-1.

Any statement of compliance is made without taking measurement uncertainty into account and is based on UUT performance against required tolerance only. The customer must ensure equipment calibrated meets the intended use.

Tolerance is based on manufacturer specification if not stated otherwise. Calibration results relate to items calibrated only.

This report shall not be reproduced except in full without written approval of Alpha Controls and Instrumentation Inc.

STANDARDS

| Instrument | Model | ID No./Serial No. | Traceability No. | Recall Date |
|-------------------------|--------------|-------------------|-----------------------|-------------|
| Low Pressure Calibrator | Ruska 7250LP | PRE-CAL-06 | 1500188474/1500188475 | 29-Sep-2016 |
| Multimeter | Fluke 8845A | ELC-MTR-04 | AC15121397-9366020 | 13-Jan-2017 |

REMARKS:

Adjusted through cal menu on the unit.

Calibrated in vertical position.

Performed by:

Alex Radomishelsky

Reviewed by:

Slava Peciurov

Quality Management System is assessed and registered by Intertek as conforming to the requirements of ISO9001:2008

Alpha Controls & Instrumentation Inc., Suite 6, 361 Steelcase Road West, Markham, Ontario L3R 3V8

www.alphacontrols.com

(800) 567-8686



Report of Calibration

As Left



Procedure: Dwyer MS-121-LCD 0 to 0.1;0.25 inH2O/7520lp 8845A: Rev. 1.0.A

Page 2 of 3

| | | | |
|-------------------|------------------------|---------------------------|-------------------------|
| <u>UUT</u> | | <u>Calibration</u> | |
| Made by: | Dwyer | Report No.: | AC16031712-E52U01007512 |
| Model: | MS-121-LCD | Adjusted: | Yes |
| Serial No.: | E52U01007512 | Condition: | In Tolerance |
| ID No.: | SBI-254 | Calibration Date: | 7-Apr-2016 |
| Description: | Digital Pressure Gauge | Calibration Due: | 7-Apr-2017 |

| <u>Test Description</u> | <u>STD</u> | <u>UUT</u> | <u>Error</u> | <u>Tolerance</u> | <u>Units</u> | <u>P/F</u> | <u>Uncertainty</u> |
|---------------------------|------------|------------|--------------|------------------|--------------|------------|--------------------|
| Range: 0 to 0.1 inH2O | | | | | | | |
| Output signal: 4 to 20 mA | | | | | | | |
| PRESSURE TEST | | | | | | | |
| Display Reading | | 0.0002 | | | | | |
| Output @ 0.0000 inH2O, mA | | 4.014 | | | | | |
| 0.000 inH2O | 0.0000 | 0.0001 | 0.0001 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0254 | | | | | |
| Output @ 0.025 inH2O, mA | | 8.072 | | | | | |
| 0.025 inH2O | 0.0250 | 0.0255 | 0.0005 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.05 | | | | | |
| Output @ 0.050 inH2O, mA | | 12.004 | | | | | |
| 0.050 inH2O | 0.0500 | 0.0500 | 0.0000 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0752 | | | | | |
| Output @ 0.075 inH2O, mA | | 16.024 | | | | | |
| 0.075 inH2O | 0.0750 | 0.0752 | 0.0002 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.1001 | | | | | |
| Output @ 0.100 inH2O, mA | | 19.991 | | | | | |
| 0.100 inH2O | 0.1000 | 0.0999 | -0.0001 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0752 | | | | | |
| Output @ 0.075 inH2O, mA | | 16.022 | | | | | |
| 0.075 inH2O | 0.0750 | 0.0751 | 0.0001 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.51 | | | | | |
| Output @ 0.050 inH2O, mA | | 12.159 | | | | | |
| 0.050 inH2O | 0.0500 | 0.0510 | 0.0010 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0256 | | | | | |
| Output @ 0.025 inH2O, mA | | 8.142 | | | | | |
| 0.025 inH2O | 0.0250 | 0.0259 | 0.0009 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0000 | | | | | |
| Output @ 0.0000 inH2O, mA | | 4.027 | | | | | |
| 0.000 inH2O | 0.0000 | 0.0002 | 0.0002 | ±0.0020 | inH2O | Pass | 1.5e-04 |
| Range: 0 to 0.25 inH2O | | | | | | | |
| Output signal: 4 to 20 mA | | | | | | | |
| PRESSURE TEST | | | | | | | |
| Display Reading | | 0.0000 | | | | | |
| Output @ 0.0000 inH2O, mA | | 4.015 | | | | | |
| 0.0000 inH2O | 0.0000 | 0.0002 | 0.0002 | ±0.0025 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.0625 | | | | | |
| Output @ 0.0625 inH2O, mA | | 8.003 | | | | | |
| 0.0625 inH2O | 0.0625 | 0.0625 | 0.0000 | ±0.0025 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.125 | | | | | |
| Output @ 0.1250 inH2O, mA | | 12.003 | | | | | |
| 0.1250 inH2O | 0.1250 | 0.1250 | 0.0000 | ±0.0025 | inH2O | Pass | 1.5e-04 |

Quality Management System is assessed and registered by Intertek as conforming to the requirements of ISO9001:2008



Report of Calibration

As Left



Procedure: Dwyer MS-121-LCD 0 to 0.1;0.25 inH2O/7520lp 8845A: Rev. 1.0.A

Page 3 of 3

UUT

Made by: Dwyer
 Model: MS-121-LCD
 Serial No.: E52U01007512
 ID No.: SBI-254
 Description: Digital Pressure Gauge

Calibration

Report No.: AC16031712-E52U01007512
 Adjusted: Yes
 Condition: In Tolerance
 Calibration Date: 7-Apr-2016
 Calibration Due: 7-Apr-2017

| <u>Test Description</u> | <u>STD</u> | <u>UUT</u> | <u>Error</u> | <u>Tolerance</u> | <u>Units</u> | <u>P/E</u> | <u>Uncertainty</u> |
|---------------------------|------------|------------|--------------|------------------|--------------|------------|--------------------|
| Display Reading | | 0.187 | | | | | |
| Output @ 0.1875 inH2O, mA | | 15.971 | | | | | |
| 0.1875 inH2O | 0.1875 | 0.1870 | -0.0005 | ±0.0025 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.2502 | | | | | |
| Output @ 0.2500 inH2O, mA | | 20.009 | | | | | |
| 0.2500 inH2O | 0.2500 | 0.2501 | 0.0001 | ±0.0025 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.1875 | | | | | |
| Output @ 0.1875 inH2O, mA | | 16.004 | | | | | |
| 0.1875 inH2O | 0.1875 | 0.1876 | 0.0001 | ±0.0025 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.1252 | | | | | |
| Output @ 0.1250 inH2O, mA | | 12.037 | | | | | |
| 0.1250 inH2O | 0.1250 | 0.1256 | 0.0006 | ±0.0025 | inH2O | Pass | 1.5e-04 |
| Display Reading | | 0.063 | | | | | |
| Output @ 0.0625 inH2O, mA | | 8.002 | | | | | |
| 0.0625 inH2O | 0.0625 | 0.0625 | 0.0000 | ±0.0025 | inH2O | Pass | 1.5e-04 |
| Display Reading | | -0.0005 | | | | | |
| Output @ 0.0000 inH2O, mA | | 3.979 | | | | | |
| 0.0000 inH2O | 0.0000 | -0.0003 | -0.0003 | ±0.0025 | inH2O | Pass | 1.5e-04 |

END OF REPORT



**Mesures
Canada**

**Measurement
Canada**

Un organisme
d'Industrie Canada

An Agency of
Industry Canada

District de Québec
1550, avenue d'Estimauville
Québec, Québec, G1J 0C4

| | | |
|---|------------------------------------|--|
| Numéro du jeu de poids Q1 | Émis le (AAAA-MM-JJ) 2015-06-01 | Date d'expiration (AAAA-MM-JJ) 2016-06-01 |
| Propriétaire Mettler Toledo Inc. | | |
| Adresse 2345 rue Watt, Porte #15B, Québec, Québec G1P 3X2 | | |
| Personne ressource Sylvain Doyon | | Numéro de téléphone 581-742-3483 |

CERTIFICAT DE DÉSIGNATION

Étalons gravimétriques

Je soussigné(e), étant autorisé(e) par le ministre d'Industrie à exercer les pouvoirs du ministre d'Industrie conformément à l'article 13 (1) de la *Loi sur les poids et mesures*,

- certifie par la présente que l'étalon ou jeu d'étalons a été étalonné conformément à la Partie III du Règlement sur les poids et mesures et par rapport à un étalon de référence traçable aux étalons nationaux de mesure du Canada par une chaîne ininterrompue de comparaisons où les étalons nationaux de mesure sont maintenus par le Conseil national de recherches du Canada, et
- désigne ledit étalon ou jeu d'étalons décrits ci-dessous à titre d'étalon(s) local(aux):

| Numéro d'identification | Valeur Nominale | Numéro d'identification | Valeur Nominale | Numéro d'identification | Valeur Nominale | Numéro d'identification | Valeur Nominale |
|-------------------------|-----------------|-------------------------|-----------------|-------------------------|-----------------|-------------------------|-----------------|
| Q1-101 | 20 kg | Q1-102 | 20 kg | Q1-103 | 20 kg | Q1-104 | 20 kg |
| Q1-105 | 20 kg | Q1-106 | 20 kg | Q1-107 | 20 kg | Q1-108 | 20 kg |
| Q1-109 | 20 kg | Q1-110 | 20 kg | Q1-111 | 20 kg | Q1-112 | 20 kg |
| Q1-113 | 20 kg | Q1-114 | 20 kg | Q1-115 | 20 kg | Q1-116 | 20 kg |
| Q1-117 | 20 kg | Q1-118 | 20 kg | Q1-119 | 20 kg | Q1-120 | 20 kg |
| Q1-121 | 20 kg | Q1-122 | 20 kg | Q1-123 | 20 kg | Q1-124 | 20 kg |
| Q1-125 | 20 kg | Q1-126 | 20 kg | Q1-127 | 20 kg | Q1-128 | 20 kg |
| Q1-129 | 20 kg | Q1-130 | 20 kg | Q1-131 | 20 kg | Q1-132 | 20 kg |
| Q1-133 | 20 kg | Q1-134 | 20 kg | Q1-135 | 20 kg | Q1-136 | 20 kg |
| Q1-137 | 20 kg | Q1-138 | 20 kg | Q1-139 | 20 kg | Q1-140 | 20 kg |
| Q1-141 | 20 kg | Q1-142 | 20 kg | Q1-143 | 20 kg | Q1-144 | 20 kg |
| Q1-145 | 20 kg | Q1-146 | 20 kg | Q1-147 | 20 kg | Q1-148 | 20 kg |
| Q1-149 | 20 kg | Q1-150 | 20 kg | | | | |

| | | | |
|-------------------------------------|---|---|--|
| District District de Québec (28) | Certifié par Benoit Coutu-Castonguay Numéro du certificat d'étalonnage 1415126 | Désigné par : (Lettres moulées) Guy Tessier (Signature)  | Titre du poste Gestionnaire de district / District manager |
|-------------------------------------|---|---|--|

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Measurement Canada
Mesures Canada

DEVICE INSPECTION
CERTIFICATE

CERTIFICAT D'INSPECTION
D'INSTRUMENT

1415126

An Agency of Industry Canada
Un organisme d'Industrie Canada

1415126

Establishment Name - Nom de l'entreprise: **METTLER-TOLEDO INC.**
 Address - Adresse: **2345 RUE WATT, PARTIE # 15B**
 Postal Code - Code postal: **G1P 3K2** Telephone - N° de telephone: **581-742-3483**
 Place - Endroit: **Quebec** District: **28** Zone: **Quebec**
 Establishment Code - Code de detaillement: **2046881**

| Com. Line No. N° Ligne com. | Cartridge Enregistreur | Comments - Commentaires | All Devices inspected Instruments tous inspectes | Types Fully Inspected Types tous inspectes | Approval # | Device | | Product Code de produit | Inspection Type Type d'inspec. | Project # N° du projet | As Found Tel que trouve | Result Résultat | Trade Sector Secteur commercial | Should be Devrait être recevutle avant Y-A | Equipment Used Équipement utilise | Com. Line No. N° ligne com. |
|--------------------------------|---------------------------|------------------------------|---|---|------------|--------------------|-----------------------|-------------------------|-----------------------------------|---------------------------|----------------------------|--------------------|------------------------------------|---|--|--------------------------------------|
| | | | | | | Instrument Type | Sub-type Sous-type | | | | | | | | | |
| 1 | | M32M | <input type="checkbox"/> | | | | SI 20 | 1 | 502 | - | - | V | 9001 | - | M32M | 1 |
| 1 | | SENSIBILITE RECIPIEQUEE 10mg | <input type="checkbox"/> | | | | | | | | | | | | | |
| 1 | | BALANCE # 826453 | <input type="checkbox"/> | | | | | | | | | | | | | |
| | | | <input type="checkbox"/> | | | | | | | | | | | | | |
| | | | <input type="checkbox"/> | | | | | | | | | | | | | |
| | | | <input type="checkbox"/> | | | | | | | | | | | | | |
| | | TOTAL | | | | | | | | | | | | | | |

Inspector's Time
Temps de l'inspecteur
h at \$
h at \$
km at \$
/km

Other charges
Autres frais
Sub-Total
Sous-total
GST - TPS
PST - TVP
TOTAL

Federal Government GST Registration Number
N° d'enregistrement TPS du gouvernement fédéral
R121491807

Trader's Signature - Signature du commerçant
I certify that the above devices have been inspected
Je certifie que les instruments ci-dessus ont été inspectés
Date
Y-A M D-J
2843 20150601

Date
Y-A M D-J

METTLER TOLEDO
 1900 Polaris Pkwy
 Coumbus, OH 43240
 1-800-METTLER



METTLER TOLEDO

Certificate No: MT00957
Serial Number : 493
Date Issued 02/24/2014
Next Calibration Due : 02/28/2015
Calibrated by : MTNA
Traceability Number : MT5061

Authorized Signature:

Anna J. Anderson

METTLER TOLEDO
 1900 Polaris Pkwy
 Coumbus, OH 43240
 1-800-METTLER



METTLER TOLEDO

Certificate No: MT00997
Serial Number : 142
Date Issued 05/07/2014
Next Calibration Due : 04/30/2016
Calibrated by : MTNA
Traceability Number : MT5061

Authorized Signature:

Anna J. Anderson

| Nominal Value&Suffix | Serial Number | Conv. Mass (g) | Uncertainty (mg, k = 2) |
|----------------------|---------------|----------------|-------------------------|
| 1 mg | (493) | 0.0010001 | 0.0011 |
| 2 mg | (493) | 0.0019982 | 0.0011 |
| 2 mg * | (493) | 0.0019993 | 0.0011 |
| 5 mg | (493) | 0.0050010 | 0.0011 |
| 10 mg | (493) | 0.0099991 | 0.0011 |
| 20 mg | (493) | 0.0200003 | 0.0011 |
| 20 mg * | (493) | 0.0199985 | 0.0011 |
| 50 mg | (493) | 0.0499994 | 0.0013 |
| 100 mg | (493) | 0.1000019 | 0.0017 |
| 200 mg | (493) | 0.2000086 | 0.0021 |
| 200 mg * | (493) | 0.2000043 | 0.0021 |
| 500 mg | (493) | 0.5000039 | 0.0025 |
| 1 g | (493) | 1.0000090 | 0.0030 |
| 2 g | (493) | 2.0000015 | 0.0040 |
| 2 g * | (493) | 2.0000063 | 0.0040 |
| 5 g | (493) | 5.0000116 | 0.0050 |
| 10 g | (493) | 10.0000060 | 0.0078 |
| 20 g | (493) | 20.0000268 | 0.0094 |
| 20 g * | (493) | 20.0000273 | 0.0094 |
| 50 g | (493) | 50.000062 | 0.012 |
| 100 g | (493) | 100.000069 | 0.019 |
| 200 g | (493) | 200.000063 | 0.030 |
| 200 g * | (493) | 200.000087 | 0.030 |

| Nominal Value&Suffix | Serial Number | Conv. Mass (g) | Uncertainty (mg, k = 2) |
|----------------------|---------------|----------------|-------------------------|
| 1 g 2 | (142) | 0.9999752 | 0.0030 |
| 2 g | (142) | 1.9999811 | 0.0040 |
| 2 g * | (142) | 1.9999735 | 0.0040 |
| 5 g | (142) | 4.9999845 | 0.0050 |
| 10 g | (142) | 9.9999710 | 0.0078 |
| 20 g | (142) | 19.9999618 | 0.0094 |
| 20 g * | (142) | 19.9999623 | 0.0094 |
| 50 g | (142) | 50.000042 | 0.012 |
| 100 g | (142) | 99.999930 | 0.019 |
| 200 g | (142) | 200.000133 | 0.036 |
| 200 g * | (142) | 200.000266 | 0.036 |
| 500 g | (142) | 500.000215 | 0.084 |
| 1 kg | (142) | 1000.00101 | 0.16 |
| 1 kg * | (142) | 1000.00259 | 0.20 |
| 2 kg | (142) | 2000.00798 | 0.51 |
| 2 kg * | (142) | 2000.00398 | 0.51 |
| 5 kg 1 | (142) | 5000.0171 | 2.2 |
| 5 kg 2 | (142) | 5000.0111 | 2.2 |
| 5 kg 3 | (142) | 5000.0111 | 2.2 |
| 5 kg 4 | (142) | 5000.0131 | 2.2 |
| 5 kg 5 | (142) | 5000.0151 | 2.2 |
| 5 kg 6 | (142) | 5000.0091 | 2.2 |

Date: 1-Nov-2016 Page of
 Manufacturer: SBI Model: Eco-55
 Project #: Run: 1 Tech: Reviewer:

CONTINUOUS ANALYZERS

Pre-Test (Adjust and Record)

| | ZERO | | SPAN | | CAL. (Record Only) | |
|-----------------|--------|-----------|----------------------|-----------|--------------------|-----------|
| | Actual | Should Be | Actual | Should Be | Actual | Should Be |
| CO | 0 | 0 | 7575 ppm 7700 ppm | 7700 ppm | 624 ppm | 608 ppm |
| CO ₂ | 0 | 0 | 39.3 | 39.4 | 7.79 | 8.00 |
| O ₂ | 0 | 0 | 20.87 % | 20.95 % | 3.88 | 3.85 |

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Post Test (Record Only)

| | Zero | Span | Cal. | Zero Drift | Span Drift | Cal. Drift | OK? | Not OK* |
|-----------------|------|-------|------|------------|------------|------------|-----|---------|
| CO | 0 | 7588 | 615 | | | | | |
| CO ₂ | 0.02 | 40.4 | 7.90 | | | | | |
| O ₂ | 0 | 21.01 | 3.87 | | | | | |

- Greater than 5% of the range used.

CERTIFICAT D'ANALYSE

MONTREAL SPECIALTY GAS PLANT
11201 RAY LAWSON
MONTREAL QC
H1J 1M6

Client: QUEBEC
2230 BOUL. CHAREST O. STE-FOY
QUEBEC QUEBEC
G1N 2G3 CANADA

Date d'analyse: 03/05/2016
Code de produit: SPG-2MX0014570
Qualité: CERTIFIE
Taille: 7AL
Raccord de sortie du robinet: CGA 350

No de série: SG-130251-A
No d'ordre de fabrication: 16-SGM-1718
Pression: 13500 kPa (15°C)
2000 psi (21°C)
Volume: 807,0 L
Date d'expiration: 03/05/2019

| COMPOSANTS | CONCENTRATION NOMINALE | RÉSULTAT D'ANALYSE |
|---------------------|------------------------|--------------------|
| MONOXYDE DE CARBONE | 0,8 % molaire | 0,770 % molaire |
| AZOTE | BALANCE | BALANCE |

Analyse réalisée par:


FREDERIC GAGNON B.Sc.

MÉTHODE D'ANALYSE:

La méthode d'analyse est basée sur le principe de la chromatographie en phase gazeuse comme décrit dans les Instructions d'Opérations de Air Liquide Canada. Selon les besoins, on choisit préférentiellement un détecteur FID ou TCD avec une colonne capillaire ou une colonne remplie.

PRÉCISION ANALYTIQUE:

Les spécifications pour les concentrations rapportées sont: +/- 2% pour les constituants en concentration supérieure à 0.5% et +/- 5% pour les constituants en concentration inférieure 0.5%. Sauf indication contraire, la précision d'analyse est indiquée en pourcentage du constituant. Dans certains cas, les valeurs peuvent changer en fonction de la nature, du nombre et de la concentration des constituants du mélange.

CERTIFICAT D'ANALYSE

MONTREAL SPECIALTY GAS PLANT
11201 RAY LAWSON
MONTREAL QC
H1J 1M6

Client: QUEBEC
2230 BOUL. CHAREST O. STE-FOY
QUEBEC QUEBEC
G1N 2G3 CANADA

Date d'analyse: 03/05/2016
Code de produit: SPG-2MX0024332
Qualité: CERTIFIE
Taille: 7AL
Raccord de sortie du robinet: CGA 580

No de série: SG090157A
No d'ordre de fabrication: 16-SGM-1726
Pression: 7571,5 kPa (15°C)
1121 psi (21°C)
Volume: 886,0 L
Date d'expiration: 03/05/2019

| COMPOSANTS | CONCENTRATION NOMINALE | RÉSULTAT D'ANALYSE |
|--------------------|------------------------|--------------------|
| DIOXYDE DE CARBONE | 40 % molaire | 39,4 % molaire |
| AZOTE | BALANCE | BALANCE |

Analyse réalisée par:


SAMIÀ AMRANI B.Sc.

MÉTHODE D'ANALYSE:

La méthode d'analyse est basée sur le principe de la chromatographie en phase gazeuse comme décrit dans les Instructions d'Opérations de Air Liquide Canada. Selon les besoins, on choisit préférentiellement un détecteur FID ou TCD avec une colonne capillaire ou une colonne remplie.

PRÉCISION ANALYTIQUE:

Les spécifications pour les concentrations rapportées sont: +/- 2% pour les constituants en concentration supérieure à 0,5% et +/- 5% pour les constituants en concentration inférieure 0,5%. Sauf indication contraire, la précision d'analyse est indiquée en pourcentage du constituant. Dans certains cas, les valeurs peuvent changer en fonction de la nature, du nombre et de la concentration des constituants du mélange.

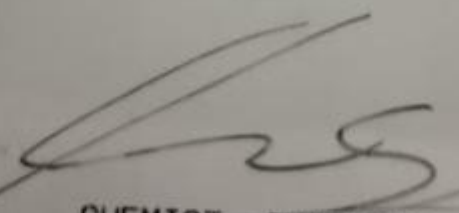


AIR LIQUIDE

#PROD : SPG-4MX0024338
DATE : 2016-05-09
#OF : 16-SGM-1724
#CYL/BOUT : SG-140111-A
VOLUME : 642 L
PRESS 15C : 10125 KPA
EXP. DATE : 2019-05-09

CERTIFIED MIXTURE
MELANGE CERTIFIE

| | |
|-----|---------|
| CO | 608 PPM |
| O2 | 3.85 % |
| CO2 | 8.00 % |
| N2 | BALANCE |


CHEMIST / CHIMISTE

MOLAR CONCENTRATION / CONCENTRATION MOLAIRE

EMPTY

VIDE

IN USE

EN SERVICE



Intertek

Control number: 4002461
March/Mars 2019

REFER TO INTERTEK'S DIRECTORY OF BUILDING PRODUCTS FOR DETAILED INFORMATION
SE RÉFÉRER AU RÉPERTOIRE DES PRODUITS HOMOLOGUÉS D'INTERTEK POUR PLUS D'INFORMATION

STANDARDS / NORMES D'ESSAI:
Certified to/Certifié selon ASTM E1509
Certified to/Certifié selon ULC S627
Certified to/Certifié selon UL 1482
Certified to/Certifié selon CSA B415.1-10
Certified to/Certifié selon ASTM E2515-11
Certified to/Certifié selon ASTM E2779-10

LISTED PELLET FUEL BURNING APPLIANCE

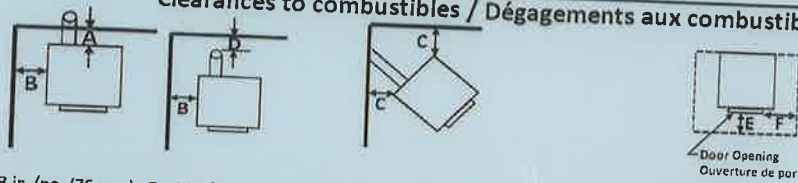
POÊLE À GRANULÉS DE BOIS HOMOLOGUÉ

**MODEL / MODÈLE :
ECO-55 CT**

Serial Number
No. de Série

1

Clearances to combustibles / Dégagements aux combustibles



A: 3 in./po. (76 mm) B: 6 in./po. (152 mm) C: 3 in./po. (76 mm)
D: See Vent manufacturer

E: 6 in./po. (152 mm) CANADA / USA
F: 6 in./po. (152 mm) CANADA / USA

Floor protection
Protection de plancher

Door Opening
Ouverture de porte

Electrical rating / Alimentation électrique: 115 V, 60 Hz, 1.16 amp.
Maximum input rating / Régime maximal: 4.7 lbs/hr

Minimum floor to ceiling distance: 48 in. (122 cm.)
Distance minimale plafond-plancher: 48 po. (122 cm.)

PREVENT HOUSE FIRES

- Install with a three (3) diameter exhaust venting system listed to UL103/ULC S629 or UL641/ULC S609.
- In case of an exhaust system passing through a combustible wall, follow manufacturer's instructions and refer to local building codes.
- Keep viewing and ash removal doors tightly closed during operation.
- Room heater, pellet fuel-burning type, also for use in mobile homes.
- Install and use only in accordance with manufacturer's instructions.
- Contact local building or fire officials about restrictions and installation inspection in your area.
- For use with premium grade wood pellets or better as determined by organizations such as Pellet Fuels Institute (PFI), Enplus and CANplus. Burning other types of pellets is not permitted. See owner's manual for more details.
- Do not connect to a chimney flue serving another appliance.
- Inspect and clean chimney frequently. Under certain conditions of use, creosote buildup may occur rapidly.
- Replace with ceramic glass only.
- The unit must be installed on a non-combustible floor pad extending at least 6 inches (152 mm) in front of the door opening and at least 6 inches (152 mm) on each side of the door opening. The floor pad must have a thickness of at least 0.015" (0.38mm). Consult owner's manual for more details.
- A source of fresh air must be provided to the room. When installed in a mobile home, air from outdoors must be provided.
- Do not obstruct combustion air opening.

PRÉVENEZ LES INCENDIES

- Installer avec un tuyau d'évacuation de trois (3) pouces homologué selon la norme UL 103/ULC S629 ou UL 641/ULC S609.
- Si le tuyau d'évacuation doit traverser un mur combustible, suivre les instructions du fabricant et se référer aux codes du bâtiment locaux.
- Garder la porte du poêle et celle du cendrier fermées pendant l'opération.
- L'unité de chauffage aux granules peut aussi être installée dans une maison mobile.
- Observer les directives du fabricant pour l'installation et l'utilisation du poêle.
- Contacter les autorités locales pour les restrictions d'installation dans votre secteur.
- Pour utilisation avec granules de bois de qualité premium ou mieux tel que déterminée par des organismes tels que Pellet Fuels Institute (PFI), Enplus ou CANplus. Brûler d'autres types de granules n'est pas permis. Voir manuel d'instruction pour plus de détails.
- Ne pas raccorder à un conduit de fumée servant déjà pour un autre appareil.
- Inspecter et nettoyer la cheminée fréquemment. Sous certaines conditions, la formation de créosote peut être rapide.
- Remplacer par un verre céramique seulement.
- L'appareil doit être installé sur une plaque incombustible qui excède le devant de l'ouverture de porte d'au moins 6 pouces (152 mm) ainsi que chaque côté de l'ouverture de porte d'au moins 6 pouces (152 mm). La plaque incombustible doit posséder une épaisseur minimale de 0.015" (0.38 mm). Consultez le manuel d'instructions pour plus de détails.
- Il doit y avoir un apport d'air frais dans la pièce. Lorsqu'installé dans une maison mobile, un apport d'air extérieur doit être installé.
- Ne pas obstruer les ouvertures d'air de combustion.
- Cet appareil de chauffage requiert des inspections et réparations périodiques. Consulter le manuel de l'utilisateur pour plus d'information. Opérer cet appareil de chauffage de façon inconsistente par rapport au manuel de l'utilisateur consiste une violation de la loi fédérale (É.-U.).



- This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against US federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

Made in St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)



Fabricant de poêles international
Stove Builder International

Fabriqué à St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)

27735



Intertek
Control number: 4002461
March/Mars 2019

REFER TO INTERTEK'S DIRECTORY OF BUILDING PRODUCTS FOR DETAILED INFORMATION
SE RÉFÉRER AU RÉPERTOIRE DES PRODUITS HOMOLOGUÉS D'INTERTEK POUR PLUS D'INFORMATION

STANDARDS / NORMES D'ESSAI:
Certified to/Certifié selon ASTM E1509
Certified to/Certifié selon ULC S627
Certified to/Certifié selon UL 1482
Certified to/Certifié selon CSA B415.1-10
Certified to/Certifié selon ASTM E2515-11
Certified to/Certifié selon ASTM E2779-10

LISTED PELLET FUEL BURNING APPLIANCE

POËLE À GRANULÉS DE BOIS HOMOLOGUÉ

**MODEL / MODÈLE :
ECO-55 CT**

Serial Number / No. de Série **1**

U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards.
AGENCE DE PROTECTION DE L'ENVIRONNEMENT DES É.U. (EPA). Conforme aux normes d'émission de particules de 2020.

Weighted average emission rate / Moyenne pondérée des émissions: 0.96 g/h



WARNING: This product can expose you to carbon monoxide, which is known to the State of California to cause cancer, birth defects or other reproductive harm.
(For more information go to www.p65warnings.ca.gov)

CAUTION

- HOT WHILE IN OPERATION.
- DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY.
- CONTACT MAY CAUSE SKIN BURNS. SEE NAME-PLATE AND INSTRUCTIONS.
- OPERATE THIS UNIT ONLY WITH THE FUEL HOPPER LID CLOSED. FAILURE TO DO SO MAY RESULT IN EMISSION OF PRODUCTS OF COMBUSTION FROM THE HOPPER UNDER CERTAIN CONDITIONS.
- DO NOT OVERFILL THE HOPPER.
- MOVING PARTS MAY CAUSE INJURY.
- HOT PARTS. DO NOT OPERATE UNIT WITH THE SIDE OR REAR PANELS REMOVED.
- MAINTAIN HOPPER SEAL IN GOOD CONDITION.



DANGER

- DISCONNECT POWER BEFORE SERVICING UNIT.
- RISK OF ELECTRICAL SHOCK.

Made in St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)

ATTENTION

- CHAUD EN FONCTIONNEMENT.
- NE PAS TOUCHER. GARDER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES ÉLOIGNÉS.
- UN CONTACT AVEC LA PEAU PEUT OCCASIONNER DES BRÛLURES. VOIR LES INSTRUCTIONS.
- OPÉRER CET APPAREIL SEULEMENT AVEC LE COUVERCLE DE LA TRÉMIE FERMÉ. DES ÉMISSIONS DE COMBUSTION PEUVENT SE PROPAGER PAR LA TRÉMIE SOUS CERTAINES CONDITIONS.
- NE PAS SURCHARGER LA TRÉMIE.
- DES PIÈCES EN MOUVEMENT PEUVENT CAUSER DES BLESSURES.
- PIÈCES CHAUDES. NE PAS UTILISER SI LES PANNEAUX DE CÔTÉS OU ARRIÈRES SONT ENLEVÉS.
- CONSERVER LE JOINT D'ÉTANCHÉITÉ DE LA TRÉMIE EN BONNES CONDITIONS.

DANGER

- DÉBRANCHER POUR L'ENTRETIEN.
- RISQUE DE CHOCS ÉLECTRIQUES.

Fabriqué à St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)



Fabricant de poêles international
Stove Builder International

27736



Intertek

Control number: 4002461
Sept. 2017

REFER TO INTERTEK'S DIRECTORY OF BUILDING PRODUCTS
FOR DETAILED INFORMATION
SE RÉFÉRER AU RÉPERTOIRE DES PRODUITS HOMOLOGUÉS
D'INTERTEK POUR PLUS D'INFORMATION

STANDARDS / NORMES D'ESSAI:
Certified to/Certifié selon ASTM E1509
Certified to/Certifié selon ULC S627
Certified to/Certifié selon UL 1482
Certified to/Certifié selon CSA B415.1-10
Certified to/Certifié selon ASTM E2515-11
Certified to/Certifié selon ASTM E2779-10

**LISTED PELLET FUEL BURNING
APPLIANCE**

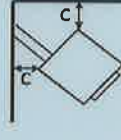
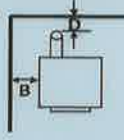
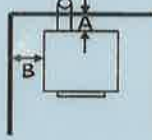
**POÊLE À GRANULÉS DE BOIS
HOMOLOGUÉ**

**MODEL / MODÈLE :
ECO-55 ST**

Serial Number
No. de Série

1

Clearances to combustibles / Dégagements aux combustibles



Floor protection
Protection de plancher

Door Opening
Ouverture de porte

A: 3 in./po. (76 mm) B: 6 in./po. (152 mm) C: 3 in./po. (76 mm)
D: See Vent manufacturer

E: 6 in./po. (152 mm) CANADA / USA
F: 6 in./po. (152 mm) CANADA / USA

Electrical rating / Alimentation électrique: 115 V, 60 Hz, 1.16 amp.
Maximum input rating / Régime maximal: 4.7 lbs/hr

Minimum floor to ceiling distance: 48 in. (122 cm.)
Distance minimale plafond-plancher: 48 po. (122 cm.)

PREVENT HOUSE FIRES

- Install with a three (3) diameter exhaust venting system listed to UL103/ULC S629 or UL641/ULC S609.
- In case of an exhaust system passing through a combustible wall, follow manufacturer's instructions and refer to local building codes.
- Keep viewing and ash removal doors tightly closed during operation.
- Room heater, pellet fuel-burning type, also for use in mobile homes.
- Install and use only in accordance with manufacturer's instructions.
- Contact local building or fire officials about restrictions and installation inspection in your area.
- For use with premium grade wood pellets or better as determined by organizations such as Pellet Fuels Institute (PFI), Enplus and CANplus. Burning other types of pellets is not permitted. See owner's manual for more details.
- Do not connect to a chimney flue serving another appliance.
- Inspect and clean chimney frequently. Under certain conditions of use, creosote buildup may occur rapidly.
- Replace with ceramic glass only.
- The unit must be installed on a non-combustible floor pad extending at least 6 inches (152 mm) in front of the door opening and at least 6 inches (152 mm) on each side of the door opening. The floor pad must have a thickness of at least 0.015" (0.38mm). Consult owner's manual for more details.
- A source of fresh air must be provided to the room. When installed in a mobile home, air from outdoors must be provided.
- Do not obstruct combustion air opening.

PRÉVENEZ LES INCENDIES

- Installer avec un tuyau d'évacuation de trois (3) pouces homologué selon la norme UL 103/ULC S629 ou UL 641/ULC S609.
- Si le tuyau d'évacuation doit traverser un mur combustible, suivre les instructions du fabricant et se référer aux codes du bâtiment locaux.
- Garder la porte du poêle et celle du cendrier fermées pendant l'opération.
- L'unité de chauffage aux granulés peut aussi être installée dans une maison mobile.
- Observer les directives du fabricant pour l'installation et l'utilisation du poêle.
- Contacter les autorités locales pour les restrictions d'installation dans votre secteur.
- Pour utilisation avec granulés de bois de qualité premium ou mieux tel que déterminée par des organismes tels que Pellet Fuels Institute (PFI), Enplus ou CANplus. Brûler d'autres types de granulés n'est pas permis. Voir manuel d'instruction pour plus de détails.
- Ne pas raccorder à un conduit de fumée servant déjà pour un autre appareil.
- Inspecter et nettoyer la cheminée fréquemment. Sous certaines conditions, la formation de créosote peut être rapide.
- Remplacer par un verre céramique seulement.
- L'appareil doit être installé sur une plaque incombustible qui excède le devant de l'ouverture de porte d'au moins 6 pouces (152 mm) ainsi que chaque côté de l'ouverture de porte d'au moins 6 pouces (152 mm). La plaque incombustible doit posséder une épaisseur minimale de 0.015" (0.38 mm). Consultez le manuel d'instructions pour plus de détails.
- Il doit y avoir un apport d'air frais dans la pièce. Lorsqu'installé dans une maison mobile, un apport d'air extérieur doit être installé.
- Ne pas obstruer les ouvertures d'air de combustion.
- Cet appareil de chauffage requiert des inspections et réparations périodiques. Consulter le manuel de l'utilisateur pour plus d'information. Opérer cet appareil de chauffage de façon inconsistente par rapport au manuel de l'utilisateur consiste une violation de la loi fédérale (É.-U.).



- This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against US federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

Made in St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)



Fabriqué à St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)

Fabricant de poêles international
Stove Builder International

27695



Intertek

Control number: 4002461
Sept. 2017

REFER TO INTERTEK'S DIRECTORY OF BUILDING PRODUCTS
FOR DETAILED INFORMATION
SE RÉFÉRER AU RÉPERTOIRE DES PRODUITS HOMOLOGUÉS
D'INTERTEK POUR PLUS D'INFORMATION

STANDARDS / NORMES D'ESSAI:
Certified to/Certifié selon ASTM E1509
Certified to/Certifié selon ULC 5627
Certified to/Certifié selon UL 1482
Certified to/Certifié selon CSA B415.1-10
Certified to/Certifié selon ASTM E2515-11
Certified to/Certifié selon ASTM E2779-10

**LISTED PELLET FUEL BURNING
APPLIANCE**

**POÊLE À GRANULÉS DE BOIS
HOMOLOGUÉ**

**MODEL / MODÈLE :
ECO-55 ST**

Serial Number
No. de Série

1

U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards.
AGENCE DE PROTECTION DE L'ENVIRONNEMENT DES É.U. (EPA). Conforme aux normes d'émission de particules de
2020.

Weighted average emission rate / Moyenne pondérée des émissions: 0.96 g/h



WARNING: This product can expose you to carbon monoxide, which is known to the
State of California to cause cancer, birth defects or other reproductive harm.
(For more information go to www.p65warnings.ca.gov)

CAUTION

- HOT WHILE IN OPERATION.
- DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY.
- CONTACT MAY CAUSE SKIN BURNS. SEE NAME-PLATE AND INSTRUCTIONS.
- OPERATE THIS UNIT ONLY WITH THE FUEL HOPPER LID CLOSED. FAILURE TO DO SO MAY RESULT IN EMISSION OF PRODUCTS OF COMBUSTION FROM THE HOPPER UNDER CERTAIN CONDITIONS.
- DO NOT OVERFILL THE HOPPER.
- MOVING PARTS MAY CAUSE INJURY.
- HOT PARTS. DO NOT OPERATE UNIT WITH THE SIDE OR REAR PANELS REMOVED.
- MAINTAIN HOPPER SEAL IN GOOD CONDITION.



DANGER

- DISCONNECT POWER BEFORE SERVICING UNIT.
- RISK OF ELECTRICAL SHOCK.

Made in St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)

ATTENTION

- CHAUD EN FONCTIONNEMENT.
- NE PAS TOUCHER. GARDER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES ÉLOIGNÉS.
- UN CONTACT AVEC LA PEAU PEUT OCCASIONNER DES BRÛLURES. VOIR LES INSTRUCTIONS.
- OPÉRER CET APPAREIL SEULEMENT AVEC LE COUVERCLE DE LA TRÉMIE FERMÉ. DES ÉMISSIONS DE COMBUSTION PEUVENT SE PROPAGER PAR LA TRÉMIE SOUS CERTAINES CONDITIONS.
- NE PAS SURCHARGER LA TRÉMIE.
- DES PIÈCES EN MOUVEMENT PEUVENT CAUSER DES BLESSURES.
- PIÈCES CHAUDES. NE PAS UTILISER SI LES PANNEAUX DE CÔTÉS OU ARRIÈRES SONT ENLEVÉS.
- CONSERVER LE JOINT D'ÉTANCHÉITÉ DE LA TRÉMIE EN BONNES CONDITIONS.

DANGER

- DÉBRANCHER POUR L'ENTRETIEN.
- RISQUE DE CHOCS ÉLECTRIQUES.

Fabriquée à St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)



Fabricant de poêles international
Stove Builder International

27696



Intertek
Control number: 4002461
Sept. 2017

REFER TO INTERTEK'S DIRECTORY OF BUILDING PRODUCTS FOR DETAILED INFORMATION
SE RÉFÉRER AU RÉPERTOIRE DES PRODUITS HOMOLOGUÉS D'INTERTEK POUR PLUS D'INFORMATION

STANDARDS / NORMES D'ESSAI:
Certified to/Certifié selon ASTM E1509
Certified to/Certifié selon ULC S627
Certified to/Certifié selon UL 1482
Certified to/Certifié selon CSA B415.1-10
Certified to/Certifié selon ASTM E2515-11
Certified to/Certifié selon ASTM E2779-10

LISTED PELLET FUEL BURNING APPLIANCE

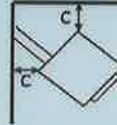
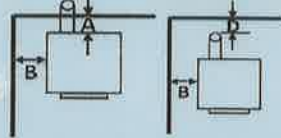
POÊLE À GRANULÉS DE BOIS HOMOLOGUÉ

**MODEL / MODÈLE :
ECO-55**

Serial Number
No. de Série

1

Clearances to combustibles / Dégagements aux combustibles



Floor protection
Protection de plancher

A: 3 in./po. (76 mm) B: 6 in./po. (152 mm) C: 3 in./po. (76 mm)
D: See Vent manufacturer

E: 6 in./po. (152 mm) CANADA / USA
F: 6 in./po. (152 mm) CANADA / USA

Electrical rating / Alimentation électrique: 115 V, 60 Hz, 1.16 amp.
Maximum input rating / Régime maximal: 4.7 lbs/hr

Minimum floor to ceiling distance: 48 in. (122 cm.)
Distance minimale plafond-plancher: 48 po. (122 cm.)

PREVENT HOUSE FIRES

- Install with a three (3) diameter exhaust venting system listed to UL103/ULC S629 or UL641/ULC S609.
- In case of an exhaust system passing through a combustible wall, follow manufacturer's instructions and refer to local building codes.
- Keep viewing and ash removal doors tightly closed during operation.
- Room heater, pellet fuel-burning type, also for use in mobile homes.
- Install and use only in accordance with manufacturer's instructions.
- Contact local building or fire officials about restrictions and installation inspection in your area.
- For use with premium grade wood pellets or better as determined by organizations such as Pellet Fuels Institute (PFI), Enplus and CANplus. Burning other types of pellets is not permitted. See owner's manual for more details.
- Do not connect to a chimney flue serving another appliance.
- Inspect and clean chimney frequently. Under certain conditions of use, creosote buildup may occur rapidly.
- Replace with ceramic glass only.
- The unit must be installed on a non-combustible floor pad extending at least 6 inches (152 mm) in front of the door opening and at least 6 inches (152 mm) on each side of the door opening. The floor pad must have a thickness of at least 0.015" (0.38mm). Consult owner's manual for more details.
- A source of fresh air must be provided to the room. When installed in a mobile home, air from outdoors must be provided.
- Do not obstruct combustion air opening.

PRÉVENEZ LES INCENDIES

- Installer avec un tuyau d'évacuation de trois (3) pouces homologué selon la norme UL 103/ULC S629 ou UL 641/ULC S609.
- Si le tuyau d'évacuation doit traverser un mur combustible, suivre les instructions du fabricant et se référer aux codes du bâtiment locaux.
- Garder la porte du poêle et celle du cendrier fermées pendant l'opération.
- L'unité de chauffage aux granulés peut aussi être installée dans une maison mobile.
- Observer les directives du fabricant pour l'installation et l'utilisation du poêle.
- Contacter les autorités locales pour les restrictions d'installation dans votre secteur.
- Pour utilisation avec granulés de bois de qualité premium ou mieux tel que déterminée par des organismes tels que Pellet Fuels Institute (PFI), Enplus ou CANplus. Brûler d'autres types de granulés n'est pas permis. Voir manuel d'instruction pour plus de détails.
- Ne pas raccorder à un conduit de fumée servant déjà pour un autre appareil.
- Inspecter et nettoyer la cheminée fréquemment. Sous certaines conditions, la formation de crésote peut être rapide.
- Remplacer par un verre céramique seulement.
- L'appareil doit être installé sur une plaque incombustible qui excède le devant de l'ouverture de porte d'au moins 6 pouces (152 mm) ainsi que chaque côté de l'ouverture de porte d'au moins 6 pouces (152 mm). La plaque incombustible doit posséder une épaisseur minimale de 0.015" (0.38 mm). Consultez le manuel d'instructions pour plus de détails.
- Il doit y avoir un apport d'air frais dans la pièce. Lorsqu'installé dans une maison mobile, un apport d'air extérieur doit être installé.
- Ne pas obstruer les ouvertures d'air de combustion.
- Cet appareil de chauffage requiert des inspections et réparations périodiques. Consulter le manuel de l'utilisateur pour plus d'information. Opérer cet appareil de chauffage de façon inconsistente par rapport au manuel de l'utilisateur consiste une violation de la loi fédérale (É.-U.).



- This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against US federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

Made in St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)



Fabricant de poêles international
Stove Builder International

Fabriqué à St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)

27693



Intertek

Control number: 4002461
Sept. 2017

REFER TO INTERTEK'S DIRECTORY OF BUILDING PRODUCTS FOR DETAILED INFORMATION
SE RÉFÉRER AU RÉPERTOIRE DES PRODUITS HOMOLOGUÉS D'INTERTEK POUR PLUS D'INFORMATION

STANDARDS / NORMES D'ESSAI:
Certified to/Certifié selon ASTM E1509
Certified to/Certifié selon ULC S627
Certified to/Certifié selon UL 1482
Certified to/Certifié selon CSA B415.1-10
Certified to/Certifié selon ASTM E2515-11
Certified to/Certifié selon ASTM E2779-10

LISTED PELLET FUEL BURNING APPLIANCE

POËLE À GRANULÉS DE BOIS HOMOLOGUÉ

**MODEL / MODÈLE :
ECO-55**

Serial Number
No. de Série

1

U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards.
AGENCE DE PROTECTION DE L'ENVIRONNEMENT DES É.U. (EPA). Conforme aux normes d'émission de particules de 2020.

Weighted average emission rate / Moyenne pondérée des émissions: 0.96 g/h



WARNING: This product can expose you to carbon monoxide, which is known to the State of California to cause cancer, birth defects or other reproductive harm.
(For more information go to www.p65warnings.ca.gov)

CAUTION

- HOT WHILE IN OPERATION.
- DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY.
- CONTACT MAY CAUSE SKIN BURNS. SEE NAME-PLATE AND INSTRUCTIONS.
- OPERATE THIS UNIT ONLY WITH THE FUEL HOPPER LID CLOSED. FAILURE TO DO SO MAY RESULT IN EMISSION OF PRODUCTS OF COMBUSTION FROM THE HOPPER UNDER CERTAIN CONDITIONS.
- DO NOT OVERFILL THE HOPPER.
- MOVING PARTS MAY CAUSE INJURY.
- HOT PARTS. DO NOT OPERATE UNIT WITH THE SIDE OR REAR PANELS REMOVED.
- MAINTAIN HOPPER SEAL IN GOOD CONDITION.

ATTENTION

- CHAUD EN FONCTIONNEMENT.
- NE PAS TOUCHER. GARDER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES ÉLOIGNÉS.
- UN CONTACT AVEC LA PEAU PEUT OCCASIONNER DES BRÛLURES. VOIR LES INSTRUCTIONS.
- OPÉRER CET APPAREIL SEULEMENT AVEC LE COUVERCLE DE LA TRÉMIE FERMÉ. DES ÉMISSIONS DE COMBUSTION PEUVENT SE PROPAGER PAR LA TRÉMIE SOUS CERTAINES CONDITIONS.
- NE PAS SURCHARGER LA TRÉMIE.
- DES PIÈCES EN MOUVEMENT PEUVENT CAUSER DES BLESSURES.
- PIÈCES CHAUDES. NE PAS UTILISER SI LES PANNEAUX DE CÔTÉS OU ARRIÈRES SONT ENLEVÉS.
- CONSERVER LE JOINT D'ÉTANCHÉITÉ DE LA TRÉMIE EN BONNES CONDITIONS.



DANGER

- DISCONNECT POWER BEFORE SERVICING UNIT.
- RISK OF ELECTRICAL SHOCK.

Made in St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)

DANGER

- DÉBRANCHER POUR L'ENTRETIEN.
- RISQUE DE CHOCS ÉLECTRIQUES.

Fabriqué à St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)


Fabricant de poêles international
Stove Builder International

27694



Intertek
Control number: 4002461
Sept. 2017

REFER TO INTERTEK'S DIRECTORY OF BUILDING PRODUCTS FOR DETAILED INFORMATION
SE RÉFÉRER AU RÉPERTOIRE DES PRODUITS HOMOLOGUÉS D'INTERTEK POUR PLUS D'INFORMATION

STANDARDS / NORMES D'ESSAI:

Certified to/Certifié selon ASTM E1509
Certified to/Certifié selon ULC S627
Certified to/Certifié selon UL 1482
Certified to/Certifié selon CSA B415.1-10
Certified to/Certifié selon ASTM E2515-11
Certified to/Certifié selon ASTM E2779-10

LISTED PELLET FUEL BURNING APPLIANCE

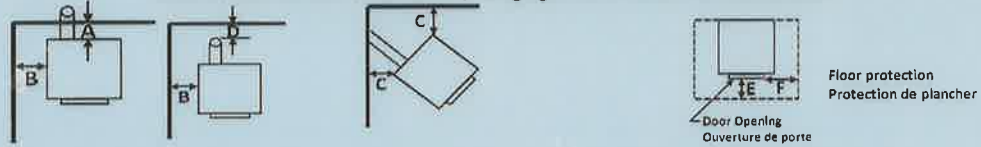
POÈLE À GRANULÉS DE BOIS HOMOLOGUÉ

MODEL / MODÈLE : OSBURN 2500

Serial Number
No. de Série

1

Clearances to combustibles / Dégagements aux combustibles



A: 3 in./po. (76 mm) B: 6 in./po. (152 mm) C: 3 in./po. (76 mm)
D: See Vent manufacturer

E: 6 in./po. (152 mm) CANADA / USA
F: 6 in./po. (152 mm) CANADA / USA

Electrical rating / Alimentation électrique: 115 V, 60 Hz, 1.16 amp.
Maximum input rating / Régime maximal: 4.7 lbs/hr

Minimum floor to ceiling distance: 48 in. (122 cm.)
Distance minimale plafond-plancher: 48 po. (122 cm.)

PREVENT HOUSE FIRES

- Install with a three (3) diameter exhaust venting system listed to UL103/ULC S629 or UL641/ULC S609.
- In case of an exhaust system passing through a combustible wall, follow manufacturer's instructions and refer to local building codes.
- Keep viewing and ash removal doors tightly closed during operation.
- Room heater, pellet fuel-burning type, also for use in mobile homes.
- Install and use only in accordance with manufacturer's instructions.
- Contact local building or fire officials about restrictions and installation inspection in your area.
- For use with premium grade wood pellets or better as determined by organizations such as Pellet Fuels Institute (PFI), Enplus and CANplus. Burning other types of pellets is not permitted. See owner's manual for more details.
- Do not connect to a chimney flue serving another appliance.
- Inspect and clean chimney frequently. Under certain conditions of use, creosote buildup may occur rapidly.
- Replace with ceramic glass only.
- The unit must be installed on a non-combustible floor pad extending at least 6 inches (152 mm) in front of the door opening and at least 6 inches (152 mm) on each side of the door opening. The floor pad must have a thickness of at least 0.015" (0.38mm). Consult owner's manual for more details.
- A source of fresh air must be provided to the room. When installed in a mobile home, air from outdoors must be provided.
- Do not obstruct combustion air opening.

PRÉVENEZ LES INCENDIES

- Installer avec un tuyau d'évacuation de trois (3) pouces homologué selon la norme UL 103/ULC S629 ou UL 641/ULC S609.
- Si le tuyau d'évacuation doit traverser un mur combustible, suivre les instructions du fabricant et se référer aux codes du bâtiment locaux.
- Garder la porte du poêle et celle du cendrier fermées pendant l'opération.
- L'unité de chauffage aux granules peut aussi être installée dans une maison mobile.
- Observer les directives du fabricant pour l'installation et l'utilisation du poêle.
- Contacter les autorités locales pour les restrictions d'installation dans votre secteur.
- Pour utilisation avec granules de bois de qualité premium ou mieux tel que déterminée par des organismes tels que Pellet Fuels Institute (PFI), Enplus ou CANplus. Brûler d'autres types de granules n'est pas permis. Voir manuel d'instruction pour plus de détails.
- Ne pas raccorder à un conduit de fumée servant déjà pour un autre appareil.
- Inspecter et nettoyer la cheminée fréquemment. Sous certaines conditions, la formation de créosote peut être rapide.
- Remplacer par un verre céramique seulement.
- L'appareil doit être installé sur une plaque incombustible qui excède le devant de l'ouverture de porte d'au moins 6 pouces (152 mm) ainsi que chaque côté de l'ouverture de porte d'au moins 6 pouces (152 mm). La plaque incombustible doit posséder une épaisseur minimale de 0.015" (0.38 mm). Consultez le manuel d'instructions pour plus de détails.
- Il doit y avoir un apport d'air frais dans la pièce. Lorsqu'installé dans une maison mobile, un apport d'air extérieur doit être installé.
- Ne pas obstruer les ouvertures d'air de combustion.
- Cet appareil de chauffage requiert des inspections et réparations périodiques. Consulter le manuel de l'utilisateur pour plus d'information. Opérer cet appareil de chauffage de façon inconsistente par rapport au manuel de l'utilisateur consiste une violation de la loi fédérale (É.-U.).



- This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against US federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.

Made in St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)



Fabriqué à St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)

Fabricant de poêles international
Stove Builder International

27703



Intertek

Control number: 4002461
Sept. 2017

REFER TO INTERTEK'S DIRECTORY OF BUILDING PRODUCTS FOR DETAILED INFORMATION
SE RÉFÉRER AU RÉPERTOIRE DES PRODUITS HOMOLOGUÉS D'INTERTEK POUR PLUS D'INFORMATION

STANDARDS / NORMES D'ESSAI:

Certified to/Certifié selon ASTM E1509

Certified to/Certifié selon ULC S627

Certified to/Certifié selon UL 1482

Certified to/Certifié selon CSA B415.1-10

Certified to/Certifié selon ASTM E2515-11

Certified to/Certifié selon ASTM E2779-10

LISTED PELLET FUEL BURNING APPLIANCE

POÈLE À GRANULÉS DE BOIS HOMOLOGUÉ

MODEL / MODÈLE : OSBURN 2500

Serial Number
No. de Série

1

U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards.
AGENCE DE PROTECTION DE L'ENVIRONNEMENT DES É.U. (EPA). Conforme aux normes d'émission de particules de 2020.

Weighted average emission rate / Moyenne pondérée des émissions: 0.96 g/h



WARNING: This product can expose you to carbon monoxide, which is known to the State of California to cause cancer, birth defects or other reproductive harm.
(For more information go to www.p65warnings.ca.gov)

CAUTION

- HOT WHILE IN OPERATION.
- DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY.
- CONTACT MAY CAUSE SKIN BURNS. SEE NAME-PLATE AND INSTRUCTIONS.
- OPERATE THIS UNIT ONLY WITH THE FUEL HOPPER LID CLOSED. FAILURE TO DO SO MAY RESULT IN EMISSION OF PRODUCTS OF COMBUSTION FROM THE HOPPER UNDER CERTAIN CONDITIONS.
- DO NOT OVERFILL THE HOPPER.
- MOVING PARTS MAY CAUSE INJURY.
- HOT PARTS. DO NOT OPERATE UNIT WITH THE SIDE OR REAR PANELS REMOVED.
- MAINTAIN HOPPER SEAL IN GOOD CONDITION.

ATTENTION

- CHAUD EN FONCTIONNEMENT.
- NE PAS TOUCHER. GARDER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES ÉLOIGNÉS.
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- NE PAS SURCHARGER LA TRÉMIE.
- DES PIÈCES EN MOUVEMENT PEUVENT CAUSER DES BLESSURES.
- PIÈCES CHAUDES. NE PAS UTILISER SI LES PANNEAUX DE CÔTÉS OU ARRIÈRES SONT ENLEVÉS.
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DANGER

- DISCONNECT POWER BEFORE SERVICING UNIT.
- RISK OF ELECTRICAL SHOCK.

Made in St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)

DANGER

- DÉBRANCHER POUR L'ENTRETIEN.
- RISQUE DE CHOCS ÉLECTRIQUES.

Fabriquée à St-Augustin-de-Desmaures (Qc), Canada
18/01/2022 (# test)



Fabricant de poêles international
Stove Builder International

27704

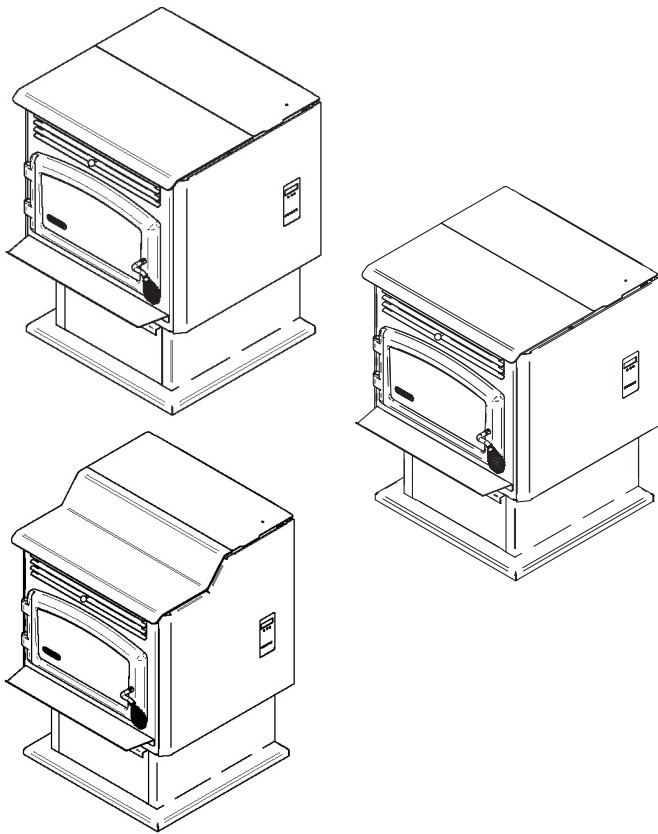


INSTALLATION MANUAL

ECO-55 / ECO-55 CT / ECO-55 ST

(DP00070, DP00072 & DP00071 model)

Safety tested according to ULC S627, UL1482 and ASTM E1509 by an accredited laboratory



ENGLISH

FRANÇAIS

INSTALLATION BY A PROFESSIONAL IS STRONGLY RECOMMENDED

Stove Builder International inc.
250, rue de Copenhague,
St-Augustin-de-Desmaures (Québec) Canada
G3A 2H3

Customer service : 418-908-8002
Email : tech@sbi-international.com
www.drolet.ca

CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.

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.

READ AND KEEP THIS MANUAL FOR REFERENCE



This manual is available for free download on the manufacturer's website. It is a copyrighted document. Re-sale is strictly prohibited. The manufacturer may update this manual from time to time and cannot be responsible for problems, injuries, or damages arising out of the use of information contained in any manual obtained from unauthorized sources.

1. SAFETY INFORMATION

We highly recommend that our pellet burning hearth products be installed and serviced by professionals who are certified in the United States by NFI (National Fireplace Institute®) or in Canada by WETT (Wood Energy Technology Transfer) or in Quebec by APC (Association des Professionnels du Chauffage).

If this appliance is not properly installed, combustible materials near it may overheat. To reduce the risk of fire, follow the installation instructions in this manual exactly. Contact local building or fire officials about restrictions and installation inspection requirements in your area.

Please read this entire manual before you install and use your new stove. You may need to get a building permit for the installation of this appliance and the venting system that it is connected to. Consult your municipal building department or fire department before installation. We recommend that you also inform your home insurance company to find out if the installation will affect your policy.

WARNING

THIS STOVE IS NOT RECOMMENDED TO BE INSTALLED IN A BEDROOM.

WARNING

IF THIS STOVE IS NOT PROPERLY INSTALLED, A HOUSE FIRE MAY RESULT. TO REDUCE THE RISK OF FIRE, FOLLOW THE INSTALLATION INSTRUCTIONS.

WARNING

BURNING ANY SOLID FUELS GENERATES CARBON MONOXIDE IN LOW CONCENTRATION. THIS GAS IS EVACUATED BY THE EXHAUST VENTING SYSTEM. IN HIGHER CONCENTRATIONS, CARBON MONOXIDE IS TOXIC AND MAY CAUSE DEATH. TO PREVENT THIS, ENSURE THAT YOUR EXHAUST VENTING SYSTEM IS AIRTIGHT.

WARNING

THIS STOVE IS MOBILE HOME APPROVED AND REQUIRES INSTALLATION OF A FRESH AIR KIT, SOLD SEPARATELY. THE STOVE MUST BE ATTACHED TO THE STRUCTURE OF THE MOBILE HOME AND THE STRUCTURAL INTEGRITY OF THE MOBILE HOME FLOOR, WALL, AND CEILING / ROOF MUST BE MAINTAINED. DO NOT INSTALL IN A SLEEPING ROOM.

CAUTION

THIS STOVE MUST BE CONNECTED TO A STANDARD 120V / 60HZ, GROUNDED ELECTRICAL OUTLET. DO NOT USE AN ADAPTER PLUG OR SEVER THE GROUNDING PLUG. DO NOT ROUTE THE ELECTRICAL CORD UNDERNEATH, IN FRONT OR OVER THE STOVE.

NOTICE

Mixing of appliance components from different sources or modifying components is prohibited and will void the warranty. Any modification of the appliance that has not been approved in writing by the testing authority is prohibited and violates CSA B365 (Canada) and NFPA 211 (USA).

NOTICE

When locating your appliance, make sure the vent will not interfere with any truss, roof beams, wall studs, water pipes or electrical wiring. It may be easier to relocate appliance than to rework the building structure.

NOTICE

The information given on the certification label affixed to the stove always overrides the information published in any other media (owner's manual, catalogues, flyers, magazines or web sites).

NOTICE

This stove has been developed and built for residential supplementary heat source. Commercial and industrial use is prohibited and will void the warranty.

NOTICE

Stove Builder International inc. (SBI) grants no warranty, implied or stated, for the poor installation of your appliance and assumes no responsibility of any consequential damages.



This product can expose you to chemicals including carbon monoxide, which is known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65warnings.ca.gov/

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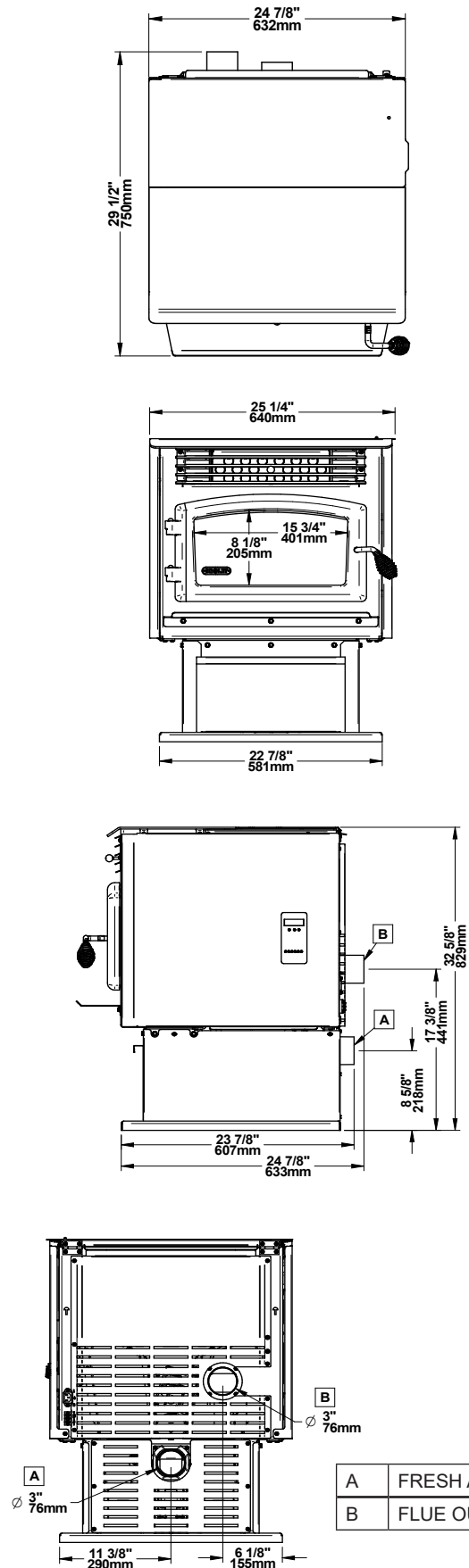
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2. GENERAL FEATURES

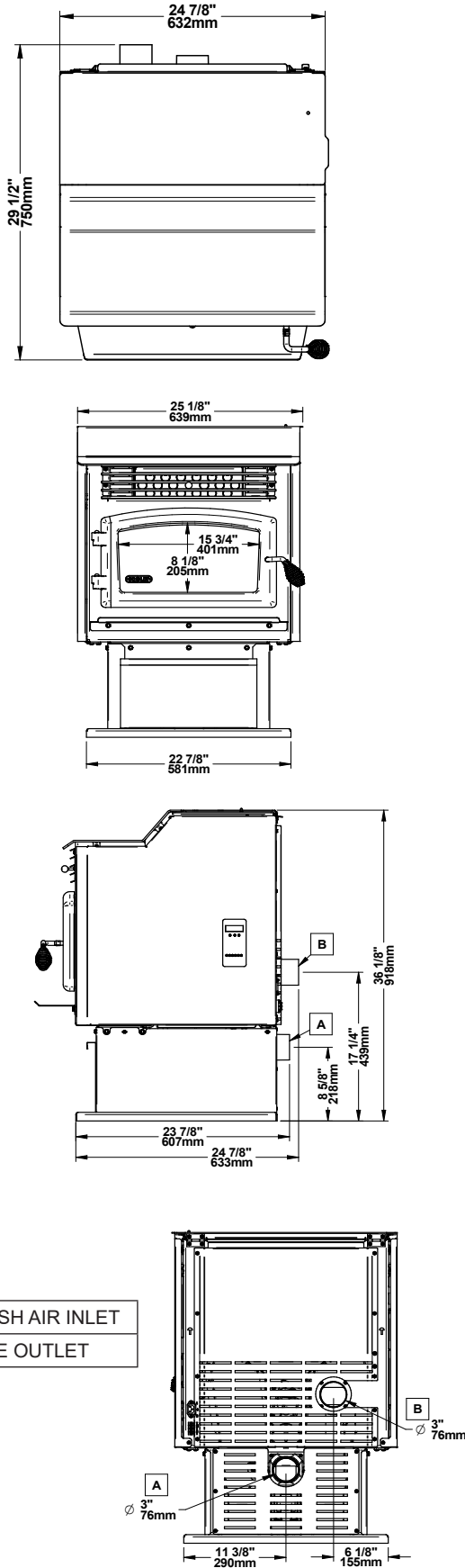
| | |
|--|--|
| Recommended chimney diameter | 3 in. (75mm) |
| Flue outlet diameter | 3 in. (75mm) |
| Type of chimney | ULC/ORD-C441 CAN/ULC S609 UL 641 (TYPE L) |
| Approved for alcove installation | Yes |
| Approved for mobile home installation ‡ | Yes |
| Shipping weight (without option) | 277 lb (DP00070-DP00072) 286 lb (DP00071) |
| Appliance weight (without option) | 235 lb (DP00070-DP00072) 242 lb (DP00071) |
| Particulate emission standard | CSA B415.1-10 ASTM E2779 |
| USA standard (safety) | ASTM E1509 UL 1482 |
| Canadian standard (safety) | ULC S627 |
| Electrical requirements | Voltage and frequency 120VAC and 60Hz Ignition : 3.02A |

‡ Mobile home (Canada) or manufactured home (USA): The US department of Housing and Urban Development describes "manufactured homes" better known as "mobile homes" as followed; buildings built on fixed wheels and those transported on temporary wheels/axles and set on a permanent foundation. In Canada, a mobile home is a dwelling for which the manufacture and assembly of each component is completed or substantially completed prior to being moved to a site for installation on a foundation and connection to service facilities and which conforms to the CAN/CSA-Z240 MH standard.

2.1 OVERALL DIMENSIONS (DP00070-DP00072)



2.2 OVERALL DIMENSIONS (DP00071)



2.3 REGULATIONS COVERING PELLET STOVE INSTALLATION

When installed and operated as described in these instructions, this pellet stove is suitable for use as a freestanding heater in residential installations.

In Canada, the CSA B365 Installation Code for Solid Fuel Burning Appliances and Equipment and the CSA C22.1 Canadian National Electrical Code are to be followed in the absence of local code requirements.

In the USA, the ANSI NFPA 211 Standard for Chimneys, Fireplaces, Vents and Solid Fuel-Burning Appliances and the ANSI NFPA 70 National Electrical Code are to be followed in the absence of local code requirements.

This stove must be connected to a pellet vent system complying with the requirements for Pellet Vent in the standards UL 103, UL 641, ULC S629M, CAN/ULC S609 and ULC/ORD C441 or to a code-approved masonry chimney with a stainless steel flue liner.

2.4 CERTIFICATION LABEL LOCATION

Since the information given on the certification label affixed to the stove always overrides the information published in any other media (owner's manual, catalogues, flyers, magazines or web sites), it is important to refer to it in order to have a safe and compliant installation. In addition, you will find important information about your stove (model, serial number, etc.). You will find the certification label on the inner side of the hopper lid of the stove.

CAUTION

DO NOT USE MAKESHIFT MATERIALS OR MAKE ANY COMPROMISES WHEN INSTALLING THIS STOVE.

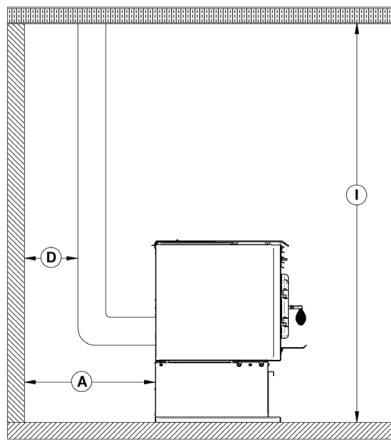
3. CLEARANCES TO COMBUSTIBLE MATERIALS

The clearances shown in this section applies to DP00070, DP00072 and DP00071.

The clearances shown in this section have been determined by tests according to procedures set out in safety standards ULC S627 (Canada), ASTM E1509 (U.S.A) and UL1482 (U.S.A.). When the pellet stove is installed so that its surfaces are at, or beyond, the minimum clearances specified, combustible surfaces will not overheat under normal and even abnormal operating conditions.

| NOTICE | |
|---|--|
| The following clearances are also valid for an alcove installation . However, if the stove is installed in an alcove, to perform maintenance, you should expect to move the appliance to get to the maintenance access doors and components. | |

3.1 CLEARANCES TO COMBUSTIBLES MATERIALS, WALLS AND CEILING



| MINIMUM CLEARANCES | | |
|--------------------|----------------|----------------|
| | CANADA | USA |
| A* | 3" (76 mm) | 3" (76 mm) |
| D | Note 1 | Note 1 |
| I** | 48" (1 220 mm) | 48" (1 220 mm) |

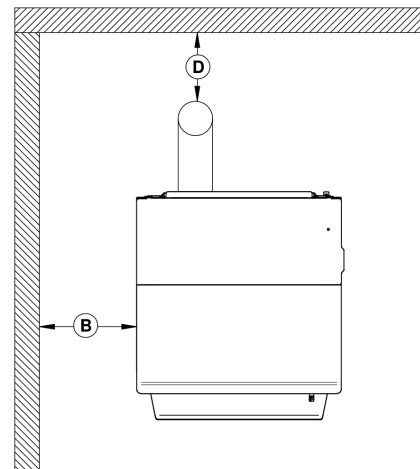
*From the rear panel

**Measured from the platform on which the product is installed.

| RECOMMENDED CLEARANCES FOR MAINTENANCE | | |
|--|--------------|--------------|
| | CANADA | USA |
| A* | 12" (305 mm) | 12" (305 mm) |

| WARNING |
|--|
| NO PART OF THE PELLET VENT SYSTEM MAY BE LOCATED CLOSER TO COMBUSTIBLES THAN THE MINIMUM CLEARANCES SPECIFIED BY THE VENT MANUFACTURER. |

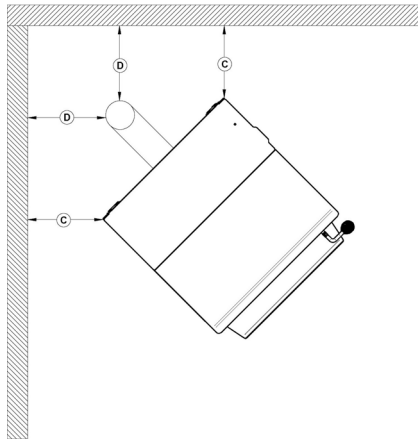
| WARNING |
|---|
| NO PART OF THE STOVE MAY BE LOCATED CLOSER TO COMBUSTIBLES THAN THE MINIMUM CLEARANCES SPECIFIED ON THE CERTIFICATION LABEL. |



| MINIMUM CLEARANCES | | |
|--------------------|-------------|-------------|
| | CANADA | USA |
| B | 6" (152 mm) | 6" (152 mm) |
| D | Note 1 | Note 1 |

| RECOMMENDED CLEARANCES FOR MAINTENANCE | | |
|--|--------------|--------------|
| | CANADA | USA |
| B | 24" (610 mm) | 24" (610 mm) |

Note 1 : Refer to the exhaust venting system manufacturer's instructions for clearances to combustible materials.

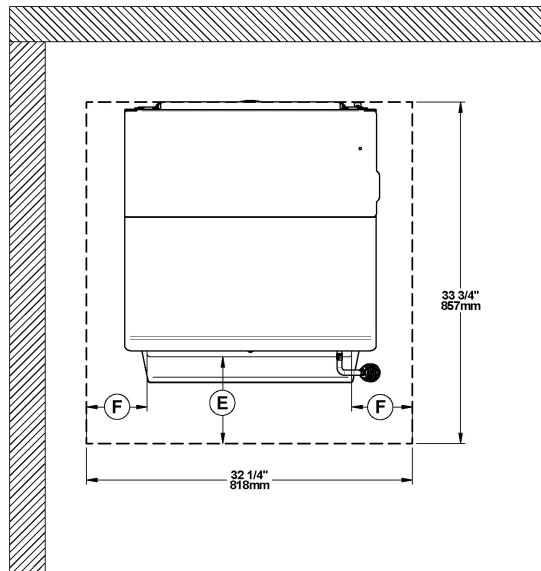


| MINIMUM CLEARANCES | | |
|--------------------|------------|------------|
| | CANADA | USA |
| C | 3" (76 mm) | 3" (76 mm) |
| D | Note 1 | Note 1 |

| RECOMMENDED CLEARANCES FOR MAINTENANCE | | |
|--|--------------|--------------|
| | CANADA | USA |
| C | 12" (305 mm) | 12" (305 mm) |
| D | Note 1 | Note 1 |

Note 1 : Refer to the exhaust venting system manufacturer's instructions for clearances to combustible materials.

3.2 FLOOR PROTECTION



| FLOOR PROTECTION | | |
|------------------|----------------------------------|----------------------------------|
| | CANADA** | USA |
| E | 6" (152 mm) From door opening | 6" (152 mm) From door opening |
| F | 6" (152 mm) From door opening | 6" (152 mm) From door opening |

CAUTION

THE STOVE MUST BE PLACED ON A CONTINUOUS (GROUTED JOINTS) NONCOMBUSTIBLE MATERIAL SUCH AS CERAMIC TILE*, CEMENT BOARD, BRICK, MILLBOARD OR EQUIVALENT, OR ANY OTHER APPROVED OR LISTED MATERIAL SUITED FOR FLOOR PROTECTION.

**Any type of tile will require a continuous non combustible sheet beneath to prevent the possibility of embers falling through to the combustible floor if cracks or separation should occur in the finished surface, this would include floor protection for built-in raised hearths. Check local codes for approved alternatives.*

***You may reduce the floor protection requirements to the values shown in the previous table ONLY if the following actions are respected: Allow for the appliance to shut-down and fire to be extinguished. Once completely cool and all blowers have stopped you may proceed with opening the firebox or ash door. Otherwise, see CSA B365.*

4. VENTING SYSTEM

CAUTION

CONNECT THIS STOVE ONLY TO A LISTED PELLET EXHAUST VENTING SYSTEM FOR USE WITH SOLID FUEL OR TO A LINED CHIMNEY CONFORMING TO NATIONAL AND LOCAL BUILDING CODES.

CAUTION

DO NOT CONNECT THIS STOVE TO ANY OTHER EXISTING VENTING SYSTEM SERVING ANOTHER APPLIANCE.

CAUTION

THE VENTING SYSTEM MUST BE COMPLETELY AIRTIGHT AND PROPERLY INSTALLED. ALL VENT CONNECTOR JOINTS MUST BE SEALED AND FASTENED IN ACCORDANCE WITH THE PELLET VENT MANUFACTURER'S INSTRUCTIONS TO ENSURE CONSISTENT PERFORMANCE AND AVOID SMOKE AND ASH SPILLAGE..

CAUTION

DO NOT INSTALL A FLUE DAMPER IN THE EXHAUST VENTING SYSTEM OF THIS UNIT.

CAUTION

DO NOT CONNECT TO OR USE IN CONJUNCTION WITH ANY AIR DISTRIBUTION DUCTWORK.

CAUTION

THE VENTING SYSTEM SHOULD BE CHECKED, AT LEAST TWICE A YEAR FOR ANY BUILDUP OF SOOT OR CREOSOTE.

4.1 GENERAL

Even though the chimney draft is mechanical, a suitable venting system will ensure a natural draft which will prevent smoke spillage in your home if a power outage occurs. Moreover, a suitable venting system configuration will help getting the best efficiency out of your stove when installed in accordance with the required EVL.

4.2 RECOMMENDATIONS

In Canada, we recommend that you use a listed pellet vent that meets the CAN/ULC S609 or ULC/ORD C441 Standard. A pellet vent listed to ULC S629M is also suitable for installation with this stove.

For the United States, we recommend that you use a listed pellet vent that meets the UL 641 Standard. A pellet vent listed to UL 103 is also suitable for installation with this stove.

This stove can be vented in an existing factory-built or masonry chimney with the addition of a stainless steel liner, provided the chimney is more than 4" in diameter. The liner should be listed and should meet the ULC S635 CAN/ULC S640 standard in Canada and the UL 1777 standard in the USA. Refer to the instructions provided by the vent manufacturer, especially when passing through a wall, ceiling or roof.

4.3 EQUIVALENT VENT LENGTH (EVL)

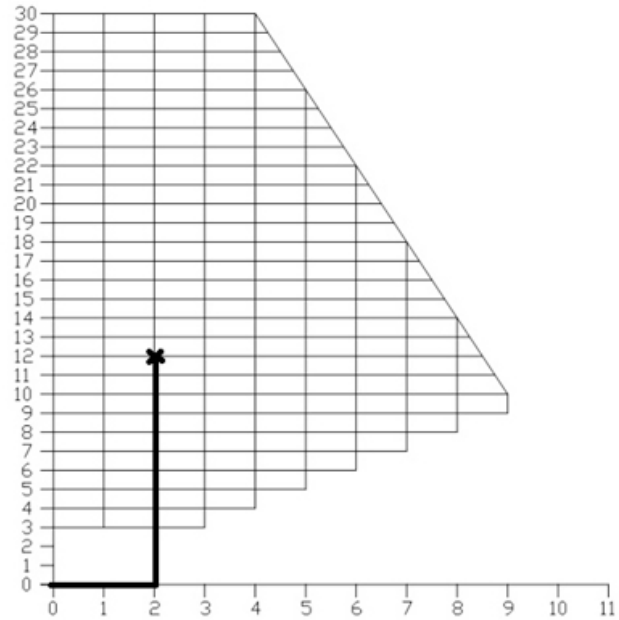
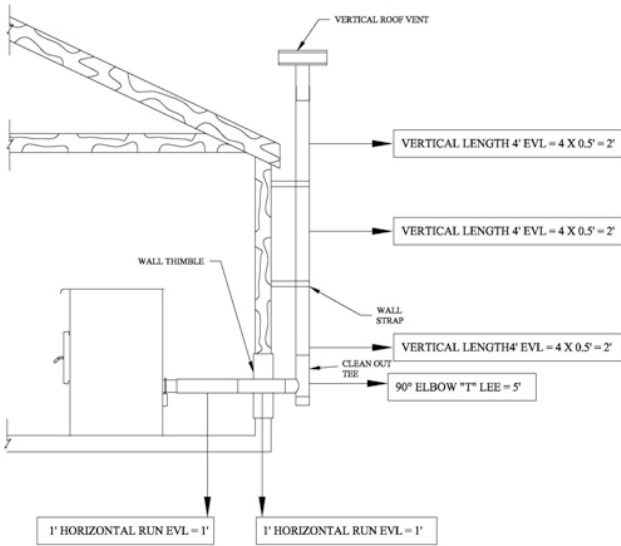
4.3.1 RECOMMENDED EXHAUST VENTING DIAMETER

The recommended venting system inner pipe diameter is 3". Use a 4" pipe if you have more than 15 feet of Equivalent Vent Length (EVL).

To calculate the Equivalent Vent Length of your installation, use the following conversions:

| Qty | Type of pipe | Equivalent vent length (EVL) |
|--------|---------------------|------------------------------|
| 1 | 90° elbow or "Tee" | 5 feet |
| 1 | 45° elbow | 3 feet |
| 1 foot | horizontal pipe run | 1 foot |
| 1 foot | vertical pipe run | 1/2 foot |

Here is an example to help you calculate Equivalent Vent Length. On the following figure the EVL can be calculated like this:



| | |
|--|---------------------|
| 2 feet of horizontal run (2 X 1' EVL) | = 2' of EVL |
| 90° elbow or "Tee" (1 X 5' EVL) | = 5' of EVL |
| 12 feet of vertical run (12' X 0.5' EVL) | = 6' of EVL |
| Termination cap | = 0' of EVL |
| Total EVL | = 13' of EVL |

Since the total EVL is less than 15 feet, the recommended exhaust venting diameter is 3".

4.3.2 INSTALLATION COMPLIANCE

To determine if your installation is compliant, the exhaust venting system must end within the grid on the venting system chart. The previous installation has 2 feet of horizontal run and 12 feet of vertical run. It is thus standard since the venting system ends in the gridded area.

CAUTION

- Horizontal runs shall not exceed 9 feet.
- Never exceed 30 feet of evl.

CAUTION

TO REDUCE THE RISK OF SMOKE SPILLAGE THERE SHOULD ALWAYS BE AT LEAST ONE FOOT OF VERTICAL RISE FOR EACH FOOT OF HORIZONTAL RUN. IN ALL CASES, AT LEAST 3 FEET OF VERTICAL RISE IS NEEDED.

WARNING

TERMINATION OF A SIDEWALL VENT SHOULD BE LOCATED TO AVOID PERSONAL BURN INJURY, FIRE HAZARD AND INTERFERENCE WITH OR DAMAGE TO ADJACENT PROPERTIES. EXHAUST GASES CAN REACH TEMPERATURES OF 500°F (260°C) AND CAUSE SERIOUS BURNS.

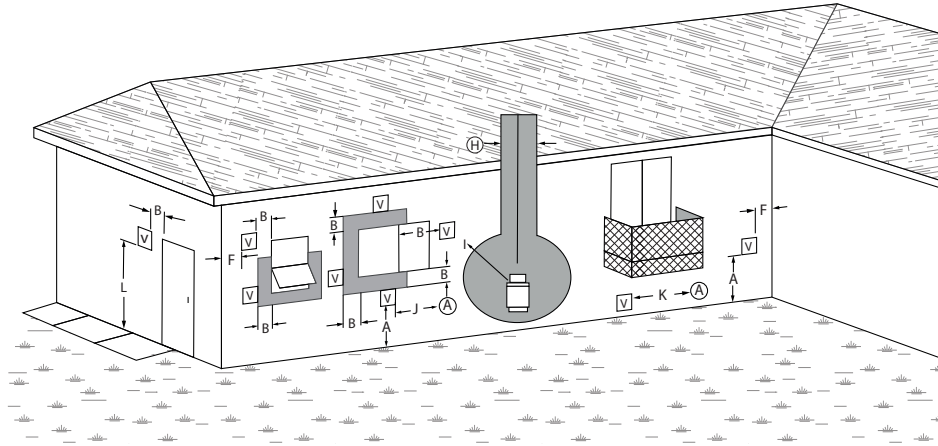
WARNING

TERMINATION COLLAR (SPARK ARRESTER) IS MANDATORY AND MUST BE CLEAR OF ANY DEBRIS AT ALL TIME.

4.4 TERMINATION LOCATION

CANADA

Refer to NFPA 211 (USA) or CSA B365 (Canada) for rules for the distance of exit terminal from windows and openings. The exit terminal of a mechanical draft system, other than a direct vent appliance shall be located in accordance with the following.



| | Min. Clearances | Description |
|----------|-----------------|--|
| A | 12" (30 cm) | Clearances above grade level or any adjacent surface that might support snow, ice, or debris. |
| B | 39" (100 cm) | Clearance to window or door that may be opened. |
| F | 39" (100 cm) | Clearance to corner or adjacent wall or any combustible materials. |
| H | 39" (100 cm) | Not to be installed above a meter/regulator assembly within 39" (100 cm) horizontally from the vertical center-line of the regulator and for 15' vertically. |
| I | 72" (183 cm) | Clearance to gas service regulator vent outlet or within 39" (100 cm) of an oil tank vent or an oil tank fill inlet. |
| J | 39" (100 cm) | Clearance to the combustion air inlet to any other appliance. |
| K | 72" (183 cm) | Clearance to a mechanical air supply inlet. |
| L | 84" (213 cm) | Clearance above paved side-walk or a paved driveway located on public property. |
| | 39" (100 cm) | Clearance to property boundary. |
| | | A vent shall not terminate underneath a veranda, porch, or deck. |
| | | A vent shall not terminate directly above a sidewalk or a paved driveway which is located between two single family dwelling and serves both dwellings. |

United-States

- Not Less than 36" (91 cm) above any forced air inlet located within 120" (305 cm);
- Not Less than 48" (122 cm) below and horizontally from, or 12" (30 cm) above, any door, window or gravity air inlet into any building;
- Not Less than 24" (61 cm) from an adjacent building and not less than 84" (213 cm) above grade when located adjacent to a public walkway;
- Cannot be located less than 12" (30 cm) above grade;
- Cannot be located above a gas meter/regulator within 36" (91cm) horizontally of the vertical center line of the regulator;
- Not within 6 feet (183 cm) of a gas service regulator vent outlet;
- Other restrictions may apply. See NFPA 211 for further information.

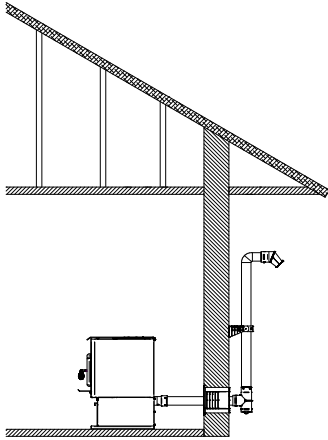
4.5 DIRECT VENT SYSTEM

In Canada: The permitted termination locations for a direct vent system are the same than those permitted with a regular pellet vent system.

In the Unites States : The permitted termination location for a direct vent system are the same than those permitted with a regular pellet vent system except for the following : The exit terminal shall be located not less than 9" (23 cm) from any opening through which vent gases could enter a building.

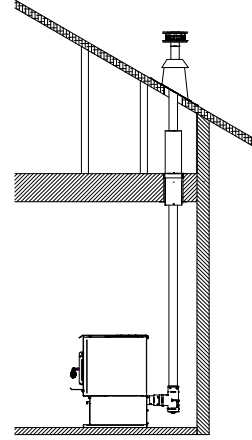
4.6 INSTALLATION CONFIGURATION

4.6.1 THROUGH WALL INSTALLATION (MAIN FLOOR OR BASEMENT)



1. Position appliance following clearances vent manufacturer's instructions.
2. Install a stove adapter or a stove adapter tee onto the appliance flue collar.
3. Locate the position of the exhaust pipe in the wall and cut a hole of the appropriate size for vent in the wall.
4. Install wall thimble as per vent manufacturer's instructions.
5. Ensure you install enough horizontal pipe length to exceed the exterior wall of 6 inches. Install a tee section to the pipe passing through the wall.
6. Run the vent vertically up the wall for at least 36". Refer to the vent manufacturer's instructions for clearances to combustible materials and installation of wall bands.
7. Install a 90 degrees elbow facing out from the wall and then attach a 45 degree elbow facing towards the ground. The termination of the vent must include a spark arrester, fastened to the 45 degrees elbow.
8. Sealed outside wall thimbles with high temperature waterproof silicone sealant.

4.6.2 THROUGH ROOF INSTALLATION

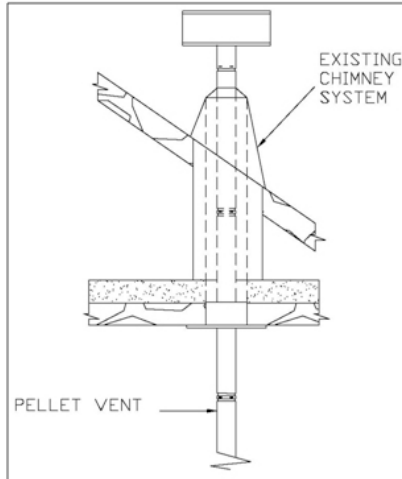


1. Position appliance following clearances and following vent manufacturer's instructions.
2. Install a stove adapter or a stove adapter tee onto the appliance flue collar. If necessary, use a horizontal additional length between the flue outlet and the tee.
3. Drop the plumb line over the center of the tee outlet and mark location on the ceiling.
4. Cut a hole for appropriate ceiling support. Frame rough opening.
5. Install ceiling support and the first vent section as per vent manufacturer's instructions.
6. Install a firestop radiation shield on any subsequent ceiling/floor, except for the attic where an attic insulation shield is required.
7. Run the necessary section of vent vertically so the rain cap exceeds the highest point of the roof at least 24" in United States and at least 36" in Canada.
8. Install roof support.
9. Install roof flashing and rain cap as per manufacturer's instructions. If necessary, install a storm collar.

4.6.3 THROUGH A FACTORY BUILT CHIMNEY

NOTICE

Before installation, the chimney must be cleaned and inspected by a qualified chimney sweep or installer.



1. Position stove following clearances given and following vent manufacturer's instructions.
2. Install a stove adapter or a stove adapter tee onto the appliance flue collar. If necessary, use a horizontal additional length between the flue outlet and the tee.
3. Use a proper chimney adaptor for your installation.
4. Run the number of sections of vent necessary to go through the chimney adaptor into the chimney.
5. Connect the vent to a stainless steel 4" liner according to the vent manufacturer's instruction.
6. Install roof flashing and rain cap as per manufacturer's instructions. If necessary, install and seal a storm collar.

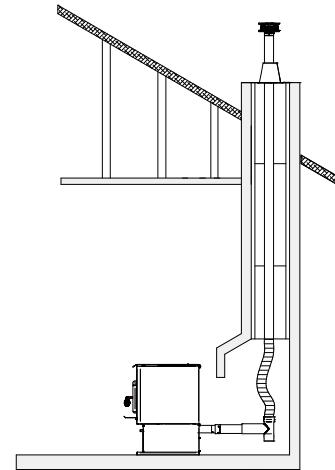
NOTICE

In the USA., the use of a stainless steel liner is mandatory. In Canada, it is not mandatory but is strongly recommended.

4.6.4 THROUGH AN EXISTING MASONRY FIREPLACE

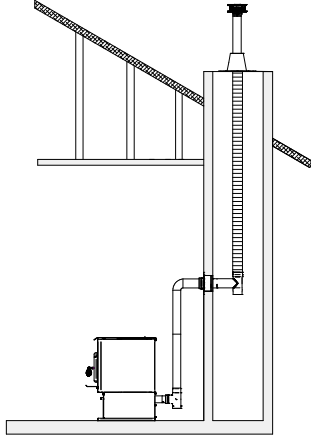
NOTICE

The structural condition of the masonry chimney must first be inspected by a qualified chimney sweep or installer. You will need a pipe length equal to the chimney height from the hearth. If outside combustion air is to be used, you will need a pipe length superior from 12 to 18 inches (30 to 46 cm) of the chimney height to ensure a proper stove behaviour.



1. Position stove, following clearances and following vent manufacturer's instructions.
2. Build and Install a blocking plate inside the chimney to seal the fireplace damper. Stainless steel plate and screws are recommended. Cut a hole for the exhaust pipe. If needed, cut a second hole for the air intake pipe.
3. Attach a section of pipe and clean out tee to the flue outlet, making sure the clean out tee is centered in the chimney flue area.
4. Install a vented flashing at the top of the fireplace chimney. Stainless steel plate and screws are recommended. Cut a hole for the vent pipe. If needed, cut a second hole for the air intake pipe. Seal all joints with high temperature waterproof silicone sealant to prevent water leakage.
5. Seal and install vertical roof vent. If required, seal and install a storm collar.

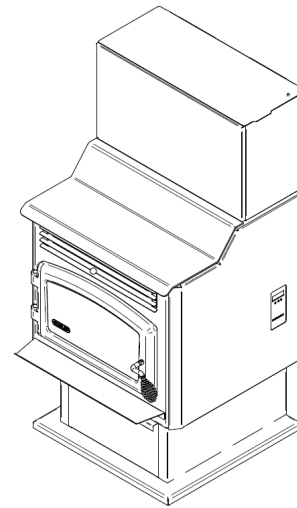
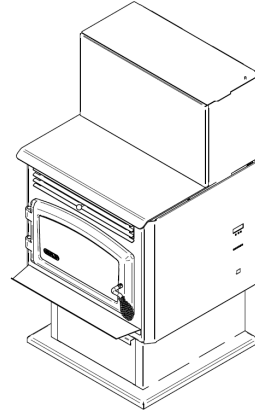
4.6.5 THROUGH AN EXISTING MASONRY CHIMNEY



1. Position stove following clearances following vent manufacturer's instructions.
2. Mark the center of the hole where the vent pipe will go through the masonry chimney.
3. It is necessary to make a hole in the masonry with a one-inch diameter greater than the diameter of the vent pipe used.
4. Install the cleanout tee at the bottom of the vertical vent system and lower it down the chimney until the center branch of the tee is aligned with the hole in the masonry.
5. Connect the horizontal vent pipe to the cleanout tee by pushing it through the hole in the masonry.
6. If desired, once the horizontal pipe is in place, the space between the pipe and masonry may be filled with high-temperature grout.
7. Install a vented flashing at the top of the masonry chimney. Stainless steel plate and screws are recommended. Cut a hole for the vent pipe. If needed, cut a second hole for the air intake pipe. Seal all joints with high temperature waterproof silicone sealant to prevent water leakage.
8. Install and seal flashing with high temperature waterproof silicone sealant.
9. Seal and install vertical roof vent. If required, seal and install a storm collar.
10. If desired, install a trim collar and use an additional horizontal vent pipe length, if required, to connect the stove to the chimney.

5. INSTALLING THE OPTIONAL HOPPER EXTENSION

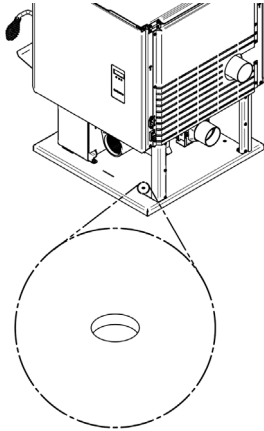
To increase the hopper capacity, it is possible to install a hopper extension, sold separately. Consult your dealer or website for details.



6. MOBILE HOME INSTALLATION

NOTICE

For mobile home installation, it is mandatory to connect the stove to an outside combustion air source. Insulated pipe should never exceed 10 feet.



When installed in a mobile home, the stove must be anchored to the floor with two screws. Use the two anchoring holes located on each side of the pedestal, as shown on the right figure.

For use in a mobile home in Canada, this pellet stove must be connected to a vent system certified according to the standard or ULC/ORD-C441 CAN/ULC-S609. A vent system meeting the requirements of ULC S629M can also be used.

For use in a manufactured home in the United States, this pellet stove must be connected to a venting system that meets the requirements of UL 641 standard. A vent system that meets the requirements of UL 103 standard may also be used.

7. INSTALLING A THERMOSTAT

Using a thermostat will help you maintain a constant temperature throughout the house. A low voltage thermostat (24 volts) is required. A fixed wall mount or hand held model can be used.

NOTICE

Thermostat manufacturer's instructions always override the information published in the following section.

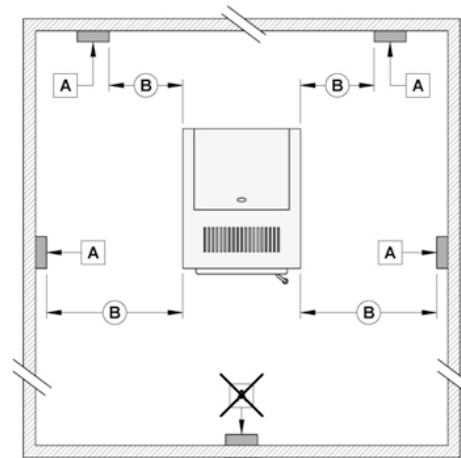
7.1 THERMOSTAT LOCATION

Location of the thermostat is very important to obtain comfort and efficiency from your stove.

Locate the thermostat 4 to 5 feet above the floor in accordance with applicable building codes.

Install the thermostat in a location that provides good airflow characteristics and avoid areas behind doors, near corners, air vents, direct sunlight or heat generating devices.

If the thermostat is installed in the same room as the stove, it should also be located at least 15 to 20 feet from the stove. To prevent cycling, you should avoid installing the thermostat on a poorly insulated outside wall or directly in front of the stove.



| | |
|---|-------------|
| A | Thermostat |
| B | Minimum 15' |

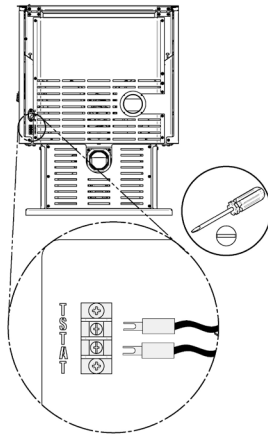
NOTICE

Installing the thermostat in front of the stove or in front of a window will tend to make the stove cycle too often and wear components prematurely. See operation's manual for more details on how to operate the stove with the proper pilot mode.

7.2 WIRED THERMOSTAT

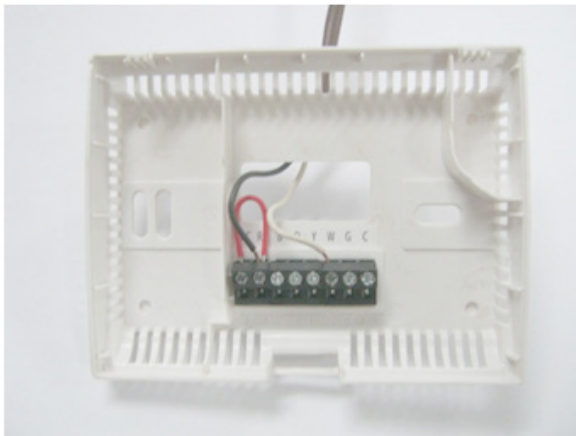
Before installing the thermostat, unplug the power cord from the power outlet.

First, connect the two thermostat wires to the terminal block located at the rear on the right hand side of the stove when facing it. Loosen the two middle screws and insert the wires in the terminals. Tighten the two screws. Open the thermostat and connect the wires as per the manufacturer's instructions.



Open the thermostat and connect the wires as per the manufacturer's instructions.

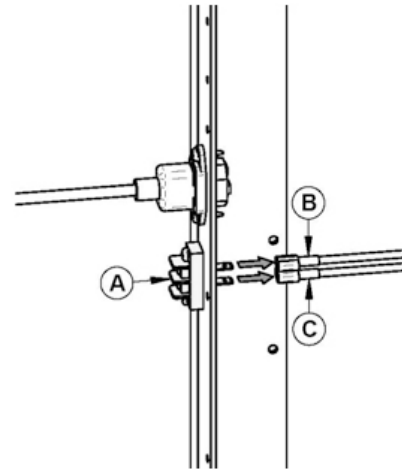
Connect one wire on "RH" and the other wire on "W". Red wire jumper can remain installed. For further information refer to the manufacturer's instructions.



7.3 WIRELESS THERMOSTAT

If you are using a wireless thermostat or a hand held thermostatic remote control, connect the two thermostat wires to the terminal block located at the rear on the right hand side of the stove while facing it. If the receiver wires are equipped with quick-connect terminals you can connect them directly to the stove's wiring harness.

To do so, open the right hand side decorative panels and disconnect wires (B) and (C) attached to the rear of the terminal block (A) and connect them to the receiver.

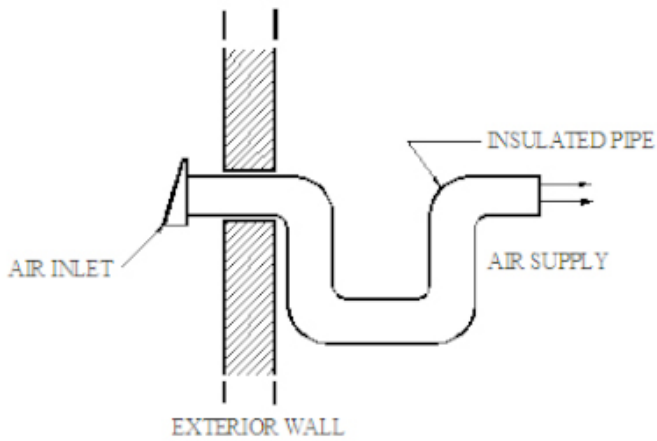


8. COMBUSTION AIR SUPPLY

NOTICE

For mobile home installation, it is mandatory to connect the stove to an outside combustion air source. Insulated pipe should never exceed 10 feet.

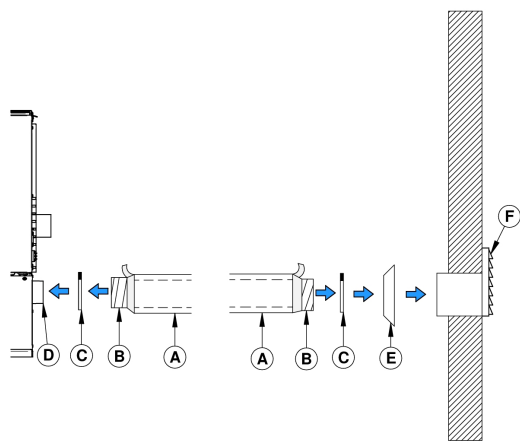
It is recommended to install an outside air inlet in or near the room where the stove is installed. When doing so, it is preferable to choose a wall which is not exposed to dominant winds, depending on the conditions surrounding your house.



An insulated 3" inside diameter metallic pipe, either flexible or rigid, must be attached to the fresh air intake (D).

To complete the installation, make a hole of 1/4" to 1/2" (6 mm à 13 mm) bigger than the insulate pipe diameter in the outside wall of the house at the chosen location. From outside, place the outside air inlet cap (E) in the hole (open side down) and fasten the register to the wall, with screw.

Place the insulated pipe (A) over the register tube and over the fireplace outside air connector (D). At each end, carefully pull back the insulation and plastic cover, exposing the flexible pipe. Attach the flexible pipe using pipe clamps(C).



For a better seal, you may also use aluminum tape. Wrap the tape around the joint between the flexible pipe and the air inlets. Carefully push the insulation and plastic cover back over the pipe. Fix the plastic in place using aluminum tape.

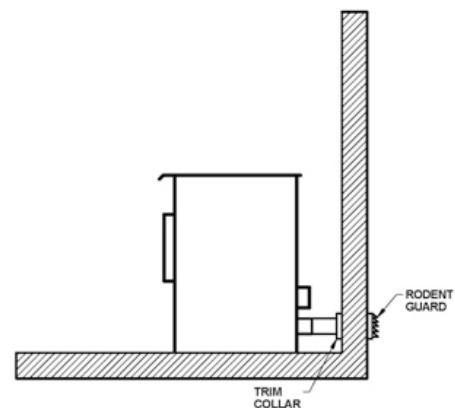
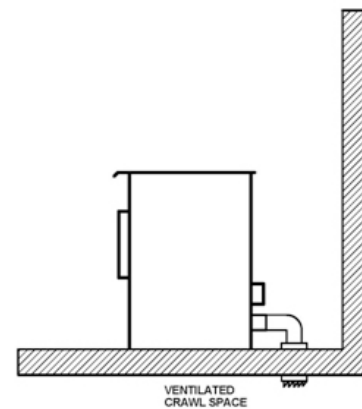
A rodent guard (minimum 1/4" wire mesh) must be used at the termination. All connections must be secured and airtight by either using the appropriately sized hose clamp and/or UL-181-AP foil tape.

Make sure that the fresh air intake back draft shutter functions freely. The fresh air intake back draft shutter is located in the back of the stove.

8.1 SOURCES OF OUTSIDE COMBUSTION AIR

| CAUTION |
|---|
| IT IS FORBIDDEN TO DRAW COMBUSTION AIR FROM A BASEMENT, AN ATTIC, A GARAGE OR ANY CONFINED SPACE |

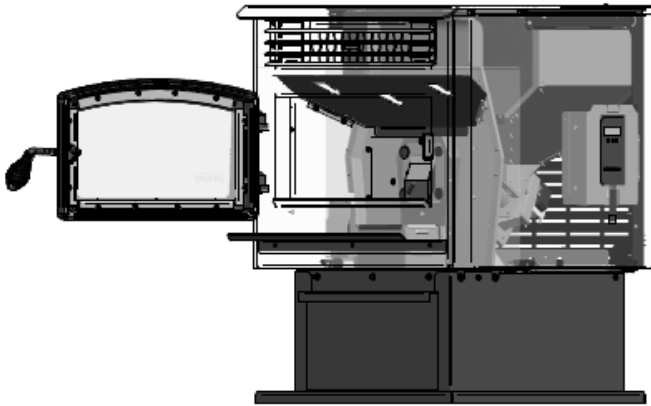
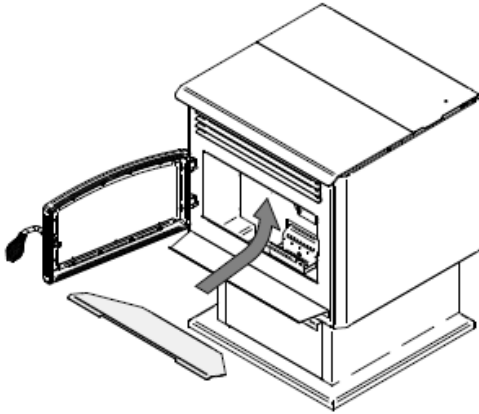
- You can draw air from a ventilated crawl space underneath the floor.
- You can draw air directly from an outside wall, behind the stove.



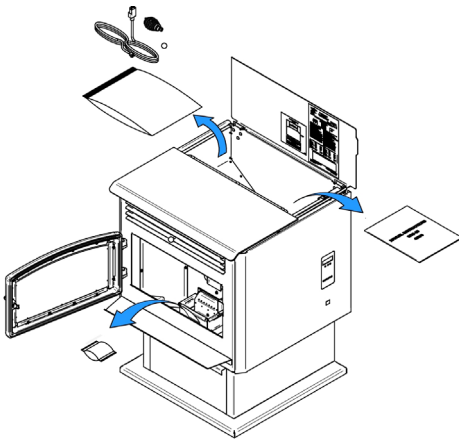
9. APPLIANCE SET-UP

9.1 GENERAL

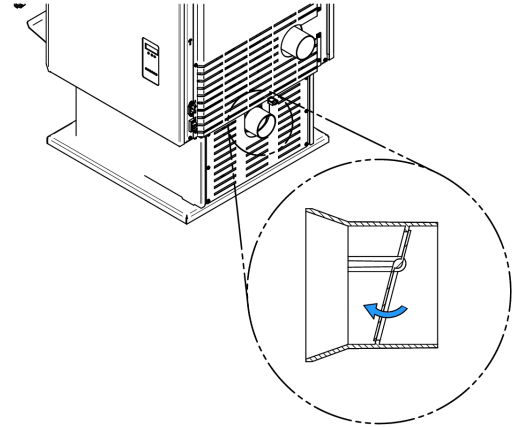
Install the baffle



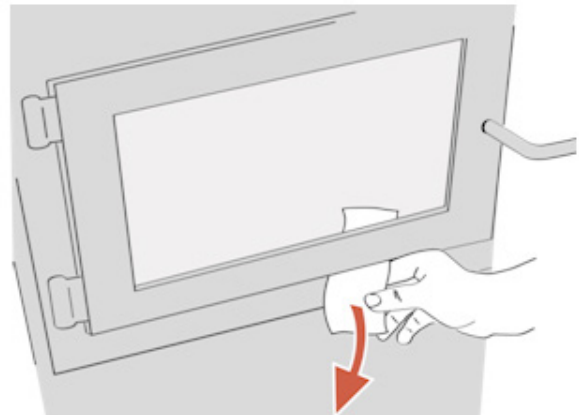
Remove all tools or accessories that have been inserted in the stove for transportation purposes.



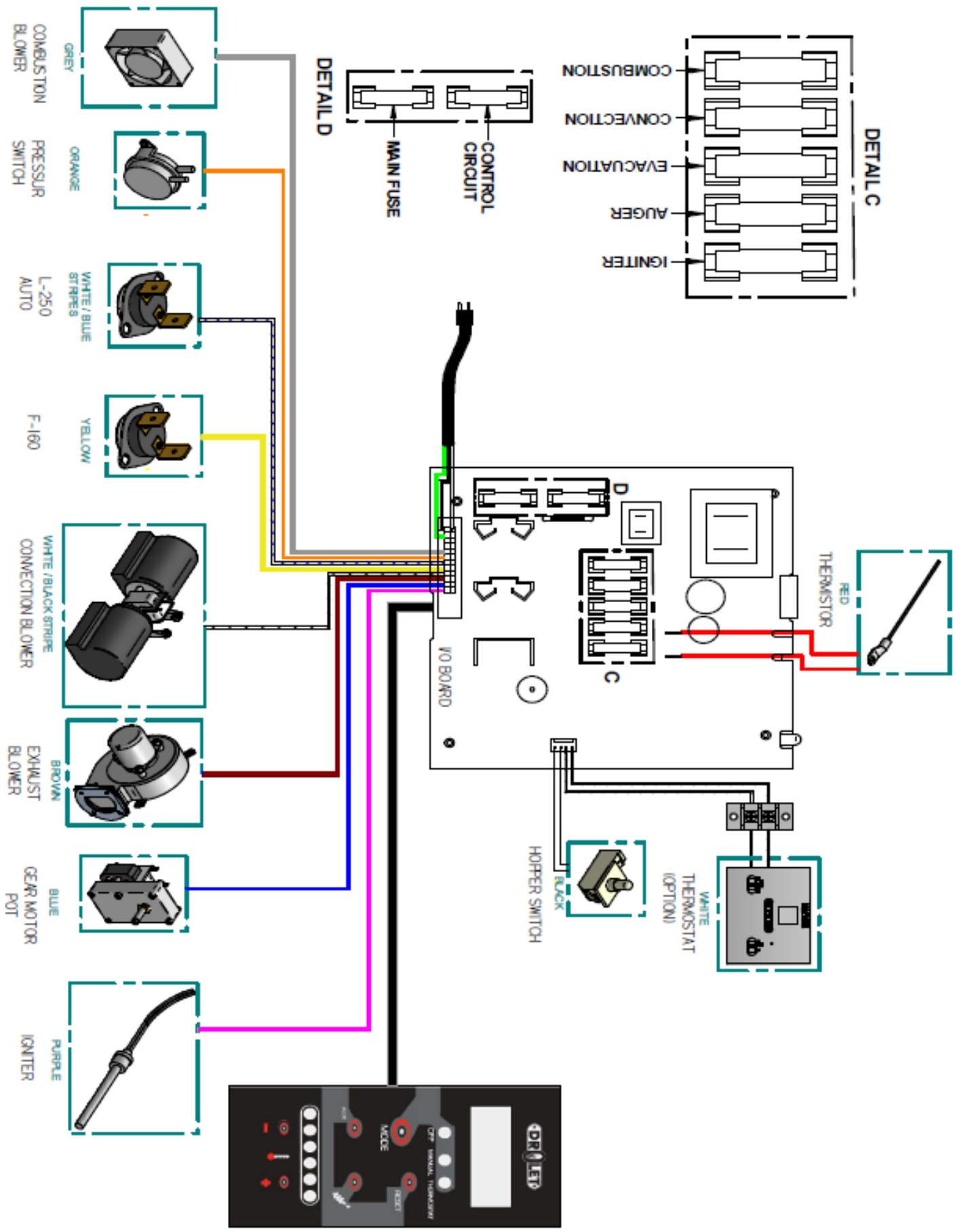
Make sure the fresh air intake back draft shutter works freely.



Test the door seal by closing and latching the door on a strip of paper. Test all around the door. The paper should not slip out easily. If it does, see the maintenance section in the operation manual.

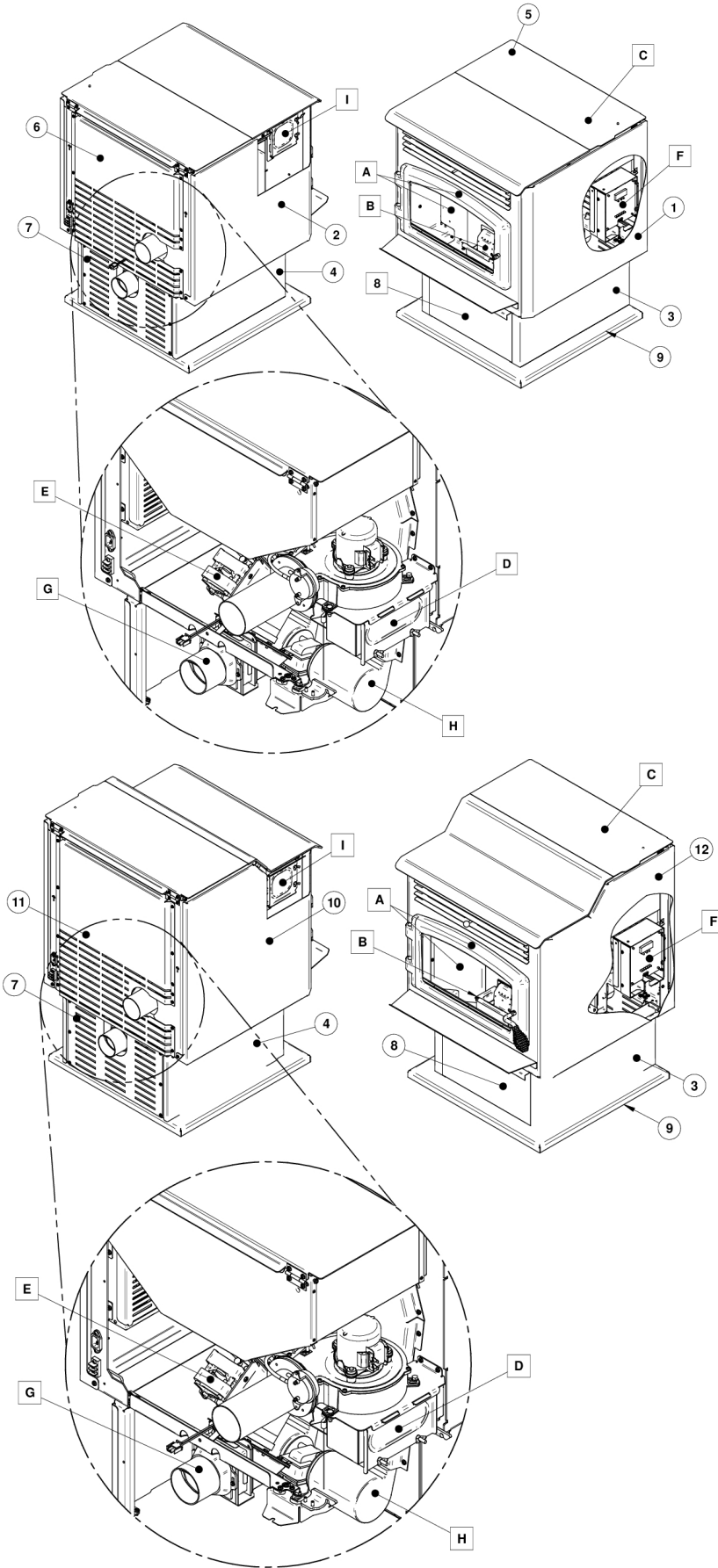


10. WIRING DIAGRAM

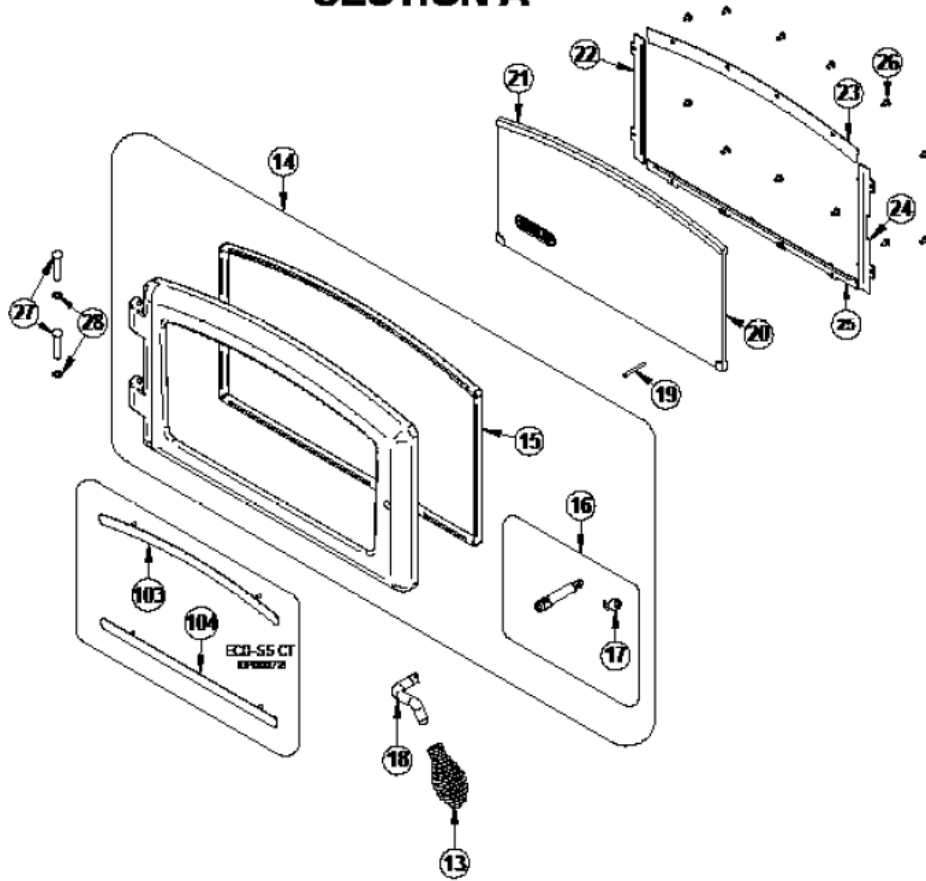


11. EXPLODED VIEWS AND PARTS LIST DP00070 DP00072 AND DP00071

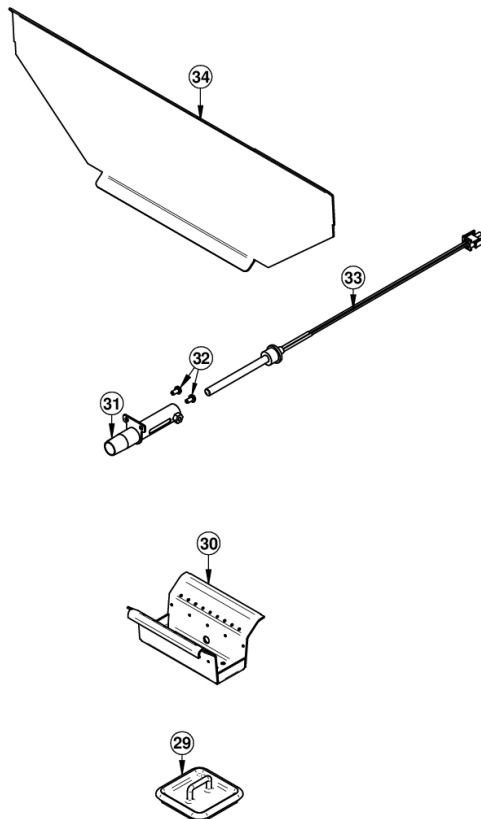
ENGLISH



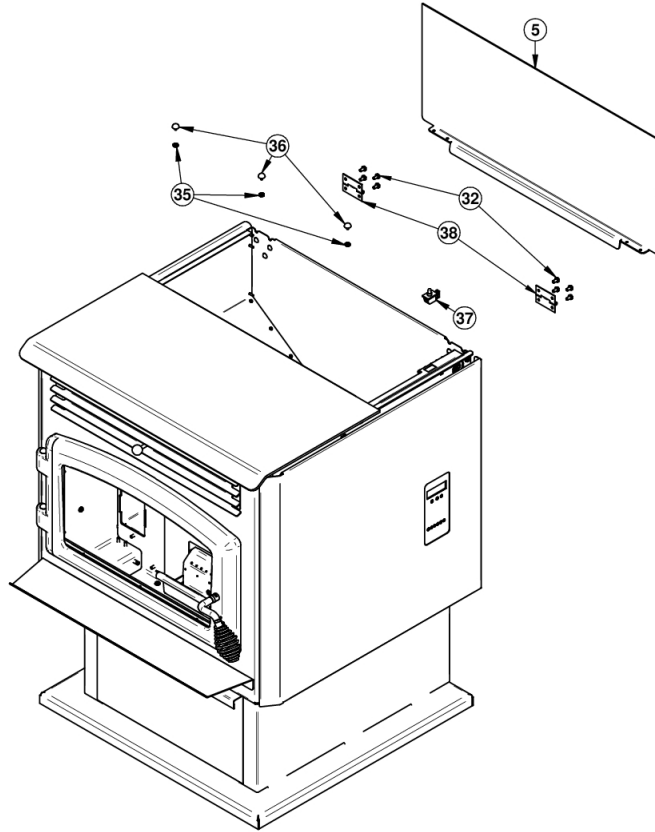
SECTION A



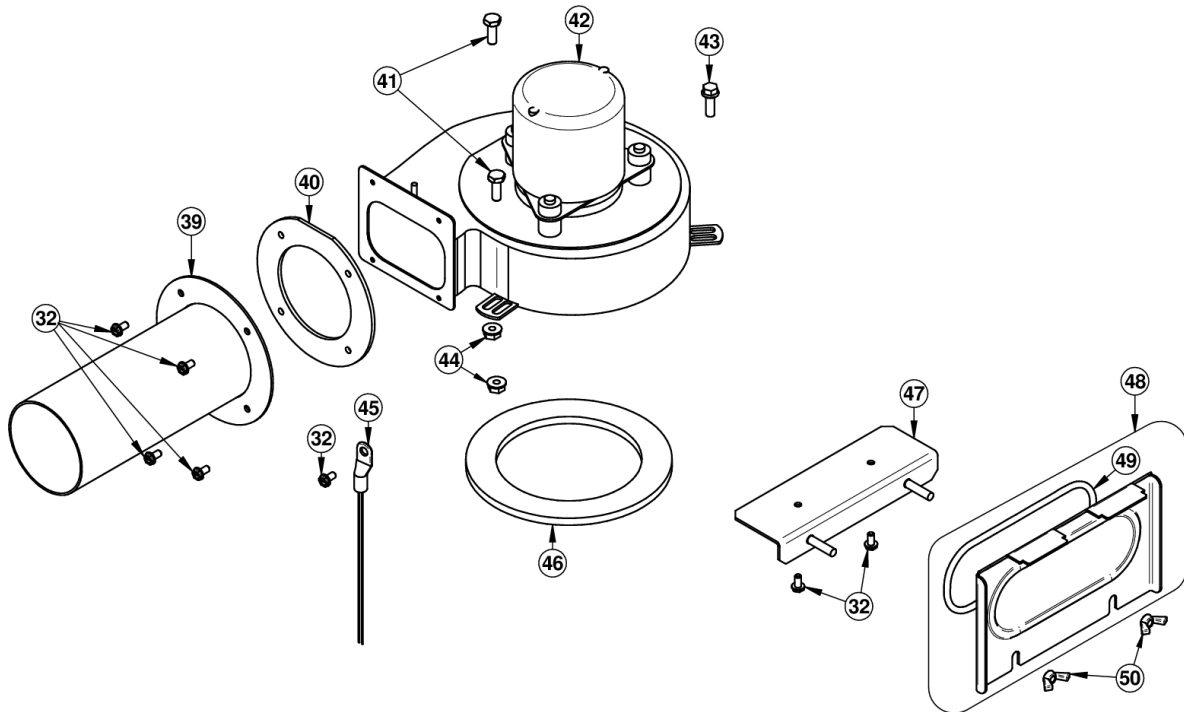
SECTION B



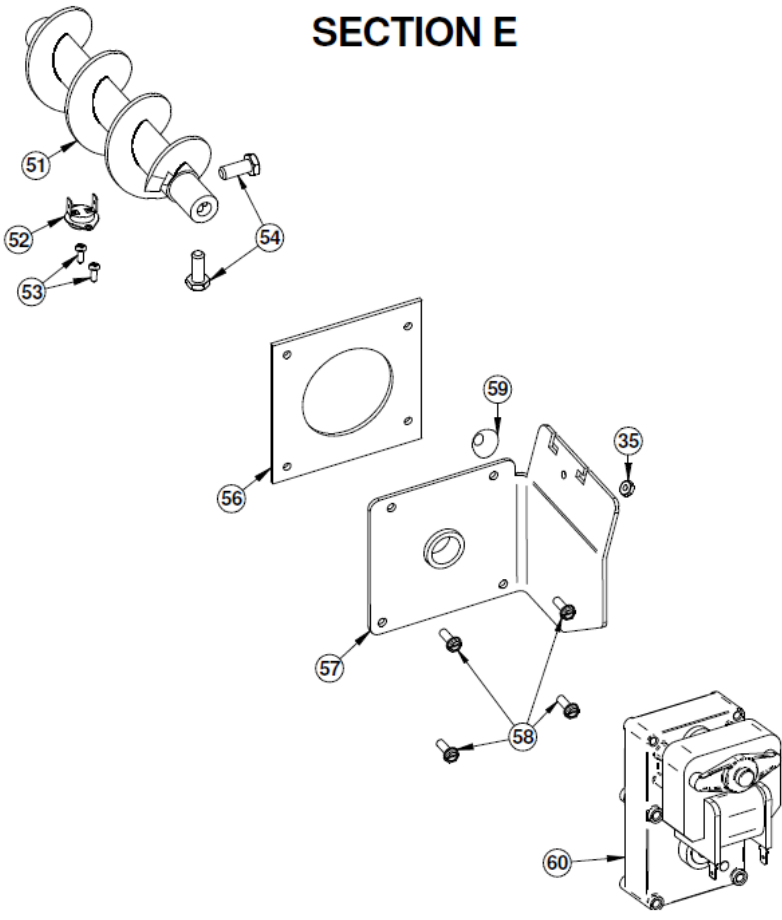
SECTION C



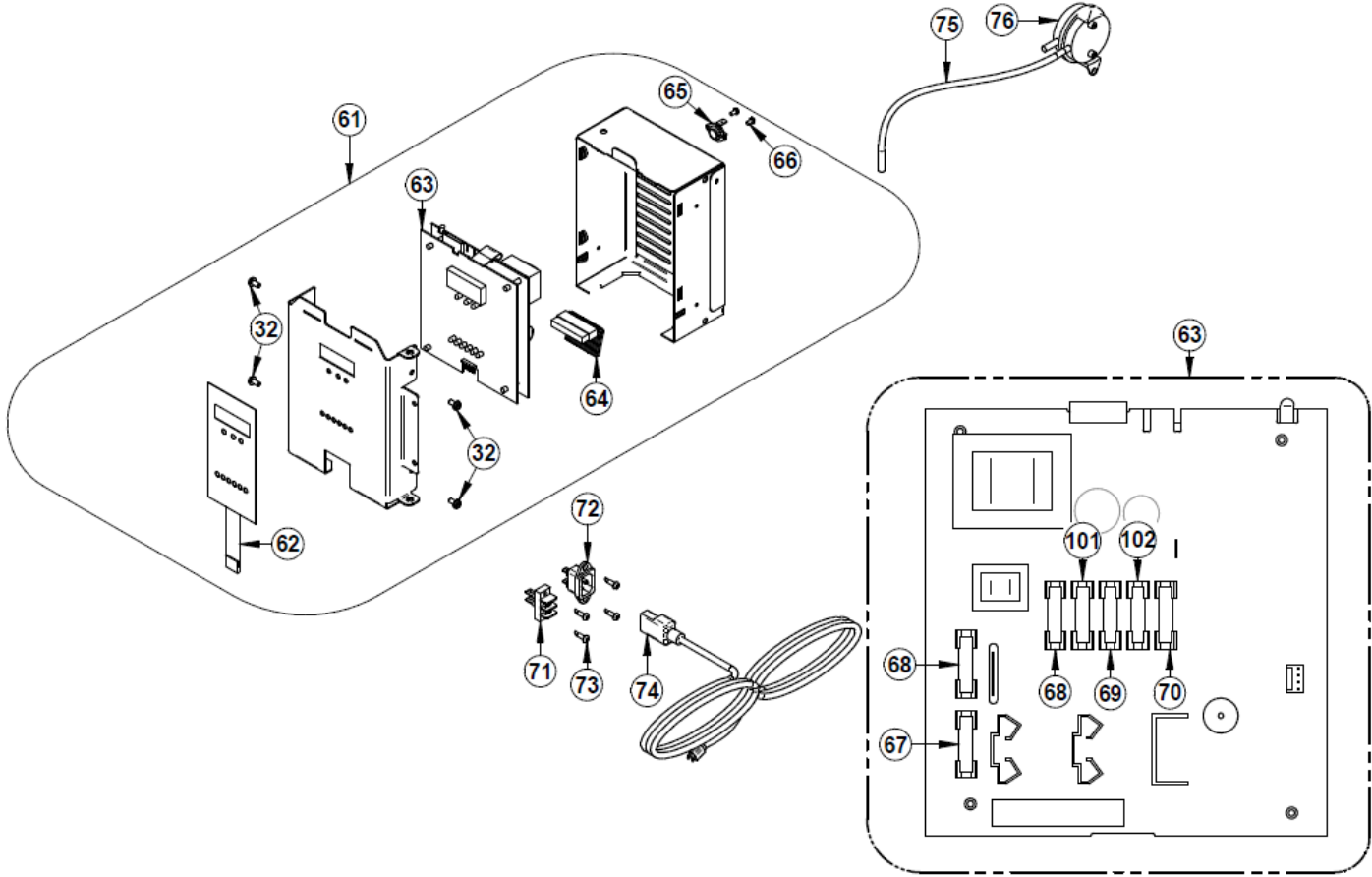
SECTION D



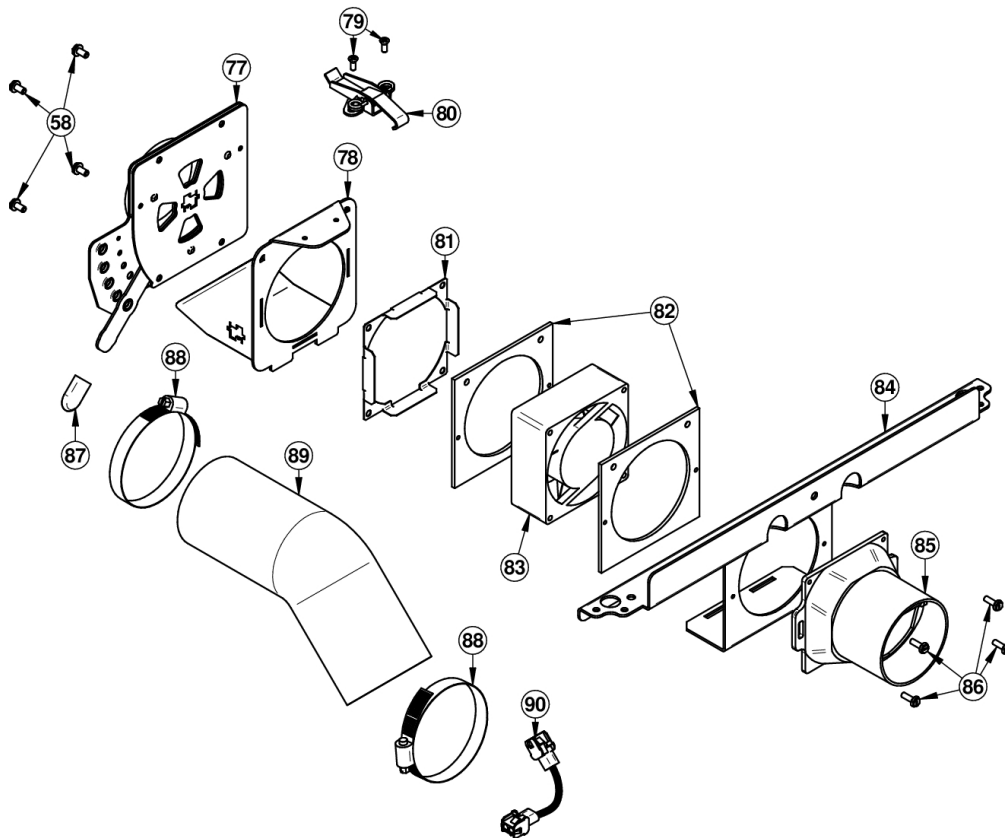
SECTION E



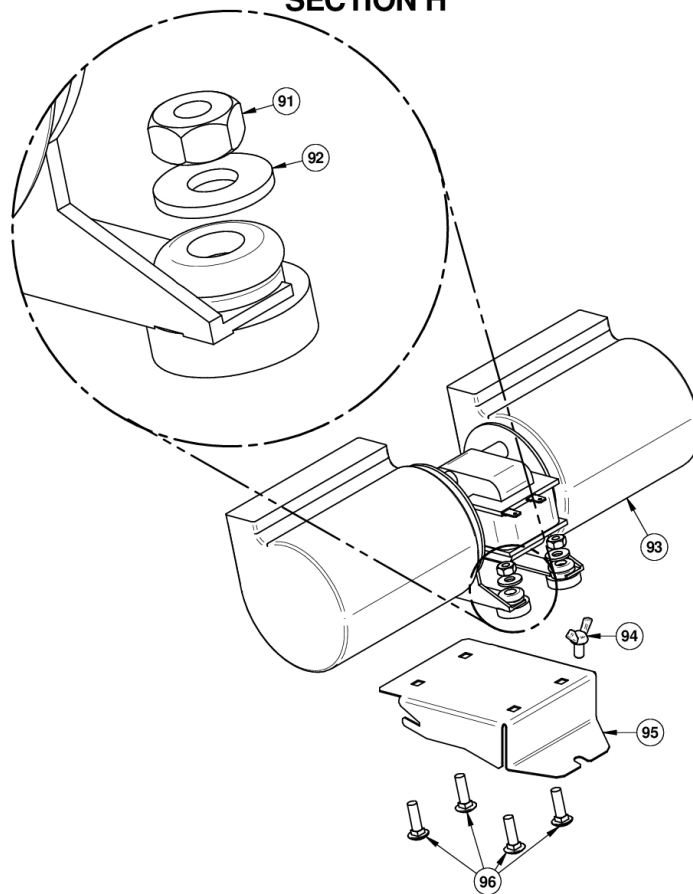
SECTION F



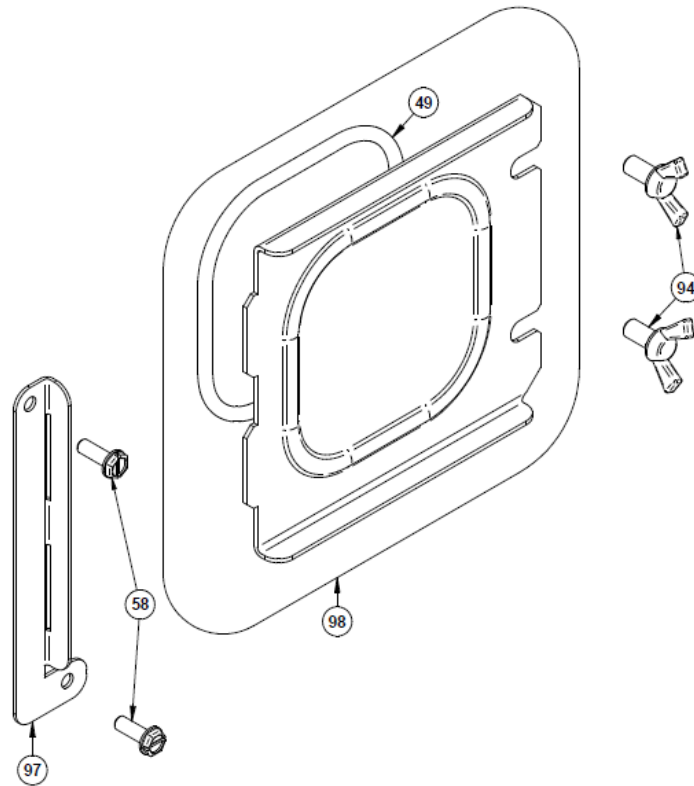
SECTION G



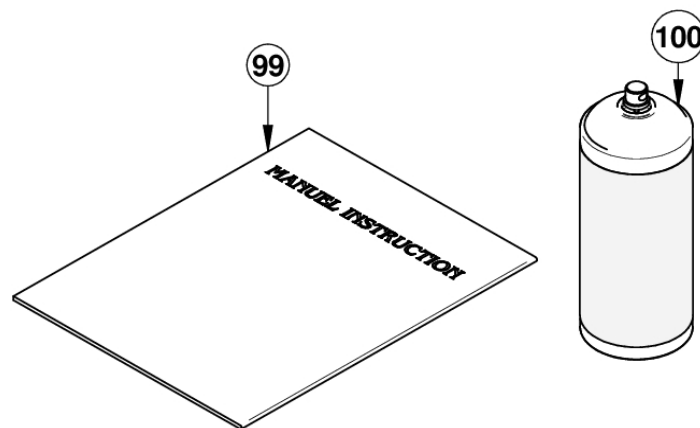
SECTION H



SECTION I



SECTION J



IMPORTANT: THIS IS DATED INFORMATION. When requesting service or replacement parts for your stove, please provide the model number and the serial number. We reserve the right to change parts due to technology upgrade or availability. Contact an authorized dealer to obtain any of these parts. Never use substitute materials. Use of non-approved parts can result in poor performance and safety hazards and will void your warranty.

ENGLISH

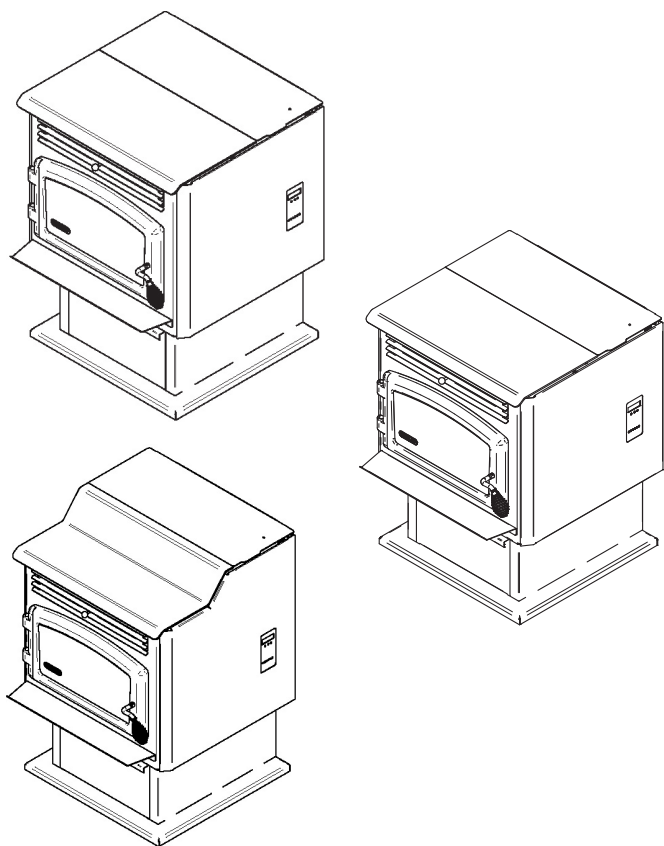
| # | Part | Description | Qty |
|----|------------|--|-----|
| 1 | PL69808 | RIGHT SIDE DECORATIVE PANEL | 1 |
| 2 | PL69809 | LEFT SIDE DECORATIVE PANEL | 1 |
| 3 | PL69806 | LOWER RIGHT SIDE DECORATIVE PANEL | 1 |
| 4 | PL69807 | LOWER LEFT SIDE DECORATIVE PANEL | 1 |
| 5 | PL69801 | HOPPER LID | 1 |
| 6 | PL69794 | BACK PANEL | 1 |
| 7 | PL69795 | LOWER BACK PANEL | 1 |
| 8 | SE69810 | ASH DRAWER | 1 |
| 9 | 99999 | BUILD TO ORDER | 1 |
| 10 | PL69833 | LEFT SIDE DECORATIVE PANEL | 1 |
| 11 | PL69854 | BACK PANEL | 1 |
| 12 | PL69832 | RIGHT SIDE DECORATIVE PANEL | 1 |
| 13 | 30105P | COIL HANDLE 1/2" BLACK | 1 |
| 14 | SE24085 | DOOR FRAME WITH HANDLE AND GASKET WITHOUT GLASS | 1 |
| 15 | AC06200 | SILICONE AND 1/4" X 1/2" X 11' BLACK GASKET KIT | 1 |
| 16 | AC09176 | DOOR HANDLE AND LATCH KIT | 1 |
| 17 | AC09185 | DOOR LATCH KIT | 1 |
| 18 | PL52683 | REMOVABLE HANDLE | 1 |
| 19 | 30101 | SPRING TENSION PIN 5/32" DIA X 1 1/2" L | 1 |
| 20 | SE52708 | ARCHED REPLACEMENT GLASS WITH GASKET 7 51/64" X 16 3/4" X 8 23/32" | 1 |
| 21 | AC06400 | 3/4" (FLAT) X 6' BLACK SELF-ADHESIVE GLASS GASKET | 1 |
| 22 | PL52717 | HINGE SIDE GLASS RETAINER | 1 |
| 23 | PL08537-04 | TOP GLASS RETAINER | 1 |
| 24 | PL52719 | HANDLE SIDE GLASS RETAINER | 1 |
| 25 | PL52718 | AIR DEFLECTOR TRIM | 1 |
| 26 | 30124 | SCREW #8 - 32 X 5/16" TRUSS QUADREX ZINC | 12 |
| 27 | 30170 | HINGE PIN 5/16" DIA X 1 1/2" L (0.309 TO 0.312) | 2 |
| 28 | 30055 | HINGE PIN RETAINING RING 5/16" ID X 0.512" OD | 2 |
| 29 | SE16059 | ASH PLUG | 1 |
| 30 | SE69759 | BURN POT | 1 |
| 31 | 44192 | IGNITOR TUBE | 1 |
| 32 | 30029 | THREAD CUTTING SCREW 10-24 TYPE "F" X 3/8" HEX WASHER | 16 |
| 33 | SE44132 | IGNITER ASSEMBLY 120V 300W | 1 |
| 34 | PL69777 | FIRE BAFFLE | 1 |
| 35 | 30417 | BLACK HEX NUT #8-32 | 3 |

| # | Part | Description | Qty |
|----|---------|---|-----|
| 36 | 30370 | RUBBER BUMPER WITH THREADS (SMALL) | 3 |
| 37 | 44098 | HOPPER LID SAFETY SWITCH | 1 |
| 38 | 30013 | HINGE 2" X 1 1/2" | 2 |
| 39 | SE69785 | EXHAUST PIPE ASSEMBLY | 1 |
| 40 | 21392 | EXHAUST ADAPTER GASKET | 1 |
| 41 | 30093 | BOLT 1/4-20 X 3/4" HEX GRADE 5 | 2 |
| 42 | SE44193 | EXHAUST FAN WITH GASKETS | 1 |
| 43 | 30094 | HEX SCREW WASHER HEAD 1/4-20 X 3/4" F ZINC TYPE | 1 |
| 44 | 30220 | FLANGED LOCKNUT 1/4-20 | 2 |
| 45 | SE44095 | THERMISTOR ASSEMBLY | 1 |
| 46 | 21393 | EXHAUST BLOWER GASKET | 1 |
| 47 | PL69764 | SUPPORT EXHAUST TRAP | 1 |
| 48 | SE69803 | EXHAUST CLEANING PANEL ASSEMBLY | 1 |
| 49 | AC06815 | BLACK GASKET AND SILICONE KIT 3/16" X 5' | 1 |
| 50 | 30484 | WING NUT 1/4-20 | 2 |
| 51 | 24017 | CAST IRON AUGER | 1 |
| 52 | 44059 | THERMODISC 36T11 L250-25 AUTOMATIC | 1 |
| 53 | 30138 | METAL SCREW #6 3/8" QUADREX "A" TYPE BLACK | 2 |
| 54 | 30092 | BOLT 5/16"-18 X 3/4" HEX GRADE 5 | 2 |
| 55 | 30528 | BRASS BUSHING FOR PELLET STOVE AUGER | 1 |
| 56 | 21110 | AUGER PLATE GASKET | 1 |
| 57 | PL69773 | AUGER BUSHING SUPPORT PLATE | 1 |
| 58 | 30026 | THREAD CUTTING SCREW 10-24 F 5/8" HEX WASHER HEAD | 10 |
| 59 | 30369 | RUBBER BUMPER WITH THREADS (LARGE) | 1 |
| 60 | 44106 | GEAR MOTOR FOR PELLET STOVE AUGER 1.5 RPM | 1 |
| 61 | SE69791 | CONTROL BOARD BOX ASSEMBLY | 1 |
| 62 | 44148 | MEMBRANE SWITCH CONTROL BOARD | 1 |
| 63 | PL69855 | CONTROL BOARD 55 SERIE | 1 |
| 64 | 60382 | WIRING HARNESS | 1 |
| 65 | 44058 | THERMODISC 36T12 F160 | 1 |
| 66 | 30080 | METAL SCREW #6 X 1/4 TYPE B PAN PHILLIPS | 2 |
| 67 | 44149 | FUSE 8A / 250V (5 X 20) F3-MAIN OR F8 IGNITER | 1 |
| 68 | 44152 | FUSE 0.5A / 250V (5 X 20) F2-INTERFACE | 2 |
| 69 | 44200 | FUSE GLASS 2A 250VAC 5X20MM SLOW BLOW | 1 |
| 70 | 44201 | FUSE GLASS 4A 250VAC 5X20MM SLOW BLOW | 1 |
| 71 | 60036 | THERMOSTAT TERMINAL | 1 |
| 72 | 60196 | POWER CORD RECEPTACLE | 1 |
| 73 | 30155 | METAL SCREW #8 X 5/8" PHILLIPS SELFTAPPING TEK ZINC | 4 |
| 74 | 60331 | POWER CORD 6' | 1 |
| 75 | 49004 | PRESSURE SWITCH HOSE | 1 |
| 76 | 44029 | PRESSURE SWITCH | 1 |
| 77 | SE69849 | AIR CONTROL DAMPER ASSEMBLY | 1 |

| # | Part | Description | Qty |
|-----|---------|---|-----|
| 78 | PL69784 | AIR INTAKE PLATE | 1 |
| 79 | 30021 | SELF TAPPING SCREW 8-32 "F" TYPE X 7/16" FLAT HEAD PHILLIPS BLACK | 2 |
| 80 | 30439 | SPRING CLAMP ZINC PLATED BRIGHT CHROMATE DIP | 1 |
| 81 | PL64359 | COMBUSTION FAN GASKET FRAME | 1 |
| 82 | 21400 | COMBUSTION FAN GASKET | 2 |
| 83 | SE44147 | AXIAL BLOWER ASSEMBLY 115V 9W 92 X 92 X 38 | 1 |
| 84 | PL69799 | AIR CONTROL BRACKET | 1 |
| 85 | 30777 | PLASTIC BACKDRAFT DAMPER ASSEMBLY | 1 |
| 86 | 30502 | SELF TAPING SCREW #8 - 32 X 1/2" TYPE F x 3/4 HEX FLAT HEAD | 4 |
| 87 | 30556 | AIR CONTROL FINISHING TIP | 1 |
| 88 | 49400 | 2 1/2" TO 3 1/2" STEEL COLLAR | 2 |
| 89 | 21381 | 2 FOLD ALUMINUM LINER 3" X 6" COMPRESSED | 1 |
| 90 | 60383 | IGNITER JUNCTION WIRE | 1 |
| 91 | 30100 | BLACK HEX NUT 1/4 - 20 | 4 |
| 92 | 30185 | 17/64" "AA" TYPE WASHER | 4 |
| 93 | 44122 | DOUBLE CAGE BLOWER 176 CFM (CLASS H) | 1 |
| 94 | 30485 | WING NUT 1/4-20 X 1/2" ZINC PLATTED | 3 |
| 95 | PL69805 | CONVECTION FAN SUPPORT | 1 |
| 96 | 30446 | CARRIAGE BOLT 1/4 - 20 x 1" ZINC | 4 |
| 97 | PL69802 | CLEANING ACCESS PANEL SUPPORT | 1 |
| 98 | SE69804 | CLEANING ACCESS PANEL WITH GASKET | 1 |
| 99 | 45876 | USER MANUAL | 1 |
| 100 | AC05959 | METALLIC BLACK STOVE PAINT - 342 g (12oz) AEROSOL | 1 |
| 101 | 44150 | FUSE 3A / 250V (5 X 20) F4-AUGER & DC IEC CONNECTOR | 1 |
| 102 | 44199 | FUSE GLASS 1.25A 250VAC 5X20MM SLOW BLOW | 1 |
| 103 | PL69887 | DECORATIVE TOP DOOR TRIM (ECO-55 CT ONLY) | 1 |
| 104 | PL69888 | DECORATIVE BOTTOM DOOR TRIM (ECO-55 CT ONLY) | 1 |



MANUEL D'INSTALLATION ECO-55, ECO-55 CT et ECO-55 ST (modèle DP00070, DP00072 et DP00071)



Essai de sécurité fait conformément aux normes
ULC S627, UL 1482 et ASTM E1509 par un
laboratoire accrédité



FRANÇAIS

**L'INSTALLATION PAR UN
PROFESSIONNEL EST FORTEMENT
RECOMMANDÉE**

Fabricant de poêles international inc.
250, rue de Copenhague,
St-Augustin-de-Desmaures (Québec) Canada
G3A 2H3

Service aux consommateurs : 418-908-8002
Courriel : tech@sbi-international.com
www.drolet.ca

**CONTACTEZ VOTRE SERVICE MUNICIPAL DU BÂTIMENT OU DES INCENDIES POUR CONNAÎTRE
LES RESTRICTIONS ET LES EXIGENCES D'INSPECTION ET D'INSTALLATION DANS VOTRE RÉGION.**

**LISEZ CE MANUEL AU COMPLET AVANT D'INSTALLER VOTRE NOUVEAU POËLE. IL EST IMPORTANT
DE RESPECTER INTÉGRALEMENT LES DIRECTIVES D'INSTALLATION. SI LE POËLE N'EST PAS
INSTALLÉ CORRECTEMENT, IL PEUT EN RÉSULTER UN INCENDIE, DES BLESSURES CORPORELLES
OU MÊME LE DÉCÈS.**

LIRE LE PRÉSENT MANUEL ET LE CONSERVER POUR CONSULTATION



Ce manuel peut être téléchargé gratuitement à partir du site web du fabricant. Il s'agit d'un document dont les droits d'auteur sont protégés. La revente de ce manuel est formellement interdite. Le fabricant se réserve le droit de modifier ce manuel de temps à autre et ne peut être tenu responsable de tous problèmes, blessures ou dommages subis suite à l'utilisation d'information contenue dans tout manuel obtenu de sources non autorisées.

1. CONSIGNES DE SÉCURITÉ

Nous recommandons fortement que nos produits de chauffage soient installés par des professionnels certifiés aux États-Unis par le NFI (National Fireplace Institute®) ou au Canada par WETT (Wood Energy Technology Transfer) ou au Québec par l'APC (Association des Professionnels du Chauffage).

Lorsque ce poêle n'est pas installé correctement, les matériaux combustibles à proximité peuvent surchauffer. Pour réduire les risques d'incendie, suivez les instructions d'installation de ce manuel intégralement. Contactez votre service municipal du bâtiment ou des incendies pour connaître les restrictions et les exigences d'inspection et d'installation dans votre région.

Lisez ce manuel au complet avant d'installer et d'utiliser votre nouveau poêle. Il se peut que vous deviez vous procurer un permis pour l'installation du poêle et du système d'évent sur lequel il est branché. Communiquez avec votre service municipal du bâtiment ou des incendies avant l'installation. Nous vous recommandons également de demander à votre compagnie d'assurance habitation si cette installation aura une incidence sur votre police d'assurance.

ATTENTION

IL EST FORTEMENT DÉCONSEILLÉ D'INSTALLER CE POÊLE DANS UNE CHAMBRE À COUCHER.

ATTENTION

L'INSTALLATION INADÉQUATE DE VOTRE APPAREIL POURRAIT CAUSER UN INCENDIE. POUR RÉDUIRE LES RISQUES, SUIVEZ LES INSTRUCTIONS D'INSTALLATION.

ATTENTION

BRÛLER DES COMBUSTIBLES SOLIDES GÉNÈRE DU MONOXYDE DE CARBONE EN FAIBLE CONCENTRATION. CES GAZ SONT EXPULSÉS PAR LE SYSTÈME D'ÉVACUATION. DES CONCENTRATIONS PLUS ÉLEVÉES EN MONOXYDE DE CARBONE SONT TOXIQUES ET PEUVENT CAUSER LA MORT. AFIN D'ÉVITER UN EMPOISONNEMENT, ASSUREZ-VOUS QUE VOTRE SYSTÈME D'ÉVENT EST ÉTANCHE.

ATTENTION

CE POÊLE EST APPROUVÉ MAISON MOBILE ET REQUIERT L'INSTALLATION D'UN ENSEMBLE D'ENTRÉE D'AIR FRAIS, VENDU SÉPARÉMENT. LE POÊLE DOIT ÊTRE FIXÉ À LA STRUCTURE DE LA MAISON MOBILE ET L'INTÉGRITÉ STRUCTURALE DU PLANCHER, DES MURS, DU PLAFOND ET DU TOIT DE LA MAISON MOBILE DOIT ÊTRE MAINTENUE. IL EST INTERDIT D'INSTALLER CE POÊLE DANS UNE CHAMBRE À COUCHER D'UNE MAISON MOBILE.

MISE EN GARDE

CE POÊLE DOIT ÊTRE BRANCHÉ DANS UNE PRISE STANDARD DE 120V/60HZ, AVEC MISE À LA TERRE. NE PAS UTILISER D'ADAPTATEUR ÉLECTRIQUE. NE PAS ENDOMMAGER OU ENLEVER LA MISE À LA TERRE. NE FAITES JAMAIS PASSER LE CORDON D'ALIMENTATION ÉLECTRIQUE EN AVANT, AU-DESSUS OU EN DESSOUS DU POÊLE.

REMARQUE

L'utilisation de composants provenant d'autres appareils ou la modification des composants actuels du poêle sont interdites et annuleront la garantie. Toute modification de l'appareil qui n'a pas été approuvée par écrit par l'autorité d'homologation ou le fabricant est interdite et viole les normes CSA B365 (Canada) et NFPA 211 (É.-U.).

REMARQUE

Lors du choix de l'emplacement de l'appareil, assurez-vous que le système d'évent n'entre pas en conflit avec les solives de plancher, les chevrons de toit, les montants, les conduites d'eau ou les fils électriques. Il est plus facile de relocaliser l'appareil que de modifier la structure de l'habitation.

REMARQUE

Les informations inscrites sur la plaque d'homologation de l'appareil ont toujours préséance sur les informations contenues dans tout autre média publié (manuels, catalogues, circulaires, revues ou sites web).

REMARQUE

Ce poêle a été conçu et développé pour être utilisé comme chauffage d'appoint résidentiel. Un usage commercial ou industriel est interdit et annulera la garantie.

REMARQUE

SBI - Fabricant de poêles international inc. n'assume aucune garantie implicite ou explicite liée à la mauvaise installation de l'appareil et n'assume aucune responsabilité pour tout dommage qui en résulterait.



AVERTISSEMENT: Ce produit peut vous exposer à des agents chimiques, y compris du monoxyde de carbone, identifiés par l'État de la Californie comme pouvant causer le cancer ou des malformations congénitales et autres troubles de l'appareil reproducteur. Pour de plus amples informations, prière de consulter le www.P65warnings.ca.gov

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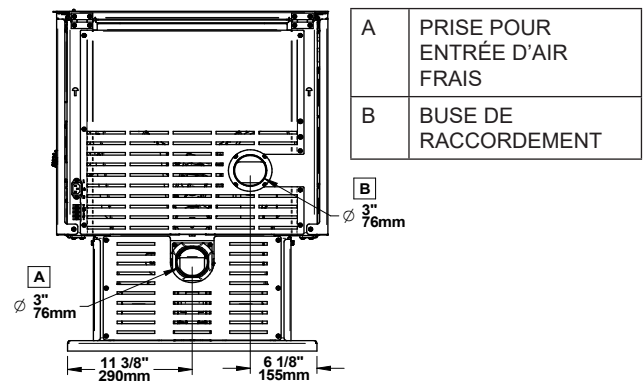
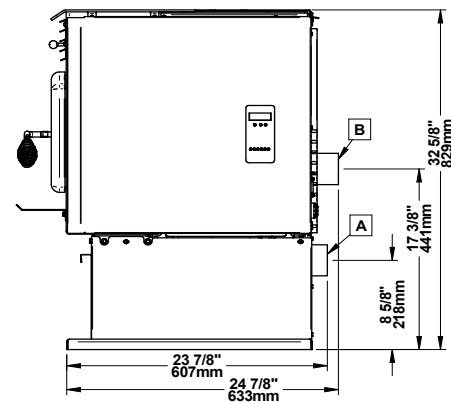
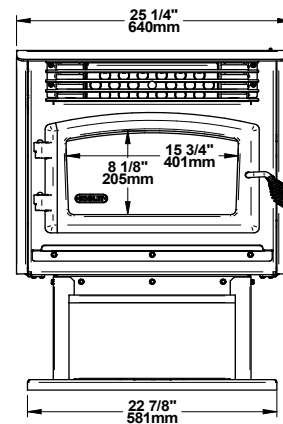
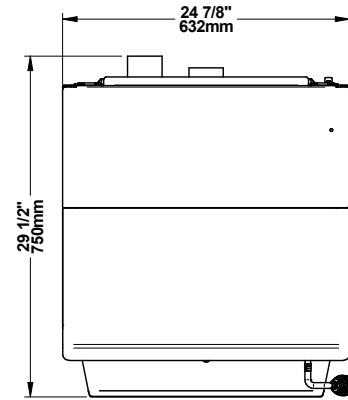
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2. INFORMATIONS GÉNÉRALES

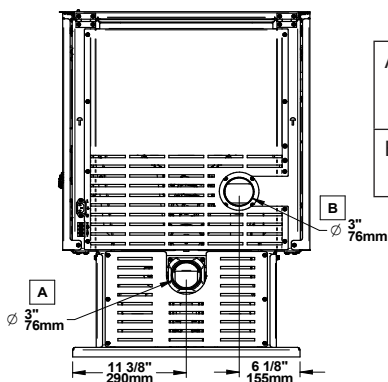
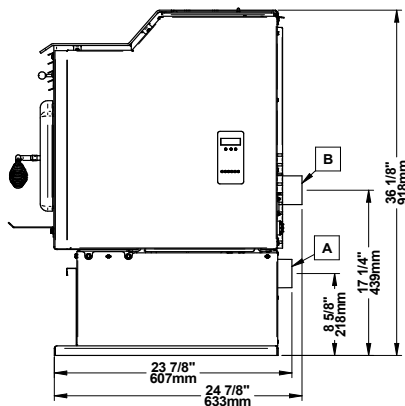
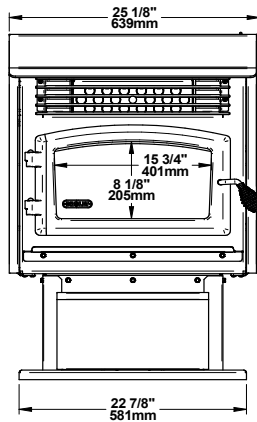
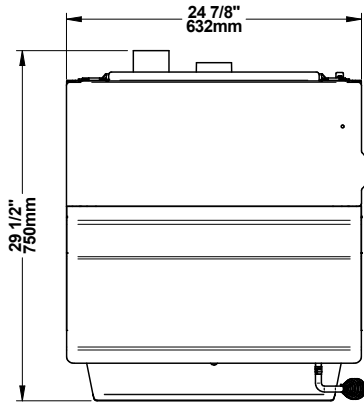
| | |
|--|---|
| Diamètre de cheminée recommandé | 3 po. (75 mm) |
| Diamètre de la buse de raccordement | 3 po. (75 mm) |
| Type de Cheminée | ULC/ORD-C441 CAN/ULC S609 UL 641 (TYPE L) |
| Approuvé pour installation en alcôve | Oui |
| Approuvé pour installation en maison mobile ‡ | Oui |
| Poids à l'expédition (sans options) | 277 lb (DP00070,72) 286 lb (DP00071) |
| Poids de l'appareil (sans options) | 235lb (DP00070,72) 242lb (DP00071) |
| Normes d'émission de particules | CSA B415.1-10 ASTM E2779 |
| Norme américaine (sécurité) | ASTM E1509 UL 1482 |
| Norme canadienne (sécurité) | ULC S627 |
| Spécifications électriques | Tension et fréquence 120VAC et 60 Hz Allumage : 3.02A |

‡ Maison mobile (Canada) ou maison préfabriquée (É.-U.) : Le département américain du logement et du développement urbain décrit «maisons préfabriquées» mieux connues pour «maisons mobiles» comme suit ; bâtiments construits sur des roues fixes et ceux transportés sur des roues/essieux temporaires installées sur une fondation permanente. Au Canada, une maison mobile est une habitation dont l'assemblage de chaque composante est achevé ou achevé en grande partie avant le déplacement de celle-ci jusqu'à un emplacement pour y être placée sur des fondations, raccordé à des installations de service et qui rencontre la norme CAN/CSA-Z240 MH.

2.1 DIMENSIONS EXTÉRIEURES (DP00070-DP00072)



2.2 DIMENSIONS EXTÉRIEURES (DP00071)



| | |
|---|-------------------------------|
| A | PRISE POUR ENTRÉE D'AIR FRAIS |
| B | BUSE DE RACCORDEMENT |

2.3 RÈGLEMENTS RÉGISSANT L'INSTALLATION D'UN POÊLE À GRANULES

Lorsqu'il est installé et utilisé tel que décrit dans les présentes instructions, ce poêle à granules convient comme appareil de chauffage d'appoint pour installation résidentielle.

Au Canada, il faut respecter le CSA B365 Installation des appareils de chauffage à combustible solide et du matériel connexe et le CSA C22.1 Code canadien de l'électricité en l'absence de code local.

Aux États-Unis, il faut suivre le ANSI NFPA 211 Standard for Chimneys, Fireplaces, Vents and Solid Fuel-Burning Appliances et le ANSI NFPA 70 National Electrical Code en l'absence de code local.

Ce poêle à granules doit être raccordé à un système d'évent conforme aux exigences de système d'évent pour appareil à granules de bois dans la norme pour cheminées préfabriquées de type résidentiel et appareils de chauffage de bâtiment, UL 103, UL 641, ULC S629M, CAN/ULC S609 et ULC/ORD C441 ou à une cheminée de maçonnerie approuvée selon le code avec une gaine de cheminée en acier inoxydable.

2.4 LOCALISATION DE LA PLAQUE D'HOMOLOGATION

Puisque les informations inscrites sur la plaque d'homologation de l'appareil ont toujours préséance sur les informations contenues dans tout autre média publié (manuels, catalogues, circulaires, revues ou sites web) il est important de vous y référer afin d'avoir une installation sécuritaire et conforme. De plus, vous y trouverez des informations importantes concernant votre appareil (modèle, numéro de série, etc.) Vous trouverez la plaque d'homologation à l'intérieur du panneau de la trémie.

MISE EN GARDE

N'UTILISEZ PAS DE MATÉRIAUX DE FORTUNE ET NE FAITES PAS DE COMPROMIS LORSQUE VOUS INSTALLEZ LE POÊLE.

3. DÉGAGEMENTS AUX MATÉRIAUX COMBUSTIBLES

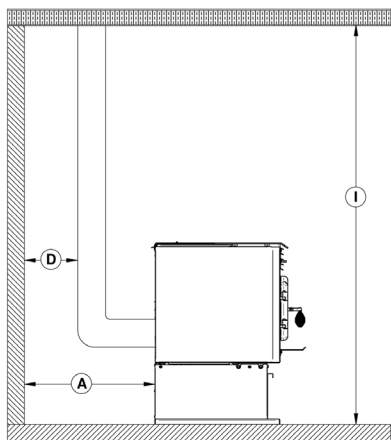
Les dégagements donnés dans la présente section s'appliquent au DP00070, DP00072 ainsi qu'au DP00071.

Les dégagements donnés dans la présente section ont été établis à partir d'essais conformément aux procédures décrites dans les normes ULC S627 (Canada) et ASTM E1509 (USA) et UL1482 (USA). Lorsque les dégagements minimums indiqués sont respectés, les surfaces combustibles ne surchaufferont pas en usage normal et même en usage anormal.

REMARQUE

Ces dégagements sont aussi **valides pour une installation dans une alcôve**. Par contre, si l'appareil est installé dans une alcôve, pour faire votre entretien vous devrez prévoir déplacer l'appareil pour accéder aux trappes de nettoyage et aux composants.

3.1 DÉGAGEMENTS AUX MURSET PLAFOND



| DÉGAGEMENTS MINIMAUX | | |
|----------------------|----------------|----------------|
| | CANADA | É-U |
| A* | 3" (76 mm) | 3" (76 mm) |
| D | Note 1 | Note 1 |
| I** | 48" (1 220 mm) | 48" (1 220 mm) |

* À partir de la tôle arrière

** Mesuré à partir de la plateforme sur laquelle le produit est déposé.

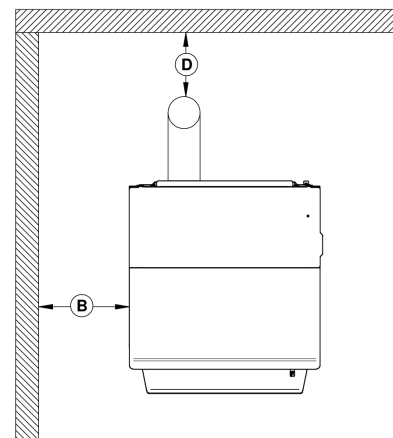
| DÉGAGEMENTS RECOMMANDÉS POUR L'ENTRETIEN | | |
|--|--------------|--------------|
| | CANADA | É-U |
| A* | 12" (305 mm) | 12" (305 mm) |

ATTENTION

AUCUNE PARTIE DU POÊLE NE PEUT ÊTRE PLACÉE PLUS PRÈS DES MATÉRIAUX COMBUSTIBLES QUE LES DÉGAGEMENTS MINIMUMS INDIQUÉS SUR LA PLAQUE D'HOMOLOGATION.

ATTENTION

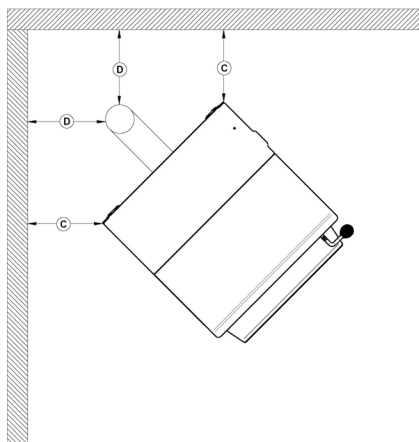
AUCUNE PARTIE DU SYSTÈME D'ÉVENT NE PEUT ÊTRE PLACÉE PLUS PRÈS DES MATÉRIAUX COMBUSTIBLES QUE LES DÉGAGEMENTS MINIMUMS INDIQUÉS PAR LE MANUFACTURIER DU SYSTÈME D'ÉVENT.



| DÉGAGEMENTS MINIMAUX | | |
|----------------------|-------------|-------------|
| | CANADA | É-U |
| B | 6" (152 mm) | 6" (152 mm) |
| D | Note 1 | Note 1 |

| DÉGAGEMENTS RECOMMANDÉS POUR L'ENTRETIEN | | |
|--|--------------|--------------|
| | CANADA | É-U |
| B | 24" (610 mm) | 24" (610 mm) |

Note 1 : Se référer aux instructions du fabricant du système d'évent pour les dégagements aux matériaux combustibles.

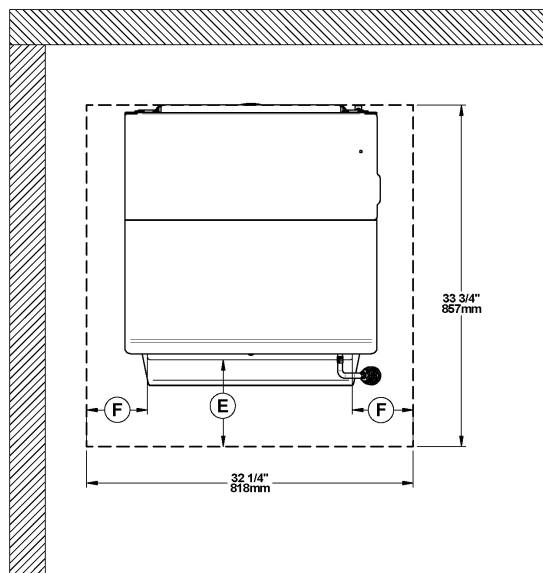


| DÉGAGEMENTS MINIMAUX | | |
|----------------------|------------|------------|
| | CANADA | É-U |
| C | 3" (76 mm) | 3" (76 mm) |
| D | Note 1 | Note 1 |

| DÉGAGEMENTS RECOMMANDÉS POUR L'ENTRETIEN | | |
|--|--------------|--------------|
| | CANADA | É-U |
| C | 12" (305 mm) | 12" (305 mm) |
| D | Note 1 | Note 1 |

Note 1 : Se référer aux instructions du fabricant du système d'évent pour les dégagements aux matériaux combustibles.

3.2 PROTECTION DE PLANCHER



| PROTECTION DE PLANCHER | | |
|------------------------|--|--|
| | CANADA** | É-U |
| E | 6" (152 mm) De l'ouverture de porte | 6" (152 mm) De l'ouverture de porte |
| F | 6" (152 mm) De l'ouverture de porte | 6" (152 mm) De l'ouverture de porte |

| MISE EN GARDE | |
|--|--|
| LE POËLE DOIT ÊTRE PLACÉ SUR UNE SURFACE INCOMBUSTIBLE CONTINUE TELLE QUE DE LA CÉRAMIQUE*, UN PANNEAU DE BÉTON, DE LA BRIQUE, UN PANNEAU D'AGGLOMÉRÉ INCOMBUSTIBLE OU TOUT AUTRE MATÉRIEL ÉQUIVALENT, APPROUVÉ COMME PROTECTION DE PLANCHER. | |

*La céramique doit être placée sur un panneau incombustible continu afin d'éviter que des tisons puissent être mis en contact avec le plancher à travers des fissures ou des manques dans le coulis de la céramique, ceci inclut la protection de plancher pour les âtres de foyers déjà existants. Vérifier le code local pour les alternatives approuvées.

**Vous pouvez utiliser les dimensions de la protection de plancher mentionnées dans le tableau précédent SEULEMENT si vous acceptez d'attendre que l'unité soit complètement éteinte, c'est-à-dire qu'il n'y ait plus de feu dans le pot de combustion et que les ventilateurs soient éteints, avant d'ouvrir la porte de l'unité ou d'enlever le tiroir à cendres. Sinon, voir CSA B365.

4. SYSTÈME D'ÉVENT

MISE EN GARDE

RACCORDER LE POÊLE SEULEMENT À UN SYSTÈME D'ÉVENT HOMOLOGUÉ POUR UTILISATION AVEC DU COMBUSTIBLE SOLIDE OU À UNE CHEMINÉE CONFORME AUX CODES DU BÂTIMENT NATIONAL ET LOCAL.

MISE EN GARDE

NE JAMAIS RACCORDER CE POÊLE À TOUT AUTRE SYSTÈME D'ÉVACUATION SERVANT À UN AUTRE APPAREIL.

MISE EN GARDE

AFIN D'ASSURER UNE PERFORMANCE CONSTANTE ET ÉVITER LES REFOULEMENTS DE FUMÉE ET DE CENDRES, LES JOINTS DU SYSTÈME D'ÉVENT DOIVENT ÊTRE SCELLÉS HERMÉTIQUEMENT ET INSTALLÉS CORRECTEMENT SELON LES INSTRUCTIONS DU MANUFACTURIER DU SYSTÈME D'ÉVENT.

MISE EN GARDE

NE PAS INSTALLER DE REGISTRE MANUEL SUR LE SYSTÈME D'ÉVENT DE CET APPAREIL.

MISE EN GARDE

NE PAS RACCORDER À UN SYSTÈME OU À UN CONDUIT DE DISTRIBUTION D'AIR.

MISE EN GARDE

LE SYSTÈME D'ÉVENT DEVRAIT ÊTRE INSPECTÉ AU MOINS DEUX FOIS PAR ANNÉE POUR PRÉVENIR TOUTE ACCUMULATION DE SUIE OU DE CRÉOSOTE.

4.1 GÉNÉRAL

Même si le tirage de la cheminée est mécanique, la bonne configuration du système d'évent assurera un tirage naturel qui permettra d'éviter un épanchement de fumée dans la maison, surtout si une panne de courant survient. De plus, une bonne configuration du système d'évent aidera à obtenir un meilleur rendement de votre poêle lorsqu'il est installé en conformité avec la LEE requise.

4.2 RECOMMANDATIONS

Au Canada, nous recommandons l'usage d'un système d'évent répondant aux exigences des normes CAN/ULC S609 ou ULC/ORD-C441. Un système d'évent répondant aux exigences des normes ULC S629M peut aussi être utilisé.

Aux États-Unis, nous recommandons l'usage d'un système d'évent répondant aux exigences de la norme UL-641. Un système d'évent répondant aux exigences des normes UL 103 peut aussi être utilisé.

Ce poêle peut également être raccordé à une cheminée existante à l'aide d'une gaine en acier inoxydable, si la cheminée a plus de 4" de diamètre. Au Canada, cette gaine doit répondre aux exigences des normes ULC S635 CAN/ULC S640 et aux États-Unis à la norme UL 1777. Référez-vous aux instructions fournies par le fabricant du système d'évent, et ce, spécialement lorsqu'il s'agit de passer au travers un mur, un plafond ou le toit.

4.3 LONGUEUR D'ÉVENT ÉQUIVALENT (LEE)

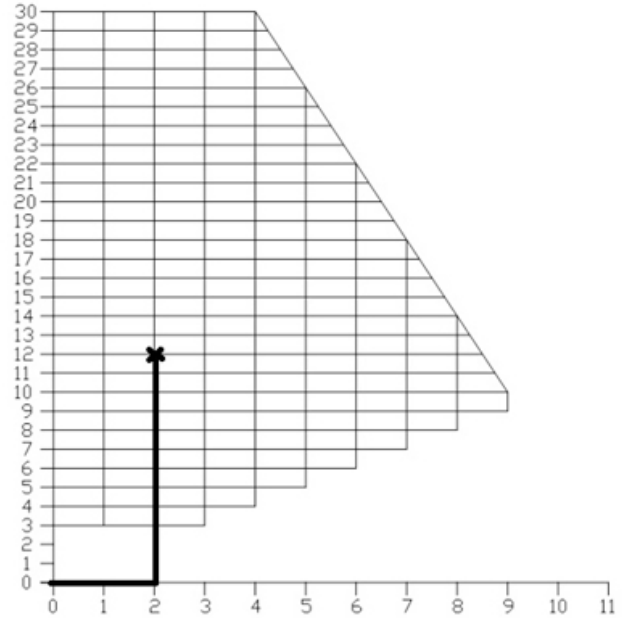
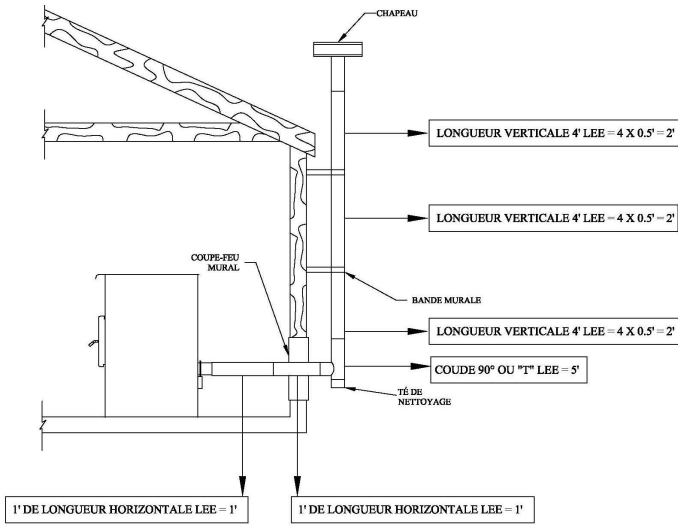
4.3.1 DIAMÈTRE DU SYSTÈME D'ÉVENT RECOMMANDÉ

Le diamètre intérieur de tuyau d'évacuation recommandée est de 3". Utilisez un tuyau de 4" si vous avez plus de 15 pieds de longueur d'évent équivalent (LEE).

Pour calculer la longueur d'évent équivalent de votre installation, utilisez les conversions suivantes:

| Qté | Type de tuyau | Longueur équivalente (LEE) |
|--------|-------------------|----------------------------|
| 1 | Coude 90° ou T | 5 pieds |
| 1 | Coude 45° | 3 pieds |
| 1 pied | tuyau horizontale | 1 pied |
| 1 pied | Tuyau vertical | 0.5 pied |

Voici un exemple pour vous aider à calculer la longueur de l'évent équivalente. L'installation sur la figure suivante se calcule comme suit :



FRANÇAIS

| | |
|---|---------------------|
| 2 pi de long. horizontale (2 X 1' LEE) | = 2' de LEE |
| Coude 90° or «Té» (1 X 5' LEE) | = 5' de LEE |
| 12 pi de long. verticale (12 X 0.5' LEE) | = 6' de LEE |
| Terminaison / Chapeau | = 0' de LEE |
| Total LEE | = 13' de LEE |

Puisque la LEE totale est de moins de 15 pieds, le diamètre du système d'évent recommandé est de 3".

REMARQUE

Ne jamais dépasser 30 pieds de LEE.

4.3.2 CONFORMITÉ DE L'INSTALLATION

Afin de déterminer si l'installation est conforme, la terminaison de l'installation doit se faire dans la partie quadrillée de la charte du système d'évent. L'installation précédente comporte 2 pieds de longueur horizontale et 12 pieds de longueur verticale. Elle serait donc conforme puisque la terminaison se retrouve dans la partie quadrillée.

REMARQUE

Les longueurs de tuyaux horizontales ne doivent pas dépasser 9 pieds.

MISE EN GARDE

POUR RÉDUIRE LE RISQUE DE REFOULEMENT DE FUMÉE, NE JAMAIS TERMINER AVEC UNE COURSE HORIZONTALE. SI VOTRE SYSTÈME TERMINE AVEC UNE COURSE HORIZONTALE, AJOUTEZ UN MINIMUM DE TROIS PIEDS DE COURSE VERTICALE.

ATTENTION

LA TERMINAISON NE DEVRAIT PAS ÊTRE LOCALISÉE DANS UN ENDROIT OÙ LES GAZ D'ÉCHAPPEMENT PEUVENT PRÉSENTER UN DANGER. LES GAZ D'ÉCHAPPEMENT PEUVENT ATTEINDRE 500 °F (260°C) ET PEUVENT CAUSER DES BRÛLURES SÉRIEUSES.

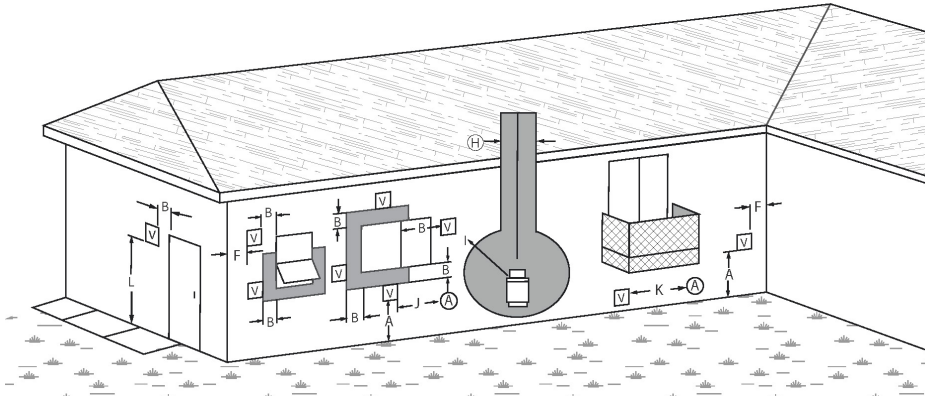
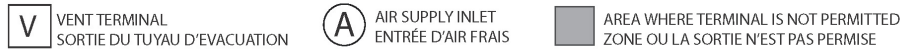
ATTENTION

L'INSTALLATION D'UN GRILLAGE PARE-ÉTINCELLES SUR LA TERMINAISON DE L'ÉVENT EST OBLIGATOIRE.

4.4 LOCALISATION DE LA TERMINAISON

CANADA

Consultez la norme NFPA 211 ou CSA B365 (Canada) pour en apprendre davantage sur les règlements relatifs à la distance de la terminaison murale par rapport aux fenêtres et aux portes. La terminaison murale d'un système doté d'un tirage mécanique, autre qu'un appareil à évacuation directe doit être située conformément aux spécifications suivantes.



| | Dégagements | Description |
|----------|--------------|---|
| A | 12" (30 cm) | Dégagement au-dessus du niveau du sol ou de toute surface adjacente pouvant supporter la neige, la glace ou les débris. |
| B | 39" (100 cm) | Dégagement autour d'une fenêtre ou d'une porte qui peut s'ouvrir. |
| F | 39" (100 cm) | Dégagement d'un coin, d'un mur adjacent ou de tout autre matériel combustible. |
| H | 39" (100 cm) | Dégagement de chaque côté à partir du centre d'un régulateur/compteur à gaz et se prolongeant verticalement à 15 pi. |
| I | 72" (183 cm) | Dégagement de la sortie de l'évent d'un régulateur à gaz ou 39" (100 cm) de l'évent ou de l'orifice de remplissage d'un réservoir d'huile. |
| J | 39" (100 cm) | Dégagement de l'entrée d'air de combustion d'un autre appareil. |
| K | 72" (183 cm) | Dégagement d'une entrée d'air mécanique. |
| L | 84" (213 cm) | Dégagement au-dessus d'un trottoir revêtu ou d'une entrée revêtue située sur une propriété publique. |
| | 39" (100 cm) | Dégagement par rapport à la limite de la propriété. |
| | | Aucune terminaison murale ne peut se trouver en dessous d'une véranda, d'un patio ou d'un balcon. |
| | | Une sortie ne doit pas être installée au-dessus d'un trottoir ou d'une entrée revêtue située entre deux maisons unifamiliales et utilisée par les deux habitations. |

États-Unis :

- Pas moins de 36" (91 cm) au-dessus de toute prise d'air forcé située à moins de 120" (305 cm).
- Pas moins de 48" (122 cm), horizontalement et en dessous, ou 12" (30 cm) au-dessus d'une fenêtre, porte, ou toute autre prise d'air fonctionnant par gravité.
- Pas moins de 24" (61 cm) d'une bâtisse adjacente et au moins 84" (213 cm) au-dessus du trottoir si la terminaison est adjacente à une voie publique.
- À plus de 12" (30 cm) au-dessus du niveau du sol.
- La terminaison ne peut être située au-dessus d'un compteur de gaz/régulateur dans un rayon de 36" (91 cm) de la ligne centrale du régulateur.
- À plus de 6 pieds (183cm) de la sortie d'évent d'un régulateur de gaz.
- D'autres restrictions peuvent s'appliquer. Voir NFPA 211 pour plus d'information.

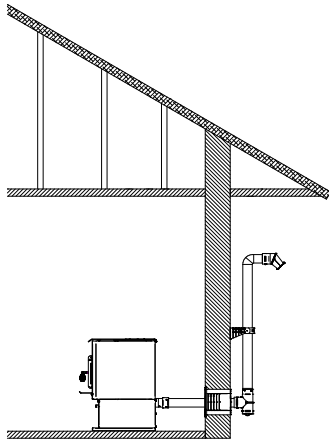
4.5 SYSTÈME D'ÉVACUATION DIRECT (ÉVACUATION ET ENTRÉE D'AIR 2 EN 1)

Au Canada : Les localisations permises pour la terminaison d'un système d'évacuation direct sont les mêmes que celles permises pour la terminaison d'un système d'évacuation pour granules standard.

Aux États-Unis : Les localisations permises pour la terminaison d'un système d'évacuation direct sont les mêmes que celles permises pour la terminaison d'un système d'évacuation pour granule standard sauf pour la suivante : La terminaison doit être à une distance minimale de 9" (23 cm) de toute ouverture par laquelle les gaz de combustion pourraient entrer dans le bâtiment.

4.6 CONFIGURATIONS D'INSTALLATION

4.6.1 INSTALLATION À TRAVERS UN MUR (REZ-DE-CHAUSSÉ OU SOUS-SOL)

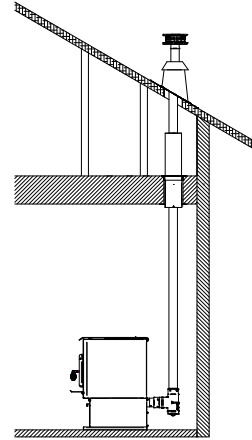


1. Positionnez le poêle en respectant les dégagements du fabricant du poêle et du système d'évent.
2. Installez un adaptateur pour poêle ou un adaptateur en té pour poêle sur la buse de raccordement.
3. Marquez la position de la buse de raccordement au mur derrière et découpez un trou de la taille appropriée pour le système d'évent.
4. Installez le coupe-feu mural selon les instructions du fabricant.
5. Raccordez suffisamment de sections pour faire dépasser le tuyau horizontal d'environ 6" par rapport au mur extérieur. Installez un té sur l'évent qui traverse le mur.
6. Installez une section de tuyau verticale d'une longueur d'au moins 36" du mur. Référez-vous aux

instructions du fabricant d'évent pour les dégagements aux matériaux combustibles ainsi que pour l'utilisation de supports muraux.

7. Installez un coude 90 degrés face opposée au mur, puis fixez un coude 45 degrés faisant face vers le sol. Un grillage pare-étincelles doit être fixé sur la terminaison du coude 45 degrés.
8. Scellez le coupe-feu mural extérieur à l'aide d'un adhésif flexible (silicone) haute température résistant à l'eau.

4.6.2 INSTALLATION À TRAVERS LE TOIT

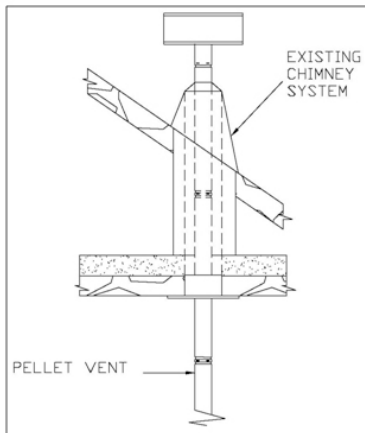


1. Positionnez le poêle en suivant les dégagements du fabricant du poêle et du système d'évent.
2. Installez un adaptateur pour poêle ou un adaptateur en té pour poêle sur la buse d'évacuation. Au besoin, utilisez une longueur additionnelle horizontale entre la buse de raccordement et le « té ».
3. Placez le fil à plomb au-dessus du centre de l'orifice de sortie du té et placez un point au plafond.
4. Découpez un trou pour installer le support de plafond. Faites un châssis autour de l'ouverture brute.
5. Installez le support de plafond et la première section de tuyau d'évacuation en suivant les instructions du fabricant.
6. Installez un coupe-feu radiant pour tous les plafonds/planchers subséquents, sauf pour le grenier où un coupe-feu pour grenier est requis.
7. Raccordez le nombre de sections de tuyaux requis pour que le chapeau dépasse le dessus du toit d'au moins 24" aux États-Unis et d'au moins 36" au Canada.
8. Fixez le support de toit.
9. Installez le solin et le chapeau de cheminée selon les instructions du fabricant. Si nécessaire, installez et scellez un collet de solin.

4.6.3 INSTALLATION À TRAVERS UNE CHEMINÉE PRÉFABRIQUÉE

REMARQUE

Avant l'installation, la cheminée préfabriquée doit être nettoyée et inspectée par un ramoneur ou un installateur qualifié.



1. Positionnez le poêle en suivant les dégagements ainsi que les instructions du fabricant du système d'évent.
2. Installez un adaptateur pour poêle ou un adaptateur en té pour poêle sur la buse. Au besoin, utilisez une longueur additionnelle horizontale entre la buse et le « té ».
3. Utilisez un adaptateur de cheminée approprié pour l'installation.
4. Raccordez le nombre de sections de tuyaux requis pour passer à travers l'adaptateur de cheminée jusque dans la cheminée.
5. Raccordez le tuyau à une gaine en acier inoxydable de 4" conformément aux instructions du fabricant du système d'évent.
6. Installez le solin et le chapeau de cheminée selon les instructions du fabricant. Si nécessaire, installez et scellez un collet de solin.

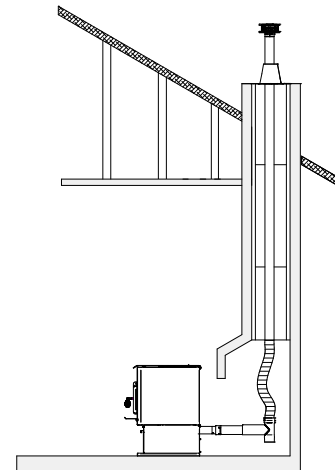
REMARQUE

Aux États-Unis, l'utilisation d'une gaine en acier inoxydable est obligatoire. Au Canada, elle n'est pas obligatoire, mais fortement recommandée.

4.6.4 INSTALLATION À TRAVERS UN FOYER DE MAÇONNERIE EXISTANT

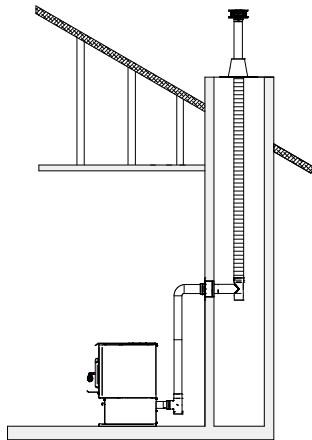
REMARQUE

La condition structurelle de la cheminée de maçonnerie doit tout d'abord être inspectée par un ramoneur ou un installateur qualifié. Vous aurez besoin d'une longueur de tuyau égale à la longueur de la cheminée, à partir du foyer. Si vous devez utiliser un conduit d'apport d'air, vous aurez besoin d'une longueur de tuyau supérieure de 12" à 18" (30 à 46 cm) de la cheminée pour assurer un bon fonctionnement de l'appareil.



1. Positionnez le poêle en suivant les dégagements ainsi que les instructions du fabricant du système d'évent.
2. Installez un adaptateur pour poêle ou un adaptateur en té pour poêle sur la buse. Au besoin, utilisez une longueur additionnelle horizontale entre la buse et le « té ».
3. Utilisez un adaptateur de cheminée approprié pour l'installation.
4. Raccordez le nombre de sections de tuyaux requis pour passer à travers l'adaptateur de cheminée jusque dans la cheminée.
5. Raccordez le tuyau à une gaine en acier inoxydable de 4" conformément aux instructions du fabricant du système d'évent.
6. Installez le solin et le chapeau de cheminée selon les instructions du fabricant. Si nécessaire, installez et scellez un collet de solin.

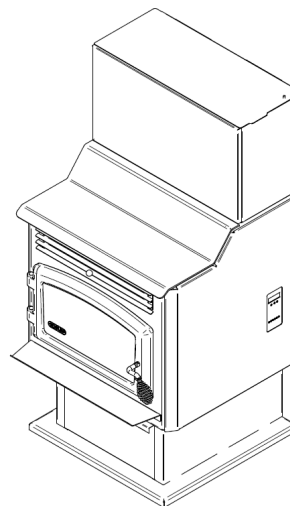
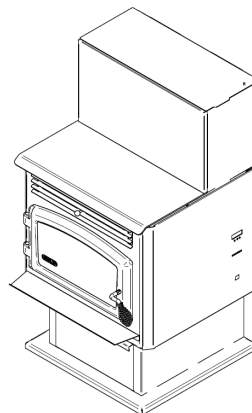
4.6.5 INSTALLATION À TRAVERS UNE CHEMINÉE DE MAÇONNERIE.



1. Positionnez le poêle en suivant les dégagements ainsi que les instructions du manufacturier du système d'évent.
2. Faites une marque à l'endroit où le tuyau entrera dans la maçonnerie.
3. Il est nécessaire de faire un trou dans la maçonnerie d'un pouce de diamètre de plus que le diamètre d'évent utilisé.
4. Installez un "té" de nettoyage dans la partie inférieure du tuyau d'évacuation jusqu'à ce que le centre de la buse de raccordement du "té" soit aligné avec le centre du trou dans la maçonnerie.
5. Raccordez la section horizontale du tuyau d'évacuation en l'alignant avec la buse de raccordement du "té". Poussez le tuyau horizontal à travers le trou de maçonnerie en le tournant pour bien le raccorder au "té" de la gaine.
6. Une fois le tuyau horizontal en place, vous pouvez sceller le joint dans la maçonnerie avec du mortier.
7. Mesurez et fabriquez un solin pour mettre au-dessus de la cheminée. Une plaque et des vis en acier inoxydable sont idéales. Coupez un trou pour le tuyau d'évacuation. Si nécessaire, coupez un second trou pour le tuyau de prise d'air extérieur. Scellez les joints avec du silicone haute température résistant à l'eau.
8. Installez et scellez le solin avec du silicone haute température résistante à l'eau.
9. Installez le chapeau de cheminée. Si nécessaire, installez et scellez un collet de solin.
10. Si désiré, installez un collet décoratif et utilisez la longueur horizontale nécessaire pour raccorder l'appareil à la cheminée.

5. INSTALLATION DE L'EXTENSION DE TRÉMIE OPTIONNELLE.

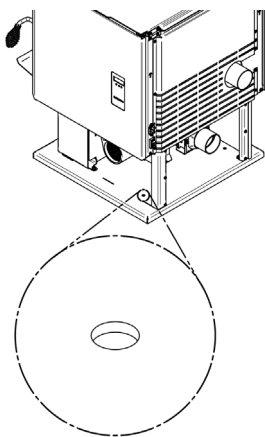
Afin d'augmenter la capacité de la trémie, il est possible d'installer une extension de trémie, vendue séparément. Consultez votre détaillant ou notre site internet pour plus de détails.



6. INSTALLATION DANS UNE MAISON MOBILE

REMARQUE

Pour l'installation en maison mobile, il est obligatoire de relier le poêle à une source d'air de combustion extérieur. Le tuyau isolé ne devrait pas avoir plus de 10 pieds.



Lorsqu'installé dans une maison mobile, ce poêle doit être ancré au sol avec des vis. Utilisez les deux trous d'ancrage (A) situés de chaque côté du socle. Pour une utilisation dans une maison mobile au Canada, ce poêle à granules doit être raccordé à un système d'évent homologué selon la norme ULC/ORD C441 ou CAN/ULC S609. Un système d'évent répondant aux exigences des normes ULC S629M peut aussi être utilisé.

Pour une utilisation dans une maison mobile aux États-Unis, ce poêle à granules doit être raccordé à un système d'évent répondant aux exigences de la norme UL 641. Un système d'évent répondant aux exigences de la norme UL 103 peut aussi être utilisé.

7. INSTALLATION D'UN THERMOSTAT

L'utilisation d'un thermostat vous aidera à maintenir une température plus constante dans la maison. Un thermostat à bas voltage (24 volts) est nécessaire. Un thermostat mural fixe ou télécommandé peut être utilisé.

REMARQUE

Les instructions du fabricant du thermostat ont toujours préséance sur les informations publiées dans la section suivante.

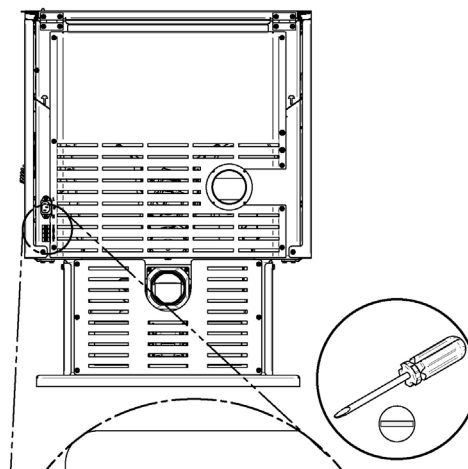
7.1 LOCALISATION DU THERMOSTAT

La localisation du thermostat est très importante afin d'obtenir le confort et l'efficacité de votre poêle.

Placez le thermostat 4 à 5 pieds au-dessus du sol ou en conformité avec les codes du bâtiment applicables.

Installez le thermostat dans un endroit qui offre une bonne circulation d'air et évitez les zones derrière les portes, près des coins, des bouches d'aération, des systèmes d'éclairage, du soleil direct ou tous dispositifs générateurs de chaleur.

Si vous installez le thermostat dans la même pièce que le poêle, il devrait également être situé à au moins 15 à 20 pieds du poêle. Pour éviter le cyclage, vous devriez éviter d'installer le thermostat sur un mur extérieur mal isolé ou directement en face du poêle.



A Thermostat

B Minimum 15'

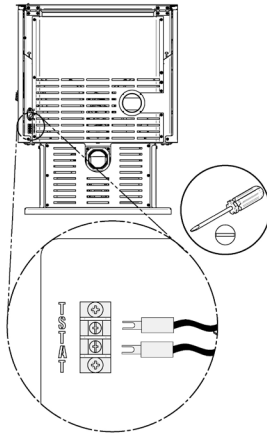
REMARQUE

L'installation du thermostat devant le poêle ou devant une fenêtre fera cyclé le poêle et usera prématurément les composantes. Référez-vous au manuel d'opération pour plus de détails sur l'utilisation appropriée du mode pilote.

7.2 THERMOSTAT FIXE

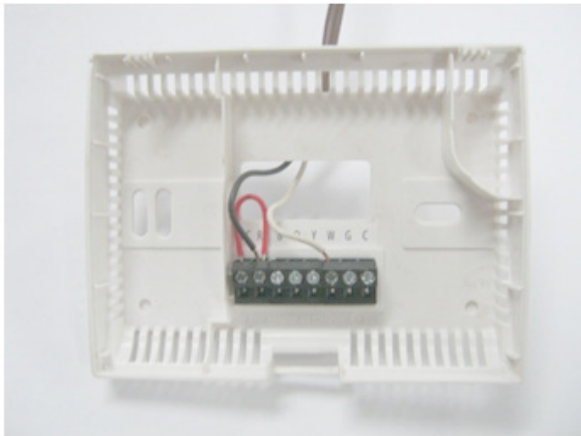
Avant d'installer le thermostat, débranchez le cordon d'alimentation de la prise de courant.

Tout d'abord, connectez les deux fils du thermostat à la borne située à l'arrière sur le côté droit du poêle en lui faisant face. Pour ce faire, desserrez les deux vis du milieu du bornier et insérez les fils dans les bornes. Serrez les deux vis.



Ensuite, ouvrez le boîtier du thermostat et branchez les fils en suivant les instructions du fabricant.

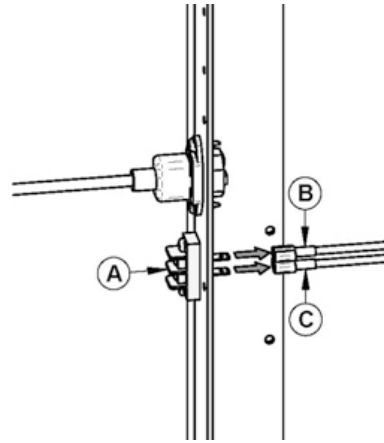
Raccordez un fil sur «RH» et l'autre fil sur «W». Le cavalier rouge peut être laissé en place. Pour de plus amples informations, se référer aux instructions du fabricant du thermostat.



7.3 THERMOSTAT SANS FIL

Si vous utilisez un thermostat sans fil ou une télécommande, branchez les deux fils du récepteur à la borne située à l'arrière sur le côté droit du poêle en lui faisant face. Si les fils du récepteur sont équipés de bornes à connexion rapide, vous pouvez les connecter directement au harnais de câblage situé à l'intérieur du poêle.

Pour ce faire, ouvrez le panneau latéral décoratif droit et débranchez les deux câbles (B) et (C) du harnais attachés à l'arrière du bornier (A) et les relier aux fils du récepteur.

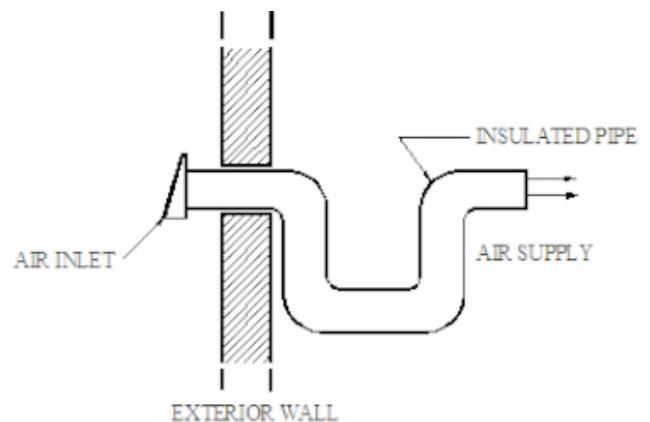


8. APPORT D'AIR DE COMBUSTION

REMARQUE

Pour l'installation dans une maison mobile, il est obligatoire de relier le poêle à une source d'air de combustion extérieur. Le tuyau isolé ne devrait jamais dépasser 10 pieds.

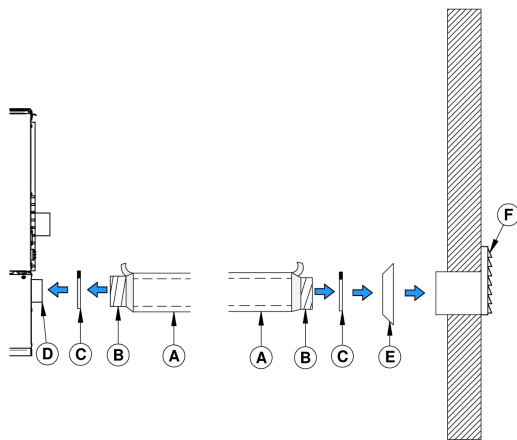
Il est recommandé d'installer une entrée d'air extérieur dans ou à proximité de la pièce où est installé le poêle. Ce faisant, il est préférable de choisir un mur qui n'est pas exposé aux vents dominants, adapté aux conditions entourant votre maison.



Un tuyau métallique isolé de 3" de diamètre intérieur, souple ou rigide, doit être relié à l'adaptateur d'air frais (D).

Pour compléter l'installation, faites un trou de 1/4" à 1/2" (6 mm à 13 mm) de plus que le diamètre du tuyau dans le mur extérieur de la maison à l'endroit choisi.

De l'extérieur, placez la bouche d'air extérieure (E) dans le trou (la face ouverte vers le bas) et fixez la bouche au mur à l'aide de vis. Posez le tuyau isolé (A) sur le tube de la bouche et sur le raccord d'air extérieur du foyer (D). À chaque extrémité, retirez délicatement l'isolant et l'enveloppe de plastique, pour exposer le tuyau flexible. Fixez le tuyau flexible à l'aide de collets de serrage (C).



Si vous désirez un joint plus étanche, utilisez du ruban d'aluminium. Collez le ruban autour du joint entre le tuyau flexible et les prises d'air. Remplacez délicatement l'isolant et l'enveloppe de plastique sur le tuyau. Fixez le plastique à l'aide de ruban d'aluminium.

Une protection contre les rongeurs, fabriqué d'un treillis métallique de minimum 1/4" doit être installée à la terminaison (E).

Toutes les connexions doivent être scellées, soit en utilisant le collet de serrage de taille appropriée ou du ruban métallique UL-181-AP.

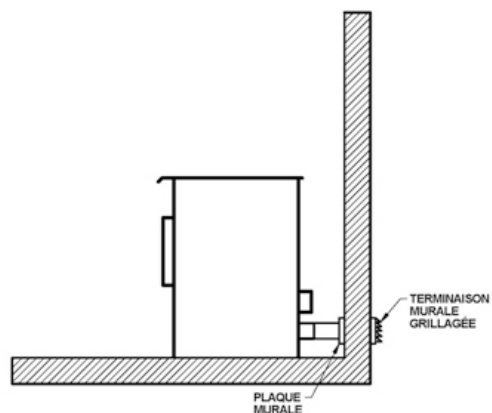
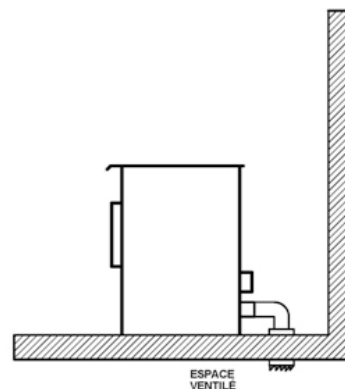
Assurez-vous également que le volet anti-retour d'air frais fonctionne librement. Le volet anti-retour est situé à l'arrière du poêle.

8.1 SOURCES D'AIR DE COMBUSTION EXTÉRIEURE

MISE EN GARDE

IL EST INTERDIT DE PUISER L'AIR DE COMBUSTION DU SOUS-SOL, DU GRENIER, D'UN GARAGE OU DE TOUT ESPACE CLOS.

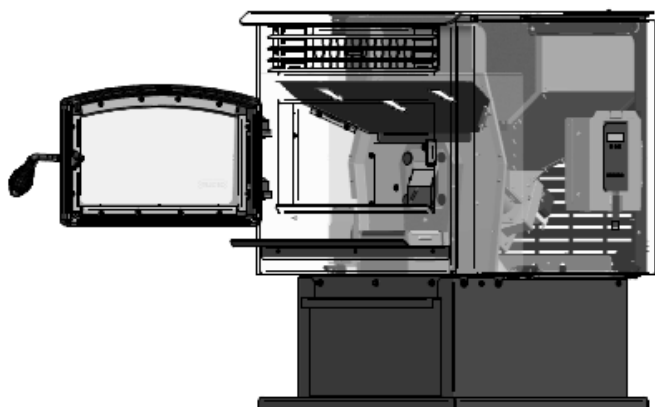
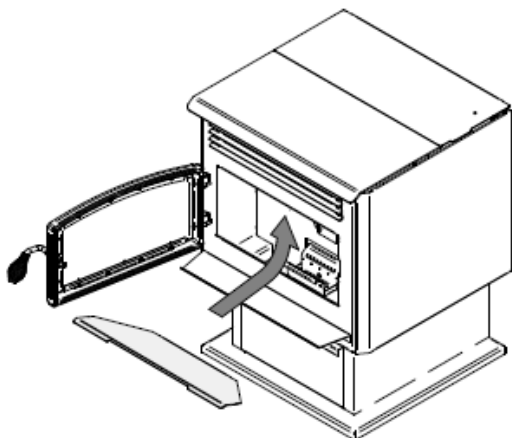
- Vous pouvez tirer l'air à partir d'un vide sanitaire ventilé sous le plancher.
- Vous pouvez tirer l'air directement à partir d'un mur extérieur, derrière le poêle.



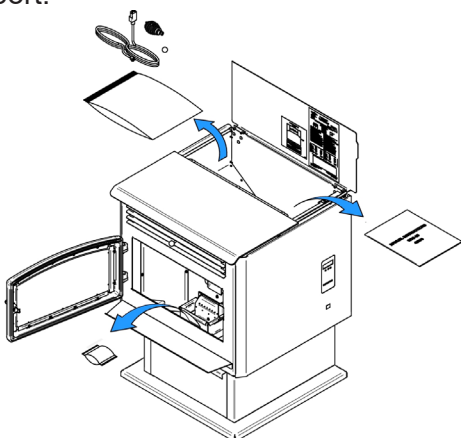
9. AVANT D'OPÉRER L'APPAREIL

9.1 GÉNÉRAL

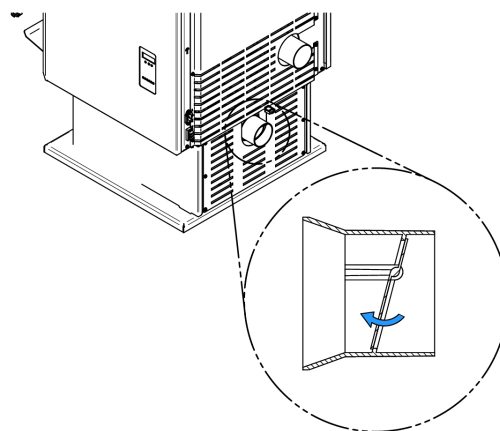
Installez le coupe-feu.



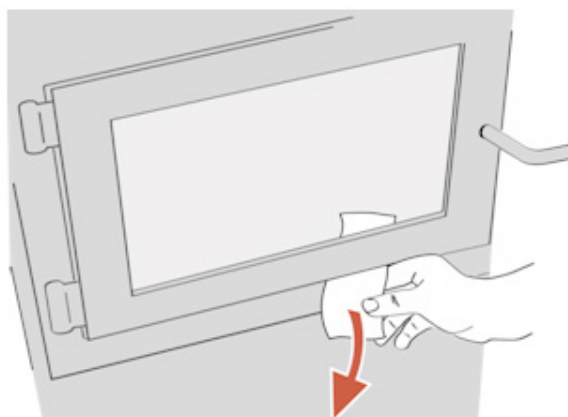
Assurez-vous de retirer tous les outils et autres accessoires qui ont été logés dans votre appareil pour le transport.



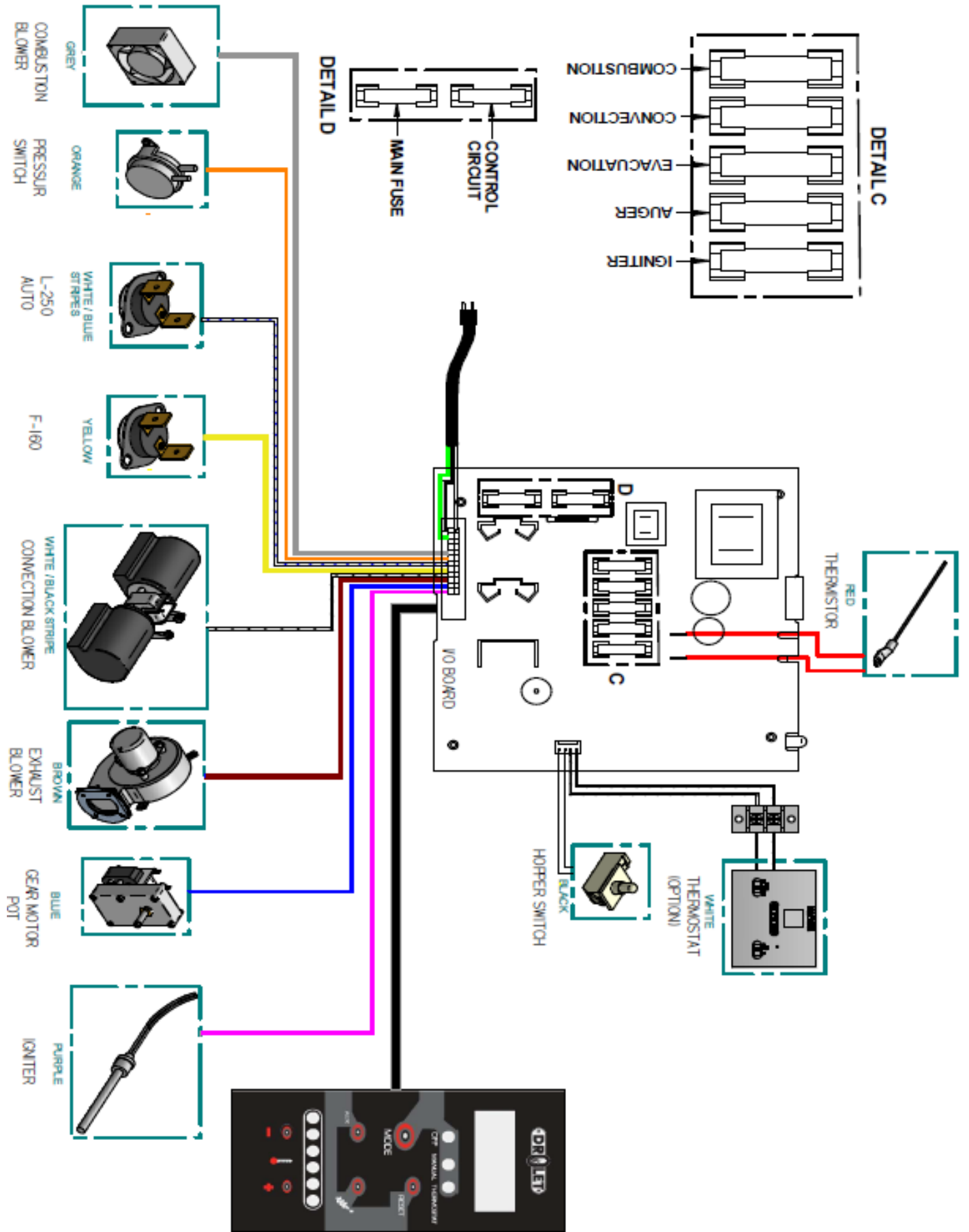
Vérifiez que le clapet anti-retour d'entrée d'air frais fonctionne librement.



Vérifiez l'étanchéité de la porte en fermant et en verrouillant la porte sur un bout de papier. Vérifiez tout le tour de la porte. Le papier ne devrait pas glisser facilement. Si le papier glisse facilement, voir la section maintenance du manuel d'opération.



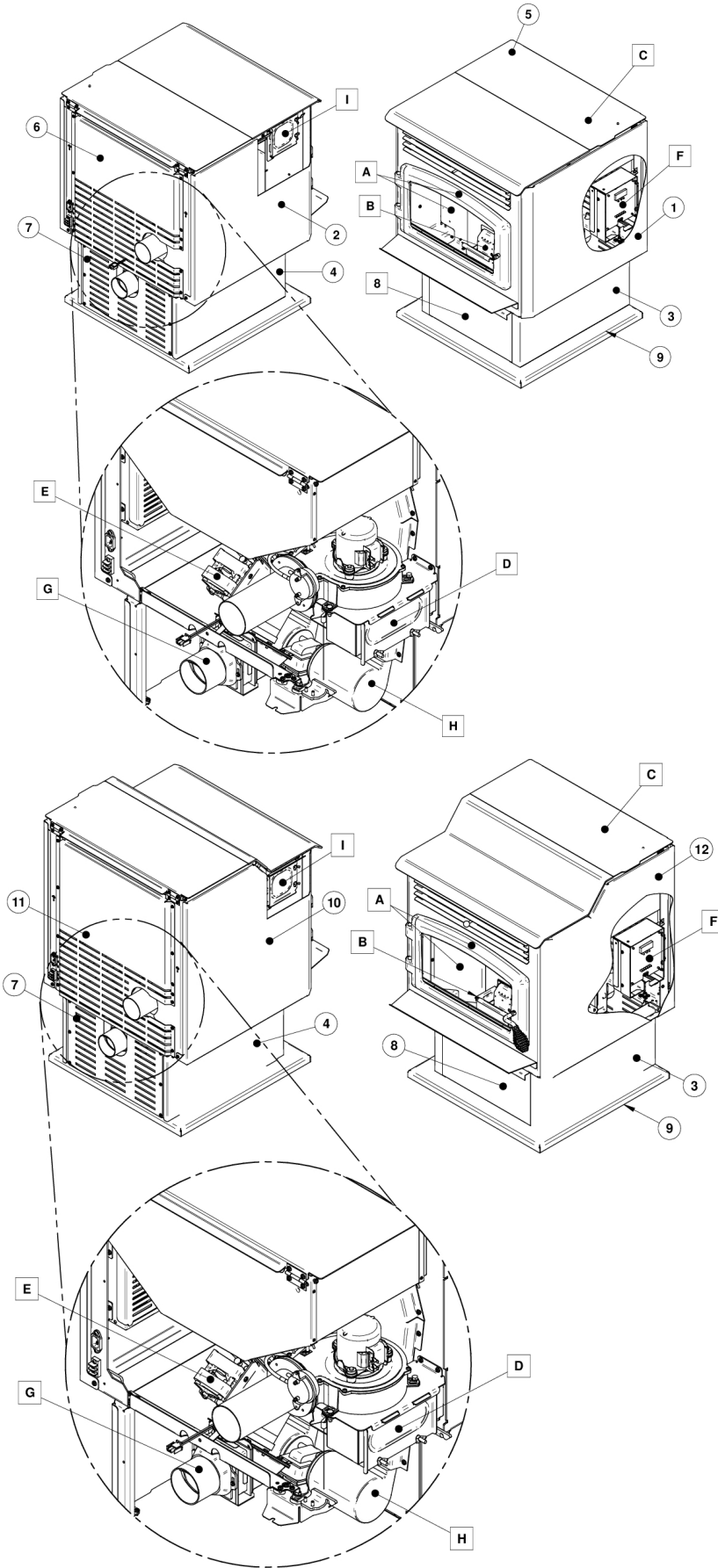
10. SCHÉMA ÉLECTRIQUE



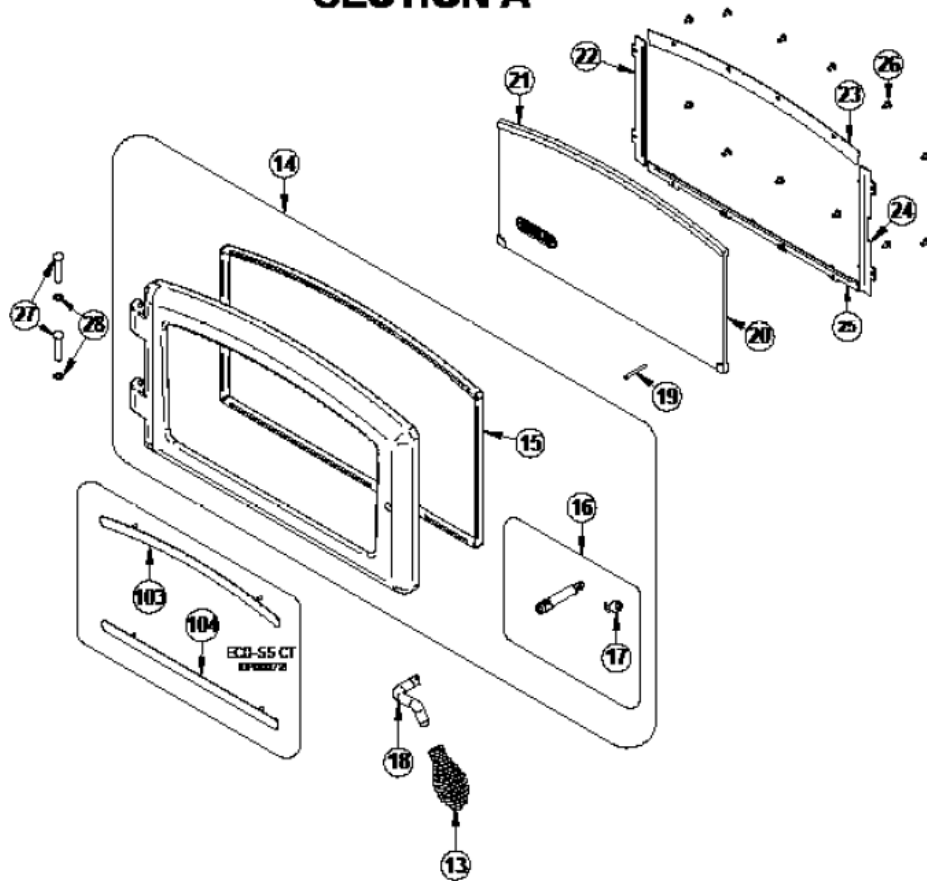
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11. VUES EXPLOSÉES ET LISTE DE PIÈCES DP00070, DP00072 ET DP00071

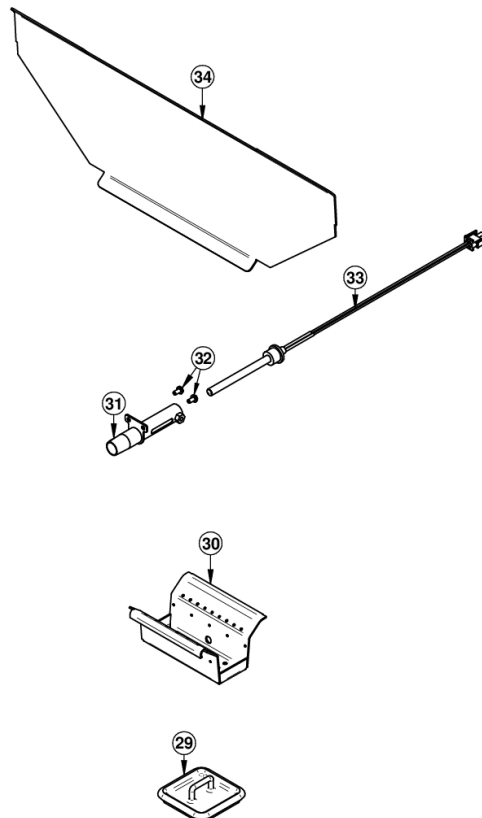
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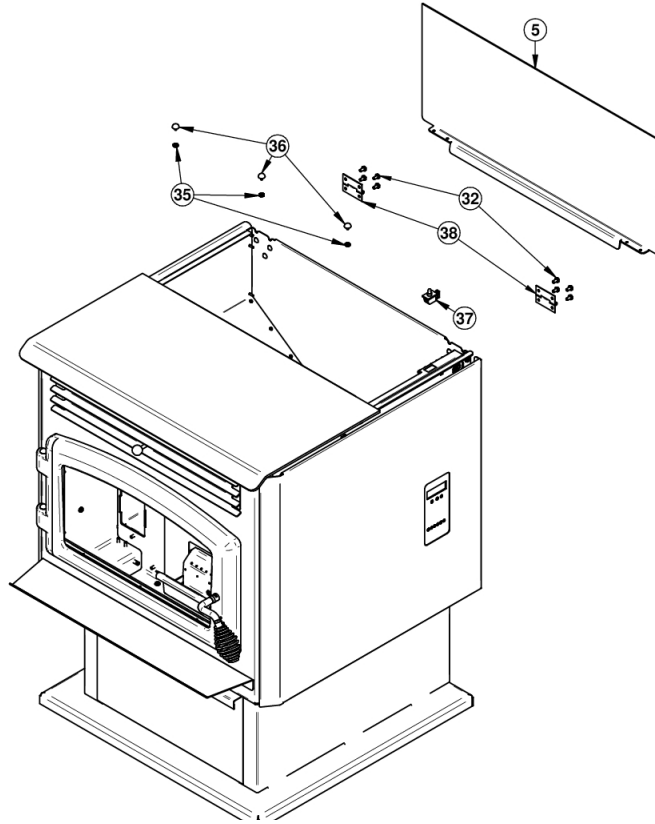
SECTION A



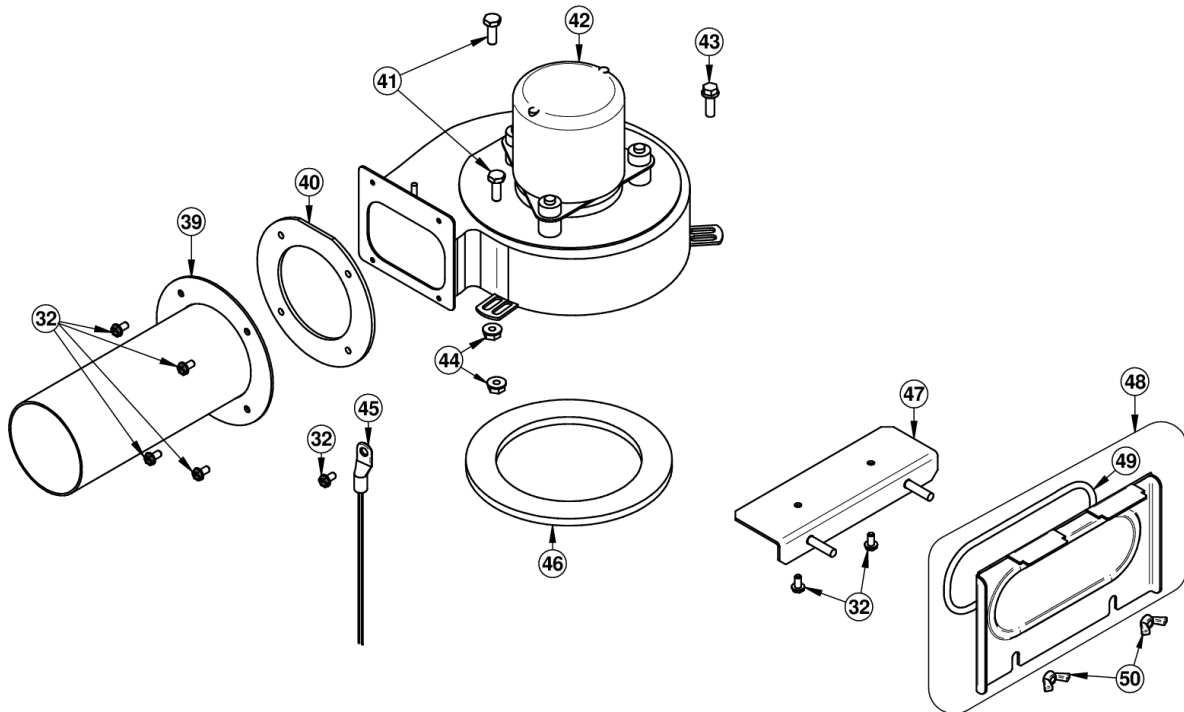
SECTION B



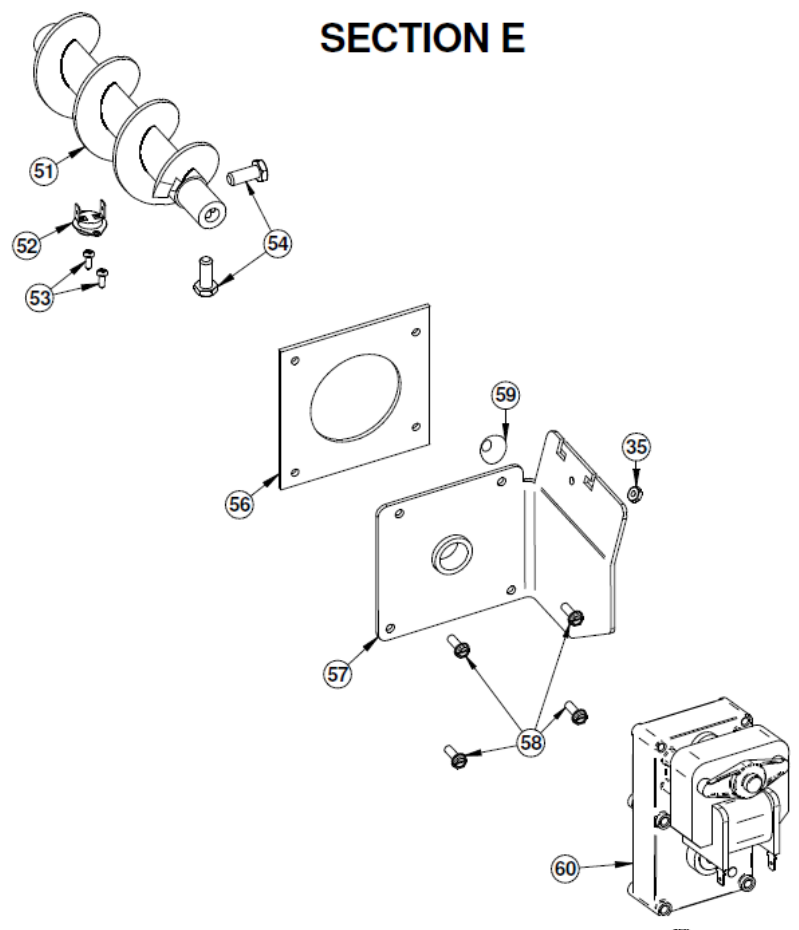
SECTION C



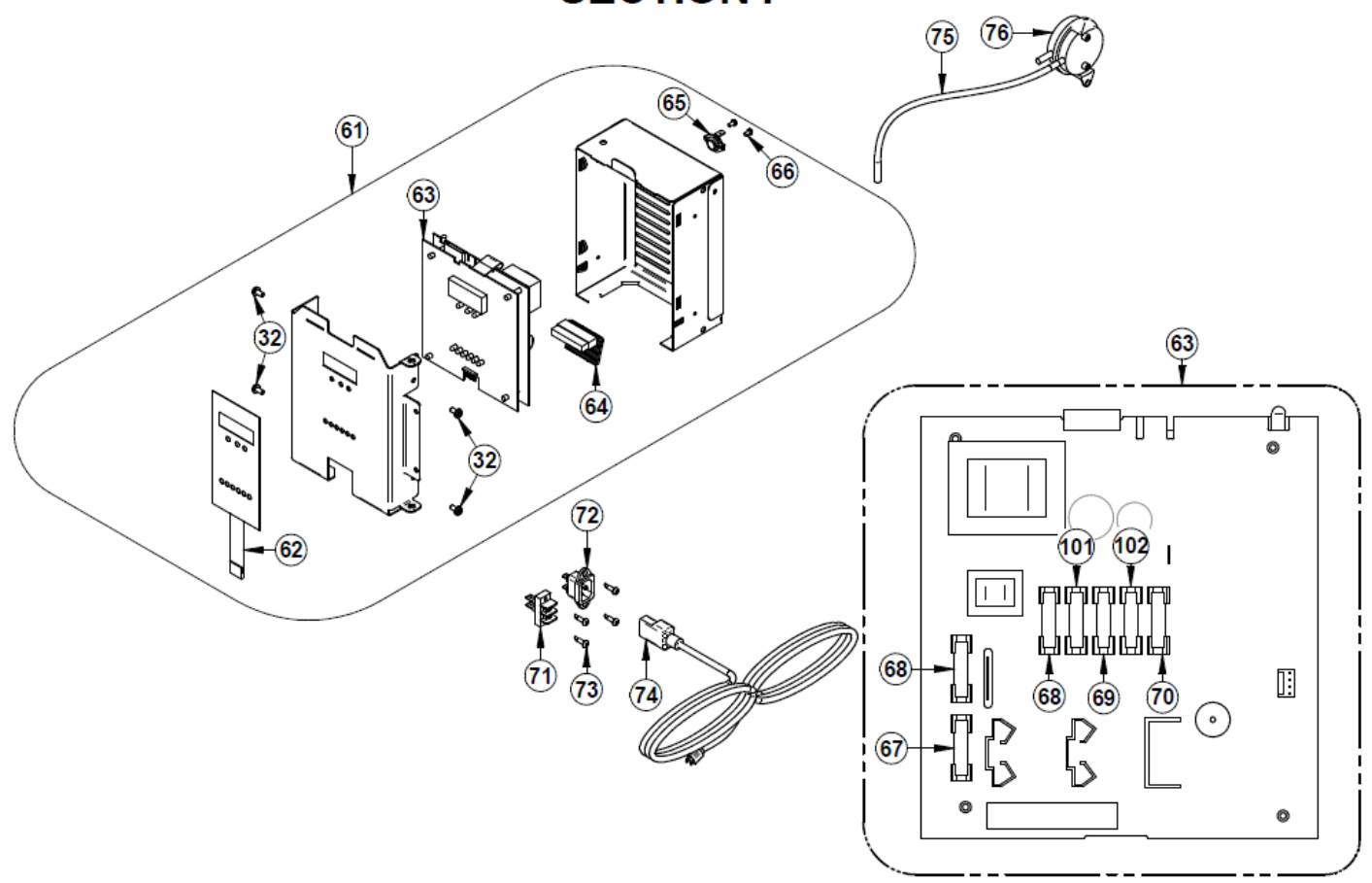
SECTION D



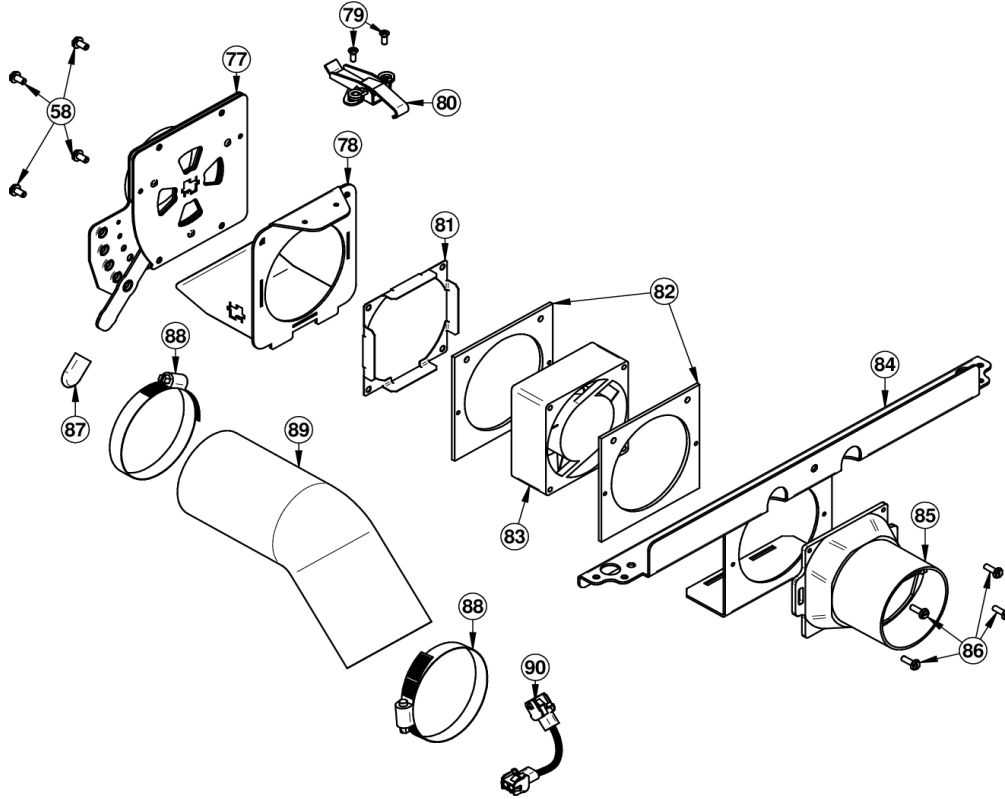
SECTION E



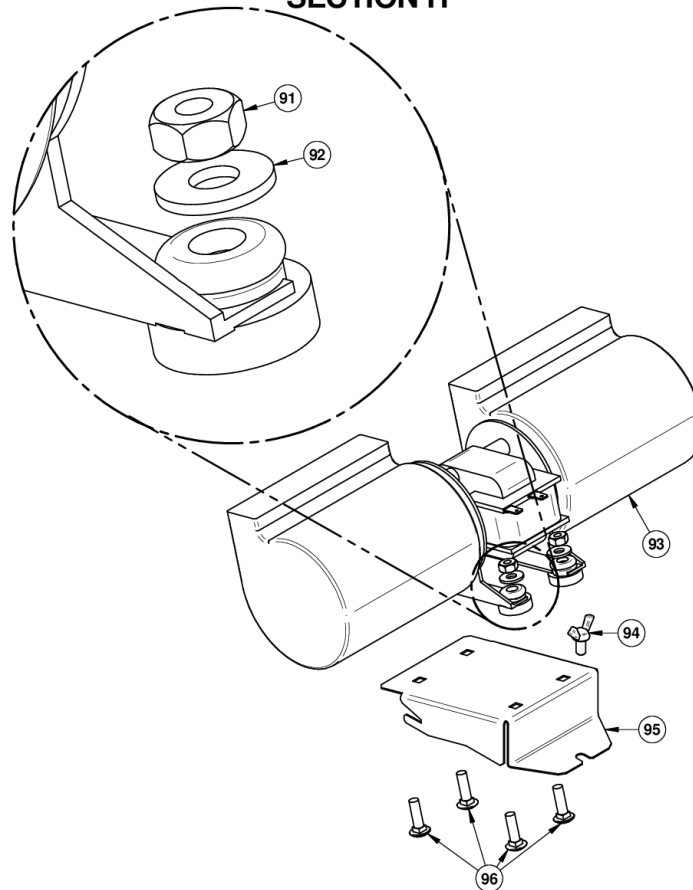
SECTION F



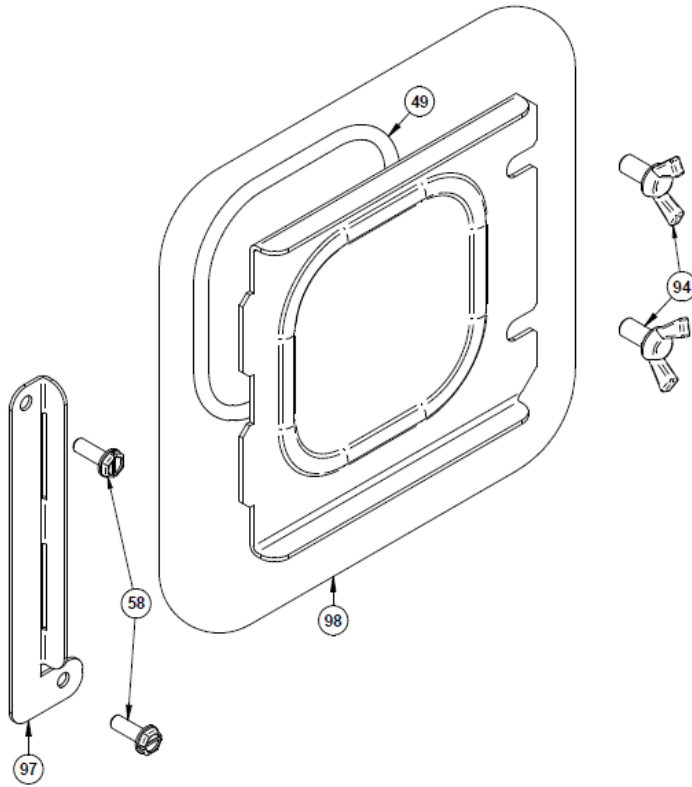
SECTION G



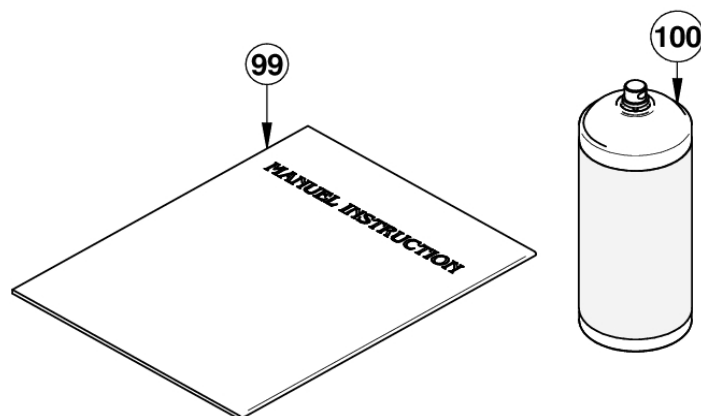
SECTION H



SECTION I



SECTION J



IMPORTANT: Il s'agit d'informations actualisées. Lors de la demande de service ou de pièces de remplacement pour votre poêle, s'il vous plaît fournir le numéro de modèle et le numéro de série. Nous nous réservons le droit de modifier les pièces en raison de mise à niveau technologique ou de disponibilité. Contactez un revendeur autorisé pour obtenir une de ces pièces. Ne jamais utiliser des matériaux de substitution. L'utilisation de pièces non approuvées peut entraîner de mauvaises performances, des risques pour votre sécurité et annulera votre garantie.

| # | Pièce | Description | Qté |
|----|------------|--|-----|
| 1 | PL69808 | CÔTÉ DÉCORATIF DROIT | 1 |
| 2 | PL69809 | CÔTÉ DÉCORATIF GAUCHE | 1 |
| 3 | PL69806 | PANNEAU DECO BAS DROITE | 1 |
| 4 | PL69807 | PANNEAU DECO BAS GAUCHE | 1 |
| 5 | PL69801 | COUVERT DE LA TRÉMIE | 1 |
| 6 | PL69794 | TÔLE DE DOS | 1 |
| 7 | PL69795 | TÔLE DE DOS BAS | 1 |
| 8 | SE69810 | TIROIR À CENDRE ASSEMBLÉ | 1 |
| 9 | 99999 | FABRICATION SUR COMMANDE | 1 |
| 10 | PL69833 | PANNEAU DÉCORATIF GAUCHE | 1 |
| 11 | PL69854 | TÔLE DE DOS | 1 |
| 12 | PL69832 | PANNEAU DÉCORATIF DROIT | 1 |
| 13 | 30105P | POIGNÉE SPIRALE 1/2" NOIRE | 1 |
| 14 | SE24085 | CADRE DE PORTE AVEC POIGNÉE ET CORDON SANS VITRE | 1 |
| 15 | AC06200 | ENSEMBLE SILICONE ET CORDON NOIR 1/4" X 1/2" X 11' | 1 |
| 16 | AC09176 | ENSEMBLE DE POIGNÉE ET BARRURE | 1 |
| 17 | AC09185 | ENSEMBLE DE BARRURE DE PORTE | 1 |
| 18 | PL52683 | POIGNÉE AMOVIBLE | 1 |
| 19 | 30101 | GOUPILLE TENDEUSE À RESSORT DIA 5/32" X 1 1/2" L | 1 |
| 20 | SE52708 | VITRE DE REMPLACEMENT ARQUÉE AVEC CORDON 7 51/64" X 16 3/4" X 8 23/32" | 1 |
| 21 | AC06400 | CORDON DE VITRE NOIR PRÉENCOLLÉ 3/4" (PLAT) X 6' | 1 |
| 22 | PL52717 | MOULURE DE VITRE CÔTÉ PENTURE | 1 |
| 23 | PL08537-04 | MOULURE DE VITRE DU HAUT | 1 |
| 24 | PL52719 | MOULURE DE VITRE CÔTÉ POIGNÉE | 1 |
| 25 | PL52718 | MOULURE DE DÉFLECTEUR D'AIR | 1 |
| 26 | 30124 | VIS #8 - 32 X 5/16" TRUSS QUADREX ZINC | 12 |
| 27 | 30170 | RIVET DE PENTURE 5/16" DIA X 1 1/2" L (0.309 A 0.312) | 2 |
| 28 | 30055 | BAGUE DE RETENUE POUR RIVET 5/16" DI X 0.512" DE | 2 |
| 29 | SE16059 | BOUCHON DE TRAPPE À CENDRES | 1 |
| 30 | SE69759 | POT DE COMBUSTION ASSEMBLÉE | 1 |
| 31 | 44192 | TUBE D'ALLUMEUR | 1 |
| 32 | 30029 | VIS À FILETAGE COUPANT 10-24 TYPE "F" X 3/8" HEX RONDELLE | 16 |
| 33 | SE44132 | ALLUMEUR GRANULES 120V 300W ASSEMBLÉ | 1 |
| 34 | PL69777 | COUPE-FEU | 1 |
| 35 | 30417 | ÉCROU HEX NOIR #8-32 | 3 |

| # | Pièce | Description | Qté |
|----|---------|--|-----|
| 36 | 30370 | BUTOIR DE CAOUTCHOUC AVEC FILETS (PETIT) | 3 |
| 37 | 44098 | INTERRUPTEUR DE SÉCURITÉ DE TRÉMIE | 1 |
| 38 | 30013 | PENTURE 2" X 1 1/2" | 2 |
| 39 | SE69785 | TUBE D'ÉVACUATION ASSEMBLÉ | 1 |
| 40 | 21392 | JOINT D'ÉTANCHÉITÉ DE L' ADAPTATEUR D'ÉVACUATION | 1 |
| 41 | 30093 | BOULON 1/4-20 X 3/4" HEX GRADE 5 | 2 |
| 42 | SE44193 | VENTILATEUR D'ÉVACUATION AVEC JOINTS D'ÉTANCHÉITÉ | 1 |
| 43 | 30094 | VIS HEX TÊTE RONDELLE 1/4-20 X 3/4" TYPE F ZINC | 1 |
| 44 | 30220 | ÉCROU INDÉVISSABLE À ÉPAULEMENT 1/4-20 | 2 |
| 45 | SE44095 | THERMISTOR ASSEMBLÉ | 1 |
| 46 | 21393 | JOINT D'ÉTANCHÉITÉ DU VENTILATEUR D'ÉVACUATION | 1 |
| 47 | PL69764 | SUPPORT TRAPPE EXHAUST | 1 |
| 48 | SE69803 | TRAPPE NETTOYAGE ÉVACUATION ASSEMBLÉE | 1 |
| 49 | AC06815 | ENSEMBLE DE CORDON NOIR 3/16" X 5' ET SILICONE | 1 |
| 50 | 30484 | ÉCROU PAPILLON 1/4-20 | 2 |
| 51 | 24017 | VIS SANS FIN EN FONTE | 1 |
| 52 | 44059 | THERMODISQUE 36T11 L250-25 AUTOMATIQUE | 1 |
| 53 | 30138 | VIS À MÉTAL #6 X 3/8" QUADREX Type"A" NOIRE (52-011-120) | 2 |
| 54 | 30092 | BOULON 5/16 - 18 X 3/4" HEX GRADE 5 | 2 |
| 55 | 30528 | MANCHON DE CUIVRE POUR VIS À GRANULE | 1 |
| 56 | 21110 | JOINT DE PLAQUE - VIS SANS FIN | 1 |
| 57 | PL69773 | PLAQUE BUSHING VIS SANS FIN | 1 |
| 58 | 30026 | VIS À FILETAGE COUPANT 10-24 F 5/8" HEX WASHER HEAD | 10 |
| 59 | 30369 | BUTOIR DE CAOUTCHOUC AVEC FILETS (GROS) | 1 |
| 60 | 44106 | MOTEUR À ENGRENAGE POUR VIS À GRANULES 1.5 RPM | 1 |
| 61 | SE69791 | BOITIER CARTE ÉLECTRONIQUE ASSEMBLÉ | 1 |
| 62 | 44148 | MEMBRANE INTERRUPTEUR DE LA CARTE DE CONTRÔLE | 1 |
| 63 | PL69855 | CARTE ÉLECTRONIQUE SÉRIE 55 | 1 |
| 64 | 60382 | HARNAIS | 1 |
| 65 | 44058 | THERMODISQUE 36T12 F160 | 1 |
| 66 | 30080 | VIS À MÉTAL #6 X 1/4 TYPE B PAN PHILLIPS | 2 |
| 67 | 44149 | FUSIBLE 8A / 250V (5 X 20) F3-PRINCIPAL OU F8 ALLUMEUR | 1 |
| 68 | 44152 | FUSIBLE 0.5A / 250V (5 X 20) F2-INTERFACE | 2 |
| 69 | 44200 | FUSIBLE 2A / 250V (5X20) | 1 |
| 70 | 44201 | FUSIBLE 4A / 250V (5X20) | 1 |
| 71 | 60036 | BORNIER DU THERMOSTAT | 1 |
| 72 | 60196 | RÉCEPTACLE DU CORDON D'ALIMENTATION | 1 |
| 73 | 30155 | VIS À MÉTAL #8 X 5/8" PHILLIPS AUTOPERFORANTE TEK ZINC | 4 |
| 74 | 60331 | CORDON D'ALIMENTATION 6' | 1 |
| 75 | 49004 | TUYAU DE L'INTERRUPTEUR À PRESSION | 1 |
| 76 | 44029 | INTERRUPTEUR À PRESSION | 1 |

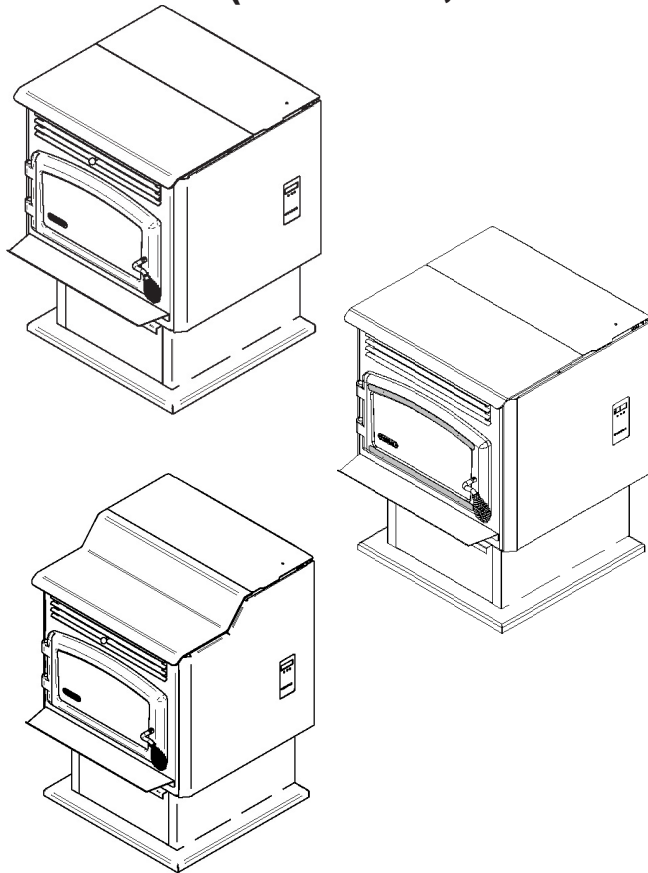
| # | Pièce | Description | Qté |
|-----|---------|---|-----|
| 77 | SE69849 | TRAPPE D'ENTRÉE D'AIR ASSEMBLÉE | 1 |
| 78 | PL69784 | PLAQUE ENTRÉE D'AIR | 1 |
| 79 | 30021 | VIS FILETAGE COUPANT 8-32 TYPE "F" X 7/16" PLATE PHILLIPS NOIRE | 2 |
| 80 | 30439 | ATTACHE À RESSORT PLAQUE ZINC CHROMATE | 1 |
| 81 | PL64359 | CADRE DU JOINT D'ÉTANCHÉITÉ VENTILATEUR DE COMBUSTION | 1 |
| 82 | 21400 | JOINT D'ÉTANCHÉITÉ VENTILATEUR DE COMBUSTION | 2 |
| 83 | SE44147 | VENTILATEUR AXIAL 115V 9W 92 X 92 X 38 ASSEMBLÉ | 1 |
| 84 | PL69799 | DEVANT BOITIER D'AIR | 1 |
| 85 | 30777 | CLAPET ANTI-RETOUR EN PLASTIQUE ASSEMBLÉ | 1 |
| 86 | 30502 | VIS À FILETAGE COUPANT #8 - 32 X 1/2" TYPE F HEX TÊTE PLATE | 4 |
| 87 | 30556 | EMBOUT DE FINITION POUR CONTRÔLE D'AIR | 1 |
| 88 | 49400 | COLLET ACIER 2 1/2" À 3 1/2" | 2 |
| 89 | 21381 | GAINÉ ALUMINIUM 2 PLIS 3" X 6" COMPRESSÉE | 1 |
| 90 | 60383 | FIL DE JONCTION ALLUMEUR | 1 |
| 91 | 30100 | ÉCROU HEX NOIR 1/4-20 | 4 |
| 92 | 30185 | RONDELLE 17/64" TYPE "AA" | 4 |
| 93 | 44122 | VENTILATEUR CAGE DOUBLE 176 PCM (CLASSE H) | 1 |
| 94 | 30485 | BOULON PAPILLON 1/4-20 X 1/2" EN ACIER PLAQUÉ ZINC | 3 |
| 95 | PL69805 | PLAQUE SUPPORT VENTILATEUR | 1 |
| 96 | 30446 | BOULON DE CARROSSERIE 1/4 - 20 x 1" ZINC | 4 |
| 97 | PL69802 | SUPPORT TRAPPE DE NETTOYAGE | 1 |
| 98 | SE69804 | TRAPPE NETTOYAGE AVEC CORDON | 1 |
| 99 | 45876 | MANUEL D'INSTRUCTIONS ECO-55 | 1 |
| 100 | AC05959 | PEINTURE POUR POÊLE NOIR MÉTALLIQUE - 342 g (12oz) AÉROSOL | 1 |
| 101 | 44150 | FUSIBLE 3A / 250V (5 X 20) F4-VIS & PRISE CEI DC | 1 |
| 102 | 44199 | FUSIBLE 1.25A / 250V (5X20) | 1 |
| 103 | PL69887 | MOULURE DÉCORATIVE DU HAUT DE PORTE (ECO-55 CT SEULEMENT) | 1 |
| 104 | PL69888 | MOULURE DÉCORATIVE DU BAS DE PORTE (ECO-55 CT SEULEMENT) | 1 |



OPERATION MANUAL

ECO-55, ECO-55 CT and ECO-55 ST (DP00070, DP00072 and DP00071 models)

Safety tested according to ULC S627,
UL1482 and ASTM E1509 by
an accredited laboratory



ENGLISH
FRANÇAIS

**INSTALLATION BY A PROFESSIONAL
IS STRONGLY RECOMMENDED**

Stove Builder International inc.
250, rue de Copenhague,
St-Augustin-de-Desmaures (Québec) Canada
G3A 2H3

Customer service: 418-908-8002
E-mail: tech@sbi-international.com
www.drolet.ca

CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.

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.

READ AND KEEP THIS MANUAL FOR REFERENCE



This manual is available for free download on the manufacturer's website. It is a copyrighted document. Re-sale is strictly prohibited. The manufacturer may update this manual from time to time and cannot be responsible for problems, injuries, or damages arising out of the use of information contained in any manual obtained from unauthorized sources.

1. GENERAL INFORMATION

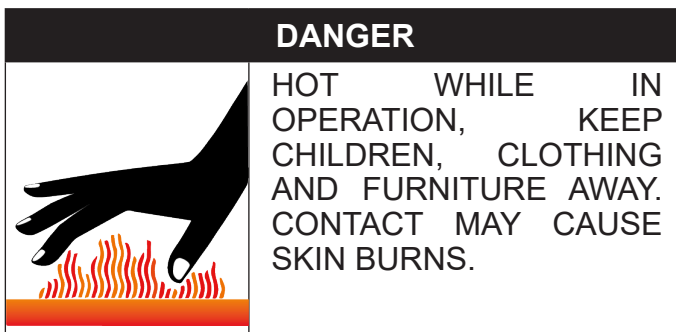
As one of North America's largest and most respected pellet stove, wood stove and fireplace manufacturers, Stove Builder International takes pride in the quality and performance of all its products. We want to help you get maximum satisfaction as you use this product.

In the pages that follow you will find general advice and guidance on how to get the best performance from this pellet heating system.

We highly recommend that our pellet burning hearth products be installed and serviced by professionals who are certified in the United States by NFI (National Fireplace Institute) or in Canada by WETT (Wood Energy Technology Transfer) or in Quebec by APC (Association des Professionnels du Chauffage).

You may need to get a building permit for the installation of this appliance and the venting system that it is connected to. Consult your municipal building department or fire department before installation. We recommend that you also inform your home insurance company.

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



NOTICE

This heating unit is designed to serve as a supplementary heat source. We recommend that a primary heat source also be available in the home. The manufacturer cannot be responsible for costs associated with the use of another heating system.

NOTICE

It is highly recommended to buy this product from a retailer who can provide installation and maintenance advice.

NOTICE

The information given on the certification label affixed to the appliance always overrides the information published, in any other media (owner's manual, catalogues, flyers, magazines or web sites).

NOTICE

Mixing of appliance components from different sources or modifying components is prohibited and will void the warranty. Any modification of the stove that has not been approved in writing by the testing authority is prohibited and violates CSA B365 (Canada) and NFPA 211 (USA).

NOTICE

Stove Builder International inc. (SBI) grants no warranty, implied or stated, for the poor installation or lack of maintenance of your appliance and assumes no responsibility of any consequential damages.



This product can expose you to chemicals including carbon monoxide, which is known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65warnings.ca.gov/

REGISTER YOUR WARRANTY ONLINE

To receive full warranty coverage, you will need to show evidence of the date you purchased your stove. Keep your sales invoice. We also recommend that you register your warranty online at:

<https://www.drolet.ca/en/warranty/warranty-registration/>

Registering your warranty online will help us to quickly track the information we need about your stove.

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2. GENERAL INFORMATION AND APPLIANCE PERFORMANCE⁽¹⁾

| | |
|--|---|
| Baffle material | Stainless Steel |
| Type of door | Single, glass with cast iron frame |
| Glass type | Ceramic glass |
| Blower | Included (up to 176 PCM) |
| Noise level at 6 feet | 47 dBa (+/- 3 dBa) 60 dBa (+/- 3 dBa) |
| Fuel type | Wood Pellet (Premium grade or better) ^(**) |
| Recommended heating area^[*] | 500 to 2,000 ft ² (46 to 186 m ²) |
| Hopper capacity | ECO-55/ ECO-55 CT = 60 lb (27.3 kg); ECO- 55 ST = 80lb (36.3kg) |
| Maximum burn time^[*] | ECO-55,ECO-55 CT = 51h; ECO-55 ST = 69h |
| Maximum heat input rate⁽²⁾ | 39,260 BTU/h (11.5 kW) |
| Overall heat output rate (min. to max.)⁽³⁾ | 6,648 BTU/h to 28,540 BTU/h (1.95 kW to 8.36 kW) |
| Average overall efficiency⁽³⁾ | 70.3% (HHV ⁽⁴⁾) 75.8% (LHV ⁽⁵⁾) |
| Optimum efficiency⁽⁶⁾ | 78.4% |
| Burn rate | 1.2 lb/h to 4.7 lb/h (0.54 kg/h to 2.14 kg/h) |
| Average particulate emissions rate⁽⁷⁾ | 0.96 g/h (EPA / CSA B415.1-10) |
| Average CO⁽⁸⁾ | 7.6 g/h |
| Average electrical power consumption⁽⁹⁾ | 1.3A (51W) min. / 2.5A (140W) max. for continuous operation |

(1) Values are as measured per test method, except for the recommended heating area, hopper capacity, maximum burn time and maximum heat input rate. Results may vary depending on pellet quality, density, length, and diameter.

[*] Recommended heating area and maximum burn time may vary subject to location in home, chimney draft, heat loss factors, climate, fuel type, feed rate, fuel level, and other variables. The recommended heated area for a given appliance is defined by the

manufacturer as its capacity to maintain a minimum acceptable temperature considering that the space configuration and the presence of heat distribution systems have a significant impact in making heat circulation optimum.

(**) Grades of pellet fuel are determined by organizations such as Pellet Fuels Institute (PFI), ENplus and CANplus.

(2) Based on the maximum burn-rate and a dry energy value of pellet at 8,600 BTU/lb.

(3) As measured per CSA B415.1-10 stack loss method.

(4) Higher Heating Value of the fuel.

(5) Lower Heating Value of the fuel.

(6) Optimum overall efficiency at a specific burn rate (LHV).

(7) This appliance is officially tested and certified by an independent agency

(8) Carbon monoxide.

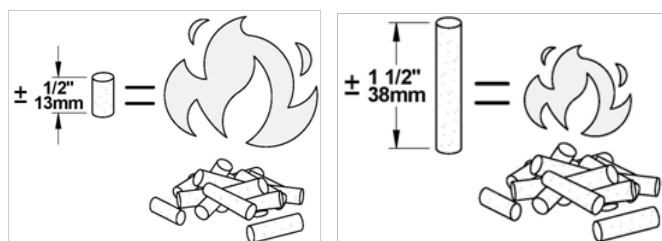
(9) Unless stated otherwise, measures were taken directly at the main power source and include all electrical components present in the appliance.

3. COMBUSTIBLE

3.1 RECOMMENDED PELLETS

Type : Wood pellet, premium grade or better, certified by PFI, ENplus or CANplus.

Size : Diameter between ¼" or 5/16" and not over 1" long. Longer or thicker pellets will affect the constancy of pellet feed.



Ash contents: Less than 1%. Ash contents more than 1% will increase maintenance frequency, combustion problems and will increase the stove emission.

Moisture content: Wet pellets will be very hard to ignite and will greatly affect the feeding process of the stove. Using dry pellets will maintain the performance of your stove.

NOTICE

Burning other types of pellets is prohibited. It violates the building codes for which the stove has been approved and will void the warranty.

DO NOT BURN:

- GARBAGE;
- LAWN CLIPPINGS OR YARD WASTE;
- MATERIALS CONTAINING RUBBER, INCLUDING TIRES;
- MATERIALS CONTAINING PLASTIC;
- WASTE PETROLEUM PRODUCTS, PAINTS OR PAINT THINNERS, OR ASPHALT PRODUCTS;
- MATERIALS CONTAINING ASBESTOS;
- CONSTRUCTION OR DEMOLITION DEBRIS;
- RAILROAD TIES OR PRESURE-TREATED WOOD;
- MANURE OR ANIMAL REMAINS;
- SALT WATER DRIFTWOOD OR OTHER PREVIOUSLY SALT WATER SATURATED MATERIALS;
- UNSEASONED WOOD; OR
- PAPER PRODUCTS, CARDBOARD, PLYWOOD, OR PARTICLE BOARD. THE PROHIBITION AGAINST BURNING THESE MATERIALS DOES NOT PROHIBIT THE USE OF FIRE STARTERS MADE FROM PAPER, CARDBOARD, SAW DUST, WAX AND SIMILAR SUBSTANCES FOR THE PURPOSE OF STARTING A FIRE IN AN AFFECTED WOOD HEATER.
- BURNING THESE MATERIALS MAY RESULT IN THE RELEASE OF TOXIC FUMES OR RENDER THE HEATER INEFFECTIVE AND CAUSE SMOKE.

3.2 PELLETS STORAGE

WARNING

DO NOT STORE FUEL WITHIN STOVE MINIMUM CLEARANCE TO COMBUSTIBLE.

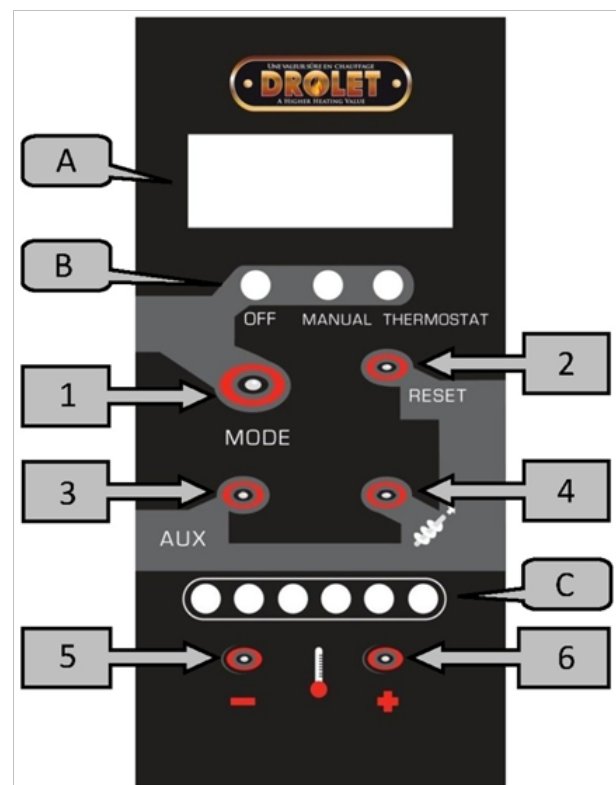
Pellets bags should be stored in a dry and well ventilated area, if possible. If they are to be stored outside, remember that pellets bags are not water tight. It is best to keep the pallet wrapper as intact as possible and cover it with a tarp.

Having a bag or two in the same room as the stove for refueling is a good idea. The minimum clearances to combustible materials and the space required for refilling and ash removal needs to be respected.

4. STOVE CONTROLS

The blowers and automatic fuel supply are controlled from a control panel on the right-hand side of the stove. The control panel buttons and display areas are as follows:

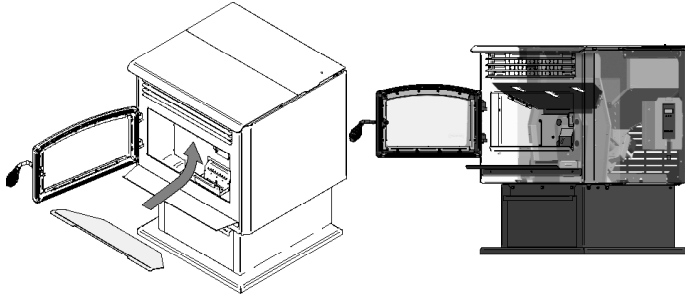
- A. Control panel display area.
- B. Stove state display area.
- C. Stove heating intensity display area, level 1 to 6.
 1. **MODE:** the «MODE» button is used to either turn off the appliance (OFF), turn it on in manual operation (MANUAL) or in thermostatic operation (THERMOSTAT).
 2. **RESET:** The «RESET» button is used to reset the stove after the appearance of most of the warning codes.
 3. **AUX:** The «AUX» button is used to adjust the convection air speed.
 4. **AUGER:** The «Auger» button is used to fill the auger with pellets.
 5. **MINUS:** The « - » button is used to reduce the pellet feeding rate thus reducing the heat output of the stove.
 6. **PLUS:** The « + » button is used to increase the pellet feeding rate thus increasing the heat output of the stove.



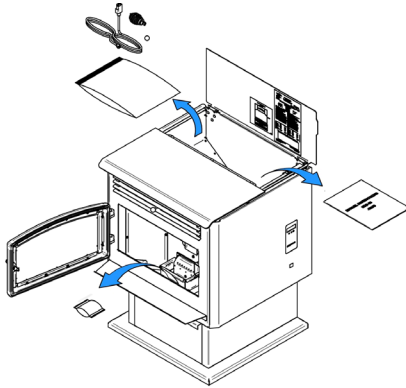
5. STOVE OPERATION

5.1 BEFORE OPERATING THE STOVE

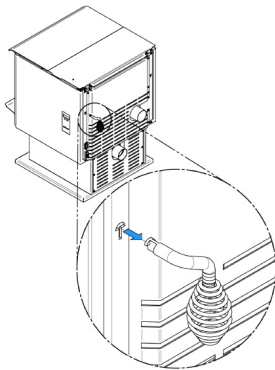
- Make sure the baffle is properly installed.



- Make sure that all tools and other accessories that have been stored in your unit for transport have been removed.



- Make sure that the burn pot is in place properly, that there is enough pellets in the hopper and that the recommended maintenance schedule has been followed
- The stove handle is removable. When the stove is in operation, it must be stored behind the stove, as shown in the image below.



5.2 STARTUP

Press the «MODE» button to turn the stove on in manual mode (MANUAL) or thermostat mode (THERMOSTAT). When the «MODE» button is

pressed, the stove will automatically ignite. No fire starter is required.

By pressing on the «+» or «-» buttons, you will be able to increase or decrease the feed rate, and thereby the intensity level of the stove. Intensity levels change, from 1 to 6, can be visualized by the red light in the heating intensity display area.

NOTICE

During the first few fires, your stove will emit an odor and a small amount of fumes as the high temperature paint cures or becomes seasoned to the metal. Maintaining smaller fires will minimize this. Avoid placing items on stovetop during this period to avoid damaging the paint surface. Make sure the room is well-ventilated. Open windows. **Odors and fumes released during this process are unpleasant but they are not toxic.**

Make two or three low intensity fires to initiate the hardening and conditioning process. Then, make high intensity fires until the stove no longer smells like paint.

CAUTION

NEVER USE A GRATE OR OTHER MEANS OF SUPPORTING THE FUEL. ONLY USE THE APPROVED STOVE BURN POT AND DO NOT MODIFY IT.

5.3 REFUELING

When the stove is running, you have 90 seconds to fill the hopper before the stove stops. You will hear a beeping sound that will intensify every 30 seconds. After 90 seconds, if the hopper lid is still open, the stove will stop and display the warning code «d». For more information, see the «Troubleshooting» section.

Note that opening the hopper lid will stop the auger from feeding the pellet stove.

When the stove is stopped, there is no time limit for filling the hopper.

Do not overload the hopper.

CAUTION

KEEP HOPPER LID CLOSED AT ALL TIMES EXCEPT WHEN REFUELING.

5.4 SHUT DOWN

To turn the stove off, press the «MODE» button until the red light is in the OFF position. The cooling cycle will take a few minutes. The blowers will continue to work while the stove is cooling down.

NOTICE

Never disconnect the power cord to turn off the stove.

5.5 SIGNS OF OVERHEATING

If the stove is overheating, it will become very hot and will shut itself down, showing an H error code. If this occurs, wait for the stove to cool down and perform the weekly maintenance of the stove suggested in the maintenance calendar. Carefully inspect the venting system. Have it swept, if necessary. Press on the «MODE» and «RESET» buttons simultaneously for 3 seconds to reset the stove.

After three H code occurrence, the stove control will be locked and it will be impossible to reset it and restart the stove. Before unlocking the stove control, perform the biannual maintenance suggested in the maintenance calendar. Carefully inspect the venting system. Have it swept, if necessary.

When maintenance is done, press the following buttons, one at a time : «RESET», «MODE», «+», «-», then press on the «AUGER» for 5 seconds.



DANGER



IF ANY EXTERNAL PART OF THE STOVE BEGINS TO GLOW RED, THE STOVE IS OVERHEATING. IMMEDIATELY TURN THE STOVE OFF. DO NOT UNPLUG IT AND DO NOT OPEN THE DOOR. UNPLUGGING THE STOVE WILL DISABLE ALL THE SAFETY FEATURES OF THE STOVE.



DANGER



AN OVERHEATING STOVE MAY LEAD TO A HOUSE FIRE. EACH H CODE SHOULD BE FOLLOWED BY A STOVE MAINTENANCE AND A VENTING SYSTEM VERIFICATION.

5.6 THERMOSTAT MODE

A thermostat may help maintaining a stable room temperature automatically. A Low voltage thermostat is required. A fixed wall mount or hand held model can be used.

To use the thermostat mode, press the «MODE» button until you reach the «THERMOSTAT» position. Then select the intensity level using the «-» or «+» buttons. In thermostatic mode, the stove will operate at the selected intensity level until the room temperature has reached the programmed level on the thermostat.

5.5.1 PILOT MODE SELECTION

The factory setting of the pilot mode is AUTO. To change it, press on the «-» and «MODE» buttons simultaneously for 3 seconds. The selected mode will appear on the control panel display area.

Pilot AUTO (Intensity level 1): When the thermostat stops requiring heat, the unit will remain at its lowest intensity level (#1) and will shut down after 15 minutes, if there is no demand for heat.

Pilot AUTO (Intensity level 2 to 6): When the thermostat stops requiring heat, the unit automatically switch to its lowest intensity level (#1) until the thermostat requires heat again. The stove will shut down after 45 minutes, if there is no demand for heat.

Pilot ON: When the thermostat stops requiring heat, the unit automatically switch to its lowest intensity level (#1) until the thermostat requires heat again. The stove will never shut down, even if there is no demand for heat.

NOTICE

To avoid premature wear of the components, it is recommended to use the «Pilot ON» mode during the coldest months and the «Pilot AUTO» mode during the warmest months.

5.7 CONVECTION ADJUSTMENTS

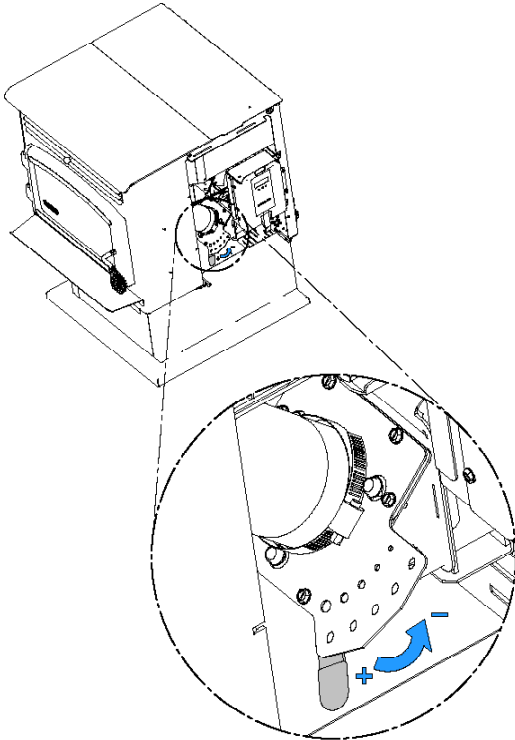
Each intensity level has been programmed with an optimum convection speed. However, it is possible to increase the convection air speed by pressing the «AUX» button. All intensity levels can be increased at the exception of the intensity level 6, which is already at its maximum speed.

5.8 AIR INTAKE ADJUSTMENTS

It is possible to adjust the amount of combustion air entering the stove.

Using the stove to the lowest setting will reduce missed ignition, will ignite pellets faster and will reduce the blackening of the window, when using high quality pellets. If you should find one bag of pellets harder to ignite and to burn, opening the air control will help.

To open or close the manual air control, open the right decorative panel and locate the air intake. Push down the tab and slide upwards to decrease the air supply and downwards to increase the air supply.

**NOTICE**

This wood heater has a manufacturer-set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate this wood heater in a manner inconsistent with operating instructions in this manual.

6. STOVE MAINTENANCE**NOTICE**

To simplify this section, only the ECO-55 is presented. Note that all the cleaning steps are carried out the same way for the ECO-55 ST.

6.1 MAINTENANCE SAFETY**WARNING**

HOT SURFACE. ALLOW TO COOL BEFORE SERVICING.

DANGER

DISCONNECT ALL SOURCE OF POWER BEFORE SERVICING THE STOVE.

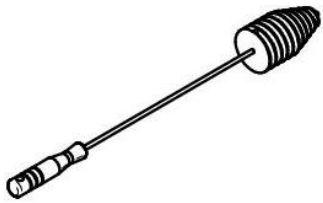
CAUTION

FAILURE TO CLEAN AND MAINTAIN THIS STOVE AS INDICATED CAN RESULT IN POOR PERFORMANCE AND SAFETY HAZARDS.

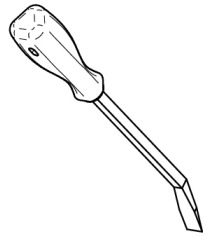
NOTICE

Cleaning the stove and the venting system is especially important at the end of the heating season to minimize corrosion during the summer months, caused by accumulated ash.

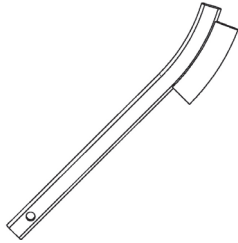
6.2 RECOMMENDED TOOLS



Universal Brush



Scraper



Steel Brush



Round Brush + Rod



Glass Cleaner



Ash Vacuum

6.3 ASHES REMOVAL

WARNING



NEVER VACUUM ASHES WHEN HOT. ASHES MUST BE COOLED DOWN BEFORE MAINTENANCE.

WARNING

ASHES SHOULD BE PLACED IN A METAL CONTAINER WITH A TIGHT FITTING LID. THE CLOSED METAL CONTAINERS SHOULD BE PLACED ON A NONCOMBUSTIBLE SURFACE, 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.

CAUTION

THE USE OF A DOMESTIC, CENTRAL OR COMMERCIAL VACUUM CLEANER TO PERFORM THE MAINTENANCE OF YOUR PELLET STOVE IS NOT RECOMMENDED. THE USE OF AN ASH VACCUM CLEANER IS HIGHLY RECOMMENDED.

6.4 MAINTENANCE CALENDAR

NOTICE

Cleaning frequency may vary depending on the type of fuel used. Fuel with higher ash content will increase cleaning frequency.

The cleaning frequency suggested in the following section applies to normal use of the appliance. Each step of the maintenance is illustrated in detail in the following sections.

DAILY MAINTENANCE

1. Activate the cleaning rod a few times.
2. Empty the burn pot.
3. Wipe the glass.

WEEKLY MAINTENANCE (+/- 10 BAGS)

1. Activate the cleaning rod a few times.
2. Empty and brush the baffle.
3. Empty and scrape the burn pot.
4. Vacuum cold ashes from the combustion chamber or push them in the ash drawer.
5. Clean the glass.

BIANNUEL MAINTENANCE (+/- 25 BAGS)

1. Vacuum cold ashes from the exhaust tubes and from the heat exchanger.
2. Brush the combustion chamber and vacuum the cold ashes from the combustion chamber or push them in the ash drawer.
3. Inspect the venting system.
4. Inspect all gaskets.

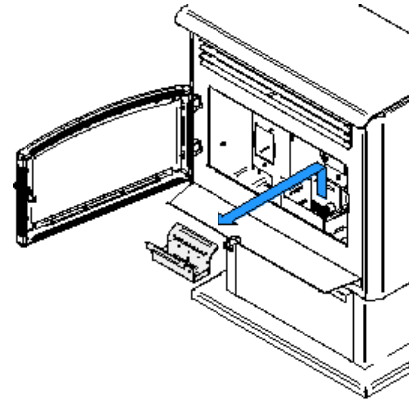
ANNUAL MAINTENANCE (+/- 1 TON)

1. Sweep venting system.
2. Empty and vacuum hopper.

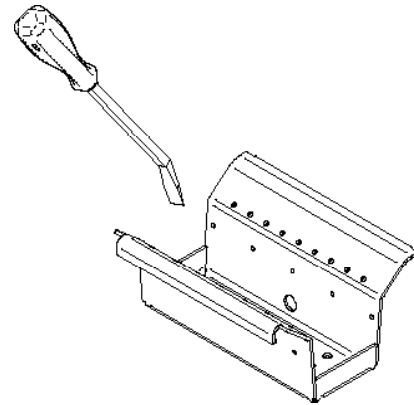
6.5 MAINTENANCE TECHNIQUES

6.5.1 BURN POT

Remove and empty burn pot.



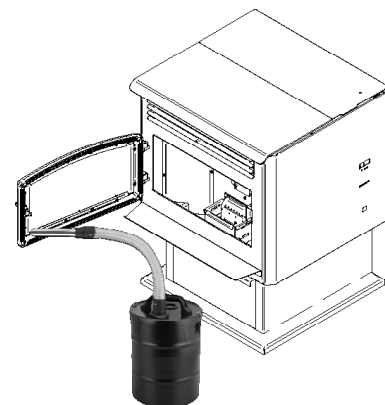
Scrape, when necessary.



6.5.2 Glass

Vacuum the ashes that may have accumulated into the airwash system inlet between the bottom glass retainer and the glass. This will allow an optimum air flow along the inside portion of the glass and prevents the glass from sooting-up.

Clean the glass when necessary. The use of a stove glass cleaner is recommended. Regular household glass cleaners will not remove creosote properly.

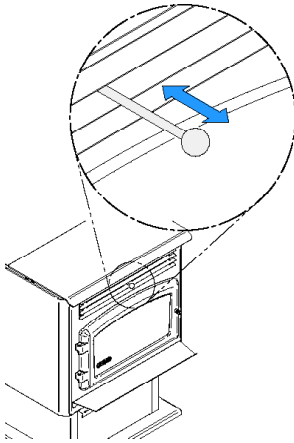


NOTICE

- Never use abrasive cleaners on the glass or on any plated part.
- Do not clean the glass while it's hot.
- Do not force, strike or adopt any behaviour that could weaken the glass door.
- Do not operate the stove with the glass removed, cracked or broken.

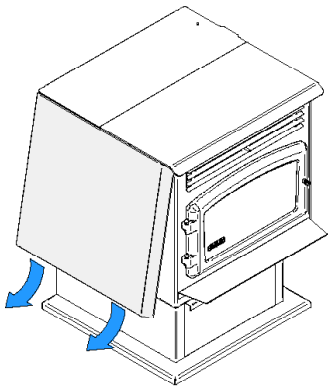
6.5.3 HEAT EXCHANGERS, EXHAUST TUBES

Activate the cleaning rod a few times.

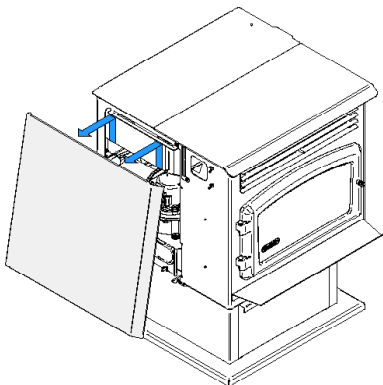


Brush and vacuum inside the heat exchanger channel, when necessary.

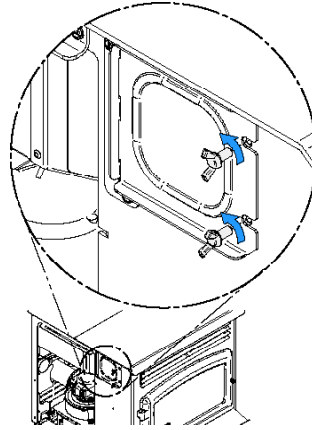
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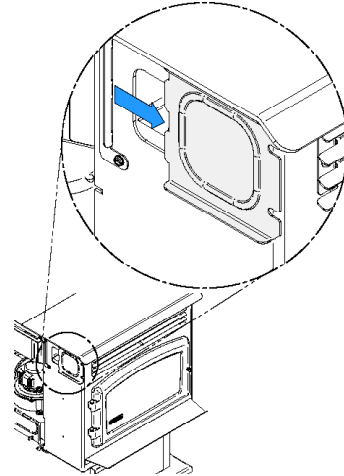
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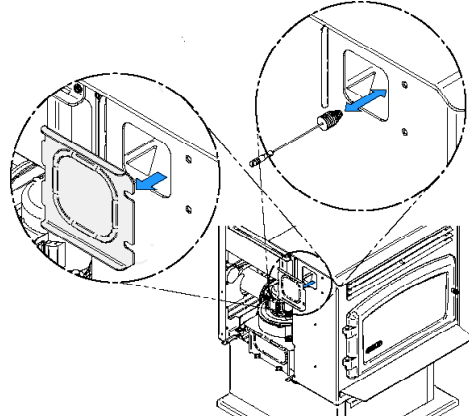
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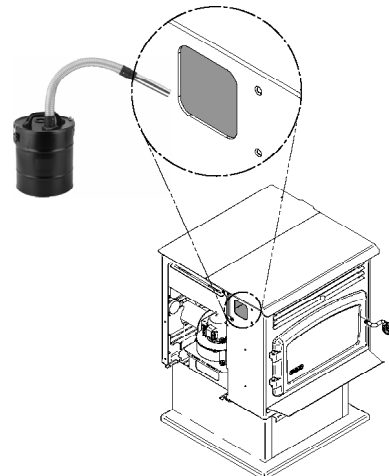
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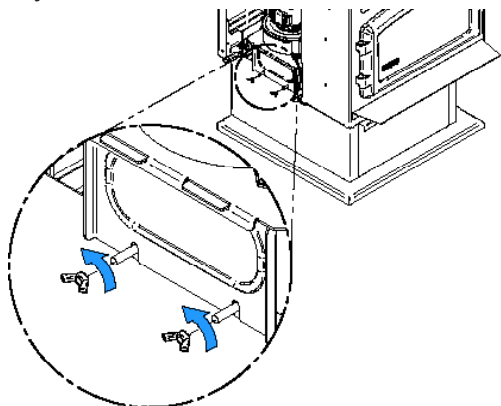


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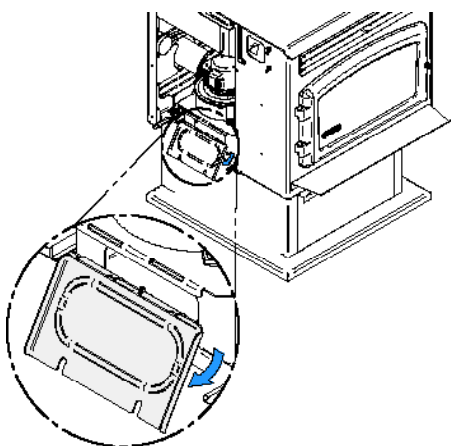


Brush and vacuum inside the exhaust channel, when necessary.

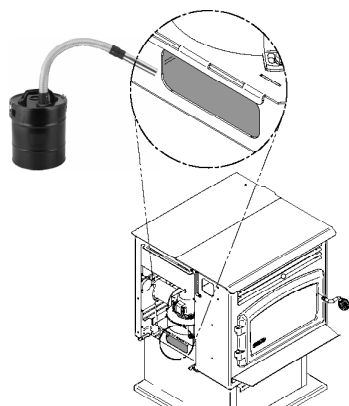
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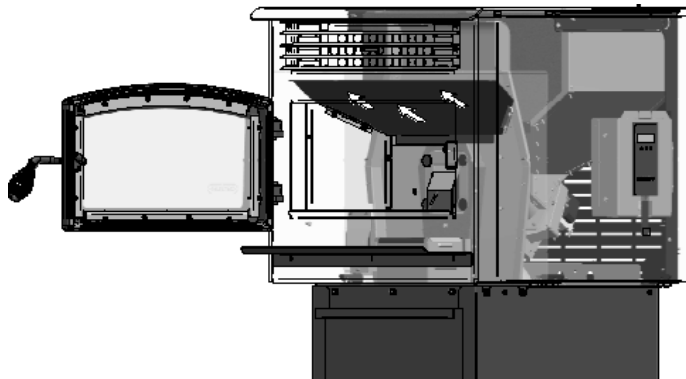


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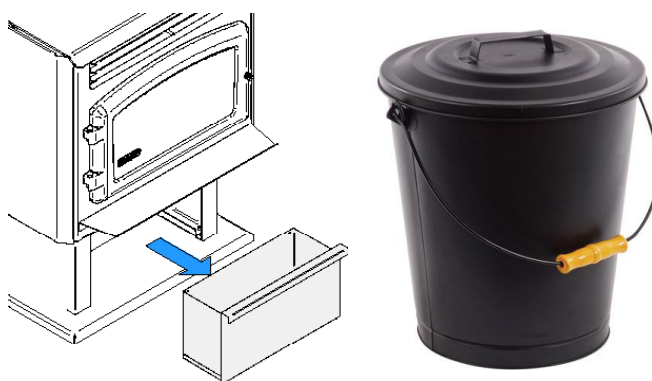
6.5.4 BAFFLE

Remove and brush the baffle. Do not forget to put it back in place.



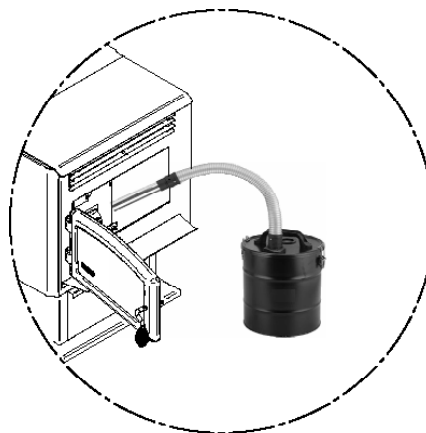
6.5.5 ASH DRAWER

Empty the ash drawer and store the ashes in a metal container with a lid.

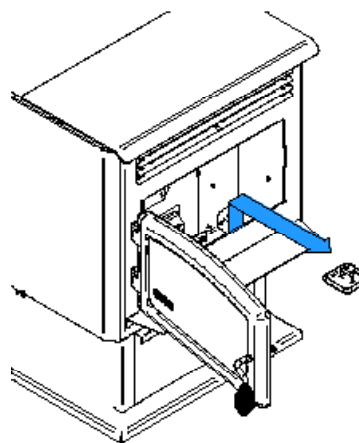


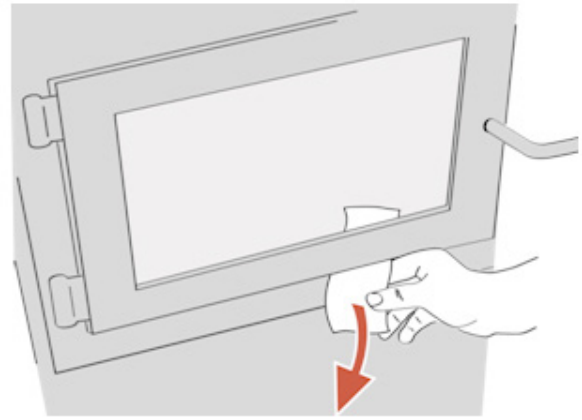
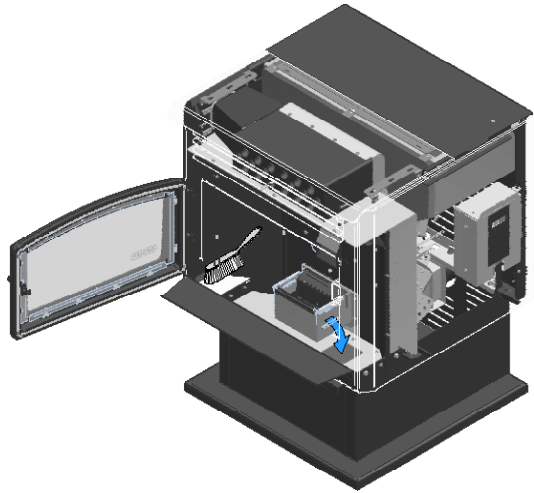
6.5.6 COMBUSTION CHAMBER

Clean the combustion chamber by vacuuming the cooled ashes. When necessary, brush the walls and vacuum the ashes afterwards.



You can also push the ashes into the ash drawer through the opening at the bottom of the firebox. In this case alone, the ashes do not have to be cold.



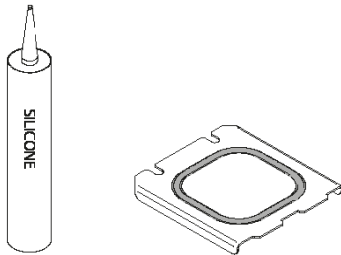


6.5.8 VENTING SYSTEM

See the following section for recommendations on maintaining the venting system.

6.5.9 GASKETS

When maintaining the heat exchanger channel and the exhaust channel, make sure the gaskets on the cleaning panels are in good condition. Replace them if necessary.



Inspect the door gasket. It is important to maintain the door gasket in good condition. After a while, the gasket will wear and compress.

If the stove door is not properly sealed, it will be difficult to keep the door glass clean and combustion gases may leak into the room.

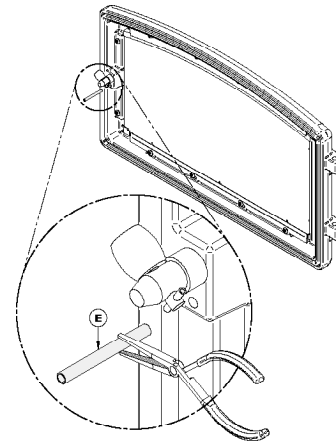
Adjusting the door may then be required. If the door adjustment is not sufficient, replace the door gasket with a genuine part.

6.5.9 DOOR SEAL VERIFICATION

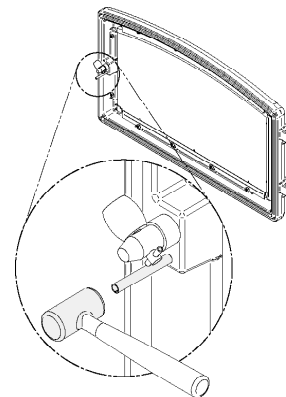
Check the door seal by closing and locking the door on a piece of paper. Check the entire door. Paper should not slide easily. If the paper slips easily, adjust the door.

6.5.10 DOOR ADJUSTMENT

Remove the lock pin by pulling and turning with pliers. Turn the handle counter clock wise one turn to increase pressure.



Re-install the lock pin (spring pin) with a small hammer.



7. VENTING SYSTEM MAINTENANCE

CAUTION

REGULARLY EXAMINE THE VENTING SYSTEM, THE JOINTS, AND THE SEALING TRIMS TO ENSURE THAT THE SMOKE AND THE COMBUSTION GASES ARE NOT LEAKING.

Chimney cleaning can be a difficult and dangerous job. If you don't have experience cleaning chimneys, you might want to hire a professional chimney sweep to clean and inspect the system for the first time. After having seen the cleaning process, you can decide if it is a job you would like to take on.

The most effective method of sweeping the vent system is to use a 3" or 4" brush, depending on your installation. Start at the top of the vent system and brush down, so that the ash, soot and creosote residues come off the inner surface and fall into the bottom of the vent system, where they can be removed easily.

The vent system must be kept in good condition and well maintained.

CAUTION

IF A SIGNIFICANT LAYER OF CREOSOTE HAS ACCUMULATED (3 MM / 1/8" OR MORE), IT MUST BE REMOVED IMMEDIATELY TO ELIMINATE THE RISK OF A CHIMNEY FIRE.

FACING A CHIMNEY FIRE

1. Evacuate family members and animals from the building, then call the fire department.
2. Turn off the unit. **Do not unplug it!**
3. If possible, use a chemical fire extinguisher, baking soda or sand to control the fire. Do not use water, as this may cause hazardous vapor explosions.
4. Do not use the stove until the vent system and the stove have been inspected by a qualified chimney sweeper or fire inspector.

7.1 SOOT AND FLY ASHES

The combustion products contain small particles of fly ash. Fly ash can accumulate especially in horizontal sections of exhaust pipe and restrict the flow of combustion gases. Incomplete combustion,

produced when igniting, shut down or misuse of the stove will cause some soot formation which can accumulate in venting system. **The venting system must be inspected at least twice a year to determine if cleaning is necessary.**

8. TROUBLESHOOTING

NOTICE

VISIT OUR WEB SITE TO OBTAIN A DETAILED TROUBLESHOOTING DOCUMENT.

Most common problems are generally caused by the following factors:

1. Wrong operation or lack of maintenance;
2. Bad installation;
3. Poor quality combustible;
4. Component failure;

The stove is equipped with a pc board that allows the stove to diagnose itself. It is thus important not to unplug the stove if there is an issue with it. First, because unplugging the stove will disable all the security features of the stove, and second, because you will not be able to see the error code given by the stove to understand what the problem is.

8.1 PRINCIPAL ERROR CODES

| Code | Description |
|------|---|
| P | Blocked flue. Make sure that the vent system is installed properly. Press the «RESET» button to reset the stove and «MODE» to restart it. |
| H | The stove is overheating. Service the unit and inspect the venting system. Press the «MODE» and «RESET» button simultaneously for 3 seconds to reset the stove. If more than one H code occurs, refer to section «Signs of overheating». |
| E | The hopper is empty. When all components are stopped, press the «RESET» button. Fill the hopper and press the «AUGER» button. Press «MODE» to restart the stove. |

| Code | Description |
|------|--|
| d | The hopper lid remained open for more than 90 seconds while the unit was running. Close the lid. Press the «RESET» button to reset the stove and «MODE» to restart it. |
| n | Reverse polarity in the socket. This error does not prevent the stove from operating normally but the polarity should be corrected by a certified electrician. |
| C | Power Outage occurred. The unit will shut down and restart, resetting the error code by itself. |
| L | Ignition failed. Make sure the pellets are of good quality and that they are dry. Clean the burn pot. Make sure the igniter is working. Adjust the air intake. Press the «RESET» button to reset the stove and «MODE» to restart it. |
| FE | The exhaust blower fuse is defective. |
| FL | The ignitor fuse is defective. |
| FC | The convection blower fuse is defective. |
| FV | The auger fuse is defective. |
| FB | The combustion blower fuse is defective. |

For a detailed troubleshooting guide and component replacement data sheets, visit your product web page at www.drolet.ca

DROLET LIMITED LIFETIME WARRANTY

The warranty of the manufacturer extends only to the original retail purchaser and is not transferable. This warranty covers brand new products only, which have not been altered, modified nor repaired since shipment from factory. Proof of purchase (dated bill of sale), model name and serial number must be supplied when making any warranty claim to your DROLET dealer.

This warranty applies to normal residential use only. Damages caused by misuse, abuse, improper installation, lack of maintenance, over firing, negligence or accident during transportation, power failures, downdrafts, venting problems or under-estimated heating area are not covered by this warranty. The recommended heated area for a given appliance is defined by the manufacturer as its capacity to maintain a minimum acceptable temperature considering that the space configuration and the presence of heat distribution systems have a significant impact in making heat circulation optimum.

This warranty does not cover any scratch, corrosion, distortion, or discoloration. Any defect or damage caused by the use of unauthorized or other than original parts voids this warranty. An authorized qualified technician must perform the installation in accordance with the instructions supplied with this product and all local and national building codes. Any service call related to an improper installation is not covered by this warranty.

The manufacturer may require that defective products be returned or that digital pictures be provided to support the claim. Returned products are to be shipped prepaid to the manufacturer for investigation. Transportation fees to ship the product back to the purchaser will be paid by the manufacturer. Repair work covered by the warranty, executed at the purchaser's domicile by an authorized qualified technician requires the prior approval of the manufacturer. All parts and labour costs covered by this warranty are limited according to the table below.

The manufacturer, at its discretion, may decide to repair or replace any part or unit after inspection and investigation of the defect. The manufacturer may, at its discretion, fully discharge all obligations with respect to this warranty by refunding the wholesale price of any warranted but defective parts. The manufacturer shall, in no event, be responsible for any uncommon, indirect, consequential damages of any nature, which are in excess of the original purchase price of the product. A one-time replacement limit applies to all parts benefiting from lifetime coverage. This warranty applies to products purchased after March 1st, 2015.

| DESCRIPTION | WARRANTY APPLICATION* | |
|---|-----------------------|---------|
| | PARTS | LABOUR |
| Combustion chamber (welds only**), heat exchanger (welds only**), and cast iron door frame. | Lifetime | 3 years |
| Surrounds, heat shields, ash drawer, legs, pedestal, trims (aluminum extrusions), and plating (defective manufacture**). | 5 years | 3 years |
| Removable stainless steel components, burn pot, deflectors, and supports. | 3 years | N/A |
| Glass retainers, handle assembly, cleaning rod, air control mechanism, and auger. | 3 years | 1 year |
| Blowers, auger motor, PC board, igniter, heat sensors, switches, wiring, rheostat, and other controls. | 1 year | 1 year |
| Ceramic glass (thermal breakage only**), paint (peeling**), gaskets, insulation, ceramic fibre blankets, ceramic logs, masonry-like panels and other options. | 1 year | N/A |
| All parts replaced under the warranty. | 90 days | N/A |

***Subject to limitations above. **Picture required.**

Labour cost and repair work to the account of the manufacturer are based on a predetermined rate schedule and must not exceed the wholesale price of the replacement part.

Shall your unit or a components be defective, contact immediately your DROLET dealer. To accelerate processing of your warranty claim, make sure to have on hand the following information when calling:

- Your name, address and telephone number;
- Bill of sale and dealer's name;
- Installation configuration;
- Serial number and model name as indicated on the nameplate fixed to the back of your unit;
- Nature of the defect and any relevant information.

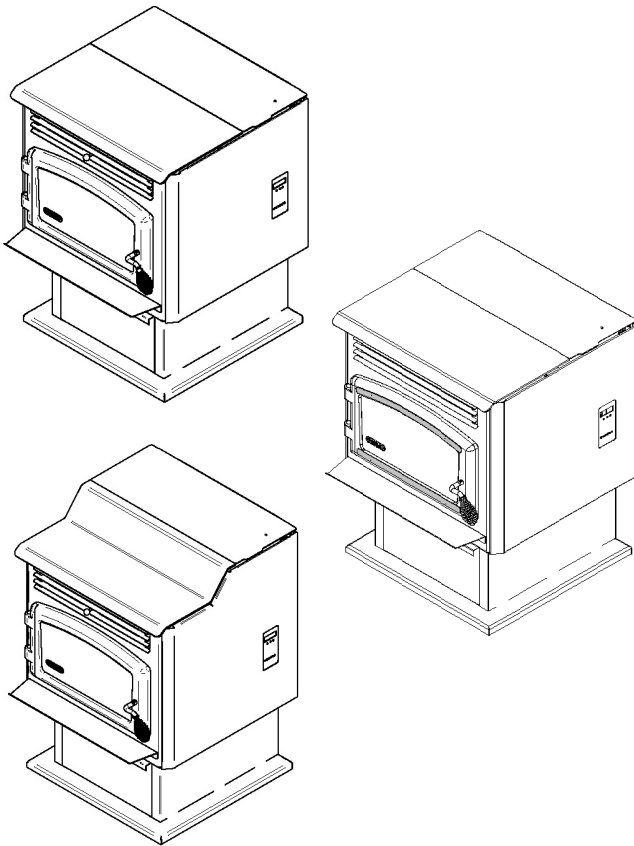
Before shipping your unit or defective component to our plant, you must obtain an Authorization Number from your DROLET dealer. Any merchandise shipped to our plant without authorization will be refused automatically and returned to sender.



MANUEL D'OPÉRATION

ECO-55, ECO-55 CT et ECO-55 ST

(modèles DP00070, DP00072 et DP00071)



Essai de sécurité fait conformément aux normes
ULC S627, UL 1482 et ASTM E1509 par un
laboratoire accrédité



FRANÇAIS

**L'INSTALLATION PAR UN
PROFESSIONNEL EST FORTEMENT
RECOMMANDÉE**

Fabricant de poêles international inc.
250, rue de Copenhague,
St-Augustin-de-Desmaures (Québec) Canada
G3A 2H3

Service aux consommateurs : 418-908-8002
Courriel : tech@sbi-international.com
www.drolet.ca

**CONTACTEZ VOTRE SERVICE MUNICIPAL DU BÂTIMENT OU DES INCENDIES POUR CONNAÎTRE
LES RESTRICTIONS ET LES EXIGENCES D'INSPECTION ET D'INSTALLATION DANS VOTRE RÉGION.**

**LISEZ CE MANUEL AU COMPLET AVANT D'INSTALLER VOTRE NOUVEAU POËLE. IL EST IMPORTANT
DE RESPECTER INTÉGRALEMENT LES DIRECTIVES D'INSTALLATION. SI LE POËLE N'EST PAS
INSTALLÉ CORRECTEMENT, IL PEUT EN RÉSULTER UN INCENDIE, DES BLESSURES CORPORELLES,
OU MÊME LE DÉCÈS.**

LIRE LE PRÉSENT MANUEL ET LE CONSERVER POUR CONSULTATION



Ce manuel peut être téléchargé gratuitement à partir du site web du fabricant. Il s'agit d'un document dont les droits d'auteur sont protégés. La revente de ce manuel est formellement interdite. Le fabricant se réserve le droit de modifier ce manuel de temps à autre et ne peut être tenu responsable de tous problèmes, blessures ou dommages subis suite à l'utilisation d'information contenue dans tout manuel obtenu de sources non autorisées.


1. INFORMATIONS GÉNÉRALES

Fabricant de poêles international inc. est l'un des plus importants et des plus réputés fabricants de poêles à bois, de foyers et de poêles à granules en Amérique du Nord et est fier de la qualité et du rendement de tous ses produits. Nous désirons que vous soyez le plus satisfait possible lors de l'usage de ce produit.

Dans les pages qui suivent, vous trouverez des conseils d'ordre général sur le chauffage aux granules et des indications sur la façon d'obtenir le meilleur rendement de ce poêle.

Nous recommandons fortement que nos produits de chauffage soient installés par des professionnels certifiés aux États-Unis par le NFI (National Fireplace Institute®) ou au Canada par WETT (Wood Energy Technology Transfer) ou au Québec par l'APC (Association des Professionnels du Chauffage).

Il se peut que vous deviez vous procurer un permis pour l'installation du poêle et du système d'évent sur lequel il est branché. Communiquez avec votre service municipal du bâtiment ou des incendies avant l'installation. Nous vous recommandons également de demander à votre compagnie d'assurance habitation si cette installation aura une incidence sur votre police d'assurance.

| DANGER | |
|---|---|
|  | <p>CHAUD LORSQU'EN FONCTION. TENIR LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES ÉLOIGNÉS. TOUT CONTACT AVEC LA PEAU PEUT CAUSER DES BRÛLURES.</p> |

REMARQUE

Une source de chauffage primaire doit être disponible dans la résidence. Cet appareil de chauffage doit être utilisé comme chauffage d'appoint. Le fabricant ne peut être tenu responsable des coûts du chauffage additionnel pouvant être engendrés par une source de chauffage alternative.

REMARQUE

Il est fortement recommandé d'acheter ce produit chez un détaillant pouvant fournir des conseils sur son installation et son entretien.

REMARQUE

Les informations inscrites sur la plaque d'homologation de l'appareil ont toujours préséance sur les informations contenues dans tout autre média publié (manuels, catalogues, circulaires, revues ou sites web).

REMARQUE

L'utilisation de composants provenant d'autres appareils, ou la modification des composants actuels du poêle sont interdites et annuleront la garantie. Toutes les modifications de l'appareil qui n'ont pas été approuvées par écrit par l'autorité d'homologation ou le fabricant est interdite et viole les normes CSA B365 (Canada) et NFPA 211 (É.-U.).

REMARQUE

SBI - Fabricant de poêles international Inc. n'assume aucune garantie, implicite ou explicite, liée à la mauvaise installation ou au manque d'entretien de l'appareil et n'assume aucune responsabilité pour tout dommage qui en résulterait.

REMARQUE

Cet appareil de chauffage au bois nécessite des inspections et réparations périodiques pour une utilisation optimale. Il est contre la réglementation fédérale d'utiliser cet appareil de façon incohérente avec les instructions de ce manuel.



AVERTISSEMENT: Ce produit peut vous exposer à des agents chimiques, y compris du monoxyde de carbone, identifiés par l'État de la Californie comme pouvant causer le cancer ou des malformations congénitales et autres troubles de l'appareil reproducteur. Pour de plus amples informations, prière de consulter le www.P65warnings.ca.gov

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ENREGISTREZ VOTRE GARANTIE EN LIGNE

Afin d'obtenir une couverture complète en cas de réclamation sur garantie, vous devrez fournir une preuve de la date d'achat de l'appareil. Conservez votre facture. Nous vous recommandons également d'enregistrer votre garantie en ligne au

<https://www.drolet.ca/fr/garantie/enregistrement-garantie/>

L'enregistrement de votre garantie nous aidera à trouver rapidement les informations requises sur votre appareil.

2. INFORMATIONS GÉNÉRALES ET PERFORMANCES DE L'APPAREIL⁽¹⁾

| | |
|--|--|
| Matériau du coupe-feu | Acier inoxydable |
| Type de porte | Simple, vitrée, avec cadre en fonte |
| Type de vitre | Verre céramique |
| Ventilateur | Inclus (jusqu'à 176 PCM) |
| Niveau de bruit à 6 pieds | 47 dBa (+/- 3 dBa) 60 dBa (+/- 3 dBa) |
| Combustible | Granules de bois (qualité Premium ou supérieure)**) |
| Superficie de chauffage recommandée[*] | 500 à 2,000 pi ² (46 à 186 m ²) |
| Capacité de trémie | ECO-55, ECO-55CT = 60 lb (27.3kg); ECO-55 ST = 80lb (36.3kg) |
| Temps de combustion maximal[*] | ECO-55, ECO-55CT = 51h; ECO-55 ST = 69h |
| Puissance thermique d'entrée maximale⁽²⁾ | 39,260 BTU/h (11.5 kW) |
| Puissance thermique globale (min. à max.)⁽³⁾ | 6,648 BTU/h à 28,540 BTU/h (1.95 kW à 8.36 kW) |
| Rendement moyen global⁽³⁾ | 70.3% (PCS ⁽⁴⁾) 75.8% (PCI ⁽⁵⁾) |
| Rendement optimal⁽⁶⁾ | 78.4% |
| Taux de combustion | 1.2 lb/h à 4.7 lb/h (0.54 kg/h à 2.14 kg/h) |
| Taux moyen d'émission de particules⁽⁷⁾ | 0.96 g/h (EPA / CSA B415.1-10) |
| Taux moyen de CO⁽⁸⁾ | 7.6 g/h |
| Consommation électrique moyenne⁽⁹⁾ | 1.3A (51W) min. 2.5A (140W) max. en opération continue |

⁽¹⁾ Valeurs telles qu'obtenues en test, à l'exception de la superficie de chauffage recommandée, la capacité de trémie, le temps de combustion maximal et la puissance thermique d'entrée maximale. Les résultats peuvent varier en fonction de la qualité, la densité, la longueur et le diamètre du granule utilisée.

[*] La superficie de chauffage recommandée et le temps de combustion maximal peuvent varier selon la localisation de l'appareil dans l'habitation, la qualité du tirage de la cheminée, le

climat, les facteurs de perte de chaleur, le type de combustible utilisé, le débit d'alimentation, le niveau de granules et d'autres variables. La superficie de chauffage recommandée pour un appareil est définie par le fabricant comme sa capacité à conserver une température minimale acceptable considérant que la configuration de l'espace ou la présence de système de distribution d'air ont un impact important sur la distribution optimale de la chaleur.

(**) Niveau de qualité déterminé par des organismes tels que Pellet Fuels Institute (PFI), ENplus ou CANplus.

⁽²⁾ Basé sur le taux de combustion maximal et un pouvoir calorifique de la granule sèche de 8,600 BTU/lb.

⁽³⁾ Telle que mesurée selon la méthode CSA B415.1-10.

⁽⁴⁾ Pouvoir Calorifique Supérieur du combustible.

⁽⁵⁾ Pouvoir Calorifique Inférieur du combustible.

⁽⁶⁾ Rendement optimal à un taux de combustion donné (PCI).

⁽⁷⁾ Cet appareil est officiellement testé et certifié par un organisme indépendant.

⁽⁸⁾ Monoxyde de carbone.

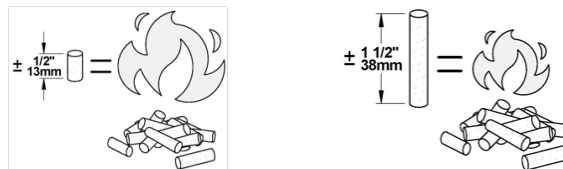
⁽⁹⁾ Sauf indication contraire, les mesures ont été prises à la source d'alimentation de courant principale et incluent toutes les composants électriques de l'appareil.

3. COMBUSTIBLES

3.1 GRANULES RECOMMANDÉS

Type : Granules de bois, qualité premium ou supérieure, certifié par PFI, ENplus ou CANplus.

Dimension : Les granules conventionnels sont ceux de 1/4" ou 5/16" de diamètre, d'une longueur maximale de 1". Des granules plus longs et plus gros peuvent affecter la constance de l'alimentation.



Taux de cendres : Moins de 1%. Plus de 1% de cendres augmentera la fréquence de nettoyage requise, créera des problèmes de combustion et augmentera le taux d'émission de l'appareil.

Taux d'humidité : Des granules humides seront difficiles à allumer et affecteront grandement l'alimentation et les performances du poêle. L'utilisation de granules secs maintiendra les performances de l'appareil.

REMARQUE

L'utilisation d'un combustible autre que celui mentionné ci-dessus n'est pas permise. Ceci constitue une violation des codes du bâtiment pour lequel ce poêle a été approuvé et annulera la garantie.

NE PAS BRÛLER:

- DES ORDURES;
- DE LA PELOUSE OU DES DÉCHETS DE JARDIN;
- DES MATÉRIEAUX CONTENANT DU CAOUTCHOUC, Y COMPRIS LES PNEUS;
- DES MATERIAUX CONTENANT DU PLASTIQUE;
- DES DÉCHETS CONTENANT DU PÉTROLE, DE LA PEINTURE, DU DILUANTS À PEINTURE OU DES PRODUITS À BASE D'ASPHALTE;
- DES MATÉRIEAUX CONTENANT DE L'AMIANTE;
- DES DÉBRIS DE CONSTRUCTION OU DE DÉMOLITION;
- DES TRAVERS DE CHEMIN DE FER OU DU BOIS TRAITÉ;
- DU FUMIER OU DES CARCASSES D'ANIMAUX;
- DU BOIS D'ÉPAVE OU AUTRE MATÉRIEAUX SATURÉS A L'EAU SALÉE;
- DU BOIS VERT; OU DES PRODUITS DU PAPIER, DU CARTON, DU CONTREPLAQUÉ OU DES PANNEAUX DE PARTICULES. L'INTERDICTION DE BRÛLER CES MATÉRIEAUX N'INTERDIT PAS L'UTILISATION D'ALLUME-FEU FABRIQUÉ À PARTIR DE PAPIER, DE CARTON, DE SCIURE DE BOIS, DE CIRE ET DE SUBSTANCES SIMILAIRES POUR ALLUMER UN FEU.
- BRÛLER CES MATÉRIEAUX POURRAIT PRODUIRE UNE ÉMANATION DE FUMÉE TOXIQUE, RENDRE L'APPAREIL INEFFICACE ET CAUSER DE LA FUMÉE.

3.2 ENTREPOSAGE DES SACS DE GRANULES

ATTENTION

NE PAS ENTREPOSER DE COMBUSTIBLES EN DEÇÀ DES DÉGAGEMENTS MINIMUMS DE L'APPAREIL DE CHAUFFAGE.

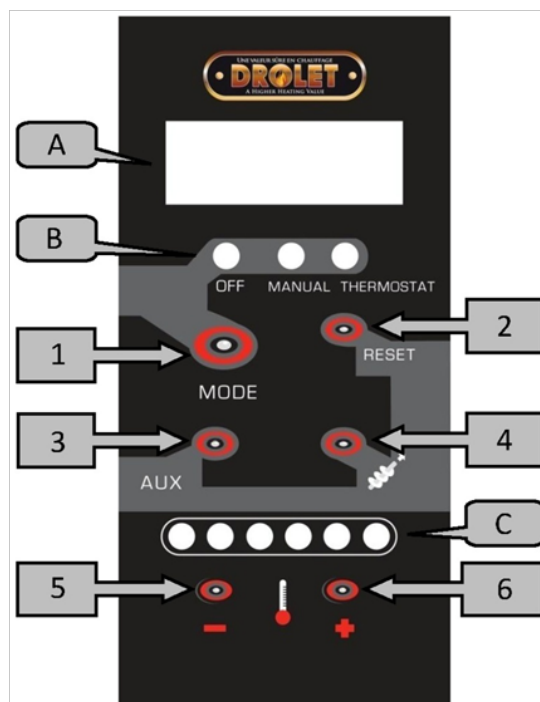
Il est recommandé de remiser les sacs de granules dans un endroit sec et bien aéré. S'ils doivent être entreposés à l'extérieur, gardez l'emballage de plastique de la palette intact et couvrez celle-ci avec une bâche puisque les sacs de granules ne sont pas étanches.

Vous voudrez peut-être entreposer un sac ou deux dans la même pièce que votre poêle pour le ravitaillement. Veillez à respecter les distances minimales des dégagements aux matériaux combustibles ainsi que l'espace requis pour remplir la trémie et l'enlèvement des cendres.

4. CONTRÔLES DE L'APPAREIL

Le système d'alimentation en granules et les ventilateurs sont contrôlés par le panneau de contrôle du poêle, situé sur le côté droit. Les divers boutons et zones de visualisations du panneau de contrôle sont les suivants :

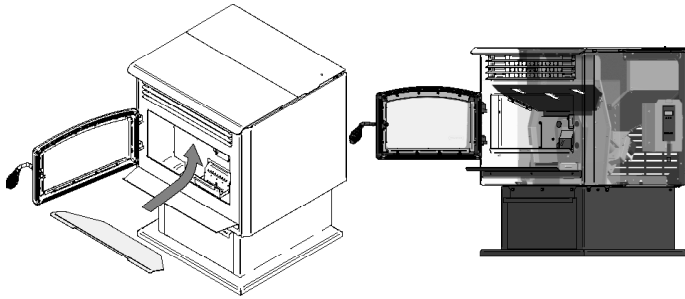
- A. Zone de visualisation des différents messages.
 - B. Zone de visualisation de l'état du poêle.
 - C. Zone de visualisation de l'intensité du poêle, niveau 1 à 6.
1. **MODE** : Le bouton «MODE» est utilisé pour arrêter le poêle (OFF), le mettre en marche en opération manuelle (MANUAL) ou en mode thermostatique (THERMOSTAT).
 2. **RESET** : Le bouton «RESET» est utilisé pour réinitialiser le poêle après l'apparition de la plupart des messages d'erreurs.
 3. **AUX** : Le bouton «AUX» est utilisé pour ajuster la vitesse de l'air de convection.
 4. **VIS** : Le bouton « vis » est utilisé pour remplir la vis sans fin de granules.
 5. **MOINS** : Le bouton « - » est utilisé pour réduire la vitesse de l'alimentation en granules et de ce fait même, baisser le niveau d'intensité du poêle.
 6. **PLUS** : Le bouton « + » est utilisé pour augmenter la vitesse de l'alimentation en granules et de ce fait même, augmenter le niveau d'intensité du poêle.



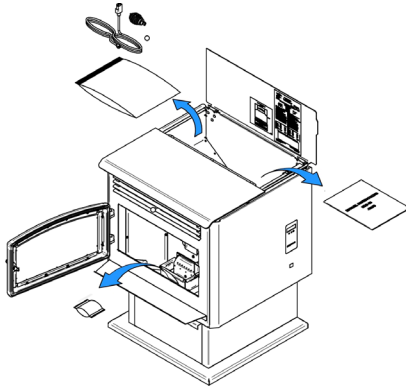
5. OPÉRATION DE L'APPAREIL

5.1 AVANT DE DÉMARRER L'APPAREIL

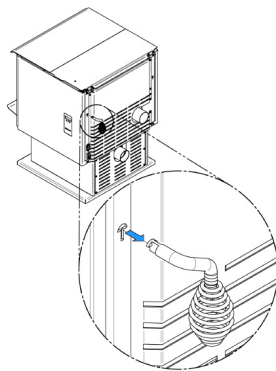
- Assurez-vous que le coupe-feu a bien été installé.



- Assurez-vous que tous les outils et autres accessoires qui ont été logés dans votre appareil pour le transport ont été retirés.



- Assurez-vous que le pot de combustion soit bien en place, qu'il y ait suffisamment de granules dans la trémie et que l'entretien recommandé selon le calendrier a été effectué.
- La poignée de l'appareil est amovible. **Lorsque le poêle est en fonction, elle doit être rangée derrière le poêle,** comme montré sur l'image ci-dessous.



5.2 DÉMARRAGE DE L'APPAREIL

Appuyez sur le bouton «MODE» pour mettre le poêle en marche en opération manuelle (MANUAL) ou thermostatique (THERMOSTAT). Lorsque vous

appuyez sur le bouton « MODE », le poêle s'allume automatiquement. Aucun allume-feu n'est nécessaire pour démarrer l'appareil.

En appuyant sur les boutons «+» ou «-», vous serez en mesure d'augmenter ou de réduire la vitesse de l'alimentation en granules, et par le fait même, le niveau d'intensité du poêle. Chaque changement du niveau d'intensité peut être visualisé grâce à la lumière rouge qui indique le niveau atteint de 1 à 6.

REMARQUE

Durant les premiers feux, votre poêle dégagera une odeur désagréable accompagnée d'une mince fumée. Ceci est lié au processus de durcissement de la peinture. La peinture chauffe, durcit et adhère au métal. Assurez-vous que la pièce soit bien ventilée. **Bien que la fumée et son odeur soient désagréables, elles ne sont pas toxiques.**

Faites deux ou trois feux à faible intensité pour amorcer le processus de durcissement et de conditionnement. Faites ensuite des feux à haute intensité jusqu'à ce que le poêle ne dégage plus d'odeur de peinture.

MISE EN GARDE

NE JAMAIS UTILISER UNE GRILLE OU TOUT AUTRE MOYEN POUR SUPPORTER LE COMBUSTIBLE. UTILISEZ UNIQUEMENT LE POT À COMBUSTION APPROUVÉ POUR CE POÊLE ET NE LE MODIFIEZ PAS.

5.3 REMPLISSAGE DE L'APPAREIL

Lorsque le poêle est en marche, vous avez 90 secondes pour remplir la trémie de granules avant que le poêle s'arrête. Un signal sonore se fera entendre et s'intensifiera chaque 30 secondes. Après 90 secondes, si le couvercle de la trémie est toujours ouvert, le poêle s'arrêtera en affichant le code d'avertissement «d». Pour plus d'informations, voir la section «Dépannage».

Notez que l'ouverture du couvercle de la trémie arrêtera la vis sans fin d'alimenter le poêle en granules.

Lorsque le poêle est à l'arrêt, il n'y a aucune limite de temps pour le remplissage de la trémie.

Ne surchargez pas la trémie.

MISE EN GARDE

GARDEZ LE COUVERCLE DE LA TRÉMIE FERMÉ EN TOUT TEMPS, SAUF LORS DU REMPLISSAGE.

5.4 PROCÉDURE D'ARRÊT

Pour éteindre votre poêle, appuyez sur le bouton «MODE» jusqu'à la position OFF. Le cycle de refroidissement s'échelonne sur quelques minutes. Les ventilateurs continueront de fonctionner pendant que le poêle se refroidit.

REMARQUE

Ne jamais débrancher le cordon d'alimentation pour éteindre le poêle.

5.5 SIGNES DE SURCHAUFFE

Si l'appareil surchauffe, il deviendra très chaud et s'arrêtera en affichant le code d'avertissement «H». Dans cette éventualité, attendez que le poêle refroidisse et faites l'entretien hebdomadaire suggéré dans le calendrier d'entretien. Inspectez minutieusement le système d'évent. Faites-le ramoner, si nécessaire. Appuyez sur le bouton «MODE» et «RESET» simultanément durant 3 secondes pour réinitialiser le poêle.

Après trois répétitions d'un code H, le contrôle de l'appareil sera verrouillé et il vous sera impossible de redémarrer l'appareil. Avant de le déverrouiller, faites l'entretien biennal suggéré dans le calendrier d'entretien. Inspectez minutieusement le système d'évent. Faites-le ramoner, si nécessaire.

Lorsque l'entretien est complété, pour déverrouiller le contrôle, appuyez sur les boutons suivants, les uns après les autres : «RESET», «MODE», «+», «-» puis, appuyez sur le bouton «VIS» durant 5 secondes.



DANGER



SI VOUS APERCEVEZ DES LUEURS ROUGEÂTRES SUR LES COMPOSANTS EXTERNES DU POÊLE, LE POÊLE SURCHAUFFE. ÉTEIGNEZ-LE. NE LE DÉBRANCHEZ PAS ET N'OUVREZ PAS LA PORTE. DÉBRANCHER LE POÊLE DÉSACTIVERA TOUS LES ÉLÉMENTS DE SÉCURITÉ DU POÊLE.



DANGER



UN APPAREIL QUI SURCHAUFFE PEUT MENER À UN INCENDIE. CHAQUE CODE H DOIT ÊTRE SUIVI PAR UN ENTRETIEN DE L'APPAREIL ET UNE VÉRIFICATION DU SYSTÈME D'ÉVENT.

5.6 MODE THERMOSTAT

Un thermostat vous aidera à conserver une température stable de façon automatique dans la pièce. Un thermostat bas voltage est nécessaire. Une unité murale ou un contrôle à distance peuvent être utilisés.

Afin d'utiliser le mode thermostat, appuyez sur le bouton «MODE» jusqu'à la position «THERMOSTAT». Sélectionnez ensuite le niveau d'intensité en utilisant les boutons «-» ou «+». En mode thermostatique, le poêle fonctionnera au niveau d'intensité sélectionné jusqu'à ce que la température de la pièce ait atteint le niveau programmé sur le thermostat.

5.5.1 SÉLECTION DU MODE PILOT

Par défaut, le mode pilote est en mode AUTO. Pour le changer, appuyez sur le bouton «-» et le bouton «MODE» simultanément, durant 3 secondes. Le mode choisi sera alors affiché dans la zone de visualisation des différents messages.

Pilot AUTO (Niveau d'intensité 1): Lorsque la température est atteinte, le poêle restera automatiquement à son niveau d'intensité le plus faible (#1) jusqu'à ce que le thermostat exige à nouveau de la chaleur. Le poêle s'arrêtera après 15 minutes, si le thermostat ne demande pas de chaleur durant cette période.

Pilot AUTO (Niveaux d'intensité 2 à 6): Lorsque la température est atteinte, le poêle se met automatiquement à son niveau d'intensité le plus faible (#1), jusqu'à ce que le thermostat exige à nouveau de la chaleur. Le poêle s'arrêtera après 45 minutes, si le thermostat ne demande pas de chaleur durant cette période.

Pilot ON: Lorsque la température est atteinte, le poêle se met automatiquement à son niveau d'intensité le plus faible (#1), jusqu'à ce que le thermostat exige à nouveau de la chaleur. Le poêle ne s'arrêtera pas, même si le thermostat ne demande pas de chaleur à nouveau.

REMARQUE

Pour éviter l'usure prématurée des composants de l'appareil, il est recommandé d'utiliser le mode Pilot ON durant les mois les plus froids et le mode Pilot AUTO durant les mois les plus chauds.

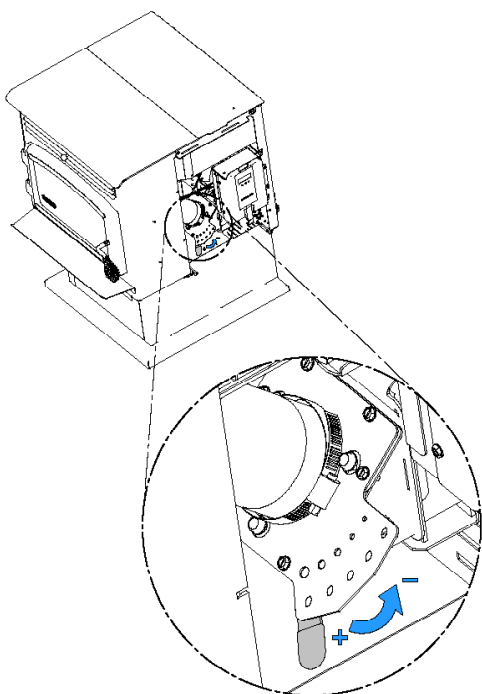
5.7 AJUSTEMENT DE LA VITESSE DE L'AIR DE CONVECTION

Chaque niveau d'intensité de combustion de l'appareil a été programmé avec une vitesse de convection optimale. Toutefois, il est possible d'augmenter la vitesse en appuyant sur le bouton «AUX». Tous les niveaux d'intensité peuvent être augmentés, sauf le niveau d'intensité 6, qui est déjà à sa vitesse maximum.

5.8 AJUSTEMENT DE L'ENTRÉE D'AIR

Il est possible d'ajuster la quantité d'air de combustion qui entre dans le poêle. L'utilisation du poêle au réglage le plus bas réduira les allumages manqués, allumera les granules plus facilement et réduira le noircissement de la vitre lorsque des granules de hautes qualité sont utilisés. Si un sac de granules devait être plus difficile à allumer et à brûler, l'ouverture du contrôle d'air aidera.

Pour ouvrir ou fermer la trappe d'air manuelle, ouvrir le panneau décoratif droit et repérer l'entrée d'air. Presser sur la languette et glisser vers le haut pour diminuer l'arrivée d'air et vers le bas pour augmenter l'arrivée d'air.



REMARQUE

Le taux de combustion minimum de cet appareil de chauffage au bois a été défini par le fabricant et ne doit pas être modifié. Il est contre la réglementation fédérale de modifier ce réglage ou d'utiliser cet appareil de chauffage au bois d'une manière non conforme aux instructions de ce manuel.

6. ENTRETIEN DE L'APPAREIL

REMARQUE

Pour alléger la présente section, seulement le ECO-55 est présenté. Notez que toutes les étapes de nettoyage sont les mêmes pour le ECO-55 ST.

6.1 SÉCURITÉ LORS DE L'ENTRETIEN

ATTENTION



NE JAMAIS FAIRE L'ENTRETIEN DE VOTRE POÊLE LORSQU'IL EST CHAUD.

DANGER



DÉBRANCHER TOUTE SOURCE D'ÉLECTRICITÉ AVANT DE FAIRE L'ENTRETIEN DE L'APPAREIL.

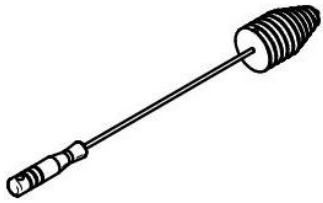
MISE EN GARDE

NÉGLIGER LE NETTOYAGE ET L'ENTRETIEN RECOMMANDÉ DE VOTRE POÊLE POURRAIT ENTRAÎNER DE MAUVAISES PERFORMANCES ET ÊTRE UN DANGER POUR VOTRE SÉCURITÉ.

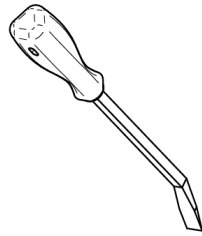
REMARQUE

Le nettoyage du poêle et du système d'évent est important, surtout à la fin de la saison de chauffage afin de minimiser la corrosion durant les mois d'été, provoquée par les cendres accumulées.

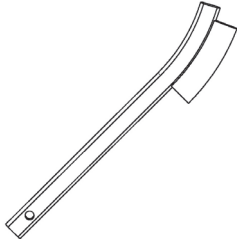
6.2 ÉQUIPEMENTS RECOMMANDÉS



Brosse universelle



Grattoir



Brosse en acier



Brosse ronde + Tige



Nettoyant à vitre



Aspirateur à cendres

6.3 ENLÈVEMENT DES CENDRES

ATTENTION



NE JAMAIS ASPIRER LES CENDRES LOSQU'ELLES SONT CHAUDES. LES CENDRES DOIVENT ÊTRE REFROIDIES AVANT DE FAIRE L'ENTRETIEN.

ATTENTION

LES CENDRES DOIVENT ÊTRE MISES DANS UN CONTENANT MÉTALLIQUE AVEC UN COUVERCLE ÉTANCHE. CE CONTENANT FERMÉ DEVRIT ÊTRE DÉPOSÉ SUR UNE SURFACE NON COMBUSTIBLE, LOIN DE TOUT MATÉRIAU POUVANT PRENDRE FEU. SI LES CENDRES SONT DESTINÉES À ÊTRE ENTERRÉES OU LOCALEMENT DISPERSÉES, ELLES DEVIENNAIENT ÊTRE MAINTENUES DANS LE RÉCIPENT FERMÉ JUSQU'À CE QU'ELLES SOIENT COMPLÈTEMENT REFROIDIES.

MISE EN GARDE

L'UTILISATION D'UN ASPIRATEUR DOMESTIQUE, CENTRAL OU COMMERCIAL POUR EFFECTUER L'ENTRETIEN DE VOTRE POÊLE EST DÉCONSEILLÉE. L'UTILISATION D'UN ASPIRATEUR À CENDRES EST FORTEMENT RECOMMANDÉE.

6.4 CALENDRIER D'ENTRETIEN

REMARQUE

La fréquence de nettoyage peut varier selon le type de combustible utilisé. Un combustible avec une teneur en cendres plus élevée augmentera la fréquence de nettoyage.

La fréquence de nettoyage suggérée dans les sections suivantes s'applique à une utilisation normale de l'appareil. Chacune des étapes de l'entretien est illustrée en détail dans les sections suivantes.

ENTRETIEN QUOTIDIEN

1. Activez la tige de nettoyage à quelques reprises.
2. Videz le pot de combustion.
3. Essuyez la vitre.

ENTRETIEN HEBDOMADAIRE (+/- 10 SACS)

1. Activez la tige de nettoyage à quelques reprises.
2. Videz et brossez le coupe-feu.
3. Videz et grattez le pot de combustion.
4. Aspirez les cendres froides de la chambre à combustion ou poussez-les dans le tiroir à cendres.
5. Videz le tiroir à cendres.
6. Nettoyez la vitre.

ENTRETIEN BI-ANNUEL (+/- 25 SACS)

1. Aspirez les cendres dans la canalisation d'évacuation et dans la canalisation de l'échangeur de chaleur.
2. Brossez et aspirez les cendres froides de la chambre à combustion ou poussez-les dans le tiroir à cendres.
3. Inspectez le système d'évent.
4. Inspectez les joints d'étanchéité.

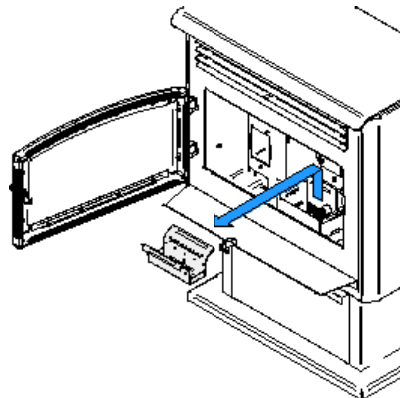
ENTRETIEN ANNUEL (+/- 1 TONNE)

1. Ramenez le système d'évent.
2. Videz et aspirez à l'intérieur de la trémie.

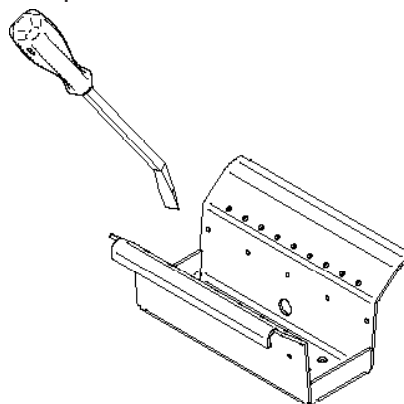
6.5 TECHNIQUES D'ENTRETIEN

6.5.1 POT DE COMBUSTION

Retirez et videz le pot de combustion.



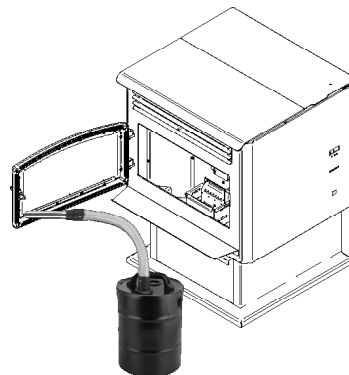
Grattez-le lorsque nécessaire.



6.5.2 VITRE

Aspirez les cendres qui se sont accumulées dans la fente d'entrée d'air du système autonettoyant entre la fixation de la vitre et la vitre. Cela permettra un écoulement d'air optimal le long de la partie intérieure de la vitre et l'empêchera de noircir.

Nettoyez la vitre de la porte au besoin. L'utilisation d'un nettoyant spécialement conçu pour les poêles à combustibles solides est recommandée. Un produit nettoyant pour les fenêtres n'enlèvera pas la suie ou le crésote.

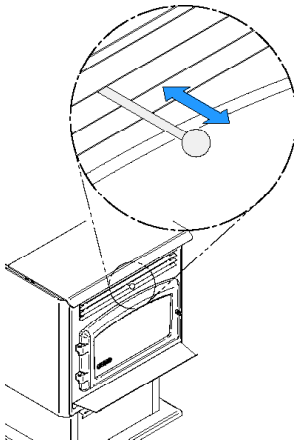


REMARQUE

- Ne jamais utiliser de nettoyeurs abrasifs sur la vitre.
- Ne pas nettoyer la vitre lorsqu'elle est chaude.
- Ne pas forcer, frapper, claquer ou adopter tout autre comportement qui pourrait fragiliser la porte vitrée.
- Ne pas utiliser le poêle si la vitre est manquante, fissurée ou cassée.

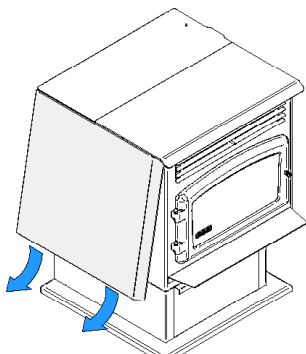
6.5.3 ÉCHANGEUR DE CHALEUR, CANALISATION D'ÉVACUATION

Activez la tige de nettoyage à quelques reprises.

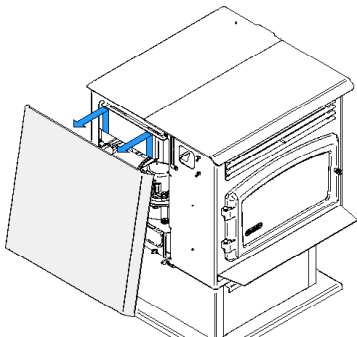


Brossez et aspirez l'intérieur de la canalisation de l'échangeur de chaleur, lorsque nécessaire.

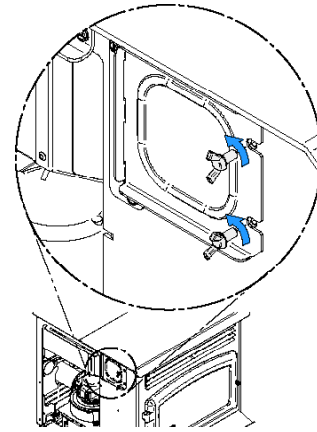
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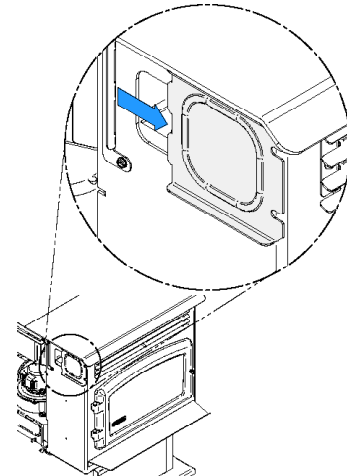
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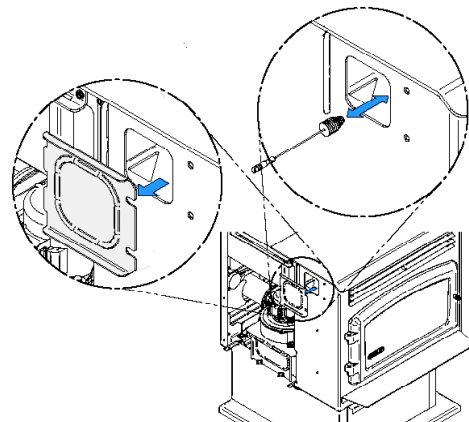
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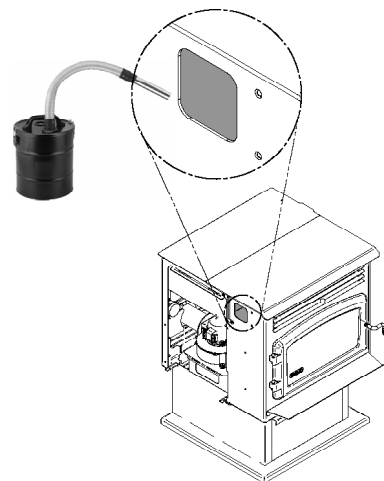
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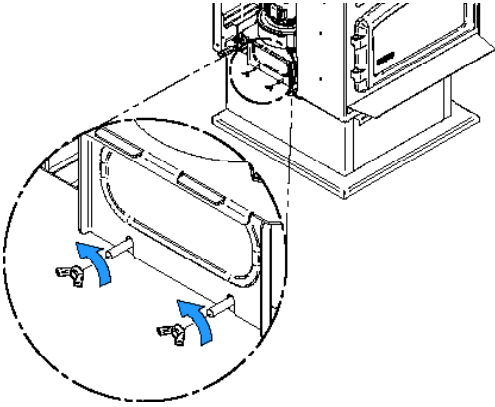


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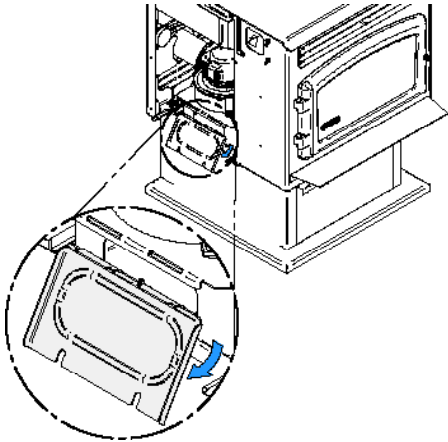


Brossez et aspirez l'intérieur de la canalisation d'évacuation, lorsque nécessaire.

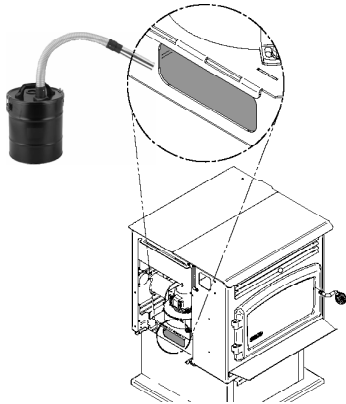
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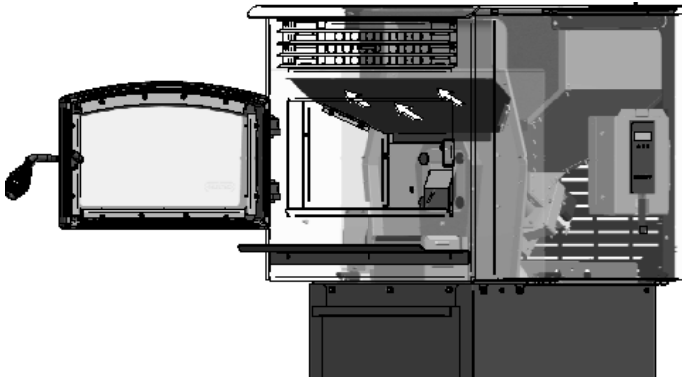


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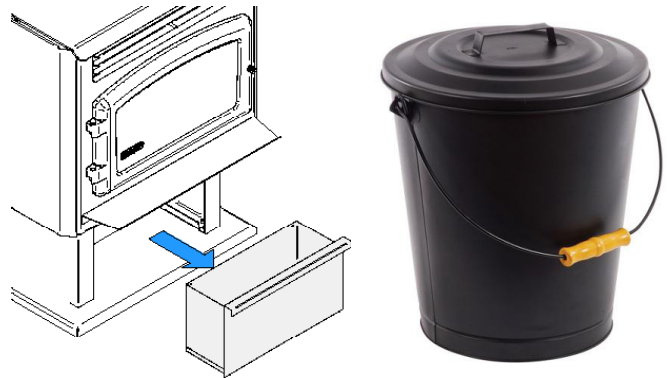
6.5.4 COUPE-FEU

Retirez et brossez le coupe-feu. Ne pas oublier de le remettre en place.



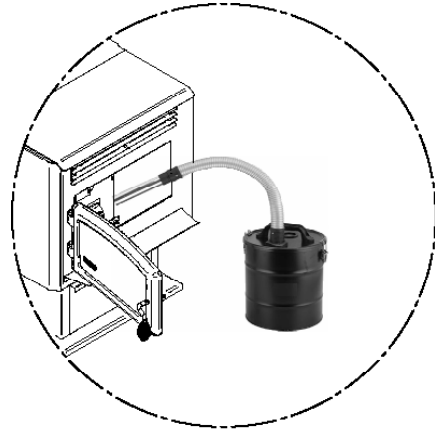
6.5.5 TIROIR À CENDRES

Videz le tiroir à cendres et entreposez les cendres dans un contenant de métal avec un couverct.

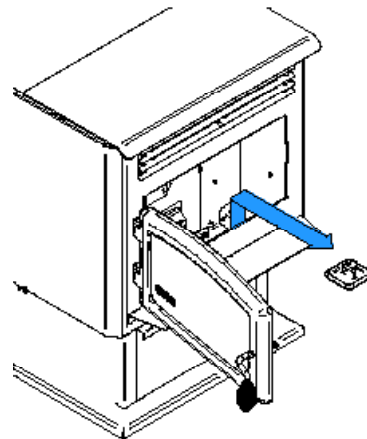


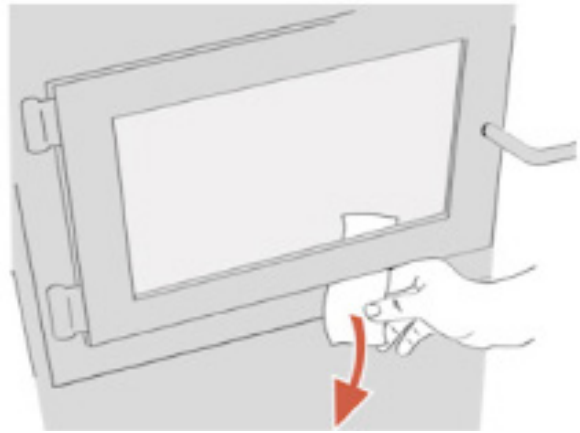
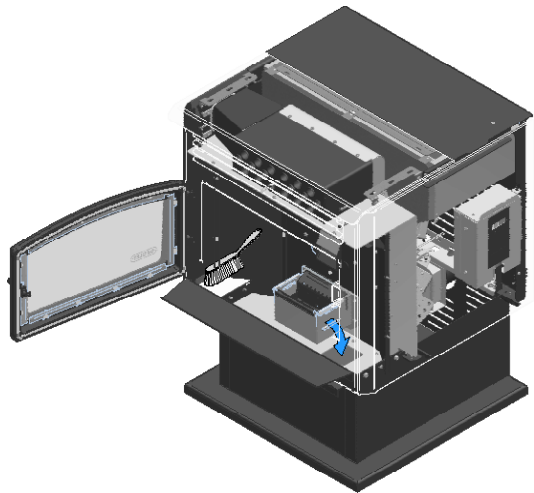
6.5.6 CHAMBRE À COMBUSTION

Nettoyez la chambre à combustion en aspirant les cendres **refroidies**. Lorsque nécessaire, brossez les parois et aspirez les cendres par la suite.



Vous pouvez aussi pousser les cendres dans le tiroir à cendres par l'ouverture au fond de la chambre à combustion. Dans ce cas-ci seulement, les cendres n'ont pas à être froides.



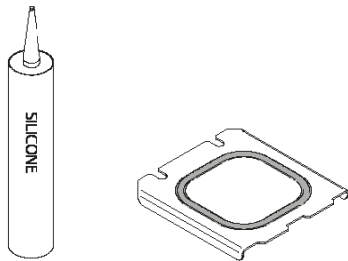


6.5.8 SYSTÈME D'ÉVENT

Voir la section suivante pour les recommandations sur l'entretien du système d'évent.

6.5.9 JOINTS D'ÉTANCHÉITÉ

Lors de l'entretien de l'échangeur de chaleur et de la canalisation d'évacuation, vérifiez que les joints d'étanchéité des panneaux de nettoyage sont en bon état. Remplacez-les au besoin.



Inspectez le joint d'étanchéité autour de la porte. Il est important de garder le cordon de la porte en bon état. Après un certain temps, le cordon s'use et se comprime.

Si la porte du poêle n'est pas scellée correctement, il sera difficile de garder la vitre de la porte propre et les gaz de combustion pourraient fuir dans la pièce.

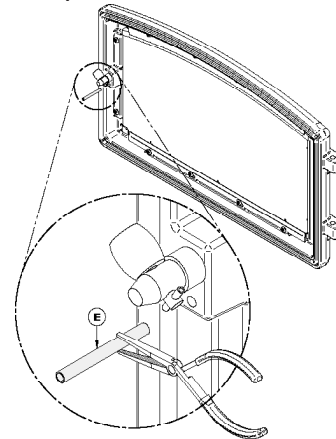
Un ajustement de la porte peut alors être nécessaire. Si l'ajustement de la porte n'est pas suffisant, remplacez le cordon de porte avec une pièce d'origine.

6.5.9 VÉRIFICATION DE L'ÉTANCHÉITÉ DE LA PORTE

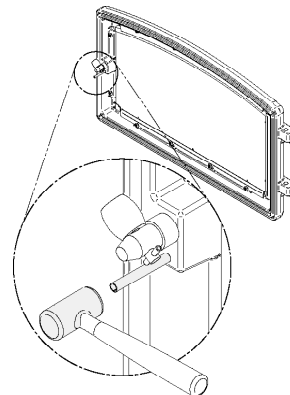
Vérifiez l'étanchéité de la porte en fermant et en verrouillant la porte sur un bout de papier. Vérifiez tout le tour de la porte. Le papier ne devrait pas glisser facilement. Si le papier glisse facilement, ajustez la porte.

6.5.10 AJUSTEMENT DE LA PORTE

Enlevez la goupille de retenue en tirant et tournant à l'aide de pince et tournez la poignée un tour dans le sens contraire des aiguilles d'une montre. Ceci augmentera la pression entre le cadre de la porte et la structure du poêle.



Réinstallez la goupille de retenue en utilisant un marteau.



7. ENTRETIEN DU SYSTÈME D'ÉVENT

MISE EN GARDE

INSPECTEZ RÉGULIÈREMENT LE SYSTÈME D'ÉVENT, LES JOINTS ET AUTRES PIÈCES D'ÉTANCHÉITÉ POUR ÉVITER QUE LA FUMÉE ET LES GAZ DE COMBUSTION NE S'ÉCHAPPENT.

Le ramonage du système d'évent peut être difficile et dangereux. Si vous n'avez pas d'expérience, il serait préférable d'engager un ramoneur professionnel pour inspecter et nettoyer le système pour la première fois. Après avoir vu comment se déroule le ramonage, vous saurez si c'est un travail que vous pouvez faire.

La méthode la plus efficace pour ramoner le système d'évent est d'utiliser une brosse de 3" ou 4", selon votre installation. Commencez dans le haut du système d'évent et brossez vers le bas, de sorte que les résidus de cendres, de suie et de créosote se détachent de la surface intérieure et tombent dans le bas du système d'évent, d'où ils peuvent être enlevés facilement. Le système d'évent doit être maintenu en bon état et bien entretenu.

MISE EN GARDE

SI UNE COUCHE IMPORTANTE DE CRÉOSOTE S'EST ACCUMULÉE (3 MM / 1/8" OU PLUS), ELLE DOIT ÊTRE ENLEVÉE IMMÉDIATEMENT POUR ÉLIMINER LES RISQUES DE FEU DE CHEMINÉE.

FAIRE FACE À UN FEU DE CHEMINÉE

1. Évacuez les membres de la famille et les animaux du bâtiment, puis, téléphonez au service d'incendie.
2. Éteignez l'appareil. **Ne le débranchez pas !**
3. Si possible, utilisez un extincteur chimique, du bicarbonate de soude ou du sable pour maîtriser l'incendie. Ne pas utiliser de l'eau, car cela pourrait provoquer des explosions de vapeur dangereuses.
4. Ne pas utiliser le poêle jusqu'à ce que le système d'évent ainsi que le poêle aient été inspectés par un ramoneur qualifié ou un inspecteur du service d'incendie.

7.1 CENDRES VOLANTES ET SUIE

Les produits de combustion contiennent de petites particules de cendres volantes. Des cendres

volantes peuvent s'accumuler particulièrement dans les sections horizontales des tuyaux d'évacuation et restreindre la circulation des gaz de combustion. La combustion incomplète produite lors du démarrage, de l'arrêt ou la mauvaise utilisation du poêle, entraînera une formation de suie qui peut s'accumuler dans le système d'évacuation. **Le système d'évent doit être inspecté au moins deux fois par an afin de déterminer si le ramonage est nécessaire.**

8. DÉPANNAGE

REMARQUE

VISITEZ NOTRE SITE WEB POUR OBTENIR UN DOCUMENT DÉTAILLÉ SUR LE DÉPANNAGE.

Les problèmes les plus courants sont généralement reliés aux causes suivantes :

1. Mauvaise utilisation ou entretien inadéquat;
2. Mauvaise installation;
3. Combustible humide ou de mauvaise qualité;
4. Composant défectueux;

Le poêle est équipé d'une carte électronique qui lui permet de fournir un diagnostic lorsque survient un problème. Il est donc important de ne pas débrancher le poêle lorsqu'il est en marche. Débrancher le poêle désactive toutes les fonctions de sécurité; vous ne serez donc pas en mesure de voir le code d'erreur nécessaire à la compréhension du problème.

8.1 PRINCIPAUX CODES D'ERREURS

| Code | Correspondance |
|------|---|
| P | Évent bloqué. Assurez-vous que le système d'évent est installé correctement. Appuyez sur le bouton «Reset» pour réinitialiser le poêle et sur «Mode» pour le redémarrer. |
| H | Surchauffe de l'appareil. Faites l'entretien de l'appareil et inspectez le système d'évent. Appuyez sur le bouton «Mode» et «Reset» simultanément durant 3 secondes pour réinitialiser le poêle. Appuyez sur le bouton «Mode» pour le redémarrer. Si plusieurs codes de surchauffe surviennent, consultez la section «Surchauffe de l'appareil». |

| Code | Correspondance |
|------|--|
| E | La trémie est vide. Lorsque tous les composants sont arrêtés, appuyez sur le bouton «Reset». Remplissez la trémie et appuyez sur le bouton «Vis». Appuyez ensuite sur «Mode» pour redémarrer le poêle. |
| d | Le couvercle de la trémie est resté ouvert pendant plus de 90 secondes lorsque l'appareil était en marche. Fermez le couvercle. Appuyez sur le bouton «Reset» pour réinitialiser le poêle et sur «Mode» pour le redémarrer. |
| n | Polarité inversée dans la prise de courant. Cet erreur n'empêche pas le poêle de fonctionner normalement mais la polarité devrait être corrigée par un électricien certifié. |
| C | Manque de courant. L'appareil exécutera une séquence d'arrêt, puis redémarrera par lui-même en effaçant le code C. |
| L | Allumage raté. Assurez-vous que les granules sont de bonne qualité et qu'ils sont secs. Nettoyez le pot de combustion. Assurez-vous que l'allumeur fonctionne. Ajustez l'entrée d'air de combustion. Appuyez sur le bouton «Reset» pour réinitialiser le poêle et sur «Mode» pour le redémarrer. |
| FE | Le fusible du moteur d'évacuation est défectueux. |
| FL | Le fusible de l'allumeur est défectueux. |
| FC | Le fusible du moteur de convection est défectueux. |
| FV | Le fusible de la vis sans fin est défectueux. |
| FB | Le fusible du moteur de combustion est défectueux. |

Pour obtenir un guide de dépannage détaillé ainsi que les fiches techniques de remplacement de composants, consultez la page web de votre produit sur notre site internet www.drolet.ca

GARANTIE À VIE LIMITÉE DROLET

La garantie du fabricant ne s'applique qu'à l'acheteur au détail original et n'est pas transférable. La présente garantie ne couvre que les produits neufs qui n'ont pas été modifiés, altérés ou réparés depuis leur expédition de l'usine. **Il faut fournir une preuve d'achat (facture datée), le nom du modèle et le numéro de série au détaillant DROLET lors d'une réclamation sous garantie.**

La présente garantie ne s'applique que pour un usage résidentiel normal. Les dommages provenant d'une mauvaise utilisation, d'un usage abusif, d'une mauvaise installation, d'un manque d'entretien, d'une surchauffe, d'une négligence, d'un accident pendant le transport, d'une panne de courant, d'un manque de tirage, d'un retour de fumée ou d'une sous-évaluation de la surface de chauffage ne sont pas couverts par la présente garantie. La surface de chauffage recommandée pour un appareil est définie par le manufacturier comme sa capacité à conserver une température minimale acceptable considérant que la configuration de l'espace ou la présence de système de distribution d'air ont un impact important sur la distribution optimale de la chaleur.

La présente garantie ne couvre pas les égratignures, la corrosion, la déformation ou la décoloration. Tout défaut ou dommage provenant de l'utilisation de pièces non autorisées ou autres que des pièces originales, annule la garantie. Un technicien qualifié autorisé doit procéder à l'installation en conformité avec les instructions fournies avec le produit et avec les codes du bâtiment locaux et nationaux. Tout appel de service relié à une mauvaise installation n'est pas couvert par la présente garantie.

Le fabricant peut exiger que les produits défectueux lui soient retournés ou que des photos numériques lui soient fournies pour appuyer la réclamation. Les produits retournés doivent être expédiés port payé au fabricant pour étude. Les frais de transport pour le retour du produit à l'acheteur seront payés par le manufacturier. Tout travail de réparation couvert par la garantie et fait au domicile de l'acheteur par un technicien qualifié autorisé doit d'abord être approuvé par le fabricant. Tous les frais de pièces et main-d'œuvre couverts par la présente garantie sont limités au tableau ci-dessous.

Le fabricant peut, à sa discrétion, décider de réparer ou remplacer toute pièce ou unité après inspection et étude du défaut. Le fabricant peut, à sa discrétion, se décharger de toutes ses obligations en ce qui concerne la présente garantie en remboursant le prix de gros de toute pièce défectueuse garantie. Le fabricant ne peut, en aucun cas, être tenu responsable de tout dommage extraordinaire, indirect ou consécutif, quelle qu'en soit la nature, qui dépasserait le prix d'achat original du produit. Les pièces couvertes par une garantie à vie sont sujettes à une limite d'un seul remplacement sur la durée de vie utile du produit. Cette garantie s'applique aux produits achetés après le 1er mars 2015.

FRANÇAIS

| DESCRIPTION | APPLICATION DE LA GARANTIE* | |
|--|-----------------------------|---------------|
| | PIÈCES | MAIN D'OEUVRE |
| Chambre à combustion (soudures seulement**), échangeur de chaleur (soudures seulement**) et cadrage de porte en acier coulé (fonte). | À vie | 3 ans |
| Habillage, écran coupe-chaleur, tiroir à cendres, pattes, piédestal, moulures décoratives (extrusions) et placage (défaut de fabrication**). | 5 ans | 3 ans |
| Pièces amovibles en acier inoxydable, pot de combustion**, déflecteurs et supports. | 3 ans | s.o. |
| Moulures de vitre, ensemble de poignée, tige de nettoyage, mécanisme de contrôle d'air et vis sans fin. | 3 ans | 1 an |
| Ventilateurs, moteur de vis, carte électronique, allumeur, capteurs thermiques, interrupteurs, câblage, rhéostats et autres commandes. | 1 an | 1 an |
| Verre céramique (bris thermique seulement**), peinture (écaillage**), joints d'étanchéité, isolants, laines céramiques, bûches décoratives** panneaux d'imitation de maçonnerie** et autres options. | 1 an | s.o. |
| Toutes les pièces remplacées au titre de la garantie. | 90 jours | s.o. |

***Sous réserve des limitations ci-dessus. **Photos exigées. s.o. : Sans Objet**

Les frais de main-d'œuvre et de réparation portés au compte du fabricant sont basés sur une liste de taux prédéterminés et ne doivent pas dépasser le prix de gros de la pièce de rechange.

Si votre appareil ou une pièce sont défectueux, communiquez immédiatement avec votre détaillant DROLET. Avant d'appeler, ayez en main les renseignements suivants pour le traitement de votre réclamation sous garantie :

- Votre nom, adresse et numéro de téléphone;
- La facture et le nom du détaillant;
- La configuration de l'installation;
- Le numéro de série et le nom du modèle tel qu'indiqué sur la plaque signalétique de l'appareil;
- La nature du défaut et tout renseignement important.

Avant d'expédier votre appareil ou une pièce défectueuse à notre usine, vous devez obtenir un numéro d'autorisation de votre détaillant DROLET. Toute marchandise expédiée à notre usine sans autorisation sera automatiquement refusée et retournée à l'expéditeur.



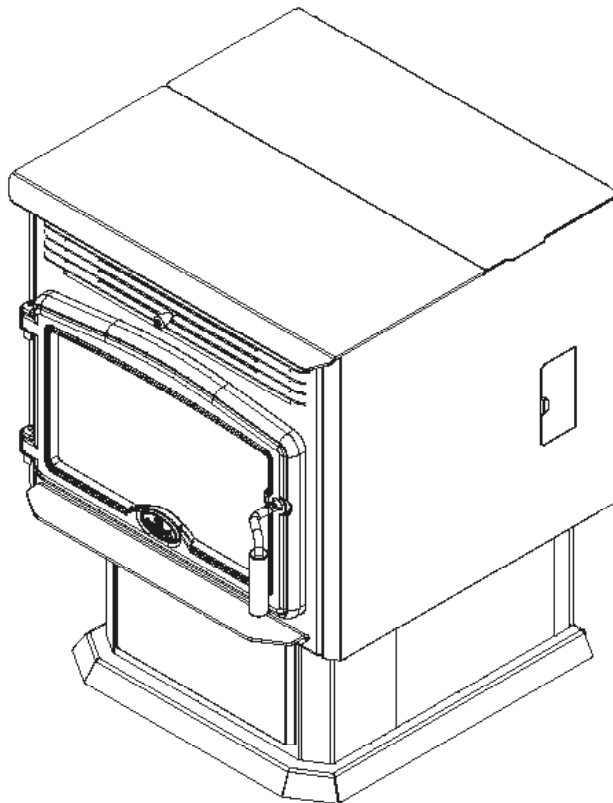
BEYOND
fire



Installation Manual

2500

(OP0025 model)



Safety tested according to ULC S627,
UL 1482 and ASTM E1509 by an
accredited laboratory.



**INSTALLATION BY A
PROFESSIONAL IS STRONGLY
RECOMMENDED**

ENGLISH

FRANÇAIS

CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN LOCAL AREA.

READ THIS ENTIRE MANUAL BEFORE INSTALLATION AND USE OF THIS PELLET STOVE. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN PROPERTY DAMAGE, BODILY INJURY OR EVEN DEATH.

READ AND KEEP THIS MANUAL FOR REFERENCE

RECOMMENDATIONS

It is highly recommended that this appliance be **installed and serviced by professionals who are certified** in the United States by NFI (National Fireplace Institute®) or in Canada by WETT (Wood Energy Technology Transfer) or in Quebec by APC (Association des Professionnels du Chauffage).

If this appliance is not properly installed, combustible materials near it may overheat and catch fire. To reduce the risk of fire, follow the installation instructions in this manual exactly. Contact local building or fire officials about restrictions and installation inspection requirements in local area. It is also recommended to inform your home insurance company.

It may be needed to get a building permit for the installation of this appliance and the venting system that it is connected to.

Read this entire manual before installing this stove.

GENERAL INFORMATION

This stove does not work with a natural draft or without power source to activate the blowers and the pellet feeding system. The stove will not work in the event of a power outage.

This stove has been developed and built to be **used as a residential heater**. Commercial or industrial use is prohibited and will void the warranty.

The information given on the certification label affixed to the appliance always overrides the information published, in any other media (owner's manual, catalogues, flyers, magazines or web sites).

Mixing of appliance components from different sources or modifying components is prohibited and will void the warranty.

Any modification to the stove that has not been approved in writing by the testing authority is prohibited and violates CSA B365 (Canada), and ANSI NFPA 211 (USA).

Stove Builder International inc. (SBI) grants no warranty, implied or stated, for the poor installation or lack of maintenance of this appliance and assumes no responsibility of any consequential damages.

When locating this appliance, make sure the venting system will not interfere with any truss, roof beams, wall studs, water pipes or electrical wiring. It may be easier to relocate the appliance than to rework the building structure.

This stove is certified to comply with EPA NSPS 2015 particulate emission standards and is not approved for sale after May 15th 2020.

AVAILABLE OPTIONS AND ACCESSORIES

- Hopper extension;
- Fresh air kit;
- Wall thermostat;
- Programmable thermostat;
- Glass hearth pad;

For more details, visit our web site www.osburn-mfg.com or refer to an authorized dealer.

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SPECIFICATIONS

| | |
|--|---|
| Model | 2500 (OP00025) |
| Recommended venting pipe diameter | 3 in. or 4 in. depending on EVL ¹ . |
| Flue outlet diameter | 3 in. (80 mm) |
| Pellet venting standard | ULC/ORD-C441, CAN/ULC S609 UL 641 (TYPE L) |
| Approved for alcove installation | Yes |
| Approved for mobile home installation ² | Yes |
| Shipping weight (without option) | 286 lb (130 kg) |
| Appliance weight (without option) | 253 lb (115 kg) |
| Particulate emission standard | EPA / CSA B415.1-10, ASTM E2779 |
| USA standard (safety) | ASTM E1509, UL 1482 |
| Canadian standard (safety) | ULC S627 |
| Average electrical power consumption ³ | Voltage and Frequency 120VAC et 60 Hz Ignition : 2.60A Continuous operation : 2.50A |
| Fuses | Main: 8A - 250V slow blow Convection blower: 5A - 250V slow blow Combustion blower: 5A - 250V slow blow Exhaust blower: 5A - 250V slow blow Auger motor #1: 3A - 250V slow blow Igniter: 8A - 250V slow blow |

¹ See section « [Venting - Equivalent Vent Length](#) ».

² Mobile home (Canada) or manufactured home (USA): The US Department of Housing and Urban Development describes “manufactured homes” better known as “mobile homes” as followed; buildings built on fixed wheels and those transported on temporary wheels/axles and set on a permanent foundation. In Canada, a mobile home is a dwelling for which the manufacture and assembly of each component is completed or substantially completed prior to being moved to a site for installation on a foundation and connection to service facilities and which conforms to the CAN/CSA-Z240 MH standard.

³ Unless stated otherwise, measures were taken directly at the main power source and include all electrical components present in the appliance

PERFORMANCES

Values are as measured per test method. Results may vary depending on pellet quality, density, length, and diameter.

| | | |
|--|--|---------------------------|
| Fuel type | Wood Pellet (Premium grade or better) ¹ | |
| Maximum heat input rate ² | 39,260 BTU/h (11.5 kW) | |
| Overall heat output rate (min. to max.) ³ | 6,648 BTU/h to 28,540 BTU/h (1.95 kW to 8.36 kW) | |
| Average overall efficiency ³ | 70.3 % (HHV) ⁴ | 75.8 % (LHV) ⁵ |
| Optimum efficiency ⁶ | 78.4 % | |
| Burn rate | 1.2 lb/h to 4.7 lb/h (0.54 kg/h to 2.14 kg/h) | |
| Average particulate emissions rate ⁷ | 0.96 g/h (EPA / CSA B415.1-10) | |
| Average CO ⁸ | 7.6 g/h | |

¹ Grades of pellet fuel are determined by organizations such as Pellet Fuels Institute (PFI), ENplus and CANplus.

² Based on the maximum burn-rate and a dry energy value of pellet at 8,600 BTU/lb.

³ As measured per CSA B415.1-10 stack loss method.

⁴ Higher Heating Value of the fuel.

⁵ Lower Heating Value of the fuel.

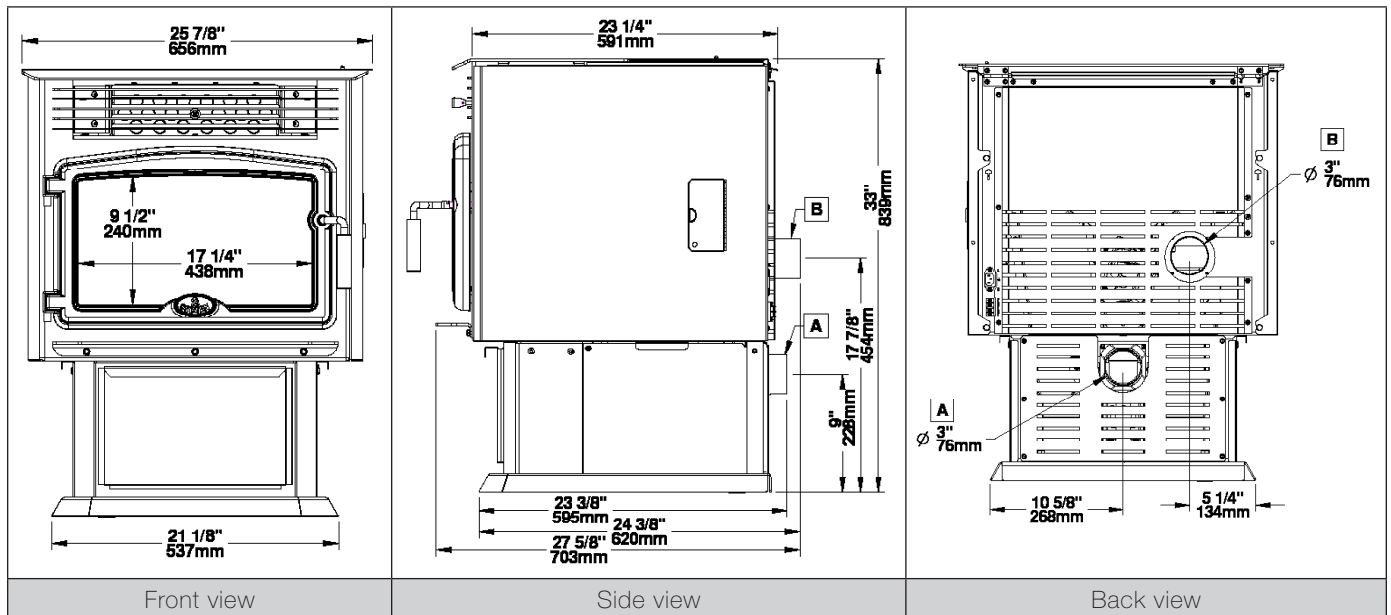
⁶ Optimum overall efficiency at a specific burn rate (LHV).

⁷ This appliance is officially tested and certified by an independent agency

⁸ Carbon monoxide.

ENGLISH

DIMENSIONS



| | |
|----------|-----------------|
| A | FRESH AIR INLET |
| B | FLUE OUTLET |

APPLIANCE INSTALLATION

Safety Information

- If this stove is not properly installed, a house fire or smoke spillage may result. To reduce the risks, follow the installation instructions.
- Do not use makeshift materials or make any compromises when installing this appliance.
- This stove is **mobile home approved** and in these cases requires installation of a fresh air kit, sold separately. The stove must be attached to the structure of the mobile home and the structural integrity of the mobile home floor, wall, and ceiling / roof must be maintained. Do not install in a sleeping room of a mobile home.
- This stove must be connected to a standard 120V / 60Hz, grounded electrical outlet. **Do not use an outlet adapter, an extension cord or sever the grounding plug.** Do not route the electrical cord underneath, in front or over the stove.
- This stove is not recommended to be installed in a bedroom.
- Burning any solid fuels generates carbon monoxide in low concentration. This gas is evacuated by the exhaust venting system. In higher concentrations, **carbon monoxide is toxic and may cause death.** To prevent this, ensure that the **exhaust venting system is airtight and installed properly.**
- A smoke detector, a carbon monoxide detector and a fire extinguisher should be installed in the house. The location of the fire extinguisher should be known by all family members.



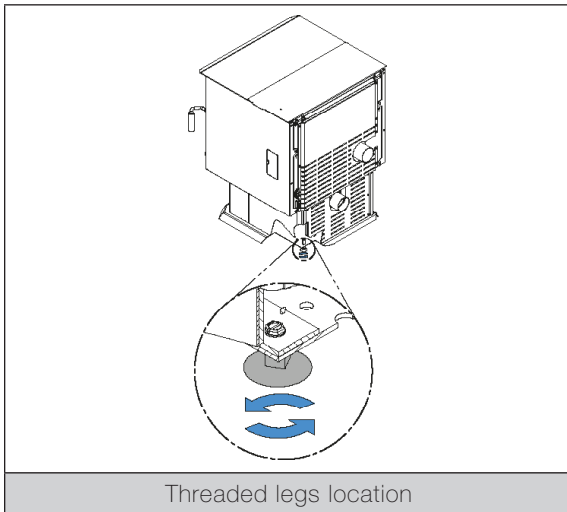
This product can expose you to chemicals including carbon monoxide, which is known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65warnings.ca.gov/

Regulations

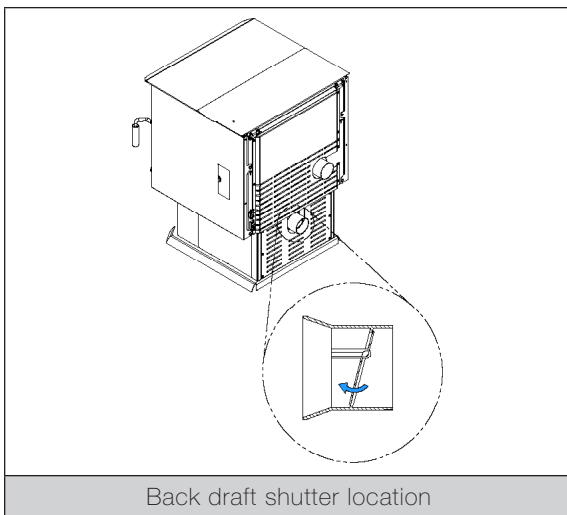
- When installed and operated as described in these instructions, this pellet stove is suitable for use as a freestanding heater in residential installations.
- In Canada, the CSA B365 Installation Code for Solid Fuel Burning Appliances and Equipment and the CSA C22.1 Canadian National Electrical Code are to be followed in the absence of local code requirements.
- In the USA, the ANSI NFPA 211 Standard for Chimneys, Fireplaces, Vents and Solid Fuel-Burning Appliances and the ANSI NFPA 70 National Electrical Code are to be followed in the absence of local code requirements.
- This stove must be connected to a pellet venting system complying with the requirements for Pellet Vent UL 103, UL 641, ULC S629M, CAN/ULC S609 and ULC/ORD C441 standards or to a code-approved masonry chimney with a stainless steel flue liner.

Appliance Set Up

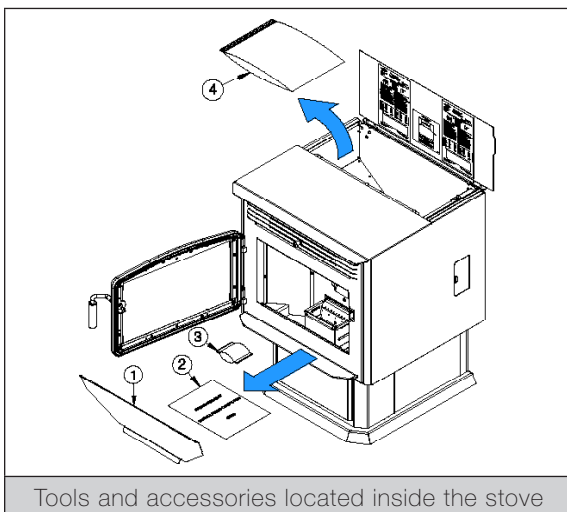
- Read and follow appliance and venting manufacturer’s instructions;
- Remove appliance and accessories from packaging. Make sure no parts are missing or damaged;
- Level the stove using threaded legs, located under the stove;



- Make sure the fresh air intake back draft shutter opens and closes freely;

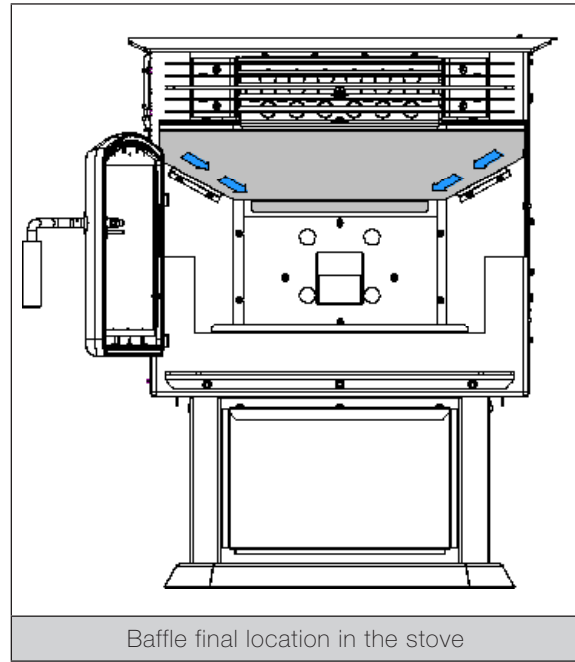
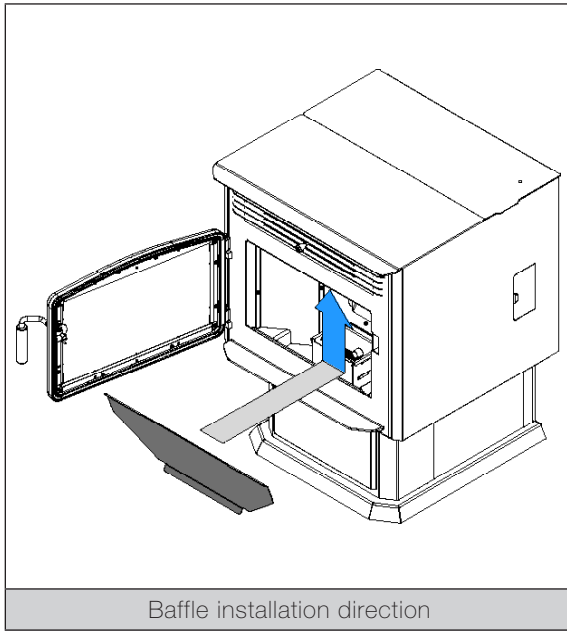


- Remove tools and other accessories inside the stove;

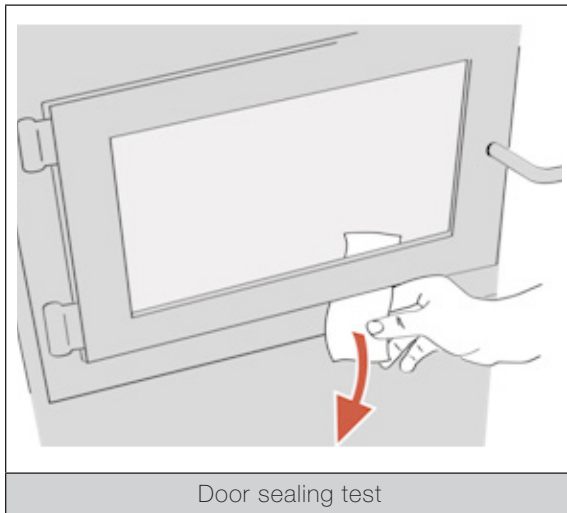


| No | Tools / Accessories |
|----|---------------------|
| 1 | Baffle |
| 2 | Warning sheet |
| 3 | Humidity absorbant |
| 4 | Owner’s manual |

- Install baffle as shown below



- Test the door seal by closing and latching the door on a strip of paper. Test all around the door. The paper should not slip out easily. If it does, see the «adjusting the door» section in the operation manual.



Clearances to Combustibles

Material is considered to be combustible when it is made of, or plated with wood, compressed paper, plant fibers, plastics or any other materials that can ignite and burn, whether or not it is fire resistant, or plastered or not.

The clearances shown in this section have been determined by tests according to procedures set out in safety standards ULC S627 (Canada), ASTM E1509 and UL 1482 (United States). When the pellet stove is installed so that its surfaces are at, or beyond the minimum clearances specified, combustible surfaces will not overheat under normal and even abnormal operating conditions.

NO PART OF THE STOVE MAY BE LOCATED CLOSER TO COMBUSTIBLES THAN THE MINIMUM CLEARANCES SPECIFIED ON THE CERTIFICATION LABEL.

ENGLISH

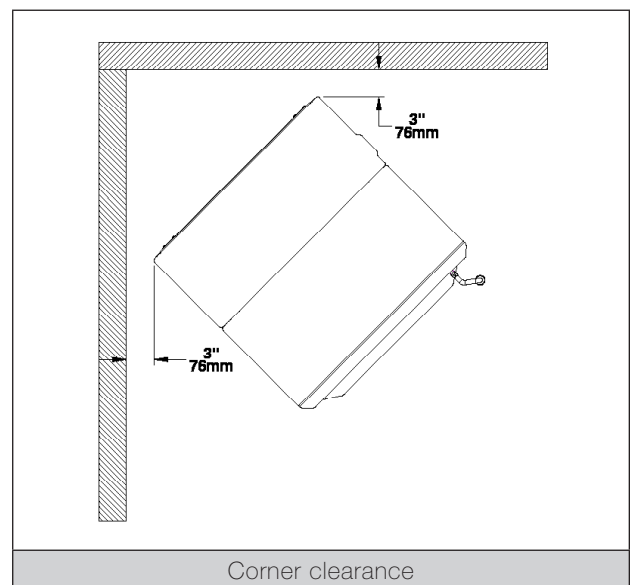
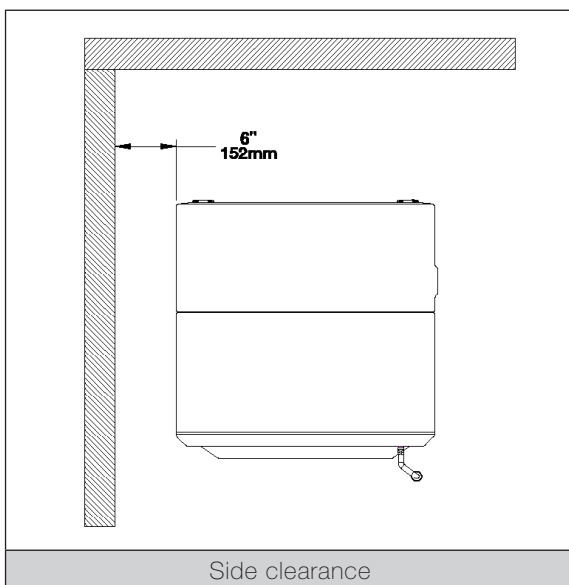
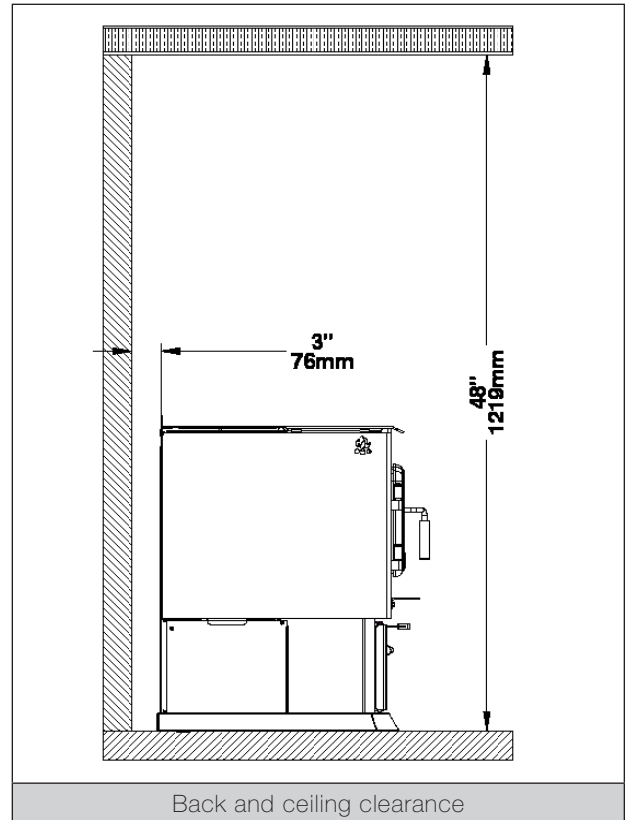
Clearances may only be reduced by means approved by the regulatory authority having jurisdiction.

The following clearances are also valid for an alcove installation. However, if the stove is installed in an alcove, to perform maintenance, expect to move the appliance to get to the maintenance access doors and components. For more information about alcove installation visit our web site.

All clearances to combustibles apply for Canada and United States.

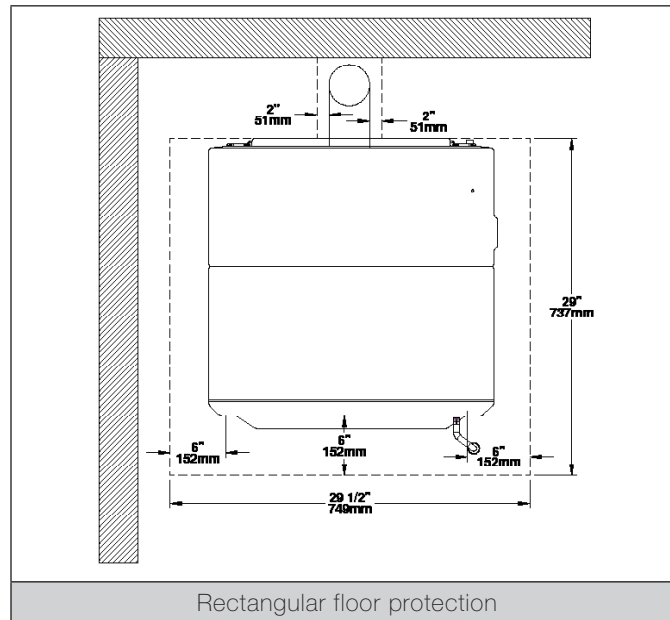
Please note that the clearances mentioned are the minimum required to ensure a safe installation. A distance of 24" on each side of the appliance and 12" at the back is recommended to provide easy access.

Refer to exhaust venting system manufacturer for clearances to combustible materials.



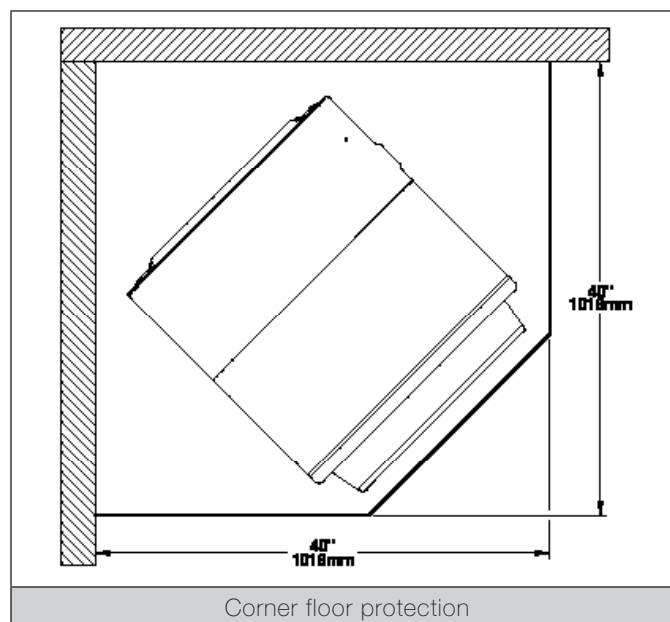
Floor Protection

The floor protection must be a continuous (grouted joints) non combustible material such as ceramic tile, cement board, brick, or any other approved or listed material suited for floor protection. Any type of tile will require a continuous non combustible sheet beneath to prevent the possibility of embers falling through to the combustible floor if cracks or separation should occur in the finished surface. Check local codes for approved alternatives.



Floor protection must extend at least 6" (152 mm) in front of the loading door opening and 6" (152 mm) on each side of the loading door. It must also extend at least 2" beyond each side of any horizontal venting pipe.

The minimum floor protection area required for this stove is 29 1/2" x 29" for a rectangular installation and 40" x 40" for a corner installation.



Note: In Canada, the dimensions of the floor protection shown in the previous image can be used ONLY if opening the appliance door or removing the ash drawer is done when the appliance is OFF completely, meaning there is no more fire in the combustion pot and the blowers are off. In all other cases, see CSA B365.

VENTING SYSTEM

General Information

Even though the chimney draft is mechanical, a suitable venting system will ensure a natural draft which will prevent smoke spillage in the home if a power outage occurs. Moreover, a suitable venting system configuration will help getting the best efficiency out of the stove when installed in accordance with the required equivalent vent length (EVL).

This stove is equipped with a blower that draws air for combustion. The venting system restricts the blower's ability to move the amount of air required for proper combustion. An overly restrictive venting system will cause incomplete combustion problems, more frequent cleaning and poor performance.

It is recommended to select a location for the appliance that will provide a venting system with the shortest possible equivalent vent length (EVL).

The installation configurations in the following sections are for informative purposes only. Always refer to the vent manufacturer's instructions for installation.

Safety Information

Connect this stove only to a listed pellet exhaust venting system for use with solid fuel or to a lined chimney conforming to national and local building codes.

DO NOT CONNECT THIS STOVE TO ANY OTHER EXISTING VENTING SYSTEM SERVING ANOTHER APPLIANCE.

The venting system must be completely airtight and properly installed. **All vent connector joints must be sealed and fastened** in accordance with the pellet venting manufacturer's installation instructions to ensure consistent performance and avoid smoke and ash spillage.

DO NOT INSTALL A FLUE DAMPER IN THE VENTING SYSTEM OF THIS UNIT.

DO NOT CONNECT TO OR USE IN CONJUNCTION WITH ANY AIR DISTRIBUTION DUCTWORK.

The venting system should be checked, at least twice a year for any buildup of soot or creosote.

Regulations

In Canada, it is recommended to use a listed pellet vent that meets the CAN/ULC S609 or ULC/ORD C441 Standard. A chimney listed to ULC S629M is also suitable for installation with this stove.

For the United States, it is recommended to use a listed pellet vent that meets the UL 641 Standard. A chimney listed to UL 103 is also suitable for installation with this stove.

This stove can be vented in an existing factory-built or masonry chimney with the addition of a stainless steel liner. The liner should be listed and should meet the ULC S635 CAN/ULC S640 standard in Canada and the UL 1777 standard in the USA. Refer to the instructions provided by the venting system manufacturer, especially when passing through a wall, ceiling or roof.

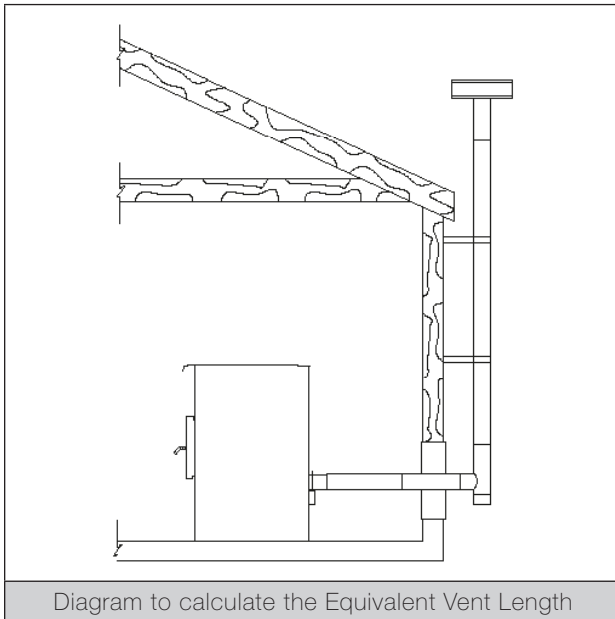
Equivalent Vent Length (EVL)

Recommended venting pipe inner diameter is 3" for a ground floor installation. A 4" pipe is recommended for basement installation or if the equivalent vent length (EVL) is more than 15 feet.

To calculate the Equivalent Vent Length, refer to the following table:

| Qty | Type of pipe | Equivalent Vent Length (EVL) |
|--------|-----------------|------------------------------|
| 1 | 90° Elbow or T | 5 feet |
| 1 | 45° Elbow | 3 feet |
| 1 feet | Horizontal Pipe | 1 feet |
| 1 feet | Vertical Pipe | ½ feet |

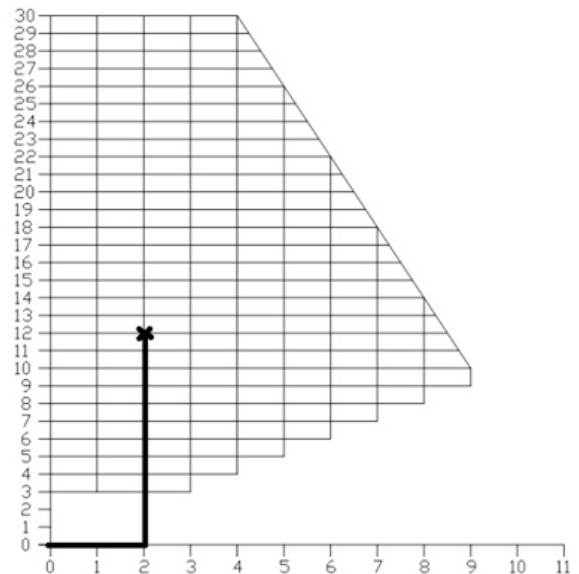
Example of how to calculate the EVL for a ground floor installation:



| | |
|--|-----------|
| 2 ft. of horizontal run (2 X 1' EVL) | = 2' EVL |
| 90° elbow or T (1 X 5' EVL) | = 5' EVL |
| 12 ft. of vertical run (12 X 0.5' EVL) | = 6' EVL |
| Termination / Cap | = 0' EVL |
| <hr/> | |
| Total EVL | = 13' EVL |

Since the EVL is less than 15 feet, the venting pipe inner diameter recommended is 3".

To determine if your installation is compliant, the exhaust venting system must end within the grid on the venting system chart. The previous installation has 2 feet of horizontal run and 12 feet of vertical run. It is thus standard since the venting system ends in the gridded area.





**Horizontal runs shall not exceed 9 feet.
Never exceed 30 feet of EVL.**



**To reduce the risk of smoke spillage there should always be at least one foot of vertical rise for each foot of horizontal run.
At all times, at least 3 feet of vertical rise is NEEDED.**



TERMINATION OF A SIDE WALL VENT SHOULD BE LOCATED TO AVOID PERSONAL BURN INJURY, FIRE HAZARD AND INTERFERENCE WITH OR DAMAGE TO ADJACENT PROPERTIES. EXHAUST GASES CAN REACH TEMPERATURES OF 500°F (260°C) AND CAUSE SERIOUS BURNS.



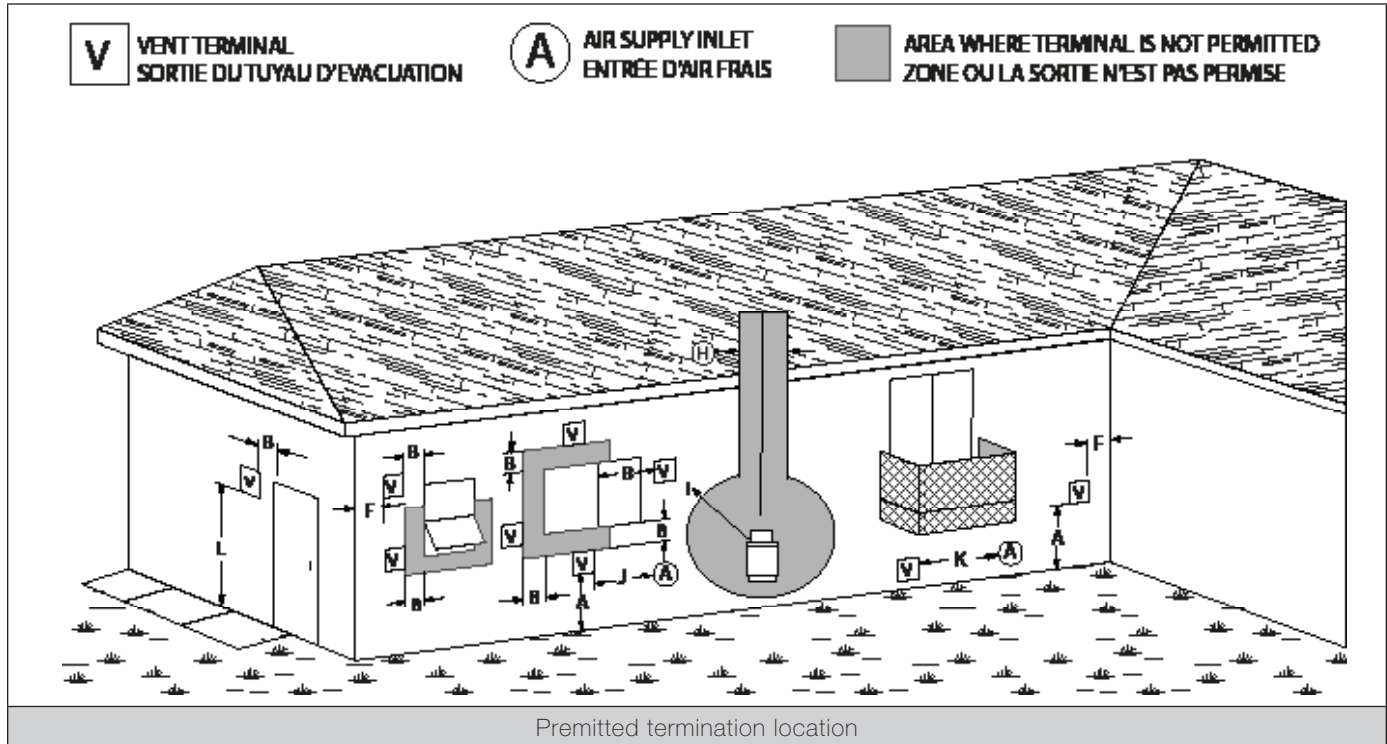
TERMINATION COLLAR (SPARK ARRESTER) IS MANDATORY AND MUST BE CLEAR OF ANY DEBRIS AT ALL TIME.

TERMINATION LOCATION

Refer to NFPA 211 (USA) or CSA B365 (Canada) to find out more about the required distance of termination location from windows and openings. The termination of a mechanical draft system, other than a direct vent appliance, shall be located in accordance with the following:

Termination of a side wall vent should be located to avoid personal burn injury, fire hazard and interference with or damage to adjacent properties. Exhaust gases can reach temperatures of 500°F (260°C) and cause serious burns.

A vent shall not terminate underneath a veranda, porch, or deck and shall not terminate directly above a sidewalk or a paved driveway which is located between two single family dwelling and serves both dwellings.



ENGLISH

Canada

| | CLEARANCES | DESCRIPTION |
|---|--------------|--|
| A | 12" (30 cm) | Clearances above grade level or any adjacent surface that might support snow, ice, or debris. |
| B | 39" (100 cm) | Clearance to window or door that may be opened. |
| F | 39" (100 cm) | Clearance to corner or adjacent wall or any combustible materials. |
| H | 39" (100 cm) | Not to be installed above a meter/regulator assembly within 39" (100 cm) horizontally from the vertical center-line of the regulator and for 15' vertically. |
| I | 72" (183 cm) | Clearance to gas service regulator vent outlet or within 39" (100 cm) of an oil tank vent or an oil tank fill inlet. |
| J | 39" (100 cm) | Clearance to the combustion air inlet to any other appliance. |
| K | 72" (183 cm) | Clearance to a mechanical air supply inlet. |
| L | 84" (213 cm) | Clearance above paved side-walk or a paved driveway located on public property. |
| | 39" (100 cm) | Clearance to property boundary. |

United States

| CLEARANCES | DESCRIPTION |
|--------------|--|
| 36" (91 cm) | Clearance above any forced air inlet located within 120" (305 cm). |
| 48" (122 cm) | Clearance below and horizontally from any door, window or gravity air inlet into any building. |
| 12" (30 cm) | Clearance above any door, window or gravity air inlet into any building. |
| 24" (61 cm) | Clearance from an adjacent building. |
| 84" (213 cm) | Clearance above grade when located adjacent to a public walkway. |
| 12" (30 cm) | Clearance above grade. |
| 36" (91 cm) | Termination cannot be located above a gas meter/regulator within 36" (91cm) horizontally of the vertical center line of the regulator. |
| 72" (183 cm) | Clearance of a gas service regulator vent outlet. |

Direct Vent System

An exhaust system is called direct when the exhaust and the air intake are made using the same pipe. The internal pipe serves for exhaust while the external pipe supplies the combustion air to the stove.

Canada

The permitted termination locations for a direct vent system are the same as those permitted with a regular pellet vent system.

United States

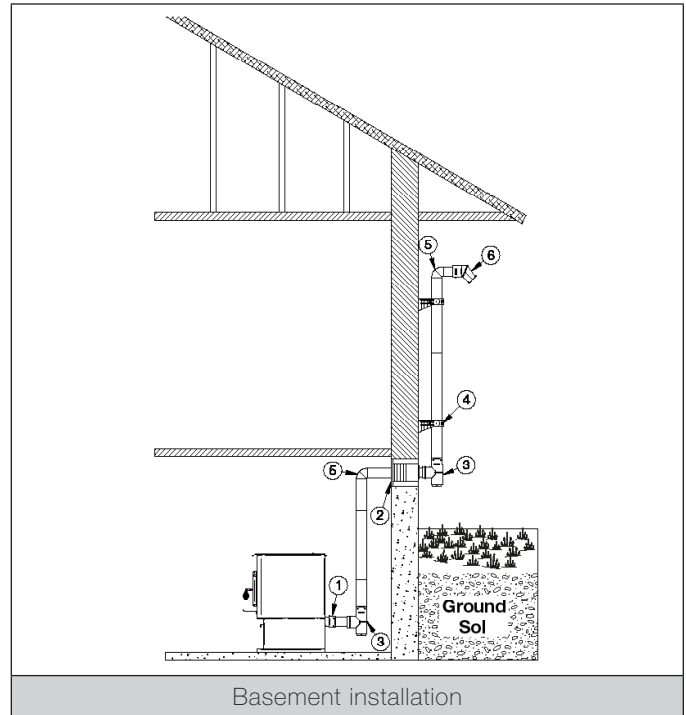
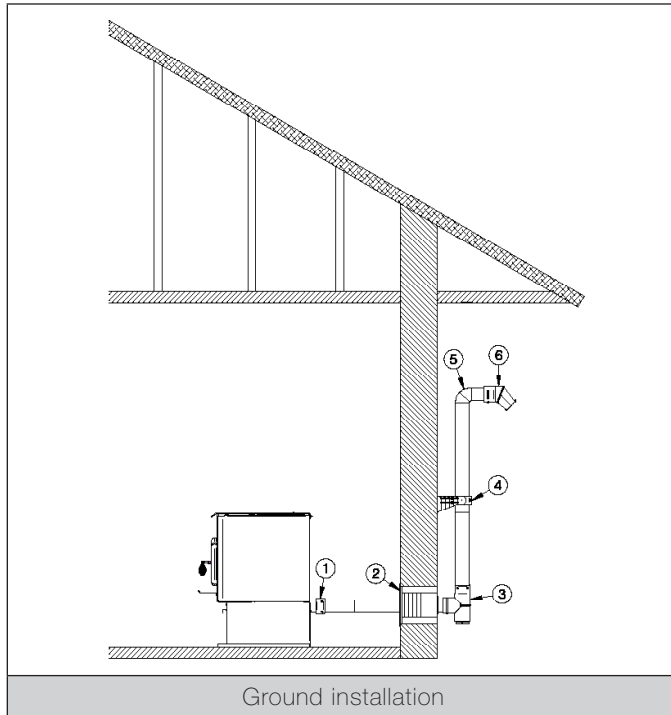
The permitted termination location for a direct vent system are the same as those permitted with a regular pellet vent system except for the following : The termination shall be located not less than 9" (23 cm) from any opening through which vent gases could enter a building.

VENTING SYSTEM INSTALLATION CONFIGURATION



Burning solid fuels generates carbon monoxide in low concentration. In higher concentrations, **carbon monoxide is toxic and may cause death**. To prevent this, the **exhaust venting system must be airtight**. All vent connector joints must be sealed and fastened in accordance with the pellet venting manufacturer's installation instructions.

Through the Wall



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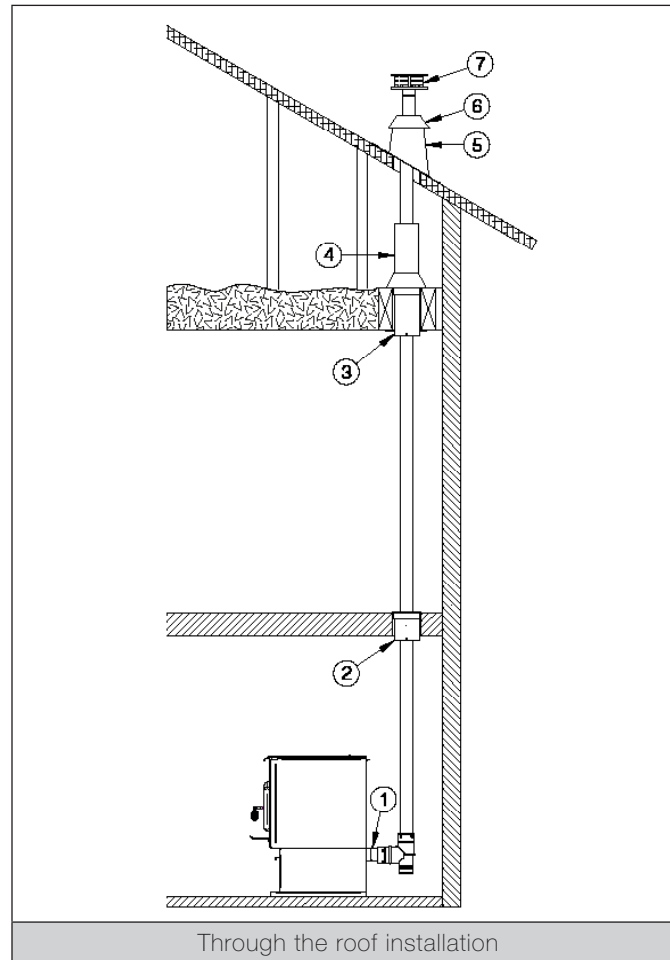
1. Position appliance following appliance and venting system manufacturer's installation instructions.
2. Install a stove connector **(1)** or tee on the appliance flue collar. Seal with high temperature silicone. If necessary, use an additional horizontal length between the flue collar and the tee.
3. Locate the position of the pipe in the wall and cut a hole in the wall the appropriate size for the wall thimble.
4. Install the wall thimble **(2)** according to the vent manufacturer's instructions.
5. Connect enough sections to protrude the horizontal pipe from the outside wall. Install a tee **(3)** on the pipe that runs through the wall.
6. Install a vertical pipe section that is at least 36" long. Refer to vent manufacturer's instructions for clearances to combustible materials (exterior wall) and use of wall supports **(4)**.
7. Install a 90 degree elbow **(5)** facing out from the wall, and then attach a stainless steel vent cap **(6)**, facing towards the ground (a 45 degree elbow or a horizontal vent cap may be used). A spark arrester must be attached to the vent cap.

The installation of a spark arrester on the termination of the vent is mandatory.

8. Seal the exterior wall bracket with silicone.

Through the Roof

Where vent pipes pass through an attic, a closet or any confined space, a floor or ceiling, only approved venting components shall be used. To pass through a combustible wall or partition, the installation must meet CSA-B365 standard for solid fuel-burning appliances and equipment.

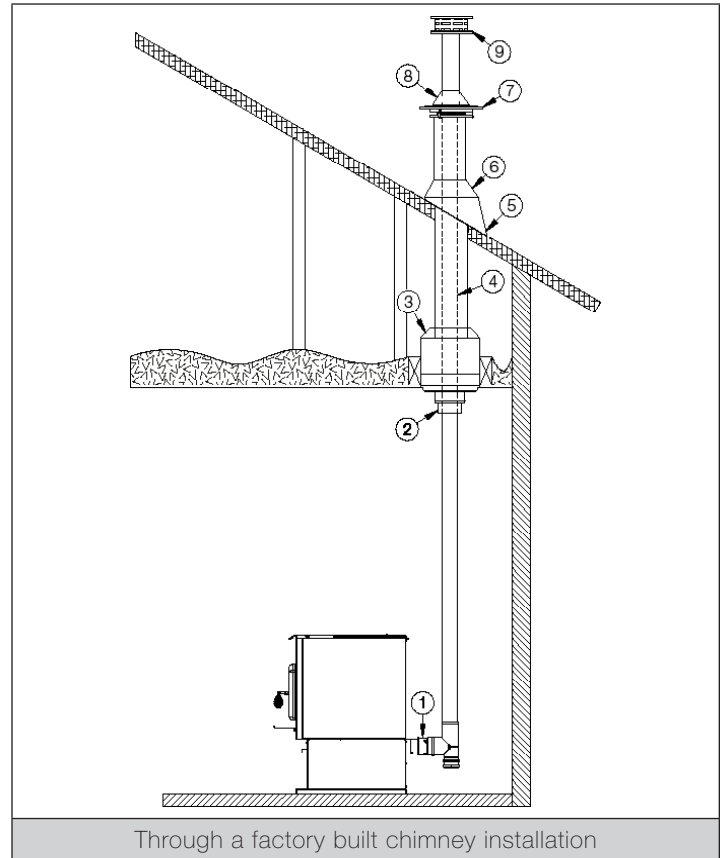


1. Position appliance following appliance and venting system manufacturer's installation instructions.
2. Install a stove connector **(1)** or tee on the appliance flue collar. Seal with high temperature silicone. If necessary, use an additional horizontal length between the flue collar and the tee.
3. Use a plumb bob to determine where the exhaust pipe will pass through the ceiling and roof.
4. Cut a hole in the ceiling and in the roof and frame the rough opening. Refer to the vent manufacturer's instructions for dimensions and construction rules.
5. Install a ceiling support **(2)** in the rough opening and the first vent section following vent manufacturer's instructions.
6. Install a firestop radiation shield **(3)** on any subsequent ceiling/floor, except for the attic where an attic insulation shield is required **(4)**.
7. Run the necessary section of vent vertically so the rain cap exceeds the highest point of the roof at least 24" in United States and at least 36" in Canada.
8. Install roof support.
9. Install roof flashing **(5)**, storm collar **(6)** and rain cap **(7)** as per manufacturer's instructions.

Through a Factory Built Chimney

This type of installation is usually used when a wood burning appliance is replaced by a pellet appliance.

Before installing, the chimney must be cleaned and inspected by a qualified chimney sweep or installer. Any creosote must be removed from the existing chimney.



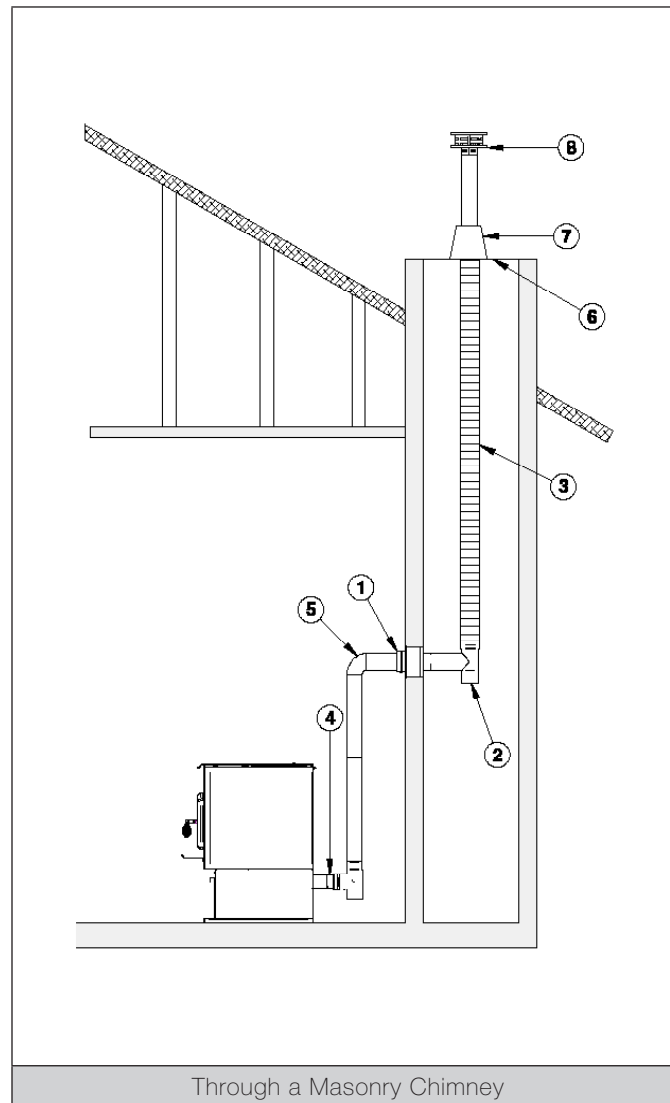
1. Remove any existing chimney pipe from the heater to the universal adapter already installed in the ceiling support.
2. Position appliance following appliance and venting system manufacturer's installation instructions.
3. Install a stove connector **(1)** or tee on the appliance flue collar. Seal with high temperature silicone. If necessary, use an additional horizontal length between the flue collar and the tee.
4. Install the appropriate chimney adapter **(2)**. The adapter must be installed on the universal adapter **(3)** with a minimum of three screws.
5. Connect the number of pipe sections required to pass through the chimney adapter into the chimney.

It is allowed, but not recommended, to leave the factory built chimney to naturally evacuate the combustion gases.

6. It is highly recommended to either extend the pellet venting through the chimney or to connect the vent pipe to a stainless steel liner **(4)** following the venting system manufacturer's instructions.
7. Make sure there is a roof flashing **(5)** and a storm collar **(6)** already installed and that they are in good condition. Install a chimney end cap **(7)** and a second storm collar **(8)**. Leave at least $\frac{1}{2}$ " between the end cap and the storm collar to let the heat evacuate. Seal storm collar with venting or liner with high temperature silicone.
8. Venting or liner should exceed the chimney of at least 12". Install a rain cap **(9)** as per manufacturer's instructions.

Through a Masonry Chimney

The structural condition of the masonry chimney must first be inspected by a qualified chimney sweep or installer.

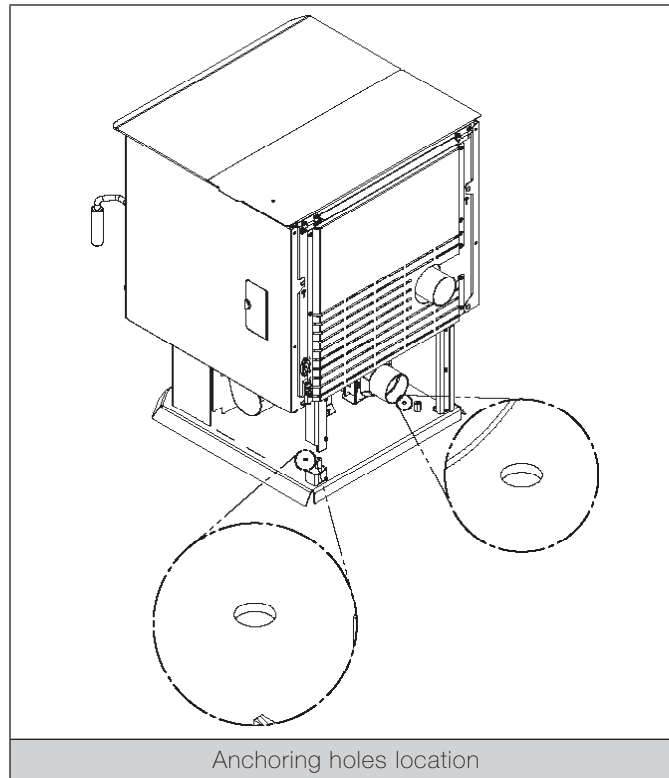


1. Position appliance following appliance and venting system manufacturer's installation instructions.
2. Mark the location where the pipe should enter the masonry. Make a hole in the masonry of the diameter suggested by the vent manufacturer. Install a masonry adapter **(1)**.
3. Connect a tee with a removable snout **(2)** to the bottom of a rigid or flexible stainless steel liner **(3)** in accordance with the manufacturer's instructions. Liner length should be equal to the length of the chimney from the mark plus 12". The center of the tee snout must be aligned with the center of the hole in the masonry.
4. Install a stove connector **(4)** or tee on the appliance flue collar. Seal with high temperature silicone. If necessary, use an additional horizontal length between the flue collar and the tee.
5. Install a sufficient length of vertical pipe to join the masonry adapter. Add an elbow **(5)** and connect the vertical section to the masonry adapter with a slip section.
6. Install and seal a top plate **(6)** with high temperature silicone.
7. Install top plate **(6)**, storm collar **(7)** and rain cap **(8)** as per manufacturer's instructions

MOBILE AND MANUFACTURED HOME

For a mobile and manufactured home installation, it is mandatory to

- Connect the stove to a vent system who is:
 - **In Canada** : certified according to the standard ULC/ORD-C441 or CAN/ULC-S609. A chimney meeting the requirements of ULC S629M can also be used.
 - **In the United States**, certified according to the UL 641 standard. A chimney that meets the requirements of UL 103 standard may also be used.
- Connect the stove to an outside combustion air source (fresh air).
- Attach the stove to the structure of the mobile / manufactured home with two screws. Use the two anchoring holes located on each side of the pedestal, as shown .



WARNING : DO NOT INSTALL IN A SLEEPING ROOM.



CAUTION : THE STRUCTURAL INTEGRITY OF THE MOBILE / MANUFACTURED HOME FLOOR, WALL, AND CEILING / ROOF MUST BE MAINTAINED.

THERMOSTAT INSTALLATION

Location

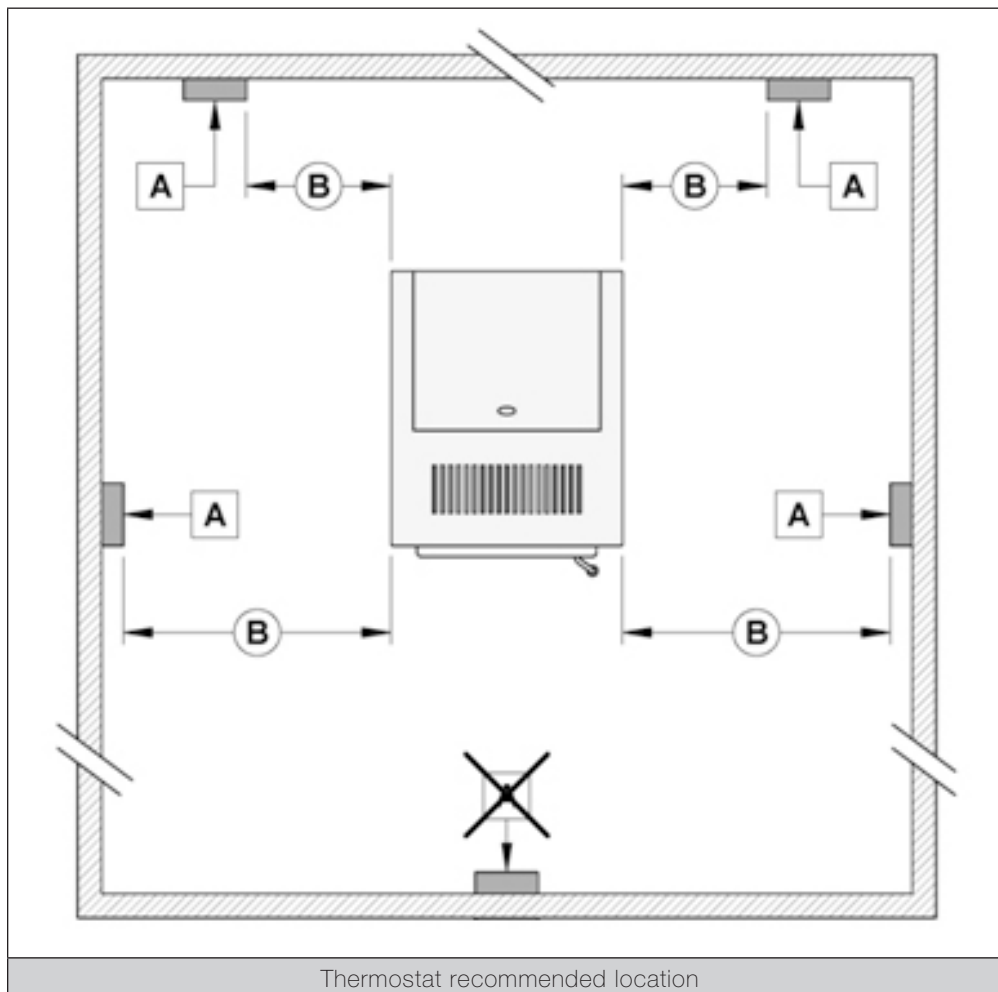
Using a thermostat will help maintain a constant temperature throughout the house. A low voltage thermostat (24 volts) is required. A fixed wall mount or hand held model can be used.

Location of the thermostat is very important to obtain maximum comfort and efficiency. The thermostat should be located 4 to 5 feet above the floor or in accordance with applicable building codes. It should be installed in a location that provides good air circulation and if installed in the same room as the stove, it should also be located at around 12 feet from the stove.

Avoid installing the thermostat in the following areas:

- Behind doors;
- Near corners;
- Near air vents;
- Near lighting system;
- Under direct sunlight;
- Under heat generating devices;
- On an outside wall;
- Directly in front of the stove.

Installing the thermostat in front of the stove or in front of a window will tend to make the stove cycle (start and stop) too often and wear components prematurely. See operation's manual for more details on how to operate the stove with the proper pilot mode.

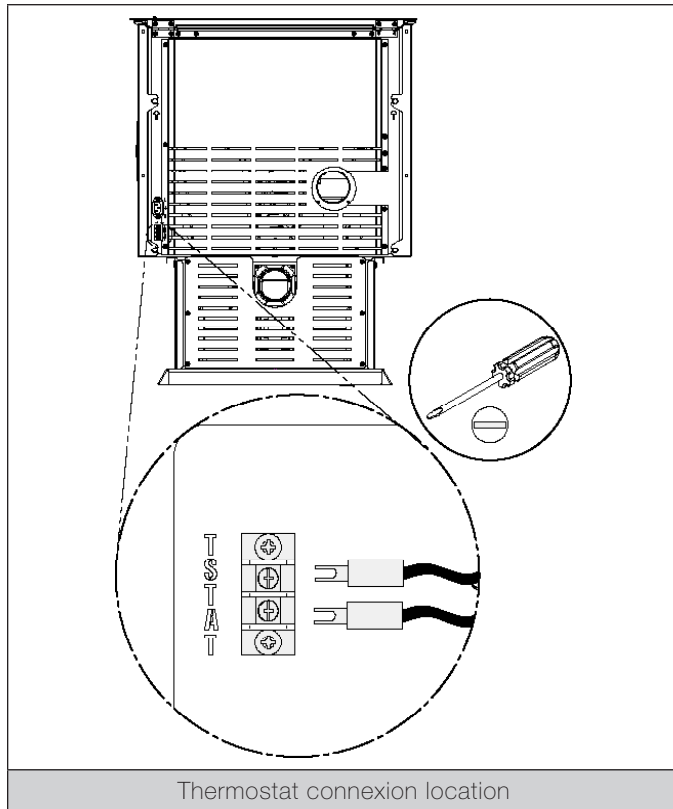


| | |
|---|------------|
| A | Thermostat |
| B | 12' |

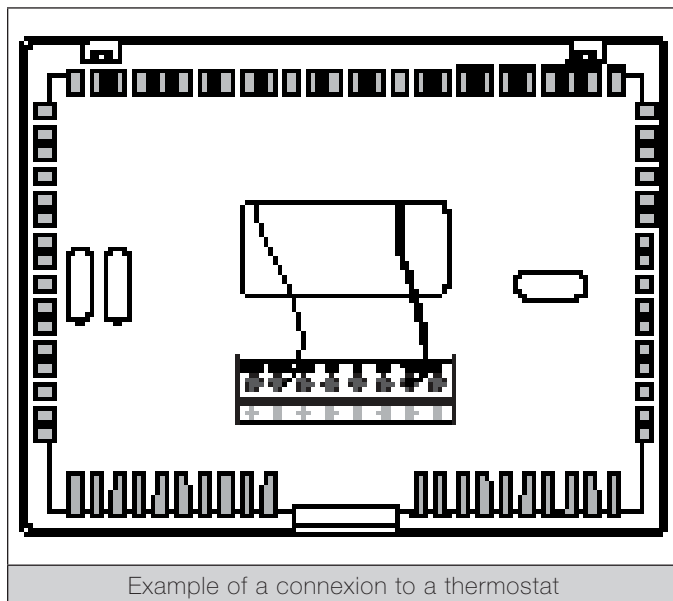
Electrical Connection

Thermostat manufacturer's instructions always override the information published in the following section.

1. Unplug the power cord from the power outlet.
2. Connect the two thermostat wires to the terminal block located at the rear on the right hand side of the stove when facing it. Loosen the two middle screws and insert the wires in the terminals. Tighten the two screws.
3. Open the thermostat and connect the wires as per the manufacturer's instructions.



4. Connect one wire to "RH" and the other wire to "W". For further information refer to the manufacturer's instructions.

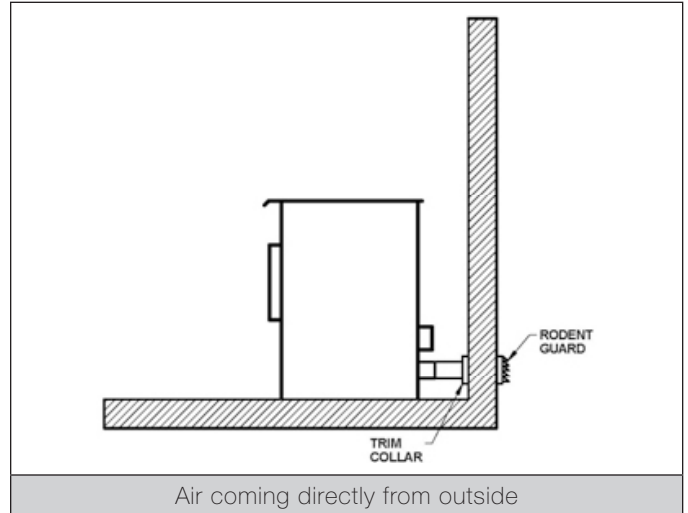
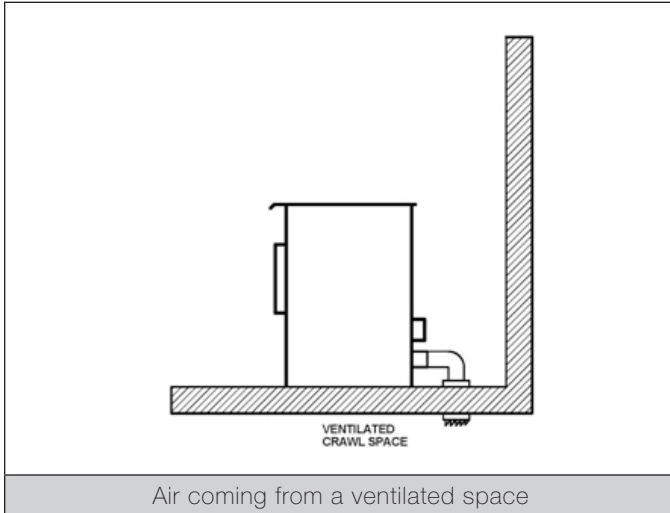


FRESH AIR INTAKE

It is recommended, sometimes even mandatory according to local authorities, to install a fresh air intake in or near the room where the stove is installed.

The air intake must not draw air from the attic, from the basement, from a garage or any enclosed space. Air must be drawn from a ventilated crawl space under the floor or directly from outside.

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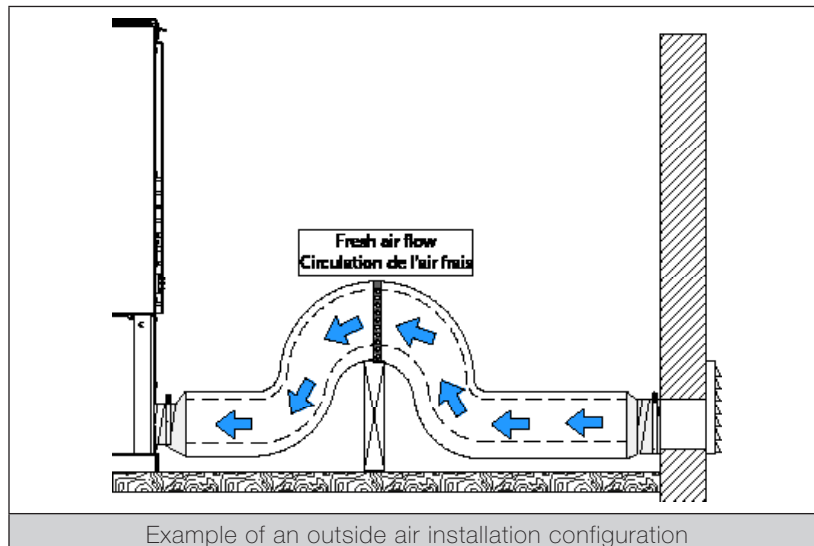
THE INLET TO THE INTAKE MUST BE BELOW AND A MINIMUM OF 12" (30CM) AWAY FROM THE UNIT EXHAUST OUTLET.

When the fresh air intake is installed on an outside wall, it is preferable to choose one that is not exposed to the prevailing winds since the pressure can vary in windy weather. Choose a location suited to the conditions surrounding the house.

At all times, make sure the outside air register is not obstructed by snow, ice or other objects.

Installation

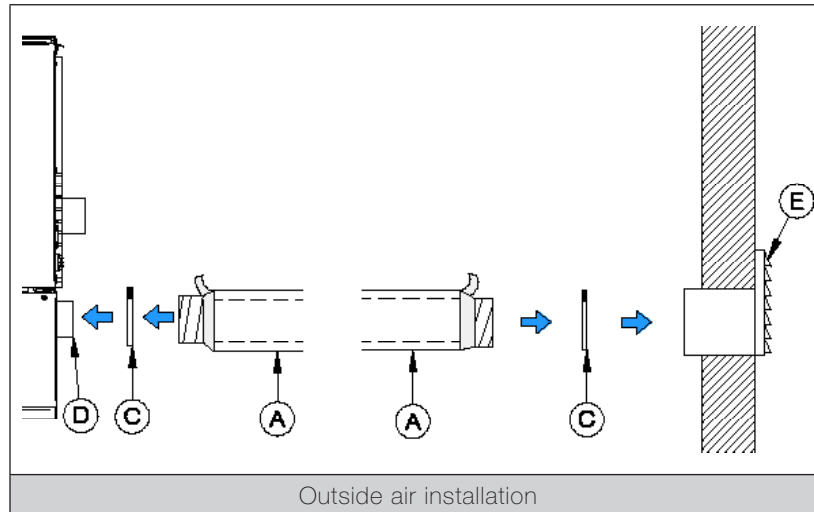
The installation configuration and length of the insulated pipe should be done in a way to prevent condensation (see figure below).



1. Install a 3" inside diameter, either flexible or rigid, insulated pipe (HVAC type, must comply to ULC S110 and/or UL 181, Class 0 or Class 1) to the fresh air intake. **(D)**. To do so, carefully pull back the insulation and plastic cover, exposing the flexible pipe. Attach the flexible pipe using pipe clamps **(C)** or foil tape.

All connections must be secured and airtight by either using the appropriately sized hose clamp or UL-181-AP foil tape.

2. Make a hole 1/4" to 1/2" (6 mm à 13 mm) bigger than the insulated pipe diameter in the outside wall of the house at the chosen location.



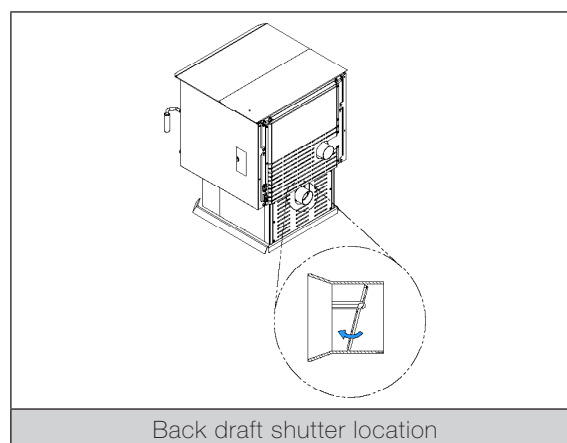
3. From outside, place the outside air register **(E)** in the hole (open side down) and fasten the register to the wall, with screw.

The outside air register must have a rodent guard with a minimum of 1/4" wire mesh.

4. Place the insulated pipe **(A)** over the register tube. To do so, carefully pull back the insulation and plastic cover, exposing the flexible pipe. Attach the flexible pipe using pipe clamps **(C)** or foil tape.

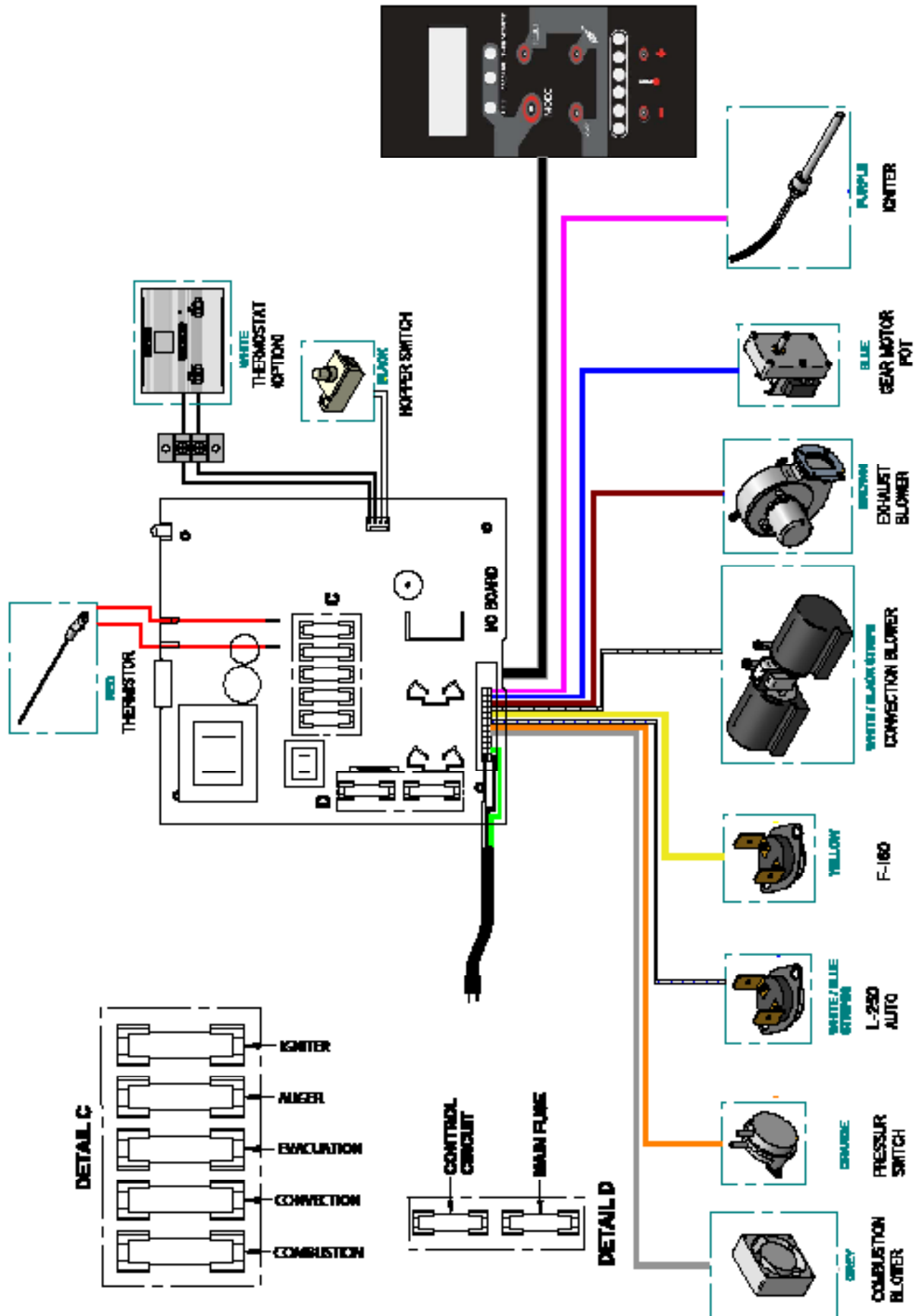
All connections must be secured and airtight by either using the appropriately sized hose clamp or UL-181-AP foil tape.

5. Wrap the tape around the joint between the flexible pipe and the air inlets. Carefully push the insulation and plastic cover back over the pipe. Fix the plastic in place using foil tape.
6. Make sure that the fresh air intake back draft shutter, located in the back of the stove, functions freely.

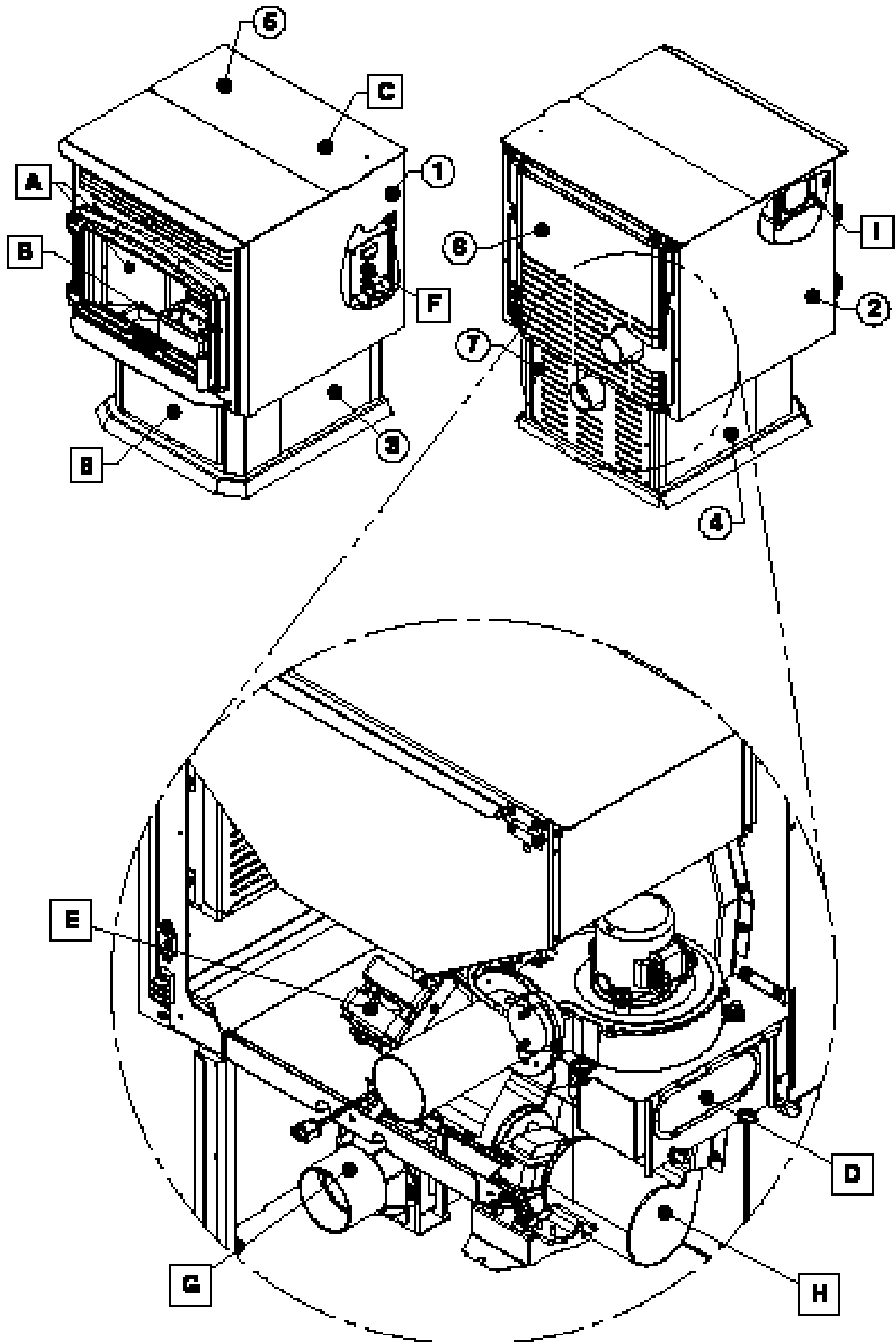


WIRING DIAGRAM

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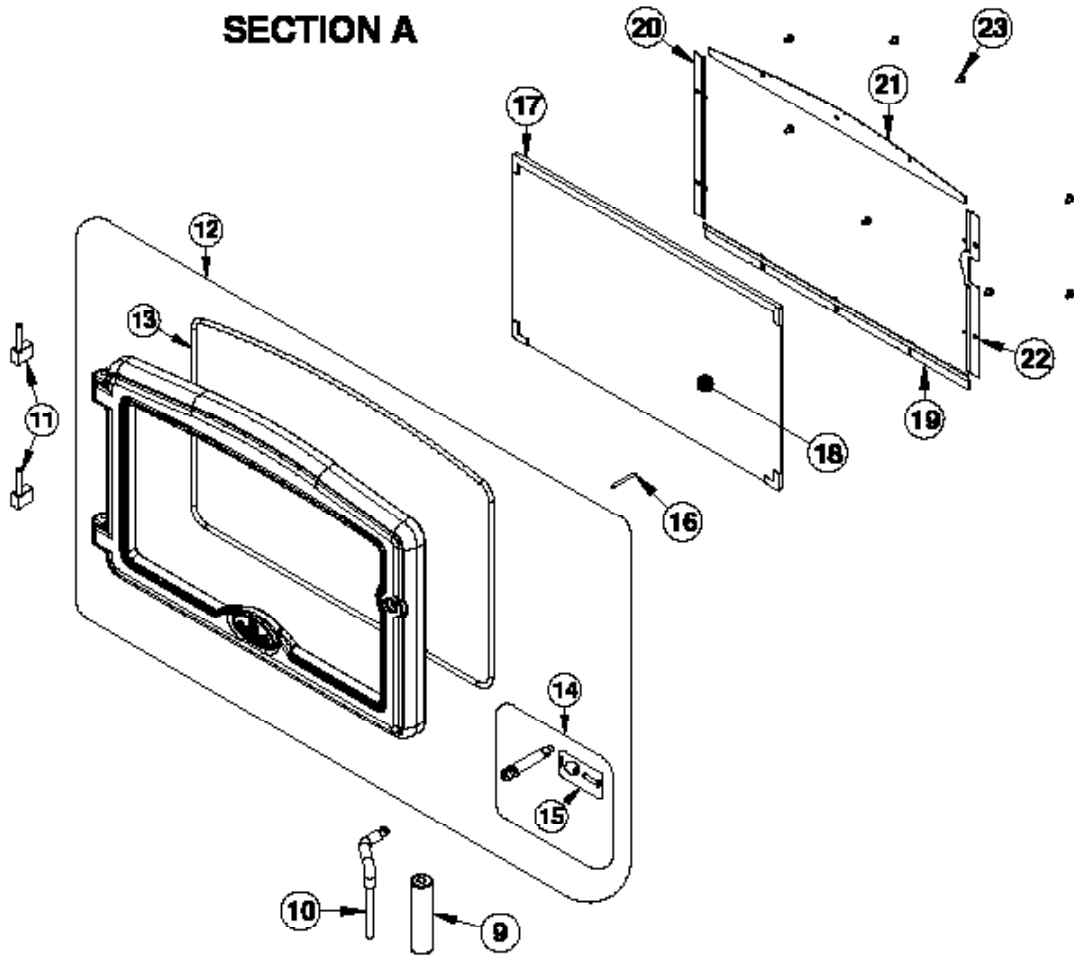


EXPLODED VIEWS AND PARTS LIST

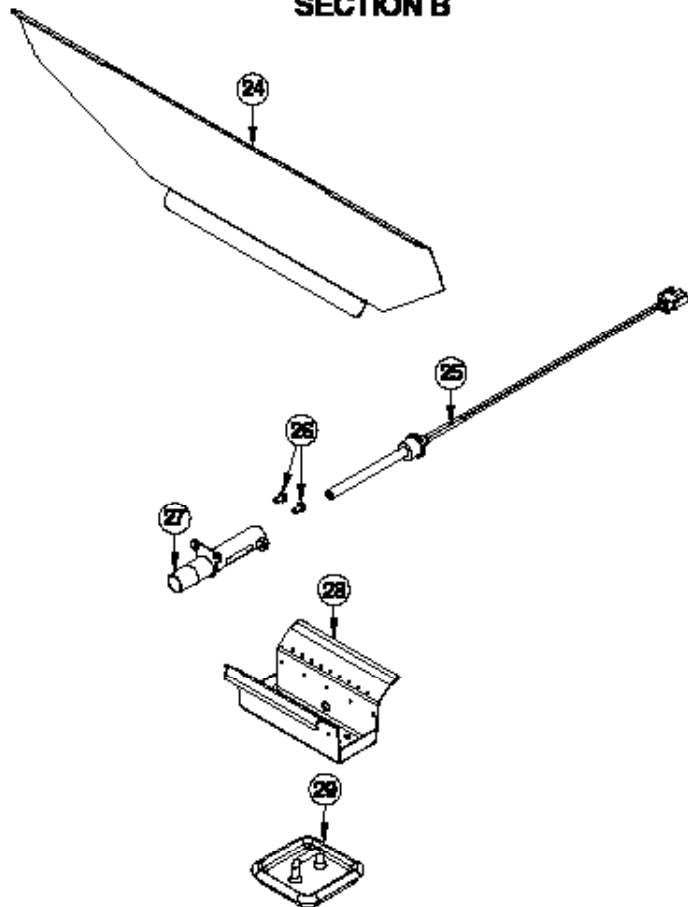


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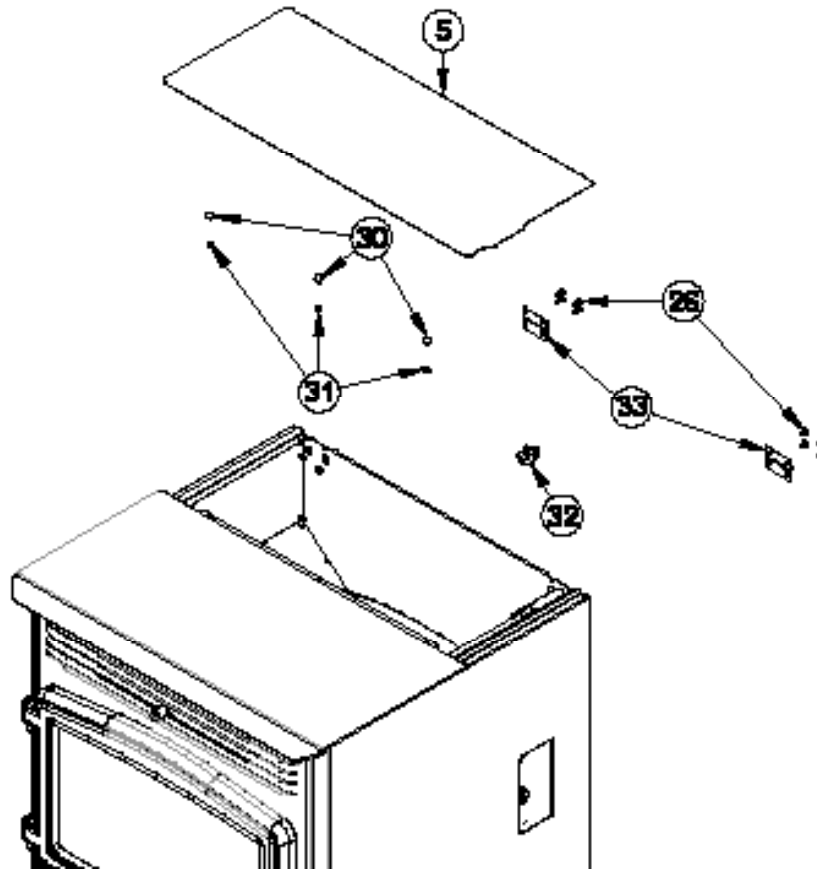
SECTION A



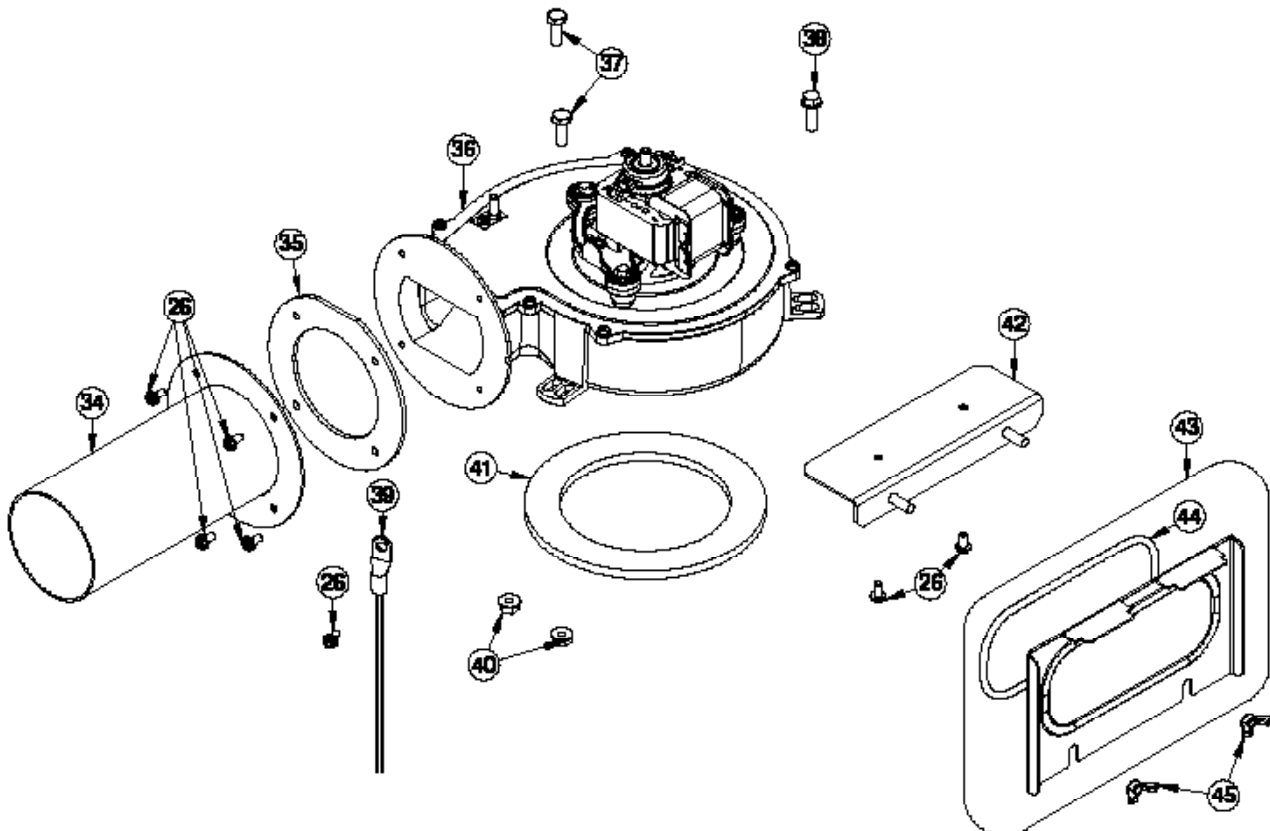
SECTION B



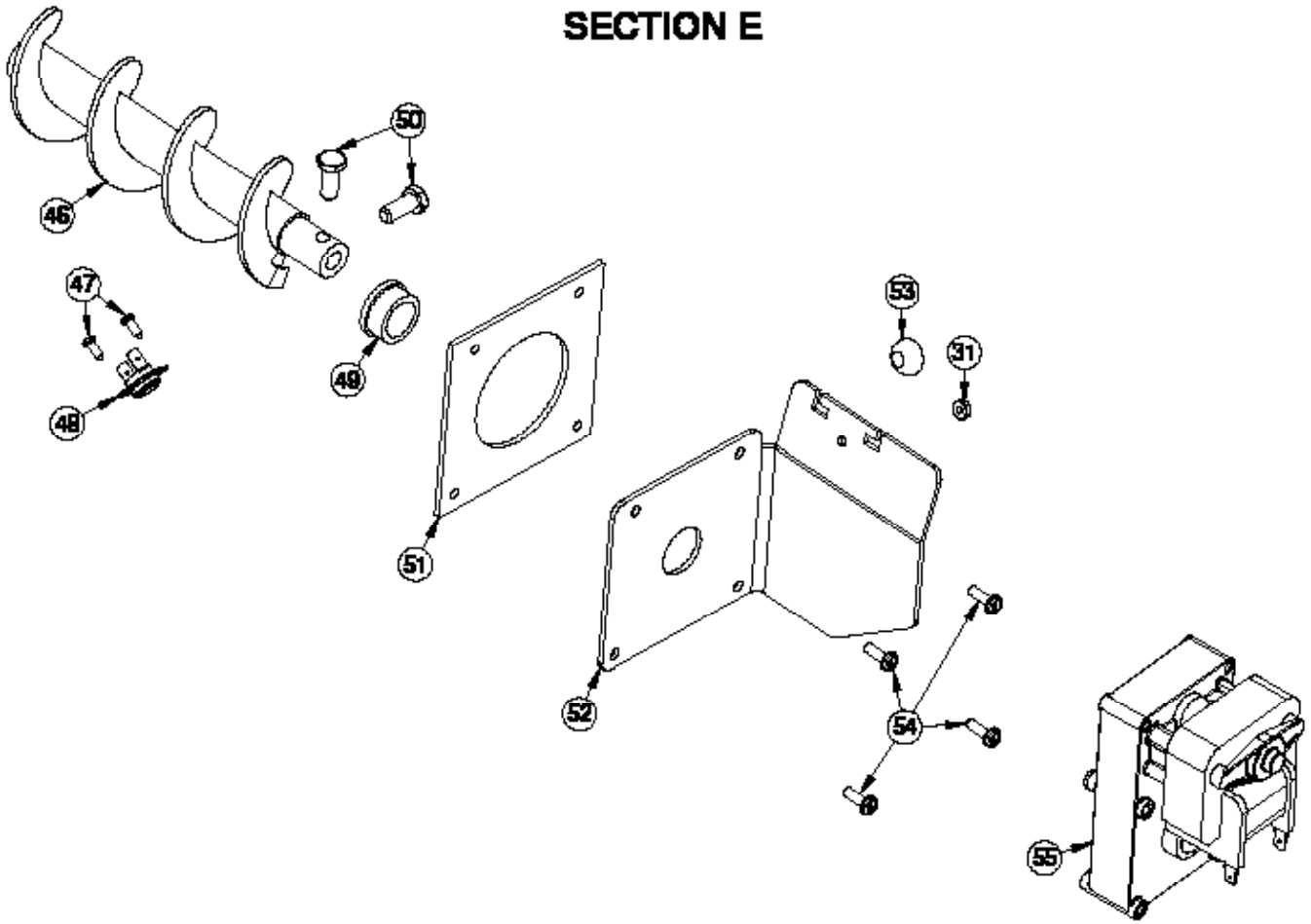
SECTION C



SECTION D

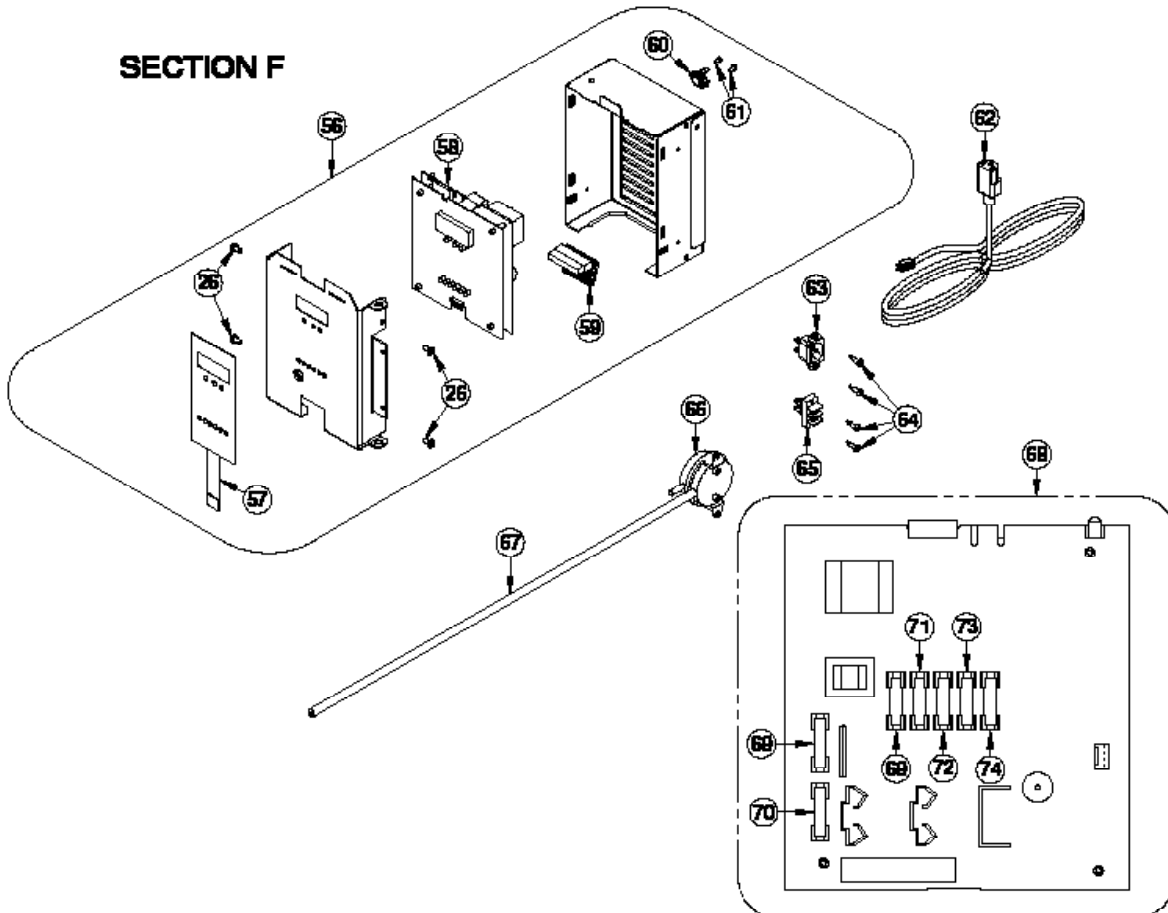


SECTION E

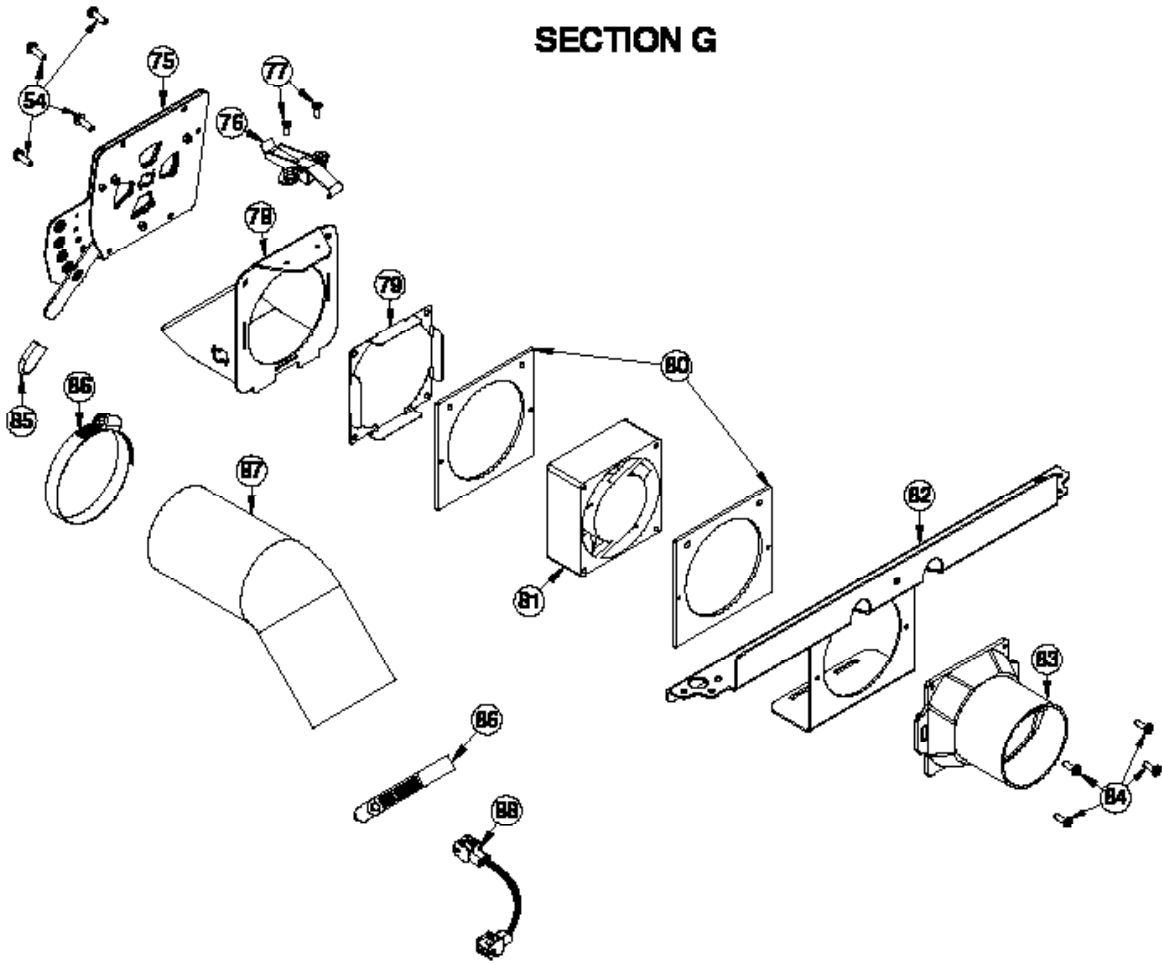


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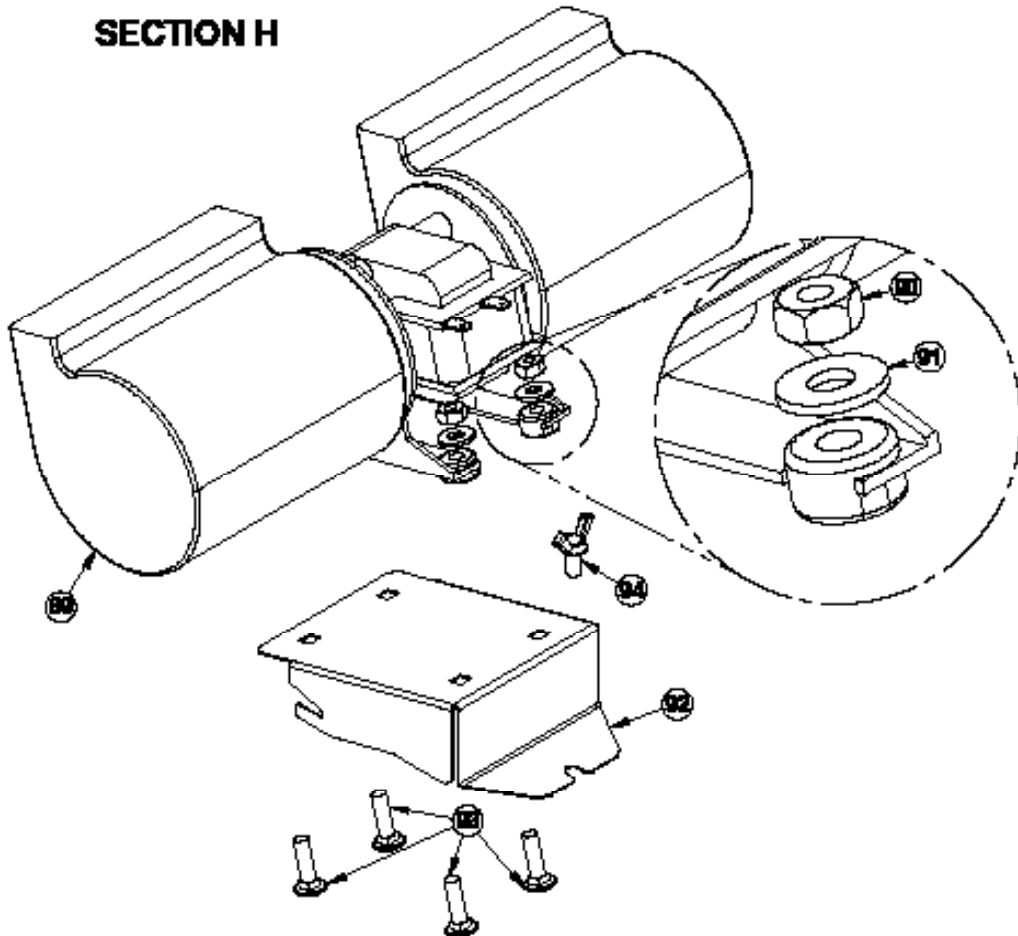
SECTION F



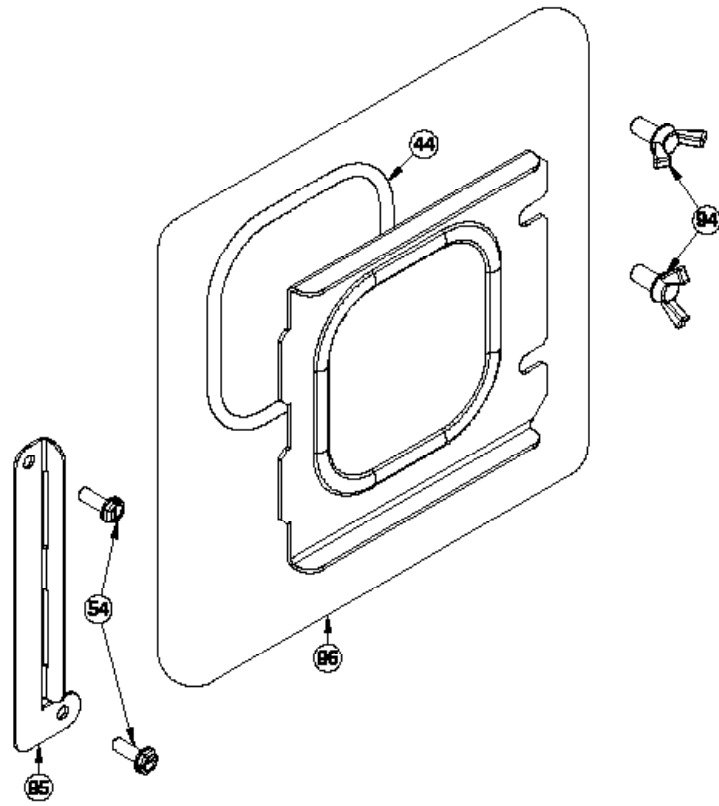
SECTION G



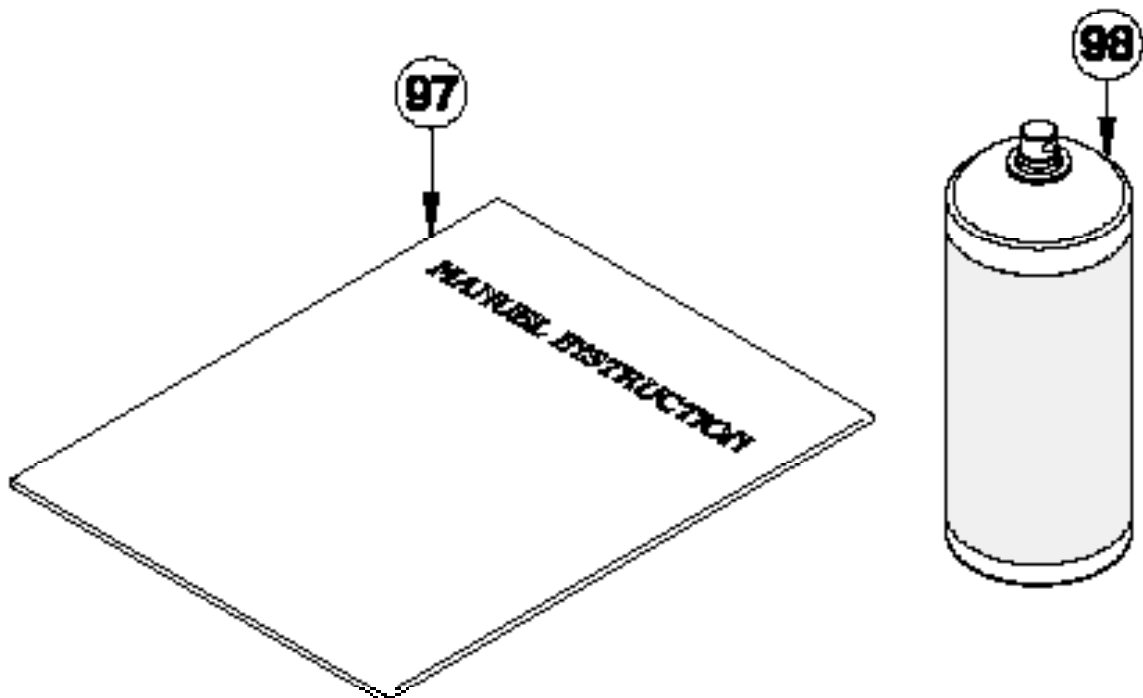
SECTION H



SECTION I



SECTION J



| No. | Parts | Description | Qty |
|-----|------------|---|-----|
| 1 | SE69865 | RIGHT HAND DECORATIVE SIDE PANEL ASSY | 1 |
| 2 | PL69866 | LEFT HAND DECORATIVE SIDE PANEL | 2 |
| 3 | PL69869 | LOWER RIGHT SIDE DECORATIVE PANEL | 1 |
| 4 | PL69868 | LOWER LEFT SIDE DECORATIVE PANEL | 1 |
| 5 | PL69895 | HOOVER LID | 1 |
| 6 | PL69794 | BACK PANEL | 1 |
| 7 | PL69795 | LOWER BACK PANEL | 1 |
| 8 | SE69870 | ASH DRAWER | 1 |
| 9 | 30742 | DRILLED BLACK WOODEN DOOR HANDLE | 1 |
| 10 | PL69897 | REMOVABLE HANDLE | 1 |
| 11 | 30363 | HINGE PIN 5/16" X 2" | 2 |
| 12 | SE24124-02 | CAST IRON DOOR WITH HANDLE AND GASKET | 1 |
| 13 | AC06100 | SILICONE AND 1/4" X 1/2" X 8' BLACK DOOR GASKET KIT | 1 |
| 14 | AC09176 | DOOR HANDLE AND LATCH KIT | 1 |
| 15 | AC09185 | DOOR LATCH KIT | 1 |
| 16 | 30101 | SPRING TENSION PIN 5/32"Ø X 1 1/2"L | 1 |
| 17 | AC06400 | 3/4" (FLAT) X 6' BLACK SELF-ADHESIVE GLASS GASKET | 1 |
| 18 | SE69859 | REPLACEMENT GLASS WITH GASKET 8 3/4" x 14" | 1 |
| 19 | PL69872 | LOWER GLASS RETAINER | 1 |
| 20 | PL69874 | LEFT GLASS RETAINER | 1 |
| 21 | PL69867 | UPPER GLASS RETAINER | 1 |
| 22 | PL69873 | HANDLE SIDE GLASS RETAINER | 1 |
| 23 | 30124 | SCREW #8 - 32 X 5/16" TRUSS QUADREX ZINC | 8 |
| 24 | PL69777 | FIRE BAFFLE | 1 |
| 25 | SE44132 | IGNITER ASSEMBLY 120V 300W | 1 |
| 26 | 30029 | THREAD CUTTING SCREW 10-24 TYPE "F" X 3/8" HEX WASHER | 19 |
| 27 | 44192 | IGNITOR TUBE | 1 |
| 28 | PL69759 | BURN POT | 1 |
| 29 | SE16059 | ASH PLUG | 1 |
| 30 | 30370 | RUBBER BUMPER WITH THREADS (SMALL) | 3 |
| 31 | 30417 | BLACK HEX NUT #8-32 | 4 |
| 32 | 44098 | HOPPER LID SAFETY SWITCH | 1 |
| 33 | 30013 | HINGE 2" X 1 1/2" | 2 |
| 34 | SE69785 | EXHAUST PIPE ASSEMBLY | 1 |
| 35 | 21392 | EXHAUST ADAPTER GASKET | 1 |
| 36 | 44193 | EXHAUST FAN | 1 |
| 37 | 30093 | BOLT 1/4-20 X 3/4" HEX GRADE 5 | 2 |
| 38 | 30094 | HEX SCREW WASHER HEAD 1/4-20 X 3/4" F ZINC TYPE | 1 |

| No. | Parts | Description | Qty |
|-----|---------|---|-----|
| 39 | SE44095 | THERMISTOR ASSEMBLY | 1 |
| 40 | 30220 | FLANGED LOCKNUT 1/4-20 | 2 |
| 41 | 21393 | EXHAUST BLOWER GASKET | 1 |
| 42 | PL69764 | SUPPORT EXHAUST TRAP | 1 |
| 43 | SE69803 | EXHAUST CLEANING PANEL ASSEMBLY | 1 |
| 44 | AC06815 | BLACK GASKET AND SILICONE KIT 3/16" X 5' | 1 |
| 45 | 30484 | WING NUT 1/4-20 | 2 |
| 46 | 24017 | CAST IRON AUGER | 1 |
| 47 | 30138 | METAL SCREW #6 3/8" QUADREX "A" TYPE BLACK | 2 |
| 48 | 44059 | THERMODISC 36T11 L250-25 AUTOMATIC | 1 |
| 49 | 30528 | BRASS BUSHING FOR PELLET STOVE AUGER | 1 |
| 50 | 30092 | BOLT 5/16"-18 X 3/4" HEX GRADE 5 | 2 |
| 51 | 21110 | AUGER PLATE GASKET | 1 |
| 52 | PL69773 | AUGER BUSHING SUPPORT PLATE | 1 |
| 53 | 30369 | RUBBER BUMPER WITH THREADS (LARGE) | 1 |
| 54 | 30026 | THREAD CUTTING SCREW 10-24 F 5/8" HEX WASHER HEAD | 10 |
| 55 | 44106 | GEAR MOTOR FOR PELLET STOVE AUGER 1.5 RPM | 1 |
| 56 | SE69877 | ELECTRONIC BOARD HOUSING ASSEMBLY | 1 |
| 57 | 44148 | MEMBRANE SWITCH CONTROL BOARD | 1 |
| 58 | PL69855 | CONTROL BOARD 55 SERIE | 1 |
| 59 | 60382 | WIRING HARNESS | 1 |
| 60 | 44058 | THERMODISC 36T12 F160 | 1 |
| 61 | 30080 | METAL SCREW #6 X 1/4 TYPE B PAN PHILLIPS | 2 |
| 62 | 60331 | POWER CORD 6' | 1 |
| 63 | 60196 | POWER CORD RECEPTACLE | 1 |
| 64 | 30155 | METAL SCREW #8 X 5/8" PHILLIPS SELFTAPPING TEK ZINC | 4 |
| 65 | 60036 | THERMOSTAT TERMINAL | 1 |
| 66 | 44029 | PRESSURE SWITCH | 1 |
| 67 | 49006 | 3/8" X 24" SILICONE HOSE | 1 |
| 68 | PL69855 | CONTROL BOARD 55 SERIE | 1 |
| 69 | 44152 | FUSE 0.5A / 250V (5 X 20) F2-INTERFACE | 2 |
| 70 | 44149 | FUSE 8A / 250V (5 X 20) F3-MAIN OR F8 IGNITER | 1 |
| 71 | 44150 | FUSE 3A / 250V (5 X 20) F4-AUGER & DC IEC CONNECTOR | 1 |
| 72 | 44200 | FUSE GLASS 2A 250VAC 5X20MM SLOW BLOW | 1 |
| 73 | 44199 | FUSE GLASS 1.25A 250VAC 5X20MM SLOW BLOW | 1 |
| 74 | 44201 | FUSE GLASS 4A 250VAC 5X20MM SLOW BLOW | 1 |
| 75 | SE69849 | AIR CONTROL DAMPER ASSEMBLY | 1 |
| 76 | 30439 | SPRING CLAMP ZINC PLATED BRIGHT CHROMATE DIP | 1 |

| No. | Parts | Description | Qty |
|-----|---------|---|-----|
| 77 | 30021 | SELF TAPPING SCREW 8-32 "F" TYPE X 7/16" FLAT HEAD PHILLIPS BLACK | 2 |
| 78 | PL69784 | AIR INTAKE PLATE | 1 |
| 79 | PL64359 | COMBUSTION FAN GASKET FRAME | 1 |
| 80 | 21400 | COMBUSTION FAN GASKET | 2 |
| 81 | SE44147 | AXIAL BLOWER ASSEMBLY 115V 9W 92 X 92 X 38 | 1 |
| 82 | PL69799 | AIR CONTROL BRACKET | 1 |
| 83 | 30777 | PLASTIC BACKDRAFT DAMPER ASSEMBLY | 1 |
| 84 | 30502 | SELF TAPING SCREW #8 - 32 X 1/2" TYPE F x 3/4 HEX FLAT HEAD | 4 |
| 85 | 30556 | AIR CONTROL FINISHING TIP | 1 |
| 86 | 49400 | 2 1/2" TO 3 1/2" STEEL COLLAR | 2 |
| 87 | 21381 | 2 FOLD ALUMINUM LINER 3" X 6" COMPRESSED | 1 |
| 88 | 60383 | IGNITER JUNCTION WIRE | 1 |
| 89 | 44122 | DOUBLE CAGE BLOWER 176 CFM (CLASS H) | 1 |
| 90 | 30100 | BLACK HEX NUT 1/4 - 20 | 2 |
| 91 | 30185 | 17/64" "AA" TYPE WASHER | 2 |
| 92 | PL69805 | CONVECTION FAN SUPPORT | 1 |
| 93 | 30446 | CARRIAGE BOLT 1/4 - 20 x 1" ZINC | 4 |
| 94 | 30485 | WING NUT 1/4-20 X 1/2" ZINC PLATTED | 3 |
| 95 | PL69802 | CLEANING ACCESS PANEL SUPPORT | 1 |
| 96 | SE69804 | CLEANING ACCESS PANEL WITH GASKET | 1 |
| 97 | SE45910 | OSBURN 2500 INSTRUCTIONS MANUAL KIT | 1 |
| 98 | AC05959 | METALLIC BLACK STOVE PAINT - 342 g (12oz) AEROSOL | 1 |

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tech@sbi-international.com



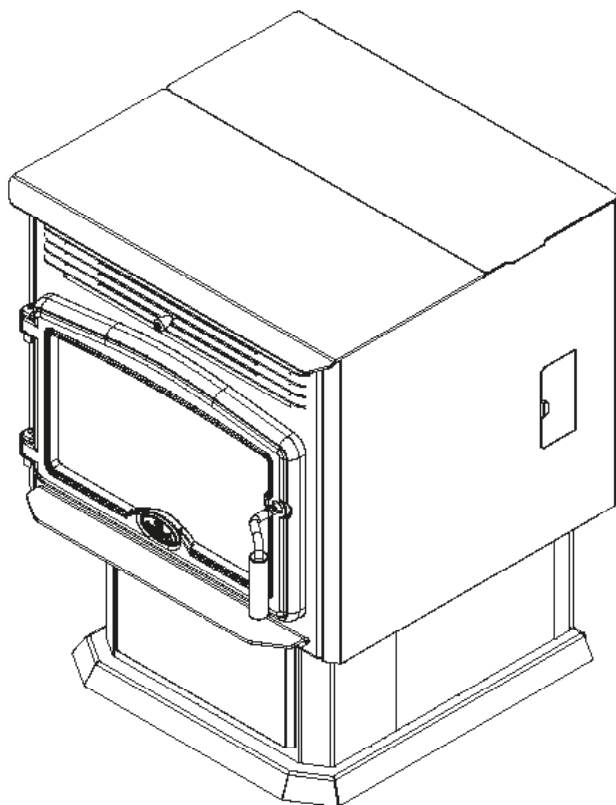
AU-DELÀ
du feu



Manuel d'installation

2500

(modèle OP00025)



Essais de sécurité faits conformément
aux normes ULC S627, UL 1482
et ASTM E1509 par un laboratoire
accrédité.



**L'INSTALLATION PAR UN
PROFESSIONNEL EST
FORTEMENT RECOMMANDÉE**

CONSULTER LE CODE DU BÂTIMENT LOCAL OU CONTACTER LE SERVICE MUNICIPAL DES INCENDIES POUR CONNAÎTRE LES RESTRICTIONS ET LES EXIGENCES D'INSPECTION ET D'INSTALLATION DE LA RÉGION.

LIRE CE MANUEL AU COMPLET AVANT L'INSTALLATION DE CE POÊLE À GRANULES. IL EST IMPORTANT DE RESPECTER INTÉGRALEMENT LES DIRECTIVES D'INSTALLATION. SI LE POÊLE N'EST PAS INSTALLÉ CORRECTEMENT, IL PEUT EN RÉSULTER UN INCENDIE, DES BLESSURES CORPORELLES OU MÊME LE DÉCÈS.

LIRE LE PRÉSENT MANUEL ET LE CONSERVER POUR CONSULTATION

RECOMMANDATIONS

Il est fortement recommandé que cet appareil de chauffage soit **installé par un professionnel certifié** aux États-Unis par le NFI (National Fireplace Institute®) ou au Canada par WETT (Wood Energy Technology Transfer) ou au Québec par l'APC (Association des Professionnels du Chauffage).

Lorsque l'appareil n'est pas installé correctement, les matériaux combustibles à proximité peuvent surchauffer et s'enflammer. Pour réduire les risques d'incendies, suivre les instructions d'installation de ce manuel soigneusement. Consulter le code du bâtiment local ou contacter le service des incendies pour connaître les restrictions et les exigences d'inspection et d'installation de la région. Il est également recommandé d'aviser sa compagnie d'assurance habitation.

Il se peut qu'un permis soit requis pour l'installation du poêle et du système d'évent sur lequel il est branché.

Lire ce manuel au complet avant d'installer cet appareil.

INFORMATIONS GÉNÉRALES

Ce poêle ne fonctionne pas avec un tirage naturel ou sans source de courant pour activer les ventilateurs et le système d'alimentation en granules. Le poêle ne fonctionnera donc pas en cas de panne électrique.

Ce poêle a été conçu et développé pour être utilisé comme **chauffage d'appoint résidentiel**. Un usage commercial ou industriel est interdit et annulera la garantie.

Les informations inscrites sur la plaque d'homologation de l'appareil ont toujours préséance sur les informations contenues dans tout autre média publié (manuels, catalogues, circulaires, revues ou sites web).

L'utilisation de composants provenant d'autres appareils ou la modification des composants actuels du poêle sont interdites et annuleront la garantie.

Toute modification de l'appareil qui n'a pas été approuvée par écrit par l'autorité d'homologation ou le fabricant est interdite et viole les normes CSA B365 (Canada) et NFPA 211 (É.-U.).

SBI - Fabricant de poêles international inc. n'assume aucune garantie implicite ou explicite liée à la mauvaise installation de l'appareil et n'assume aucune responsabilité pour tout dommage qui en résulterait.

Lors du choix de l'emplacement de l'appareil, le système d'évent ne doit pas entrer en conflit avec les solives de plancher, les chevrons de toit, les montants, les conduites d'eau ou les fils électriques. Il est plus facile de relocaliser l'appareil que de modifier la structure de l'habitation.

Ce poêle à granules est certifié conforme à la norme EPA NSPS 2015 d'émission de particules. Il n'est pas approuvé pour être vendu après le 15 mai 2020.

ACCESSOIRES ET OPTIONS DISPONIBLES

- Extension de trémie;
- Ensemble d'entrée d'air frais;
- Thermostat mural;
- Contrôle à distance thermostatique;
- Protection de plancher en verre;

Pour plus de détails, consulter le site web www.osburn-mfg.com ou se référer à un marchand autorisé.

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SPÉCIFICATIONS

| | |
|--|---|
| Modèle | 2500 (OP00025) |
| Diamètre de tuyau d'évent recommandé | 3 po. ou 4 po. selon la LEE ¹ . |
| Diamètre de la buse d'évacuation | 3 po. (80 mm) |
| Type d'évent | ULC/ORD-C441, CAN/ULC S609 UL 641 (TYPE L) |
| Approuvé pour installation en alcôve | Oui |
| Approuvé pour installation dans une maison mobile ² | Oui |
| Poids à l'expédition (sans option) | 286 lb (130 kg) |
| Poids de l'appareil (sans option) | 253 lb (115 kg) |
| Normes d'émission de particules | EPA / CSA B415.1-10, ASTM E2779 |
| Norme américaine (sécurité) | ASTM E1509, UL 1482 |
| Norme canadienne (sécurité) | ULC S627 |
| Spécifications électriques ³ | Tension et fréquence 120VAC et 60 Hz Allumage : 2.60A Opération continue : 2.50A |
| Fusibles | Principal: 8A - 250V réaction lente Ventilateur de convection: 5A - 250V réaction lente Ventilateur de combustion: 5A - 250V réaction lente Ventilateur d'évacuation: 5A - 250V réaction lente Moteur de vis #1: 3A - 250V réaction lente Allumeur: 8A - 250V réaction lente |

Voir la section « [Évent - Longueur d'évent équivalente](#) ».

² Maison mobile (Canada) ou maison préfabriquée (É.-U.) : Le département américain du logement et du développement urbain décrit «maisons préfabriquées» mieux connues pour «maisons mobiles» comme suit ; bâtiments construits sur des roues fixes et ceux transportés sur des roues/essieux temporaires installées sur une fondation permanente. Au Canada, une maison mobile est une habitation dont l'assemblage de chaque composante est achevé ou achevé en grande partie avant le déplacement de celle-ci jusqu'à un emplacement pour y être placée sur des fondations, raccordé à des installations de service et qui rencontre la norme CAN/CSA-Z240 MH.

³ Sauf indication contraire, les mesures ont été prises à la source d'alimentation de courant principale et incluent tous les composants électriques de l'appareil.

PERFORMANCES

Valeurs telles qu'obtenues en test. Les résultats peuvent varier en fonction de la qualité, la densité, la longueur et le diamètre du granule utilisé.

| | | |
|--|--|---------------------------|
| Combustibles | Granules de bois (qualité premium ou supérieure ¹) | |
| Puissance thermique d'entrée maximale ² | 39,260 BTU/h (11,5 kW) | |
| Puissance thermique globale (min. à max.) ³ | 6,648 BTU/h à 28,540 BTU/h (1.95 kW à 8.36 kW) | |
| Rendement moyen global ³ | 70.3 % (PCS) ⁴ | 75.8 % (PCI) ⁵ |
| Rendement optimal ⁶ | 78.4 % | |
| Taux de combustion | 1.2 lb/h à 4.7 lb/h (0.54 kg/h à 2.14 kg/h) | |
| Taux moyen d'émission de particules ⁷ | 0.96 g/h (EPA / CSA B415.1-10) | |
| Taux moyen de CO ⁸ | 7.6 g/h | |

¹ Niveau de qualité déterminé par des organismes tels que Pellet Fuels Institute (PFI), ENplus ou CANplus.

² Basé sur le taux de combustion maximal et un pouvoir calorifique de la granule sèche de 8,600 BTU/lb.

³ Telle que mesurée selon la méthode CSA B415.1-10.

⁴ Pouvoir Calorifique Supérieur du combustible.

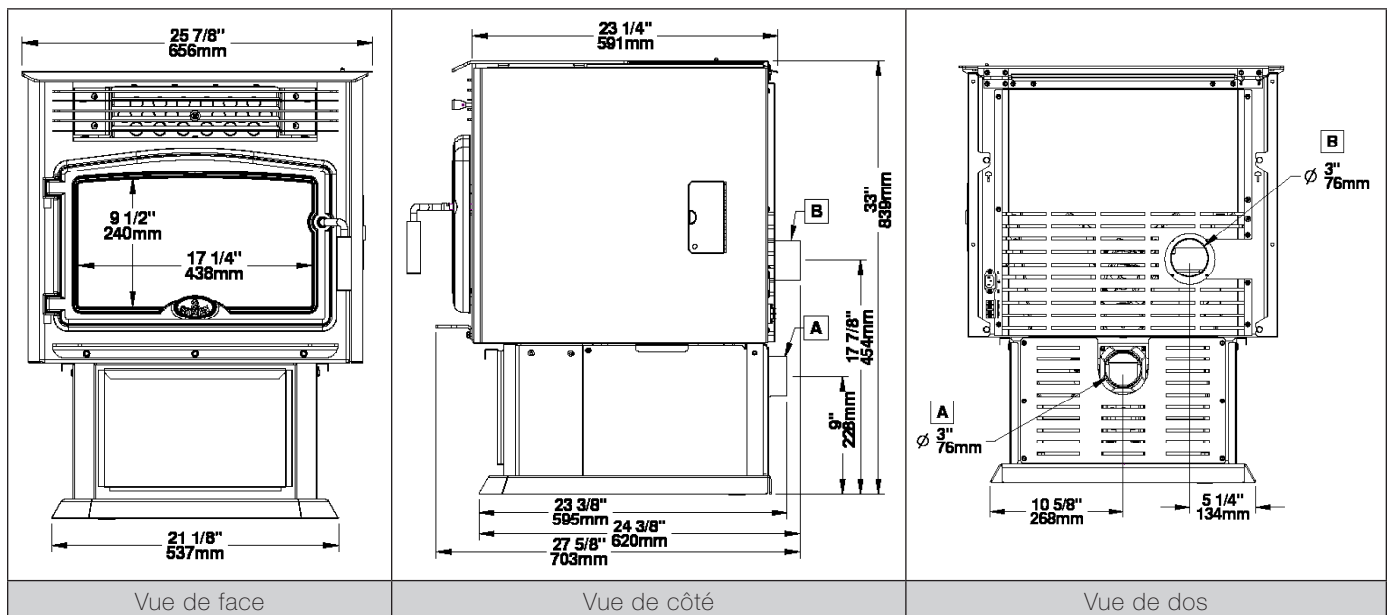
⁵ Pouvoir Calorifique Inférieur du combustible.

⁶ Rendement optimal à un taux de combustion donné (PCI).

⁷ Cet appareil est officiellement testé et certifié par un organisme indépendant.

⁸ Monoxyde de carbone.

DIMENSIONS



| | |
|----------|-------------------------------|
| A | PRISE POUR ENTRÉE D'AIR FRAIS |
| B | BUSE DE RACCORDEMENT |

INSTALLATION DE L'APPAREIL

Consignes de sécurité

- L'installation inadéquate de cet appareil pourrait causer un incendie et un dégât de fumée. Pour réduire les risques, suivre les instructions d'installation.
- Ne pas utiliser de matériaux de fortune et ne pas faire de compromis lors de l'installation.
- Pour être installé dans une maison mobile, ce poêle requiert l'installation d'un ensemble d'entrée d'air frais, vendu séparément. Le poêle doit être fixé à la structure de la maison mobile et l'intégrité structurale du plancher, des murs, du plafond et du toit de la maison mobile doit être maintenue. Il est interdit d'installer ce poêle dans une chambre à coucher d'une maison mobile.
- Ce poêle doit être branché dans une prise électrique standard de 120V / 60Hz, avec mise à la terre. Ne pas utiliser de rallonge électrique ou d'adaptateur de prise électrique. Ne pas endommager ou enlever la mise à la terre. Ne jamais faire passer le cordon d'alimentation électrique en avant, au-dessus ou en dessous du poêle.
- Il est fortement déconseillé d'installer ce poêle dans une chambre à coucher.
- Brûler des combustibles solides génère du monoxyde de carbone en faible concentration. Ces gaz sont expulsés par le système d'évacuation. Des concentrations plus élevées en monoxyde de carbone sont toxiques et peuvent causer la mort. Afin d'éviter un empoisonnement, le **système d'évent** doit être **étanche et doit être installé correctement**.
- Un détecteur de fumée, un détecteur de monoxyde de carbone ainsi qu'un extincteur devraient être installés dans la maison. L'emplacement de l'extincteur devrait être connu de tous les membres de la famille.

FRANÇAIS



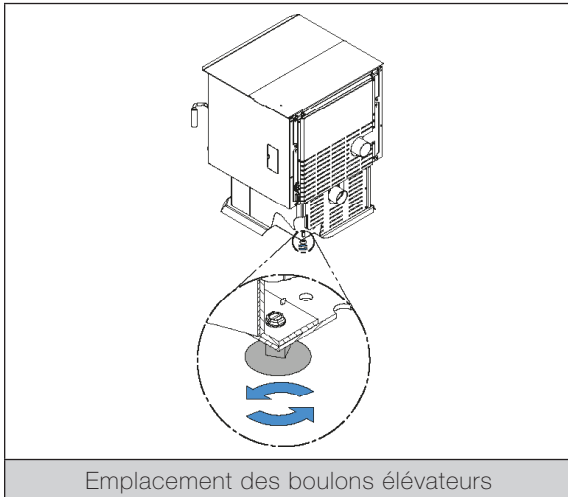
AVERTISSEMENT: Ce produit peut vous exposer à des agents chimiques, y compris du monoxyde de carbone, identifiés par l'État de la Californie comme pouvant causer le cancer ou des malformations congénitales et autres troubles de l'appareil reproducteur. Pour de plus amples informations, prière de consulter le www.P65warnings.ca.gov

Règlementations

- Lorsqu'il est installé et utilisé tel que décrit dans les présentes instructions, ce poêle à granules convient comme appareil de chauffage d'appoint pour installation résidentielle.
- Au Canada, il faut respecter le CSA B365 Installation des appareils de chauffage à combustible solide et du matériel connexe et le CSA C22.1 Code canadien de l'électricité, en l'absence de code local.
- Aux États-Unis, il faut suivre le ANSI NFPA 211 Standard for Chimneys, Fireplaces, Vents and Solid Fuel-Burning Appliances et le ANSI NFPA 70 National Electrical Code, en l'absence de code local.
- Ce poêle à granules doit être raccordé à un système d'évent conforme aux exigences de système d'évent pour appareil à granules de bois dans la norme pour cheminées préfabriquées de type résidentiel et appareils de chauffage de bâtiment, UL 103, UL 641, ULC S629M, CAN/ULC S609 et ULC/ORD C441 ou à une cheminée de maçonnerie approuvée selon le code avec une gaine en acier inoxydable.

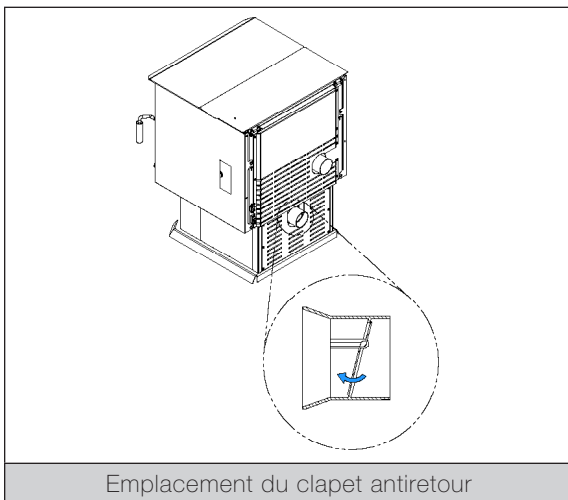
Préparation

- Lire et suivre les instructions d'installation de l'appareil et du système d'évent;
- Retirer l'appareil et les accessoires de leur emballage. S'assurer qu'aucune pièce n'est manquante ou endommagée;
- Mettre le poêle au niveau avec les boulons éleveurs, situés sous l'appareil;



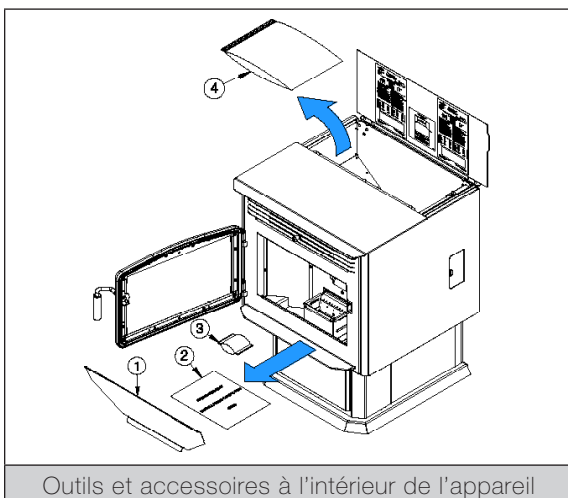
Emplacement des boulons éleveurs

- Vérifier que le clapet antiretour de l'entrée d'air frais ouvre et ferme librement;



Emplacement du clapet antiretour

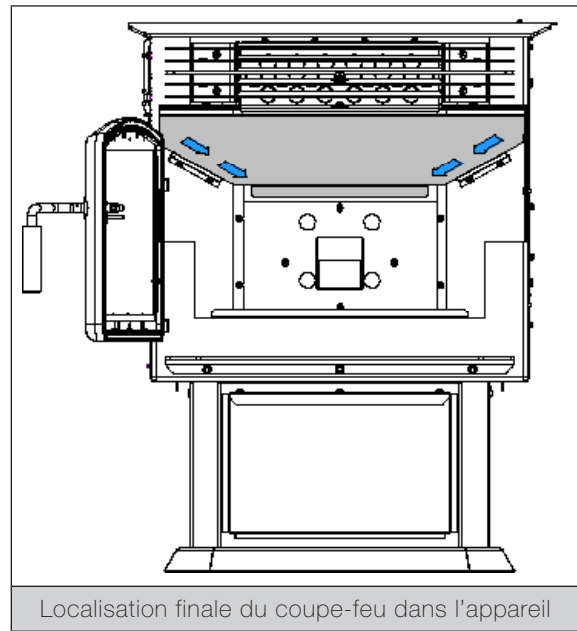
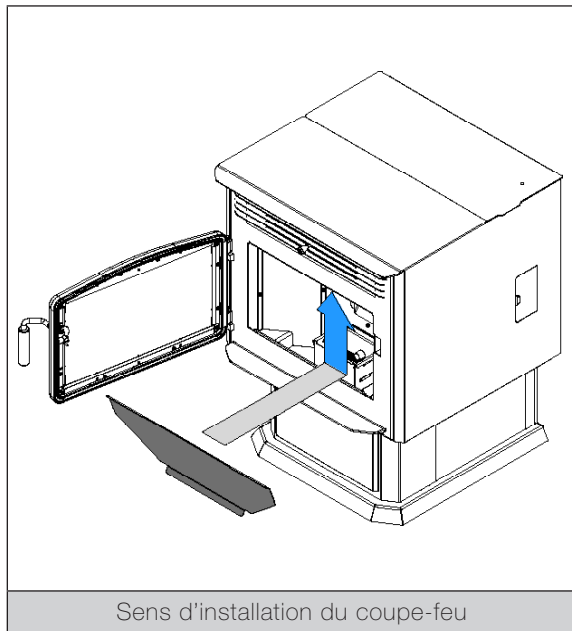
- Retirer tous les outils et autres accessoires à l'intérieur de l'appareil;



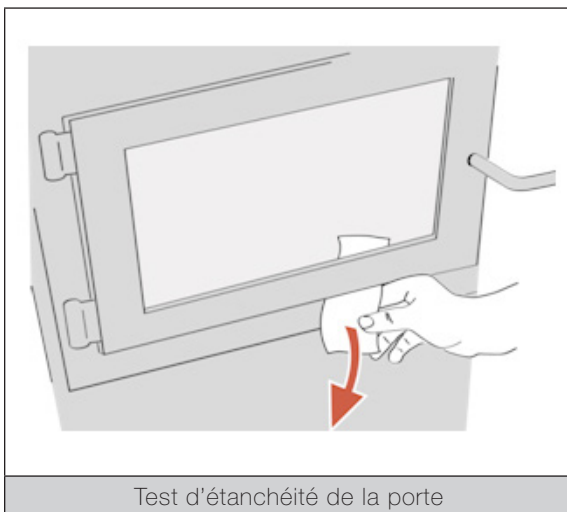
Outils et accessoires à l'intérieur de l'appareil

| No | Outils / Accessoires |
|----|--------------------------|
| 1 | Coupe-feu |
| 2 | Feuille d'avertissement |
| 3 | Sachet déshydratant |
| 4 | Manuels de l'utilisateur |

- Installer le coupe-feu comme montré ci-dessous;



- Vérifier l'étanchéité de la porte en fermant et en verrouillant la porte sur un bout de papier. Vérifier tout le tour de la porte. Le papier ne devrait pas glisser facilement. Si le papier glisse facilement, voir la section «ajustement de la porte» dans le manuel d'opération.



Dégagements aux matériaux combustibles

On considère qu'un matériel est combustible lorsqu'il est fabriqué ou plaqué de bois, de papier compressé, de fibres de plantes, de plastiques ou tout autre matériau qui peut s'enflammer ou brûler, qu'il soit résistant au feu ou non, plâtré ou non.

Les dégagements donnés dans la présente section ont été établis à partir d'essais conformément aux procédures décrites dans les normes ULC S627 (Canada), ASTM E1509 et UL 1482 (États-Unis). Lorsque les dégagements minimums indiqués sont respectés, les surfaces combustibles ne surchaufferont pas en usage normal et même en usage anormal.

AUCUNE PARTIE DU POÊLE NE PEUT ÊTRE PLACÉE PLUS PRÈS DES MATÉRIAUX COMBUSTIBLES QUE LES DÉGAGEMENTS MINIMUMS INDICÉS SUR LA PLAQUE D'HOMOLOGATION.

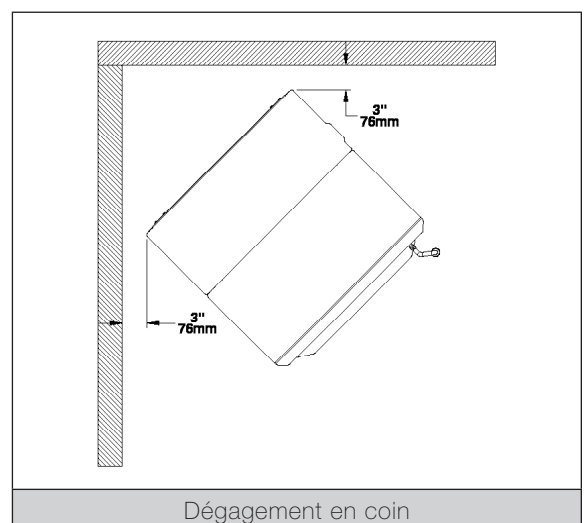
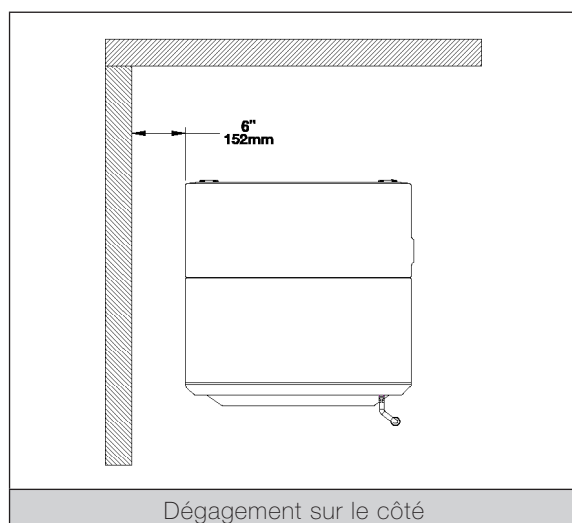
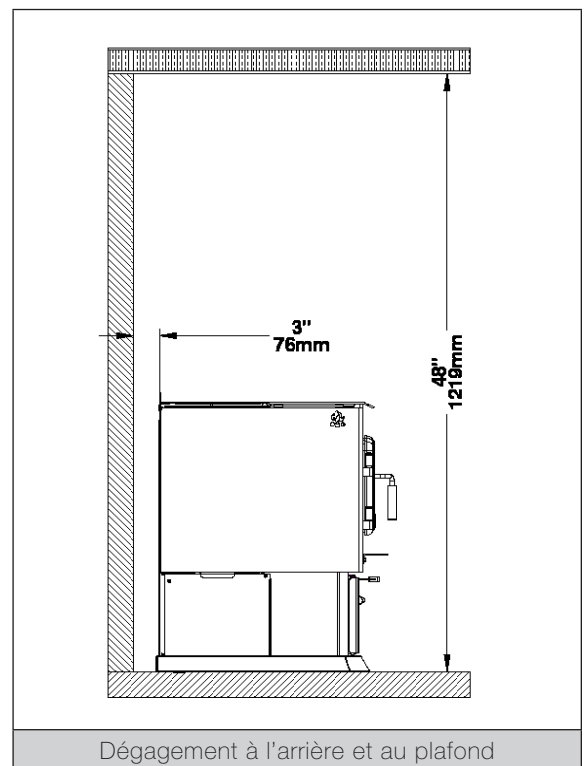
Les dégagements aux matériaux combustibles suivants peuvent être réduits seulement en suivant les instructions des organismes de réglementation ayant juridiction.

Ces dégagements sont aussi valides pour une installation en alcôve. Par contre, si l'appareil est installé dans une alcôve, il faudra prévoir déplacer l'appareil pour accéder aux trappes de nettoyage et aux composants. Pour plus d'informations sur l'installation en alcôve, visiter notre site web.

Les dégagements suivants s'appliquent au Canada ainsi qu'aux États-Unis.

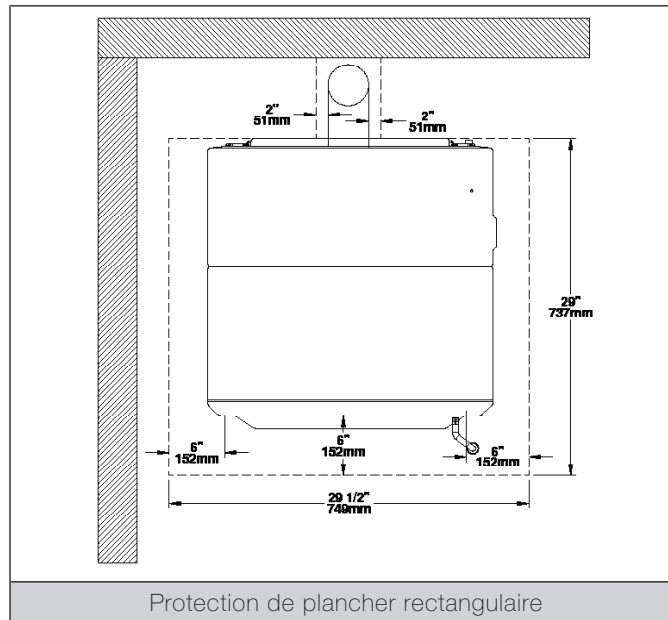
Les dégagements montrés sont les minimums requis pour assurer une installation sécuritaire. Une distance de 24" de chaque côté de l'appareil et de 12" à l'arrière est recommandée pour faciliter l'entretien.

Se référer aux instructions du fabricant du système d'évent pour les dégagements de celui-ci aux matériaux combustibles.



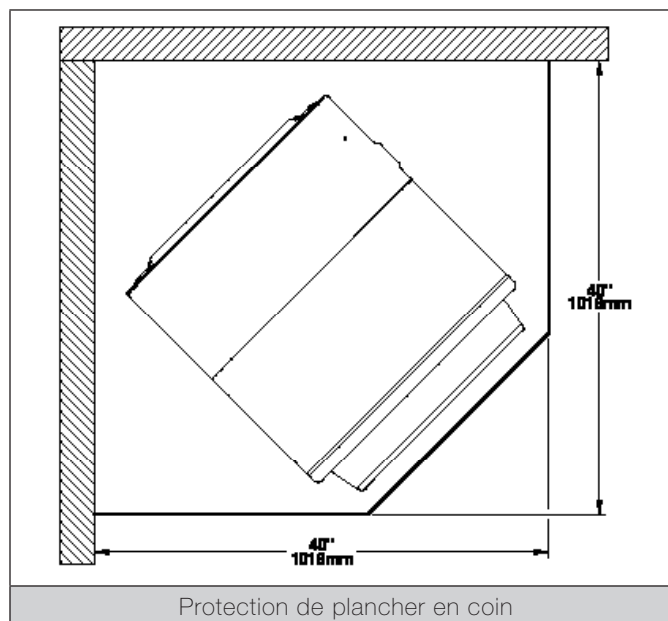
Protection de plancher

La protection de plancher doit être une surface incombustible continue telle que de la céramique, un panneau de béton, de la brique ou tout autre matériel équivalent approuvé comme protection de plancher. La céramique doit être placée sur un panneau incombustible continu afin d'éviter que des tisons puissent être mis en contact avec le plancher à travers des fissures ou des manques dans le coulis de la céramique. Consulter le code local pour les alternatives approuvées.



La protection de plancher doit avoir un minimum de 6" (152 mm) à l'avant de l'ouverture de porte et un minimum de 6" (152 mm) de chaque côté de l'ouverture de porte. Elle doit aussi excéder de 2" (51 mm), de chaque côté d'une section horizontale de tuyau d'évent.

La grandeur de protection de plancher nécessaire pour ce poêle est de 29 1/2" x 29" pour une installation rectangulaire et de 40" x 40" pour une installation en coin.



Note: Au Canada, les dimensions de la protection de plancher présentées sur les images précédentes peuvent être utilisées SEULEMENT si l'ouverture de la porte de l'appareil ou le retrait du tiroir à cendres se fait lorsque l'appareil est complètement éteint, c'est-à-dire qu'il n'y a plus de feu dans le pot de combustion et que les ventilateurs sont éteints. Dans tous les autres cas, voir la norme CSA B365.

SYSTÈME D'ÉVENT

Informations générales

Même si le tirage de la cheminée est mécanique, la bonne configuration du système d'évent assurera un tirage naturel qui permettra d'éviter un refoulement de fumée dans la maison, surtout si une panne de courant survient. De plus, une bonne configuration du système d'évent aidera à obtenir un meilleur rendement du poêle lorsqu'il est installé en conformité avec la longueur d'évent équivalente (LEE) requise (voir section suivante).

Ce poêle est équipé d'un ventilateur qui aspire de l'air pour la combustion. Le système d'évent restreint la capacité du ventilateur à aspirer la quantité d'air nécessaire à une bonne combustion. Un système d'évent trop restrictif occasionnera des problèmes de combustion incomplète, un nettoyage plus fréquent et une mauvaise performance. Il est recommandé de choisir un emplacement pour l'appareil qui permettra d'avoir une longueur d'évent équivalente la plus courte possible.

Les configurations d'installation présentées dans les sections suivantes sont à titre indicatif seulement. Toujours se référer aux instructions du fabricant d'évent pour l'installation.

Consignes de sécurité

Raccorder le poêle seulement à un système d'évent homologué pour utilisation avec du combustible solide ou à une cheminée conforme aux codes du bâtiment national et local.

NE JAMAIS RACCORDER CE POÊLE À TOUT AUTRE SYSTÈME D'ÉVACUATION SERVANT À UN AUTRE APPAREIL.

Afin d'assurer une performance constante et éviter les refoulements de fumée et de cendres, **les joints du système d'évent doivent être scellés hermétiquement et installés correctement** selon les instructions du fabricant du système d'évent.

NE PAS INSTALLER DE REGISTRE MANUEL SUR LE SYSTÈME D'ÉVENT DE CET APPAREIL.

NE PAS RACCORDER À UN SYSTÈME OU À UN CONDUIT DE DISTRIBUTION D'AIR.

Le système d'évent devrait être inspecté au moins deux fois par année pour prévenir toute accumulation de suie ou de créosote.

Règlementations

Au Canada, l'usage d'un système d'évent répondant aux exigences des normes CAN/ULC S609 ou ULC/ORD-C441 est recommandé. Une cheminée répondant aux exigences de la norme ULC S629M peut aussi être utilisée.

Aux États-Unis, l'usage d'un système d'évent répondant aux exigences de la norme UL 641 est recommandé. Une cheminée répondant aux exigences de la norme UL 103 peut aussi être utilisée.

Ce poêle peut également être raccordé à une cheminée existante à l'aide d'une gaine en acier inoxydable. Au Canada, cette gaine doit répondre aux exigences des normes ULC S635, CAN/ULC S640 et aux États-Unis à la norme UL 1777. Se référer aux instructions fournies par le fabricant du système d'évent, et ce, spécialement lorsqu'il s'agit de passer au travers un mur, un plafond ou le toit.

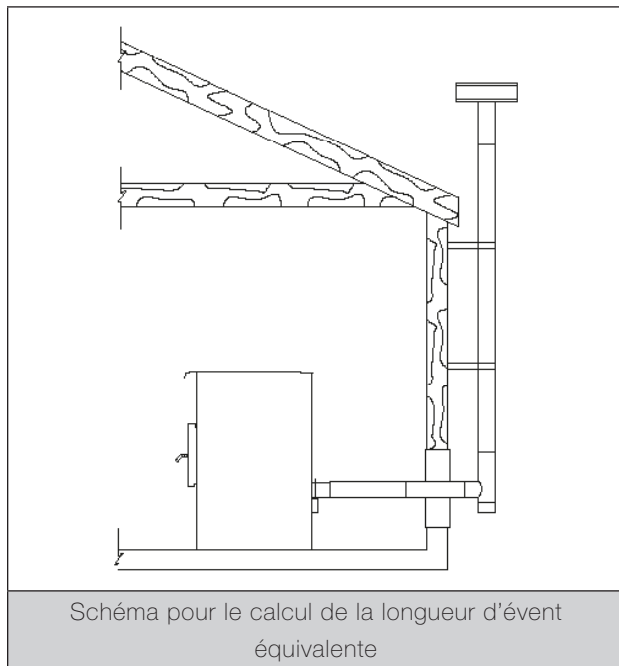
Longueur d'évent équivalente (LEE)

Le diamètre intérieur du tuyau d'évent recommandé est de 3" pour une installation au rez-de-chaussée. Un tuyau de 4" est recommandé pour une installation au sous-sol ou si la longueur d'évent équivalente (LEE) est de plus de 15 pieds.

Pour calculer la longueur d'évent équivalente d'une installation, se référer au tableau suivant:

| Qté | Type de tuyau | Longueur équivalente (LEE) |
|--------|------------------|----------------------------|
| 1 | Coude 90° ou Té | 5 pieds |
| 1 | Coude 45° | 3 pieds |
| 1 pied | Tuyau horizontal | 1 pied |
| 1 pied | Tuyau vertical | ½ pied |

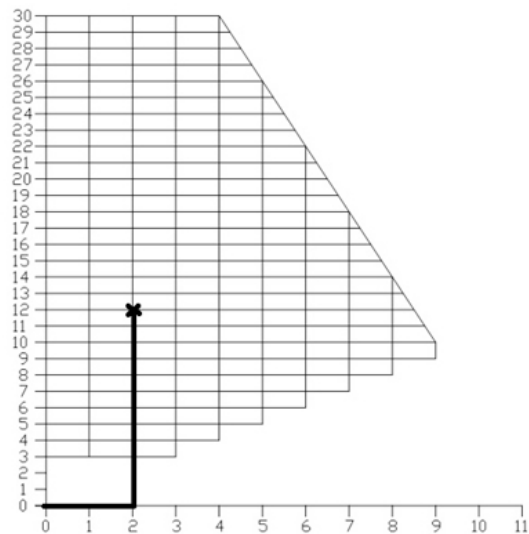
Exemple de calcul pour une installation au rez-de-chaussée:



| | |
|---|---------------------|
| long. horizontale de 2 pi. (2 X 1' LEE) | = 2' de LEE |
| Coude 90° ou Té (1 X 5' LEE) | = 5' de LEE |
| long. vert. de 12 pi. (12 X 0.5' LEE) | = 6' de LEE |
| Terminaison / Chapeau | = 0' de LEE |
| Total LEE | = 13' de LEE |

Puisque la LEE totale est de moins de 15 pieds, le diamètre intérieur du tuyau d'évent recommandé est de 3".

Afin de déterminer si l'installation est conforme, la terminaison de l'installation doit se faire dans la partie quadrillée de la charte du système d'évent. L'installation précédente comporte 2 pieds de longueur horizontale et 12 pieds de longueur verticale. Elle serait donc conforme puisque la terminaison se retrouve dans la partie quadrillée.





**Les longueurs de tuyaux horizontales ne doivent pas dépasser 9 pieds.
Ne jamais dépasser 30 pieds de LEE.**



**POUR RÉDUIRE LE RISQUE DE REFOULEMENT DE FUMÉE, NE JAMAIS
TERMINER AVEC UNE COURSE HORIZONTALE.
SI VOTRE SYSTÈME TERMINE AVEC UNE COURSE HORIZONTALE,
AJOUTEZ UN MINIMUM DE TROIS PIEDS DE COURSE VERTICALE.**



**LA TERMINAISON NE DEVRAIT PAS ÊTRE LOCALISÉE DANS UN ENDROIT
OÙ LES GAZ D'ÉCHAPPEMENT PEUVENT PRÉSENTER UN DANGER. LES
GAZ D'ÉCHAPPEMENT PEUVENT ATTEINDRE 500 °F (260°C) ET PEUVENT
CAUSER DES BRÛLURES SÉRIEUSES.**



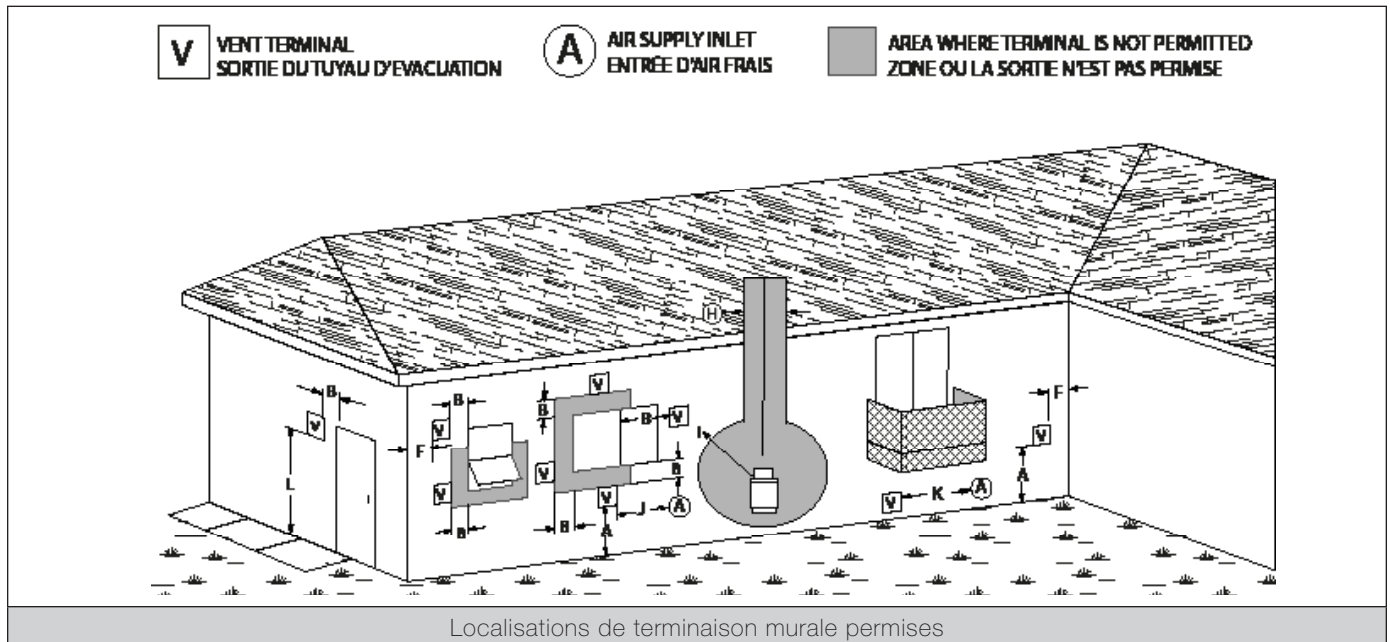
**L'INSTALLATION D'UN GRILLAGE PARE-ÉTINCELLES SUR LA
TERMINAISON DE L'ÉVENT EST OBLIGATOIRE.**

TERMINAISON MURALE

Se référer à la norme NFPA 211 ou CSA B365 pour en apprendre davantage sur les règlements relatifs à la distance de la terminaison murale par rapport aux fenêtres et aux portes. La terminaison murale d'un système doté d'un tirage mécanique, autre qu'un appareil à évacuation directe, doit être située conformément aux spécifications suivantes :

La terminaison ne devrait pas être localisée dans un endroit où les gaz d'échappement peuvent présenter un danger. Les gaz d'échappement peuvent atteindre 500 °F (260°C) et causer des brûlures sérieuses.

Une terminaison murale ne peut se trouver en dessous d'une véranda, d'un patio ou d'un balcon et ne doit pas être installée au-dessus d'un trottoir ou d'une entrée située entre deux maisons unifamiliales et utilisée par les deux habitations.



FRANÇAIS

Canada

| | DÉGAGEMENTS | DESCRIPTION |
|---|--------------|--|
| A | 12" (30 cm) | Dégagement au-dessus du niveau du sol ou de toute surface adjacente pouvant supporter la neige, la glace ou les débris. |
| B | 39" (100 cm) | Dégagement autour d'une fenêtre ou d'une porte qui peut s'ouvrir. |
| F | 39" (100 cm) | Dégagement d'un coin, d'un mur adjacent ou de tout autre matériel combustible. |
| H | 39" (100 cm) | Dégagement de chaque côté à partir du centre d'un régulateur/compteur à gaz et se prolongeant verticalement à 15 pi. |
| I | 72" (183 cm) | Dégagement de la sortie de l'évent d'un régulateur à gaz ou 39" (100 cm) de l'évent ou de l'orifice de remplissage d'un réservoir d'huile. |
| J | 39" (100 cm) | Dégagement de l'entrée d'air de combustion d'un autre appareil. |
| K | 72" (183 cm) | Dégagement d'une entrée d'air mécanique. |
| L | 84" (213 cm) | Dégagement au-dessus d'un trottoir revêtu ou d'une entrée revêtue située sur une propriété publique. |
| | 39" (100 cm) | Dégagement par rapport à la limite de la propriété. |

États-Unis

| DÉGAGEMENTS | DESCRIPTION |
|--------------|---|
| 36" (91 cm) | Dégagement au-dessus de toute prise d'air forcé située à moins de 120" (305 cm). |
| 48" (122 cm) | Dégagement horizontal et en dessous d'une fenêtre, porte, ou toute autre prise d'air fonctionnant par gravité. |
| 12" (30 cm) | Dégagement au-dessus d'une fenêtre, porte, ou toute autre prise d'air fonctionnant par gravité. |
| 24" (61 cm) | Dégagement d'une bâtisse adjacente. |
| 84" (213 cm) | Dégagement au-dessus du trottoir si la terminaison est adjacente à une voie publique. |
| 12" (30 cm) | Dégagement au-dessus du niveau du sol. |
| 36" (91 cm) | La terminaison ne peut être située au-dessus d'un compteur de gaz/régulateur dans un rayon de 36" (91 cm) de la ligne centrale du régulateur. |
| 72" (183 cm) | Dégagement de la sortie d'évent d'un régulateur de gaz. |

Système d'évacuation direct

Un système d'évacuation est appelé direct lorsque l'évacuation et l'entrée d'air se font par le même conduit. Le conduit interne sert à l'évacuation tandis que le conduit externe fournit l'air de combustion à l'appareil.

Canada

Les localisations permises pour la terminaison murale d'un système d'évacuation direct sont les mêmes que celles permises pour la terminaison murale d'un système d'évacuation pour granules standard.

États-Unis

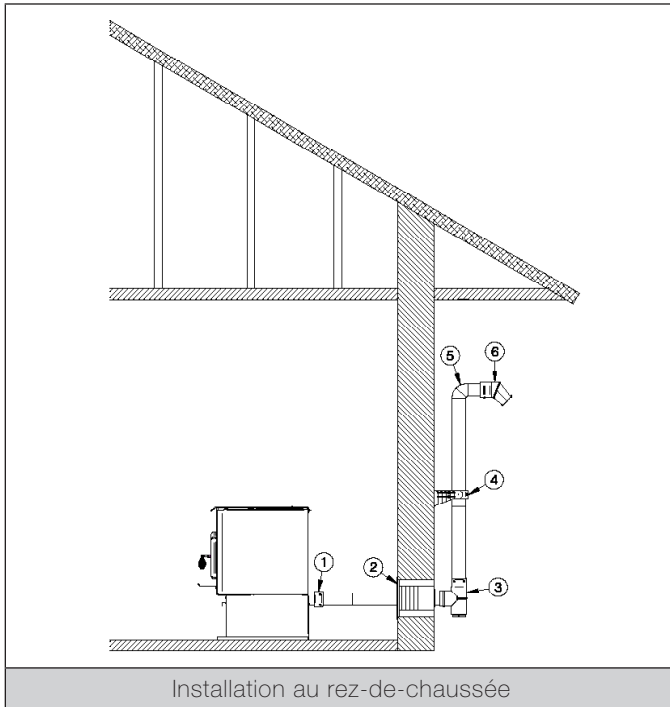
Les localisations permises pour la terminaison murale d'un système d'évacuation direct sont les mêmes que celles permises pour la terminaison murale d'un système d'évacuation pour granules standard sauf pour la suivante : La terminaison doit être à une distance minimale de 9" (23 cm) de toute ouverture par laquelle les gaz de combustion pourraient entrer dans le bâtiment.

CONFIGURATIONS D'INSTALLATION DU SYSTÈME D'ÉVENT

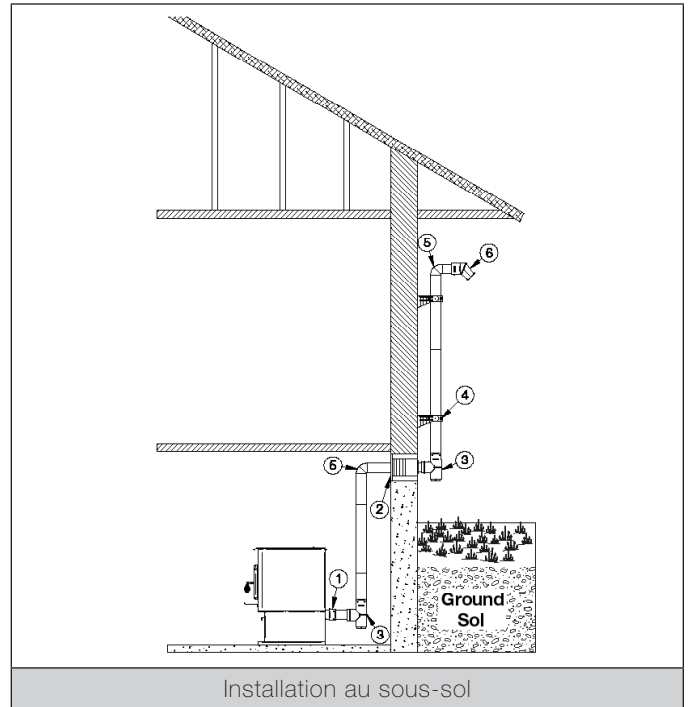


Brûler des combustibles solides génère du monoxyde de carbone en faible concentration. À des concentrations plus élevées, **le monoxyde de carbone est toxique et peut causer la mort**. Afin d'éviter un empoisonnement, **le système d'évent doit être étanche**. Tous les joints doivent être scellés et fixés conformément aux instructions d'installation du fabricant d'évent.

À travers le mur



Installation au rez-de-chaussée



Installation au sous-sol

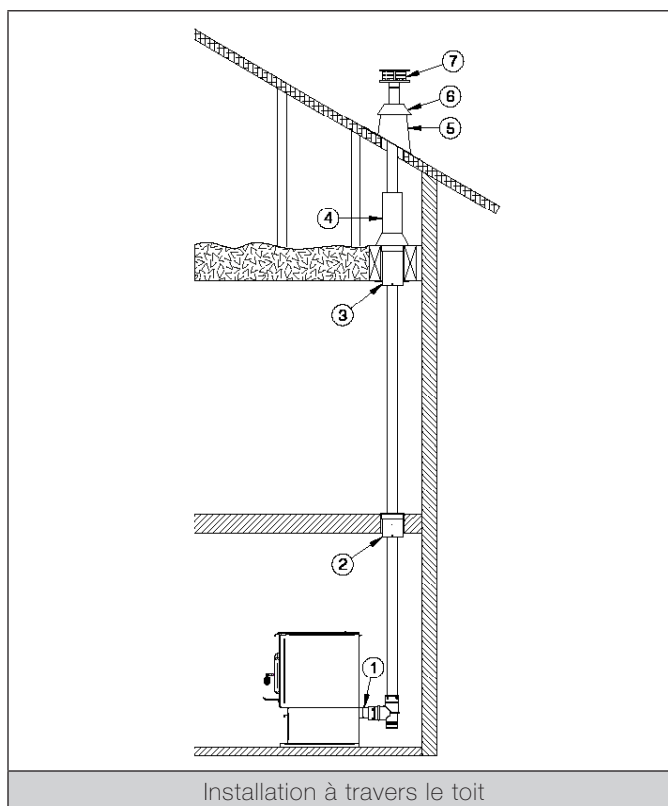
1. Positionner le poêle en respectant les dégagements du fabricant de l'appareil et du système d'évent.
2. Installer un connecteur pour poêle **(1)** ou un té sur la buse de raccordement. Sceller avec du silicone haute température. Au besoin, utiliser une longueur additionnelle horizontale entre la buse d'évacuation et le té.
3. Localiser la position du tuyau d'évacuation dans le mur et couper un trou dans le mur de la taille appropriée pour le coupe-feu mural.
4. Installer le coupe-feu mural **(2)** selon les instructions du fabricant.
5. Raccorder suffisamment de sections pour faire dépasser le tuyau horizontal du mur extérieur. Installer un té **(3)** sur le tuyau qui traverse le mur.
6. Installer une section de tuyau verticale d'une longueur d'au moins 36". Se référer aux instructions du fabricant d'évent pour les dégagements aux matériaux combustibles (mur extérieur) ainsi que pour l'utilisation de supports muraux **(4)**.
7. Installer un coude 90 degrés **(5)** face opposée au mur, puis fixer un chapeau d'évent en acier inoxydable **(6)**, faisant face vers le sol (un coude à 45 degrés ou un chapeau d'évent horizontal peuvent être utilisés). Un grillage pare-étincelles doit être fixé sur le chapeau d'évent.

L'installation d'un grillage pare-étincelles sur la terminaison de l'évent est obligatoire.

8. Sceller le coupe-feu mural extérieur à l'aide de silicone.

À travers le toit

Lorsqu'un tuyau d'évent traverse un grenier ou un entretoit, un placard ou tout espace confiné, un plancher ou un plafond, seulement les composants approuvés du système d'évent doivent être utilisés. Pour traverser un mur ou une cloison en matériau combustible, l'installation doit être conforme à la norme CSA-B365 pour les appareils et équipements à combustible solide.

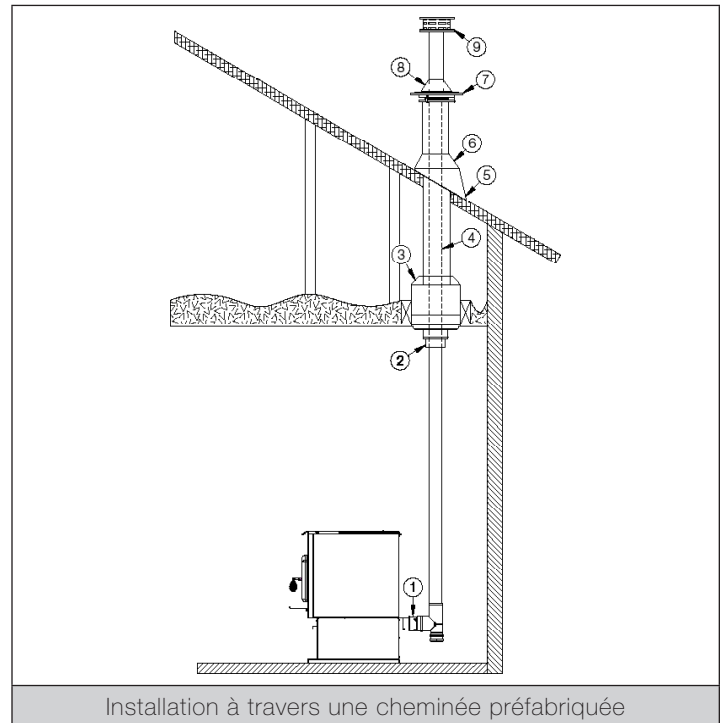


1. Positionner le poêle en suivant les dégagements du fabricant de l'appareil et du système d'évent.
2. Installer un connecteur pour poêle **(1)** ou un té sur la buse d'évacuation. Sceller avec du silicone haute température. Au besoin, utiliser une longueur additionnelle horizontale entre la buse d'évacuation et le té.
3. Utiliser un fil à plomb pour déterminer l'emplacement où le tuyau d'évacuation traversera le plafond et le toit.
4. Découper un trou dans le plafond et dans le toit et faire un châssis autour de l'ouverture brute. Se référer aux instructions du fabricant d'évent pour les dimensions et les règles de construction.
5. Installer un support de plafond **(2)** dans l'ouverture brute et la première section de tuyau d'évent en suivant les instructions du fabricant.
6. Installer un coupe-feu radiant **(3)** pour tous les plafonds/planchers subséquents, sauf pour le grenier où un coupe-feu pour grenier **(4)** est requis.
7. Raccorder le nombre de sections de tuyaux requis afin que le chapeau dépasse le toit d'au moins 24" aux États-Unis et d'au moins 36" au Canada.
8. Fixer le support de toit.
9. Installer le solin **(5)**, le collet de solin **(6)** et le chapeau de cheminée **(7)** selon les instructions du fabricant.

À travers une cheminée préfabriquée

Ce type d'installation est habituellement utilisé lorsqu'un appareil au bois est remplacé par un appareil aux granules.

La cheminée préfabriquée doit être nettoyée et inspectée par un ramoneur ou un installateur qualifié. Toute la créosote doit être retirée de la cheminée existante avant de raccorder le système d'évent.



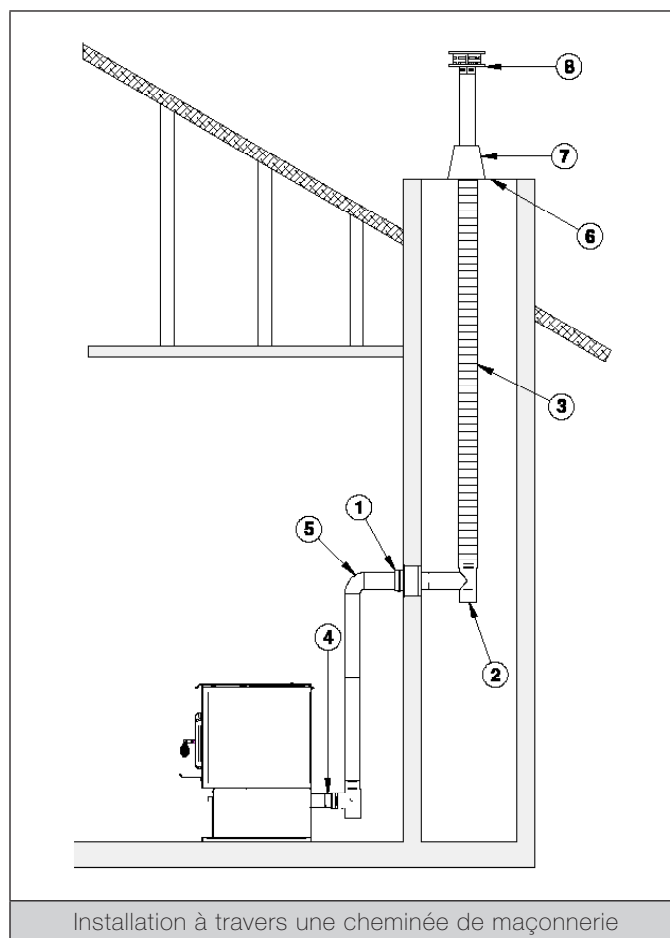
1. Retirer tout conduit de cheminée existant reliant l'appareil de chauffage à l'adaptateur universel déjà installé dans le support de plafond.
2. Positionner le poêle en respectant les dégagements du fabricant de l'appareil et du système d'évent.
3. Installer un connecteur pour poêle **(1)** ou un té sur la buse d'évacuation. Sceller avec du silicone haute température. Au besoin, utiliser une longueur additionnelle horizontale entre la buse d'évacuation et le té.
4. Installer l'adaptateur de cheminée **(2)** approprié. L'adaptateur doit être installé sur l'adaptateur universel **(3)** avec un minimum de trois vis.
5. Raccorder le nombre de sections de tuyaux d'évent requis pour passer à travers l'adaptateur de cheminée jusque dans la cheminée.

Il est permis, mais non recommandé, de laisser la cheminée préfabriquée évacuer naturellement les gaz de combustion.

6. Il est fortement recommandé de soit passer l'évent au travers de la cheminée préfabriquée ou de raccorder le tuyau d'évent à une gaine en acier inoxydable **(4)**, conformément aux instructions du fabricant du système d'évent.
7. S'assurer que l'installation du solin **(5)** et du collet de solin **(6)** est conforme et qu'ils sont en bonne condition. Installer un cap de cheminée **(7)** et un deuxième collet de solin **(8)**. Laisser au moins 1/2" d'espace entre les deux pour laisser évacuer la chaleur. Sceller le collet de solin avec l'évent granules ou la gaine avec du silicone haute température.
8. L'évent granules ou la gaine devrait dépasser la cheminée préfabriquée d'au moins 12". Installer le chapeau de cheminée **(9)** selon les instructions du fabricant.

À travers une cheminée maçonnerie

La condition structurelle de la cheminée de maçonnerie doit tout d'abord être inspectée par un ramoneur ou un installateur qualifié.

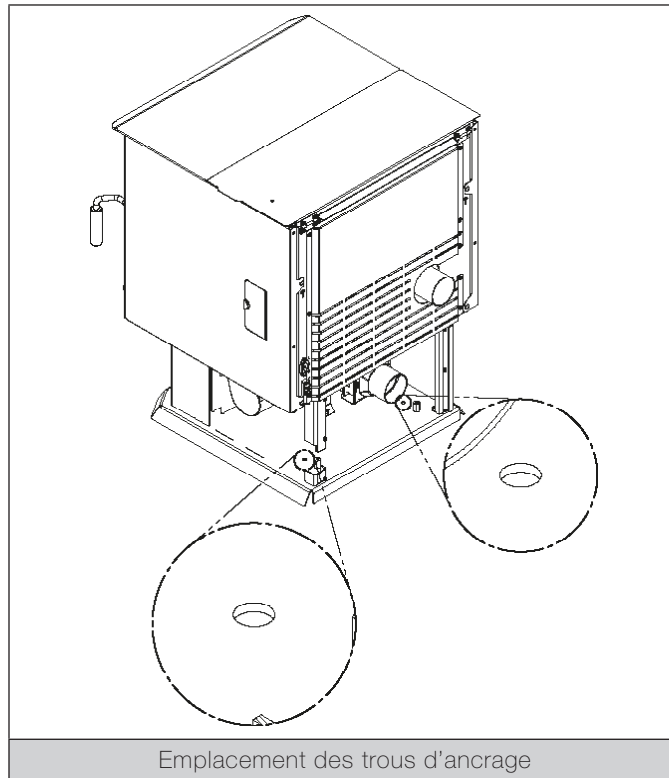


1. Positionner le poêle en respectant les dégagements du fabricant de l'appareil et du système d'évent.
2. Faire une marque à l'endroit où le tuyau d'évent doit entrer dans la maçonnerie. Faire un trou dans la maçonnerie du diamètre suggéré par le fabricant d'évent. Installer un adaptateur de maçonnerie **(1)**.
3. Raccorder un té avec section horizontale amovible **(2)** à la partie inférieure d'une gaine en acier inoxydable **(3)**, conformément aux instructions du fabricant du système d'évent. Calculer une longueur de gaine flexible ou rigide égale à la longueur de la cheminée, à partir de la marque et ajouter 12". Le centre de la buse de raccordement du té doit être aligné avec le centre du trou dans la maçonnerie.
4. Installer un connecteur pour poêle **(4)** ou un té sur la buse d'évacuation. Sceller avec du silicone haute température. Au besoin, utiliser une longueur additionnelle horizontale entre la buse d'évacuation et le té.
5. Installer une longueur de tuyau verticale suffisante pour rejoindre l'adaptateur de maçonnerie. Ajouter un coude **(5)** et relier la section verticale à l'adaptateur de maçonnerie avec une section coulissante.
6. Installer la plaque supérieure **(6)**, le collet de solin **(7)** et le chapeau de cheminée **(8)** selon les instructions du fabricant.

MAISON MOBILE

Lorsqu'installé dans une maison mobile, ce poêle doit :

- Être raccordé à un système d'évent homologué
 - **Au Canada**, selon la norme ULC/ORD C441 ou CAN/ULC S609. Une cheminée répondant aux exigences des normes ULC S629M peut aussi être utilisée.
 - **Aux États-Unis**, selon la norme UL 641. Une cheminée répondant aux exigences de la norme UL 103 peut aussi être utilisée.
- Être relié à une source d'air de combustion extérieure (entrée d'air frais).
- Être fixé à la structure de la maison mobile avec deux vis. Utiliser les deux trous d'ancrage situés de chaque côté du socle.



ATTENTION : IL EST INTERDIT D'INSTALLER CE POÊLE DANS UNE CHAMBRE À COUCHER.



MISE EN GARDE : L'INTÉGRITÉ STRUCTURALE DU PLANCHER, DES MURS, DU PLAFOND ET DU TOIT DE LA MAISON MOBILE DOIT ÊTRE MAINTENUE.

INSTALLATION D'UN THERMOSTAT

Localisation

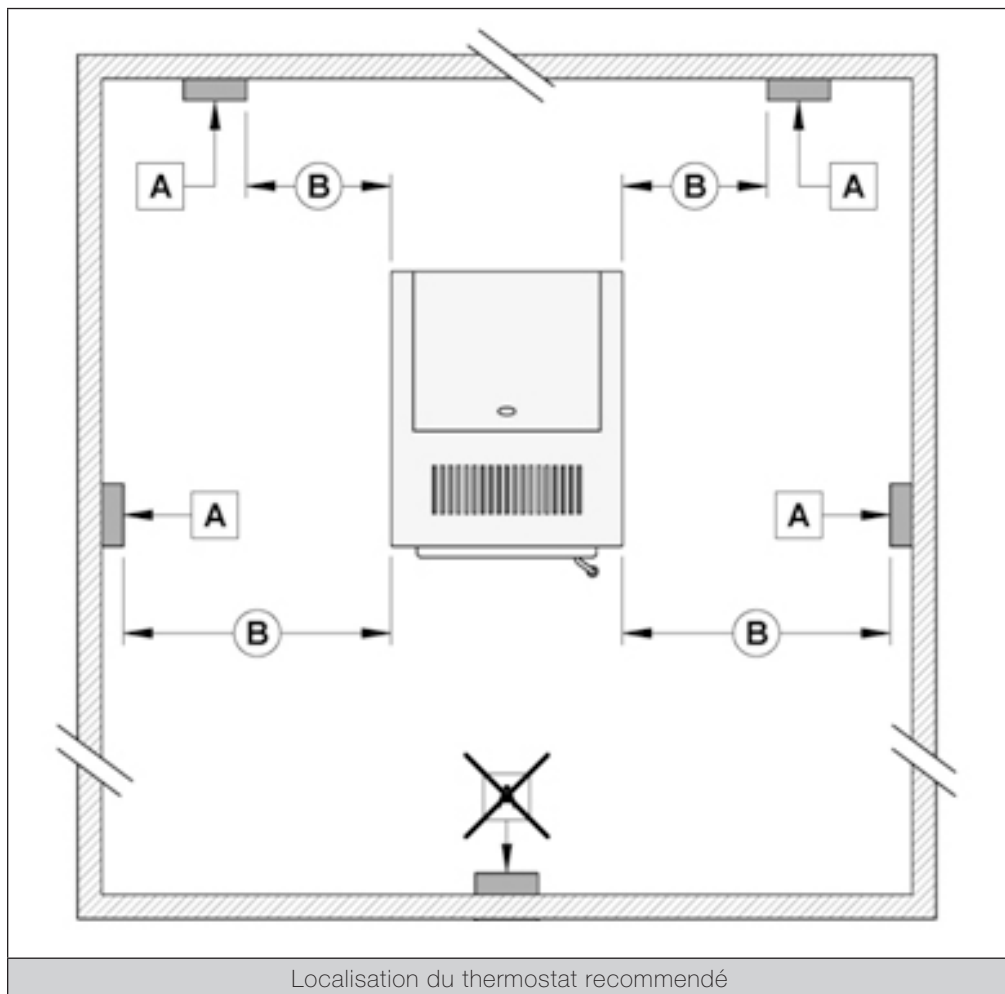
L'utilisation d'un thermostat aidera à maintenir une température plus constante dans la maison. Un thermostat à bas voltage (24 volts) est nécessaire. Un thermostat mural fixe ou télécommandé peut être utilisé.

La localisation du thermostat est très importante afin d'obtenir un maximum de confort et d'efficacité. Le thermostat devrait être installé 4 à 5 pieds au-dessus du sol, ou en conformité avec les codes du bâtiment applicables. Il devrait être dans un endroit qui offre une bonne circulation d'air et s'il est installé dans la même pièce que le poêle, il devrait être situé à environ 12 pieds du poêle.

Éviter l'installation dans les zones suivantes:

- Derrière une porte;
- Près des coins;
- Près des bouches d'aération;
- Près des systèmes d'éclairage;
- Sous les rayons directs du soleil;
- Près de tous dispositifs générateurs de chaleur;
- Sur un mur extérieur;
- Directement en face du poêle.

L'installation du thermostat devant le poêle ou devant une fenêtre aura pour effet d'arrêter et redémarrer le poêle continuellement et usera prématurément les composants. Se référer au manuel d'opération pour plus de détails sur l'utilisation appropriée du mode pilote.

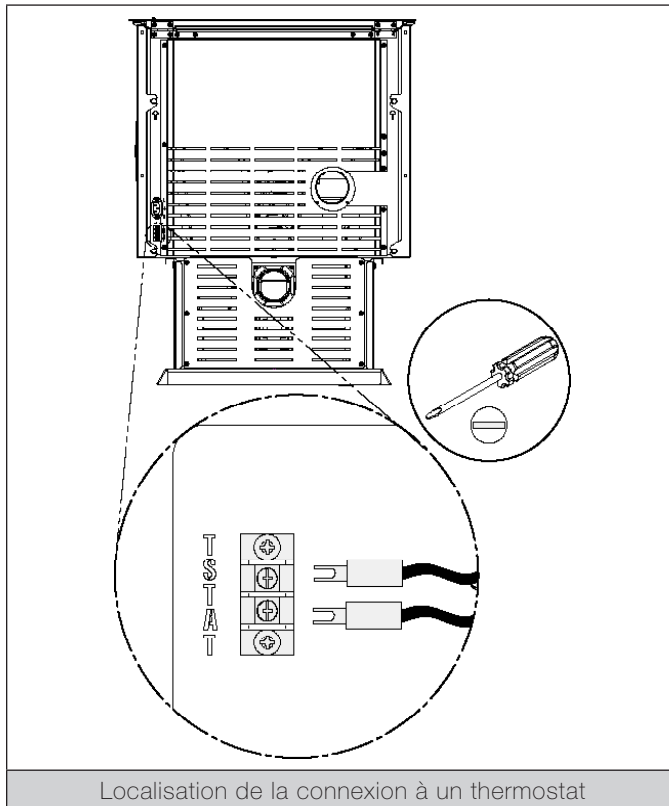


| | |
|---|------------|
| A | Thermostat |
| B | 12' |

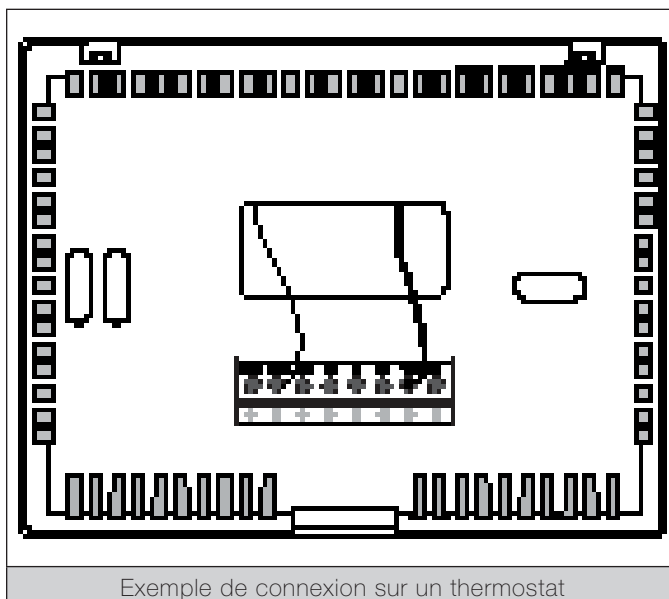
Branchement

Les instructions du fabricant du thermostat ont toujours préséance sur les informations publiées dans la section suivante.

1. Débrancher le cordon d'alimentation de la prise de courant.
2. Connecter les deux fils du thermostat à la borne située à l'arrière sur le côté droit du poêle en lui faisant face. Pour ce faire, desserrer les deux vis du milieu du bornier et insérer les fils dans les bornes. Serrer les deux vis.
3. Ouvrir le boîtier du thermostat et brancher les fils en suivant les instructions du fabricant.



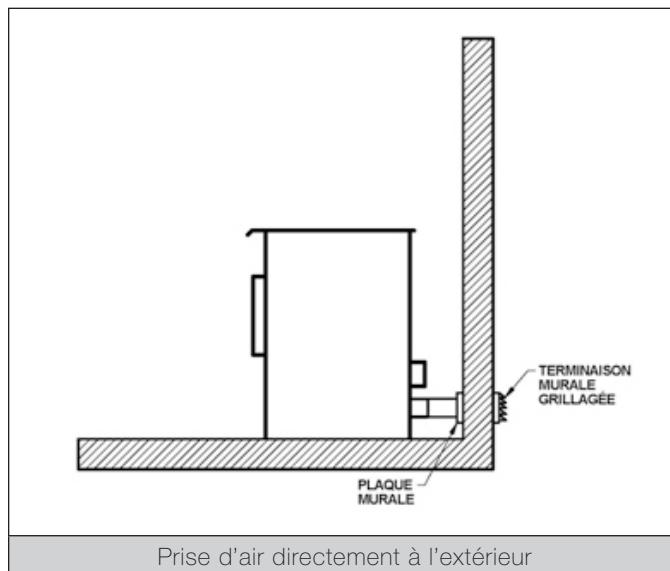
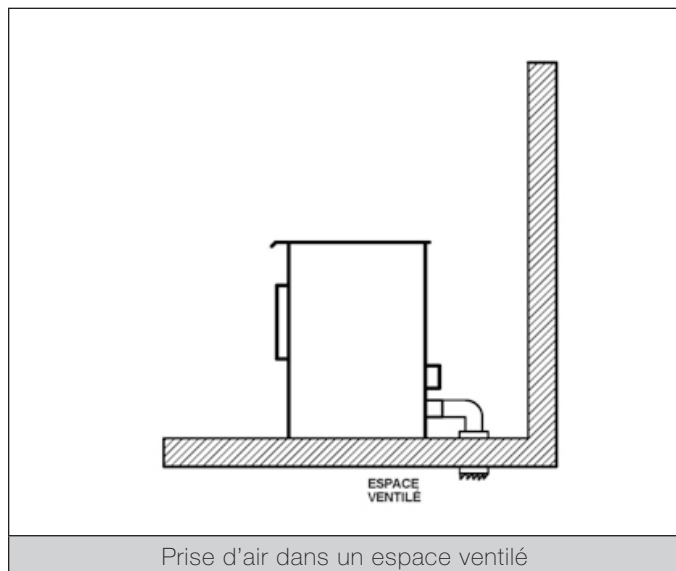
4. Raccorder un fil sur «RH» et l'autre fil sur «W». Pour de plus amples informations, se référer aux instructions du fabricant du thermostat.



ENTRÉE D'AIR FRAIS

Il est recommandé, parfois même obligatoire selon les autorités locales, d'installer une entrée d'air frais dans ou à proximité de la pièce où est installé le poêle.

Il est interdit de puiser l'air du sous-sol, du grenier, d'un garage ou de tout espace clos. L'air doit être puisé à partir d'un vide sanitaire ventilé sous le plancher ou directement à l'extérieur.



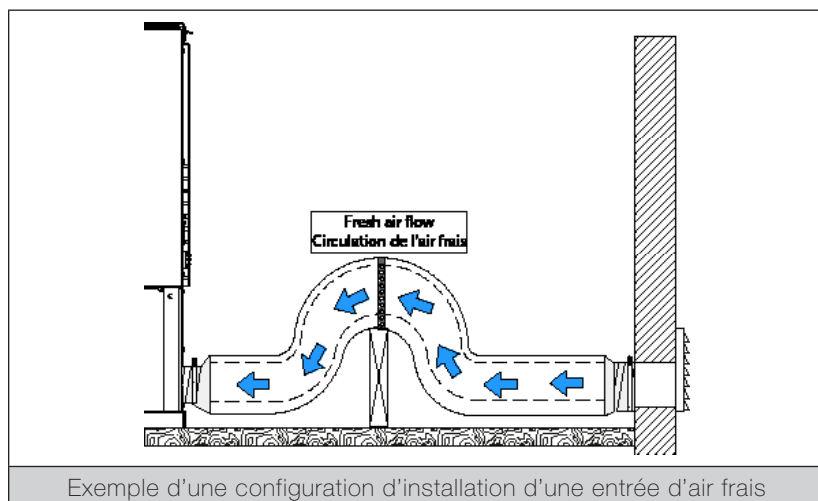
L'ENTRÉE D'AIR FRAIS DOIT ÊTRE SITUÉE SOUS, ET À UNE DISTANCE D'AU MOINS 12" (30CM) DE LA SORTIE D'ÉVACUATION.

Lorsque l'entrée d'air est installée sur un mur extérieur, il est préférable de choisir un mur qui n'est pas exposé aux vents dominants puisque la pression peut varier par temps venteux. Choisir un emplacement adapté aux conditions entourant la maison.

Le registre d'air extérieur ne doit jamais être obstrué par la neige, la glace ou tout autre objet.

Installation

La configuration d'installation et la longueur du conduit isolé doit permettre d'éviter la condensation (voir figure ci-dessous).

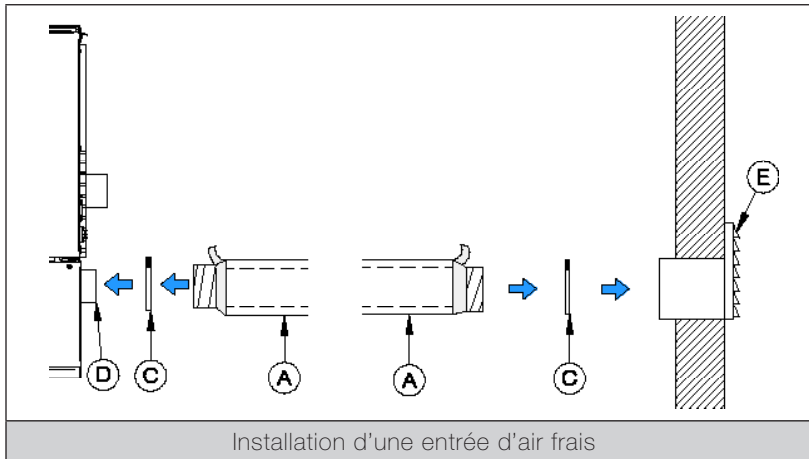


Exemple d'une configuration d'installation d'une entrée d'air frais

1. Installer un conduit isolé de 3" de diamètre intérieur, souple ou rigide, de type HVAC (doit être conforme aux normes ULC S110 ou UL 181, classe 0 ou classe 1) sur l'adaptateur d'air frais **(D)**. Pour ce faire, retirer délicatement l'isolant et l'enveloppe de plastique, pour exposer le tuyau flexible. Fixer le tuyau flexible au registre à l'aide de collets de serrage ou de ruban métallique **(C)**.

Toutes les connexions doivent être scellées, soit en utilisant un collet de serrage de la taille appropriée ou du ruban métallique UL181-AP.

2. Faire un trou de 1/4" à 1/2" (6 mm à 13 mm) de plus que le diamètre du conduit dans le mur extérieur de la maison, à l'endroit choisi.



3. De l'extérieur, placer le registre d'air extérieur **(E)** dans le trou (la face ouverte vers le bas) et fixer le registre au mur à l'aide de vis.

Le registre d'air extérieur doit avoir une protection contre les rongeurs, fabriqué d'un treillis métallique de minimum 1/4".

4. Installer le conduit isolé **(A)** sur le tube du registre mural extérieur **(E)**. Pour ce faire, retirer délicatement l'isolant et l'enveloppe de plastique, pour exposer le tuyau flexible. Fixer le tuyau flexible au registre à l'aide de collets de serrage ou de ruban métallique **(C)**.

Toutes les connexions doivent être scellées, soit en utilisant un collet de serrage de la taille appropriée ou du ruban métallique UL181-AP.

5. Coller du ruban métallique autour du joint entre le tuyau flexible et les prises d'air. Replacer délicatement l'isolant et l'enveloppe de plastique sur le tuyau. Fixer le plastique à l'aide de ruban métallique.
6. S'assurer que le clapet antiretour de l'entrée d'air frais, situé à l'arrière du poêle, fonctionne librement.

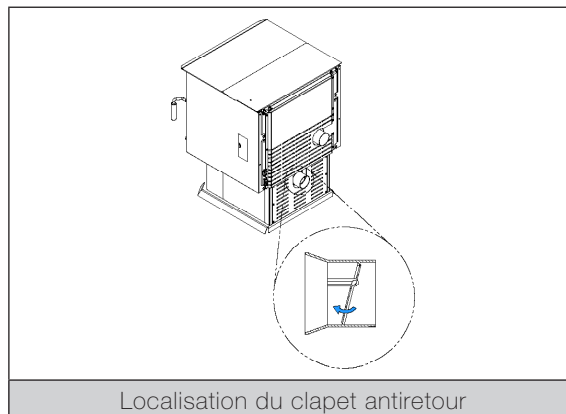
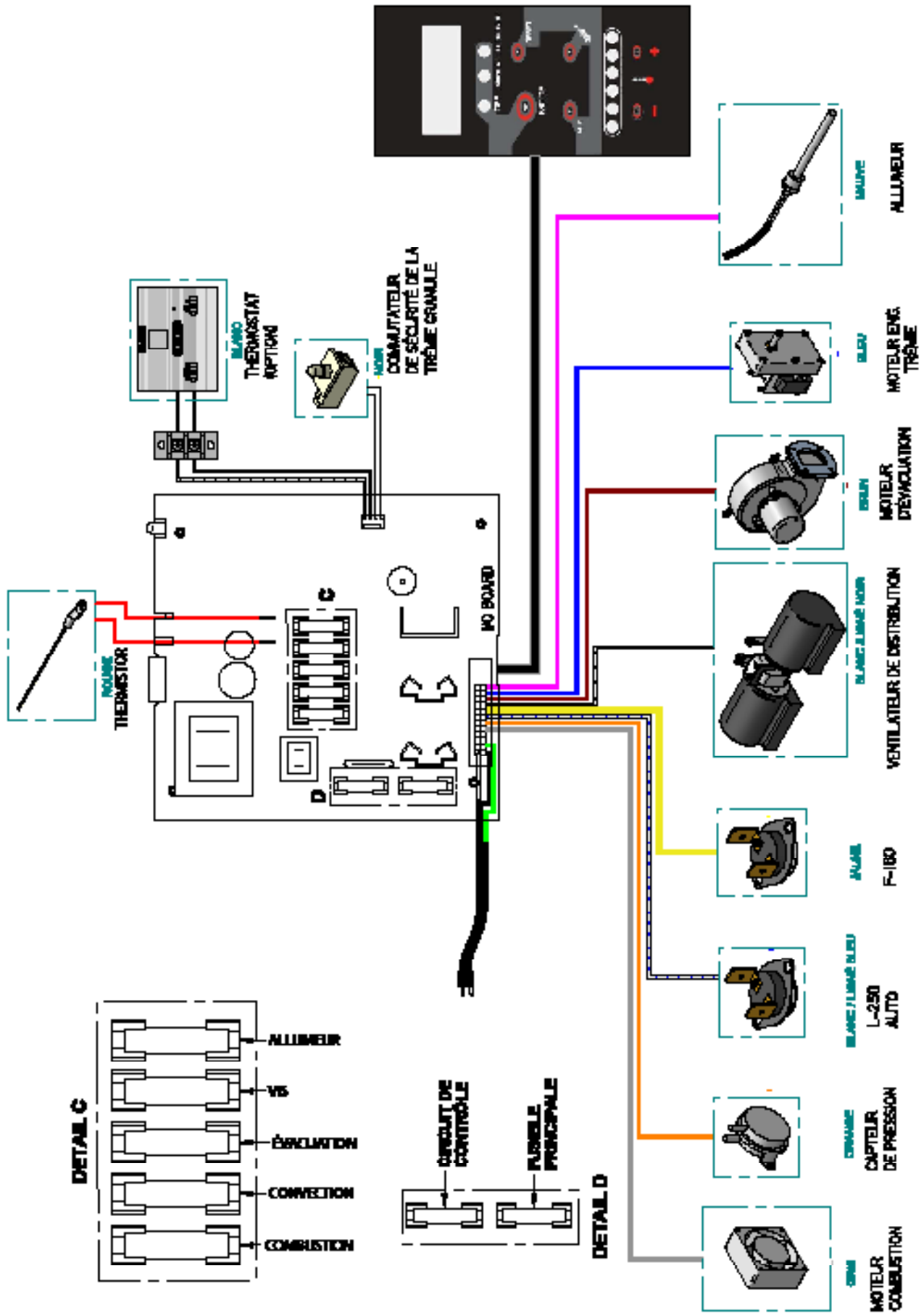
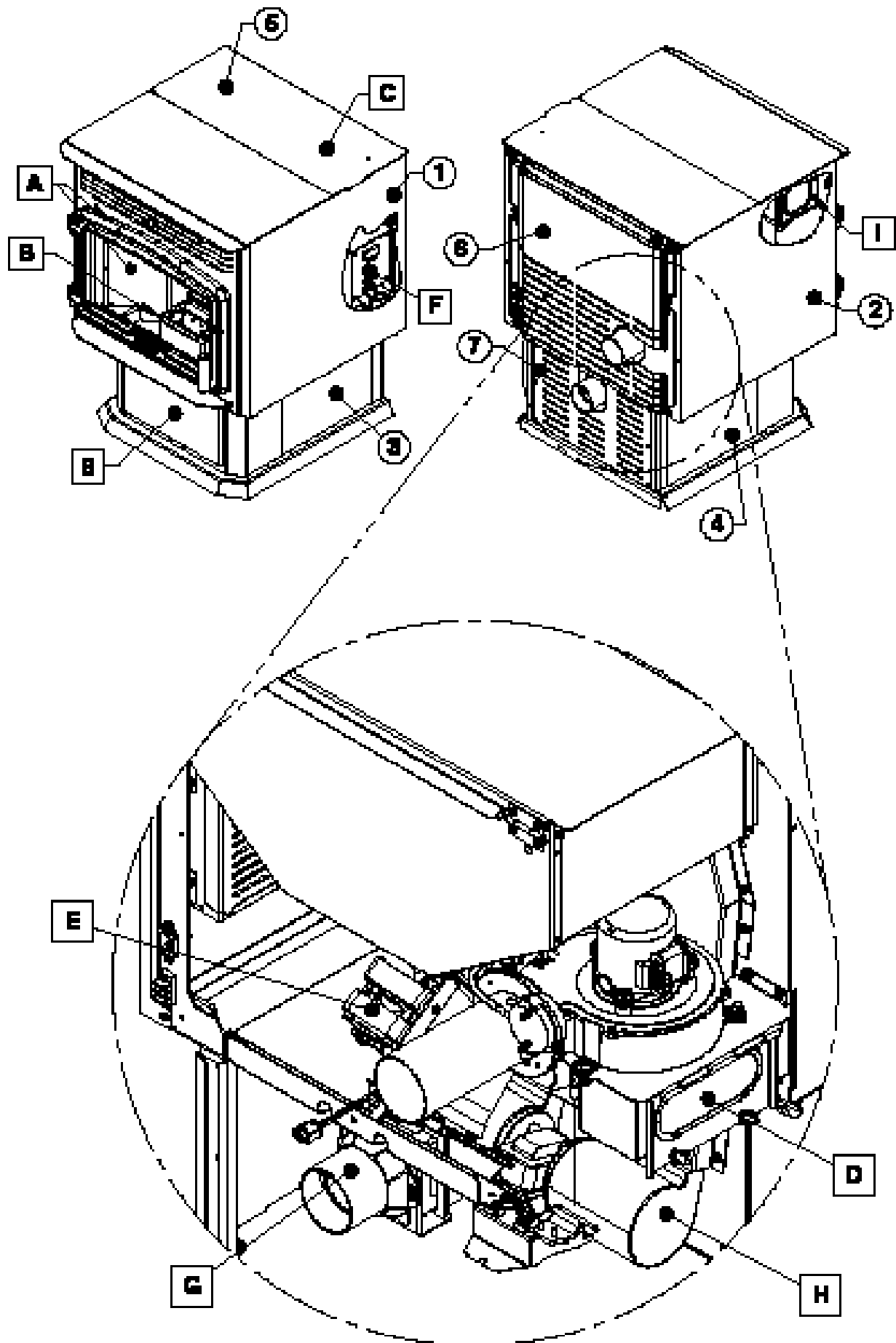


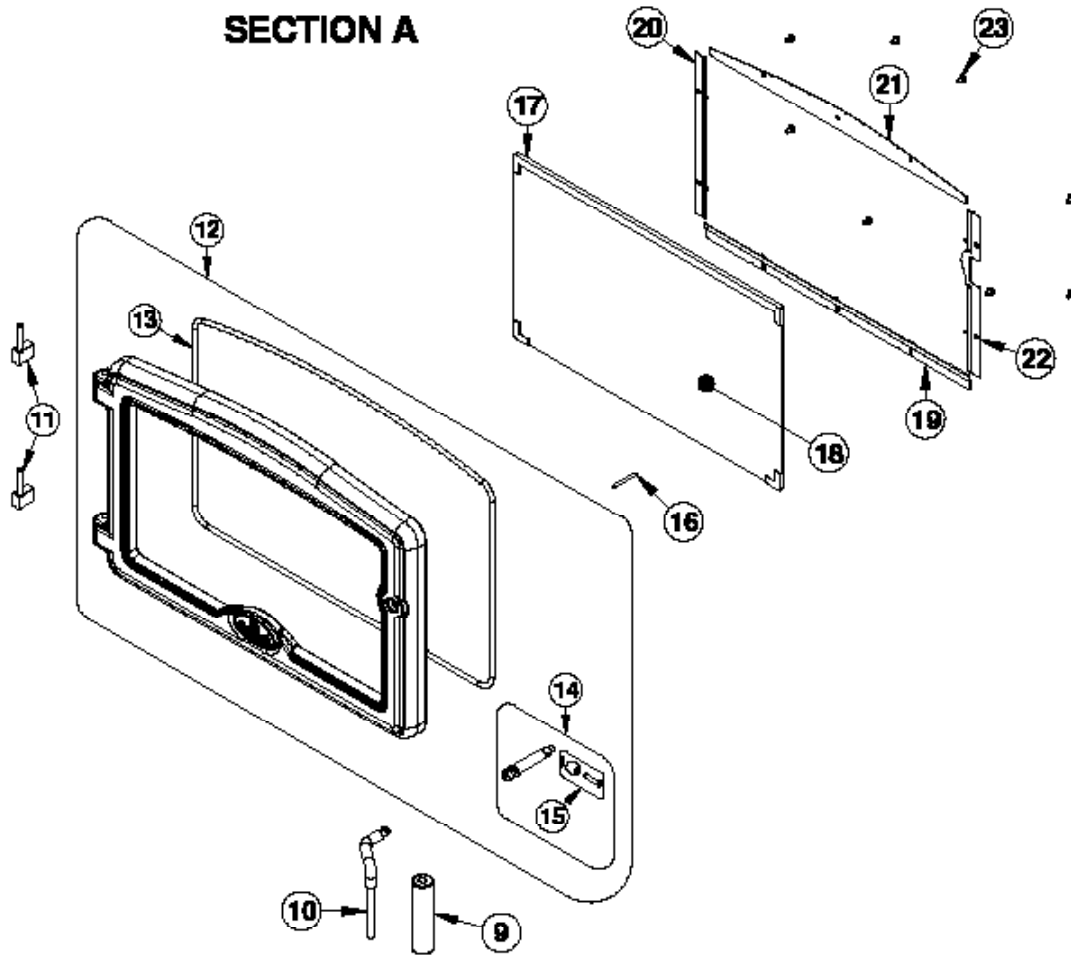
SCHÉMA ÉLECTRIQUE



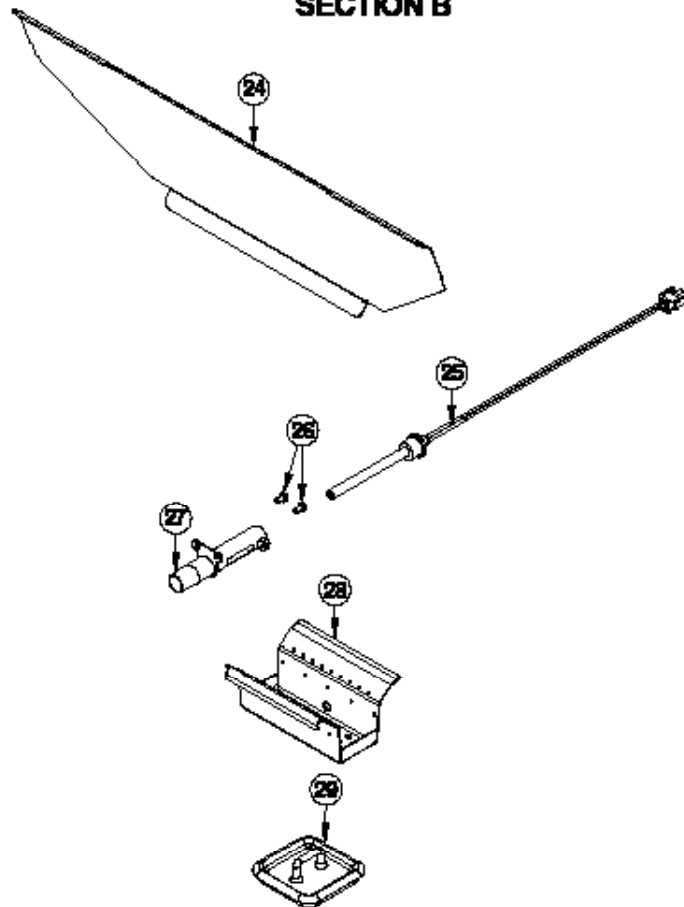
VUE EXPLOSÉE ET LISTE DE PIÈCES



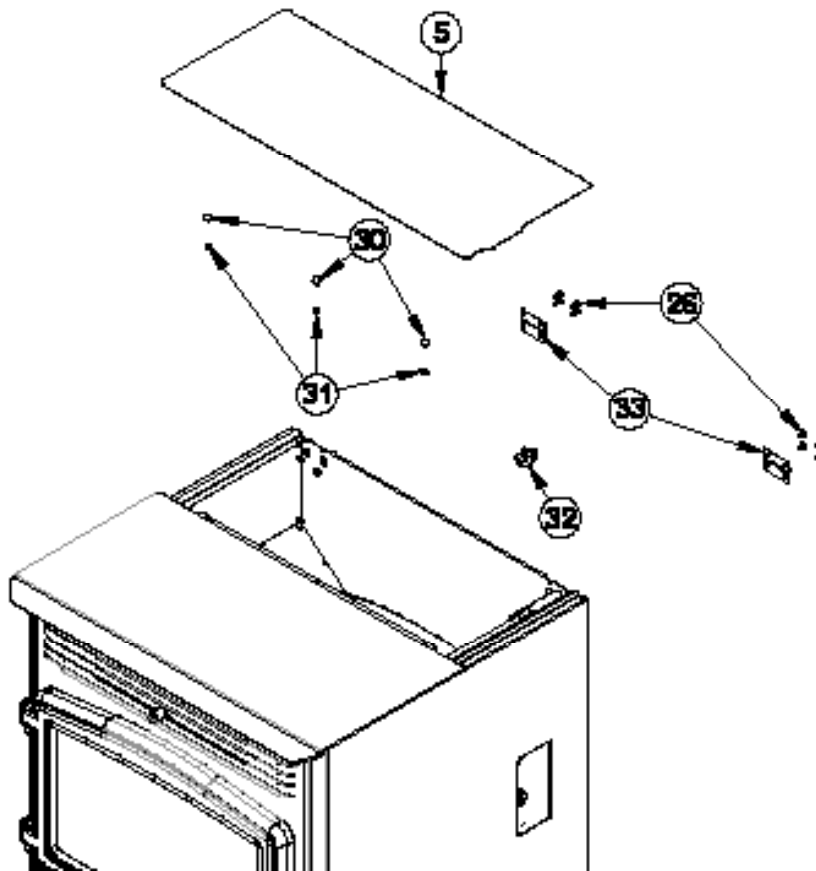
SECTION A



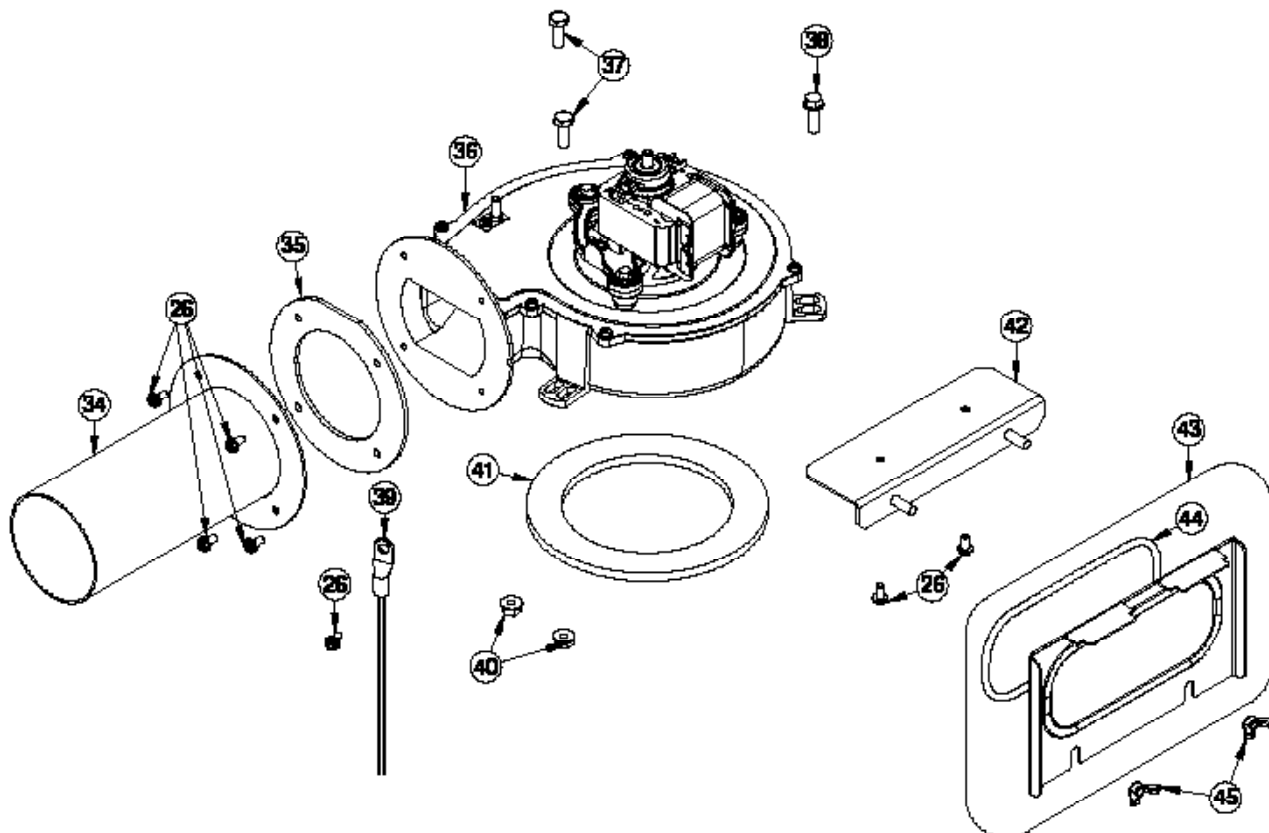
SECTION B



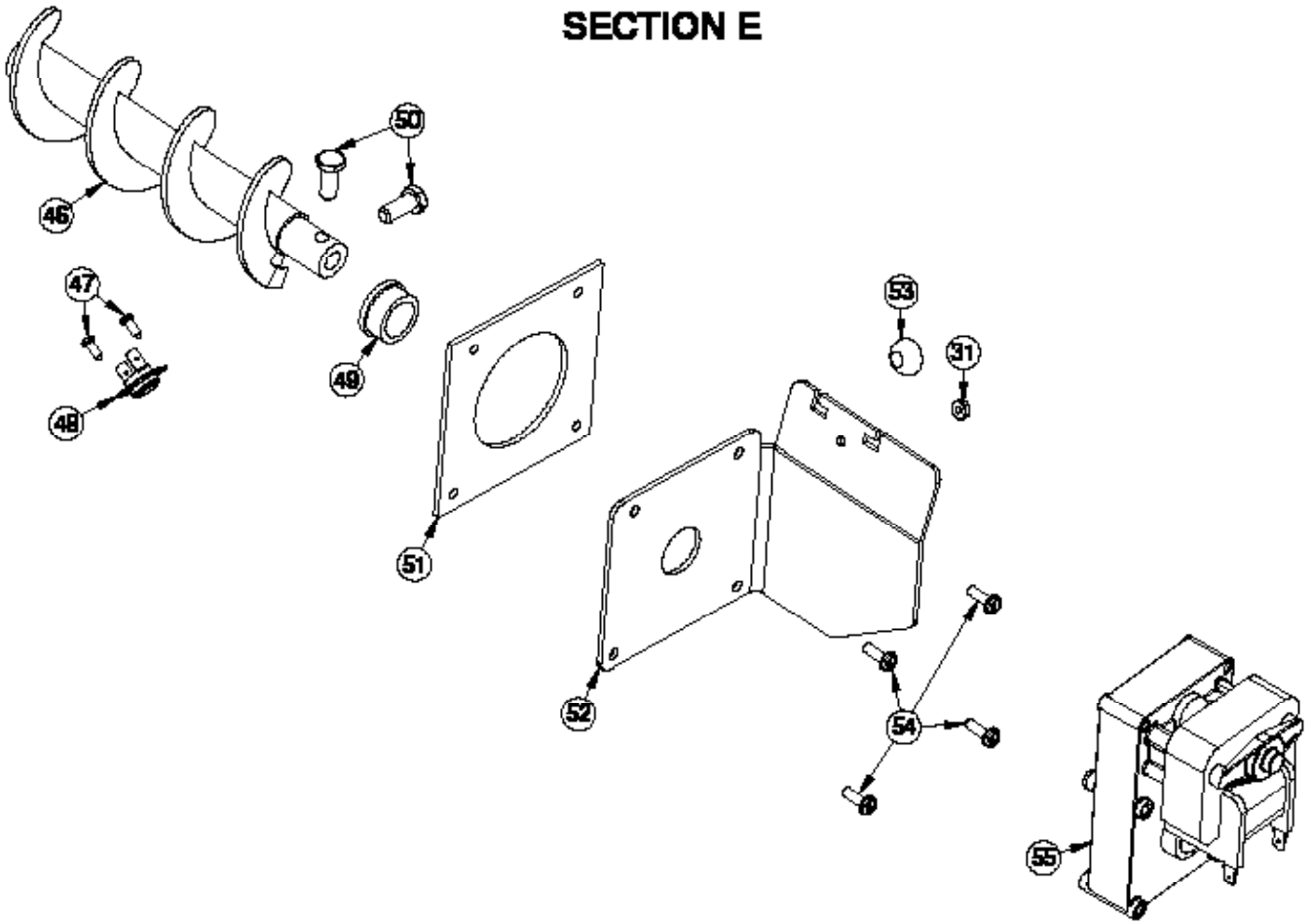
SECTION C



SECTION D

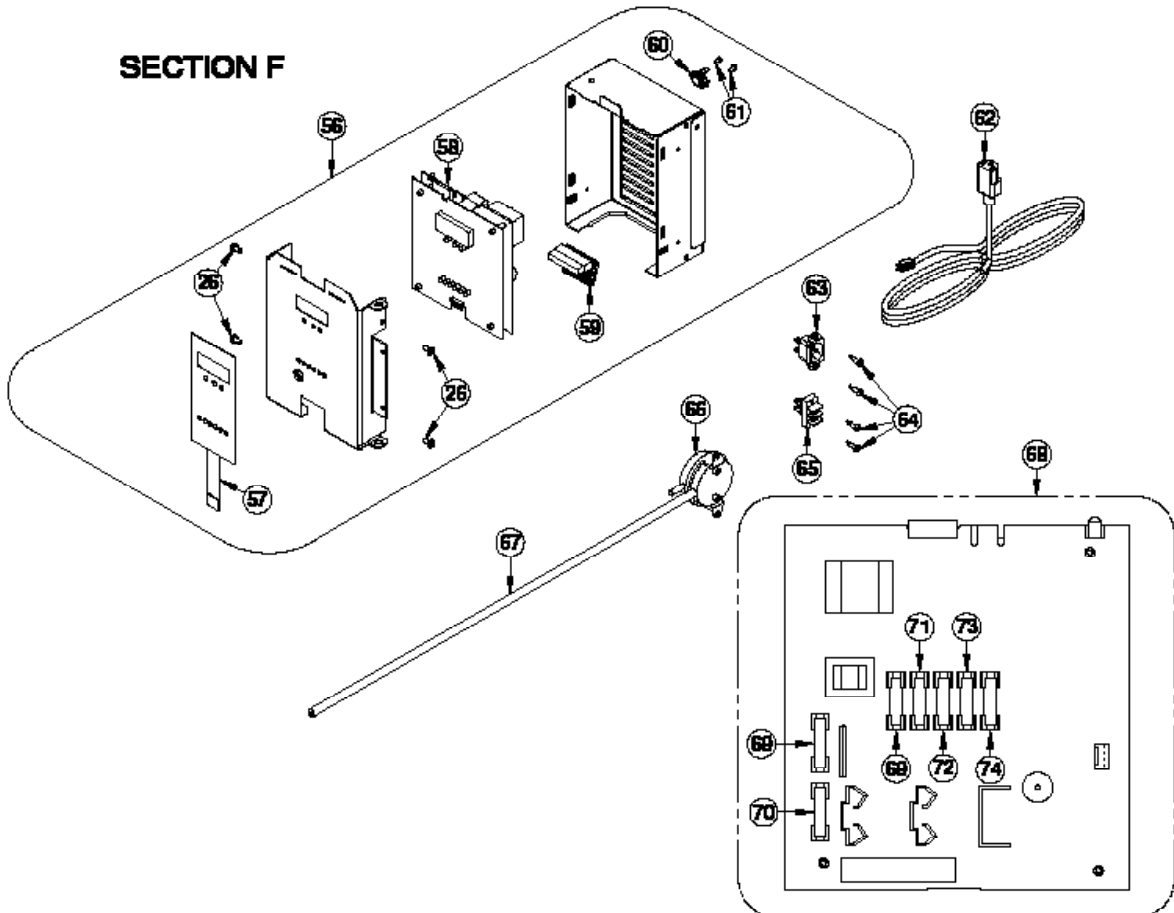


SECTION E

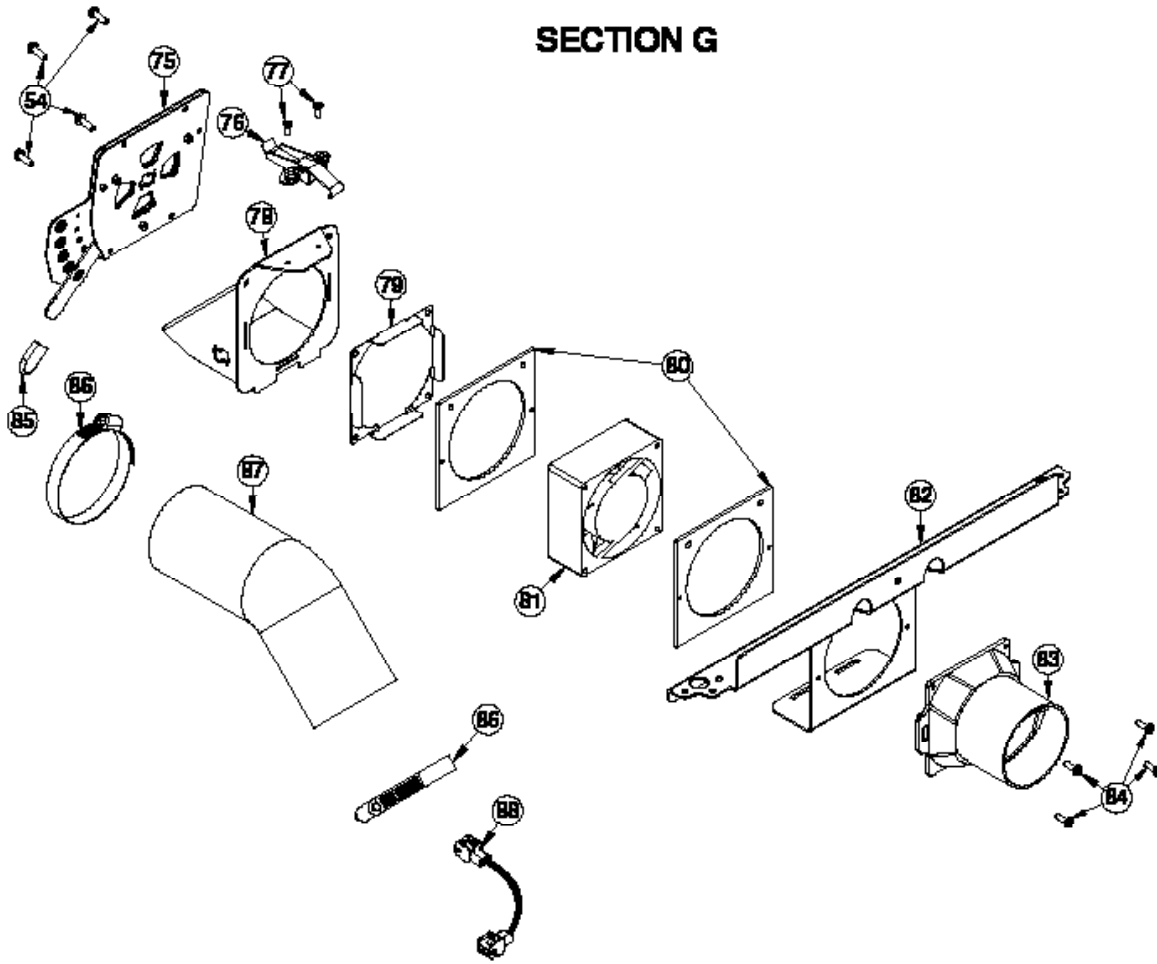


FRANÇAIS

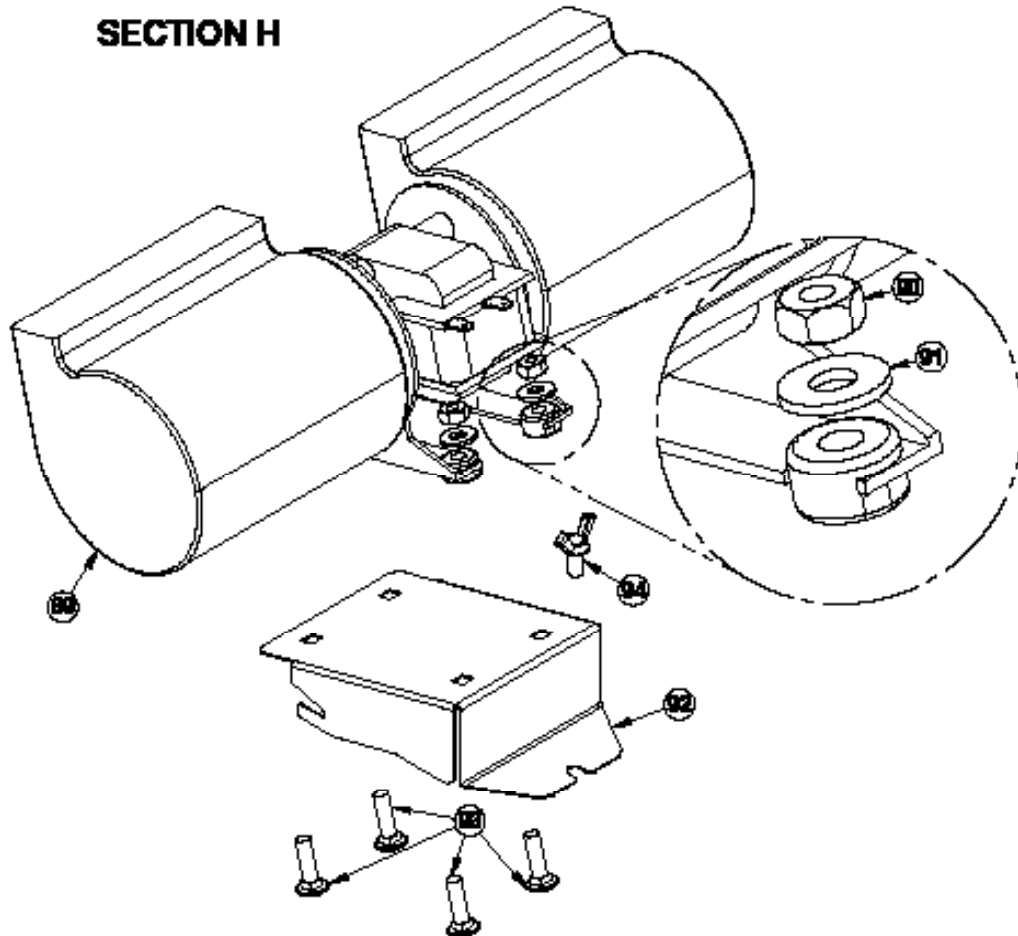
SECTION F



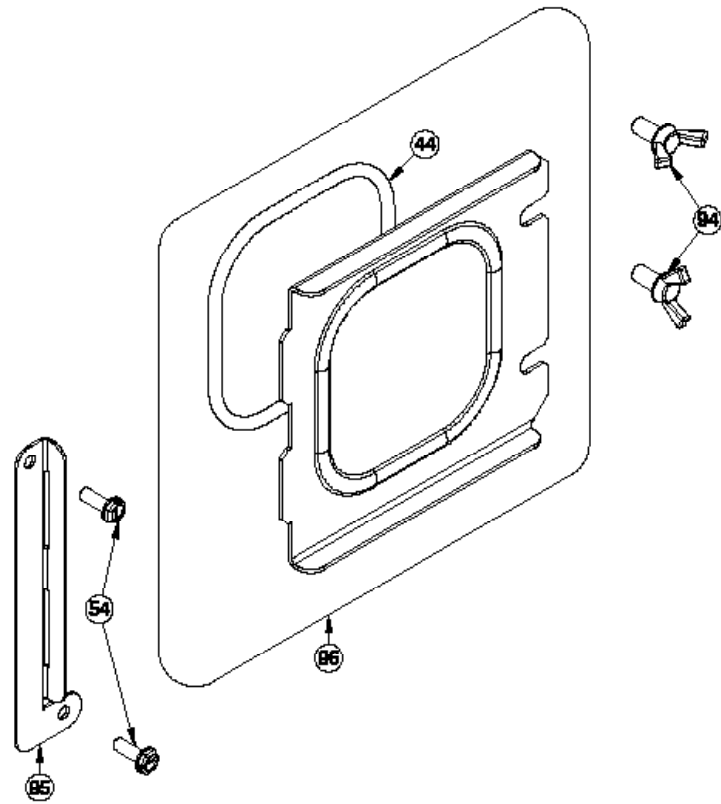
SECTION G



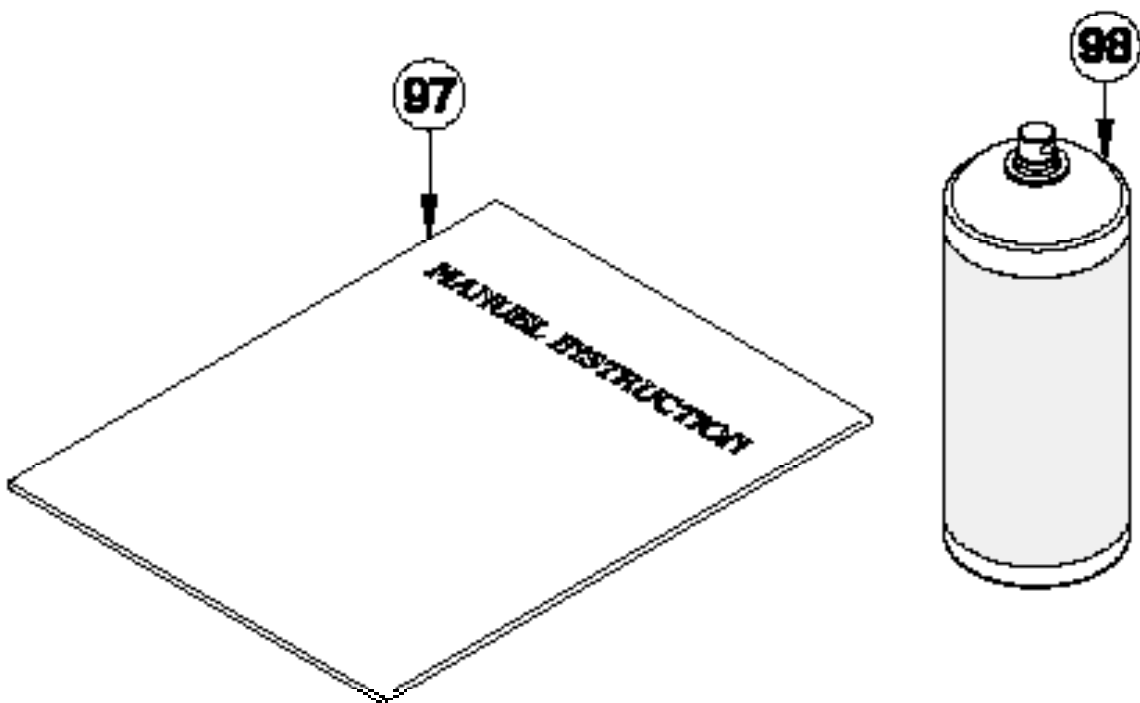
SECTION H



SECTION I



SECTION J



| No. | Pièces | Description | Qté |
|-----|------------|---|-----|
| 1 | SE69865 | PANNEAU DÉCORATIF DROIT ASSEMBLÉ | 1 |
| 2 | PL69866 | PANNEAU DÉCORATIF GAUCHE | 2 |
| 3 | PL69869 | PANNEAU DECO BAS DROITE | 1 |
| 4 | PL69868 | PANNEAU DECO BAS GAUCHE | 1 |
| 5 | PL69895 | COUVERCLE DE TRÉMIE | 1 |
| 6 | PL69794 | TÔLE DE DOS | 1 |
| 7 | PL69795 | TÔLE DE DOS BAS | 1 |
| 8 | SE69870 | TIROIR À CENDRE | 1 |
| 9 | 30742 | POIGNÉE DE PORTE EN BOIS NOIRE PERFORÉE | 1 |
| 10 | PL69897 | POIGNÉE DE PORTE AMOVIBLE | 1 |
| 11 | 30363 | GOUPILLE CYLINDRIQUE 5/16" X 2" | 2 |
| 12 | SE24124-02 | PORTE DE FONTE AVEC POIGNÉE ET CORDON | 1 |
| 13 | AC06100 | ENSEMBLE SILICONE ET CORDON NOIR 1/4" X 1/2" X 8' POUR CONTOUR DE PORTE | 1 |
| 14 | AC09176 | ENSEMBLE DE POIGNÉE ET BARRURE | 1 |
| 15 | AC09185 | ENSEMBLE DE BARRURE DE PORTE | 1 |
| 16 | 30101 | GOUPILLE TENDEUSE À RESSORT 5/32"Ø X 1 1/2"L | 1 |
| 17 | AC06400 | CORDON DE VITRE NOIR PRÉENCOLLÉ 3/4" (PLAT) X 6' | 1 |
| 18 | SE69859 | VITRE DE REMPLACEMENT AVEC CORDON 8 3/4" x 14" | 1 |
| 19 | PL69872 | MOULURE DE VITRE DU BAS | 1 |
| 20 | PL69874 | MOULURE VITRE GAUCHE | 1 |
| 21 | PL69867 | MOULURE DE VITRE HAUT | 1 |
| 22 | PL69873 | MOULURE VITRE CÔTÉ POIGNÉE | 1 |
| 23 | 30124 | VIS #8 - 32 X 5/16" TRUSS QUADREX ZINC | 8 |
| 24 | PL69777 | COUPE-FEU | 1 |
| 25 | SE44132 | ALLUMEUR GRANULES 120V 300W ASSEMBLÉ | 1 |
| 26 | 30029 | VIS À FILETAGE COUPANT 10-24 TYPE "F" X 3/8" HEX RONDELLE | 19 |
| 27 | 44192 | TUBE D'ALLUMEUR | 1 |
| 28 | PL69759 | POT DE COMBUSTION | 1 |
| 29 | SE16059 | BOUCHON DE TRAPPE À CENDRES | 1 |
| 30 | 30370 | BUTOIR DE CAOUTCHOUC AVEC FILETS (PETIT) | 3 |
| 31 | 30417 | ÉCROU HEX NOIR #8-32 | 4 |
| 32 | 44098 | INTERRUPTEUR DE SÉCURITÉ DE TRÉMIE | 1 |
| 33 | 30013 | PENTURE 2" X 1 1/2" | 2 |
| 34 | SE69785 | TUBE D'ÉVACUATION ASSEMBLÉ | 1 |
| 35 | 21392 | JOINT D'ÉTANCHÉITÉ DE L' ADAPTATEUR D'ÉVACUATION | 1 |
| 36 | 44193 | VENTILATEUR D'ÉVACUATION | 1 |
| 37 | 30093 | BOULON 1/4-20 X 3/4" HEX GRADE 5 | 2 |

| No. | Pièces | Description | Qté |
|-----|---------|--|-----|
| 38 | 30094 | VIS HEX TÊTE RONDELLE 1/4-20 X 3/4" TYPE F ZINC | 1 |
| 39 | SE44095 | THERMISTOR ASSEMBLÉ | 1 |
| 40 | 30220 | ÉCROU INDÉVISSABLE À ÉPAULEMENT 1/4-20 | 2 |
| 41 | 21393 | JOINT D'ÉTANCHÉITÉ DU VENTILATEUR D'ÉVACUATION | 1 |
| 42 | PL69764 | SUPPORT TRAPPE EXHAUST | 1 |
| 43 | SE69803 | TRAPPE NETTOYAGE ÉVACUATION ASSEMBLÉE | 1 |
| 44 | AC06815 | ENSEMBLE DE CORDON NOIR 3/16" X 5' ET SILICONE | 1 |
| 45 | 30484 | ÉCROU PAILLON 1/4-20 | 2 |
| 46 | 24017 | VIS SANS FIN EN FONTE | 1 |
| 47 | 30138 | VIS À MÉTAL #6 X 3/8" QUADREX Type"A" NOIRE (52-011-120) | 2 |
| 48 | 44059 | THERMODISQUE 36T11 L250-25 AUTOMATIQUE | 1 |
| 49 | 30528 | MANCHON DE CUIVRE POUR VIS À GRANULE | 1 |
| 50 | 30092 | BOULON 5/16 - 18 X 3/4" HEX GRADE 5 | 2 |
| 51 | 21110 | JOINT DE PLAQUE - VIS SANS FIN | 1 |
| 52 | PL69773 | PLAQUE BUSHING VIS SANS FIN | 1 |
| 53 | 30369 | BUTOIR DE CAOUTCHOUC AVEC FILETS (GROS) | 1 |
| 54 | 30026 | VIS À FILETAGE COUPANT 10-24 F 5/8" HEX WASHER HEAD | 10 |
| 55 | 44106 | MOTEUR À ENGRENAGE POUR VIS À GRANULES 1.5 RPM | 1 |
| 56 | SE69877 | BOITIER CARTE ÉLECTRONIQUE ASSEMBLÉ | 1 |
| 57 | 44148 | MEMBRANE INTERRUPTEUR DE LA CARTE DE CONTRÔLE | 1 |
| 58 | PL69855 | CARTE ÉLECTRONIQUE SÉRIE 55 | 1 |
| 59 | 60382 | HARNAIS | 1 |
| 60 | 44058 | THERMODISQUE 36T12 F160 | 1 |
| 61 | 30080 | VIS À MÉTAL #6 X 1/4 TYPE B PAN PHILLIPS | 2 |
| 62 | 60331 | CORDON D'ALIMENTATION 6' | 1 |
| 63 | 60196 | RÉCEPTACLE DU CORDON D'ALIMENTATION | 1 |
| 64 | 30155 | VIS À MÉTAL #8 X 5/8" PHILLIPS AUTOPERFORANTE TEK ZINC | 4 |
| 65 | 60036 | BORNIER DU THERMOSTAT | 1 |
| 66 | 44029 | INTERRUPTEUR À PRESSION | 1 |
| 67 | 49006 | TUBE DE SILICONE 3/8" X 24" | 1 |
| 68 | PL69855 | CARTE ÉLECTRONIQUE SÉRIE 55 | 1 |
| 69 | 44152 | FUSIBLE 0.5A / 250V (5 X 20) F2-INTERFACE | 2 |
| 70 | 44149 | FUSIBLE 8A / 250V (5 X 20) F3-PRINCIPAL OU F8 ALLUMEUR | 1 |
| 71 | 44150 | FUSIBLE 3A / 250V (5 X 20) F4-VIS & PRISE CEI DC | 1 |
| 72 | 44200 | FUSIBLE 2A / 250V (5X20) | 1 |
| 73 | 44199 | FUSIBLE 1.25A / 250V (5X20) | 1 |
| 74 | 44201 | FUSIBLE 4A / 250V (5X20) | 1 |
| 75 | SE69849 | TRAPPE D'ENTRÉ D'AIR ASSEMBLÉE | 1 |

| No. | Pièces | Description | Qté |
|-----|---------|---|-----|
| 76 | 30439 | ATTACHE À RESSORT PLAQUE ZINC CHROMATE | 1 |
| 77 | 30021 | VIS FILETAGE COUPANT 8-32 TYPE "F" X 7/16" PLATE PHILLIPS NOIRE | 2 |
| 78 | PL69784 | PLAQUE ENTRÉE D'AIR | 1 |
| 79 | PL64359 | CADRE DU JOINT D'ÉTANCHÉITÉ VENTILATEUR DE COMBUSTION | 1 |
| 80 | 21400 | JOINT D'ÉTANCHÉITÉ VENTILATEUR DE COMBUSTION | 2 |
| 81 | SE44147 | VENTILATEUR AXIAL 115V 9W 92 X 92 X 38 ASSEMBLÉ | 1 |
| 82 | PL69799 | DEVANT BOITIER D'AIR | 1 |
| 83 | 30777 | CLAPET ANTI-RETOUR EN PLASTIQUE ASSEMBLÉ | 1 |
| 84 | 30502 | VIS À FILETAGE COUPANT #8 - 32 X 1/2" TYPE F HEX TÊTE PLATE | 4 |
| 85 | 30556 | EMBOUT DE FINITION POUR CONTRÔLE D'AIR | 1 |
| 86 | 49400 | COLLET ACIER 2 1/2" À 3 1/2" | 2 |
| 87 | 21381 | GAINÉ ALUMINIUM 2 PLIS 3" X 6" COMPRESSÉE | 1 |
| 88 | 60383 | FIL DE JONCTION ALLUMEUR | 1 |
| 89 | 44122 | VENTILATEUR CAGE DOUBLE 176 PCM (CLASSE H) | 1 |
| 90 | 30100 | ÉCROU HEX NOIR 1/4-20 | 2 |
| 91 | 30185 | RONDELLE 17/64" TYPE "AA" | 2 |
| 92 | PL69805 | PLAQUE SUPPORT VENTILATEUR | 1 |
| 93 | 30446 | BOULON DE CARROSSERIE 1/4 - 20 x 1" ZINC | 4 |
| 94 | 30485 | BOULON PAPILLON 1/4-20 X 1/2" EN ACIER PLAQUÉ ZINC | 3 |
| 95 | PL69802 | SUPPORT TRAPPE DE NETTOYAGE | 1 |
| 96 | SE69804 | TRAPPE NETTOYAGE AVEC CORDON | 1 |
| 97 | SE45910 | KIT MANUEL D'INSTRUCTION OSBURN 2500 | 1 |
| 98 | AC05959 | PEINTURE POUR POÊLE NOIR MÉTALLIQUE - 342 g (12oz) AÉROSOL | 1 |

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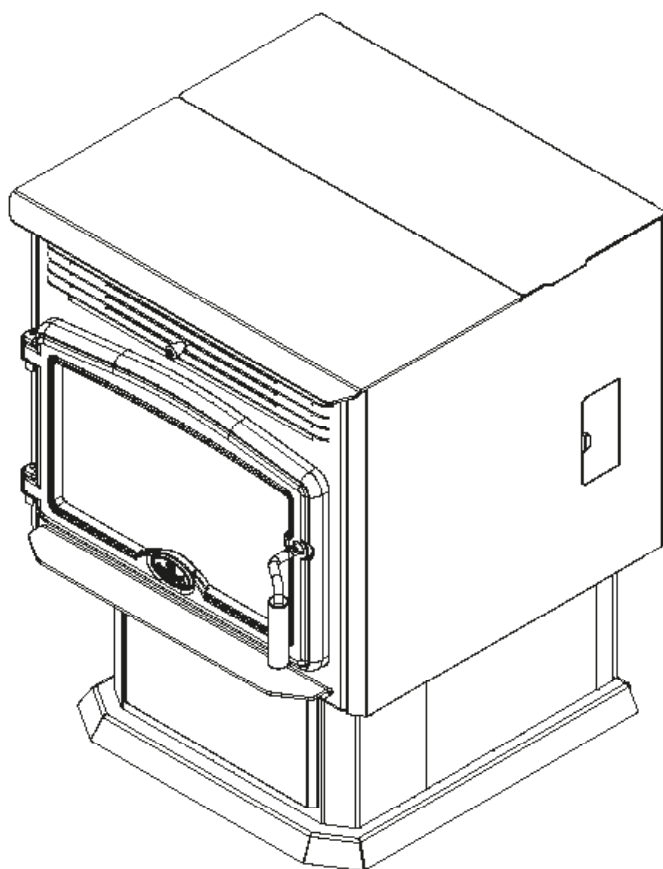
BEYOND
fire



Operation Manual

2500

(OP00025 Model)



Safety tested according to ULC S627,
UL 1482 and ASTM E1509 by an
accredited laboratory.



**INSTALLATION BY A
PROFESSIONAL IS STRONGLY
RECOMMENDED**

CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS
IN LOCAL AREA.

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.

READ AND KEEP THIS MANUAL FOR REFERENCE

RECOMMENDATIONS

It is highly recommended that this appliance be **installed and serviced by professionals who are certified** in the United States by NFI (National Fireplace Institute ®) or in Canada by WETT (Wood Energy Technology Transfer) or in Quebec by APC (Association des Professionnels du Chauffage).

If this appliance is not properly installed, combustible materials near it may overheat and catch fire. To reduce the risk of fire, follow the installation instructions in this manual exactly. Contact local building or fire officials about restrictions and installation inspection requirements in local area. It is also recommended to inform your home insurance company.

It may be needed to get a building permit for the installation of this appliance and the venting system that it is connected to.

Read this entire manual before operating this stove.

SAFETY INFORMATION

DANGER



HOT WHILE IN OPERATION, KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS.

Using a stove with cracked or broken components, such as glass or baffle may produce an unsafe condition and may damage the stove.

The viewing door must be closed and latched at all times during operation. The ash drawer access panel must also be closed during operation.

A smoke detector, a carbon monoxide detector and a fire extinguisher should be installed in the house. The location of the fire extinguisher should be known by all family members.

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

Do not disable sensors and safety switches.



This product can expose you to chemicals including carbon monoxide, which is known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65warnings.ca.gov/

GENERAL INFORMATION

It is highly recommended to buy this product from a retailer who can provide installation and maintenance advice.

The stove will not operate during a power outage. If an outage does occur, check the stove for smoke spillage. Opening a window will prevent negative pressure and smoke spillage in the room.

This stove has been developed and built to be used as a residential heater. Commercial or industrial use is prohibited and will void the warranty.

This heating unit is designed to serve as a supplementary heat source. We recommend that a primary heat source also be available in the home. The manufacturer cannot be responsible for costs associated with the use of another heating system.

This stove must be connected to a standard 120V / 60Hz, grounded electrical outlet. Do not use an outlet adapter, an extension cord or sever the grounding plug. Do not route the electrical cord underneath, in front or over the stove.

It is important that adequate oxygen is being supplied to the fire for proper combustion. At all time, make sure the outside air register is not obstructed by ice, snow or other objects as this will starve the fire of air and prevent the proper operation of the stove.

Mixing of appliance components from different sources or modifying components is prohibited and will void the warranty.

Any modification to the stove that has not been approved in writing by the testing authority is prohibited and violates CSA B365 (Canada), and ANSI NFPA 211 (USA).

Stove builder international inc. (SBI) grants no warranty, implied or stated, for the poor installation or lack of maintenance of your appliance and assumes no responsibility of any consequential damages.

This stove is certified to comply with EPA NSPS 2015 particulate emission standards and is not approved for sale after May 15th 2020.

REGISTER YOUR WARRANTY ONLINE

Should warranty service be required, you must show proof of purchase. Keep your sales invoice. The date on these records establishes the warranty period. If proof of purchase cannot be supplied, the warranty period will be determined from the date of manufacture of the product.

We also recommend that you register your warranty online at:

<https://www.osburn-mfg.com/en/warranty/warranty-registration/>

Registering your warranty online will help us to quickly track the information we need about your stove.

AVAILABLE OPTIONS AND ACCESSORIES

- Hopper extension;
- Fresh air kit;
- Wall thermostat;
- Programmable thermostat;
- Glass hearth pad;

For more details, visit our web site www.osburn-mfg.com or refer to an authorized dealer.

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SPECIFICATIONS

| | |
|--|--|
| Model | 2500 (OP00025) |
| Fuel Type ¹ | Wood pellets (Premium grade or better) |
| Recommended heating area (sq. ft.) ² | 500 - 2,000 pi ² (46 - 186 m ²) |
| Hopper capacity | 60 lb (27,3 kg) |
| Maximum burn time ² | 51 hours |
| Recommended chimney diameter | 3 in. or 4 in (see installation manual). |
| Flue outlet diameter | 3 po. (76 mm) |
| Type of chimney | ULC/ORD-C441, CAN/ULC S609 UL 641 (TYPE L) |
| Approved for alcove installation | Yes |
| Approved for mobile home installation ³ | Yes |
| Shipping weight (without option) | 286 lb (130 kg) |
| Appliance weight (without option) | 253 lb (115 kg) |
| Baffle material | Stainless Steel |
| Type of door | Simple, glass with cast iron frame |
| Type of glass | Ceramic glass |
| Blower | Included (176 CFM) |
| Noise level at 6 feet | Min. 47 dBa (+/- 3 dBa) Max. 60 dBa (+/- 3 dBa) |

¹ Grades of pellet fuel are determined by organizations such as Pellet Fuels Institute (PFI), ENplus and CANplus.

² Recommended heating area and maximum burn time may vary subject to location in home, chimney draft, heat loss factors, climate, fuel type, feed rate, fuel level, and other variables. The recommended heated area for a given appliance is defined by the manufacturer as its capacity to maintain a minimum acceptable temperature considering that the space configuration and the presence of heat distribution systems have a significant impact in making heat circulation optimum.

³ Mobile home (Canada) or manufactured home (USA): The US department of Housing and Urban Development describes “manufactured homes” better known as “mobile homes” as followed; buildings built on fixed wheels and those transported on temporary wheels/axles and set on a permanent foundation. In Canada, a mobile home is a dwelling for which the manufacture and assembly of each component is completed or substantially completed prior to being moved to a site for installation on a foundation and connection to service facilities and which conforms to the CAN/CSA-Z240 MH standard.

Certification Label

Since the information given on the certification label affixed to the stove always overrides the information published in any other media (owner's manual, catalogues, flyers, magazines or web sites), it is important to refer to it in order to have a safe and compliant installation. In addition, important information about the stove can be found (model, serial number, etc.). The certification label is located on the inner side of the hopper lid of the stove.

ENGLISH



LISTED SOLID FUEL BURNING APPLIANCE
POÈLE À COMBUSTIBLE SOLIDE HOMOLOGUÉ

MODEL / MODÈLE : **OSBURN 2500**

Serial Number / No. de série : **1**

Clearances to combustibles / Dégagements aux combustibles



A: 5 in./po. (127 mm) B: 4 in./po. (102 mm) C: 3 in./po. (76 mm) E: 5 in./po. (127 mm) CANADA / USA
F: 6 in./po. (152 mm) CANADA / USA

D: See Vent manufacturer

Floor protection / Protection de plancher

Minimum floor to ceiling distance: 48 in. (122 cm)
Distance minimale plafond-plancher: 48 po. (122 cm)

PREVENT HOUSE FIRES

- Install with a floor 18 inches diameter exhaust venting system listed to UL305/ULC 5629 or UL443/ULC 5609.
- In case of an exhaust system passing through a combustible wall, follow manufacturer's instructions and refer to local building codes.
- Keep flueing and ash removal doors tightly closed during operation.
- Room heater, pellet fuel-burning type, also for use in mobile homes.
- Install and use only in accordance with manufacturer's instructions.
- Contact local building or fire officials about restrictions and installation inspection in your area.
- For use with premium grade wood pellets or better as determined by organizations such as Pellet Fuels Institute (PFI), English and CANplus. Burning other types of pellets is not permitted. See owner's manual for more details.
- Do not connect to a chimney flue serving another appliance.
- Inspect and clean chimney frequently. Under certain conditions of use, creosote buildup may occur rapidly.
- Replace with ceramic glass only.
- The unit must be installed on a non-combustible floor pad extending at least 6 inches (152 mm) on each side of the door opening. The floor pad must have a thickness of at least 0.8125" (0.206mm). Consult owner's manual for more details.
- A source of fresh air must be provided to the room. When installed in a mobile-home, air from outdoors must be provided.
- Do not obstruct combustion air opening.

PREVENEZ LES INCENDIES

- Installer avec un tuyau d'évacuation de trois (3) pouces homologué selon le norme UL 305/ULC 5629 ou UL 443/ULC 5609.
- Si le tuyau d'évacuation doit traverser un mur combustible, suivre les instructions du fabricant et se référer aux codes de bâtiment locaux.
- Garder la porte du bâtiment fermée lorsque en opération.
- L'unité de chauffage aux granulés peut aussi être installée dans une maison mobile.
- Observer les directives du fabricant pour l'installation et l'entretien du poêle.
- Contactez les autorités locales pour les restrictions d'installation dans votre secteur.
- Pour utilisation avec granulés de bois de qualité premium ou mieux tel que déterminé par des organismes tels que Pellet Fuels Institute (PFI), English ou CANplus. Brûler d'autres types de granulés n'est pas permis. Voir manuel d'instructions pour plus de détails.
- Ne pas raccorder à un conduit de fumée servant déjà pour un autre appareil.
- Inspecter et nettoyer le cheminée fréquemment. Sous certaines conditions, la formation de créosote peut être rapide.
- Remplacer par un verre céramique seulement.
- L'appareil doit être installé sur une plaque incombustible qui excède le devant de l'ouverture de porte d'au moins 6 pouces (152 mm) ainsi que chaque côté de l'ouverture de porte d'au moins 6 pouces (152 mm). La plaque incombustible doit posséder une épaisseur minimale de 0.8125" (0.206 mm). Consultez le manuel d'instructions pour plus de détails.
- Il doit y avoir un apport d'air frais dans la pièce. Lorsque installé dans une maison mobile, un apport d'air extérieur doit être installé.
- Ne pas obstruer les ouvertures d'air de combustion.
- Cet appareil de chauffage requiert des inspections et réparations périodiques. Consultez le manuel de l'utilisateur pour plus d'information. Opérer cet appareil de chauffage de façon inconsidérée par rapport au manuel de l'utilisateur constitue une violation de la loi fédérale (É.-U.).




Made in St-Augustin-de-Desmaures (Qc), Canada 09/08/2017 (# test)



Fabriqué à St-Augustin-de-Desmaures (Qc), Canada 09/08/2017 (# test)

27703

Fabricant de poêles international / Stove Builder International



LISTED SOLID FUEL BURNING APPLIANCE
POÈLE À COMBUSTIBLE SOLIDE HOMOLOGUÉ

MODEL / MODÈLE : **OSBURN 2500**

Serial Number / No. de série : **1**


U.S. ENVIRONMENTAL PROTECTION AGENCY certified to comply with 2000 particulate emission standards.
AGENCE DE PROTECTION DE L'ENVIRONNEMENT DES É.U. (EPA), conforme aux normes d'émission de particules de 2000.
Weighted average emission rate / Moyenne pondérée des émissions: 0.94 g/h
When tested in accordance with / Lorsque testé selon: ASTM D2515 & ASTM E2779

CAUTION

- HOT WHILE IN OPERATION.
- DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY.
- CONTACT MAY CAUSE SKIN BURNS. SEE NAME-PLATE AND INSTRUCTIONS.
- OPERATE THIS UNIT ONLY WITH THE FUEL HOPPER LID CLOSED. FAILURE TO DO SO MAY RESULT IN EMISSION OF PRODUCTS OF COMBUSTION FROM THE HOPPER UNDER CERTAIN CONDITIONS.
- DO NOT OVERFILL THE HOPPER.
- MOVING PARTS MAY CAUSE INJURY.
- HOT PARTS. DO NOT OPERATE UNIT WITH THE SIDE OR REAR PANELS REMOVED.
- MAINTAIN HOPPER SEAL IN GOOD CONDITION.

ATTENTION


- CHAUD EN FONCTIONNEMENT.
- NE PAS TOUCHER. GARDER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES ÉLOIGNÉS.
- UN CONTACT AVEC LA PEAU PEUT OCCASIONNER DES BRÛLURES. VOIR LES INSTRUCTIONS.
- OPÉRER CET APPAREIL SEULEMENT AVEC LE COUVERCLE DE LA TRÉMIE FERMÉ. DES ÉMISSIONS DE COMBUSTION PEUVENT SE PROPAGER PAR LA TRÉMIE SOUS CERTAINES CONDITIONS.
- NE PAS SURCHARGER LA TRÉMIE.
- DES PIÈCES EN MOUVEMENT PEUVENT CAUSER DES BLESSURES.
- PIÈCES CHAUDES. NE PAS UTILISER SI LES PANNEAUX DE CÔTÉS OU ARRIÈRE SONT ENLEVÉS.
- CONSERVER LE JOINT D'ÉTANCHÉITÉ DU TRÉMIE EN BONNES CONDITIONS.



DANGER

- DISCONNECT POWER BEFORE SERVICING UNIT.
- RISK OF ELECTRICAL SHOCK.

Made in St-Augustin-de-Desmaures (Qc), Canada 09/08/2017 (# test)



Fabriqué à St-Augustin-de-Desmaures (Qc), Canada 09/08/2017 (# test)

27704

Fabricant de poêles international / Stove Builder International

Certification label - Page 1

Certification label - Page 2

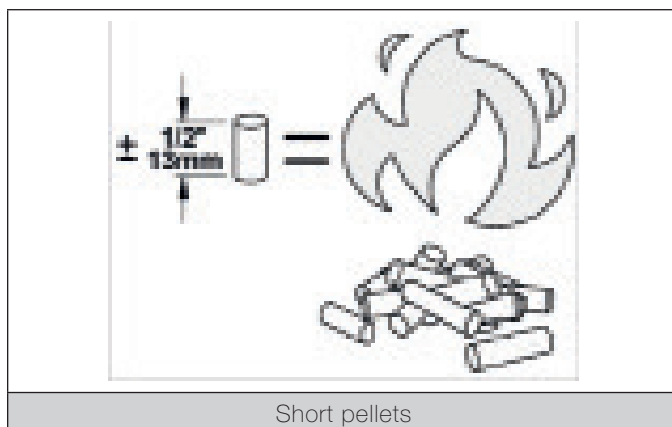
DO NOT BURN:

- GARBAGE;
- LAWN CLIPPINGS OR YARD WASTE;
- MATERIALS CONTAINING RUBBER, INCLUDING TIRES;
- MATERIALS CONTAINING PLASTIC;
- WASTE PETROLEUM PRODUCTS, PAINTS OR PAINT THINNERS, OR ASPHALT PRODUCTS;
- MATERIALS CONTAINING ASBESTOS;
- CONSTRUCTION OR DEMOLITION DEBRIS;
- RAILROAD TIES OR PRESSURE-TREATED WOOD;
- MANURE OR ANIMAL REMAINS;
- SALT WATER DRIFTWOOD OR OTHER PREVIOUSLY SALT WATER SATURATED MATERIALS;
- UNSEASONED WOOD; OR
- PAPER PRODUCTS, CARDBOARD, PLYWOOD, OR PARTICLE BOARD. THE PROHIBITION AGAINST BURNING THESE MATERIALS DOES NOT PROHIBIT THE USE OF FIRE STARTERS MADE FROM PAPER, CARDBOARD, SAW DUST, WAX AND SIMILAR SUBSTANCES FOR THE PURPOSE OF STARTING A FIRE IN AN AFFECTED WOOD HEATER.
- BURNING THESE MATERIALS MAY RESULT IN THE RELEASE OF TOXIC FUMES OR RENDER THE HEATER INEFFECTIVE AND CAUSE SMOKE.

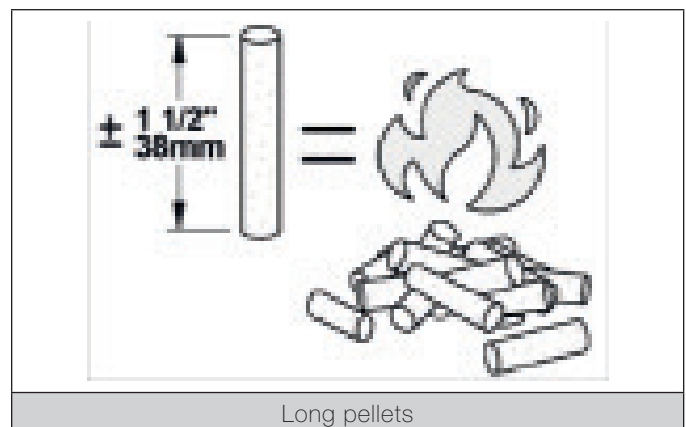
Recommended Pellets

Type: Wood pellet, premium grade or better, certified by PFI, Enplus or CANplus.

Size: Diameter between 1/4" or 5/16" and not over 1" long. Longer or thicker pellets will affect the constancy of pellet feed. The pellets length may vary from one lot to another, even if it comes from the same manufacturer.



Short pellets



Long pellets

Ash contents: Less than 1%. Ash contents more than 1% will increase maintenance frequency, create combustion problems and will increase the stove emission.

Moisture content: Wet pellets will be very hard to ignite and will greatly affect the feeding process of the stove. Using dry pellets will maintain the performance of your stove.



Note that the pellets quality may vary depending on the manufacturer. It can also vary from one bag to another, even if it comes from the same manufacturer. It is recommended to try several different manufacturers to find the one that best suits your use. Then, buy the pellets in lots of several tons to ensure satisfaction.



Burning other types of pellets is prohibited. It violates the building codes for which the stove has been approved and will void the warranty.

Storage

Pellets should remain in their original packaging until ready for use.

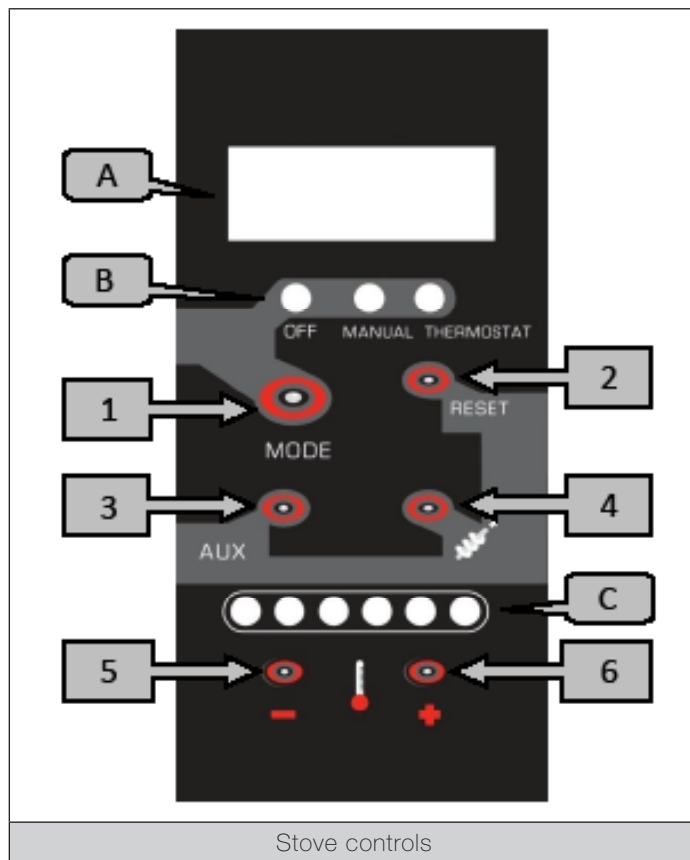
Pellets bags should be stored in a dry and well ventilated area, if possible. If they are to be stored outside, remember that pellets bags are not water tight. It is best to keep the pallet wrapper as intact as possible and cover it with a tarp.

Having a bag or two in the same room as the stove for refueling is a good idea. The minimum clearances to combustible materials and the space required for refilling and ash removal needs to be respected.

DO NOT STORE FUEL WITHIN STOVE MINIMUM CLEARANCES TO COMBUSTIBLE.

STOVE CONTROLS

The stove, the pellet feeding system and the blowers are controlled by a control panel on the right-hand side of the stove. The control panel buttons and display areas are as follows:



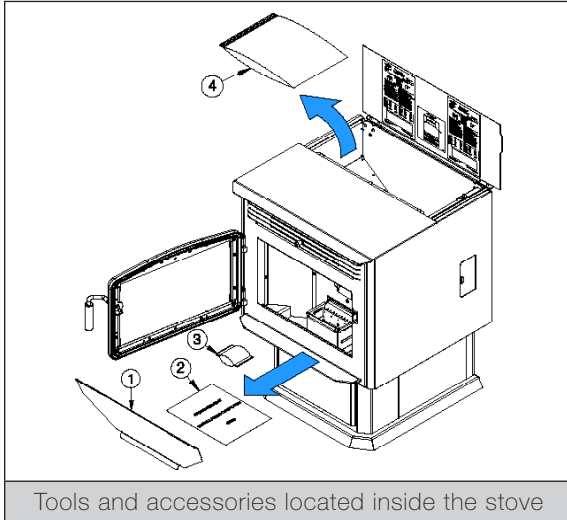
ENGLISH

| No | Description |
|----|--|
| A | Control panel display area. |
| B | Stove state display area. |
| C | Stove heating intensity display area, level 1 to 6. |
| 1 | MODE: the «MODE» button is used to either turn off the appliance (OFF), turn it on in manual operation (MANUAL) or in thermostatic operation (THERMOSTAT). |
| 2 | RESET: The «RESET» button is used to reset the stove after the appearance of most of the warning codes. |
| 3 | AUX: The «AUX» button is used to adjust the convection air speed. |
| 4 | AUGER: The «Auger» button is used to fill the auger with pellets. |
| 5 | MINUS: The « - » button is used to reduce the pellet feeding rate thus reducing the heat output of the stove. |
| 6 | PLUS: The « + » button is used to increase the pellet feeding rate thus increasing the heat output of the stove. |

STOVE OPERATION

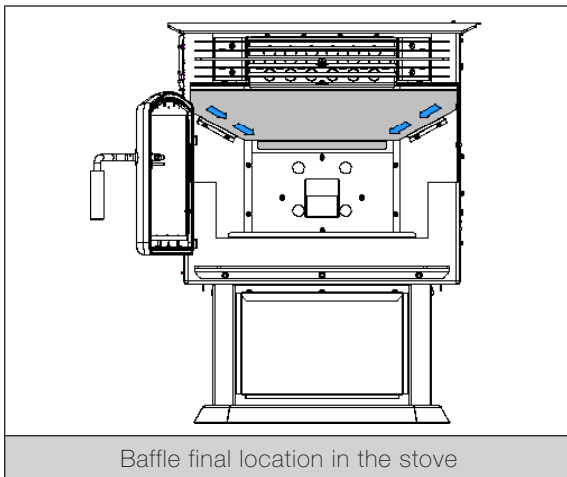
Before Operating the Stove

- Make sure appliance and venting are installed as per manufacturer's instructions;
- Read and follow this operation manual;
- Make sure all tools and accessories has been removed from inside the stove;

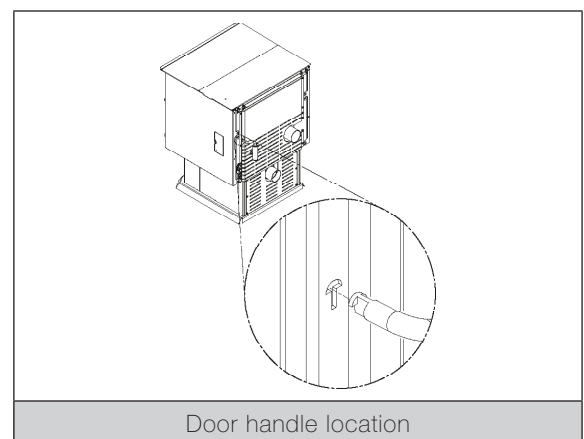


| No | Tools / Accessories |
|----|---------------------|
| 1 | Baffle |
| 2 | Warning sheet |
| 3 | Humidity absorbant |
| 4 | Users manual |

- Make sure the baffle is installed as shown below:



- Make sure that the burn pot is in place properly and that there is enough pellets in the hopper.
- The stove handle is removable. **When the stove is in operation, it must be stored behind the stove**, as shown in the «door handle location» figure.



First Startup / Beginning of Season

Before starting the stove, the burn pot, the baffle and the access panels must be installed correctly. The stove and hopper must have been emptied of all tools and accessories (see «Before operating the stove»). In addition, all doors and covers must be closed and the vent system must be properly installed and sealed.

Fill the hopper with pellets and press the «MODE» button once to start the stove in manual mode (MANUAL) or twice to start the stove in thermostat mode (THERMOSTAT). For the first fire of the season, or if the unit has run out of pellets, press the «AUGER» button first, then start the stove in the desired mode. When the stove is turned on, it will automatically ignite. No fire starter is required.

If the stove does not light within 20 minutes of starting, the message «CODE L» will appear in the display area. See the troubleshooting section for details.

During the first few fires, the stove will emit an odor and a small amount of fumes as the high temperature paint cures or becomes seasoned to the metal. Maintaining smaller fires will minimize this. Avoid placing items on stovetop during this period to avoid damaging the paint surface. Make sure the room is well-ventilated. Open windows. Odors and fumes released during this process are unpleasant but they are not toxic.



Make two or three low intensity fires to initiate the paint hardening and the components conditioning process. Then, make high intensity fires until the stove no longer smell of paint.



NEVER USE A GRATE OR OTHER MEANS TO SUPPORT THE FUEL. USE ONLY THE APPROVED BURN POT FOR THIS STOVE AND DO NOT MODIFY IT.

Every Day Startup and Use

Before startup, make sure that the recommended maintenance has been performed according to the schedule (see «Maintenance» section). Fill the hopper and press the «MODE» button once to start the stove in manual mode (MANUAL) or twice to start the stove in thermostat mode (THERMOSTAT).

By pressing on the «+» or «-» buttons, it is possible to increase or decrease the feed rate, and thereby the intensity level of the stove. Intensity levels change, from 1 to 6, can be visualized by the red light in the heating intensity display area.

Running Out of Pellets

If the stove runs out of pellets, the fire will slowly go out. The convection blower will remain on until the heat sensor reads 115 °F. The cooling cycle will take a few minutes before all other motors stop. When this temperature is reached, the message «CODE E» will appear.

Restarting the stove will only be possible when all blowers are off (about 10 minutes after the error message appears). Press «RESET» and fill the hopper. Press the «AUGER» button and then press the «MODE» button on the home page to start the stove in the desired mode.

Refueling

When the stove is running, the hopper lid can be opened for 90 seconds to refill the hopper before the stove stops. A beeping sound that will intensify every 30 seconds can be heard. After 90 seconds, if the hopper lid is still open, the stove will stop and display the message «CODE d». For more information, see the troubleshooting section for details. When the stove is stopped, there is no time limit for filling the hopper. *Note that opening the hopper lid will stop the auger from feeding the pellet stove.*

THE HOPPER LID MUST BE CLOSED AT ALL TIMES EXCEPT WHEN REFUELING.

DO NOT OVERFILL THE HOPPER.

Shutting Down Procedure

To turn the stove off, press the «MODE» button until the red light is in the OFF position. The cooling cycle will take a few minutes. The blowers will continue to work while the stove is cooling down.



NEVER UNPLUG THE POWER CORD TO TURN OFF THE STOVE.

Signs of an Overheating Stove

Choosing a stove that is too small for the house in which it is installed may cause the stove to overheat since it will have to operate at maximum setting for most of the time to achieve a comfortable temperature. The life expectancy of the components and the stove will be reduced.

Under normal conditions, the flame must have a bright yellow color, be very active and stable. If the flame becomes lazy, very high and orange, it is a sign of malfunction.

Usually, overheating issues are caused by too much restriction in the venting system, a blocked heat exchanger, a lack of combustion air or a lack of maintenance.

If the stove is overheating, it will become very hot. If the stove gets too hot, it will shut itself down, showing the «CODE H» message.

If this occurs **once**, wait for the stove to cool down and **perform the weekly maintenance** of the stove suggested in the maintenance calendar. **Carefully inspect the venting system.** Have it swept, if necessary. Press on the «MODE» and «RESET» buttons simultaneously for 3 seconds to reset the stove.

If this occurs more than once, contacting the retailer may be helpful in order to receive some advice for this code not to happen again.

After three occurrence of an H code, the stove control will be locked and it will be impossible to reset it and restart the stove. Before unlocking the stove control, **perform the biannual maintenance** suggested in the maintenance calendar. **Carefully inspect the venting system.** Have it swept, if necessary. When maintenance is done, press the following buttons, one at a time : «RESET», «MODE», «+», «-», then press on the «AUGER» for 5 seconds.



If any external part of the stove begins to glow red, the stove is overheating. Immediately turn the stove off.

Do not unplug it and do not open the door.
Unplugging the stove will disable all the safety features of the stove.

Using a Thermostat

Using a thermostat will help maintain a constant temperature throughout the house. A Low voltage thermostat (24 volts) is required. A fixed wall mount or hand held model can be used.

To use the stove in thermostat mode, press the «MODE» button until the «THERMOSTAT» position is reached. Then, select the intensity level using the «-» or «+» buttons. In thermostatic mode, the stove will operate at the selected intensity level until the room temperature has reached the programmed level on the thermostat.

Pilot Mode Selection

The factory setting of the pilot mode is «AUTO». To change it, press on the «-» and «MODE» buttons simultaneously for 3 seconds. The selected mode will appear on the control panel display area.

Pilot AUTO (Intensity level 1)

When the thermostat stops calling for heat, the unit will remain at its lowest intensity level (#1) and will shut down after 15 minutes, if there is no call for heat.

Pilot AUTO (Intensity level 2 to 6)

When the thermostat stops calling for heat, the unit automatically switch to its lowest intensity level (#1) until the thermostat requires heat again. The stove will shut down after 45 minutes, if there is no call for heat.

Pilot ON:

When the thermostat stops calling for heat, the unit automatically switch to its lowest intensity level (#1) until the thermostat calls for heat again. The stove will never shut down, even if there is no call for heat.



To avoid premature wear of the components, it is recommended to use the «Pilot ON» mode during the coldest months and the «Pilot AUTO» mode during the warmest months.

Convection adjustments

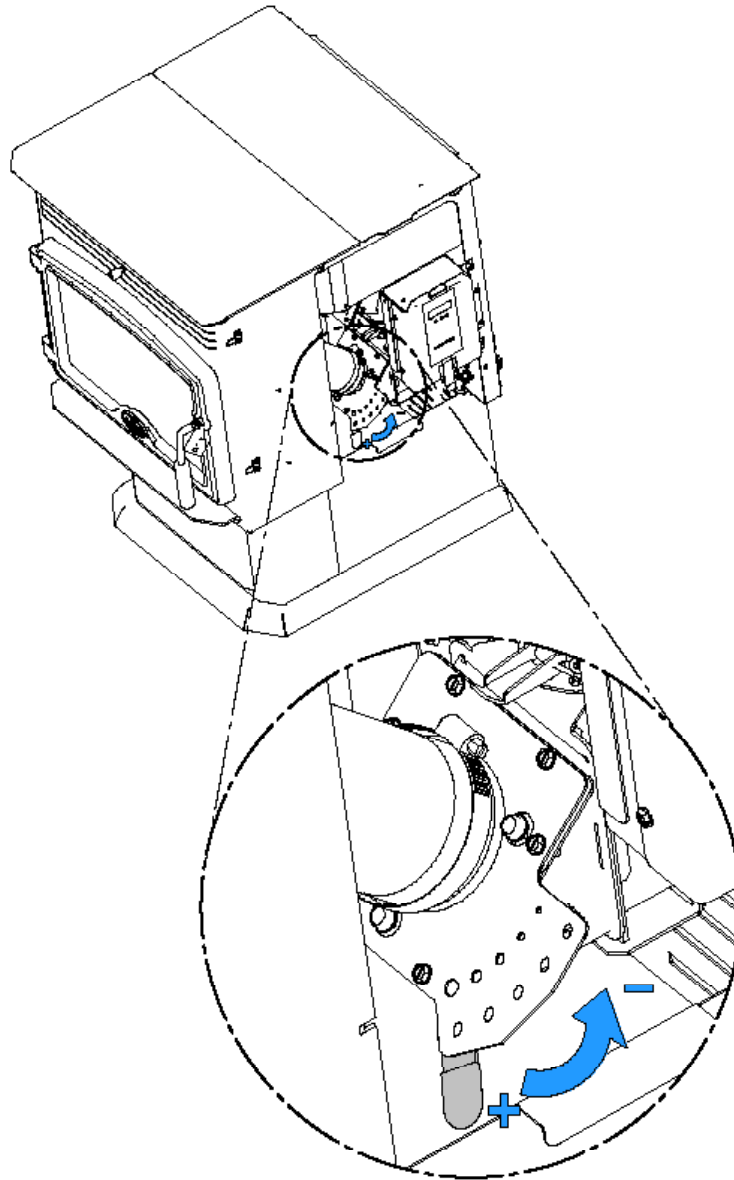
Each intensity level has been programmed with an optimum convection speed. However, it is possible to increase the convection air speed by pressing the «AUX» button. All intensity levels can be increased at the exception of the intensity level 6, which is already at its maximum speed.

Air Intake Adjustments

This wood heater has a manufacturer-set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate this wood heater in a manner inconsistent with operating instructions in this manual.

It is possible to adjust the amount of combustion air entering the stove. Using the stove to the lowest setting will reduce missed ignition, will ignite pellets faster and will reduce the blackening of the window, when using high quality pellets. If you should find one bag of pellets harder to ignite and to burn, opening the air control will help.

To open or close the manual air control, open the right decorative panel and locate the air intake. Push down the tab and slide upwards to decrease the air supply and downwards to increase the air supply.



MAINTENANCE

DANGER



NEVER CLEAN WHEN HOT.

DANGER



DISCONNECT ALL POWER BEFORE SERVICING THE APPLIANCE.

Maintenance Schedule

This schedule should be used as a reference only for a normal use of the stove. The cleaning frequency may vary depending on the type of fuel used.

| COMPONENTS | WEEKLY (±250 POUNDS) | TWICE A YEAR (± 1 TON) | YEARLY (± 2 TONS) |
|-----------------------|-------------------------|------------------------------|----------------------|
| Baffle | Vacuum | | |
| Glass air wash system | Vacuum | | |
| Burn Pot | Scrape / Vacuum | | |
| Glass | Clean | | |
| Ash drawer | Empty / Vacuum | | |
| Combustion chamber | Vacuum | Brush / Vacuum | |
| Heat exchanger | Brush | Scrape / Vacuum | |
| Exhaust channels | | Vacuum | |
| Exhaust blower | | Vacuum | |
| Combustion blower | | Inspect | |
| Convection blower | | Vacuum | |
| Venting system | | Inspect / Sweep | Clean and Sweep |
| Gaskets | | Inspect | |
| Hopper | | | Empty / Vacuum |

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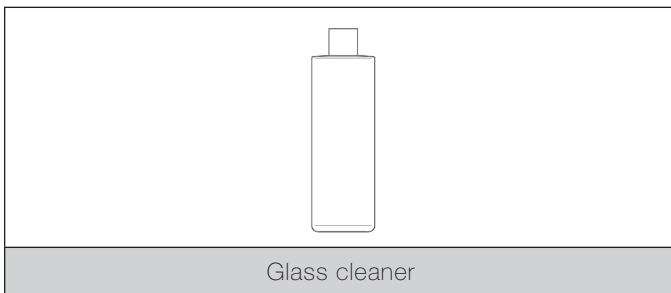
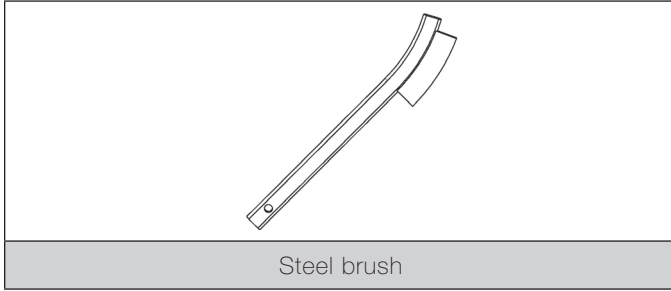
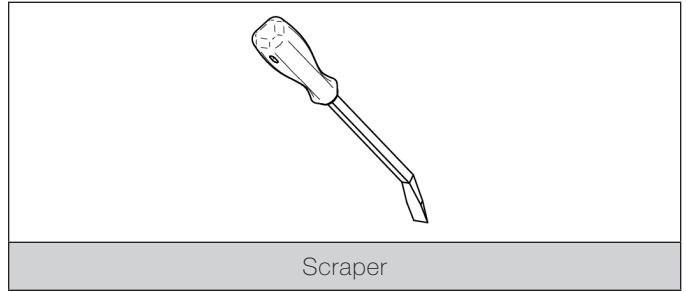
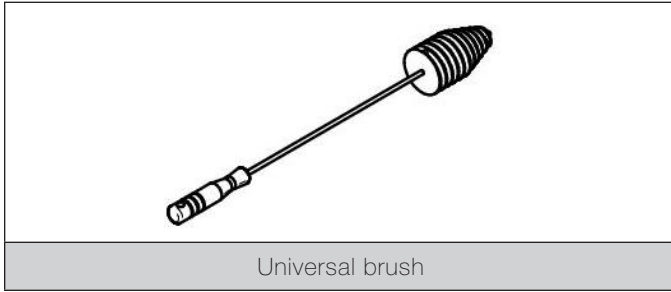
Cleaning of the stove and its venting system is important, especially at the end of the heating season to minimize corrosion during the summer months, caused by accumulated ash.



NEGLECTING THE RECOMMENDED CLEANING AND MAINTENANCE OF THE APPLIANCE COULD RESULT IN POOR PERFORMANCE AND A SAFETY HAZARD.

Recommended tools

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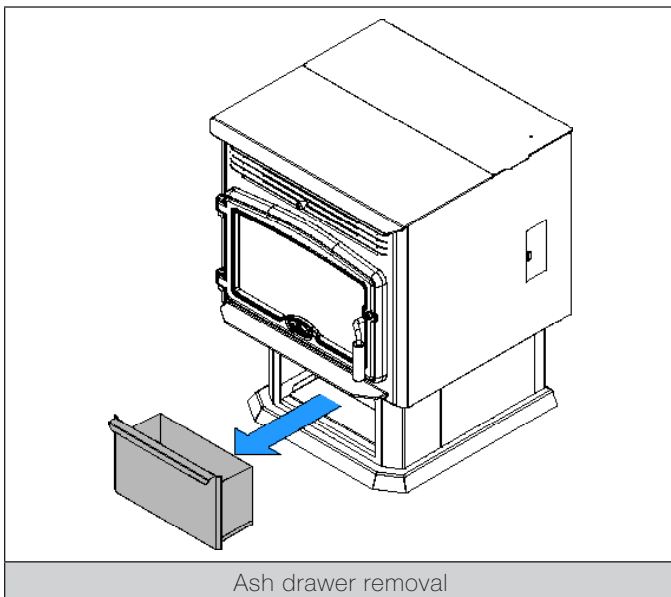


Ash removal

DANGER



NEVER VACUUM THE ASHES WHEN THEY ARE HOT. THE ASHES MUST BE COOLED BEFORE SERVICING.



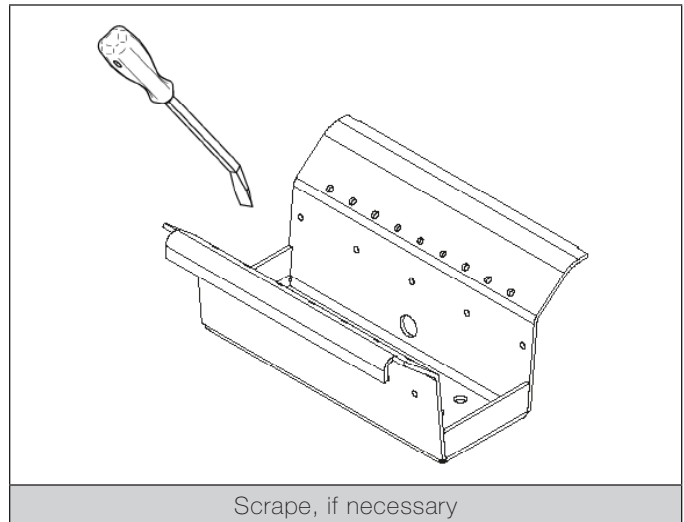
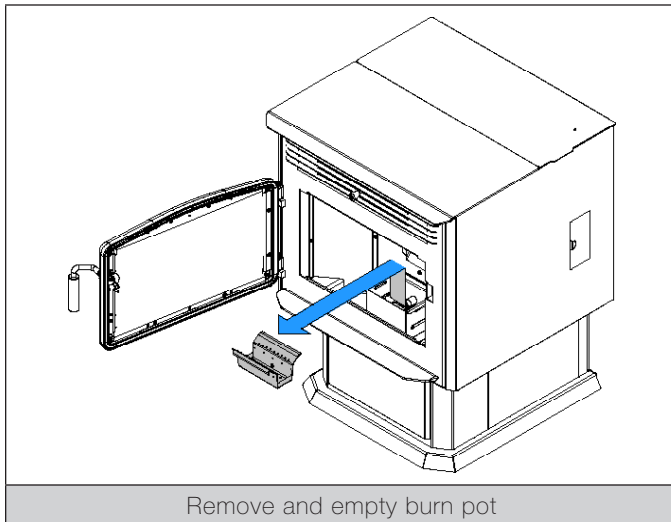


The ashes should be placed in a metal container with a tight lid. The container should be placed on a non-combustible surface, away from any material that may catch fire. If the ash is to be buried or locally dispersed, it should be kept in the closed container until it is completely cooled.



The use of a domestic, central or commercial vacuum cleaner to maintain the stove is not recommended. The use of an ash vacuum cleaner is strongly recommended.

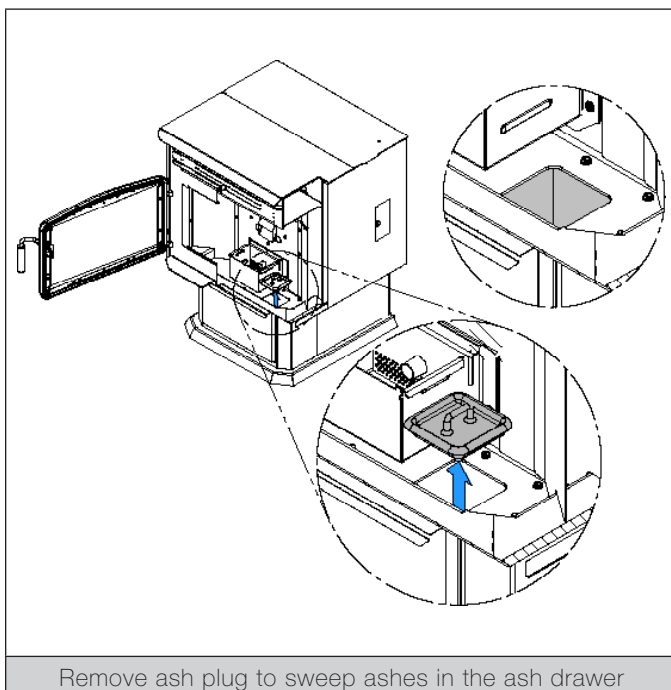
Burn pot



Combustion Chamber

Clean the combustion chamber by vacuuming the cooled ashes. When necessary, brush the walls and vacuum the ashes afterwards.

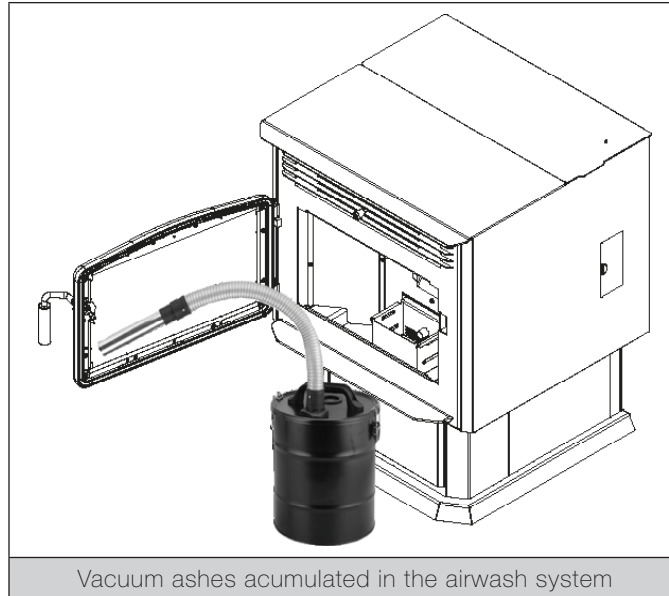
You can also push the ashes into the ash drawer through the opening at the bottom of the firebox. In this case alone, the ashes do not have to be cold.



Glass Maintenance

Vacuum ashes accumulated in the airwash system of the glass. This allows optimum air flow and prevents the window from sooting up.

Clean door glass when necessary. The use of a stove glass cleaner is recommended. Regular household glass cleaners will not remove creosote properly.



NEVER USE ABRASIVE CLEANERS ON THE GLASS OR ON ANY PLATED PARTS.

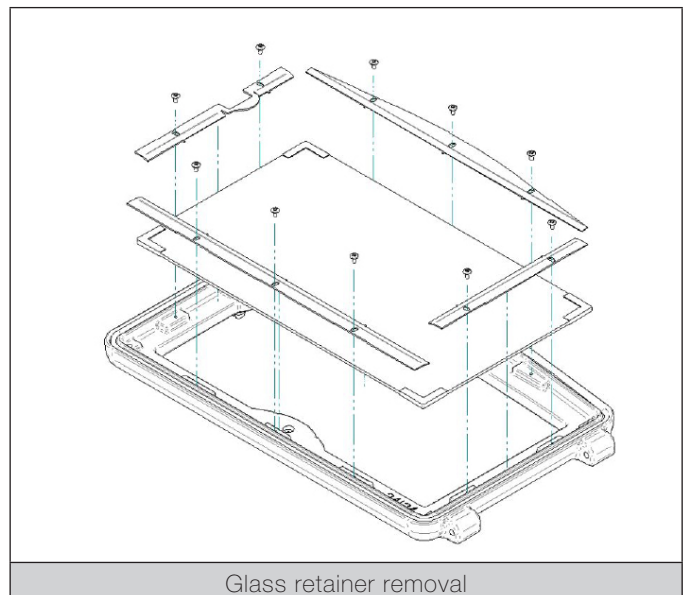
DO NOT CLEAN THE GLASS WHEN IT IS HOT.

DO NOT FORCE, STRIKE, SLAM OR ANY OTHER BEHAVIOR THAT COULD FRAGILIZE THE GLASS DOOR.

DO NOT USE THE STOVE IF THE GLASS IS MISSING, CRACKED OR BROKEN.

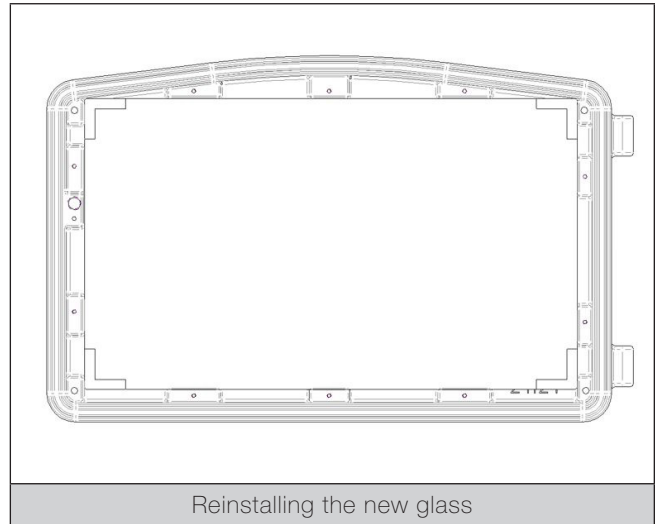
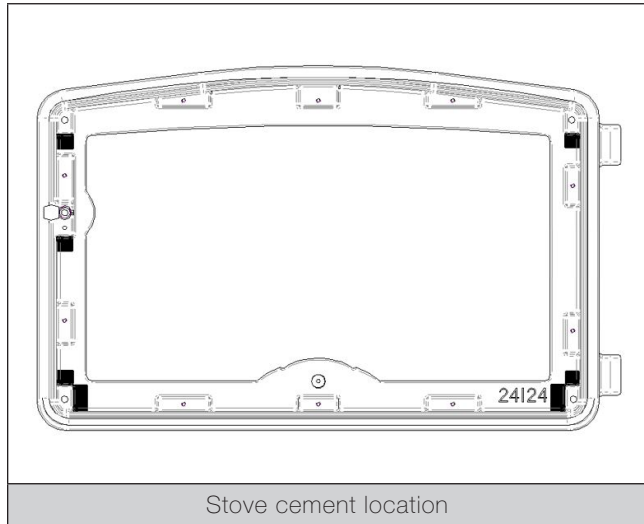
Replacing the Glass

1. Remove the door and place it on a table, face-down on something soft like a cushion of rags or piece of carpet
2. Remove the 10 screws holding the door glass retainers and carefully remove any loose pieces of glass from the doorframe. Dispose of all broken glass properly. A broken glass should be replaced with a 13 7/8" x 8 5/8" ceramic glass, 5 mm thick.

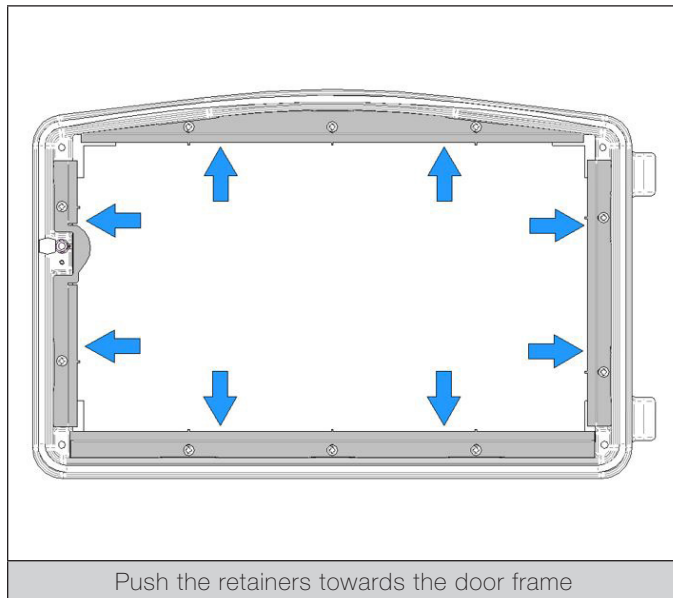


ALWAYS WEAR GLOVES WHEN HANDLING BROKEN GLASS.

3. Remove the stove cement in the door corners (see dark spots in the figure below). When done, reinstall the new glass.



5. Put stove cement in the door corners, as shown on the image above.
6. Reinstall the glass door retainers making sure the stove cement is pressed down by the retainers. Push the retainers towards the door frame to make sure there is no gap between the retainers and the door frame and screw them in place. Do not over-tighten the screws as this will make the glass crack under strong heat.



8. Reinstall the door and wait 24 hours before using the stove again.

The replacement glass must be purchased only from an authorized dealer. Tempered glass or ordinary glass is not suitable for high temperatures.

When changing the glass, make sure that the glass gaskets are in the same place as the originals to maintain proper operation of the airwash system of the glass.

Maintaining Door Gasket

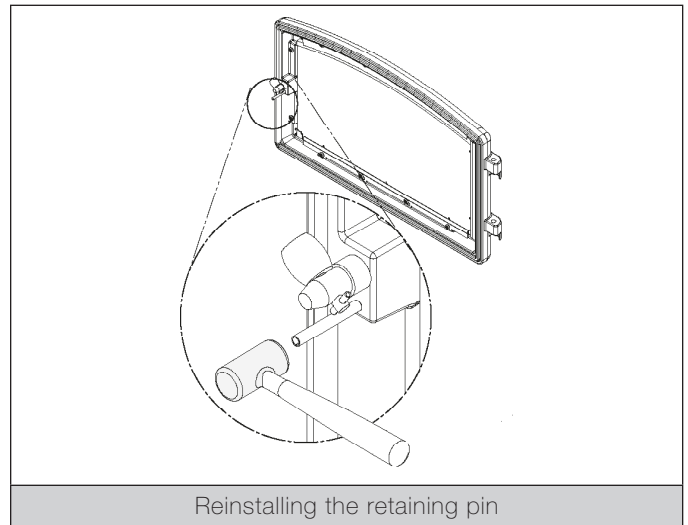
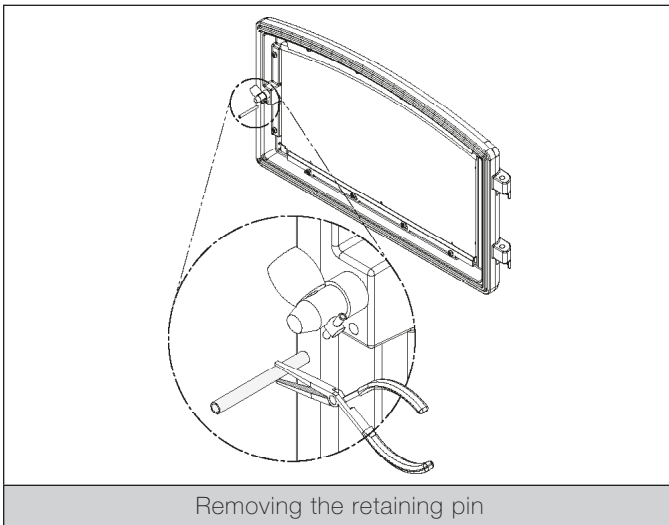
The door gasket must be kept in good condition. After a while, the gasket wears out and compresses. An adjustment of the door may then be necessary (see section «Adjusting the door»). If door adjustment is not sufficient, the door gasket must be replaced with an original gasket.

If the stove door does not close tightly, it will be difficult to keep the glass clean and the flue gases could leak into the room.

Adjusting the Door

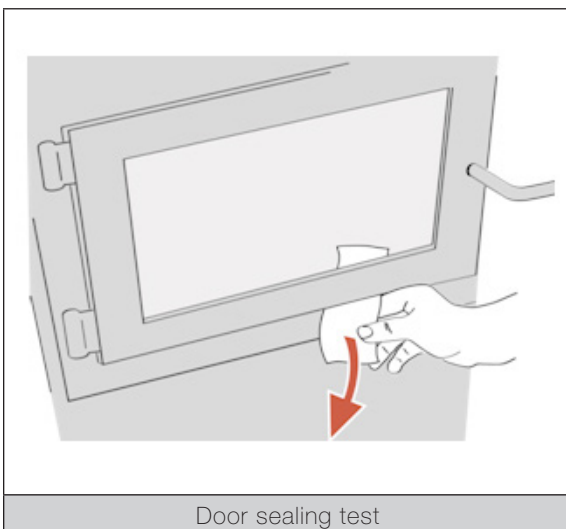
In order to achieve optimal performance, the door must be completely sealed with the combustion chamber. The gasket must therefore be inspected periodically in order to obtain an airtight fit. The sealing can be improved with a simple adjustment of the latch mechanism.

Remove the retaining pin by pulling and turning with a pair of pliers. Turn the handle one turn counterclockwise to increase the pressure between the door frame and the stove structure. Reinstall the retaining pin using a hammer.

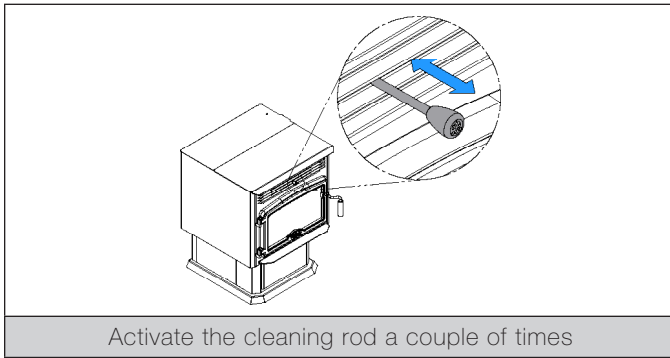


Verifying the Door Seal

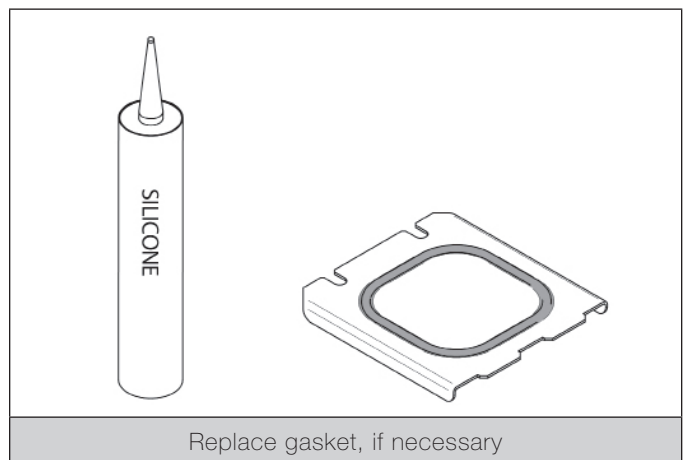
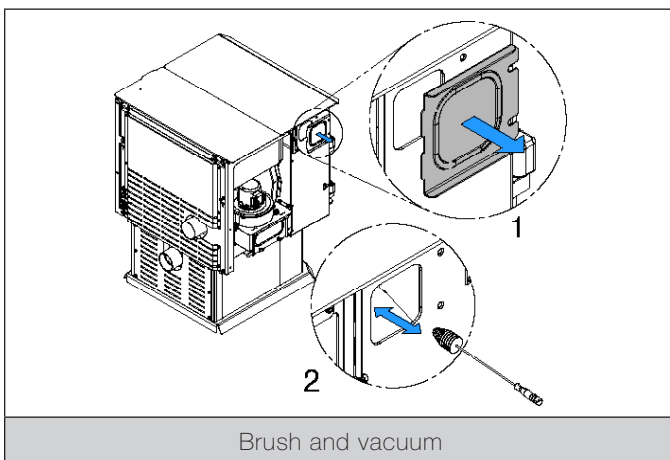
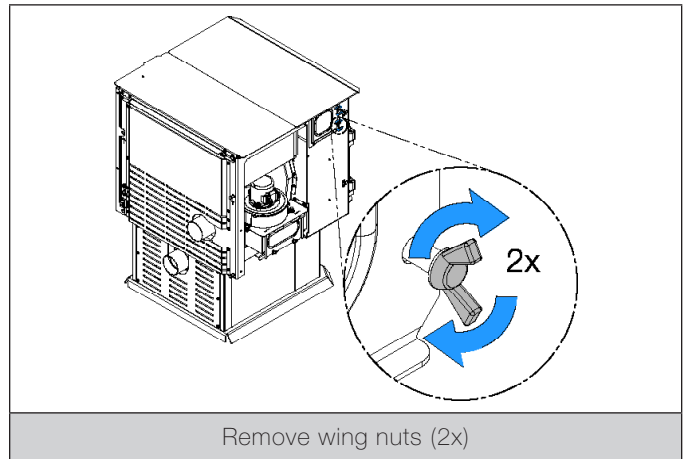
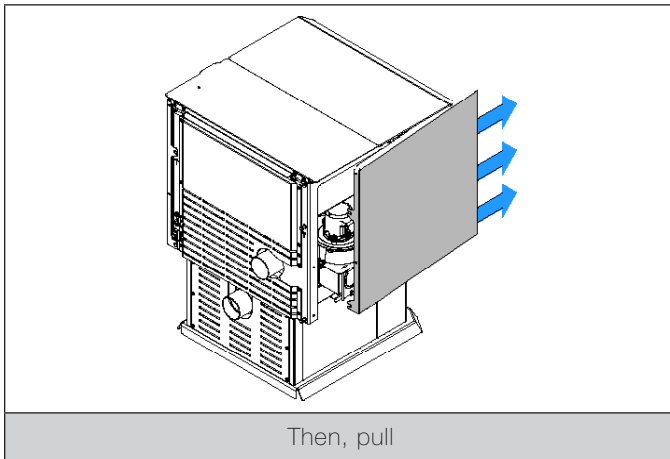
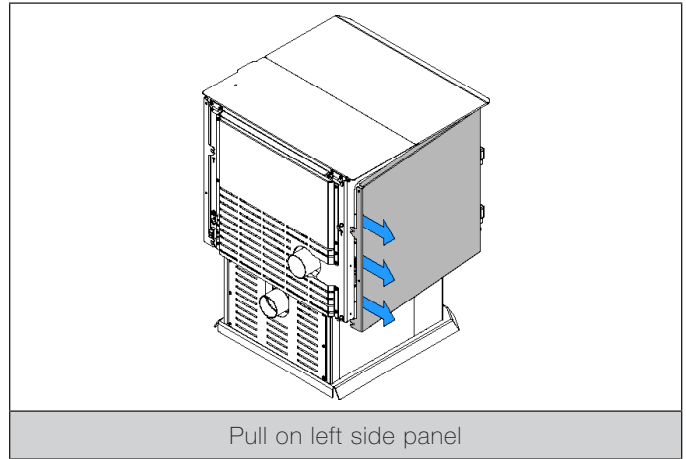
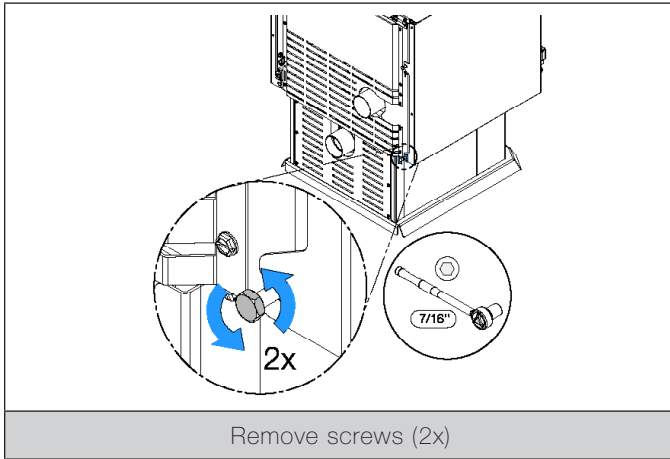
Test the door seal by closing and latching the door on a strip of paper. Test all around the door. The paper should not slip out easily. If it does, see the maintenance section in the operation manual.



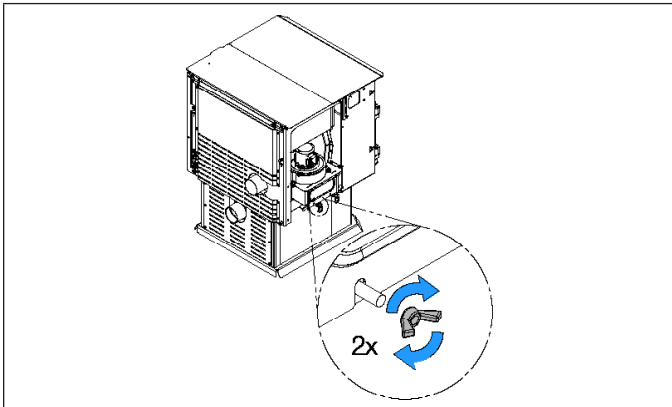
Heat Exchangers and Exhaust Channels



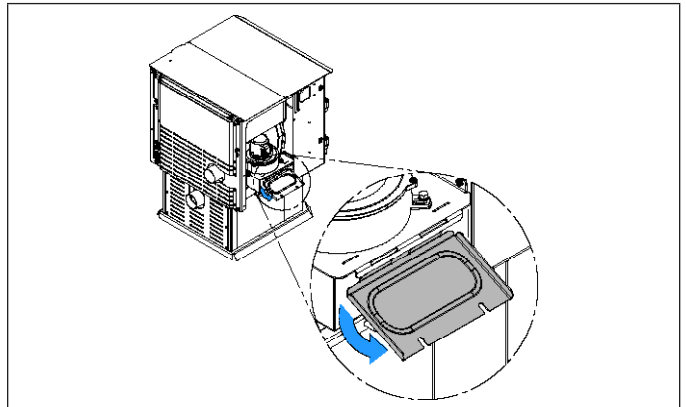
Brush and vacuum inside the heat exchanger channel, when necessary.



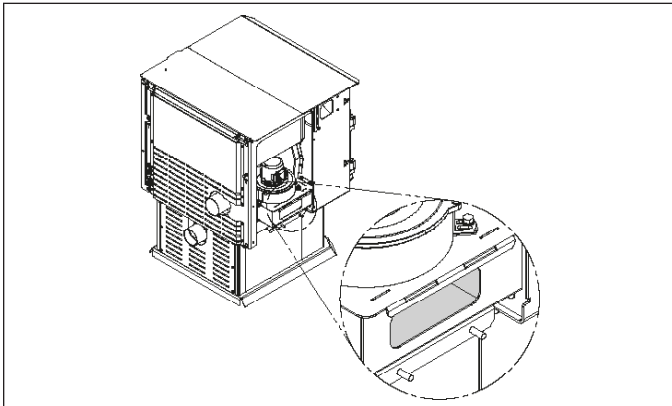
Brush and vacuum inside the exhaust channel, when necessary.



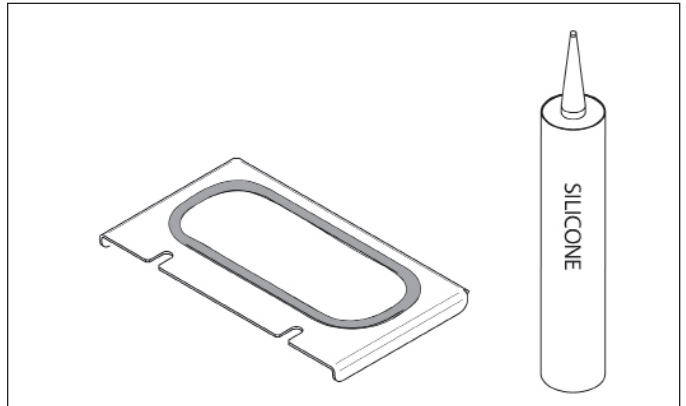
Remove wing nuts (2x)



Remove access panel



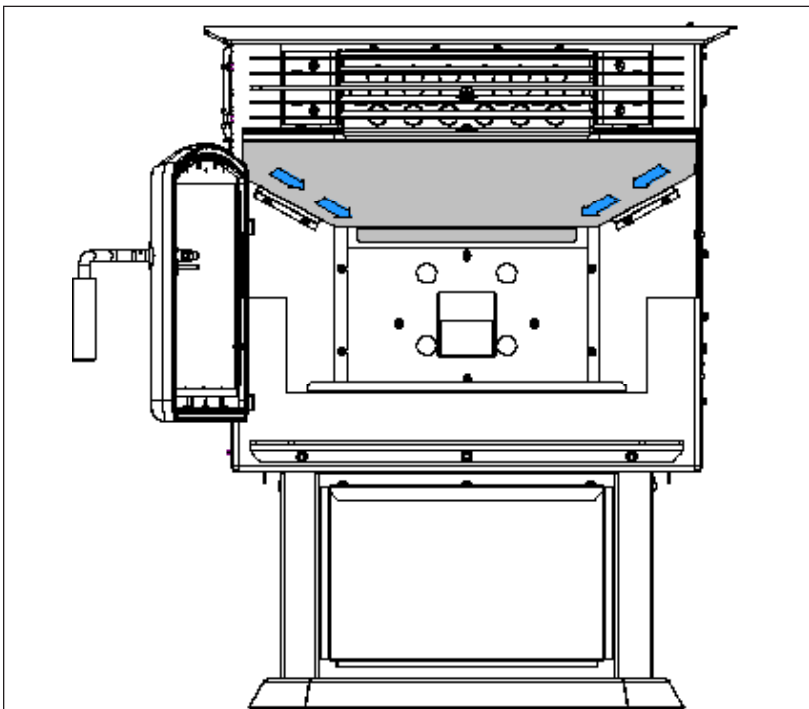
Brush and vacuum combustion residues



Replace gasket, if necessary

Baffle

Remove and clean baffle. Don't forget to put it back in place.



Remove and clean baffle

Maintaining the Venting System

REGULARLY INSPECT THE VENTING SYSTEM, GASKETS AND OTHER SEALING PARTS TO PREVENT SMOKE AND COMBUSTION GASES FROM ESCAPING.

Sweeping the vent system can be difficult and dangerous. For inexperienced people, it is best to hire a professional chimney sweep to inspect and clean the system.

For an experienced person who would like to perform the sweeping himself, the most effective method is to use a 3" or 4" brush, depending on the installation. Start at the top of the vent system and brush down, so that the ash, soot and creosote residues come off the inner surface and fall into the bottom of the venting system, where they can be removed easily.

The venting system must be maintained in good condition and well maintained.

IF A SIGNIFICANT LAYER OF CREOSOTE HAS ACCUMULATED (3 MM (1/8") OR MORE), IT MUST BE REMOVED IMMEDIATELY TO ELIMINATE CHIMNEY FIRE HAZARD.

Facing a Chimney Fire

1. Evacuate family members and animals from the building, and then call the fire department.
2. Turn off the unit. **Do not unplug it!**
3. If possible, use a chemical fire extinguisher, baking soda or sand to control the fire. Do not use water as this may cause hazardous vapor explosions.
4. Do not use the stove until the venting system and the stove have been inspected by a qualified chimney sweeper or fire inspector.

Fly Ash and Soot

Combustion products contain small particles of fly ash. Fly ash can accumulate particularly in the horizontal sections of exhaust pipe and restrict the flow of combustion gases. Incomplete combustion during start-up, shut-down or improper use of the stove will cause soot to build up in the exhaust system. **The exhaust system must be inspected at least twice a year to determine if sweeping is required.**

TROUBLESHOOTING

Most common problems are generally caused by one or many of the following factors:

1. Wrong operation or lack of maintenance;
2. Bad installation;
3. Poor quality combustible;
4. Component failure;

The stove is equipped with a PC board which informs the user when a problem occurs. It is therefore important not to unplug the stove when it is in operation, as it will be impossible to see the message and correct the problem. In addition, **unplugging the stove will disable all the safety functions.**

In order to obtain a fast and personalized service, the manufacturer's model number and serial number must be provided when contacting the retailer or manufacturer. (This information can be found on the name plate inside the hopper lid).

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Main Error Codes

This section contains the main error codes, possible causes and solutions. **Visit our website www.osburn-mfg.com/en/products/pellet-stoves/ to download the detailed troubleshooting guide.**

After an error code appears, the stove will stop by itself and begin a cooling cycle. To restart the stove, press the «RESET» button and then the «MODE» button. The stove will restart only when the cooling cycle is completed.



CODE P

The flue is blocked. One of the following components is obstructed or blocked by ashes or by a foreign object : air intake shutter, combustion blower, burn pot, heat exchangers and exhaust channels, exhaust blower or venting system. Refer to the «[Maintenance](#)» section.

The venting system is not properly installed. The venting system must comply with the installation manual and with the venting system manufacturer's instructions.

A back draft occurred inside the flue. This can occur on a very windy day or if the venting system does not have a proper termination.

CODE E

The stove ran out of pellets. Fill the hopper.

The holes in the burn pot are clogged. Remove and clean the burn pot. The holes must not be obstructed. Refer to the «[Maintenance](#)» section.

The auger is jammed or there is a faulty motor. Test the motor. Refer to the «Testing a Component» technical sheet on our web site. During testing, the hopper lid must be closed. If one the motor does not seem to be working, either it is defective or the auger is jammed.

Faulty thermistor. When the stove is cold, press on «+» and «AUGER» to display the temperature. Displayed temperature must be the ambient one. If this is the case, turn the stove on. After 10 minutes, if the value has not increased, the thermistor is disconnected or defective.

CODE L

The holes in the burn pot are clogged. Remove and clean the burn pot. The holes must not be obstructed. Make sure the tube around the igniter is not filled with ash. Refer to the «[Maintenance](#)» section.

Poor quality combustible. The fuel use must be of good quality. Refer to the «[Fuel](#)» section.

Defective ignitor. Test ignitor. Refer to the technical sheet «Testing a component» on our web site. If it works properly, the tip should be glowing red in less than two minutes.

Faulty thermistor. When the stove is cold, press on «+» and «AUGER» to display the temperature. Displayed temperature must be the ambient one. If this is the case, turn the stove on. After 10 minutes, if the value has not increased, the thermistor is disconnected or defective.

CODE H

*The main cause of a stove overheating is lack of maintenance. Any overheating code should be followed by **thorough maintenance** of the unit and a **venting system inspection**.*

The overheating code may also appear if the burn pot or the baffle is not installed correctly, or if the convection fan is defective.

After three repetitions of an overheating code, it will not be possible to restart the stove.



Before unlocking the stove, do the biannual maintenance suggested in the maintenance schedule. Carefully inspect the venting system. Have it swept, if necessary.

For more information, see the «[signs of an overheating stove](#)».

CODE d

The hopper lid remained open for more than 90 seconds. As a safety measure, the auger stops feeding pellets as soon as the hopper lid opens. It will resume normal operation as soon as the lid is closed. If the lid remains open for more than 90 seconds, the stove stops.

The hopper lid switch is faulty or improperly connected. Test the switch. See the technical data sheet «Checking the Status and Testing a Component» on our web site. If the switch does not work, it may be faulty or improperly connected.

CODE C

The current was interrupted during operation. After the cooling cycle, the stove restarts using the last settings. For short-term power failure (less than 5 seconds), the stove will continue to operate at the selected speed.

Other possible error codes

| CODE | DESCRIPTION |
|------|--|
| n | Reverse polarity in the socket. This error does not prevent the stove from operating normally but the polarity should be corrected by a certified electrician. |
| FE | The exhaust blower fuse is defective. |
| FL | The ignitor fuse is defective. |
| FC | The convection blower fuse is defective. |
| FV | The auger fuse is defective. |
| FB | The combustion blower fuse is defective. |

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For a detailed troubleshooting guide and component replacement data sheets, visit our product web page at www.osburn-mfg.com/en/products/pellet-stoves/.ca

OSBURN LIMITED LIFETIME WARRANTY

The warranty of the manufacturer extends only to the original retail purchaser and is not transferable. This warranty covers brand new products only, which have not been altered, modified nor repaired since shipment from factory. Proof of purchase (dated bill of sale), model name and serial number must be supplied when making any warranty claim to your OSBURN dealer.

This warranty applies to normal residential use only. Damages caused by misuse, abuse, improper installation, lack of maintenance, over firing, negligence or accident during transportation, power failures, downdrafts, venting problems or under-estimated heating area are not covered by this warranty. The recommended heated area for a given appliance is defined by the manufacturer as its capacity to maintain a minimum acceptable temperature considering floor the space configuration and the presence of heat distribution systems have a significant impact in making heat circulation optimum.

This warranty does not cover any scratch, corrosion, distortion, or discoloration. Any defect or damage caused by the use of unauthorized or other than original parts voids this warranty. An authorized qualified technician must perform the installation in accordance with the instructions supplied with this product and all local and national building codes. Any service call related to an improper installation is not covered by this warranty.

The manufacturer may require that defective products be returned or that digital pictures be provided to support the claim. Returned products are to be shipped prepaid to the manufacturer for investigation. Transportation fees to ship the product back to the purchaser will be paid by the manufacturer. Repair work covered by the warranty, executed at the purchaser's domicile by an authorized qualified technician requires the prior approval of the manufacturer. All parts and labour costs covered by this warranty are limited according to the table below.

The manufacturer, at its discretion, may decide to repair or replace any part or unit after inspection and investigation of the defect. The manufacturer may, at its discretion, fully discharge all obligations with respect to this warranty by refunding the wholesale price of any warranted but defective parts. The manufacturer shall, in no event, be responsible for any economic, indirect, consequential damages of any nature, which are in excess of the original purchase price of the product. A one-time replacement limit applies to all parts benefiting from lifetime coverage. This warranty applies to products purchased after June 1st, 2015.

| DESCRIPTION | WARRANTY APPLICATION* | |
|---|-----------------------|---------|
| | PARTS | LABOUR |
| Combustion chamber (welds only**), heat exchanger (welds only**), and cast iron door frame. | Lifetime | 5 years |
| Surrounds, heat shields, ash drawer, legs, pedestal, trim (aluminum extrusions), plating (defective manufacture**), and ceramic glass (thermal breakage only***). | Lifetime | N/A |
| Glass retainers, handle assembly, cleaning rod, air control mechanism, and wiper. | 5 years | 1 year |
| Removable stainless steel components, burn pot, deflectors, supports, and baffle. | 5 years | N/A |
| Flowers, sugar reactor, PC board, igniter, heat sensors, rheostat, wiring, and other controls. | 2 years | 1 year |
| Paint (peeling**), gaskets, insulation, masonry-like panels**, ceramic logs**, and other options. | 1 year | N/A |
| All parts replaced under the warranty. | 90 days | N/A |

*Subject to Exclusions above. **Pictures required.

Labour cost and repair work to the account of the manufacturer are based on a predetermined rate schedule and must not exceed the wholesale price of the replacement part.

Should your unit or a component be defective, contact immediately your OSBURN dealer. To accelerate processing of your warranty claim, make sure to have on hand the following information when calling:

- Your name, address and telephone number;
- Serial number and model name as indicated on the nameplate fixed to the back of your unit;
- Bill of sale and dealer's name;
- Nature of the defect and any relevant information.
- Installation configuration;

Before shipping your unit or defective component to our plant, you must obtain an Authorization Number from your OSBURN dealer. Any merchandise shipped to our plant without authorization will be refused automatically and returned to sender.

Pellet Revision : June 2015

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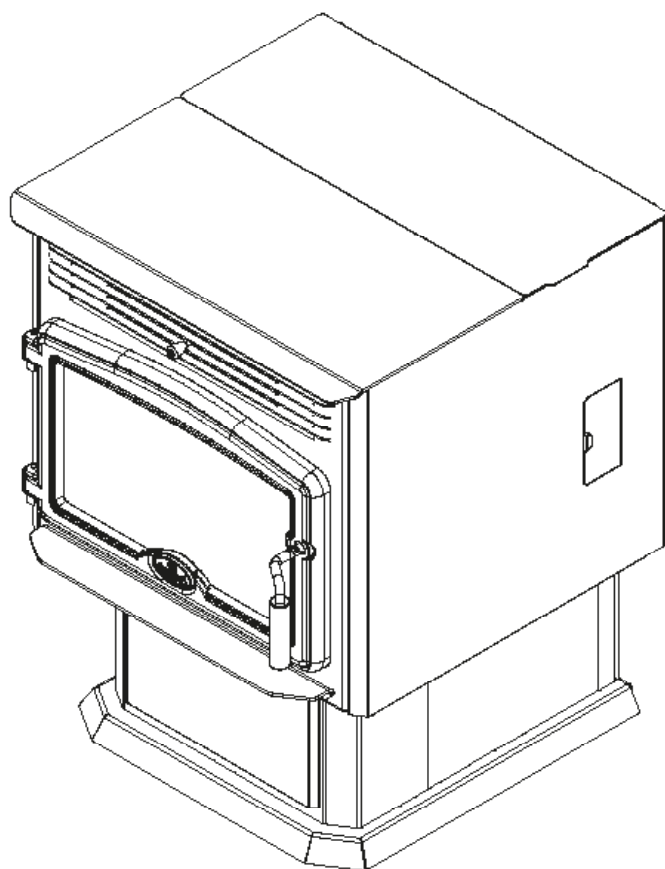
AU-DELA
du feu



Manuel d'opération

2500

(modèle OP00025)



Essais de sécurité faits conformément
aux normes ULC S627, UL 1482
et ASTM E1509 par un laboratoire
accrédité.



**L'INSTALLATION PAR UN
PROFESSIONNEL EST
FORTEMENT RECOMMANDÉE**

CONTACTEZ LE SERVICE MUNICIPAL DU BÂTIMENT OU DES INCENDIES POUR CONNAÎTRE LES RESTRICTIONS ET LES EXIGENCES D'INSPECTION ET D'INSTALLATION DANS VOTRE RÉGION.

LISEZ CE MANUEL AU COMPLET AVANT L'INSTALLATION DE CE POÊLE. IL EST IMPORTANT DE RESPECTER INTÉGRALEMENT LES DIRECTIVES D'INSTALLATION. SI LE POÊLE N'EST PAS INSTALLÉ CORRECTEMENT, IL PEUT EN RÉSULTER UN INCENDIE, DES BLESSURES CORPORELLES OU MÊME LE DÉCÈS.

LIRE LE PRÉSENT MANUEL ET LE CONSERVER POUR CONSULTATION

RECOMMANDATIONS

Il est fortement recommandé que cet appareil de chauffage soit **installé par un professionnel certifié** aux États-Unis par le NFI (National Fireplace Institute®) ou au Canada par WETT (Wood Energy Technology Transfer) ou au Québec par l'APC (Association des Professionnels du Chauffage).

Lorsque l'appareil n'est pas installé correctement, les matériaux combustibles à proximité peuvent surchauffer et s'enflammer. Pour réduire les risques d'incendies, suivre les instructions d'installation de ce manuel soigneusement. Consulter le code du bâtiment local ou contacter le service des incendies pour connaître les restrictions et les exigences d'inspection et d'installation de la région. Il est également recommandé d'aviser la compagnie d'assurance habitation.

Il se peut qu'un permis soit requis pour l'installation du poêle et du système d'évent sur lequel il est branché.

Lire ce manuel au complet avant d'opérer cet appareil.

CONSIGNES DE SÉCURITÉ

DANGER



CHAUD LORSQU'EN FONCTION. TENIR LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES ÉLOIGNÉS. TOUT CONTACT AVEC LA PEAU PEUT CAUSER DES BRÛLURES.

FRANÇAIS

L'utilisation d'un poêle avec des composants fissurés ou brisés, comme la vitre ou le coupe-feu pourrait causer une situation dangereuse et pourrait endommager le poêle.

La porte du poêle doit demeurer fermée et enclenchée pendant l'utilisation. Le panneau d'accès du tiroir à cendre doit également être fermé pendant l'utilisation.

Un détecteur de fumée, un détecteur de monoxyde de carbone ainsi qu'un extincteur devraient être installés dans la maison. L'emplacement de l'extincteur devrait être connu de tous les membres de la famille.

Cet appareil de chauffage nécessite des inspections et réparations périodiques pour une utilisation optimale. Il est contre la réglementation fédérale d'utiliser cet appareil de façon incohérente avec les instructions de ce manuel.

Ne pas désactiver les capteurs et les interrupteurs de sécurité.



AVERTISSEMENT: Ce produit peut vous exposer à des agents chimiques, y compris du monoxyde de carbone, identifiés par l'État de la Californie comme pouvant causer le cancer ou des malformations congénitales et autres troubles de l'appareil reproducteur. Pour de plus amples informations, prière de consulter le www.P65warnings.ca.gov

INFORMATIONS GÉNÉRALES

Il est fortement recommandé d'acheter ce produit chez un détaillant pouvant fournir des conseils sur son installation et son entretien.

Le poêle ne fonctionne pas sans électricité. Si une panne électrique se produit, vérifier si de la fumée s'échappe du poêle. Ouvrir une fenêtre prévient une pression négative et un épanchement de fumée dans la maison.

Ce poêle a été conçu et développé pour être utilisé comme **chauffage d'appoint résidentiel**. Un usage commercial ou industriel est interdit et annulera la garantie.

Une source de chauffage primaire doit être disponible dans la résidence. Cet appareil de chauffage doit être utilisé comme chauffage d'appoint. Le fabricant ne peut être tenu responsable des coûts du chauffage additionnel pouvant être engendrés par une source de chauffage alternative.

Ce poêle doit être branché dans une prise standard de 120V / 60Hz, avec mise à la terre. Ne pas utiliser de rallonge électrique ou d'adaptateur de prise électrique. Ne pas endommager ou enlever la mise à la terre. Ne jamais faire passer le cordon d'alimentation électrique en avant, au-dessus ou en dessous du poêle.

Il est important qu'une quantité d'oxygène suffisante soit apportée au feu pour une bonne combustion. Durant la saison hivernale, s'assurer que la prise d'air frais n'est pas obstruée (glace, neige, etc.) car cela privera le feu d'air et empêchera le bon fonctionnement du poêle.

L'utilisation de composants provenant d'autres appareils ou la modification des composants actuels du poêle sont interdites et annuleront la garantie.

Toute modification de l'appareil qui n'a pas été approuvée par écrit par l'autorité d'homologation ou le fabricant est interdite et viole les normes CSA B365 (Canada) et NFPA 211 (É.-U.).

SBI - Fabricant de poêles international inc. n'assume aucune garantie implicite ou explicite liée à la mauvaise installation de l'appareil et n'assume aucune responsabilité pour tout dommage qui en résulterait.

Ce poêle à granules est certifié conforme à la norme 2015 d'émission de particules. Il n'est pas approuvé pour être vendu après le 15 mai 2020.

ENREGISTRER VOTRE GARANTIE EN LIGNE

Si votre appareil requiert des réparations pendant la période de garantie, vous devrez présenter une preuve d'achat. Conserver la preuve d'achat. La date indiquée sur ces documents établit la période de garantie. Si celle-ci ne peut être présentée, la période de garantie sera déterminée selon la date de fabrication du produit.

Nous vous recommandons également d'enregistrer votre garantie en ligne au

<https://www.osburn-mfg.com/fr/garantie/enregistrement-garantie/>

L'enregistrement de votre garantie nous aidera à trouver rapidement les informations requises sur votre appareil.

ACCESSOIRES ET OPTIONS DISPONIBLES

- Extension de trémie ;
- Ensemble d'entrée d'air frais ;
- Thermostat mural ;
- Contrôle à distance thermostatique ;
- Protection de plancher en verre ;

Pour plus de détails, consulter le site web www.osburn-mfg.com ou se référer à un marchand autorisé.

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SPÉCIFICATIONS

| | |
|---|--|
| Modèle | 2500 (OP00025) |
| Type de combustible ¹ | Granules de bois (Premium ou supérieur) |
| Superficie de chauffage recommandée (pi ²) ² | 500 - 2,000 pi ² (46 - 186 m ²) |
| Capacité de la trémie | 60 lb (27,3 kg) |
| Temps de combustion maximal ² | 51 heures |
| Diamètre de cheminée recommandé | 3 po. ou 4 po. selon la LEE ¹ . |
| Diamètre de la buse de raccordement | 3 po. (76 mm) |
| Type de Cheminée | ULC/ORD-C441, CAN/ULC S609 UL 641 (TYPE L) |
| Approuvé pour installation en alcôve | Oui |
| Approuvé pour installation en maison mobile ³ | Oui |
| Poids à l'expédition (sans option) | 286 lb (130 kg) |
| Poids de l'appareil (sans option) | 253 lb (115 kg) |
| Matériel du coupe-feu | Acier inoxydable |
| Type de porte | Simple, vitrée, avec cadre de fonte |
| Type de vitre | Verre céramique |
| Ventilateur | Inclus (176 PCM) |
| Niveau de bruit à 6 pieds | 47 dBa (+/- 3 dBa) 60 dBa (+/- 3 dBa) |

¹ Niveau de qualité déterminé par des organismes tels que Pellet Fuels Institute (PFI), ENplus ou CANplus.


² La superficie de chauffage recommandée et le temps de combustion maximal peuvent varier selon la localisation de l'appareil dans l'habitation, la qualité du tirage de la cheminée, le climat, les facteurs de perte de chaleur, le type de combustible utilisé, le débit d'alimentation, le niveau de granules et d'autres variables. La superficie de chauffage recommandée pour un appareil est définie par le fabricant comme sa capacité à conserver une température minimale acceptable considérant que la configuration de l'espace ou la présence de système de distribution d'air ont un impact important sur la distribution optimale de la chaleur.

³ Maison mobile (Canada) ou maison préfabriquée (É.-U.) : Le département américain du logement et du développement urbain décrit «maisons préfabriquées» mieux connues pour «maisons mobiles» comme suit ; bâtiments construits sur des roues fixes et ceux transportés sur des roues/essieux temporaires installées sur une fondation permanente. Au Canada, une maison mobile est une habitation dont l'assemblage de chaque composante est achevé ou achevé en grande partie avant le déplacement de celle-ci jusqu'à un emplacement pour y être placée sur des fondations, raccordé à des installations de service et qui rencontre la norme CAN/CSA-Z240 MH.

Plaque d'homologation

Puisque les informations inscrites sur la plaque d'homologation de l'appareil ont toujours préséance sur les informations contenues dans tout autre média publié (manuels, catalogues, circulaires, revues ou sites web), il est important de s'y référer afin d'avoir une installation sécuritaire et conforme. De plus, des informations importantes concernant le poêle s'y trouvent (modèle, numéro de série, etc.). La plaque d'homologation se trouve à l'intérieur du panneau de la trémie.

FRANÇAIS



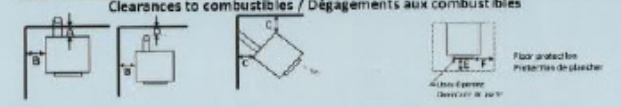
Intertek
Control number: 4002461
STANDARDS / NORMES D'USINE
CONFORME AU/CONFORME À CPV 304.215.03
Certified to/Conforme avec U.L.C. 914.3007
CONFORME AU/CONFORME À UL 984.1.002
CSA 9415.1-10

LISTED SOLID FUEL BURNING APPLIANCE
POÊLE À COMBUSTIBLE SOLIDE
HOMOLOGUÉ

MODEL / MODÈLE :
OSBURN 2500

Serial Number / No. de série: 1

Clearances to combustibles / Dégagements aux combustibles



A: 3 in./76 (19 mm) B: 4 in./102 (102 mm) C: 3 in./76 (76 mm) E: 6 in./152 (152 mm) CANADA / USA
D: See Vent manufacturer F: 6 in./152 (152 mm) CANADA / USA

Electrical rating / Avertissement électrique: 115 V, 60 Hz, 1.16 amp
Maximum input rating / Régime maximal: 4.7 Btu/hr


PREVENT HOUSE FIRES

- Install with a four (4) inches diameter exhaust venting system listed to UL/CSA/ULC 5629 or UL643/ULC 5629.
- In case of an exhaust system passing through a combustible wall, follow manufacturer's instructions and refer to local building codes.
- Keep ashing and ash removal doors tightly closed during operation.
- Room heater, pellet fuel-burning type, also for use in mobile homes.
- Install and use only in accordance with manufacturer's instructions.
- Contact local building or fire officials about restrictions and installation requirements in your area.
- For use with premium grade wood pellets or better as determined by organizations such as Pellet Fuels Institute (PFI), Enplus and CANplus. Burning other types of pellets is not permitted. See owner's manual for more details.
- Do not connect to a chimney flue serving another appliance.
- Inspect and clean chimney frequently. Under certain conditions of use, creosote buildup may occur regularly.
- Replace with ceramic glass only.
- The unit must be installed on a non-combustible floor pad extending at least 6 inches (152 mm) in front of the door opening and at least 6 inches (152 mm) on each side of the door opening. The floor pad must have a thickness of at least 0.8125" (0.208mm). Consult owner's manual for more details.
- A source of fresh air must be provided to the room. When installed in a mobile-home, air from outdoors must be provided.
- Do not obstruct combustion air opening.

PREVENEZ LES INCENDIES

- Installez avec un tuyau d'évacuation de trois (3) pouces nominal selon la norme UL 105/ULC 5629 ou UL 643/ULC 5609.
- Si le tuyau d'évacuation doit traverser un mur combustible, suivez les instructions du fabricant et se référer aux codes de bâtiment locaux.
- Gardez la porte du poêle et celle du cendrier fermées lorsque en opération.
- L'unité de chauffage aux granulés peut aussi être installée dans une maison mobile.
- Observez les directives du fabricant pour l'installation et l'entretien du poêle.
- Contactez les autorités locales pour les restrictions d'installation dans votre secteur.
- Pour utilisation avec granulés de bois de qualité première ou équivalente que déterminent par des organismes tels que Pellet Fuels Institute (PFI), Enplus ou CANplus. Brûler d'autres types de granulés n'est pas permis. Voir manuel d'instructions pour plus de détails.
- Ne pas raccorder à un conduit de fumée servant déjà pour un autre appareil.
- Inspecter et nettoyer la cheminée fréquemment. Sous certaines conditions, la formation de crasse peut être rapide.
- Remplacer par un verre céramique seulement.
- L'appareil doit être installé sur une plaque non-combustible qui excède le dossier de l'ouverture de porte d'au moins 6 pouces (152 mm) ainsi que chaque côté de l'ouverture de porte d'au moins 6 pouces (152 mm). La plaque non-combustible doit posséder une épaisseur minimale de 0.8125" (0.208 mm). Consultez le manuel d'instructions pour plus de détails.
- Il doit y avoir un apport d'air frais dans la pièce. Lorsque installé dans une maison mobile, un apport d'air extérieur doit être installé.
- Ne pas obstruer les ouvertures d'air de combustion.
- Cet appareil de chauffage requiert des inspections et réparations périodiques. Consultez le manuel de l'utilisateur pour plus d'informations. Opérer cet appareil de chauffage de façon inconsidérée par rapport au manuel de l'utilisateur constitue une violation de la loi fédérale (1-10).


Made in St-Augustin-de-Desmaures (Qc), Canada
09/08/2017 (# test)



Fabriqueur de poêles international
Stove Builder International

Fabrique à St-Augustin-de-Desmaures (Qc), Canada
09/08/2017 (# test)

27708



Intertek
Control number: 4002461
STANDARDS / NORMES D'USINE
CONFORME AU/CONFORME À CPV 304.215.03
Certified to/Conforme avec U.L.C. 914.3007
CONFORME AU/CONFORME À UL 984.1.002
CSA 9415.1-10

LISTED SOLID FUEL BURNING APPLIANCE
POÊLE À COMBUSTIBLE SOLIDE
HOMOLOGUÉ

MODEL / MODÈLE :
OSBURN 2500

Serial Number / No. de série: 1

U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2010 particulate emission standards.
AGENCE DE PROTECTION DE L'ENVIRONNEMENT DES É.U. (EPA), Conforme aux normes d'émission de particules de 2010.
Weighted average emission rate / Moyenne pondérée des émissions: 0.96 g/h
When tested in accordance with / Lorsque testé selon: ASTM D2515 & ASTM E2779

CAUTION

- HOT WHILE IN OPERATION.
- DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY.
- CONTACT MAY CAUSE SKIN BURNS. SEE NAME-PLATE AND INSTRUCTIONS.
- OPERATE THIS UNIT ONLY WITH THE FUEL HOPPER LID CLOSED. FAILURE TO DO SO MAY RESULT IN EMISSION OF PRODUCTS OF COMBUSTION FROM THE HOPPER UNDER CERTAIN CONDITIONS.
- DO NOT OVERFILL THE HOPPER.
- MOVING PARTS MAY CAUSE INJURY.
- HOT PARTS. DO NOT OPERATE UNIT WITH THE SIDE OR REAR PANELS REMOVED.
- MAINTAIN HOPPER SEAL IN GOOD CONDITION.

ATTENTION

- CHAUD EN FONCTIONNEMENT.
- NE PAS TOUCHER. GARDER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES ÉLOIGNÉS.
- UN CONTACT AVEC LA PEAU PEUT OCCASIONNER DES BRÛLURES. VOIR LES INSTRUCTIONS.
- OPÉRER CET APPAREIL SEULEMENT AVEC LE COUVERCLE DE LA TRÉMIE FERMÉ. DES ÉMISSIONS DE COMBUSTION PEUVENT SE PROPAGER PAR LA TRÉMIE SOUS CERTAINES CONDITIONS.
- NE PAS SURCHARGER LA TRÉMIE.
- DES PIÈCES EN MOUVEMENT PEUVENT CAUSER DES BLESSURES.
- PIÈCES CHAUDES. NE PAS UTILISER SI LES PANNEAUX DE CÔTÉS OU ARRIÈRE SONT ENLEVÉS.
- CONSERVER LE JOINT D'ÉTANCHÉITÉ DU TRÉMIE EN BONNES CONDITIONS.


DANGER

- DISCONNECT POWER BEFORE SERVICING UNIT.
- RISK OF ELECTRICAL SHOCK.

DANGER

- DÉBRANCHER POUR L'ENTRETIEN.
- RISQUE DE CHOCS ÉLECTRIQUES.

Made in St-Augustin-de-Desmaures (Qc), Canada
09/08/2017 (# test)



Fabriqueur de poêles international
Stove Builder International

Fabrique à St-Augustin-de-Desmaures (Qc), Canada
09/08/2017 (# test)

27708

Plaque d'homologation - Page 1

Plaque d'homologation - Page 2

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Manuel d'opération- 2500

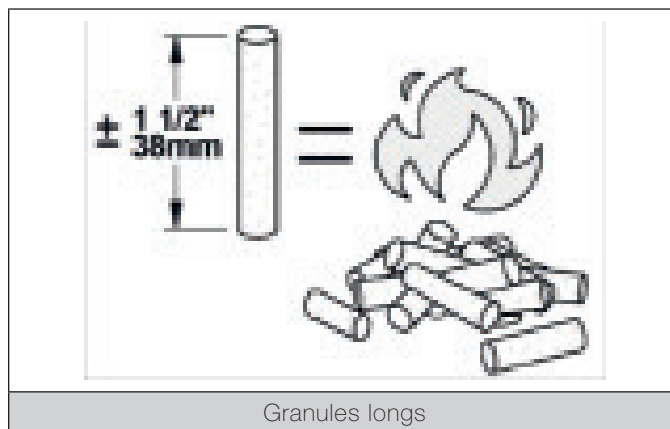
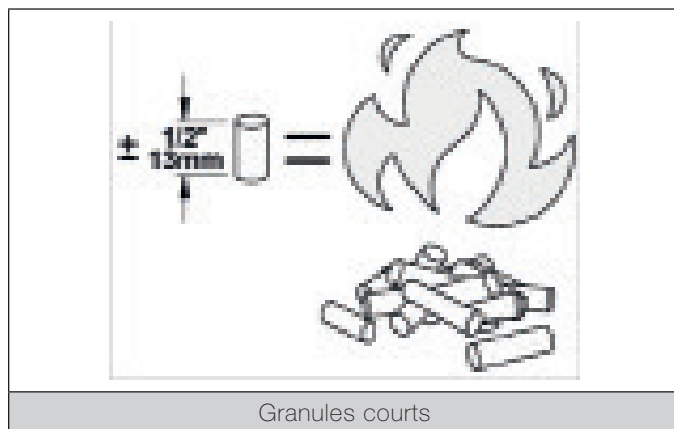
NE PAS BRÛLER:

- DES ORDURES;
- DE LA PELOUSE OU DES DÉCHETS DE JARDIN;
- DES MATÉRIAUX CONTENANT DU CAOUTCHOUC, Y COMPRIS LES PNEUS;
- DES MATÉRIAUX CONTENANT DU PLASTIQUE;
- DES DÉCHETS CONTENANT DU PÉTROLE, DE LA PEINTURE, DU DILUANTS À PEINTURE OU DES PRODUITS À BASE D'ASPHALTE;
- DES MATÉRIAUX CONTENANT DE L'AMIANTE;
- DES DÉBRIS DE CONSTRUCTION OU DE DÉMOLITION;
- DES TRAVERS DE CHEMIN DE FER OU DU BOIS TRAITÉ;
- DU FUMIER OU DES CARCASSES D'ANIMAUX;
- DU BOIS D'ÉPAVE OU AUTRE MATÉRIAUX SATURÉS A L'EAU SALÉE;
- DU BOIS VERT; OU DES PRODUITS DU PAPIER, DU CARTON, DU CONTREPLAQUÉ OU DES PANNEAUX DE PARTICULES. L'INTERDICTION DE BRÛLER CES MATÉRIAUX N'INTERDIT PAS L'UTILISATION D'ALLUME-FEU FABRIQUÉ À PARTIR DE PAPIER, DE CARTON, DE SCIURE DE BOIS, DE CIRE ET DE SUBSTANCES SIMILAIRES POUR ALLUMER UN FEU.
- BRÛLER CES MATÉRIAUX POURRAIT PRODUIRE UNE ÉMANATION DE FUMÉE TOXIQUE, RENDRE L'APPAREIL INEFFICACE ET CAUSER DE LA FUMÉE.

Granules recommandés

Type: Granules de bois, qualité premium ou supérieure, certifié par PFI, ENplus ou CANplus.

Dimension: Les granules conventionnels sont ceux de 1/4" ou 5/16" de diamètre, d'une longueur maximale de 1". Des granules plus longs et plus gros peuvent affecter la constance de l'alimentation. La longueur des granules peut varier d'un lot à l'autre, même si elle provient du même fabricant.



Taux de cendres: Moins de 1%. Plus de 1% de cendres augmentera la fréquence de nettoyage requise, créera des problèmes de combustion et augmentera le taux d'émission de l'appareil.

Taux d'humidité: Des granules humides seront difficiles à allumer et affecteront grandement l'alimentation et les performances du poêle. L'utilisation de granules secs maintiendra les performances de l'appareil.



Notez que la qualité des granules peut varier en fonction du fabricant. Elle peut également varier d'un sac à l'autre, même si les granules proviennent du même fabricant. Il est recommandé d'essayer plusieurs fabricants différents pour trouver celui qui convient le mieux à votre utilisation. Ensuite, achetez les granules en lot de plusieurs tonnes, pour assurer votre satisfaction.



L'utilisation d'un combustible autre que celui mentionné ci-dessus n'est pas permise. Ceci constitue une violation des codes du bâtiment pour lequel ce poêle a été approuvé et annulera la garantie.

Entreposage

Les granules devraient rester dans leur emballage d'origine jusqu'à leur utilisation.

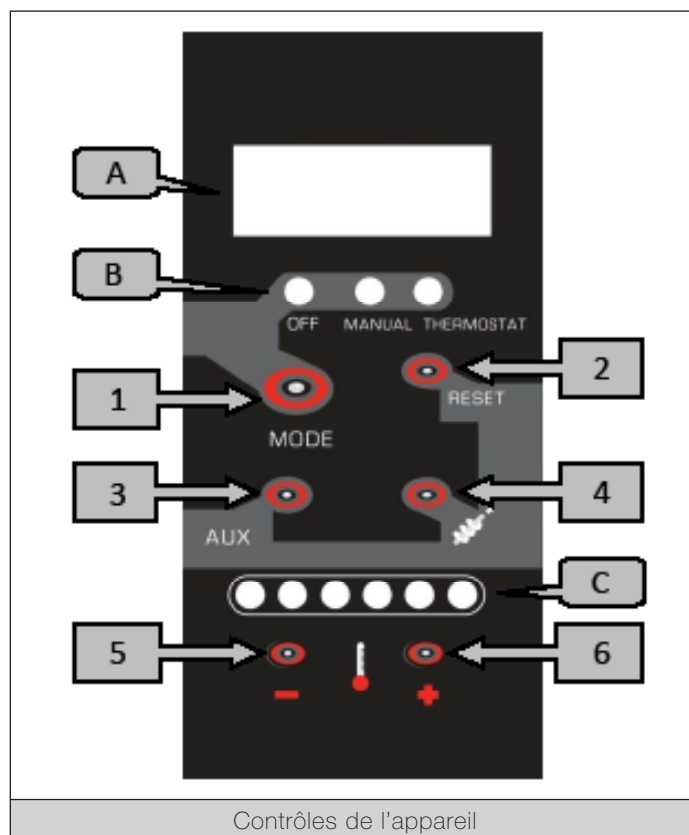
Il est recommandé de remiser les sacs de granules dans un endroit sec et bien aéré. S'ils doivent être entreposés à l'extérieur, garder l'emballage de plastique de la palette intact et couvrir celle-ci avec une bâche puisque les sacs de granules ne sont pas étanches.

Entreposer un sac ou deux dans la même pièce que le poêle pour le ravitaillement. Les distances minimales des dégagements aux matériaux combustibles ainsi que l'espace requis pour remplir la trémie et l'enlèvement des cendres doivent être respectés.

NE PAS ENTREPOSER DE COMBUSTIBLES EN DEÇÀ DES DÉGAGEMENTS MINIMUMS DE L'APPAREIL DE CHAUFFAGE.

CONTRÔLES DE L'APPAREIL

Le fonctionnement du poêle, du système d'alimentation en granules et des ventilateurs sont contrôlés par un panneau de contrôle, qui est situé sur le côté droit de l'appareil. Les divers boutons et zones de visualisations du panneau de contrôle sont les suivants :

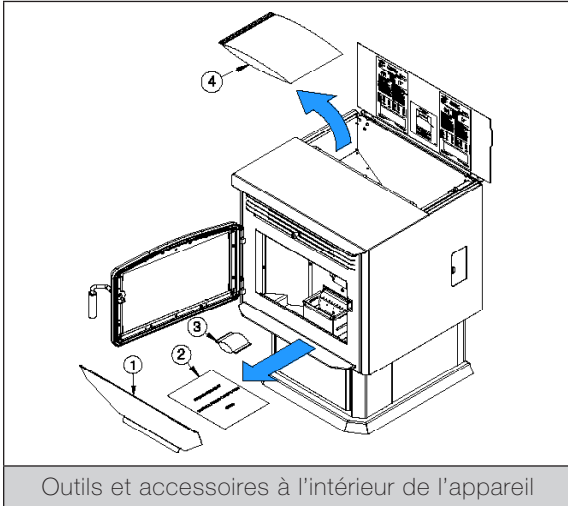


| No | Description |
|----|---|
| A | Zone de visualisation des différents messages. |
| B | Zone de visualisation de l'état du poêle. |
| C | Zone de visualisation de l'intensité du poêle, niveau 1 à 6. |
| 1 | MODE : Le bouton «MODE» est utilisé pour arrêter le poêle (OFF), le mettre en marche en opération manuelle (MANUAL) ou en mode thermostatique (THERMOSTAT). |
| 2 | RESET : Le bouton «RESET» est utilisé pour réinitialiser le poêle après l'apparition de la plupart des messages d'erreur. |
| 3 | AUX : Le bouton «AUX» est utilisé pour ajuster la vitesse de l'air de convection. |
| 4 | VIS : Le bouton « vis » est utilisé pour remplir la vis sans fin de granules. |
| 5 | MOINS : Le bouton « - » est utilisé pour réduire la vitesse de l'alimentation en granules et de ce fait même, baisser le niveau d'intensité du poêle. |
| 6 | PLUS : Le bouton « + » est utilisé pour augmenter la vitesse de l'alimentation en granules et de ce fait même, augmenter le niveau d'intensité du poêle. |

OPÉRATION DE L'APPAREIL

Avant de démarrer l'appareil

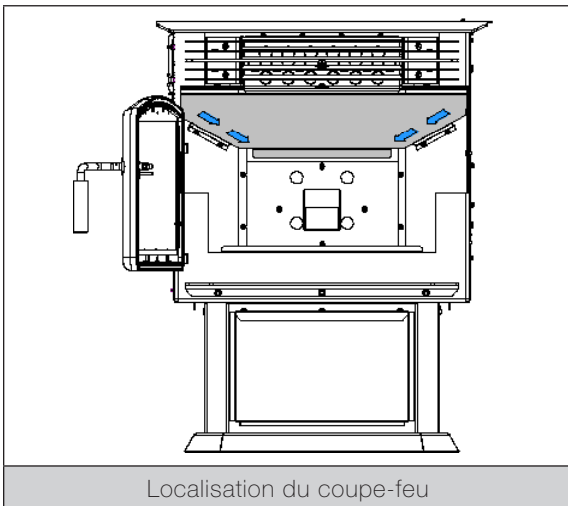
- S'assurer que l'appareil et le système d'évent sont installés selon les instructions d'installation.
- Lire et suivre les instructions d'opération.
- S'assurer que tous les outils et accessoires à l'intérieur de l'appareil ont été retirés.



Outils et accessoires à l'intérieur de l'appareil

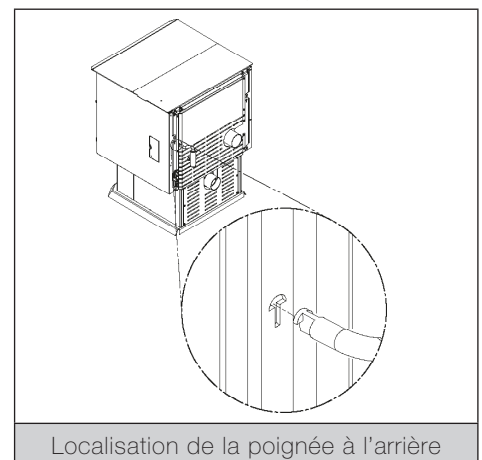
| No | Outils / Accessoires |
|----|-------------------------|
| 1 | Coupe-feu |
| 2 | Feuille d'avertissement |
| 3 | Sachet désydratant |
| 4 | Manuels d'utilisateur |

- S'assurer que le coupe-feu a bien été installé.



Localisation du coupe-feu

- S'assurer que le pot de combustion est bien en place et qu'il y a suffisamment de granules dans la trémie
- La poignée de l'appareil est amovible. **Lorsque le poêle est en fonction, elle doit être rangée derrière le poêle,** comme montré sur l'image ci-dessous.



Localisation de la poignée à l'arrière

Premier allumage / Début de saison

Avant de démarrer le poêle, le pot à combustion, le coupe-feu et les panneaux d'accès doivent être installés correctement. Le poêle et la trémie doivent avoir été vidés de tous les outils et accessoires (voir la section «Avant de faire fonctionner le poêle»). De plus, toutes les portes et tous les couvercles doivent être fermés et le système d'évent doit être correctement installé et scellé.

Remplir la trémie et appuyer sur le bouton «MODE» une fois pour démarrer le poêle en opération manuelle (MANUAL) ou appuyer deux fois pour démarrer le poêle en opération thermostatique (THERMOSTAT). Lors du premier feu de la saison, ou si l'appareil a manqué de granules, appuyez sur la «VIS» en premier, puis démarrer le poêle dans le mode désiré. Lorsque le poêle démarre, il s'allume automatiquement. Aucun allume-feu n'est nécessaire.

Si le feu n'allume pas dans les 20 minutes suivant le démarrage, le message «CODE L» apparaîtra dans la zone de visualisation des messages. Voir la section de dépannage pour plus de détails.

Durant les premiers feux, le poêle dégagera une odeur désagréable accompagnée d'une mince fumée. Ceci est lié au processus de durcissement de la peinture. La peinture chauffe, durcit et adhère au métal. Faire des feux à faible intensité minimisera l'effet désagréable. Éviter de placer des objets sur le poêle afin de ne pas endommager la peinture. S'assurer que la pièce soit bien ventilée. Ouvrir les fenêtres, au besoin. Bien que la fumée et son odeur soient désagréables, elles ne sont pas toxiques.



Faire deux ou trois feux à faible intensité pour amorcer le processus de durcissement de la peinture et le conditionnement des composants. Faire ensuite des feux à haute intensité jusqu'à ce que le poêle ne dégage plus d'odeur de peinture.



NE JAMAIS UTILISER UNE GRILLE OU AUTRE MOYEN POUR SUPPORTER LE COMBUSTIBLE. SEUL LE POT À COMBUSTION APPROUVÉ POUR CE POÊLE DOIT ÊTRE UTILISÉ ET IL NE DOIT PAS ÊTRE MODIFIÉ.

Démarrage quotidien

Avant le démarrage, s'assurer que l'entretien recommandé selon le calendrier a été effectué (voir la section «Entretien»). Remplir la trémie et appuyer sur le bouton «MODE» une fois pour démarrer le poêle en opération manuelle (MANUAL) ou appuyer deux fois pour démarrer le poêle en opération thermostatique (THERMOSTAT).

En appuyant sur les boutons «+» ou «-», il sera possible d'augmenter ou de réduire la vitesse de l'alimentation en granules, et par le fait même, le niveau d'intensité du poêle. Chaque changement du niveau d'intensité peut être visualisé grâce à la lumière rouge qui indique le niveau atteint, de 1 à 6.

Manque de granules

Si le poêle manque de granules, le feu s'éteindra tranquillement. Le ventilateur de convection restera en fonction jusqu'à ce que la sonde d'évacuation lise 115°F. Le cycle de refroidissement prendra quelques minutes avant que tous les autres moteurs s'arrêtent. Lorsque cette température est atteinte, le message «CODE E» apparaîtra.

Le redémarrage du poêle sera possible seulement lorsque tous les ventilateurs seront arrêtés (environ 10 minutes après l'apparition du message d'erreur). Appuyer sur «RESET» et remplir la trémie. Appuyer sur le bouton de la «VIS» et ensuite appuyer sur le bouton «MODE» pour repartir le poêle dans le mode désiré.

Remplissage

Lorsque le poêle est en marche, le couvercle de la trémie peut être ouvert pour remplissage durant 90 secondes avant d'afficher un message d'erreur. Un signal sonore se fera entendre et s'intensifiera chaque 30 secondes. Après 90 secondes, si le couvercle de la trémie est toujours ouvert, le poêle s'arrêtera en affichant «CODE d». Pour plus d'informations, voir la section «Dépannage».

Lorsque le poêle est à l'arrêt, il n'y a aucune limite de temps pour le remplissage de la trémie. *L'ouverture du couvercle de la trémie arrêtera la vis sans fin d'alimenter le poêle en granules.*

LE COUVERCLE DE LA TRÉMIE DOIT ÊTRE FERMÉ EN TOUT TEMPS, SAUF LORS DU REMPLISSAGE.

NE SURCHARGEZ PAS LA TRÉMIE.

Procédure d'arrêt

Pour éteindre le poêle, appuyer sur le bonton «MODE» jusqu'à la position «OFF». Le cycle de refroidissement s'échelonne sur quelques minutes et les ventilateurs continueront de fonctionner pendant que le poêle se refroidit.

FRANÇAIS



NE JAMAIS DÉBRANCHER LE CORDON D'ALIMENTATION POUR ÉTEINDRE LE POÊLE.

Les signes de surchauffe

Choisir un poêle trop petit pour la maison dans laquelle il sera installé risque de faire surchauffer le poêle puisqu'il devra fonctionner au réglage maximum la plupart de temps pour obtenir une température confortable. L'espérance de vie des composants ainsi que celle du poêle en seront réduites.

Dans des conditions normales, la flamme doit avoir une couleur jaune vif, être très active et stable. Si la flamme devient paresseuse, très élevée et orange, c'est un signe de mauvais fonctionnement.

Les causes les plus souvent liées à la surchauffe d'un poêle sont les suivantes: système d'évent trop restrictif, échangeur de chaleur bloqué, un manque d'air de combustion ou un manque d'entretien.

Si l'appareil surchauffe, il deviendra très chaud. Si le poêle devient trop chaud, il s'arrêtera en affichant «CODE H».

Si cela se produit **une fois**, attendre que le poêle refroidisse et **effectuer l'entretien hebdomadaire** du poêle suggéré dans le calendrier d'entretien. **Inspecter minutieusement le système d'évent.** Le faire ramoner, si nécessaire. Appuyer sur le bouton «MODE» et «RESET» simultanément durant 3 secondes pour réinitialiser le poêle.

Si le code se produit plus d'une fois, un contact avec le détaillant pourrait s'avérer utile afin de recevoir quelques conseils pour que ce code ne s'affiche plus.

Après **trois répétitions** d'un code H, le contrôle de l'**appareil sera verrouillé** et il sera impossible de redémarrer l'appareil. Avant de le déverrouiller, l'**entretien biennal** suggéré dans le calendrier d'entretien doit être fait. **Inspecter minutieusement le système d'évent.** Le faire ramoner, si nécessaire. Lorsque l'entretien est complété, pour déverrouiller le contrôle, appuyer sur les boutons suivants, les uns après les autres : «RESET», «MODE», «+», «-» puis, appuyez sur le bouton «VIS» durant 5 secondes.



Si des lueurs rougeâtres sont visibles sur les composants externes du poêle, le poêle surchauffe. Éteignez-le immédiatement. **Ne le débranchez pas et n'ouvrez pas la porte.** Débrancher le poêle désactivera tous les éléments de sécurité du poêle.

Utilisation d'un thermostat

L'utilisation d'un thermostat aidera à maintenir une température constante dans toute la maison. Un thermostat à bas volatge (24 volts) est nécessaire. Un modèle mural fixe ou un modèle télécommandé peut être utilisé.

Afin d'utiliser le mode thermostat, appuyer sur le bouton «MODE» jusqu'à la position «THERMOSTAT». Sélectionner ensuite le niveau d'intensité en utilisant les boutons «-» ou «+». En mode thermostatique, le poêle fonctionnera au niveau d'intensité sélectionné jusqu'à ce que la température de la pièce ait atteint le niveau programmé sur le thermostat.

Sélection du mode pilot

Par défaut, le mode pilote est en mode «AUTO» Pour le changer, appuyer sur le bouton «-» et le bouton «MODE» simultanément, durant 3 secondes. Le mode choisi sera alors affiché dans la zone de visualisation des différents messages.

Pilot AUTO (Niveau d'intensité 1)

Lorsque la température est atteinte, le poêle restera automatiquement à son niveau d'intensité le plus faible (#1) jusqu'à ce que le thermostat demande à nouveau de la chaleur. Le poêle s'arrêtera après 15 minutes, si le thermostat ne demande pas de chaleur durant cette période.

Pilot AUTO (Niveaux d'intensité 2 à 6)

Lorsque la température est atteinte, le poêle se met automatiquement à son niveau d'intensité le plus faible (#1), jusqu'à ce que le thermostat demande à nouveau de la chaleur. Le poêle s'arrêtera après 45 minutes, si le thermostat ne demande pas de chaleur durant cette période.

Pilot ON:

Lorsque la température est atteinte, le poêle se met automatiquement à son niveau d'intensité le plus faible (#1), jusqu'à ce que le thermostat demande à nouveau de la chaleur. Le poêle ne s'arrêtera pas, même si le thermostat ne demande pas de chaleur à nouveau.



Pour éviter l'usure prématurée des composants de l'appareil, il est recommandé d'utiliser le mode «Pilot ON» durant les mois les plus froids et le mode «Pilot AUTO» durant les mois les plus chauds.

Ajustement de la vitesse de l'air de convection

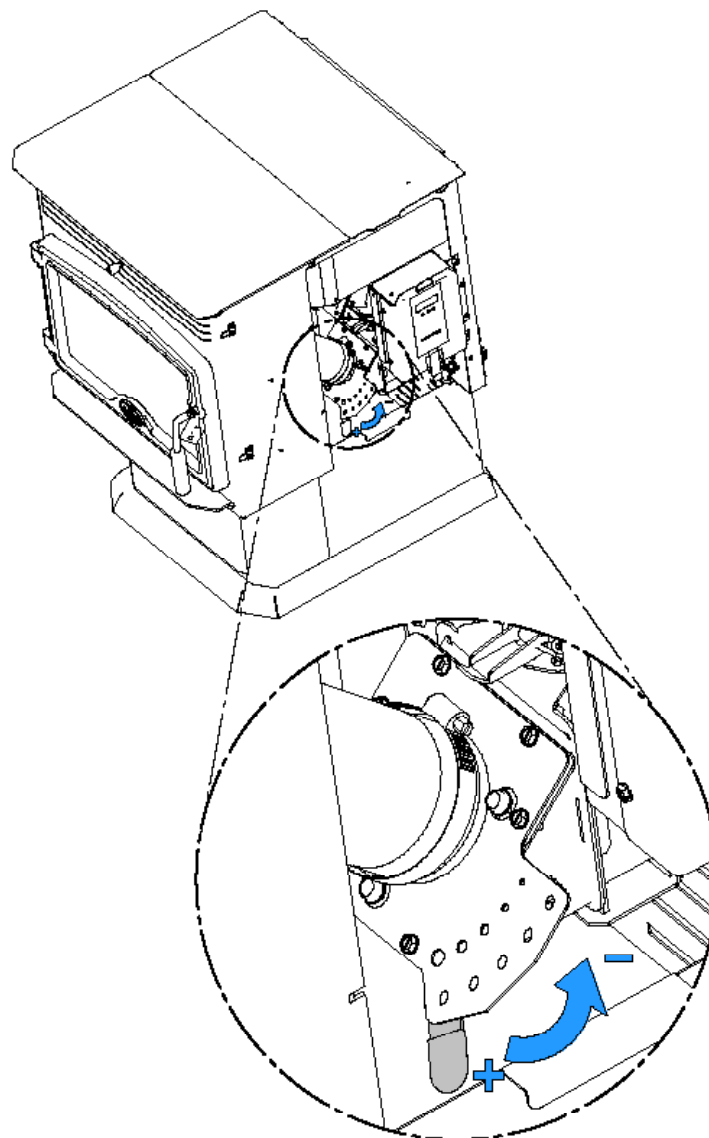
Chaque niveau d'intensité de combustion de l'appareil a été programmé avec une vitesse de convection optimale. Toutefois, il est possible d'augmenter la vitesse en appuyant sur le bouton «AUX». Tous les niveaux d'intensité peuvent être augmentés, sauf le niveau d'intensité 6, qui est déjà à sa vitesse maximum.

Ajustement de l'entrée d'air

Le taux de combustion minimum de cet appareil de chauffage au bois a été défini par le fabricant et ne doit pas être modifié. Il est contre la réglementation fédérale de modifier ce réglage ou d'utiliser cet appareil de chauffage au bois d'une manière non conforme aux instructions de ce manuel.

Il est possible d'ajuster la quantité d'air de combustion qui entre dans le poêle. L'utilisation du poêle au réglage le plus bas réduira les allumages manqués, allumera les granules plus facilement et réduira le noircissement de la vitre lorsque des granules de haute qualité sont utilisés. Si un sac de granules devait être plus difficile à allumer et à brûler, l'ouverture du contrôle d'air aidera.

Pour ouvrir ou fermer la trappe d'air manuelle, ouvrir le panneau décoratif droit et repérer l'entrée d'air. Presser sur la languette et glisser vers le haut pour diminuer l'arrivée d'air et vers le bas pour augmenter l'arrivée d'air.



ENTRETIEN

DANGER



NE JAMAIS FAIRE L'ENTRETIEN DU POÊLE LORSQU'IL EST CHAUD.

DANGER



DÉBRANCHER TOUTE SOURCE D'ÉLECTRICITÉ AVANT DE FAIRE L'ENTRETIEN DE L'APPAREIL.

Calendrier d'entretien

Ce tableau doit être utilisé comme référence seulement lors d'une utilisation normale de l'appareil. La fréquence de nettoyage peut varier selon le type de combustible utilisé.

| COMPOSANTS | HEBDOMADAIRE (±250 LIVRES) | BI-ANNUEL (± 1 TONNE) | ANNUEL (± 2 TONNES) |
|-----------------------------------|-------------------------------|--------------------------|------------------------|
| Coupe-feu | Aspirer | | |
| Système auto-nettoyant (vitre) | Aspirer | | |
| Pot à combustion | Gratter / Aspirer | | |
| Vitre | Nettoyer | | |
| Tiroir à cendres | Vider / Aspirer | | |
| Parois de la chambre à combustion | Aspirer | Brosser / Aspirer | |
| Échangeur de chaleur | Brosser | Gratter et aspirer | |
| Canalisation d'évacuation | | Aspirer | |
| Ventilateur d'évacuation | | Aspirer | |
| Ventilateur de combustion | | Inspecter | |
| Ventilateur de convection | | Aspirer | |
| Système d'évent | | Inspecter et ramoner | Nettoyer et ramoner |
| Joints d'étanchéité | | Inspecter | |
| Trémie | | | Vider et aspirer |

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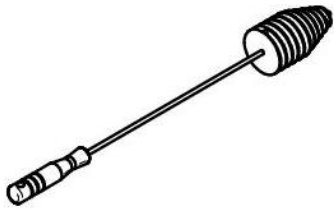


Le nettoyage du poêle et du système d'évent est important, surtout à la fin de la saison de chauffage afin de minimiser la corrosion durant les mois d'été, provoquée par les cendres accumulées.

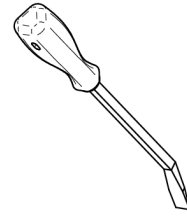


NÉGLIGER LE NETTOYAGE ET L'ENTRETIEN RECOMMANDÉS DE L'APPAREIL POURRAIENT ENTRAÎNER DE MAUVAISES PERFORMANCES ET ÊTRE UN DANGER POUR LA SÉCURITÉ.

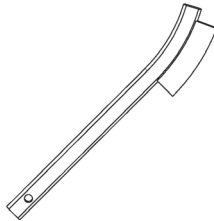
Équipements recommandés



Brosse universelle



Grattoir



Brosse en acier



Brosse ronde + Tige



Nettoyant à vitres



Aspirateur à cendres

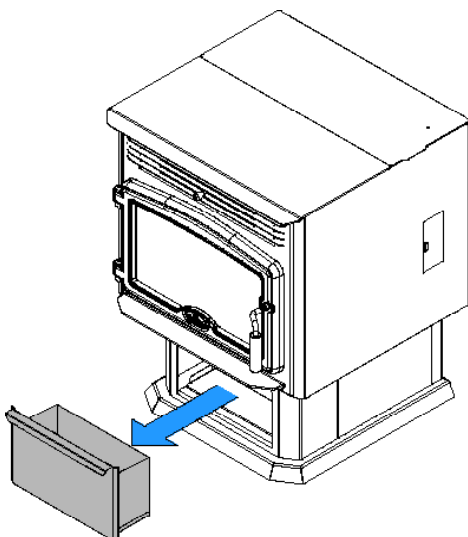
FRANÇAIS

Enlèvement des cendres

DANGER



NE JAMAIS ASPIRER LES CENDRES LORSQU'ELLES SONT CHAUDES. LES CENDRES DOIVENT ÊTRE REFROIDIES AVANT DE FAIRE L'ENTRETIEN.



Retrait du tiroir à cendres

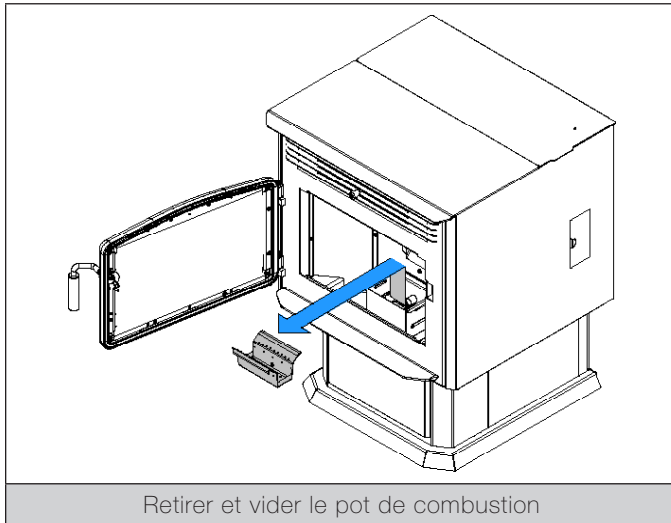


Les cendres doivent être mises dans un contenant métallique avec un couvercle étanche. Ce contenant fermé devrait être déposé sur une surface non combustible, loin de tout matériau pouvant prendre feu. Si les cendres sont destinées à être enterrées ou localement dispersées, elles devraient être maintenues dans le récipient fermé jusqu'à ce qu'elles soient complètement refroidies.

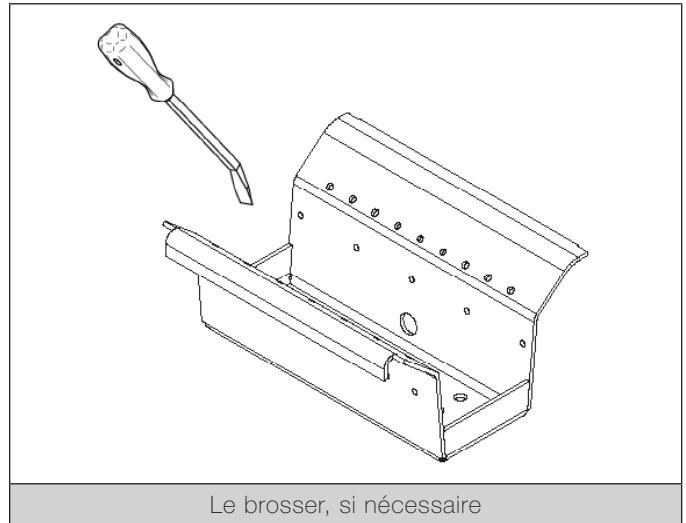


L'utilisation d'un aspirateur domestique, central ou commercial pour effectuer l'entretien du poêle est déconseillée. L'utilisation d'un aspirateur à cendres est fortement recommandée.

Pot de combustion



Retirer et vider le pot de combustion



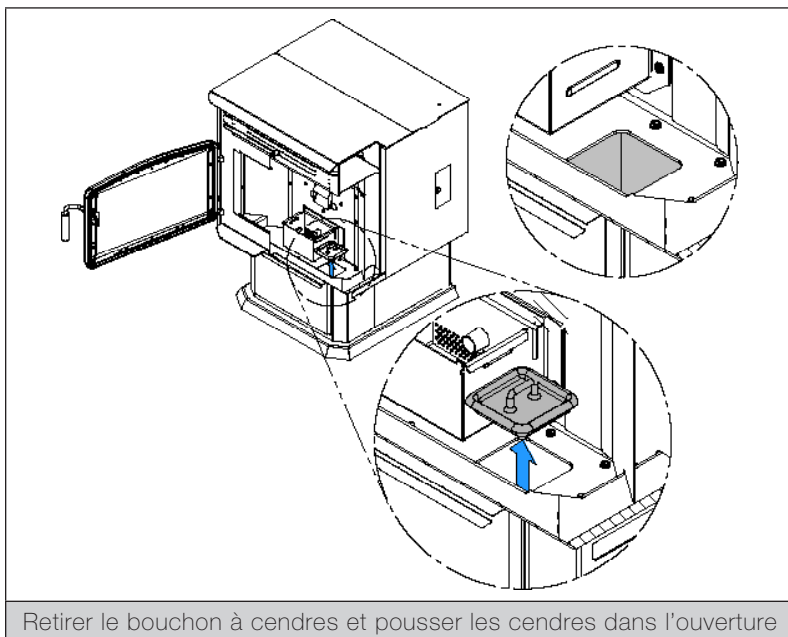
Le brosser, si nécessaire

FRANÇAIS

Chambre à combustion

Nettoyer la chambre à combustion en aspirant les cendres refroidies. Lorsque nécessaire, brosser les parois et aspirer les cendres par la suite.

Il est aussi possible de pousser les cendres dans le tiroir à cendres par l'ouverture au fond de la chambre à combustion. Dans ce cas-ci seulement, les cendres n'ont pas à être froides.

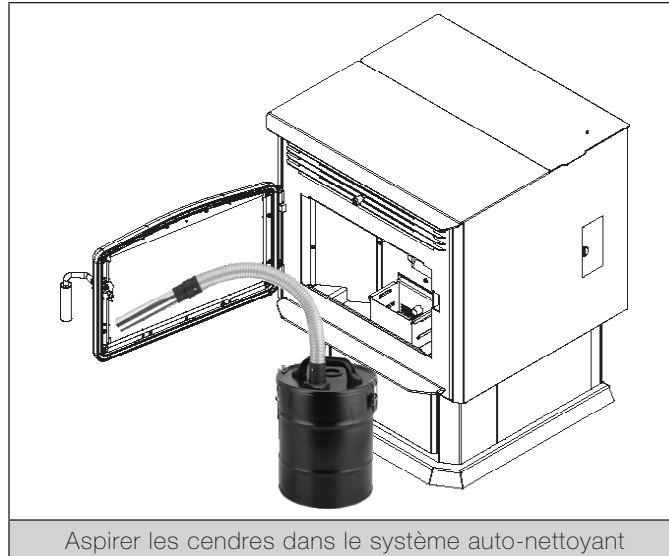


Retirer le bouchon à cendres et pousser les cendres dans l'ouverture

Entretien de la vitre

Aspirer les cendres accumulées dans le système autonettoyant de la vitre. Ceci permet un écoulement d'air optimal et empêche la vitre de noircir.

Laver la vitre au besoin, avec un nettoyant spécialement conçu pour les poêles à combustibles solides. Un produit nettoyant pour les fenêtres n'enlèvera pas la suie ou la créosote.



FRANÇAIS

.NE JAMAIS UTILISER DE NETTOYANTS ABRASIFS SUR LA VITRE OU SUR UNE PIÈCE PLAQUÉE.



NE PAS NETTOYER LA VITRE LORSQU'ELLE EST CHAUDE.

NE PAS FORCER, FRAPPER, CLAQUER OU ADOPTER TOUT AUTRE COMPORTEMENT QUI POURRAIT FRAGILISER LA PORTE VITRÉE.

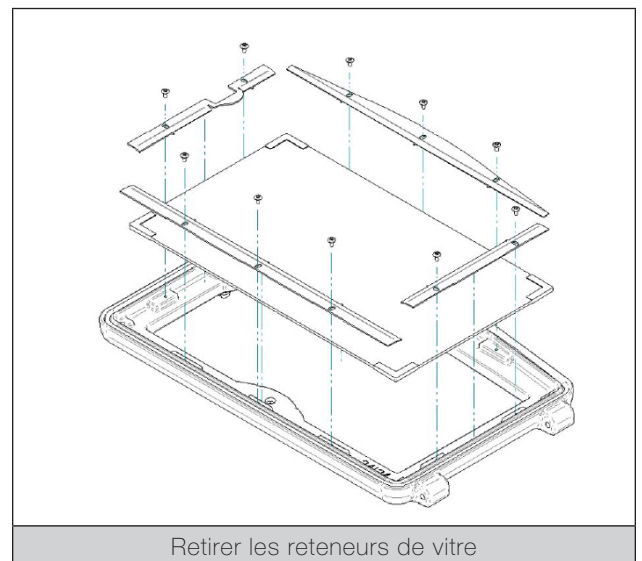
NE PAS UTILISER LE POËLE SI LA VITRE EST MANQUANTE, FISSURÉE OU CASSÉE.

Remplacer la vitre

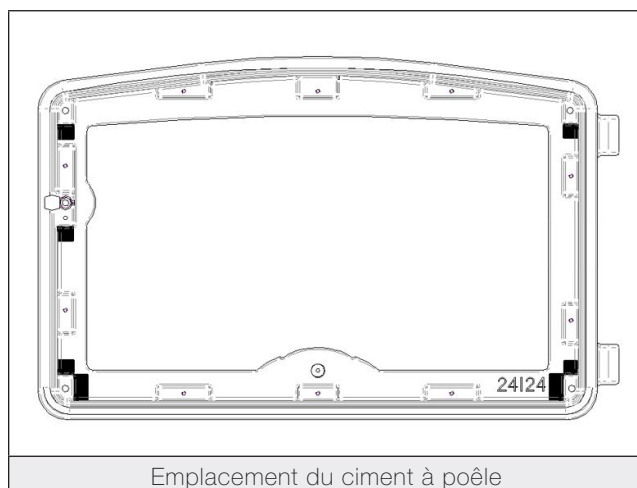
1. Retirer la porte et la placer sur une table, face vers le bas sur quelque chose de doux comme un coussin de chiffons ou un morceau de tapis.
2. Retirer les 10 vis qui maintiennent les reteneurs de vitre et retirer délicatement les morceaux de vitre du cadre de porte. Disposer de tous les débris de verre correctement. Une vitre cassée doit être remplacée par un verre céramique 13 7/8" x 8 5/8", 5 mm d'épaisseur. .



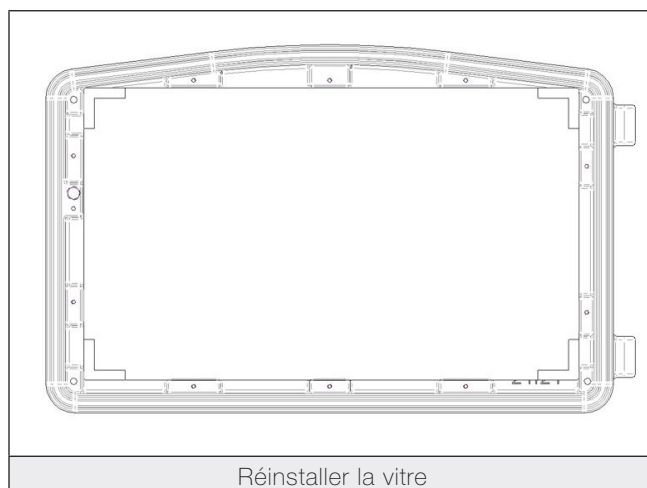
TOUJOURS PORTER DES GANTS LORS DE LA MANIPULATION DE VERRE BRISÉ



3. Retirez le ciment à poêle dans les coins de la porte (voir la figure ci-dessous). Lorsque terminé, réinstaller la nouvelle vitre.

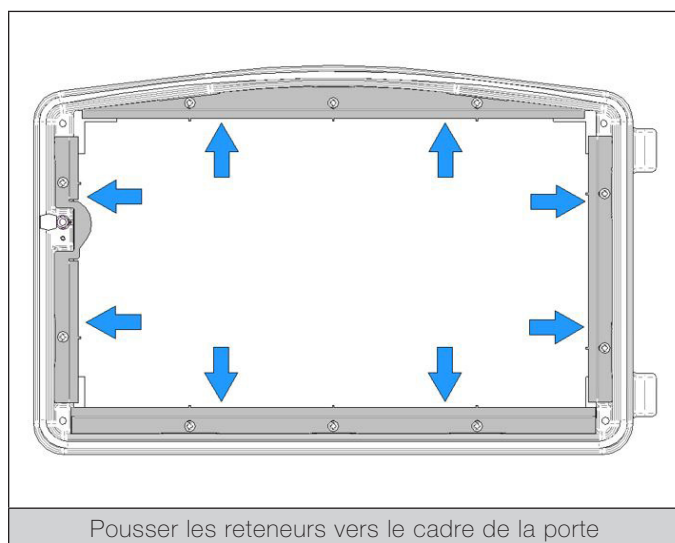


Emplacement du ciment à poêle



Réinstaller la vitre

5. Remettre du ciment à poêle dans les coins de la porte comme montré sur la figure ci-dessus.
6. Réinstallez les reteneurs de vitre en s'assurant que le ciment à poêle est compressé par les reteneurs. Pousser les reteneurs vers le cadre de la porte pour s'assurer qu'il n'y a pas d'espace entre les reteneurs et le cadre de la porte, puis, les visser en place. Ne pas trop serrer les vis car cela risquerait de fissurer le verre lorsque soumis à une forte chaleur.



Pousser les reteneurs vers le cadre de la porte

8. Réinstaller la porte et attendre 24h avant de l'utiliser à nouveau.

La vitre de remplacement doit être achetée seulement chez un détaillant autorisé. Le verre trempé ou ordinaire n'est pas adapté pour les températures élevées du poêle.

Lors du changement de la vitre, s'assurer que les joints d'étanchéité du verre sont aux mêmes endroits que les originaux afin de maintenir le bon fonctionnement du système autonettoyant de la vitre.

Entretien du cordon de porte

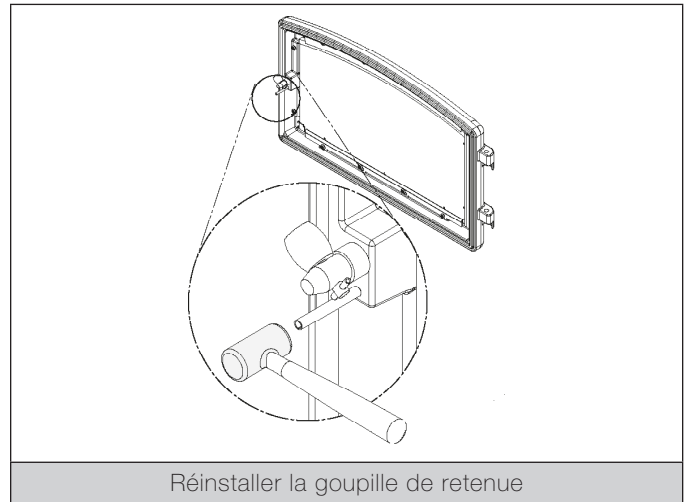
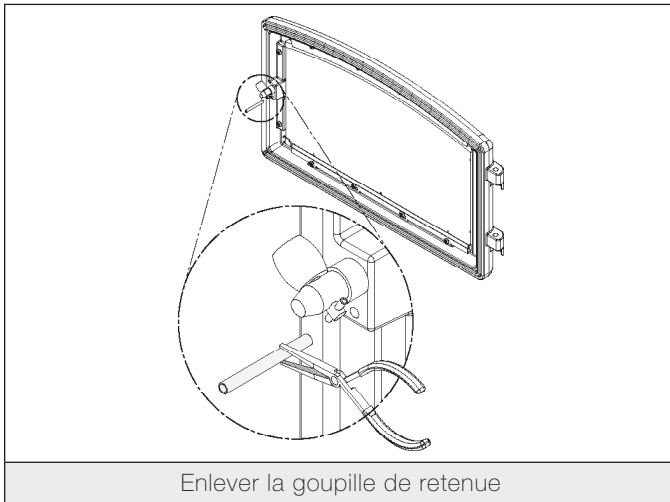
Le cordon de la porte doit être conservé en bon état. Après un certain temps, le cordon s'use et se comprime. Un ajustement de la porte peut alors être nécessaire (voir section «Ajustement de la porte»). Si l'ajustement de la porte n'est pas suffisant, il faut remplacer le cordon de porte avec un cordon d'origine.

Si la porte du poêle ne ferme pas hermétiquement, il sera difficile de garder la vitre propre et les gaz de combustion pourraient fuir dans la pièce.

Ajustement de la porte

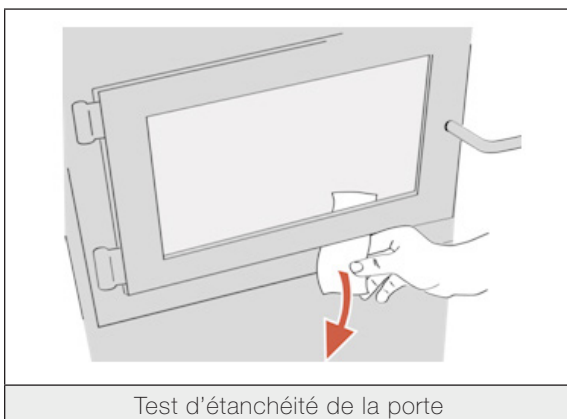
Pour obtenir un rendement optimal de l'appareil, la porte doit être parfaitement étanche avec la chambre à combustion. Le joint d'étanchéité doit donc être inspecté périodiquement afin d'obtenir un ajustement hermétique. L'étanchéité peut être améliorée avec un ajustement simple du mécanisme de verrouillage.

Enlever la goupille de retenue en tirant et tournant à l'aide d'une pince. Tourner la poignée d'un tour dans le sens contraire des aiguilles d'une montre afin d'augmenter la pression entre le cadrage de la porte et la structure du poêle. Réinstallez la goupille de retenue en utilisant un marteau.

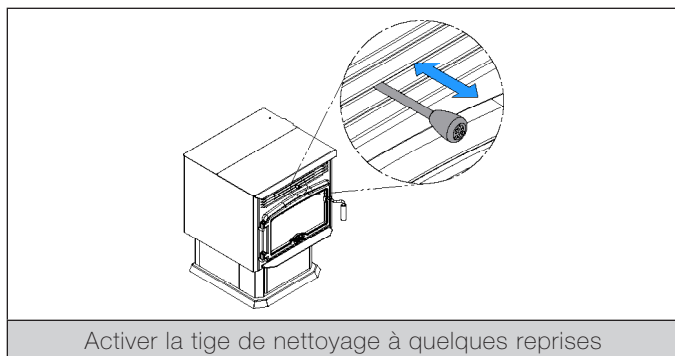


Vérification de l'étanchéité de la porte

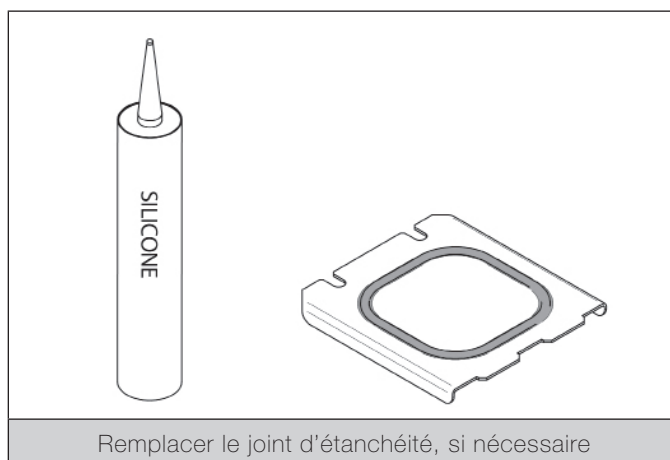
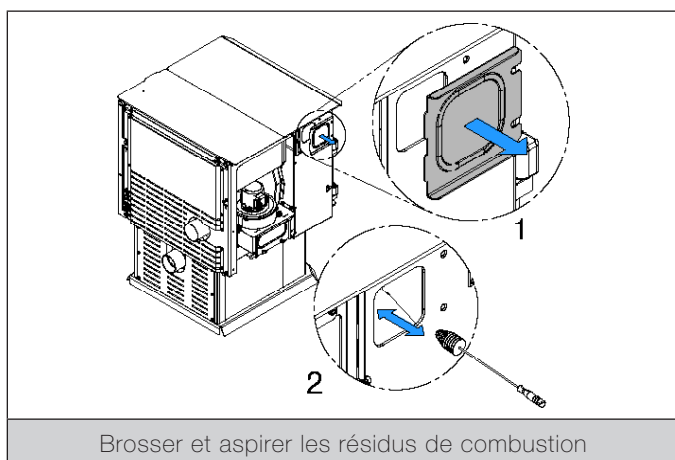
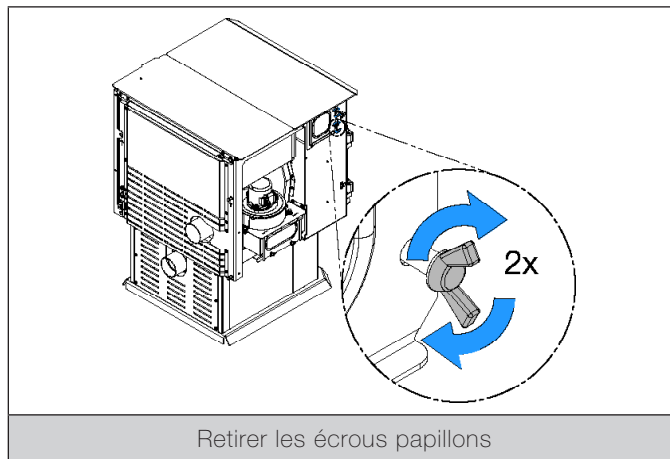
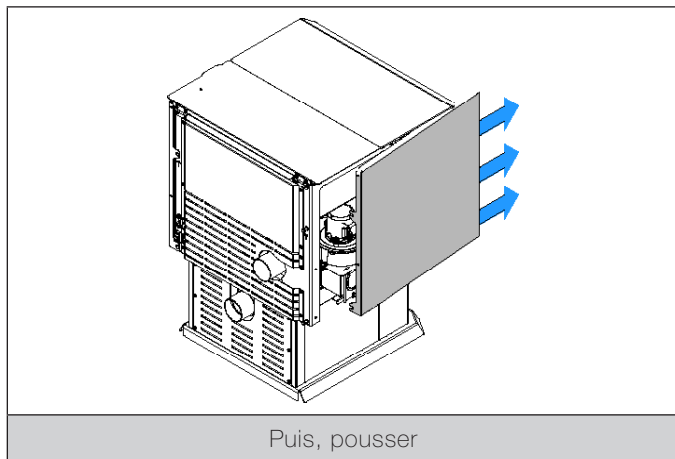
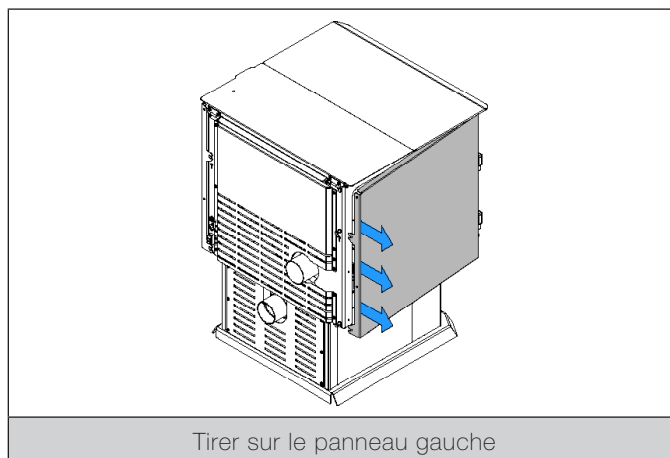
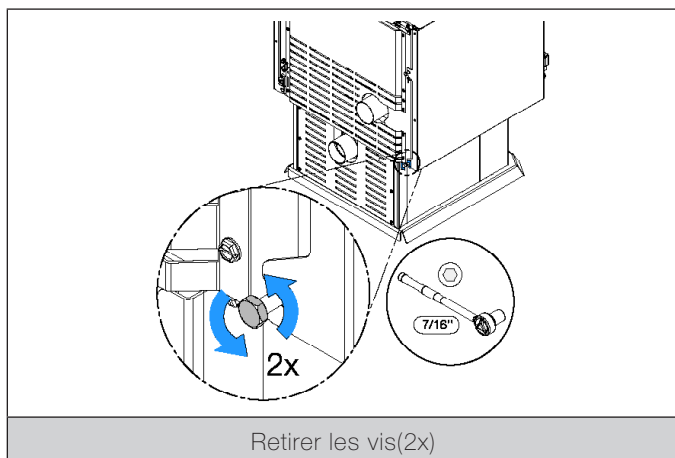
Vérifier l'étanchéité de la porte en fermant et en verrouillant la porte sur un bout de papier. Vérifier tout le tour de la porte. Le papier ne devrait pas glisser facilement. Si le papier glisse facilement, voir la section «maintenance» du manuel d'opération.



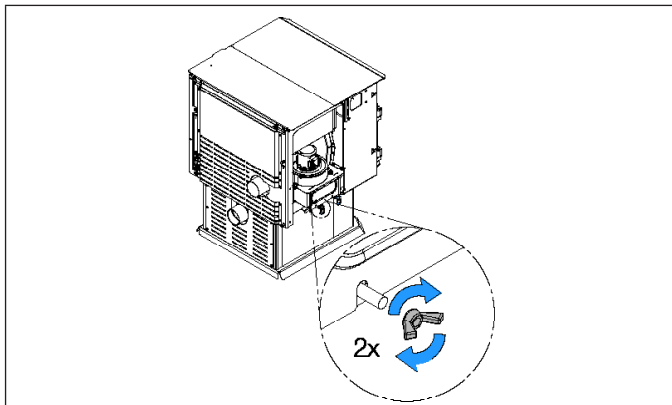
Échangeur de chaleur et canalisation d'évacuation



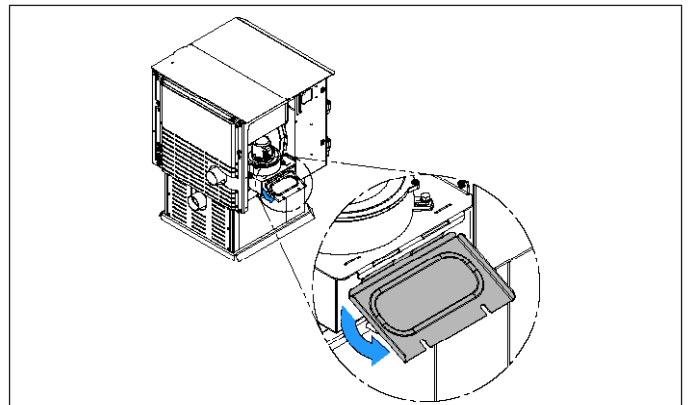
Brosser et aspirer l'intérieur de la canalisation de l'échangeur de chaleur, lorsque nécessaire.



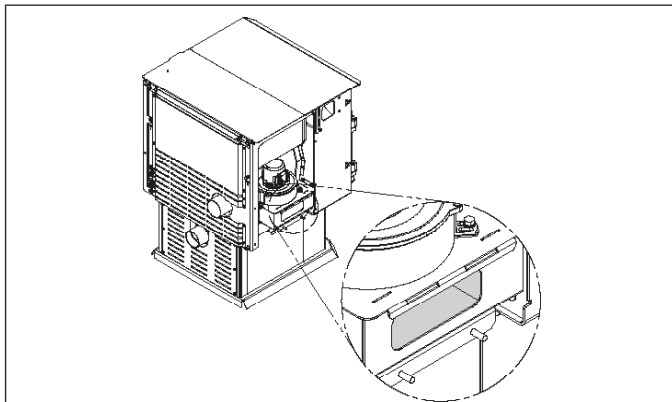
Brosser et aspirer l'intérieur de la canalisation d'évacuation, lorsque nécessaire.



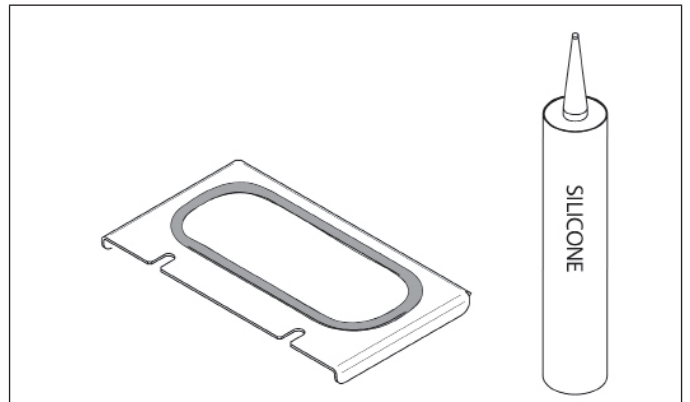
Retirer les écrous papillons



Retirer le panneau



Brosser et aspirer les résidus de combustion

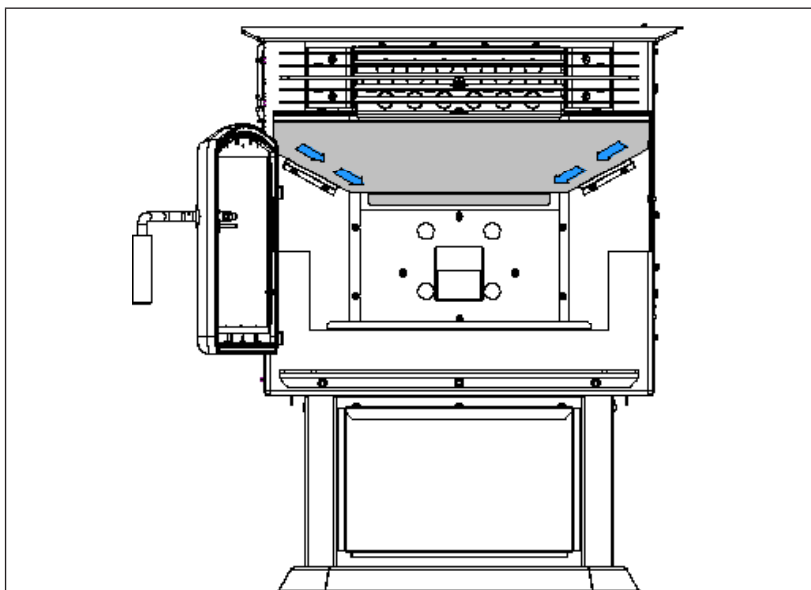


Remplacer le joint d'étanchéité, si nécessaire

FRANÇAIS

Coupe-feu

Retirer et nettoyer le coupe-feu. Ne pas oublier de le remettre en place.



Retirer et nettoyer le coupe-feu

Entretien du système d'évent

INSPECTEZ RÉGULIÈREMENT LE SYSTÈME D'ÉVENT, LES JOINTS ET AUTRES PIÈCES D'ÉTANCHÉITÉ POUR ÉVITER QUE LA FUMÉE ET LES GAZ DE COMBUSTION NE S'ÉCHAPPENT.

Le ramonage du système d'évent peut être difficile et dangereux. Pour les gens inexpérimentés, il est préférable d'engager un ramoneur professionnel pour inspecter et nettoyer le système.

Pour une personne expérimentée qui aimerait exécuter le ramonage elle-même, la méthode la plus efficace est d'utiliser une brosse de 3" ou 4", selon l'installation. Commencer dans le haut du système d'évent et brosser vers le bas, de sorte que les résidus de cendres, de suie et de crésote se détachent de la surface intérieure et tombent dans le bas du système d'évent, d'où ils peuvent être enlevés facilement.

Le système d'évent doit être maintenu en bon état et bien entretenu.

SI UNE COUCHE IMPORTANTE DE CRÉOSOTE S'EST ACCUMULÉE (3 MM (1/8") OU PLUS), ELLE DOIT ÊTRE ENLEVÉE IMMÉDIATEMENT POUR ÉLIMINER LES RISQUES DE FEU DE CHEMINÉE.

Faire face à un feu de cheminée

1. Évacuer les membres de la famille et les animaux du bâtiment, puis, téléphoner au service d'incendie.
2. Éteindre l'appareil. **Ne pas le débrancher !**
3. Si possible, utiliser un extincteur chimique, du bicarbonate de soude ou du sable pour maîtriser l'incendie. Ne pas utiliser de l'eau, car cela pourrait provoquer des explosions de vapeur dangereuses.
4. Ne pas utiliser le poêle jusqu'à ce que le système d'évent ainsi que le poêle aient été inspectés par un ramoneur qualifié ou un inspecteur du service d'incendie.

Cendres volantes et suie

Les produits de combustion contiennent de petites particules de cendres volantes. Des cendres volantes peuvent s'accumuler particulièrement dans les sections horizontales de tuyau d'évacuation et restreindre la circulation des gaz de combustion. La combustion incomplète produite lors du démarrage, de l'arrêt ou la mauvaise utilisation du poêle entraînera une formation de suie qui peut s'accumuler dans le système d'évacuation. **Le système d'évacuation doit être inspecté au moins deux fois par an afin de déterminer si le ramonage est nécessaire.**

DÉPANNAGE

Les problèmes les plus courants sont généralement causés par un ou plusieurs des facteurs suivants :

1. Mauvaise utilisation ou entretien inadéquat;
2. Mauvaise installation;
3. Combustible de mauvaise qualité;
4. Composant défectueux.

Le poêle est équipé d'une carte électronique qui informe l'utilisateur lorsque survient un problème. Il est donc important de ne pas débrancher le poêle lorsqu'il est en marche puisqu'il sera impossible de voir le message et corriger le problème. De plus, **débrancher le poêle désactive toutes les fonctions de sécurité.**

Afin d'obtenir un service rapide et personnalisé, lors de toutes communications avec le détaillant ou le fabricant, le numéro de modèle de l'appareil ainsi que le numéro de série devront être fournis. (Ces informations se trouvent sur la plaque d'homologation, à l'intérieur du couvercle de la trémie).

Principaux codes d'erreur

Cette section contient les principaux codes d'erreur, les causes possibles et quelques pistes de solutions. **Consulter notre site web pour télécharger le guide de dépannage détaillé.**

Après l'apparition d'un code d'erreur, le poêle s'arrêtera par lui-même et commencera un cycle de refroidissement. Pour repartir le poêle, appuyer sur le bouton «RESET», puis sur le bouton «MODE». Le poêle ne redémarrera que lorsque le cycle de refroidissement sera complété.

FRANÇAIS

| | |
|--|--|
| DANGER | DANGER |
|  NE JAMAIS MANIPULER OU REMPLACER UN COMPOSANT LORSQUE LE POÊLE EST CHAUD. |  DÉBRANCHER TOUTE SOURCE D'ÉLECTRICITÉ AVANT DE MANIPULER OU REMPLACER UN COMPOSANT. |

CODE P

Le système d'évent est bloqué. Un des composants suivants est obstrué ou bloqué par de la cendre ou par tout autre matériel : le clapet antiretour d'entrée d'air, le ventilateur de combustion, le pot à combustion, les échangeurs de chaleurs et les canalisations d'évacuation, le ventilateur d'évacuation ou le système d'évent. Faire l'entretien complet de l'appareil. Voir la section «Entretien».

Le système d'évent n'est pas installé correctement. L'installation du système d'évent doit être conforme au manuel d'installation ainsi qu'aux instructions d'installation du fabricant du système d'évent.

Un retour d'air s'est produit dans le système d'évent. Ceci peut se produire lors de journée avec de très grands vents ou si le système d'évent n'a pas la terminaison appropriée.

CODE E

Le poêle a manqué de granules. Remplir la trémie.

Les trous du pot à combustion sont bouchés. Retirer et nettoyer le pot à combustion. Les trous ne doivent pas être obstrués. Voir la section «Entretien».

La vis sans fin est coincée ou son moteur est défectueux. Tester le moteur. Voir la fiche technique «Tester un composant» sur notre site web. Lors du test, le couvercle de la trémie doit être fermé. Si le moteur ne semble pas fonctionner, soit il est défectueux soit la vis sans fin est coincée.

Le thermistor est défectueux. Lorsque le poêle est froid, appuyer sur le «+» et la «VIS» pour afficher la température. La température doit afficher la température ambiante. Si c'est le cas, mettre le poêle en marche. Après 10 minutes, si la valeur n'a pas augmenté, cela signifie que le thermistor est débranché ou défectueux.

CODE L

Les trous du pot à combustion sont bouchés. Retirer et nettoyer le pot à combustion. Les trous ne doivent pas être obstrués. S'assurer que le tube autour de l'allumeur n'est pas rempli de cendres. Voir la section «Entretien».

Le combustible utilisé est de mauvaise qualité. Le combustible utilisé doit être de bonne qualité. Voir la section «Combustibles».

L'allumeur est défectueux. Tester l'allumeur. Voir la fiche technique «Tester un composant» sur notre site web. S'il fonctionne correctement, l'extrémité devrait devenir rouge en moins de deux minutes.

Le thermistor est défectueux. Lorsque le poêle est froid, appuyer sur le «+» et la «VIS» pour afficher la température. La température doit afficher la température ambiante. Si c'est le cas, mettre le poêle en marche. Après 10 minutes, si la valeur n'a pas augmenté, cela signifie que le thermistor est débranché ou défectueux.

CODE H

*La principale cause d'une surchauffe de l'appareil est le manque d'entretien. Tout code de surchauffe devrait être suivi d'un **entretien rigoureux de l'appareil** et d'une **vérification du système d'évent**.*

Le code de surchauffe pourrait aussi apparaître si le pot à combustion ou le coupe-feu n'est pas installé correctement, ou si le ventilateur de convection est défectueux.

Après trois répétitions d'un code de surchauffe, il ne sera plus possible de redémarrer l'appareil.



Avant de le déverrouiller, faites l'entretien biennuel suggéré dans le calendrier d'entretien. Inspectez minutieusement le système d'évent. Faites-le ramoner, si nécessaire.

Pour plus de détails, voir la section «surchauffe de l'appareil».

CODE d

Le couvercle de la trémie est demeuré ouvert pendant plus de 90 secondes. Par mesure de sécurité, la valve rotative arrête l'alimentation en granules dès que le couvercle de la trémie s'ouvre. Il reprendra son fonctionnement normal dès que le couvercle est refermé. Si le couvercle demeure ouvert pendant plus de 90 secondes, le poêle s'arrête.

L'interrupteur du couvercle de la trémie est défectueux ou mal connecté. Tester l'interrupteur. Voir la fiche technique «Tester un composant» sur notre site web. Si l'interrupteur ne fonctionne pas, il est peut-être défectueux ou mal branché.

CODE C

Le courant a été interrompu lors du fonctionnement. Après le cycle de refroidissement, le poêle redémarre en utilisant les derniers réglages. Pour une panne de courant de courte durée (moins de 5 secondes), le poêle continuera à fonctionner à la vitesse sélectionnée.

Autres codes d'erreur possibles

| CODE | DESCRIPTION |
|------|--|
| n | Polarité inversée dans la prise de courant. Cet erreur n'empêche pas le poêle de fonctionner normalement mais la polarité devrait être corrigée par un électricien certifié. |
| FE | Le fusible du moteur d'évacuation est défectueux. |
| FL | Le fusible de l'allumeur est défectueux. |
| FC | Le fusible du moteur de convection est défectueux. |
| FV | Le fusible de la vis sans fin est défectueux. |
| FB | Le fusible du moteur de combustion est défectueux. |

Pour obtenir un guide de dépannage détaillé et des fiches techniques de remplacement des composants, visiter la page web de votre produit au <https://www.osburn-mfg.com/en/products/pellet-stoves/2500-pellet-stove/#fiche-technique>

GARANTIE À VIE LIMITÉE OSBURN

La garantie du fabricant ne s'applique qu'à l'acheteur au détail original et n'est pas transférable. La présente garantie ne couvre que les produits neufs qui n'ont pas été modifiés, altérés ou réparés depuis leur expédition de l'usine. Il faut fournir une preuve d'achat (facture datée), le nom du modèle et le numéro de série au détaillant OSBURN lors d'une réclamation sous garantie.

La présente garantie ne s'applique que pour un usage résidentiel normal. Les dommages provenant d'une mauvaise utilisation, d'un usage abusif, d'une mauvaise installation, d'un manque d'entretien, d'une surchauffe, d'une négligence, d'un accident pendant le transport, d'une panne de courant, d'un manque de tirage, d'un retour de fumée ou d'une sous-évaluation de la surface de chauffage ne sont pas couverts par la présente garantie. La surface de chauffage recommandée pour un appareil est définie par le manufacturier comme sa capacité à conserver une température minimale acceptable considérant que la configuration de l'espace ou la présence de systèmes de distribution d'air ont un impact important sur la distribution optimale de la chaleur.

La présente garantie ne couvre pas les égaliseurs, la corrosion, la déformation ou la décoloration. Tout défaut ou dommage provenant de l'utilisation de pièces non autorisées ou autres que des pièces originales, annule la garantie. Un technicien qualifié autorisé doit procéder à l'installation en conformité avec les instructions fournies avec le produit et avec les codes du bâtiment locaux et nationaux. Tout appel de service relié à une mauvaise installation n'est pas couvert par la présente garantie.

Le fabricant peut exiger que les produits défectueux lui soient retournés ou que des photos numériques lui soient fournies pour appuyer la réclamation. Les produits retournés doivent être expédiés post payé au fabricant pour étude. Les frais de transport pour le retour du produit à l'acheteur seront payés par le manufacturier. Tout travail de réparation couvert par la garantie et fait au domicile de l'acheteur par un technicien qualifié autorisé doit d'abord être approuvé par le fabricant. Tous les frais de pièces et main-d'œuvre couverts par la présente garantie sont limités au tableau ci-dessous.

Le fabricant peut, à sa discrétion, décider de réparer ou remplacer toute pièce ou unité après inspection et étude du défaut. Le fabricant peut, à sa discrétion, se décharger de toutes ses obligations en ce qui concerne la présente garantie en remboursant le prix de gros de toute pièce défectueuse garantie. Le fabricant ne peut, en aucun cas, être tenu responsable de tout dommage extraordinaire, indirect ou consécutif, quelle qu'en soit la nature, qui dépasserait le prix d'achat original du produit. Les pièces couvertes par une garantie à vie sont sujettes à une limite d'un seul remplacement sur la durée de vie utile du produit. Cette garantie s'applique aux produits achetés après le 1^{er} juin 2015.

| DESCRIPTION | APPLICATION DE LA GARANTIE* | |
|--|-----------------------------|--------------|
| | PIÈCES | MAIN-D'ŒUVRE |
| Chaudière à combustion (soudures seulement**), échangeur de chaleur (soudures seulement**) et cadre de porte en acier orné (fente). | À vie | 5 ans |
| Habillage, écran coupe-chaleur, tiroir à cendres, patte, piédestal, moulures décoratives (extrêmes), plinthe (défaut de fabrication**) et verre sécuritaire (verre thermique seulement**). | À vie | n.a. |
| Moulures de verre, ensemble de poignée, tige de nettoyage, mécanisme de contrôle d'air et vis sans fin. | 5 ans | 1 an |
| Pièces amovibles au soler inoxydable, pot de combustion, déflecteurs, supports et coupe-flu. | 5 ans | n.o. |
| Ventilateurs, moteur de vis, carte électronique, allumeur, capteurs thermiques, rhéostats, câblage et autres commandes. | 2 ans | 1 an |
| Peinture (écaillage**), joints d'étanchéité, isolants, panneaux d'imitation de marbre**, bûches décoratives** et autres options. | 1 an | n.o. |
| Toutes les pièces remplacées au titre de la garantie. | 90 jours | n.a. |

*Sous réserve des limitations ci-dessus. **Photos exigées.

Les frais de main-d'œuvre et de réparation portés au compte du fabricant sont basés sur une liste de taux prédéterminés et ne doivent pas dépasser le prix de gros de la pièce de rechange.

Si votre appareil ou une pièce sont défectueux, communiquez immédiatement avec votre détaillant OSBURN. Avant d'appeler, ayez en main les renseignements suivants pour le traitement de votre réclamation sous garantie :

- Votre nom, adresse et numéro de téléphone;
- La facture et le nom du détaillant;
- La configuration de l'installation;
- Le numéro de série et le nom du modèle tel qu'indiqué sur la plaque signalétique de l'appareil;
- La nature du défaut et tout renseignement important.

Avant d'expédier votre appareil ou une pièce défectueuse à notre usine, vous devez obtenir un numéro d'autorisation de votre détaillant OSBURN. Toute marchandise expédiée à notre usine sans autorisation sera automatiquement refusée et retournée à l'expéditeur.

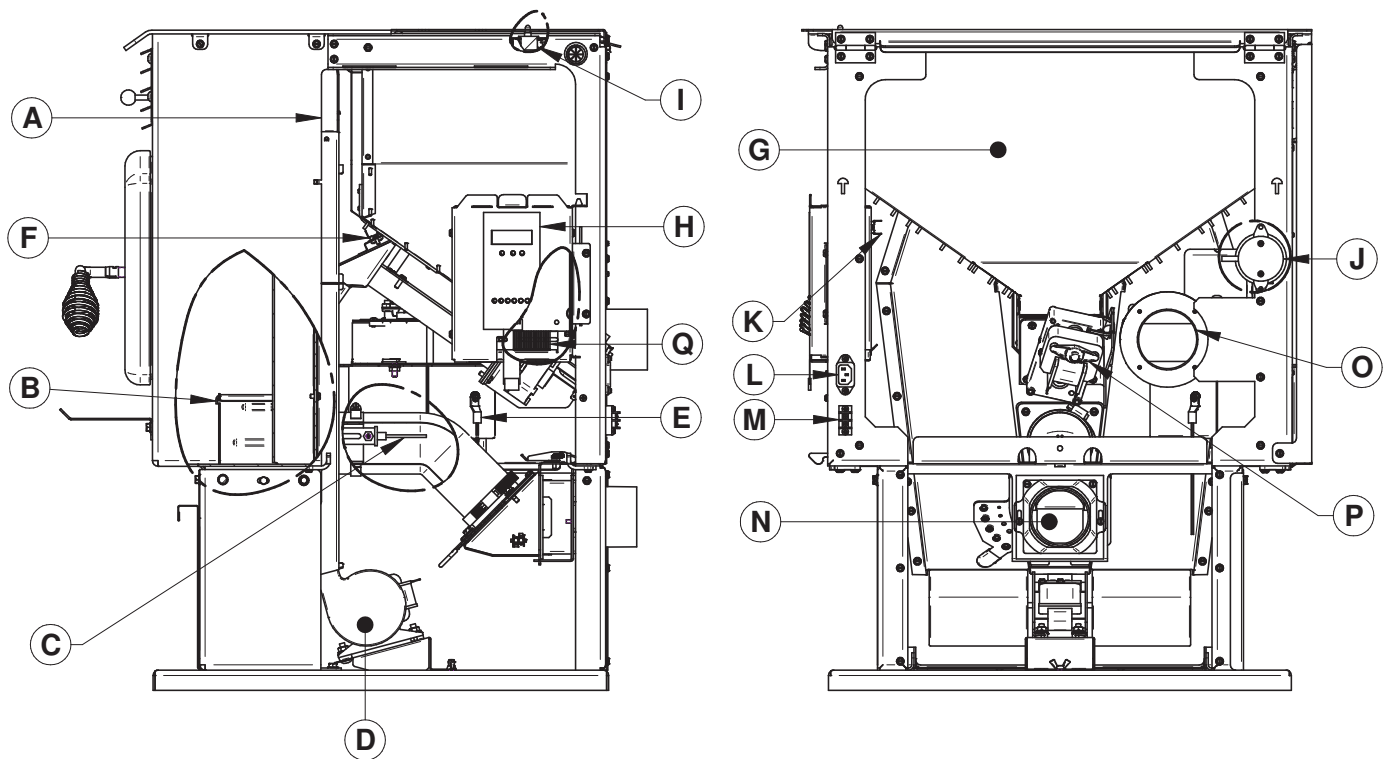
Grande Révision : Juin 2015

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COMPONENTS LOCATION




| LETTER | COMPONENTS | LETTER | COMPONENTS |
|--------|----------------------|--------|------------------------------------|
| A | HEAT EXCHANGER TUBES | L | POWER CORD RECEPTACLE |
| B | BURN POT | M | THERMOSTAT TERMINAL BLOCK |
| C | IGNITOR | N | COMBUSTION BLOWER/FRESH AIR INTAKE |
| D | CONVECTION BLOWER | O | EXHAUST BLOWER |
| E | THERMISTOR | P | AUGER |
| F | L-250 THERMAL SWITCH | Q | PC BOARD |
| G | HOPPER | | |
| H | CONTROL PANEL | | |
| I | HOPPER SAFETY SWITCH | | |
| J | PRESSURE SWITCH | | |
| K | F-160 THERMAL SWITCH | | |

NOTE

For part numbers, visit our website at: www.drolet.ca/en/parts/

| | | | | | |
|-------------------------|---------------------|--|----------------------|----|-------------|
| <h1>HOW TO</h1> | Document # | | Model name | | |
| | HT00139E | | ECO-55 / ECO-55ST | | |
| Access the fuses | Model number | | Serial number | | Date |
| | DP00070-DP00071 | | 100 | to | ... |

WARNING



HOT SURFACE. ALLOW TO COOL BEFORE SERVICING.

DANGER

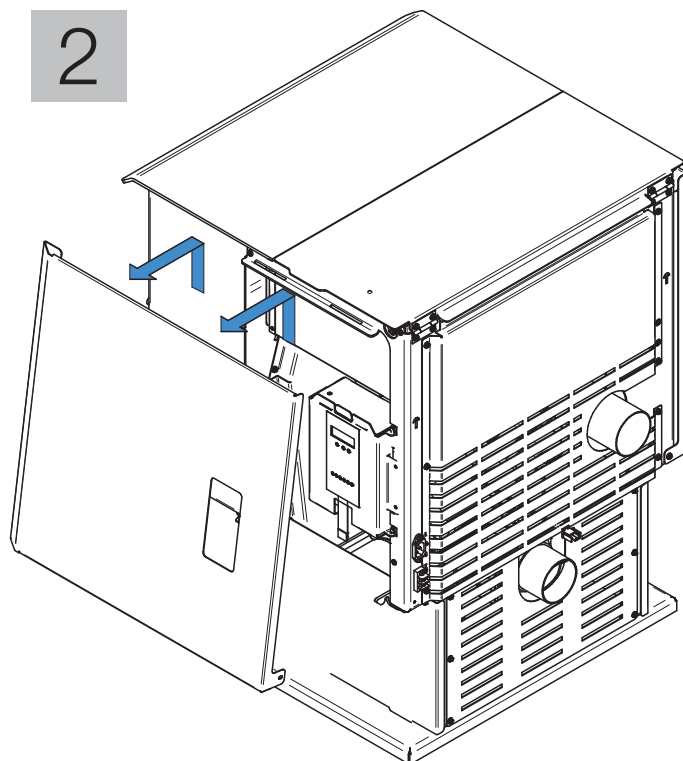
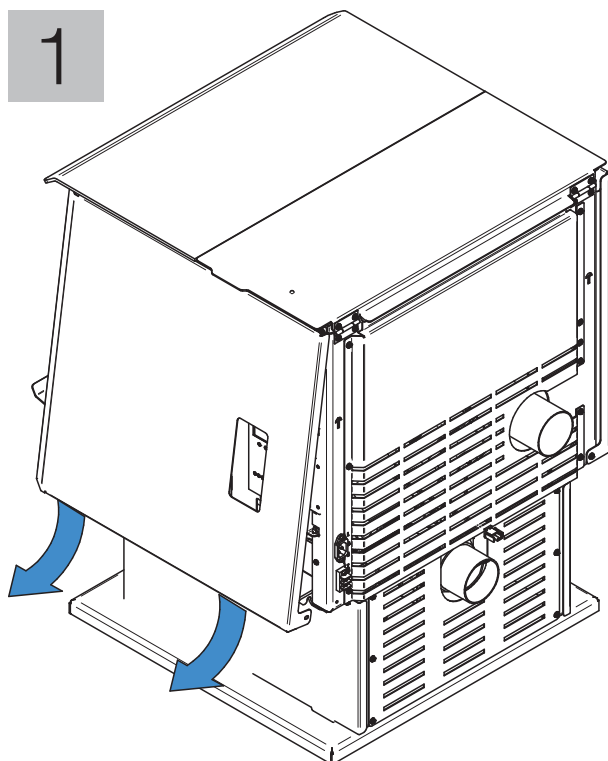


DISCONNECT ALL SOURCE OF POWER BEFORE SERVICING THE STOVE.

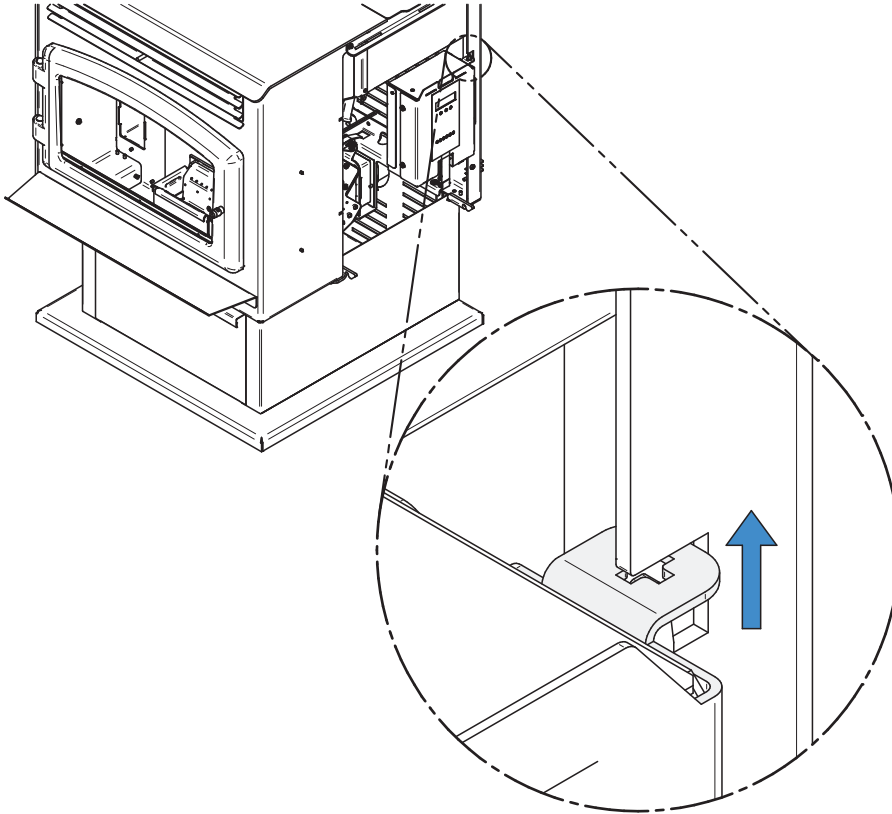
NOTE

For part numbers, visit our website at www.drolet.ca/en/parts/

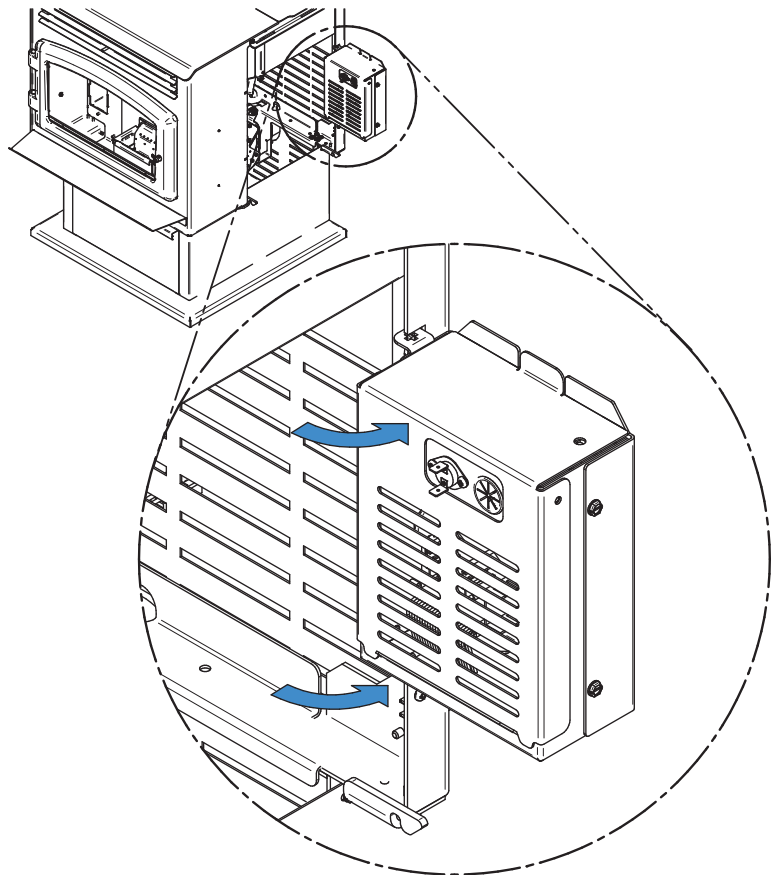
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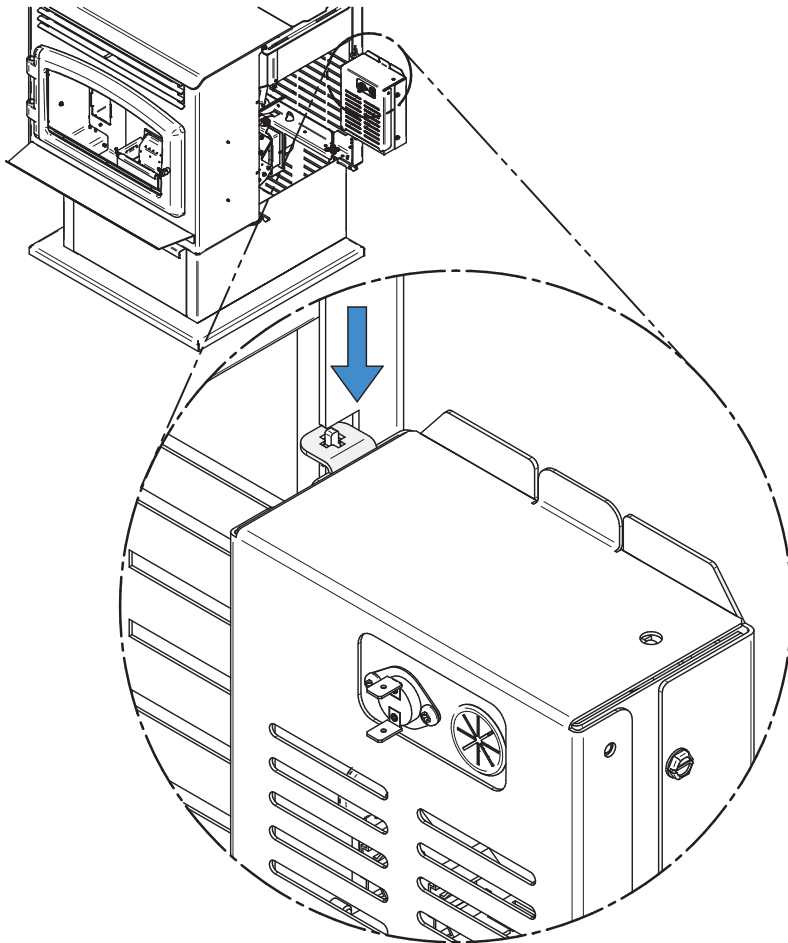
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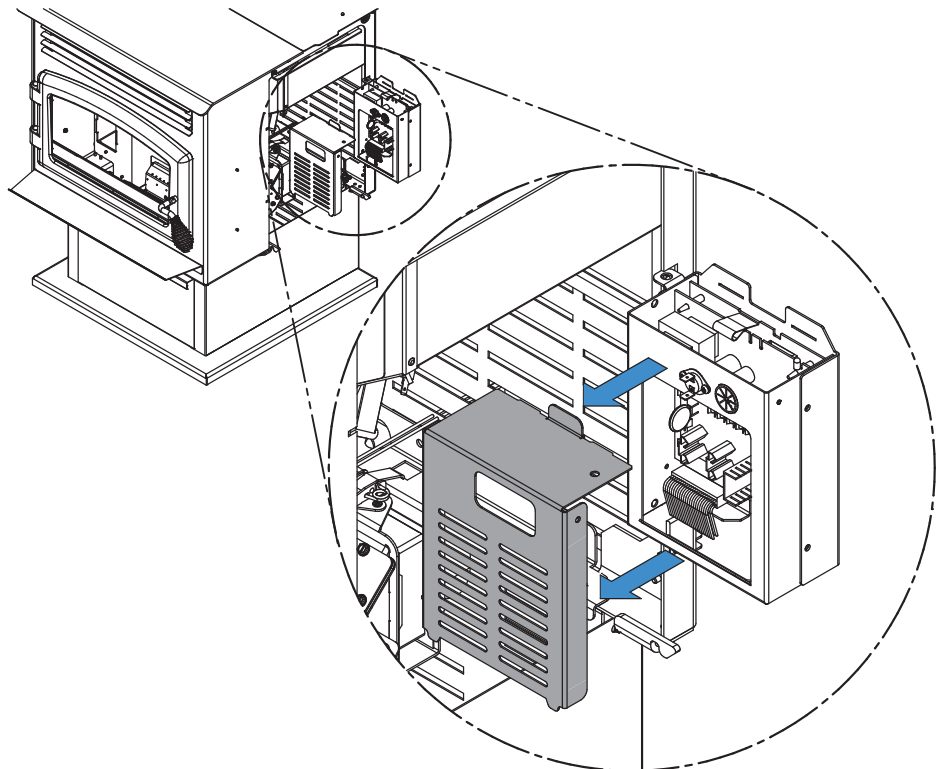
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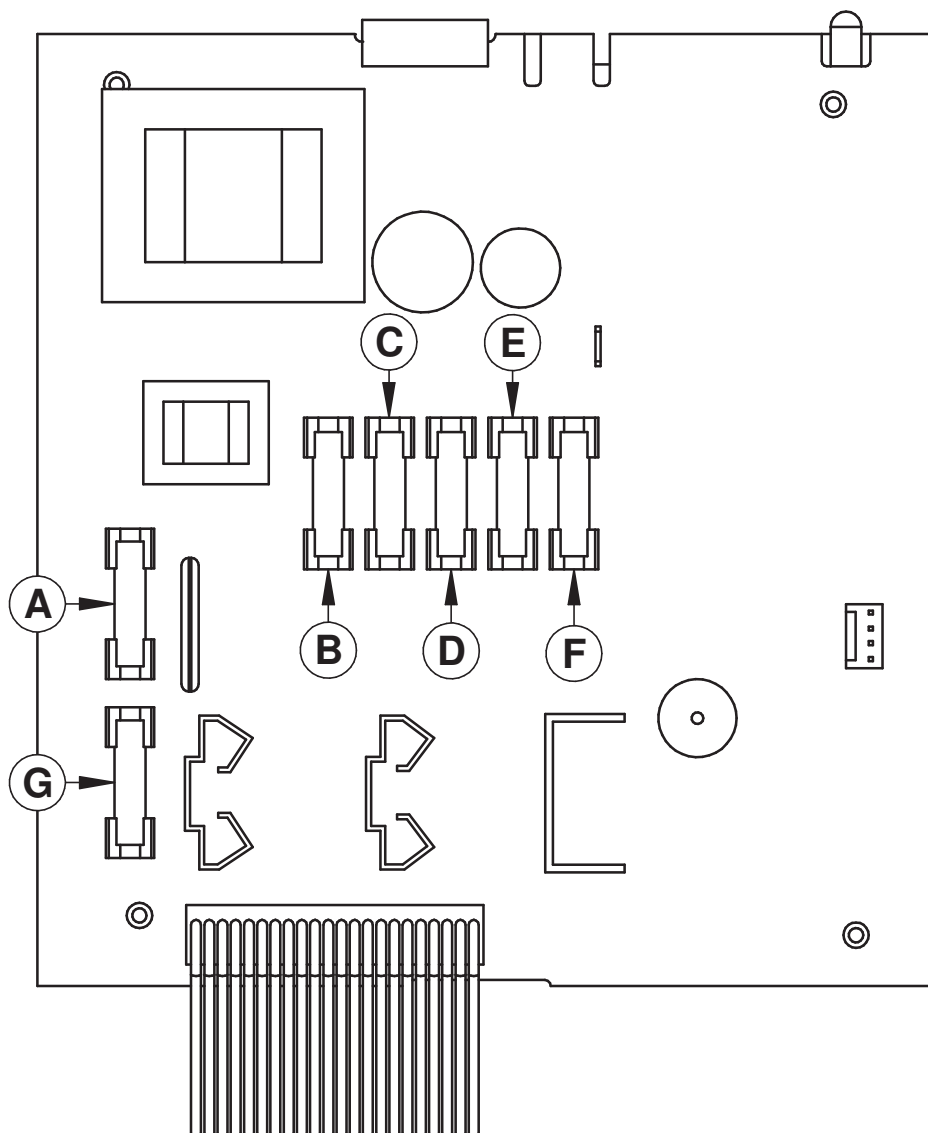


5



6






| LETTER | FUSES FONCTIONS |
|--------|-------------------|
| A | Control circuit |
| B | Combustion blower |
| C | Convection blower |
| D | Exhaust blower |
| E | Auger |
| F | Igniter |
| G | Main fuse |

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| | | | | |
|--------------------------------|---------------------|----------------------|----|-------------|
| <h1>HOW TO</h1> | Document # | Model name | | |
| | HT00138E | ECO-55 / ECO-55ST | | |
| Replace the auger motor | Model number | Serial number | | Date |
| | DP00070 / DP00071 | 100 | to | ... |
| | | ... | | 31-05-2017 |

WARNING



HOT SURFACE. ALLOW TO COOL BEFORE SERVICING.

DANGER

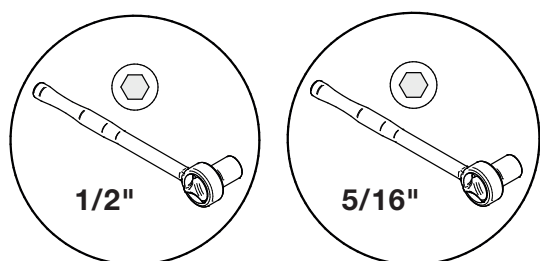


DISCONNECT ALL SOURCE OF POWER BEFORE SERVICING THE STOVE.

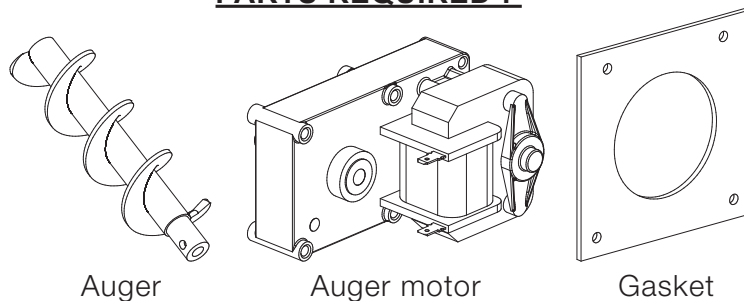
NOTE

For part numbers, visit our website at www.drolet.ca/en/parts/

TOOLS REQUIRED :



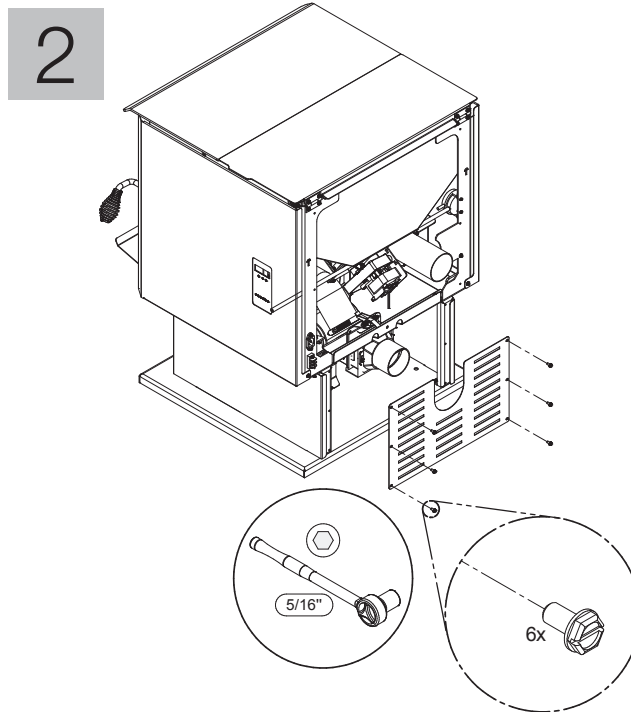
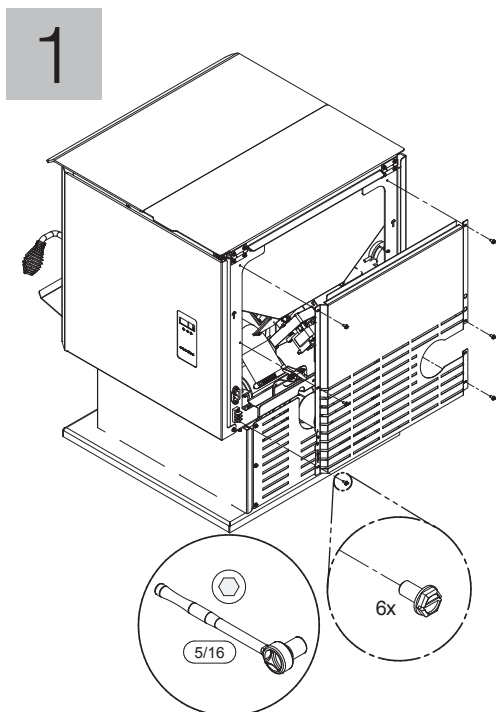
PARTS REQUIRED :



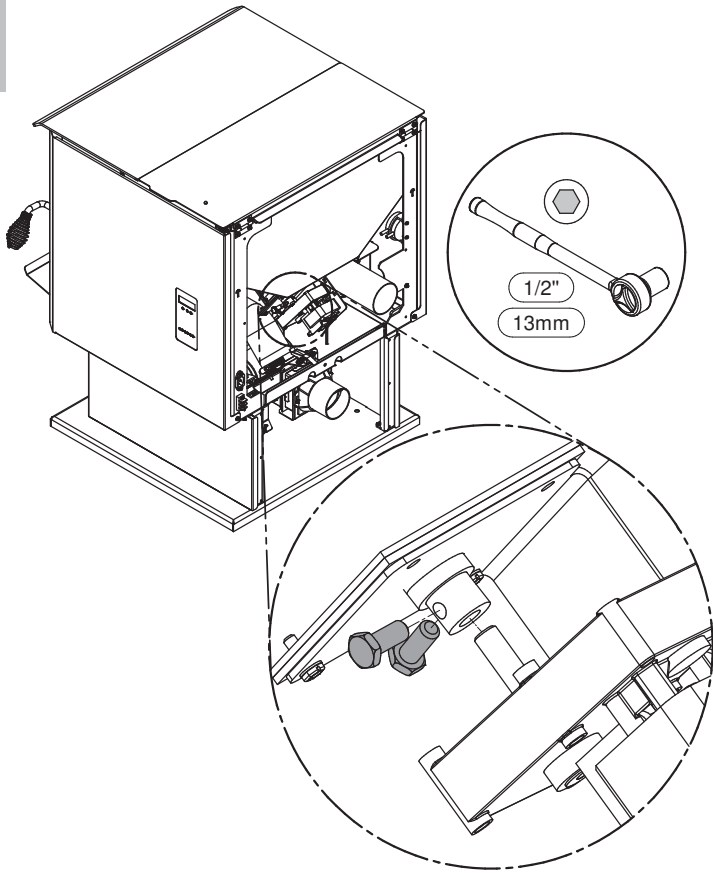
PROCEDURE :

To replace auger motor, only motor and gasket are required. Follow step 1 to 3

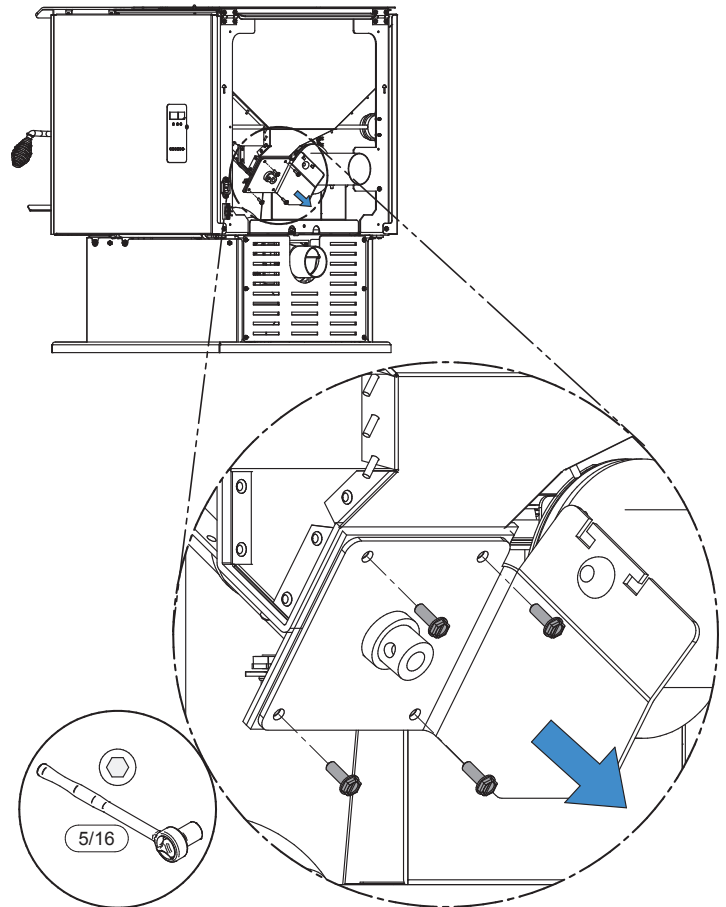
THE HOPPER SHOULD BE EMPTY BEFORE REPLACE THE AUGER MOTOR



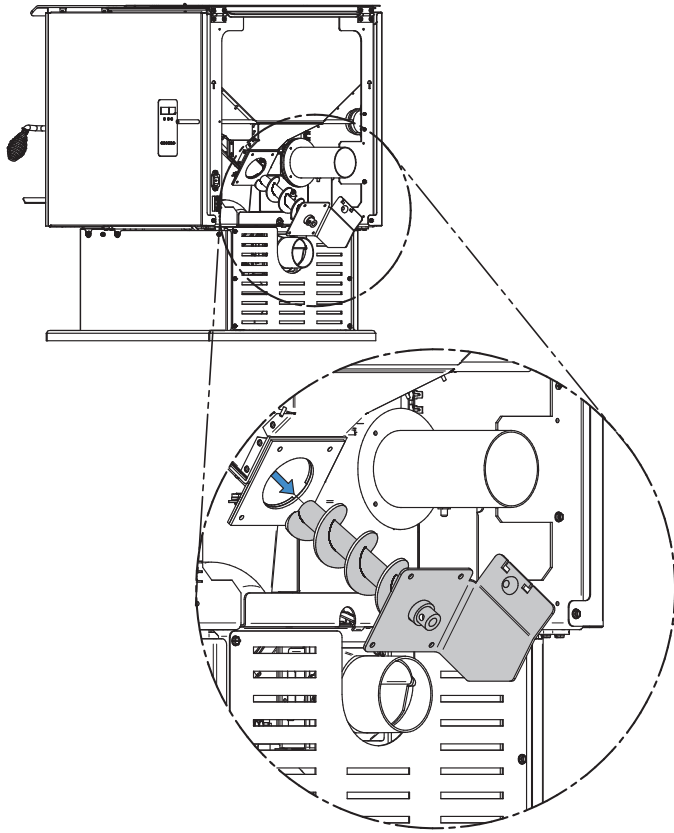
3



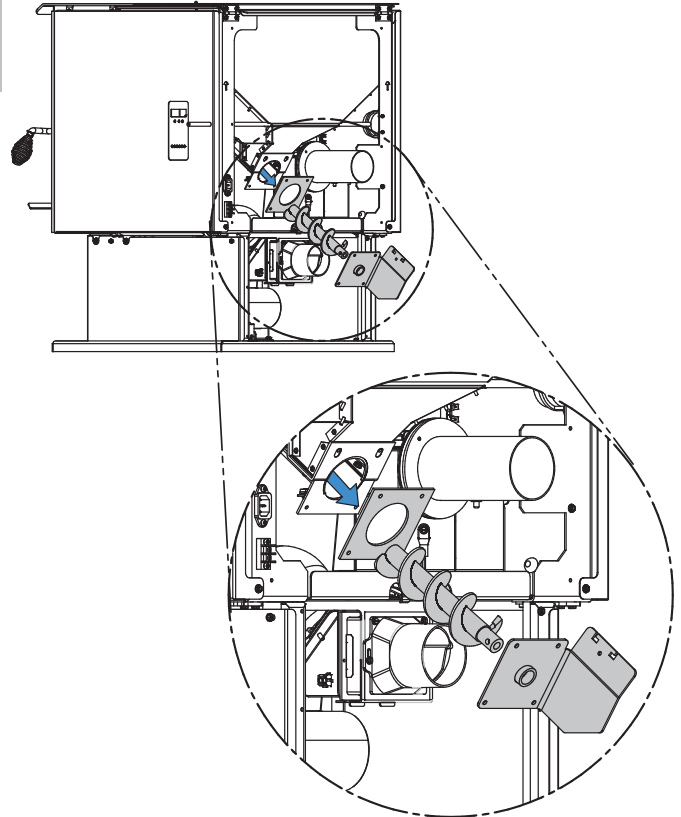
4



5



6



7


Follow previous steps in reverse order to reinstall.

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Email : tech@sbi-international.com
www.drolet.ca


| | | | | |
|--------------------------------------|---------------------|----------------------|----|-------------|
| <h1>HOW TO</h1> | Document # | Model name | | |
| | HT00136E | ECO-55 / ECO-55ST | | |
| Replace the combustion blower | Model number | Serial number | | Date |
| | DP00070 / DP00071 | 100 | to | ... |
| | | 30-05-2017 | | |

WARNING



HOT SURFACE. ALLOW TO COOL BEFORE SERVICING.

DANGER

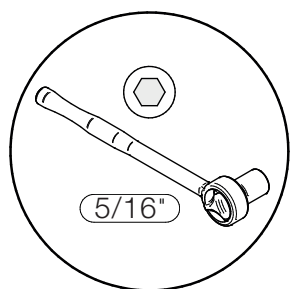


DISCONNECT ALL SOURCE OF POWER BEFORE SERVICING THE STOVE.

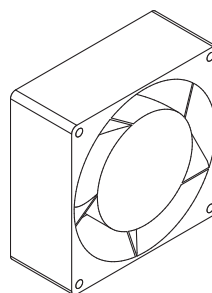
NOTE

For part numbers, visit our website at www.drolet.ca/en/parts/

TOOLS REQUIRED :

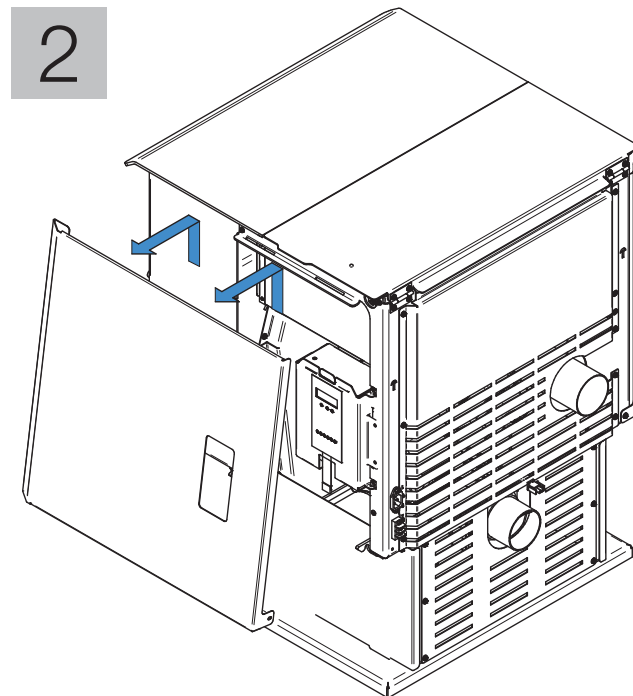
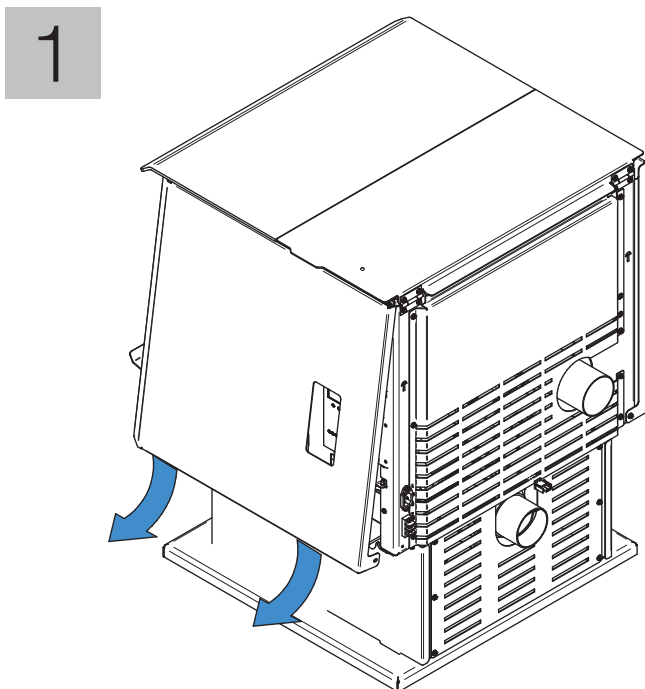


PARTS REQUIRED :

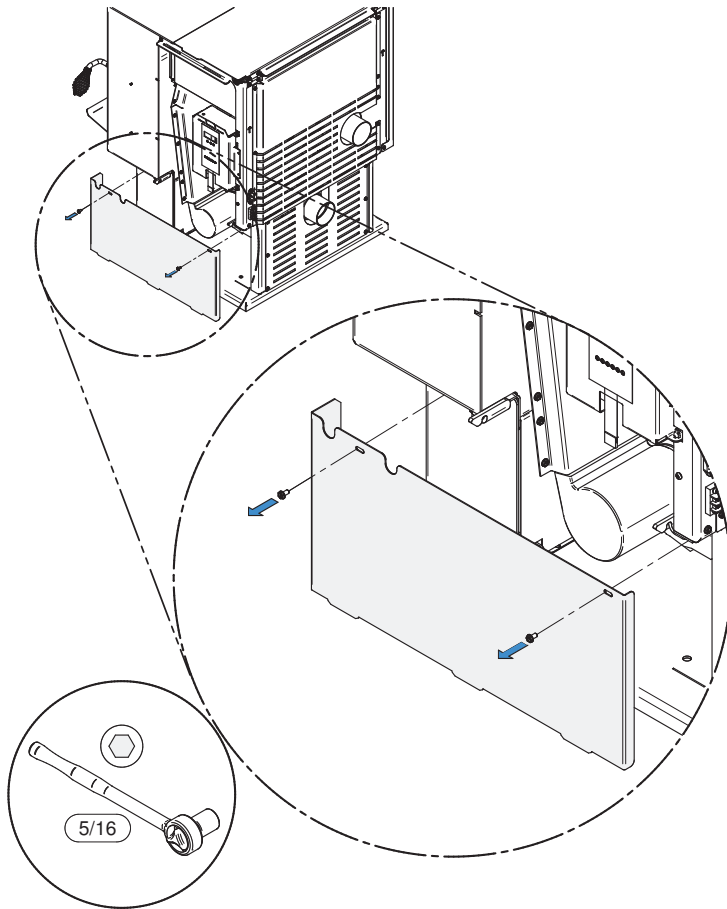


Blower

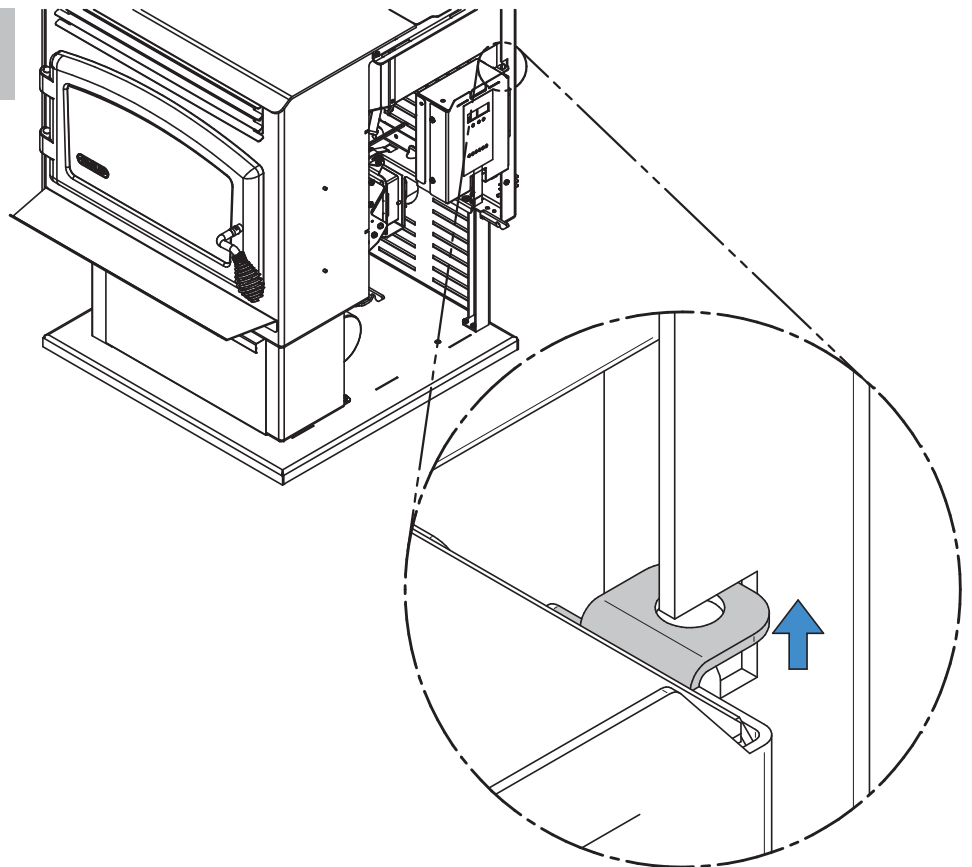
PROCEDURE :



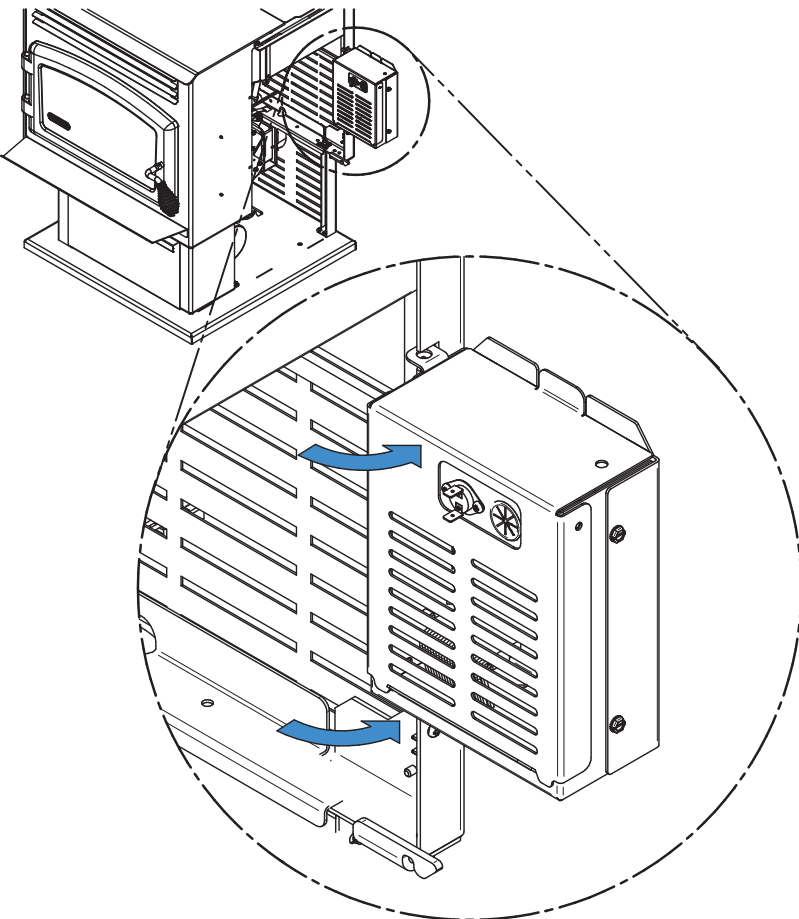
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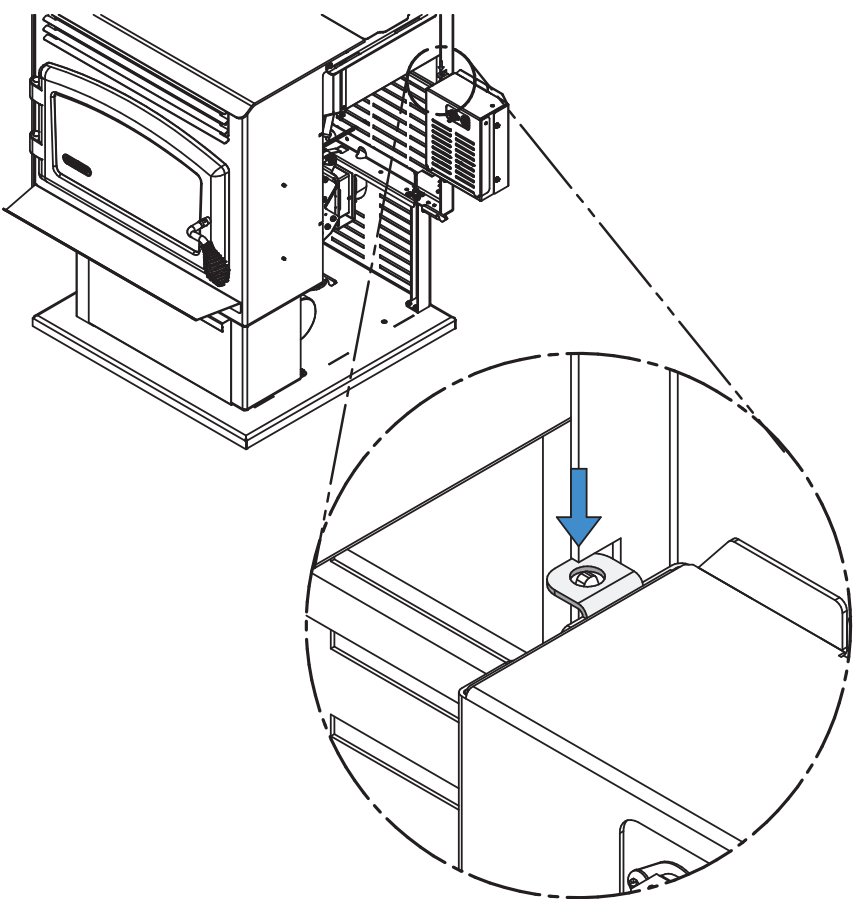
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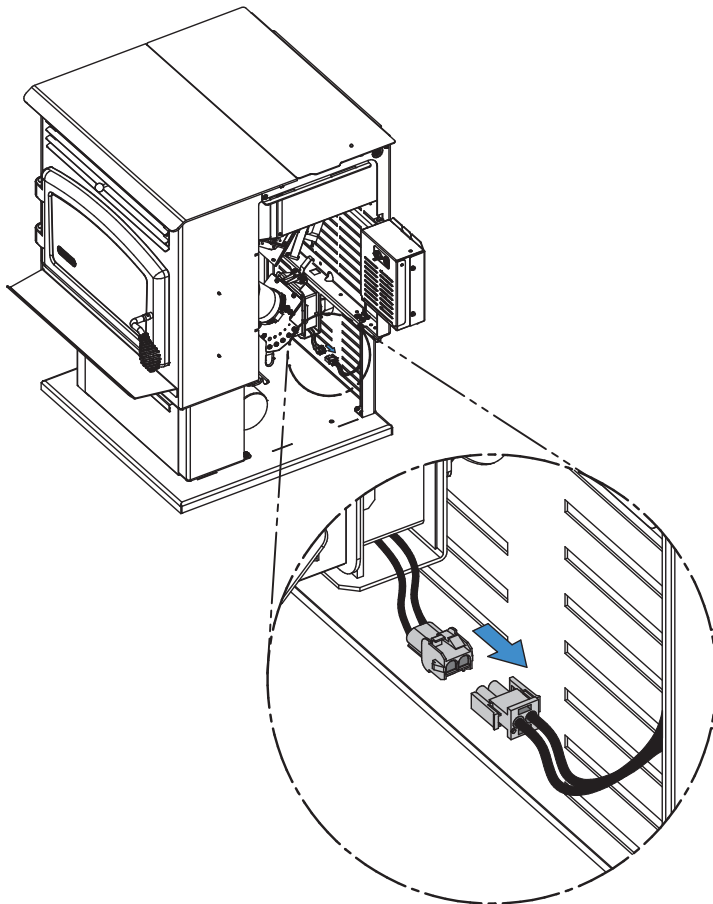
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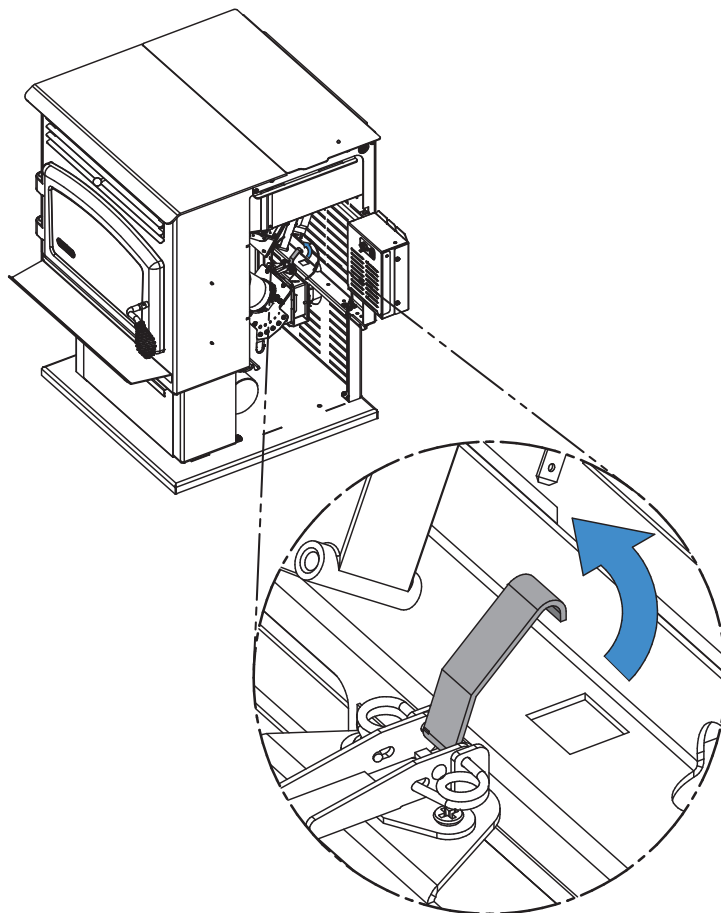
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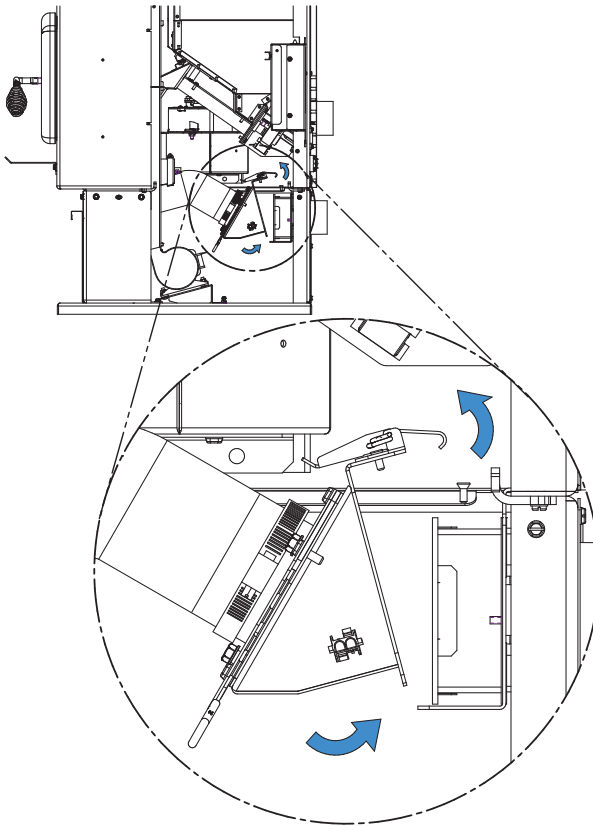
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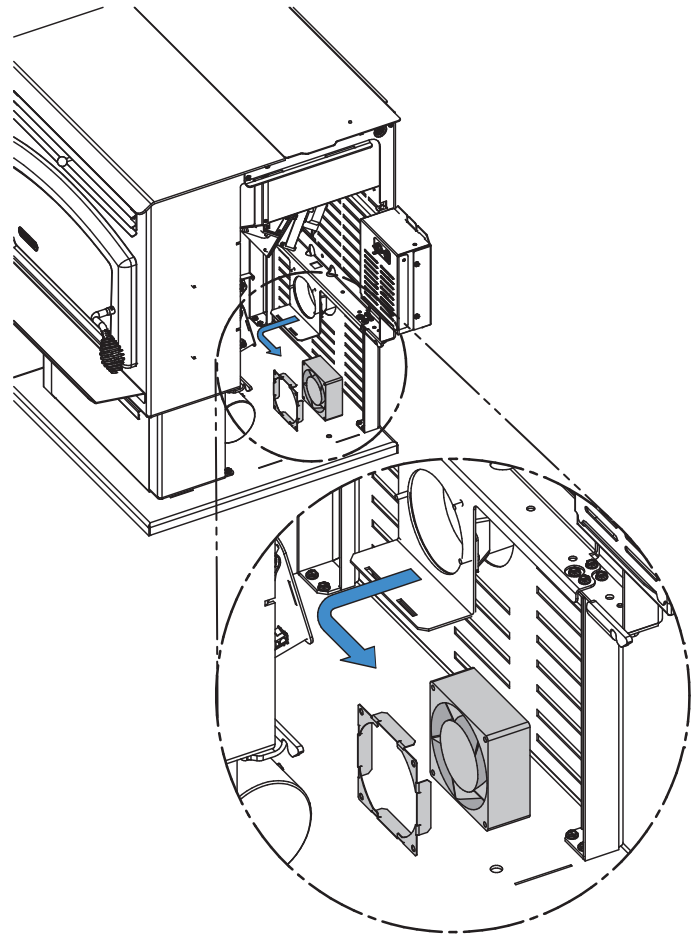
8



9



10



11


Follow previous steps in reverse order to reinstall.

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| | | | | |
|--------------------------------------|---------------------|----------------------|----|-------------|
| <h1>HOW TO</h1> | Document # | Model name | | |
| | HT00137E | ECO-55 / ECO-55ST | | |
| Replace the convection blower | Model number | Serial number | | Date |
| | DP00070 / DP00071 | 100 | to | ... |
| | | 30-05-2017 | | |

WARNING



HOT SURFACE. ALLOW TO COOL BEFORE SERVICING.

DANGER

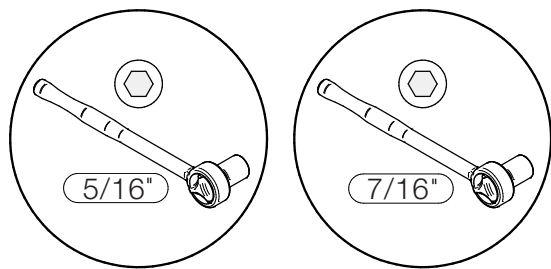


DISCONNECT ALL SOURCE OF POWER BEFORE SERVICING THE STOVE.

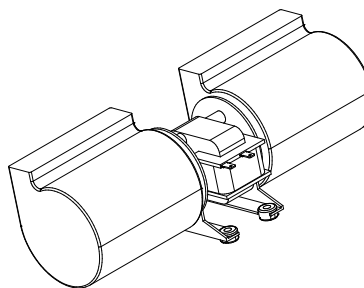
NOTE

For actual part numbers, visit our website at www.drolet.ca/en/parts/

TOOLS REQUIRED :

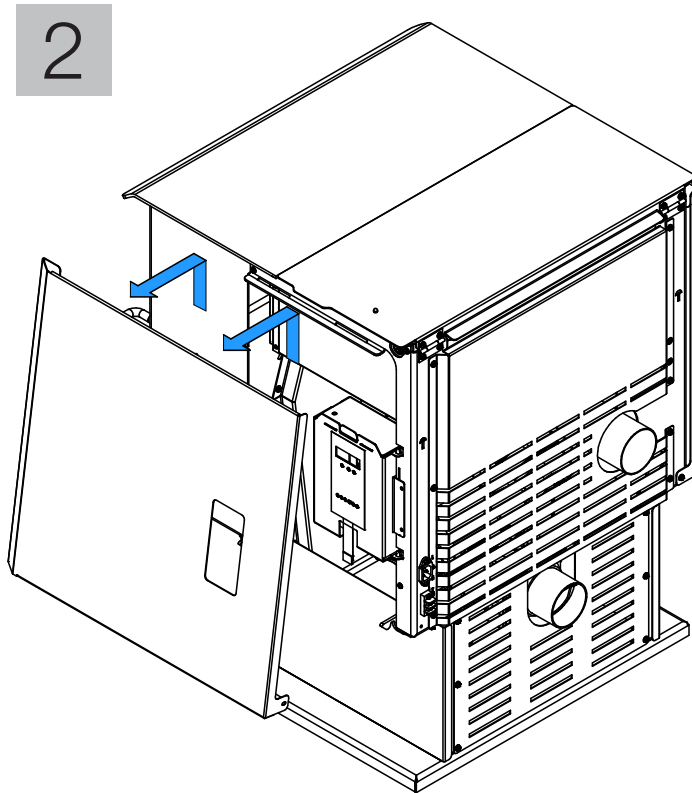
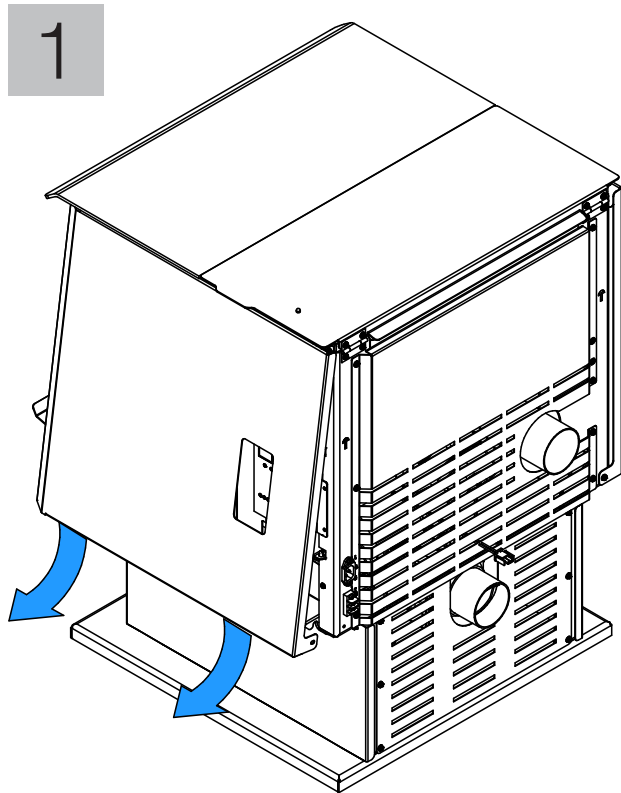


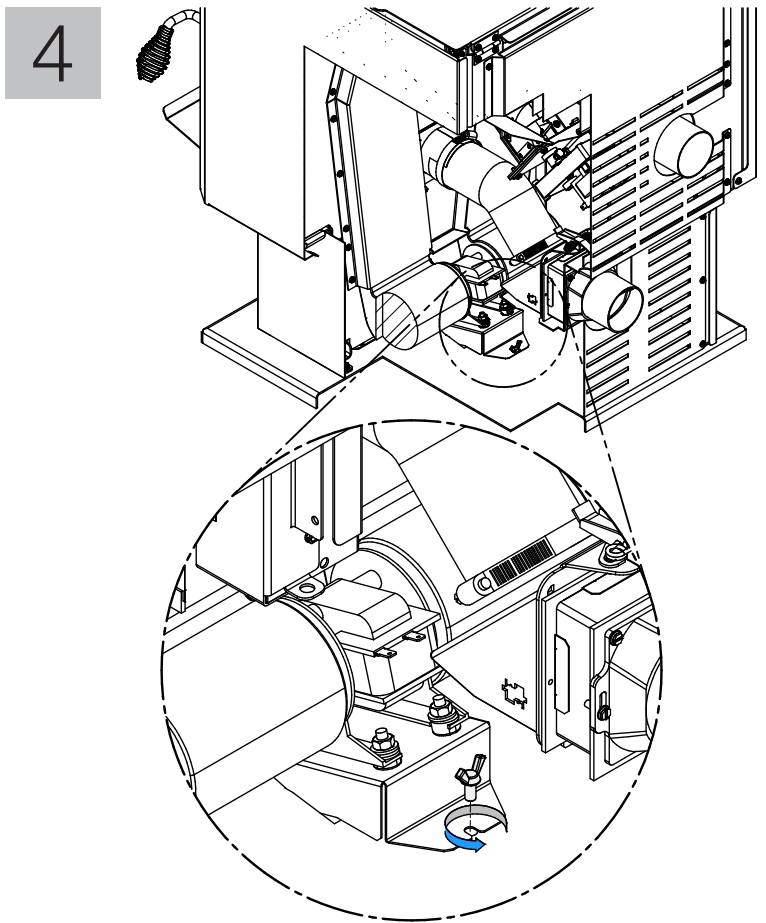
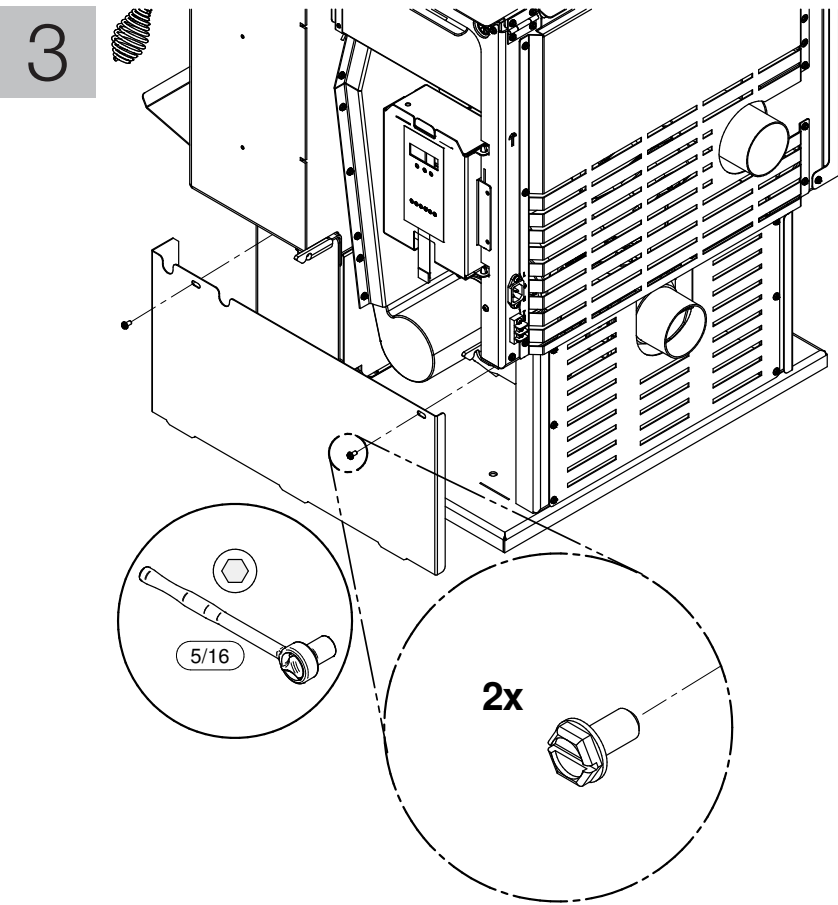
PARTS REQUIRED :

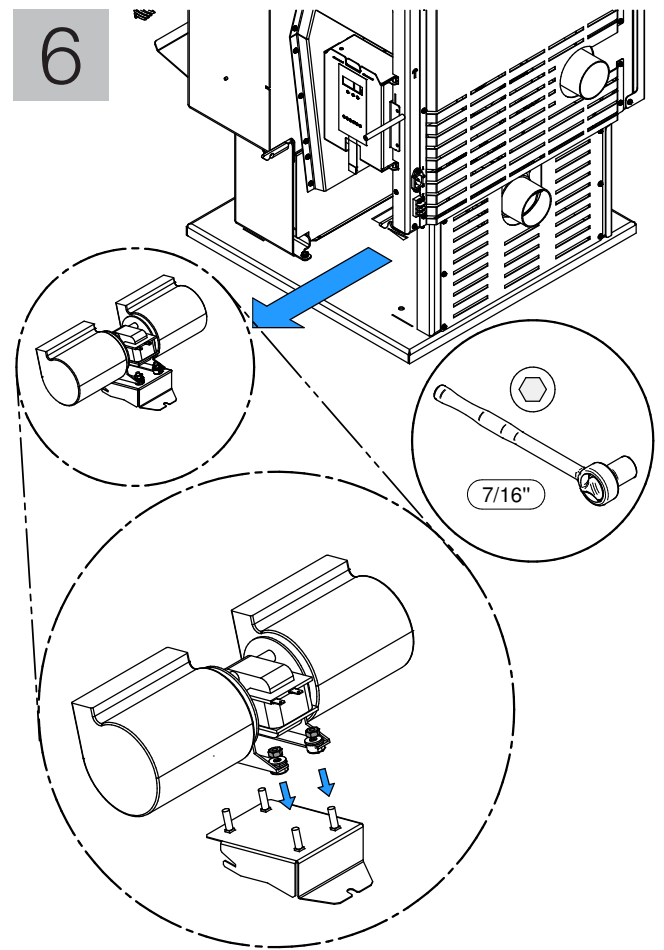
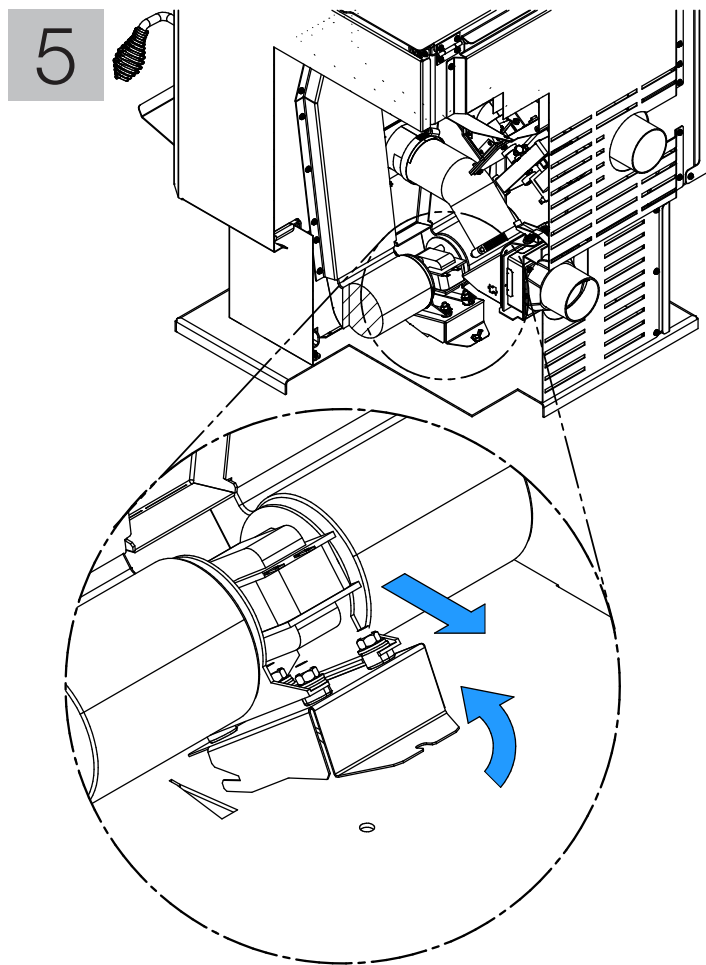


Blower

PROCEDURE :







7 Follow previous steps in reverse order to reinstall.

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| | | | | | |
|-----------------------------------|---------------------|----------------------|----|-------------|------------|
| HOW TO | Document # | Model name | | | |
| | HT00135E | ECO-55 / ECO-55ST | | | |
| REPLACE THE EXHAUST BLOWER | Model number | Serial number | | Date | |
| | DP00070 / DP00071 | 100 | to | ... | 2017-02-24 |

WARNING

HOT SURFACE. ALLOW TO COOL BEFORE SERVICING.

DANGER

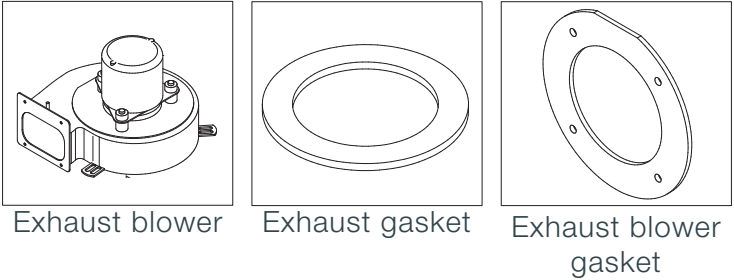
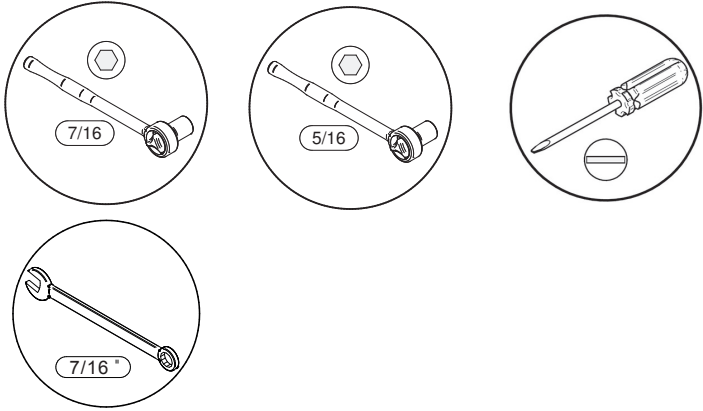
DISCONNECT ALL SOURCE OF POWER BEFORE SERVICING THE STOVE.

NOTE

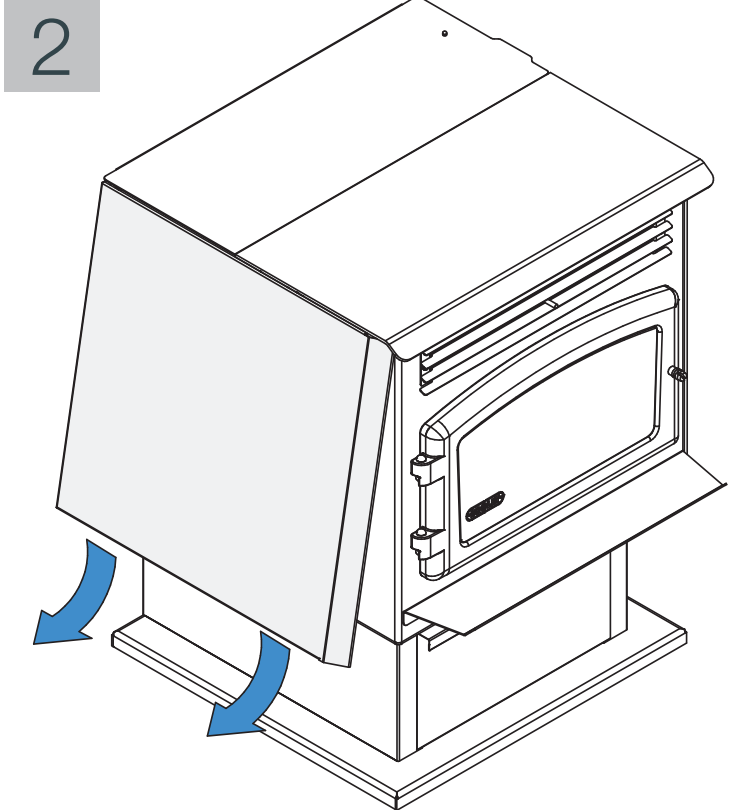
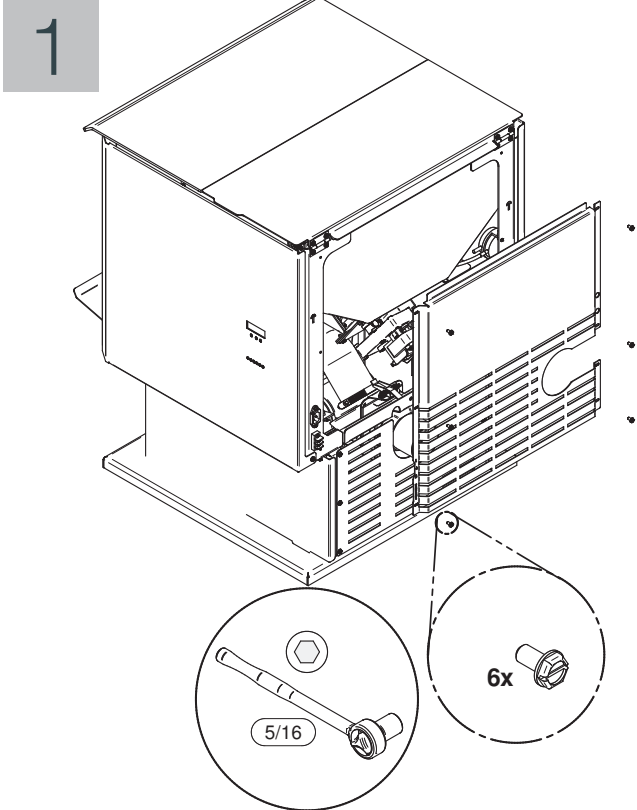
For actual part numbers, visit our website at www.drolet.ca/en/parts

TOOLS REQUIRED :

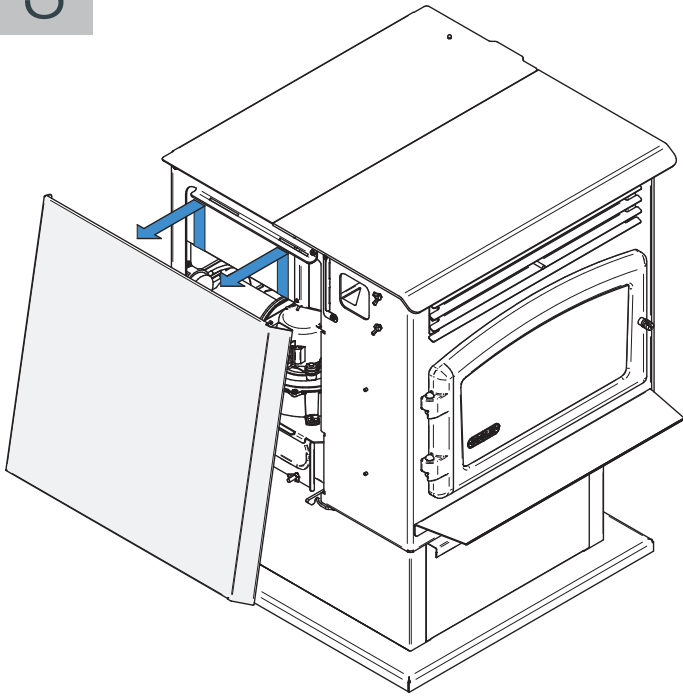
PARTS REQUIRED :



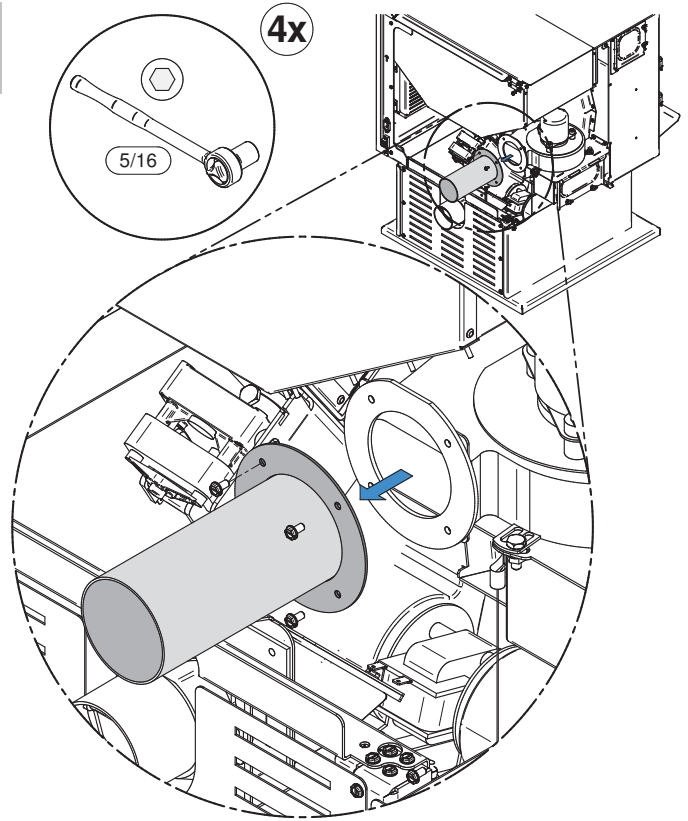
PROCEDURE :



3

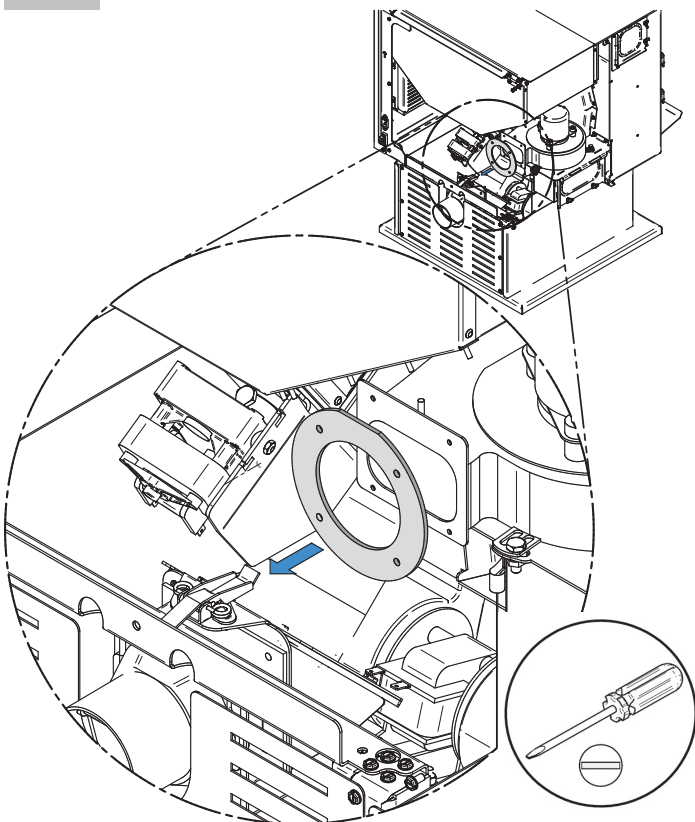


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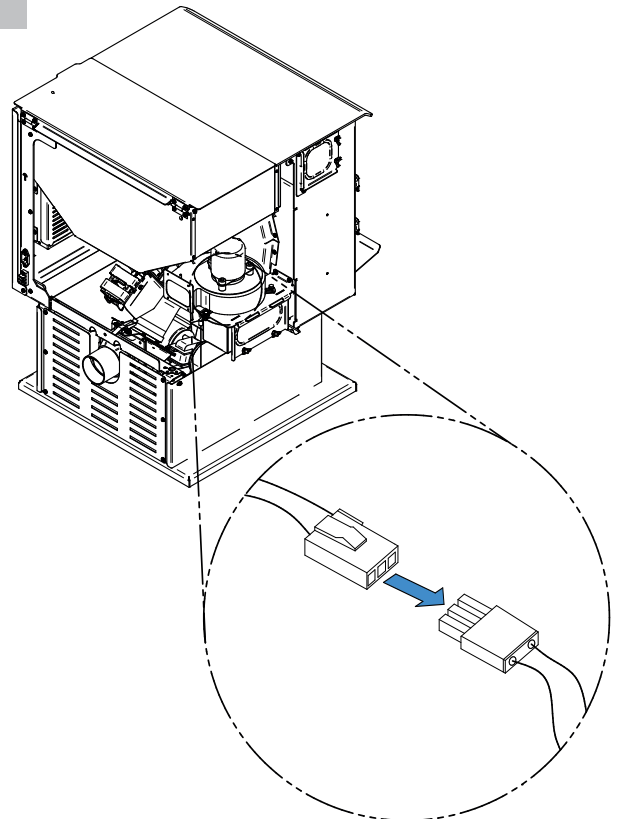


5

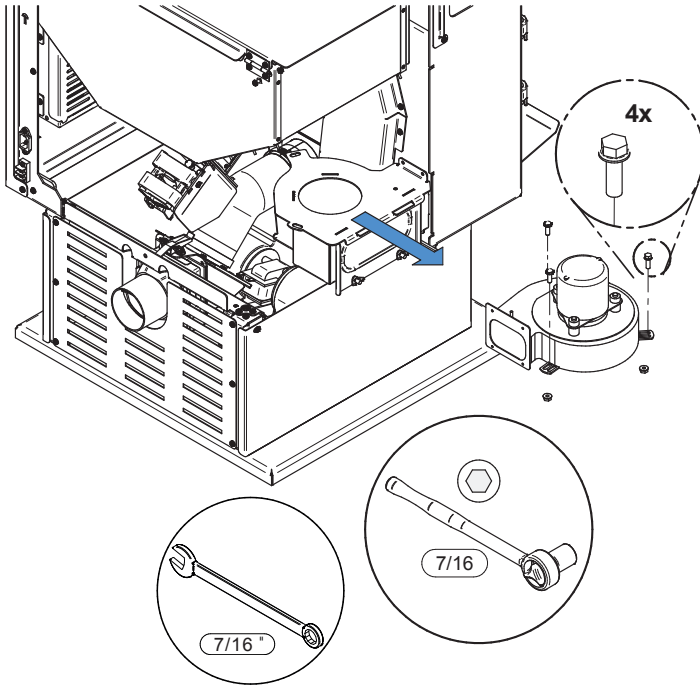
Use the screwdriver to remove the blower gasket.



6



7



8

Install the gasket on the exhaust blower before to replace it on the pellet stove.

9

Follow previous steps in reverse order to reinstall.

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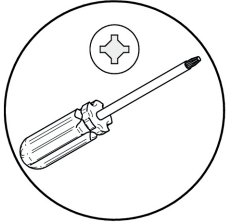
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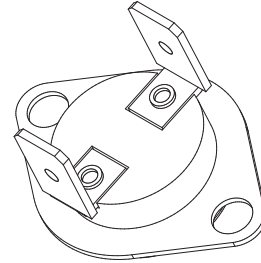
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| | | | | |
|---------------------------------|---------------------|----------------------|----|-------------|
| HOW TO | Document # | Model name | | |
| | HT00133E | ECO-55 / ECO-55ST | | |
| Replace F-160 thermodisc | Model number | Serial number | | Date |
| | DP00070 / DP00071 | 100 | to | ... |

TOOLS REQUIRED :

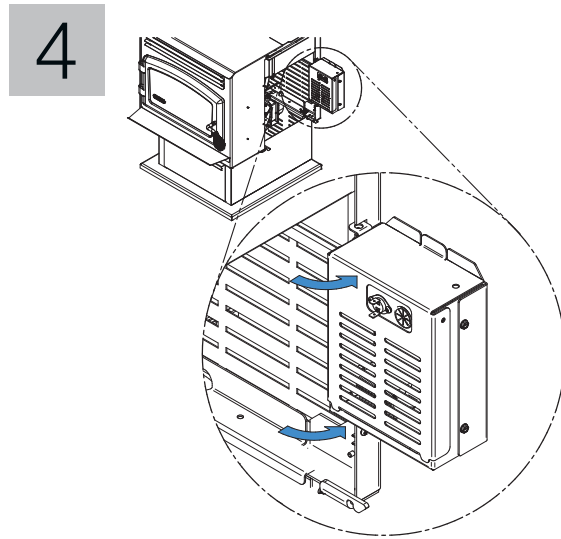
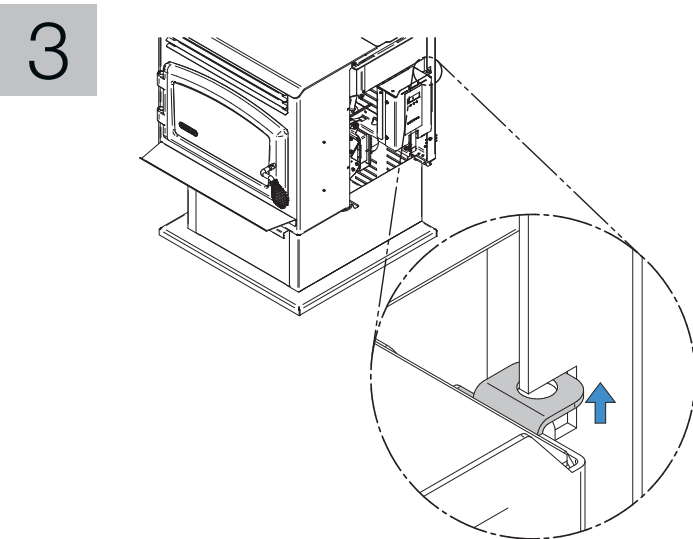
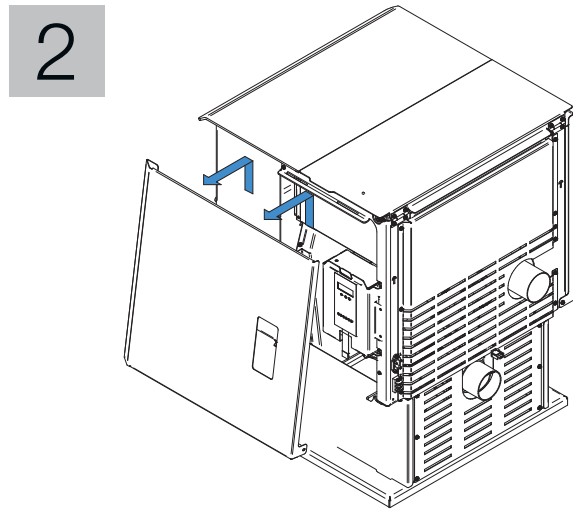
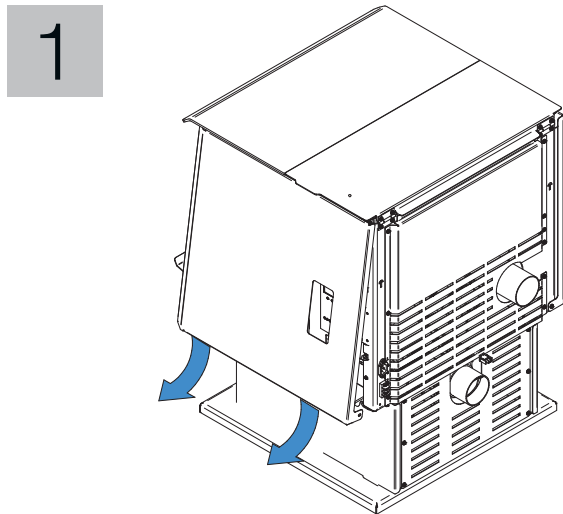


PARTS REQUIRED :

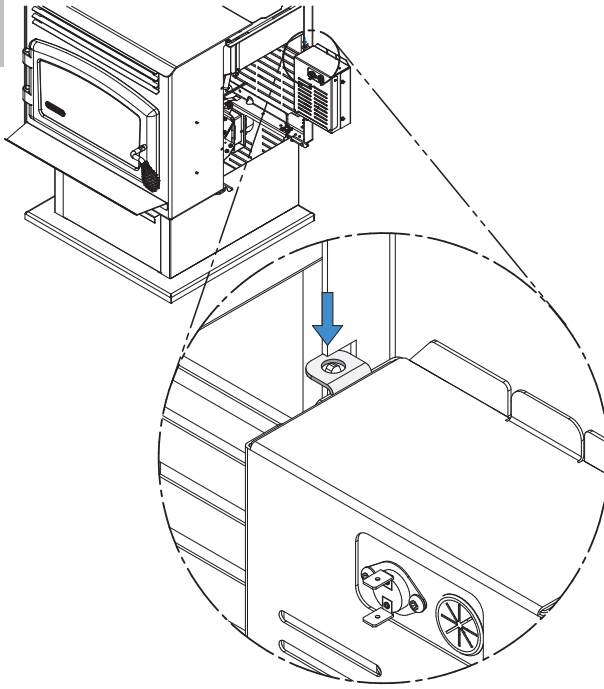


F-160 THERMODISC

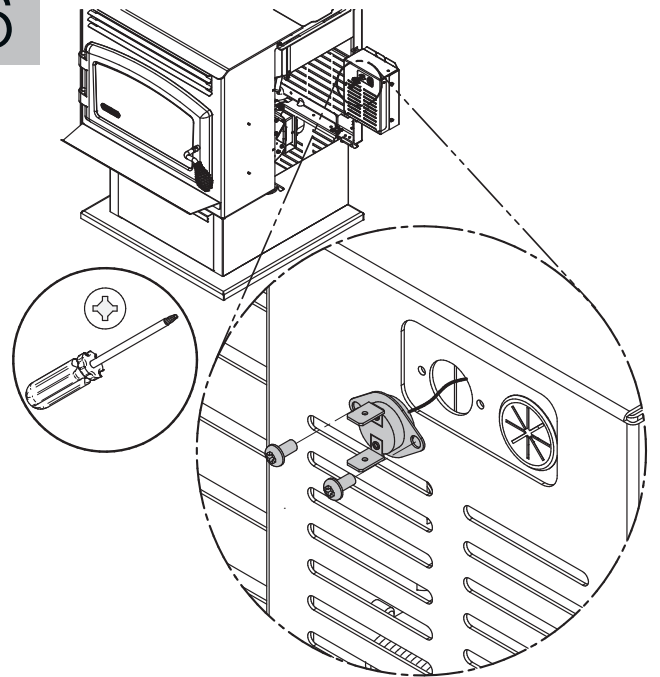
PROCEDURE :



5



6



7

Replace thermodisc and follow previous steps in reverse order.

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| | | | | |
|----------------------------|-------------------|-------------------|----|----------------|
| HOW TO | Document # | Model name | | |
| | HT00132E | ECO-55 / ECO-55ST | | |
| REPLACE THE IGNITOR | Model number | Serial number | | Date |
| | DP00070 / DP00071 | 100 | to | ... 2017-03-20 |

WARNING



HOT SURFACE. ALLOW TO COOL BEFORE SERVICING.

DANGER

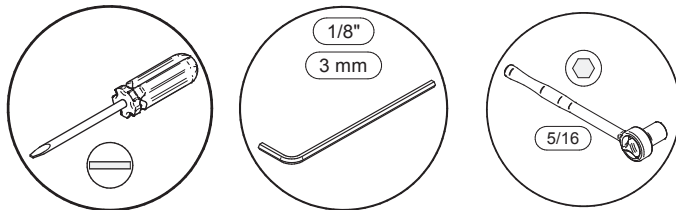


DISCONNECT ALL SOURCE OF POWER BEFORE SERVICING THE STOVE.

NOTE

For part numbers, visit our website at www.drolet.ca/en/parts/

TOOLS REQUIRED :

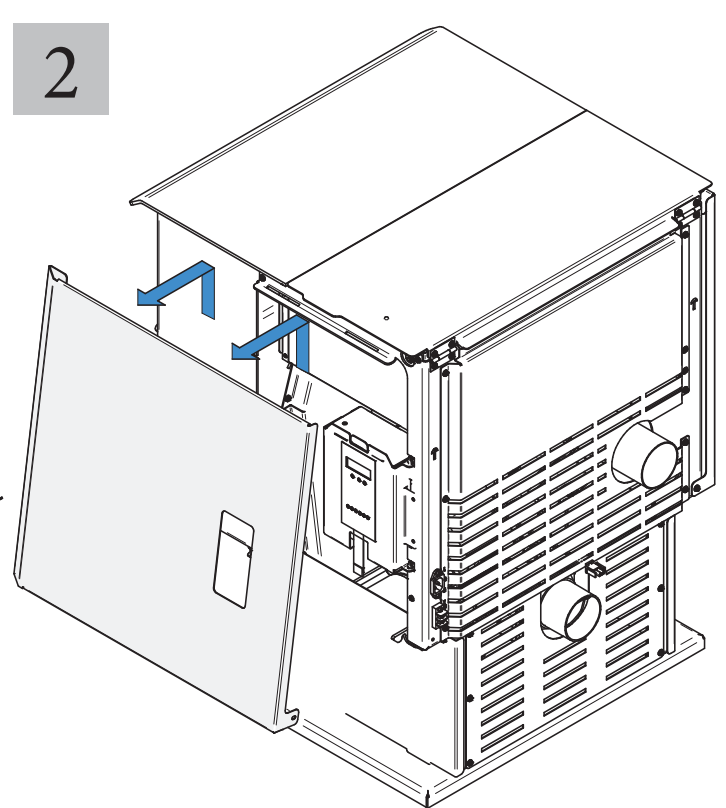
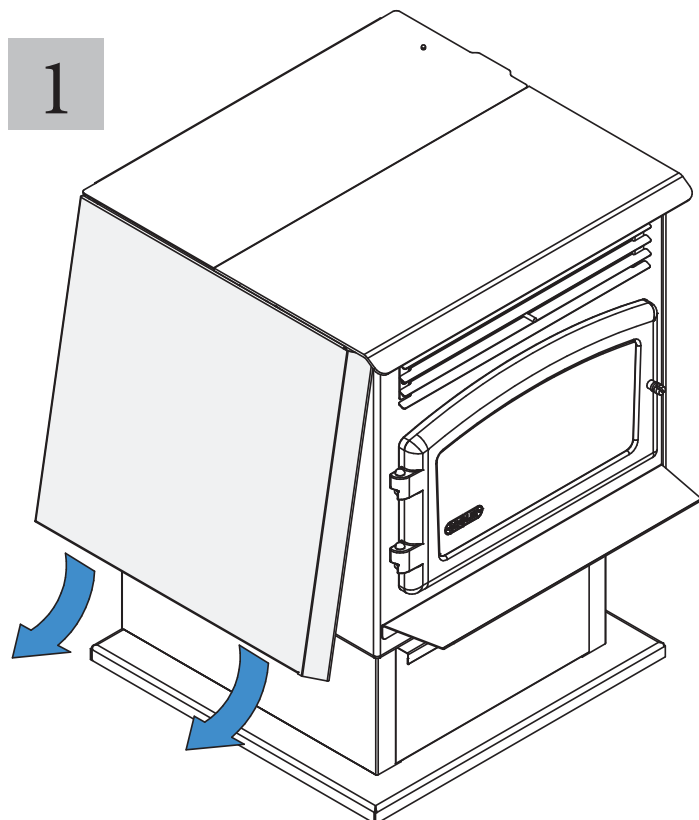


PARTS REQUIRED :

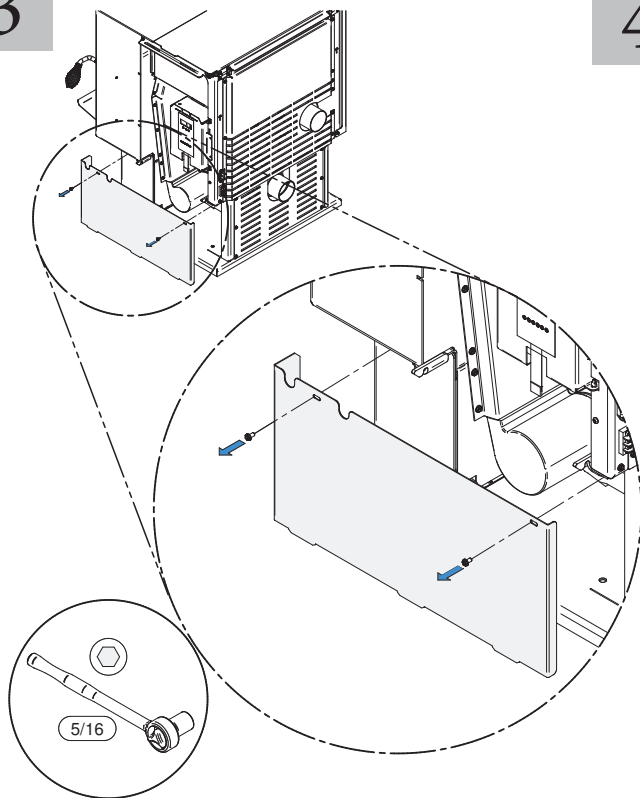


Ignitor

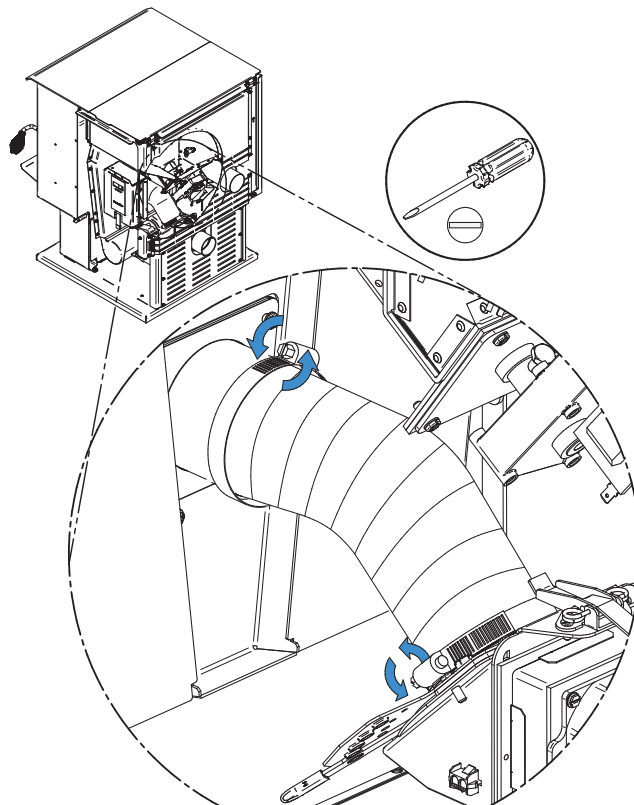
PROCEDURE :



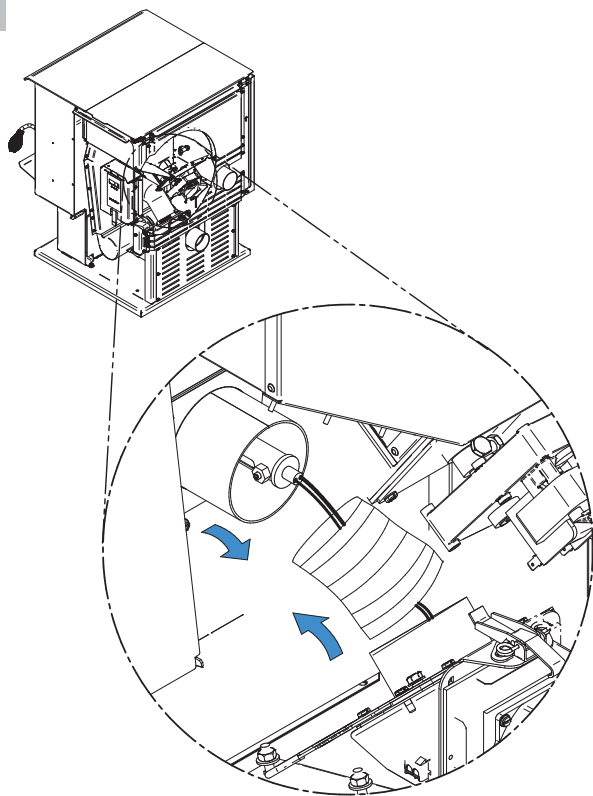
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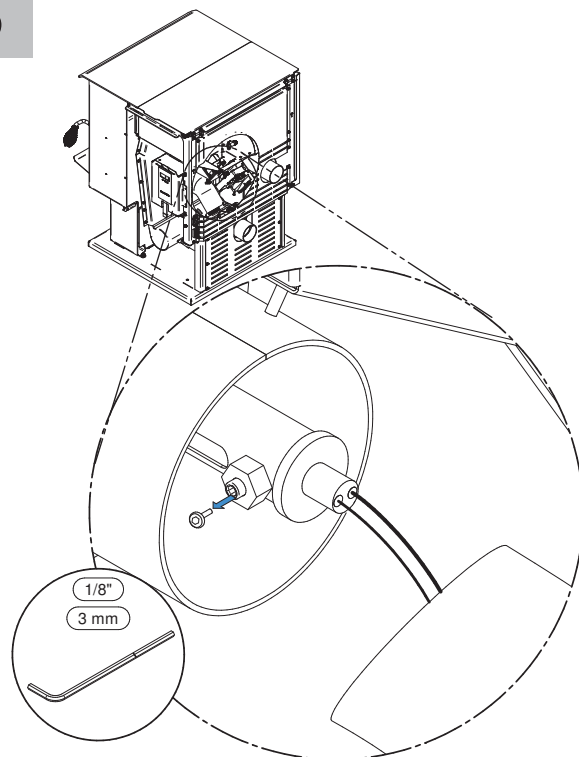
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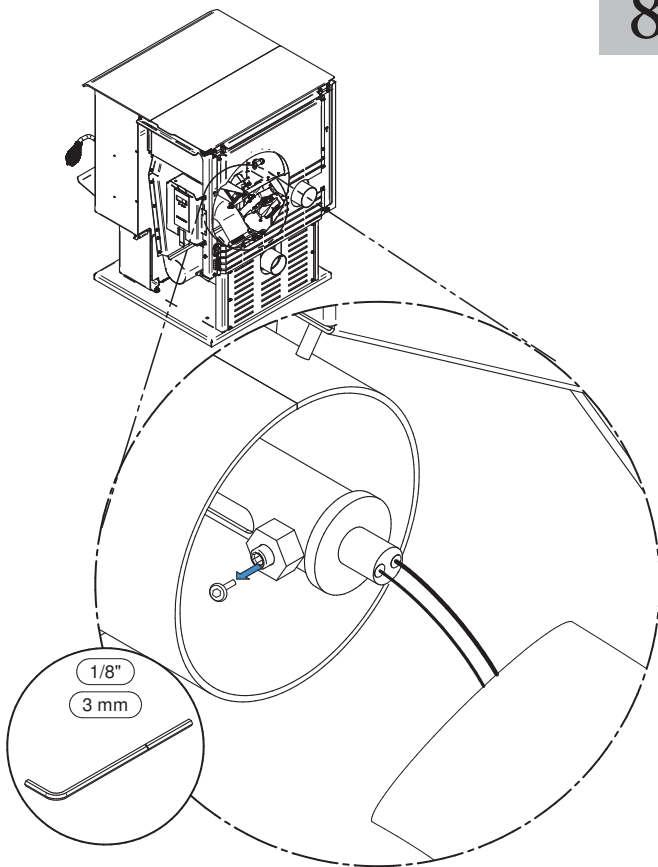
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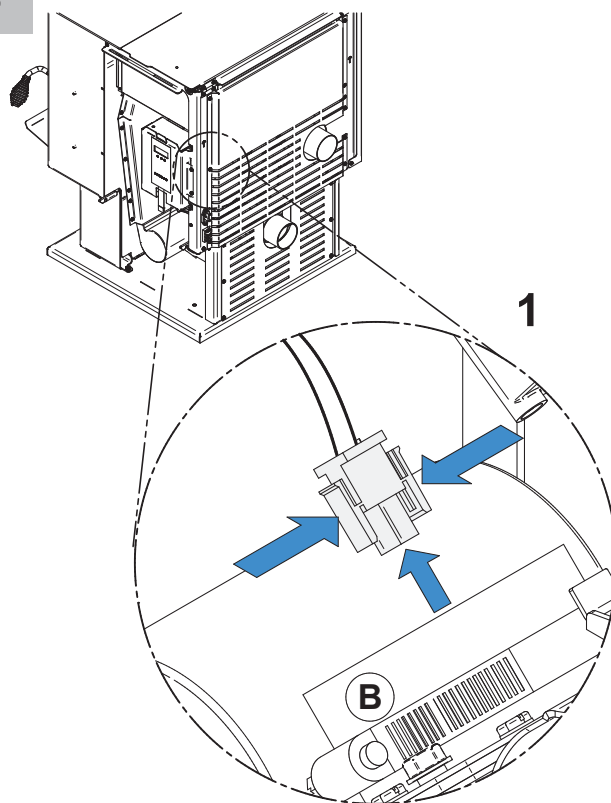
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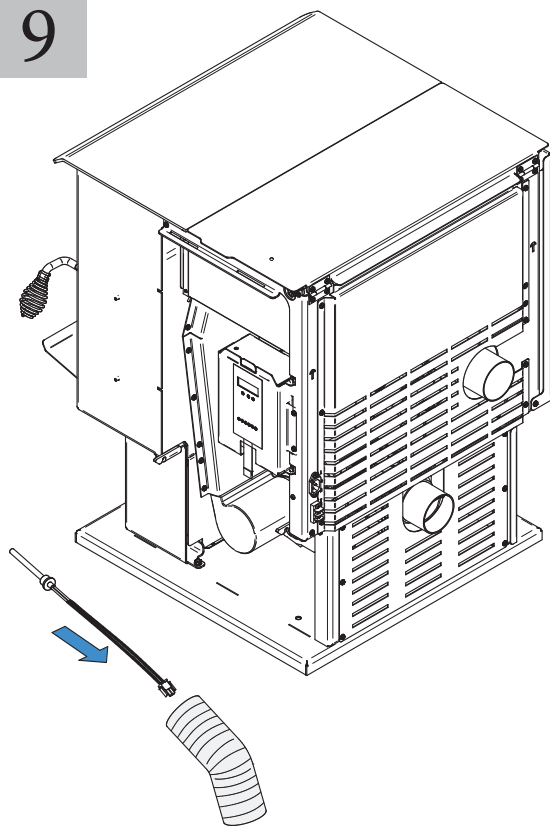
7



8



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10

Follow previous steps in reverse order to reinstall.




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| | | | | |
|-------------------------------------|---------------------|----------------------|----|-------------|
| <h1>HOW TO</h1> | Document # | Model name | | |
| | HT00134E | ECO-55 / ECO-55ST | | |
| Replace the L-250 thermodisc | Model number | Serial number | | Date |
| | DP00070 / DP00071 | 100 | to | ... |
| | | 30-05-2017 | | |

WARNING



HOT SURFACE. ALLOW TO COOL BEFORE SERVICING.

DANGER

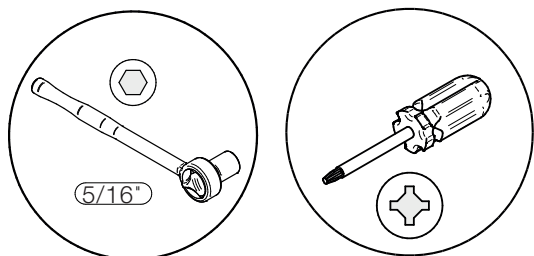


DISCONNECT ALL SOURCE OF POWER BEFORE SERVICING THE STOVE.

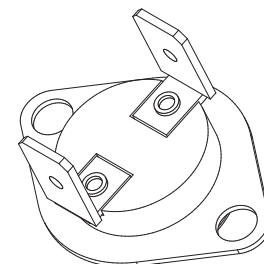
NOTE

For part numbers, visit our website at: www.drolet.ca/en/parts/

TOOLS REQUIRED :

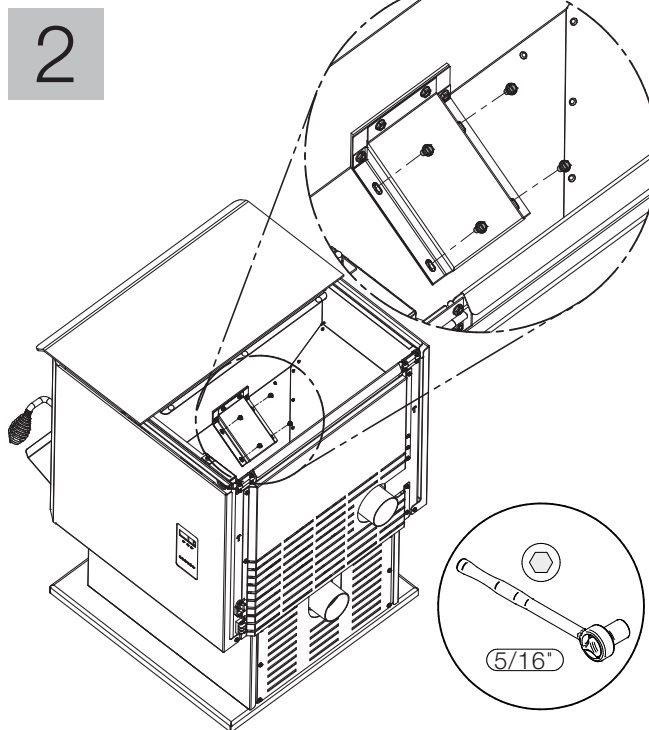
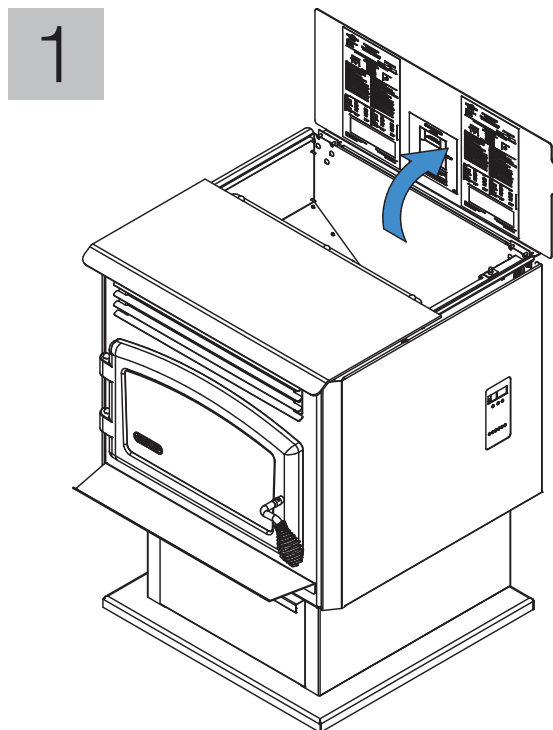


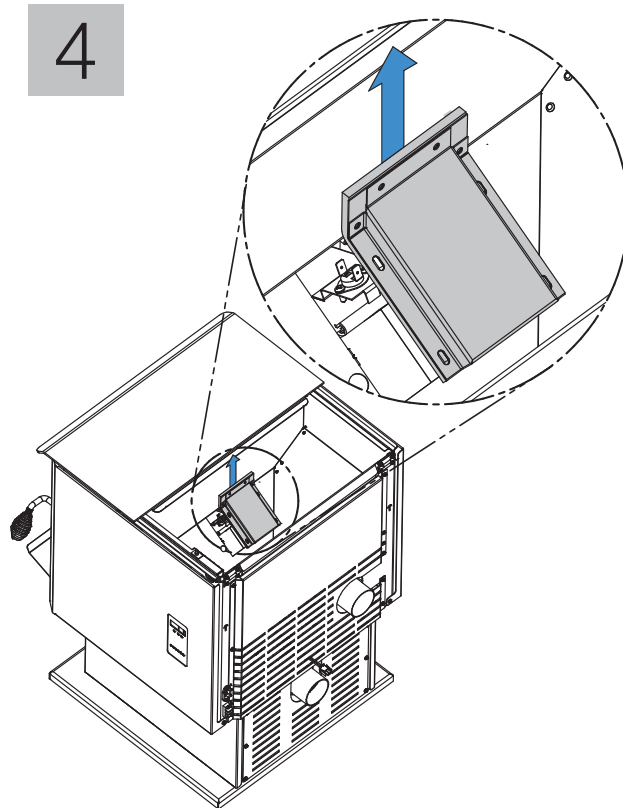
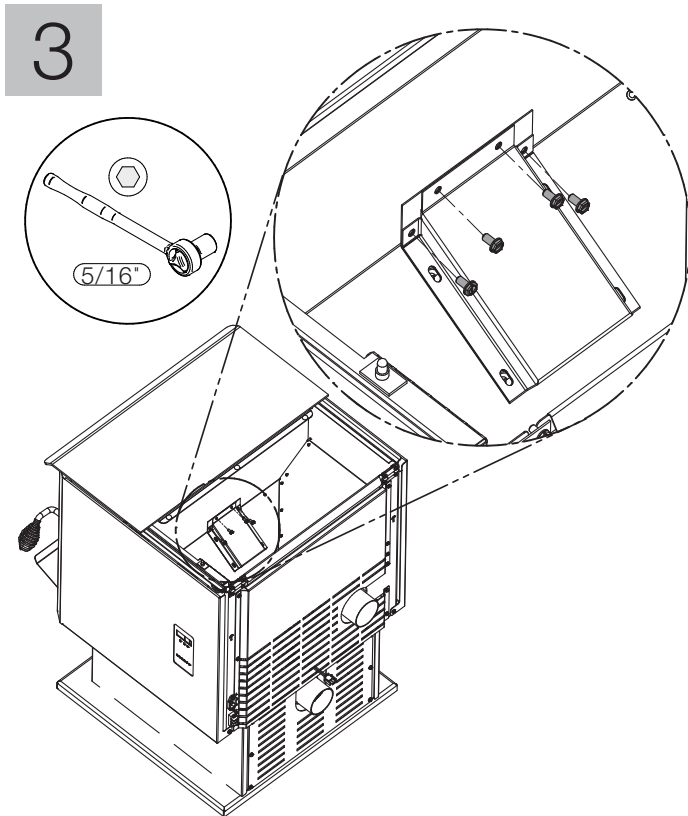
PARTS REQUIRED :



L-250 Thermodisc

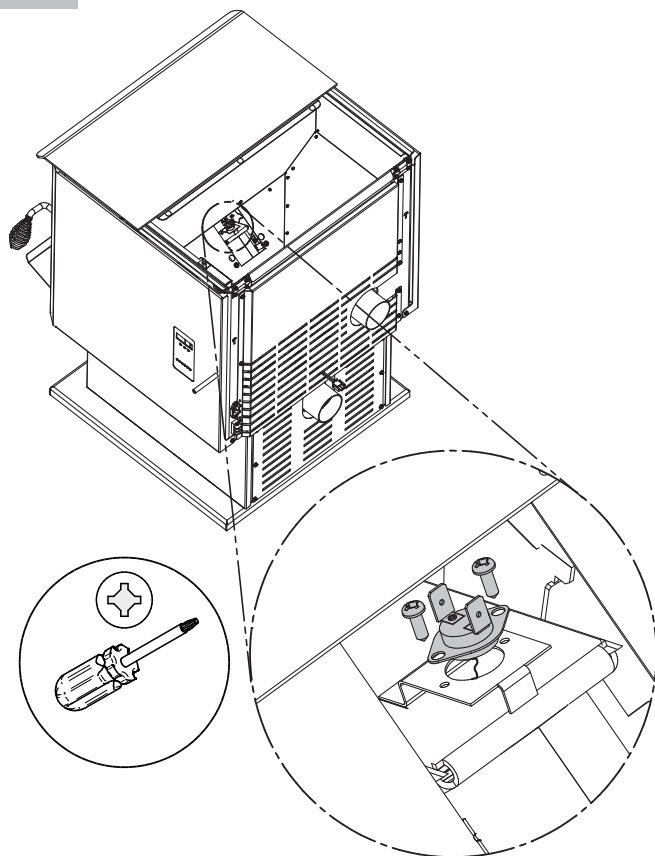
PROCEDURE :





5 Unscrew, disconnect and remove thermodisc.

6 Follow previous steps in reverse order to reinstall.



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| HOW TO | Document # | Model name | | |
|------------------|-------------------|---------------|-------------------|------|
| | | HT00140E | ECO-55 / ECO-55ST | |
| TEST A COMPONENT | Model number | Serial number | | Date |
| | DP00070 / DP00071 | 100 | to | ... |

When an electrical component seems to be defective, it is possible to test it by following the procedure given below. Testing components is only possible when the stove is OFF and that all the components are no more in function.

I/O description :

INPUT

Thermistor: Resistance reading the exhaust gas temperature.

F-160: Temperature Sensor, normally Open.

L-250 Automatic reset: Temperature sensor, normally closed

Hopper Switch: When the hopper is closed, switch is closed.

Lexan (Diaphragm switch): 6-switch diaphragm receiving user commands.

OUTPUT*



Igniter: 115V, 2.4A, 275W, 48Ω

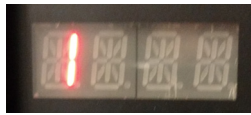
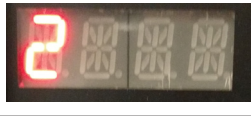
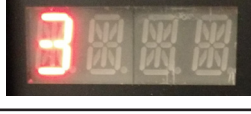
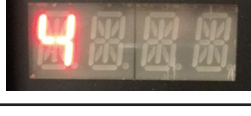


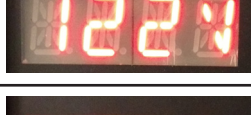
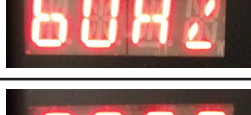
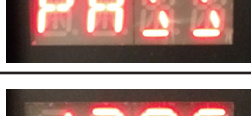

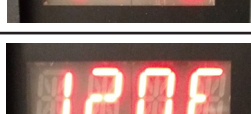

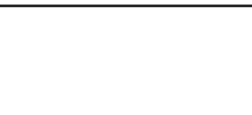
Evacuation motor: 115V, 1.1A, 127W


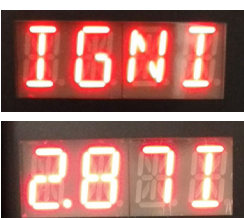

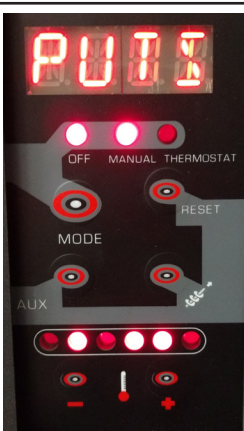

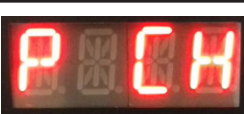


Convection motor: 115V, 0.9A, 96W,

Screw Motor: 115V, 190mA, 1.5RPM

*Note that the values are for reference only and may vary. If measured values are more or less than 30% of the value mentioned, it is considered good.

| | |
|--|---|
| <p>To access the test mode, press on the «RESET» and «AUGER» buttons simultaneously for 3 seconds. Each segment of each section of the display will turn on in sequence. Press «MODE».</p> |  |
| <p>Complete display and all LED's light up simultaneously. Press «MODE».</p> |  |

| | |
|--|--|
| «MODE» button key test. Number 1 shown. Press «MODE». |  |
| «RESET» button key test. Number 2 shown. Press «RESET». |  |
| «AUX» button key test. Number 3 shown. Press «AUX». |  |
| «AUGER» button key test. Number 4 shown. Press «AUGER». |  |
| «-» button key test. Number 5 shown. Press «-». |  |
| «+» button key test. Number 6 shown. Press «+». |  |
| The voltage of the power source is displayed. Press «MODE». |  |
| The frequency of the power source is displayed. Press «MODE». |  |
| Displays «PASS» if polarity is good, «FAIL» if polarity is reversed or if there is a poor or no electrical ground. Press «MODE». |  |
| Convection blower test. Displays the electrical voltage followed by a «C» alternating with the current, followed by an «I» . Press «MODE». |   |
| Exhaust blower test. Displays the electrical voltage followed by an «E» alternating with the current, followed by an «I» . Press «MODE». |   |

| | |
|---|---|
| <p>Combustion blower test. Displays electrical voltage followed by a «B» alternating with the current, followed by an «I» . Press «MODE».</p> |  |
| <p>Ignitor test. Displays «IGNITOR» alternating with the current, followed by an «I» . Press «MODE».</p> |  |
| <p>Auger test. Displays «AUGER» alternating with the current, followed by an «I». Press «MODE».</p> |  |
| <p>Displays «INPUTS» and shows the status of different components when the unit is cold.</p> <p>OFF DEL: Pressure switch MANUAL DEL: Hopper switch THERMOSTAT DEL: Thermostat FEED RATE 1 : (non operative) FEED RATE 2 : F160 (normally open) FEED RATE 3 : L250 (normally closed) FEED RATE 4 : (non operative) FEED RATE 5 : Thermistor FEED RATE 6 : (non operative)</p> <p>Press «MODE».</p> |  |
| <p>Displays «TSTAT». To go to the next step, the thermostat block terminal must be short-circuit.</p> |  |
| <p>Displays «P_CHECK» and verifies the pressure switch. Press «MODE».</p> |  |
| <p>Displays the thermistor temperature. Press «MODE».</p> |  |
| <p>Displays the igniting time of the stove. Press «MODE».</p> |  |

Displays the operating time of the stove. Press «MODE».



Displays «EEPROM PASS» or «EEPROM FAIL». Validate that the control board's EEPROM is functional. To exit the test mode, Press «MODE».



Stove Builder International inc.
250, rue de Copenhague,
St-Augustin-de-Desmaures (Québec) Canada
G3A 2H3

Customer service : 418-908-8002
Email : tech@sbi-international.com
www.drolet.ca

| | | | | | |
|---------------------|------------------|-----------------------|----|------|------------|
| HOW TO ACCESS FUSES | Document # | Model Name and Number | | | |
| | HT00153-A | OSBURN 2500 (OP00025) | | | |
| | Document Version | Serial Number | | Date | |
| | 01 | 100 | to | ... | 29-11-2017 |

WARNING

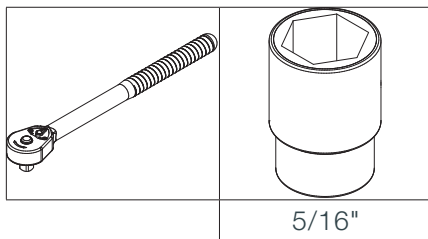
NEVER MANIPULATE OR REPLACE A COMPONENT WHEN THE STOVE IS HOT.

DANGER

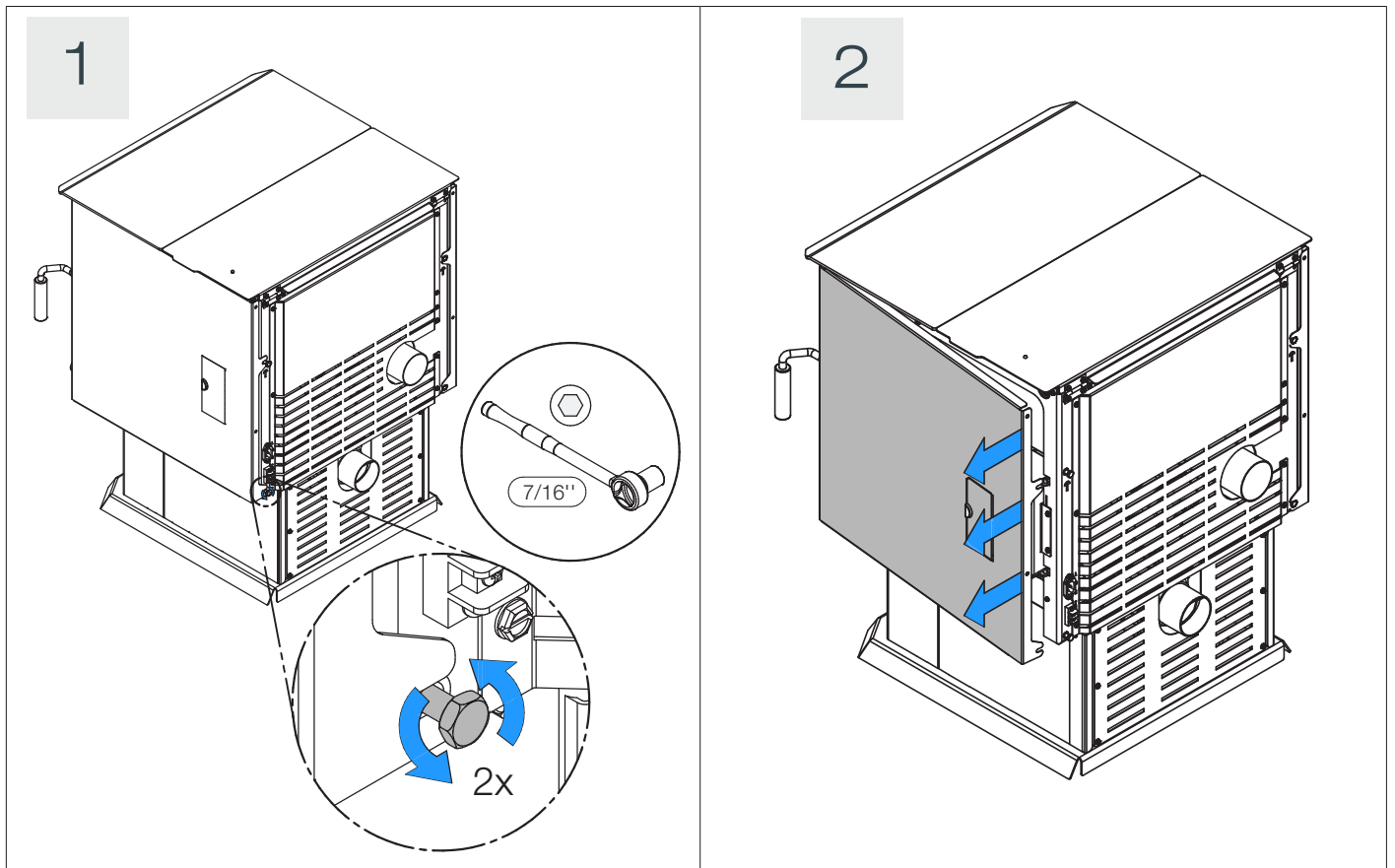
DISCONNECT ALL SOURCE OF POWER BEFORE MANIPULATING OR REPLACING A COMPONENT.

For part numbers visit our web site <https://www.osburn-mfg.com/en/replacement-parts/> For more information, contact us at 418-908-8002 or by email at tech@sbi-international.com

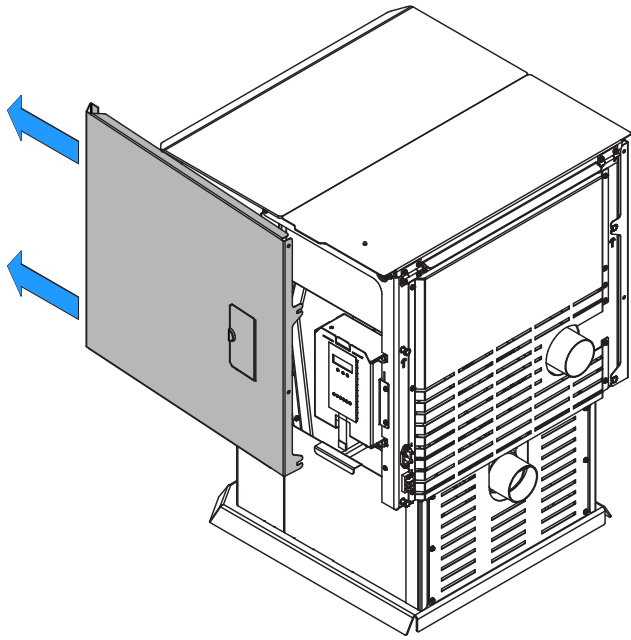
TOOL(S) REQUIRED :



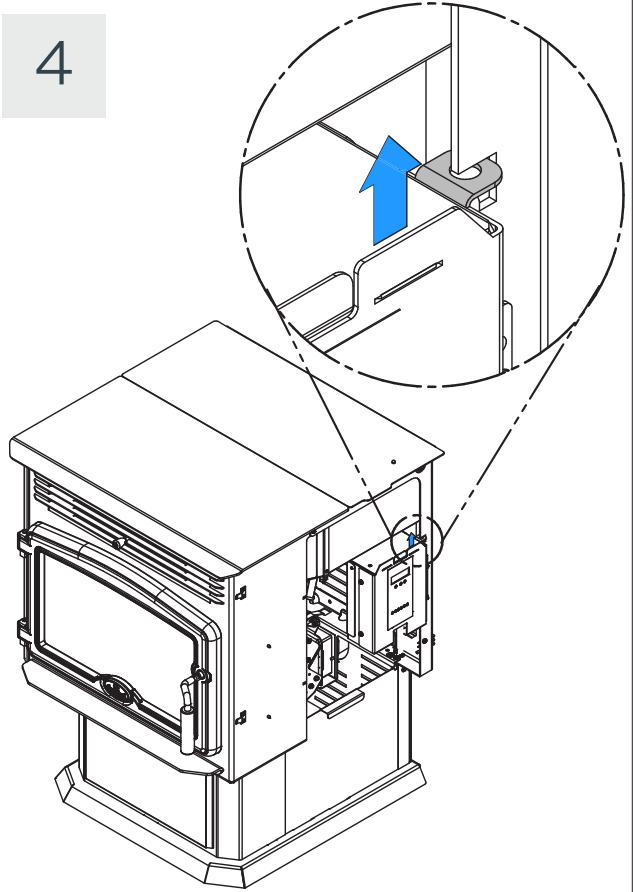
PROCEDURE :



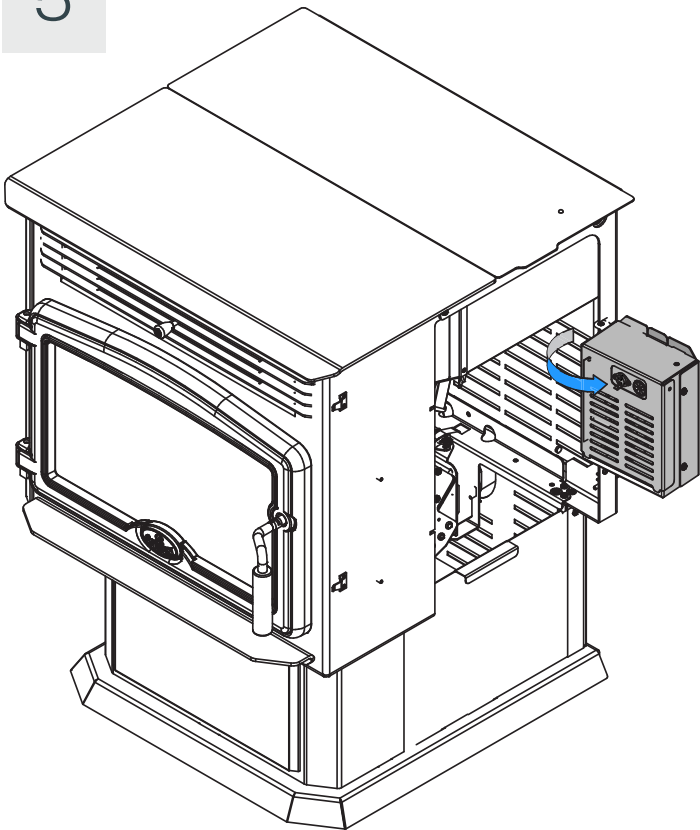
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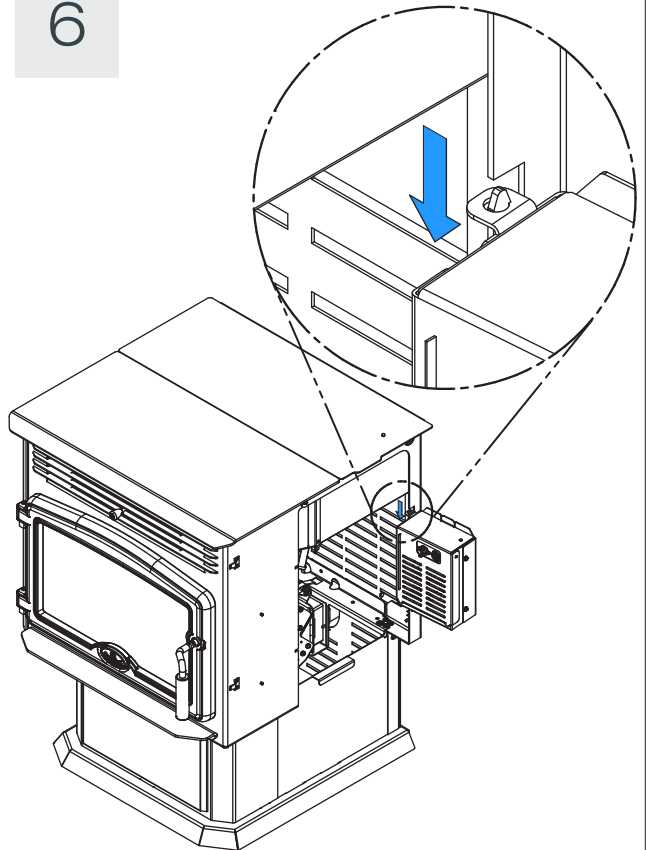
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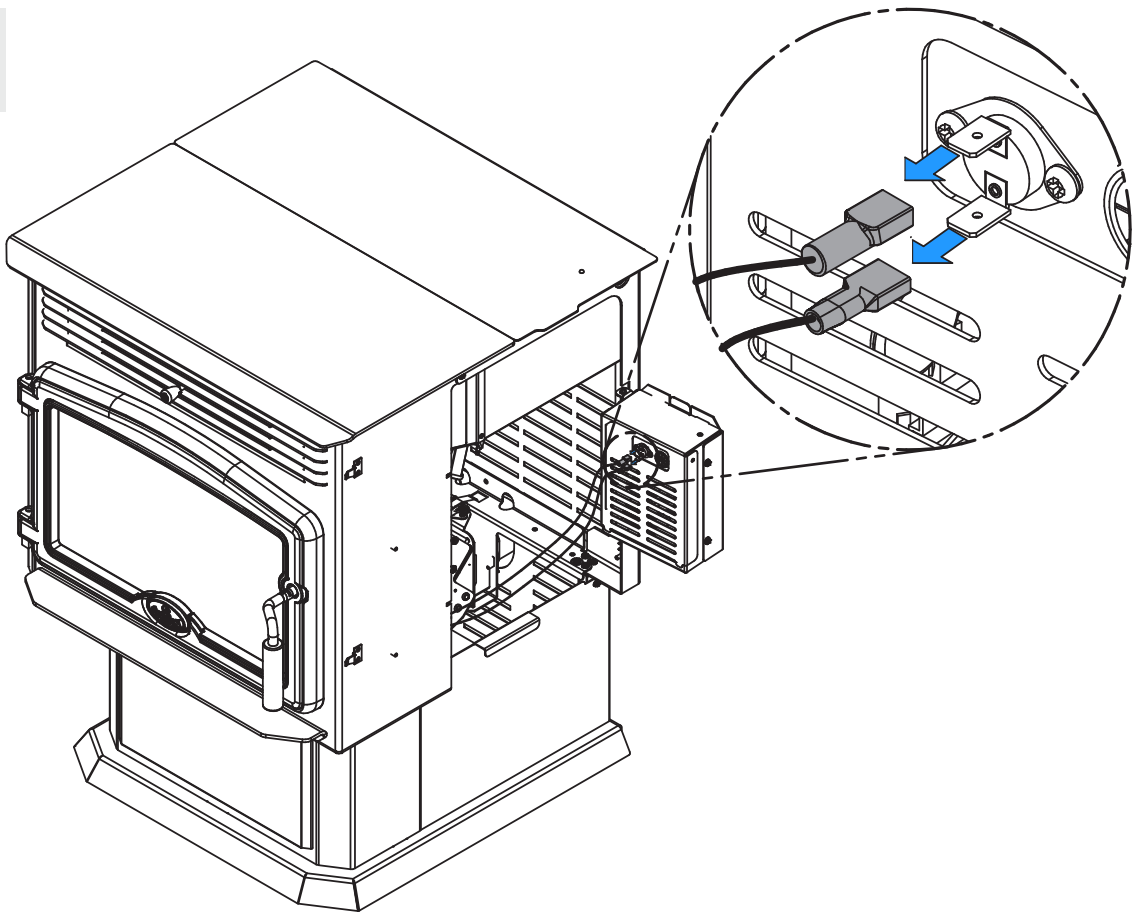
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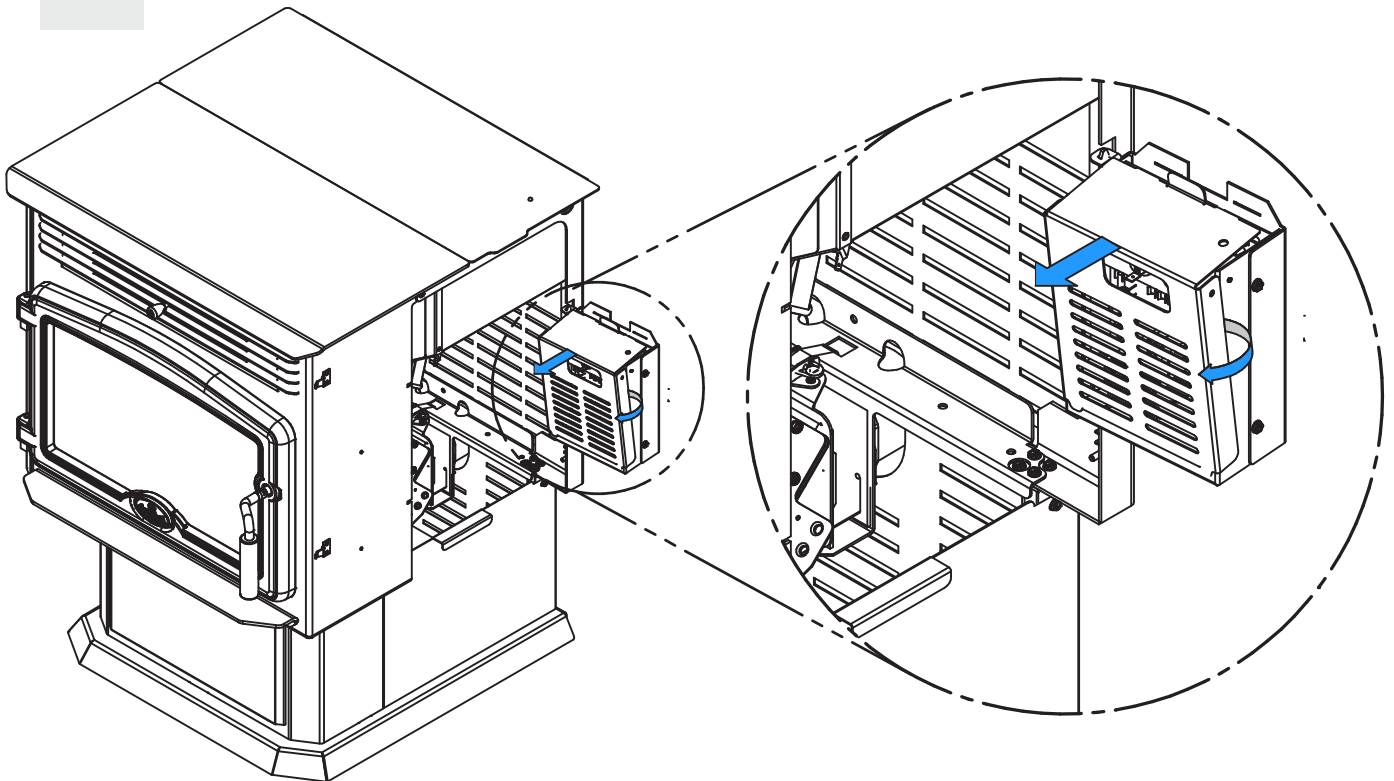
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7

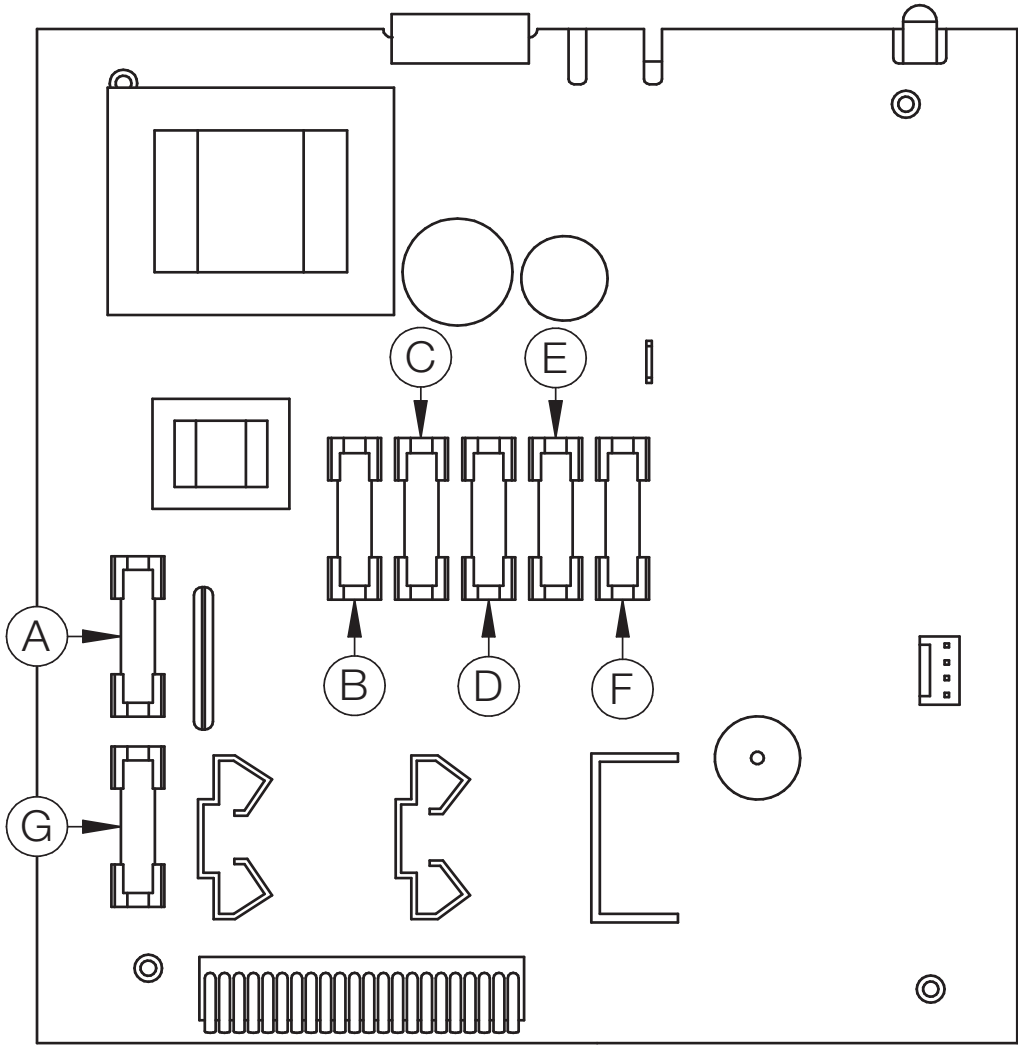


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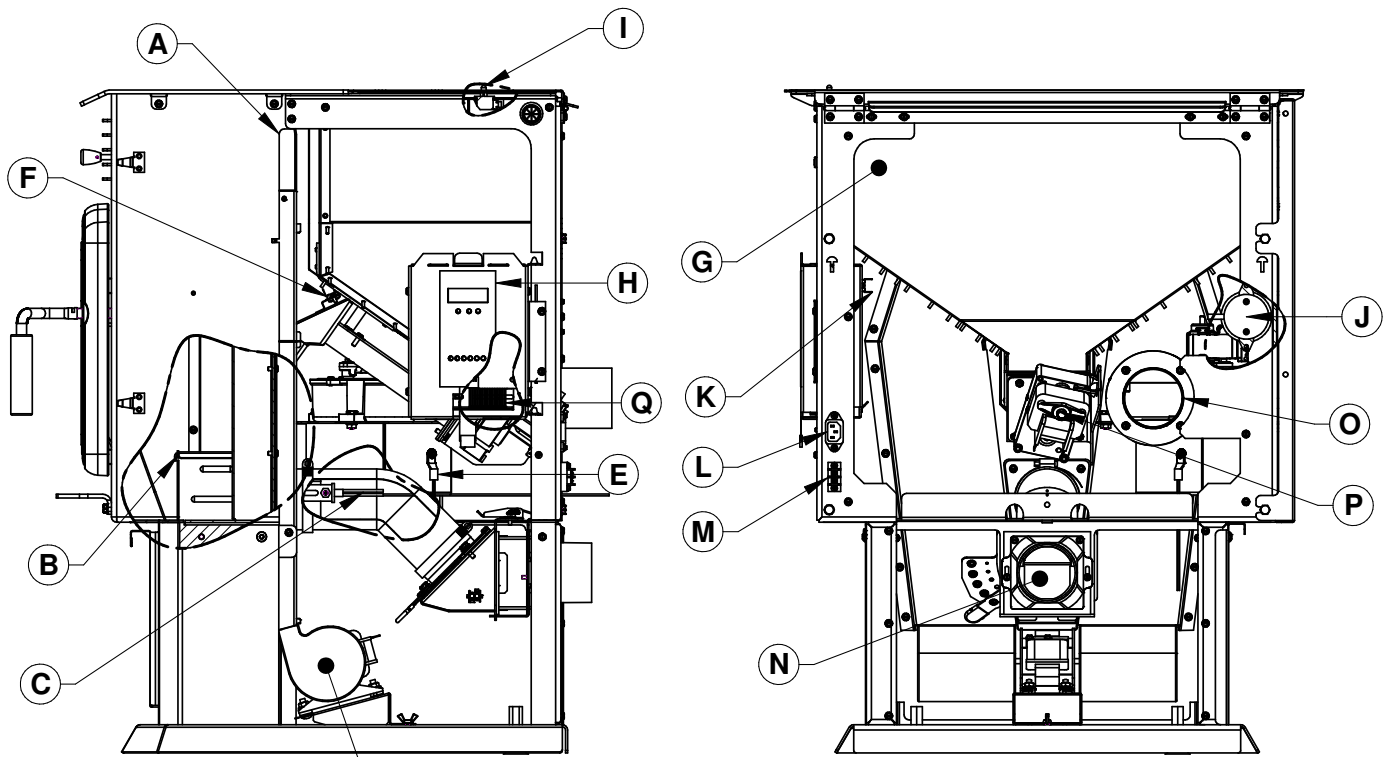


9

| LETTER | FUSES FONCTIONS |
|--------|-------------------|
| A | Control circuit |
| B | Combustion blower |
| C | Convection blower |
| D | Exhaust blower |
| E | Auger |
| F | Igniter |
| G | Main fuse |



COMPONENTS LOCATION



| LETTER | COMPONENTS | LETTER | COMPONENTS |
|--------|----------------------|--------|------------------------------------|
| A | HEAT EXCHANGER TUBES | L | POWER CORD RECEPTACLE |
| B | BURN POT | M | THERMOSTAT TERMINAL BLOCK |
| C | IGNITOR | N | COMBUSTION BLOWER/FRESH AIR INTAKE |
| D | CONVECTION BLOWER | O | EXHAUST BLOWER |
| E | THERMISTOR | P | AUGER |
| F | L-250 THERMAL SWITCH | Q | PC BOARD |
| G | HOPPER | | |
| H | CONTROL PANEL | | |
| I | HOPPER SAFETY SWITCH | | |
| J | PRESSURE SWITCH | | |
| K | F-160 THERMAL SWITCH | | |

NOTE

For part numbers, visit our website at: <https://www.osburn-mfg.com/en/replacement-parts/>

| | | | | | |
|-------------------------------------|------------------|--|-----------------------|----|------|
| <h1>HOW TO REPLACE IGNITER</h1> | Document # | | Model Name and Number | | |
| | HT00155-A | | OSBURN 2500 (OP00025) | | |
| | Document Version | | Serial Number | | Date |
| | 01 | | 100 | to | ... |

WARNING

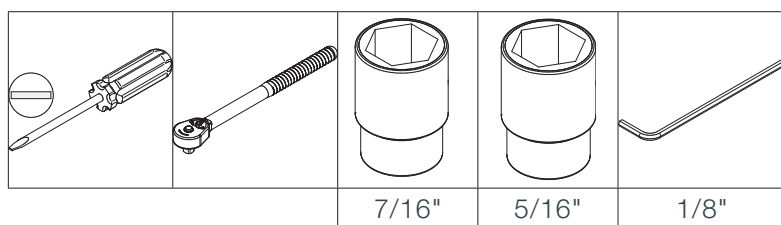
NEVER MANIPULATE OR REPLACE A COMPONENT WHEN THE STOVE IS HOT.

DANGER

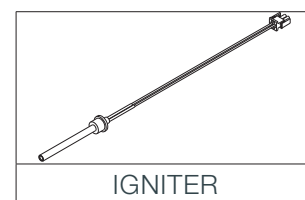
DISCONNECT ALL SOURCE OF POWER BEFORE MANIPULATING OR REPLACING A COMPONENT.

For part numbers visit our web site <https://www.osburn-mfg.com/en/replacement-parts/>
 For more information, contact us at 418-908-8002 or by email at tech@sbi-international.com

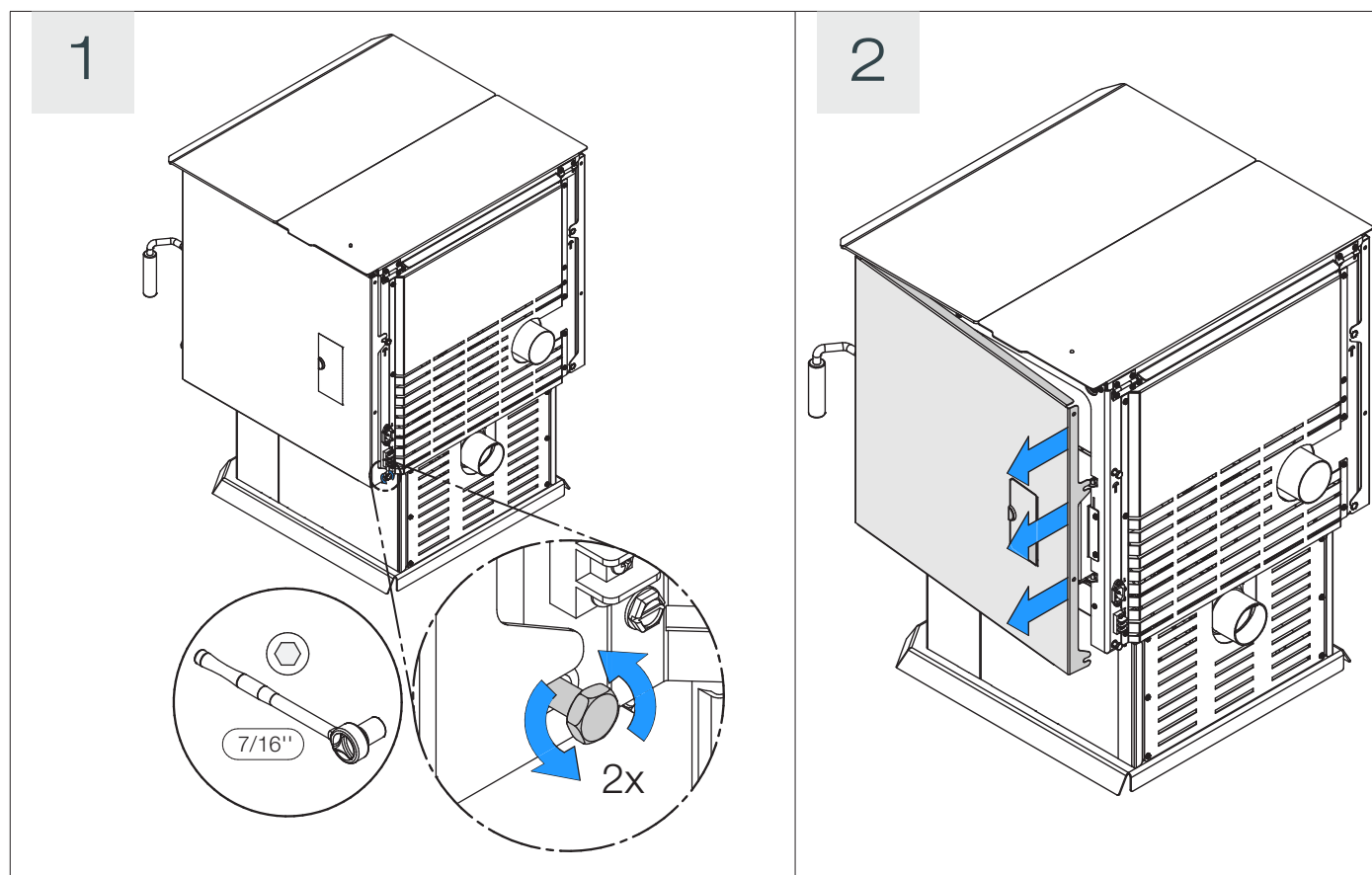
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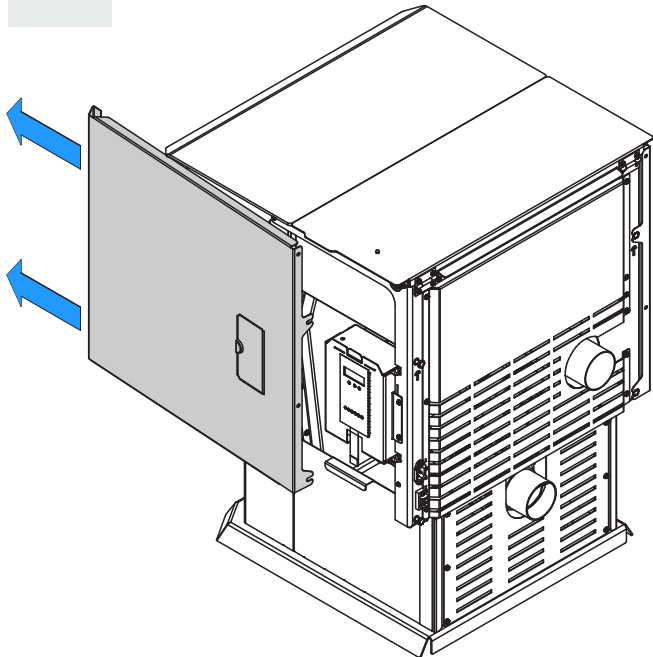
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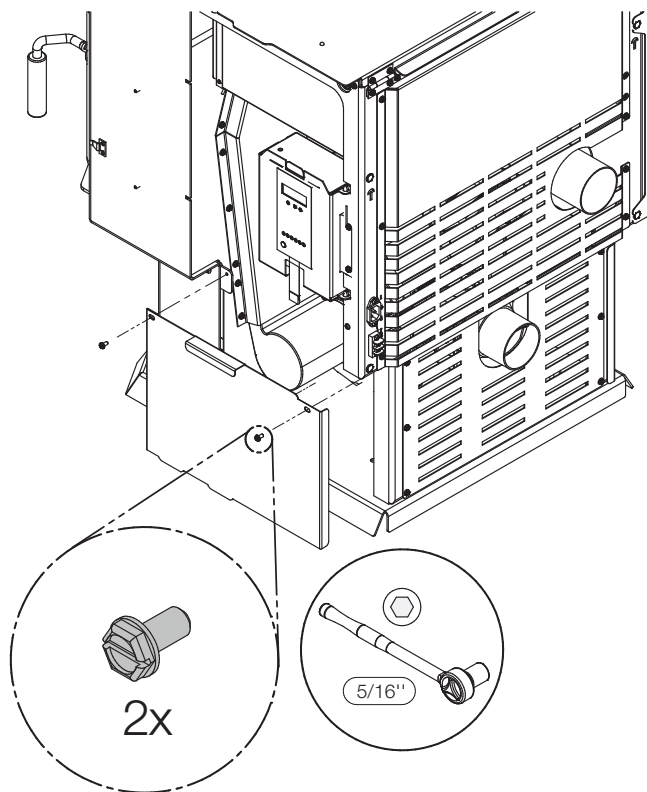
PROCEDURE :



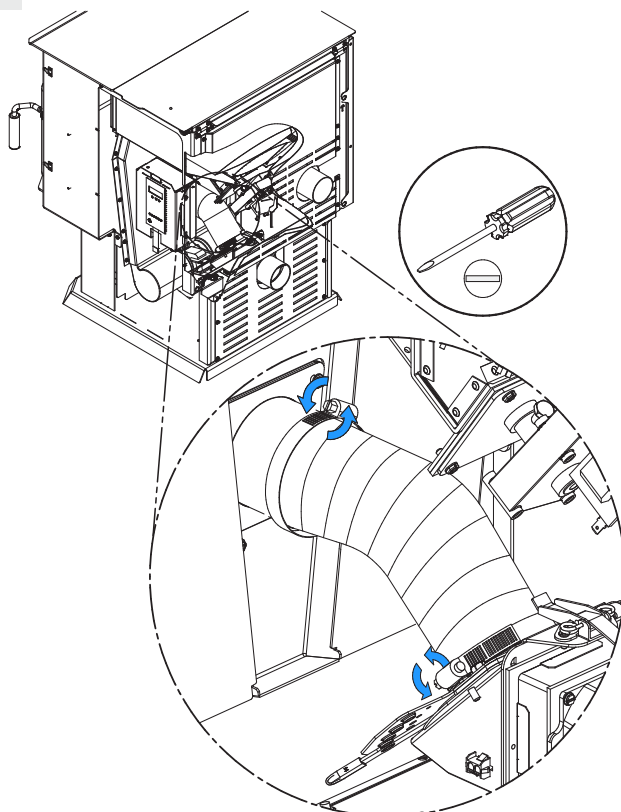
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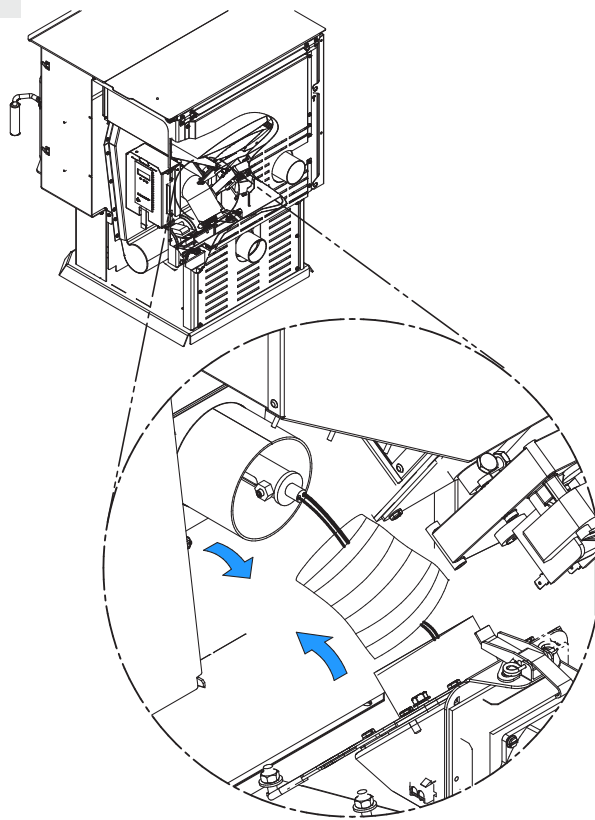
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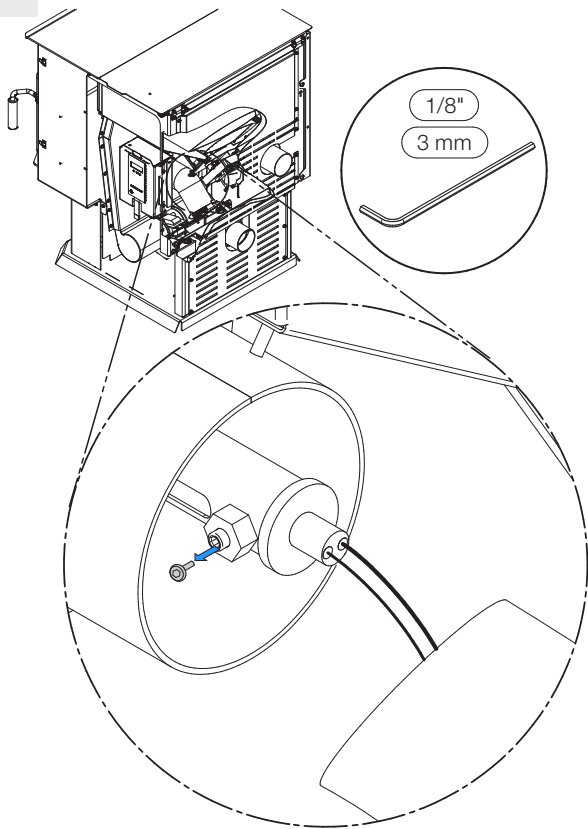
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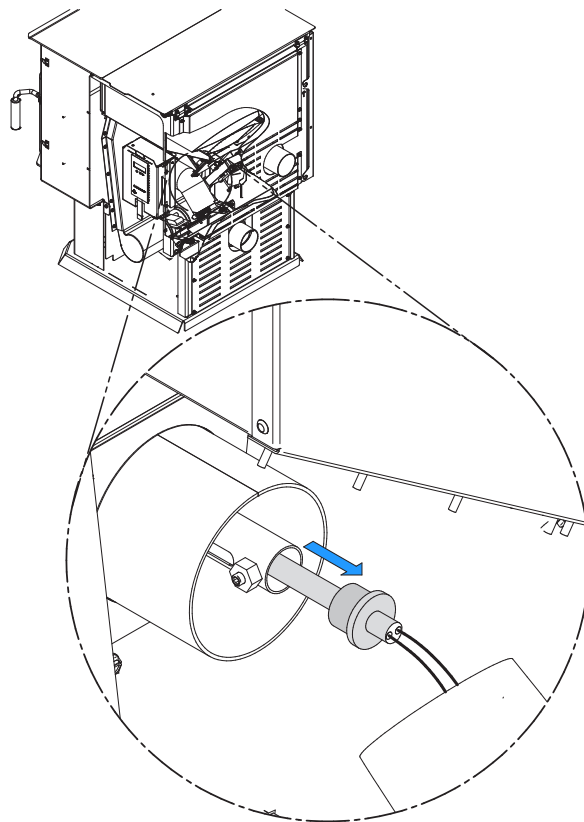
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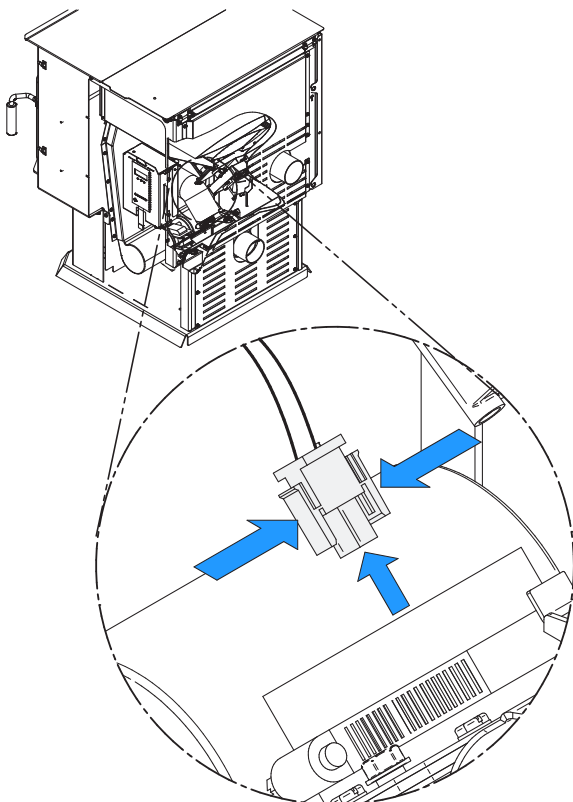
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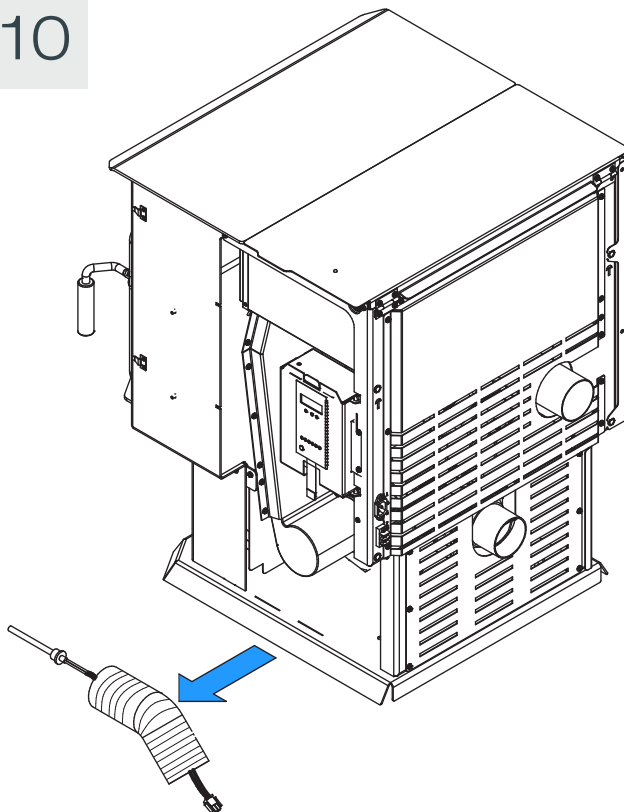
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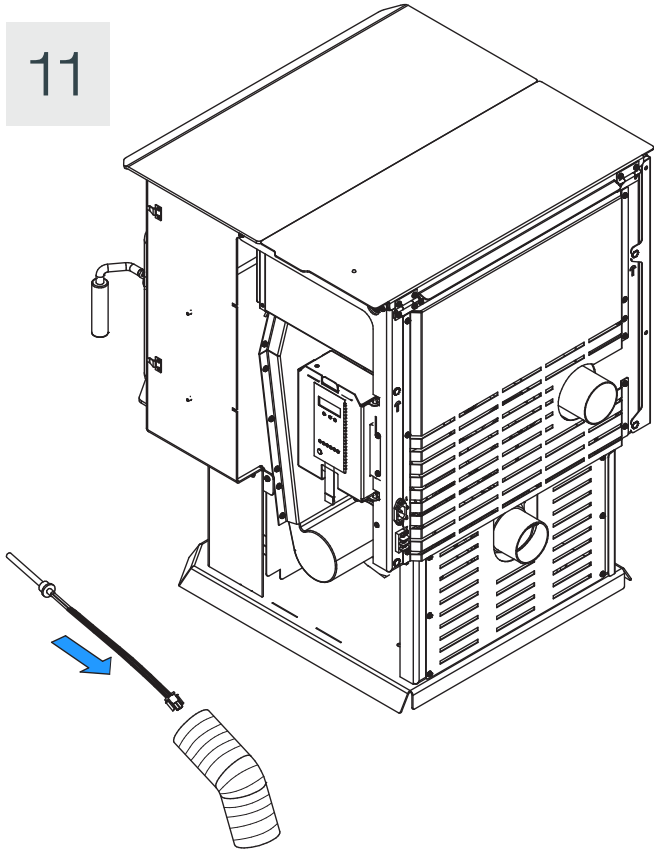
9



10



11



| | | | | | |
|---------------------------------|------------------|-----------------------|----|------|------------|
| HOW TO REPLACE F-160 THERMODISC | Document # | Model Name and Number | | | |
| | HT00156-A | OSBURN 2500 (OP00025) | | | |
| | Document Version | Serial Number | | Date | |
| | 01 | 100 | to | ... | 01-12-2017 |

WARNING

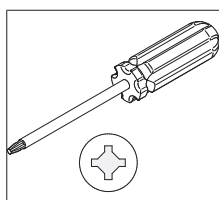
NEVER MANIPULATE OR REPLACE A COMPONENT WHEN THE STOVE IS HOT.

DANGER

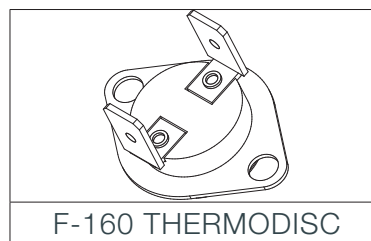
DISCONNECT ALL SOURCE OF POWER BEFORE MANIPULATING OR REPLACING A COMPONENT.

For part numbers visit our web site <https://www.osburn-mfg.com/en/replacement-parts/> For more information, contact us at 418-908-8002 or by email at tech@sbi-international.com

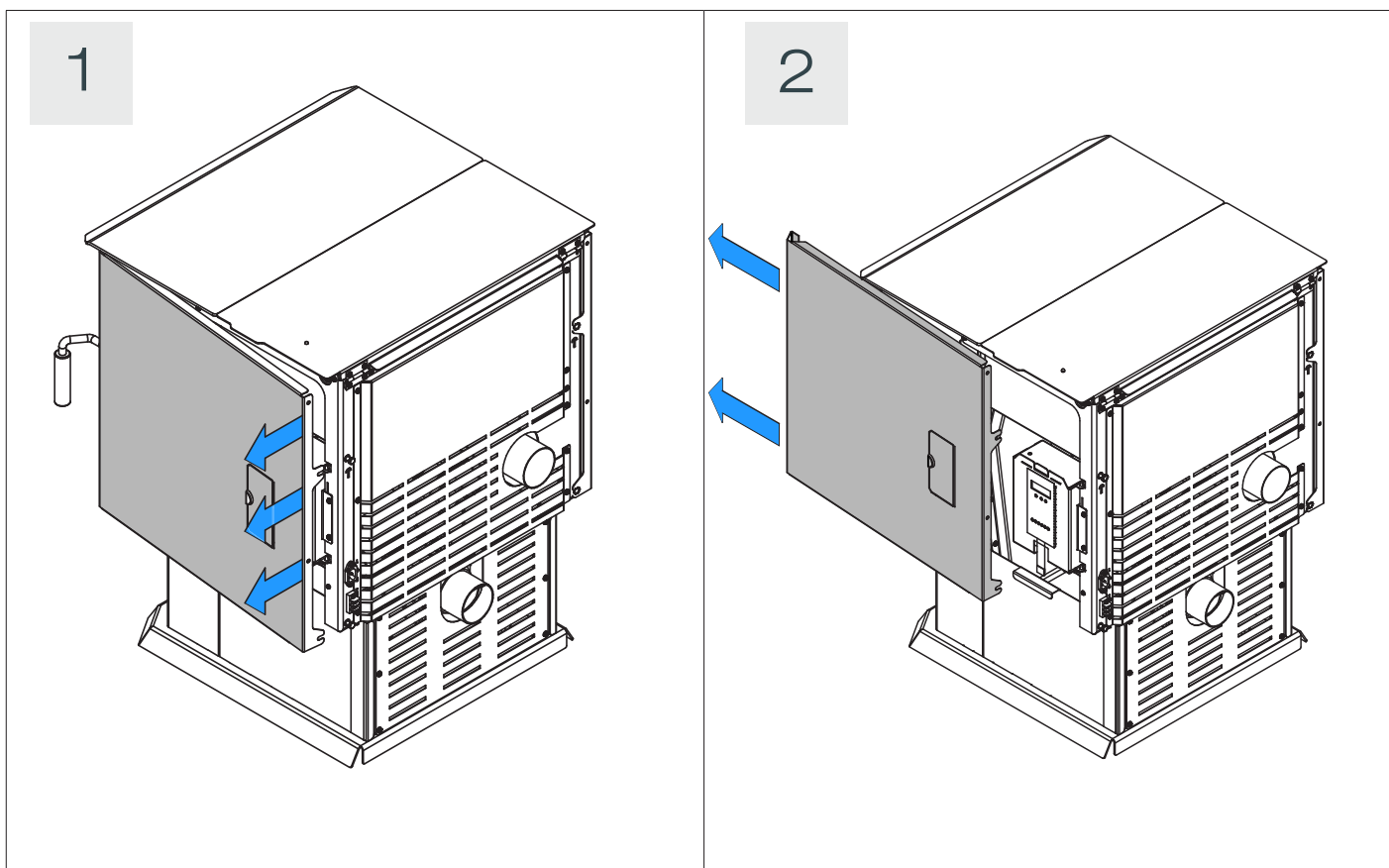
TOOL(S) REQUIRED :

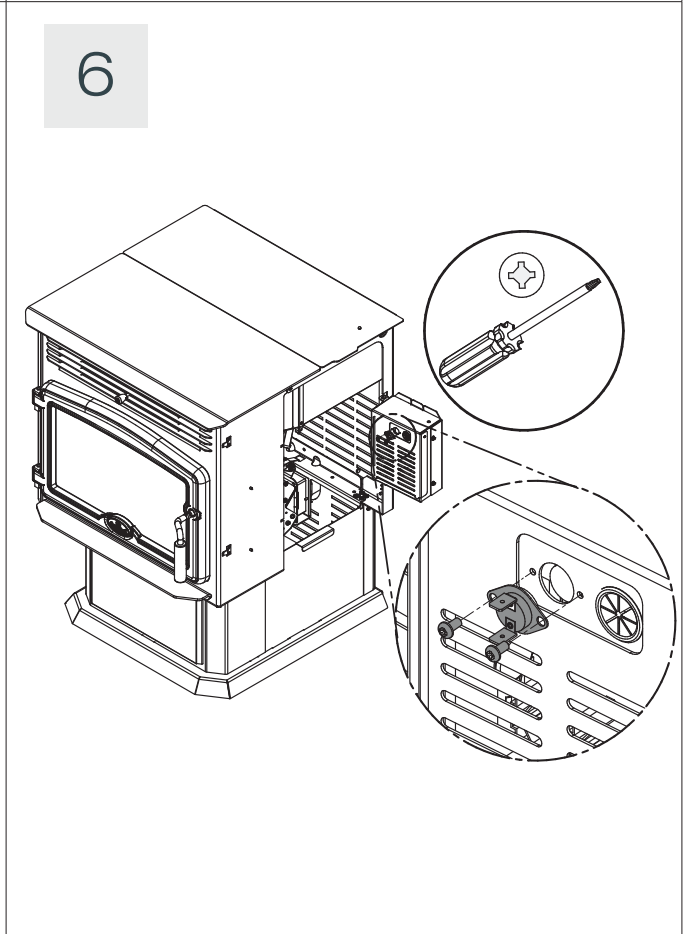
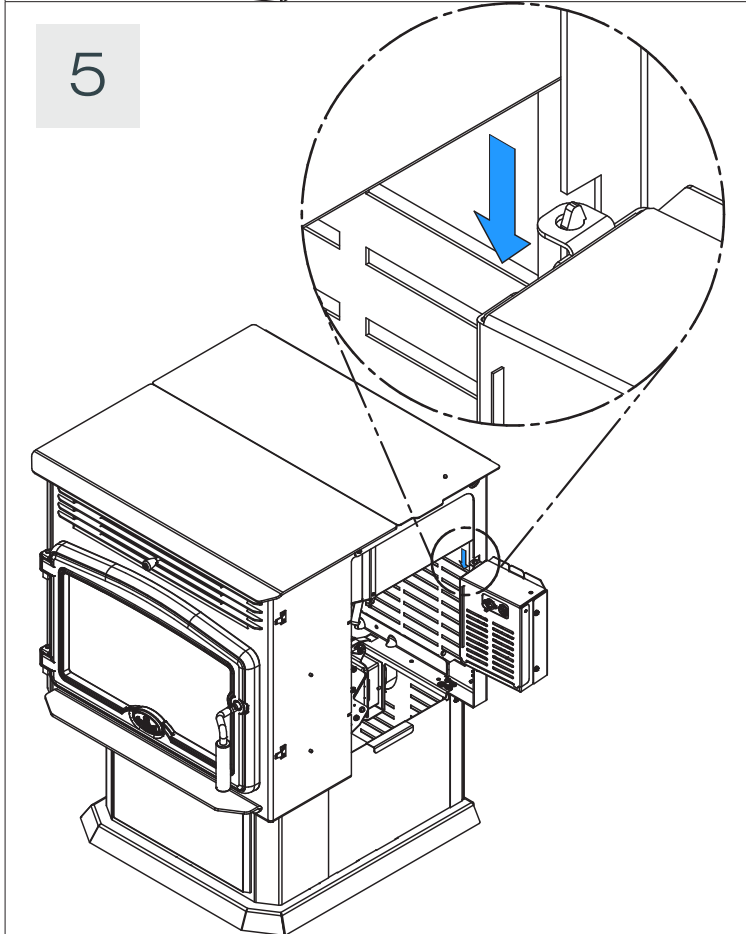
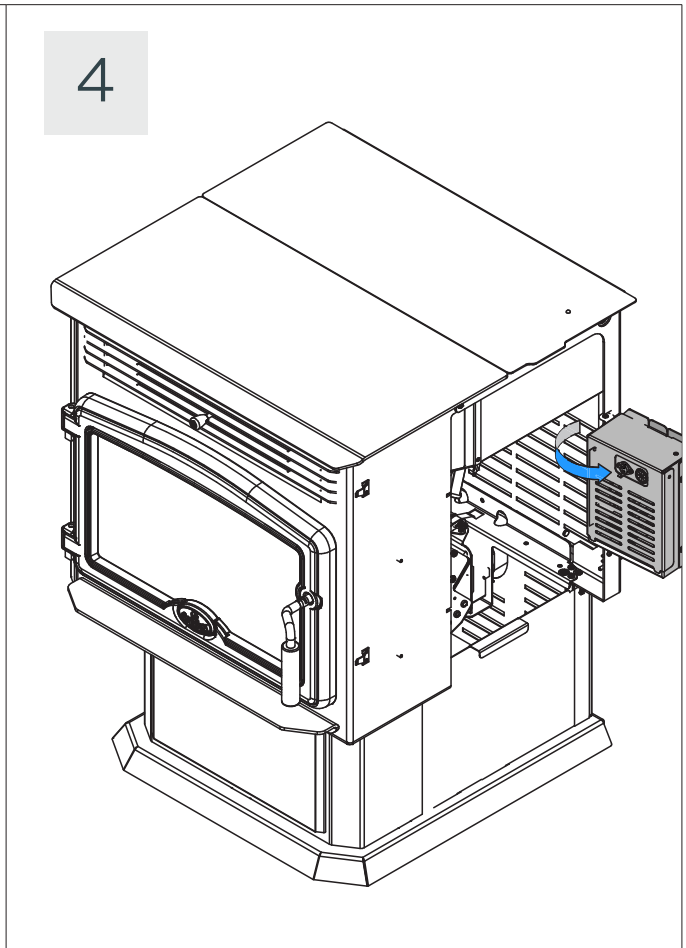
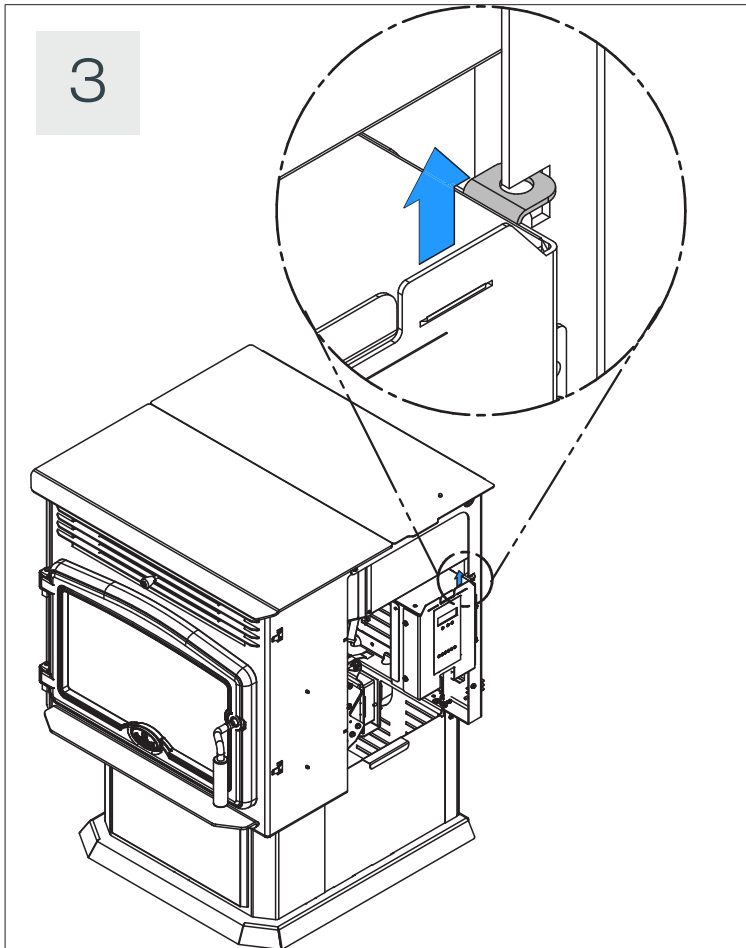


PART(S) REQUIRED :



PROCEDURE :





| | | | | | |
|--|------------------|--|-----------------------|----|------|
| <h1>HOW TO REPLACE L-250 THERMODISC</h1> | Document # | | Model Name and Number | | |
| | HT00157-A | | OSBURN 2500 (OP00025) | | |
| | Document Version | | Serial Number | | Date |
| | 01 | | 100 | to | ... |

WARNING

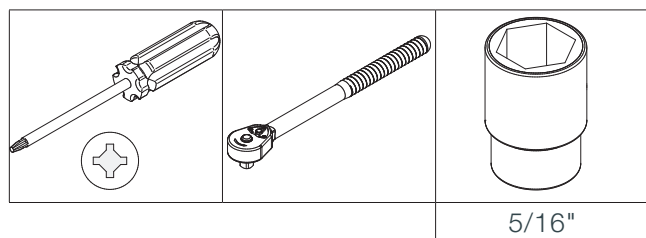
NEVER MANIPULATE OR REPLACE A COMPONENT WHEN THE STOVE IS HOT.

DANGER

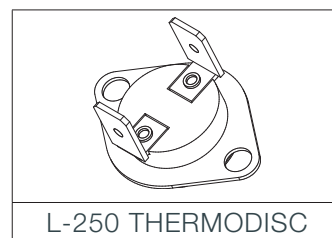
DISCONNECT ALL SOURCE OF POWER BEFORE MANIPULATING OR REPLACING A COMPONENT.

For part numbers visit our web site <https://www.osburn-mfg.com/en/replacement-parts/> For more information, contact us at 418-908-8002 or by email at tech@sbi-international.com

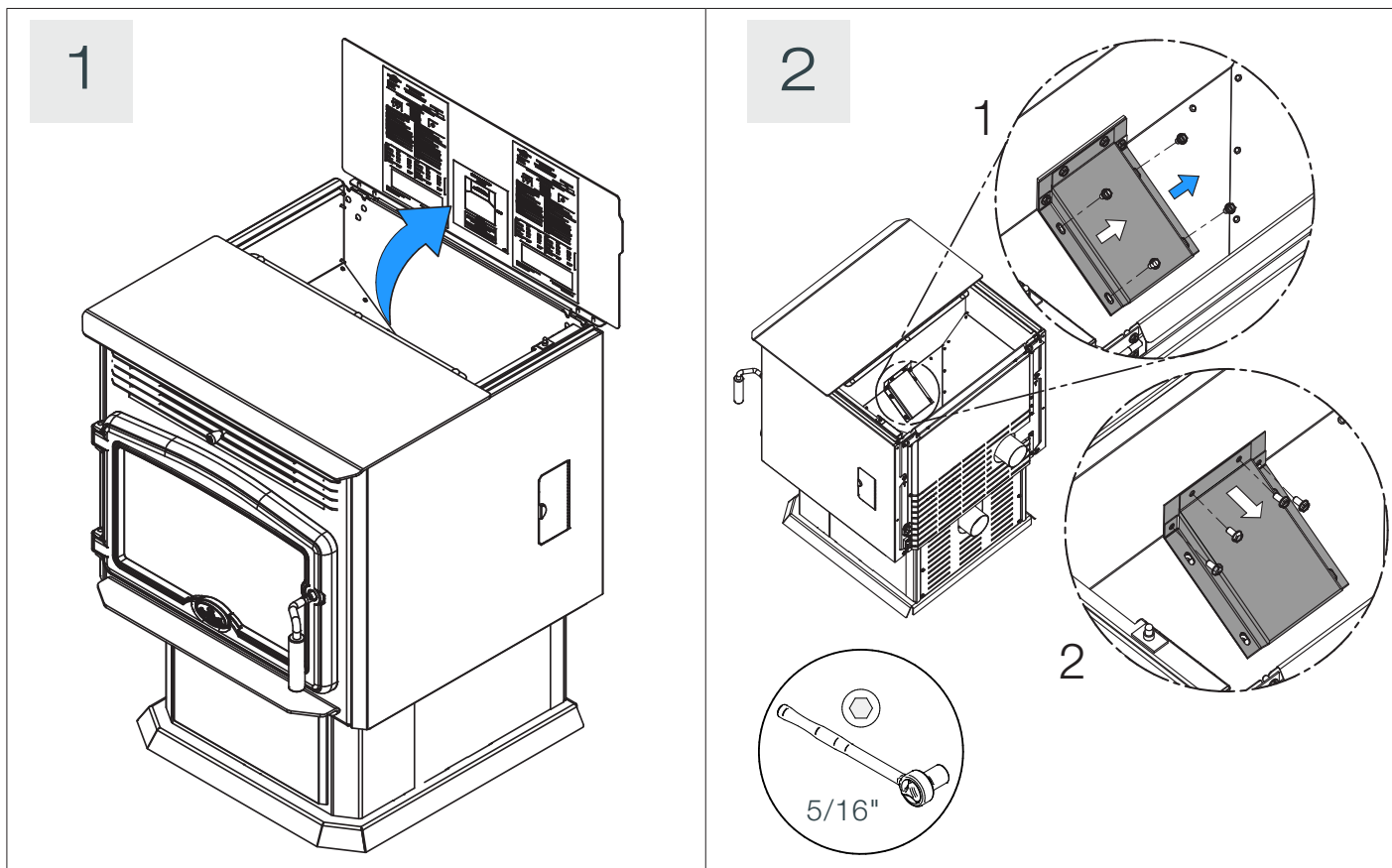
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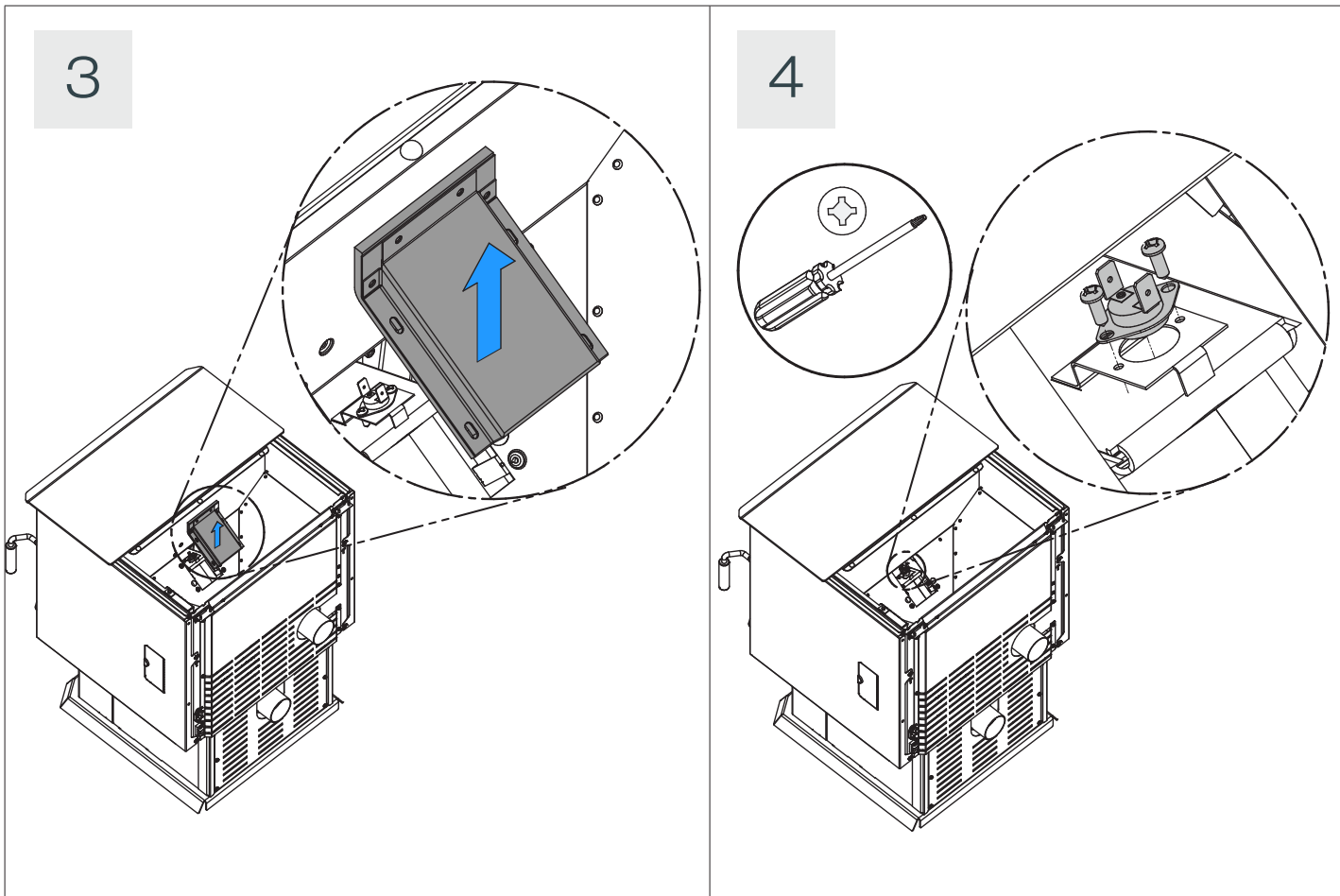


PART(S) REQUIRED :



PROCEDURE :





| | | | | | |
|-------------------------------------|------------------|--|-----------------------|----|------|
| <h1>HOW TO REPLACE AUGER MOTOR</h1> | Document # | | Model Name and Number | | |
| | HT00158-A | | OSBURN 2500 (OP00025) | | |
| | Document Version | | Serial Number | | Date |
| | 01 | | 100 | to | ... |

WARNING

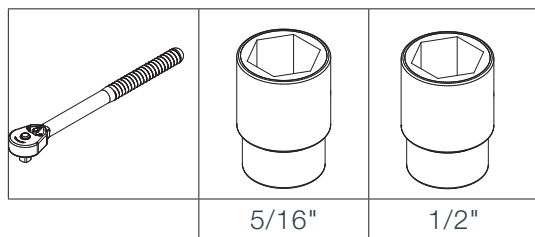
NEVER MANIPULATE OR REPLACE A COMPONENT WHEN THE STOVE IS HOT.

DANGER

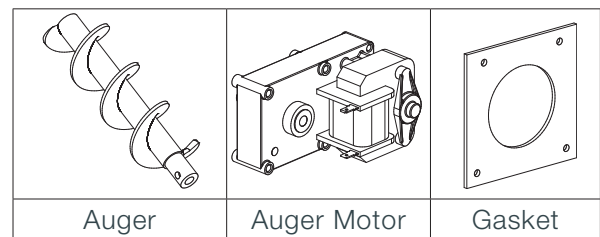
DISCONNECT ALL SOURCE OF POWER BEFORE MANIPULATING OR REPLACING A COMPONENT.

For part numbers visit our web site <https://www.osburn-mfg.com/en/replacement-parts/> For more information, contact us at 418-908-8002 or by email at tech@sbi-international.com

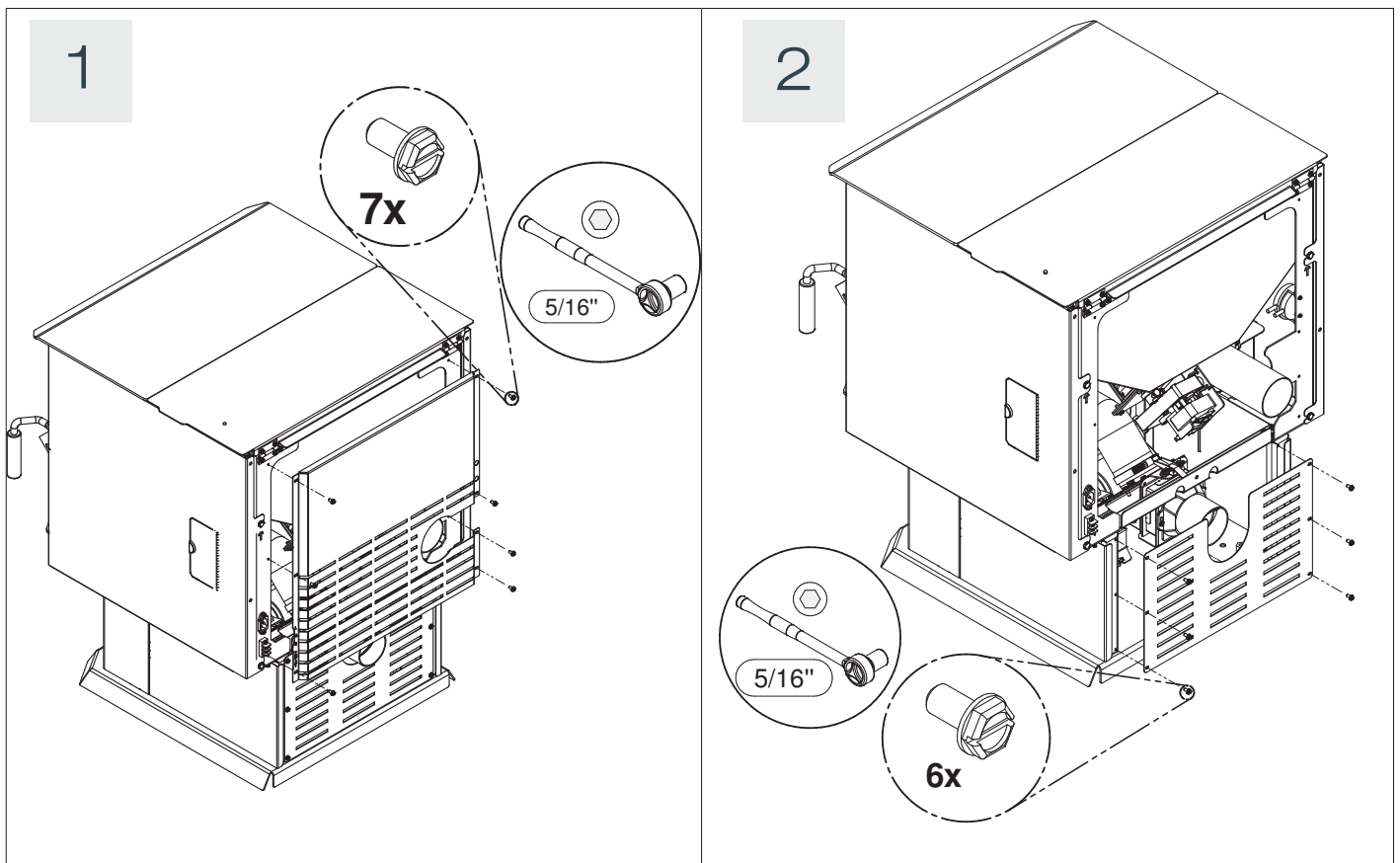
TOOL(S) REQUIRED :



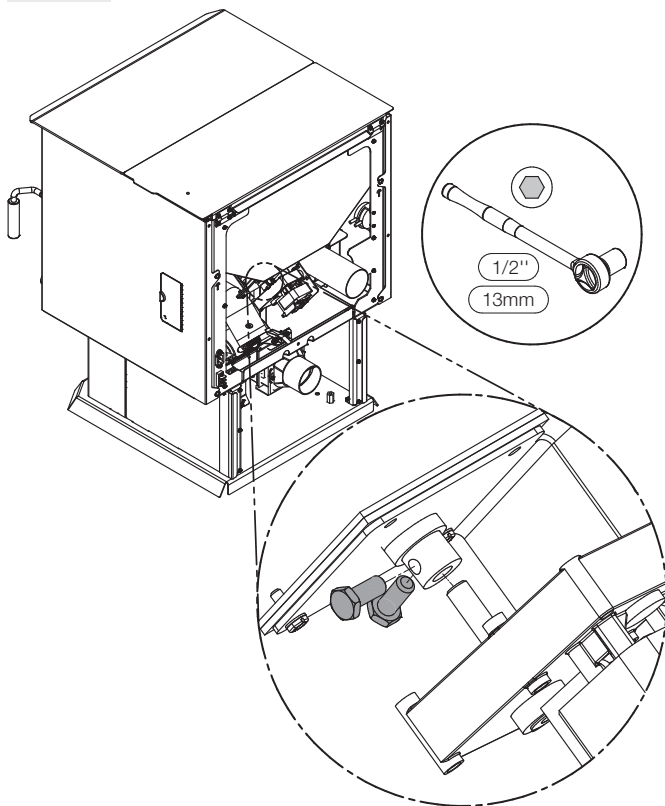
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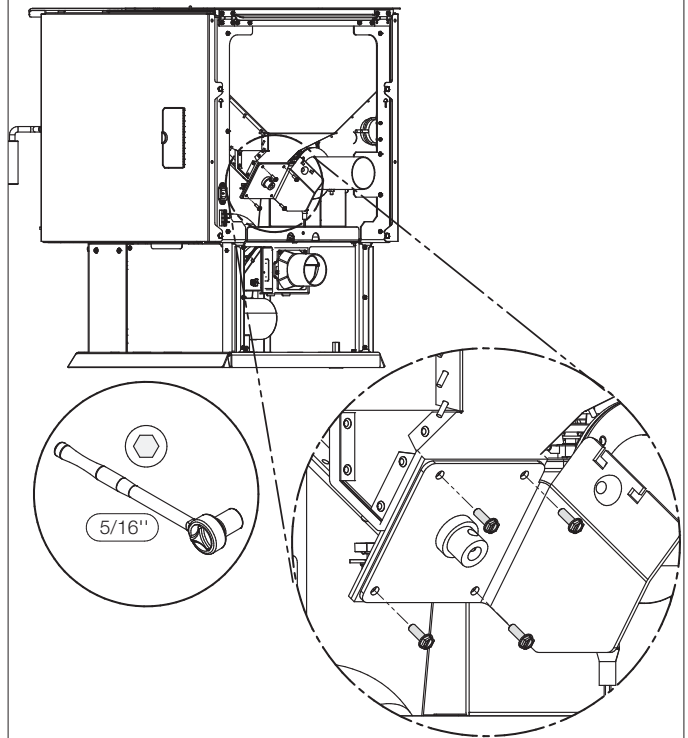
PROCEDURE :



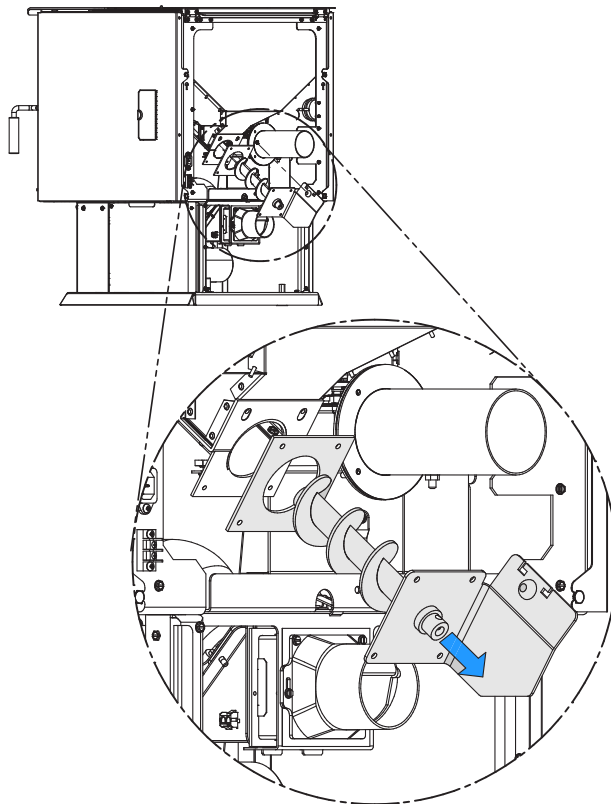
3



4



5



6

Follow previous steps in reverse order to reinstall.

HOW TO REPLACE CONVECTION BLOWER

Document #

HT00159-A

Document Version

01

Model Name and Number

OSBURN 2500 (OP00025)

Serial Number

100

to

...

Date

04-12-2017

WARNING



NEVER MANIPULATE OR REPLACE A COMPONENT WHEN THE STOVE IS HOT.

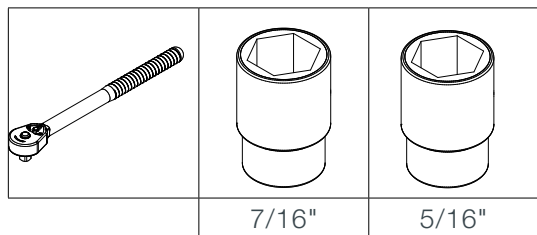
DANGER



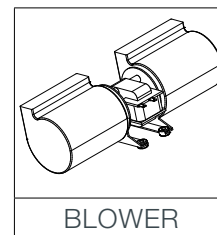
DISCONNECT ALL SOURCE OF POWER BEFORE MANIPULATING OR REPLACING A COMPONENT.

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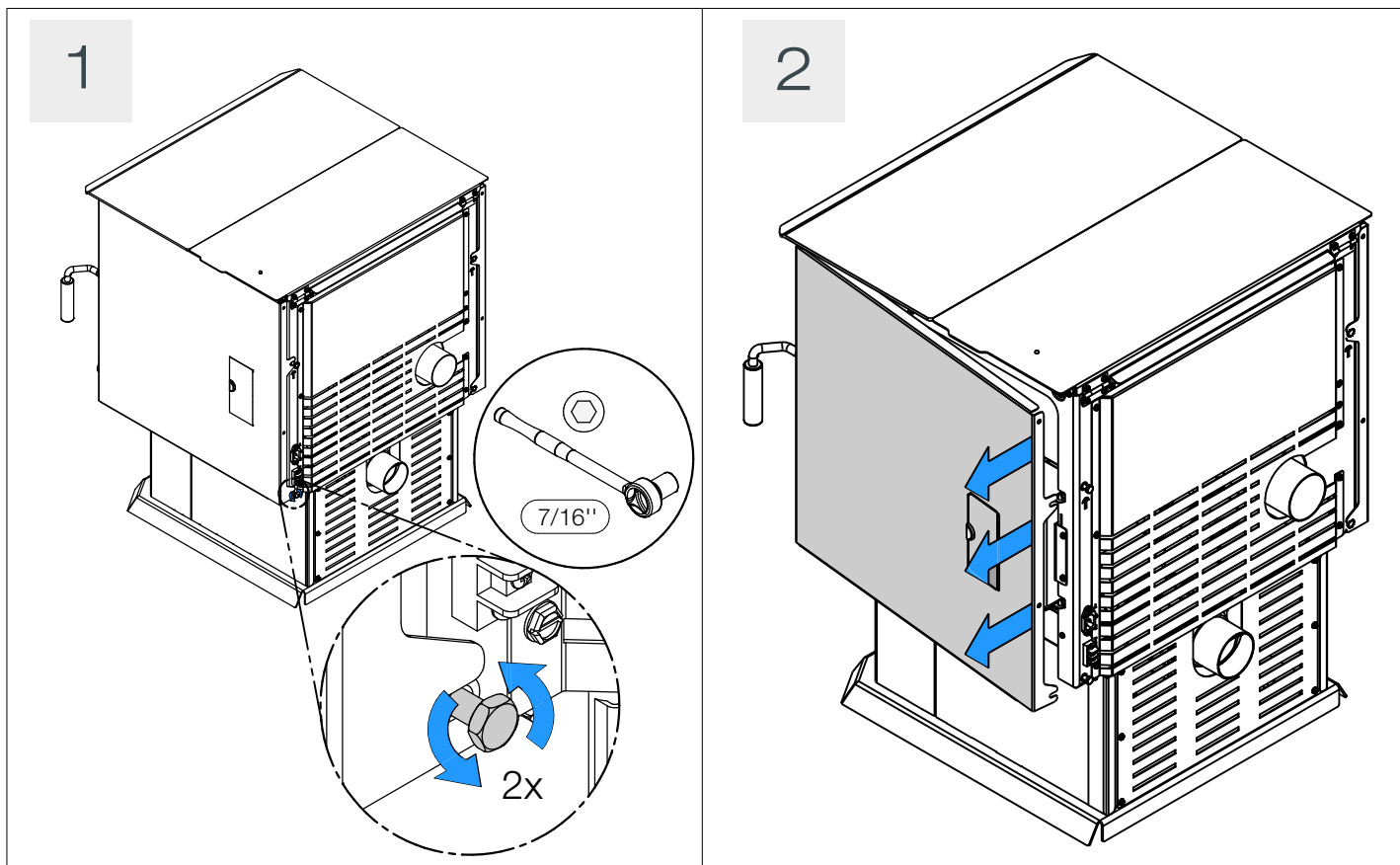
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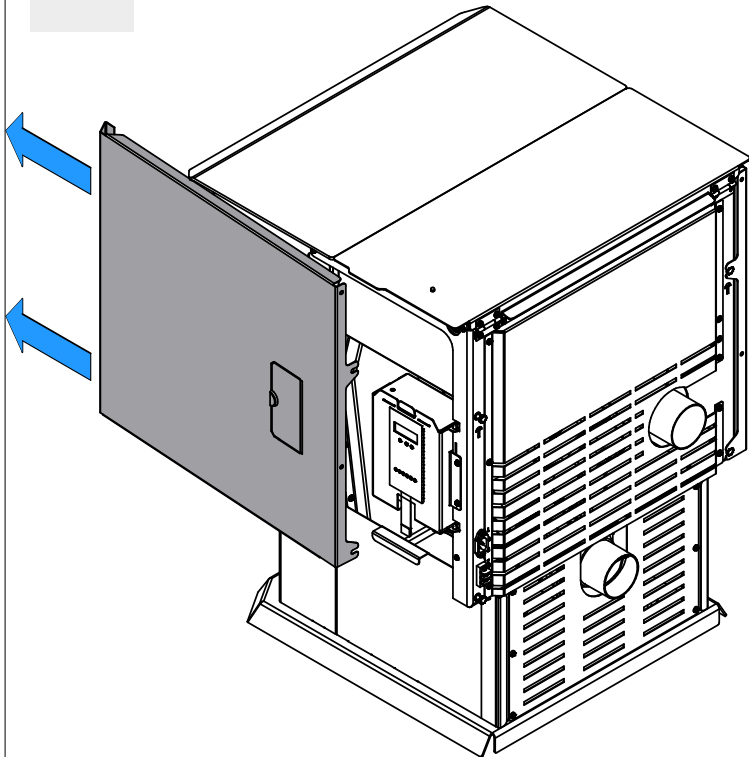
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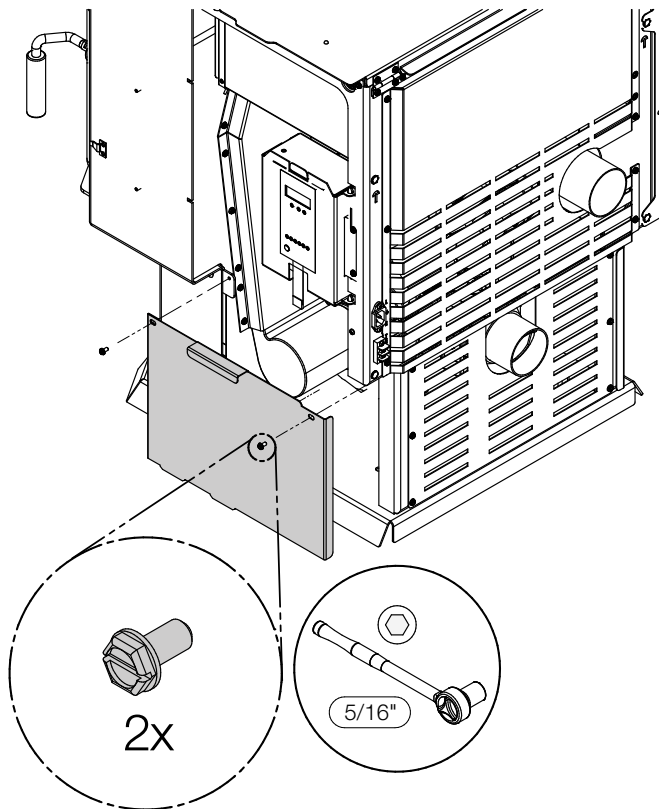
PROCEDURE :



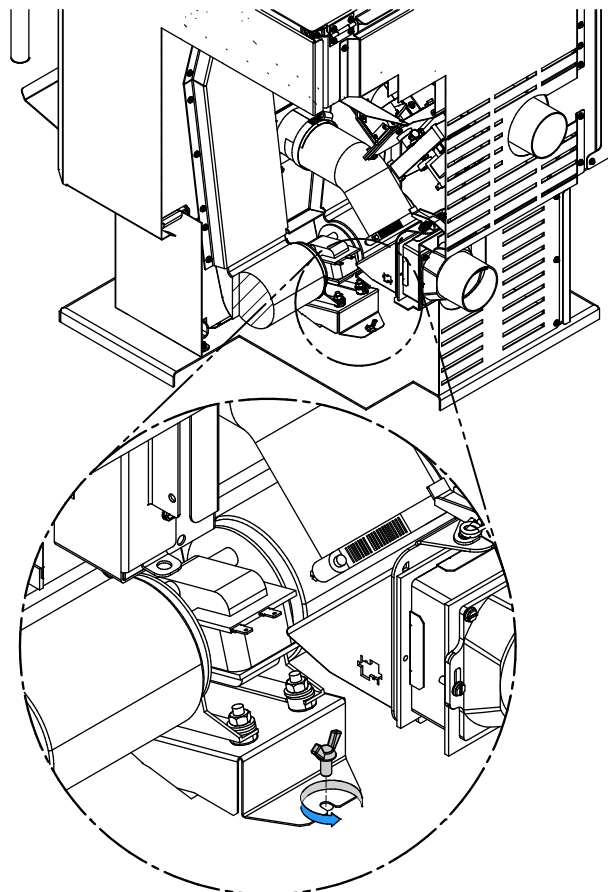
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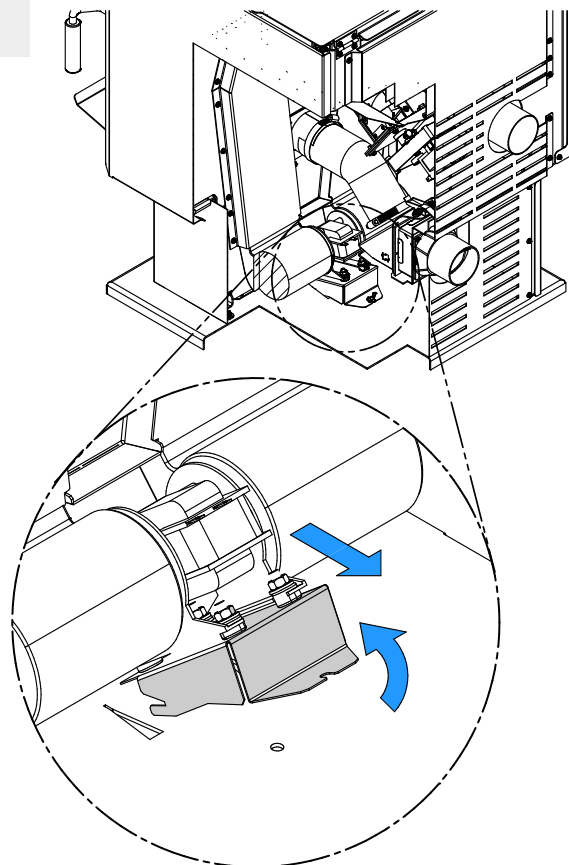
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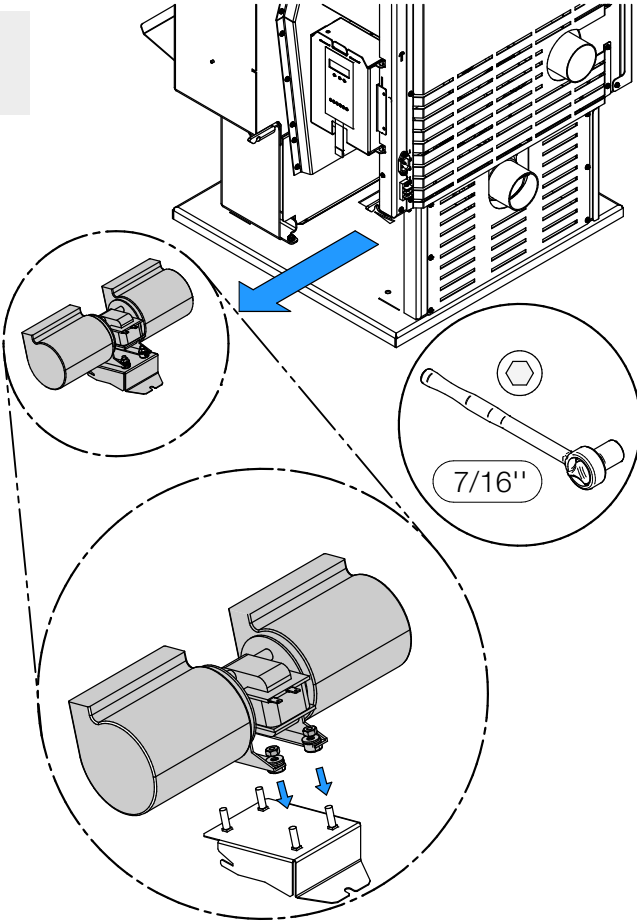
5



6



7



8

Follow previous steps in reverse order to reinstall.

HOW TO REPLACE EXHAUST BLOWER

Document #

HT00160-A

Document Version

01

Model Name and Number

OSBURN 2500 (OP00025)

Serial Number

100

to

...

Date

01-12-2017

WARNING



NEVER MANIPULATE OR REPLACE A COMPONENT WHEN THE STOVE IS HOT.

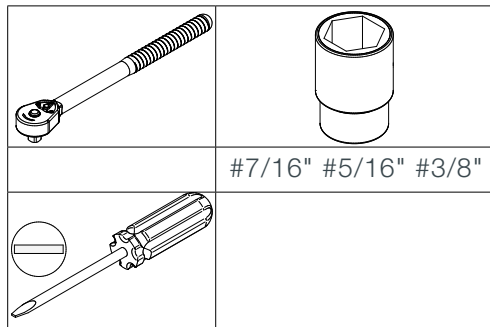
DANGER



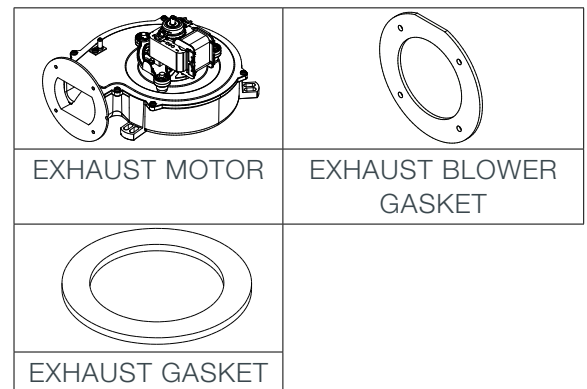
DISCONNECT ALL SOURCE OF POWER BEFORE MANIPULATING OR REPLACING A COMPONENT.

For part numbers visit our web site <https://www.osburn-mfg.com/en/replacement-parts/> For more information, contact us at 418-908-8002 or by email at tech@sbi-international.com

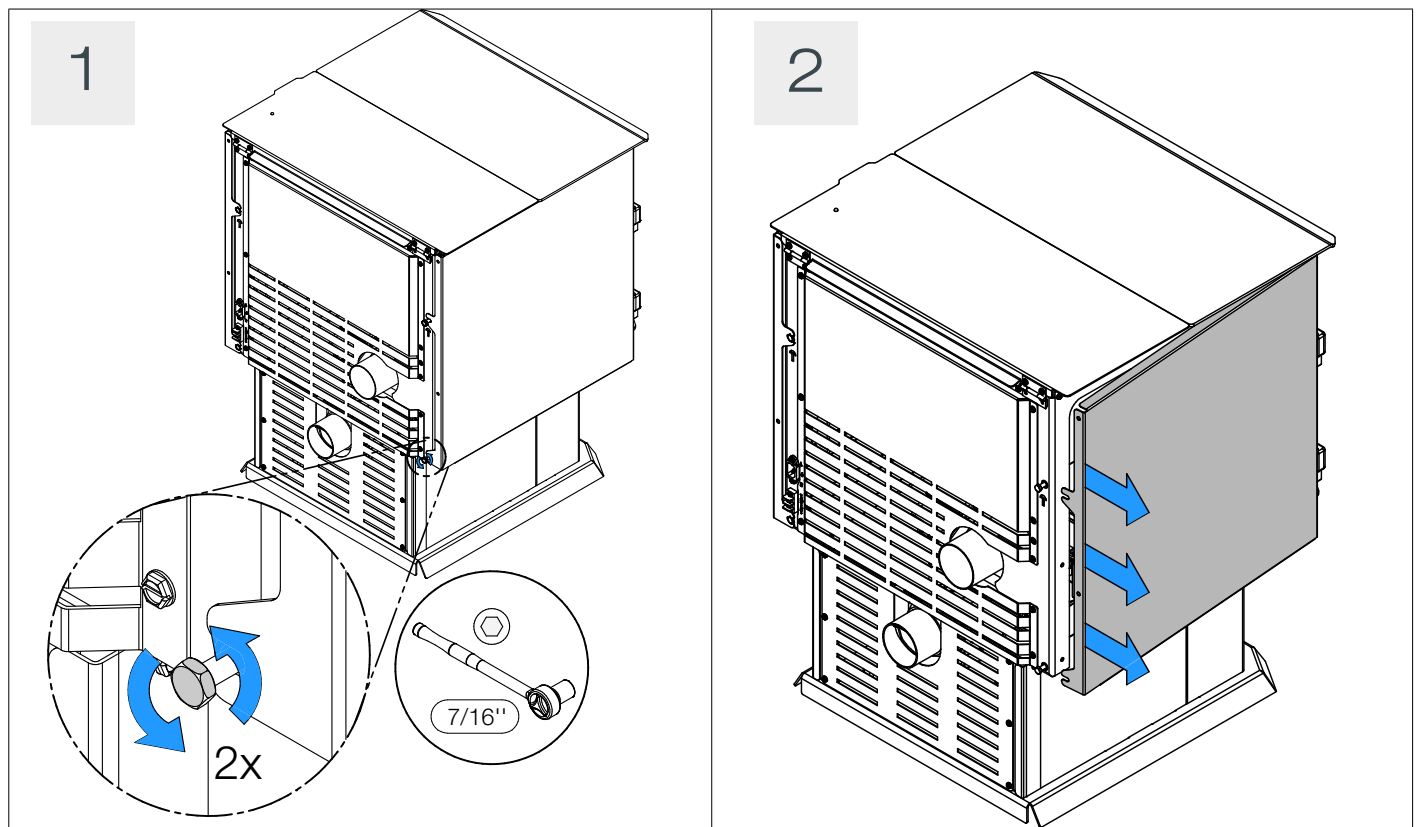
TOOL(S) REQUIRED :



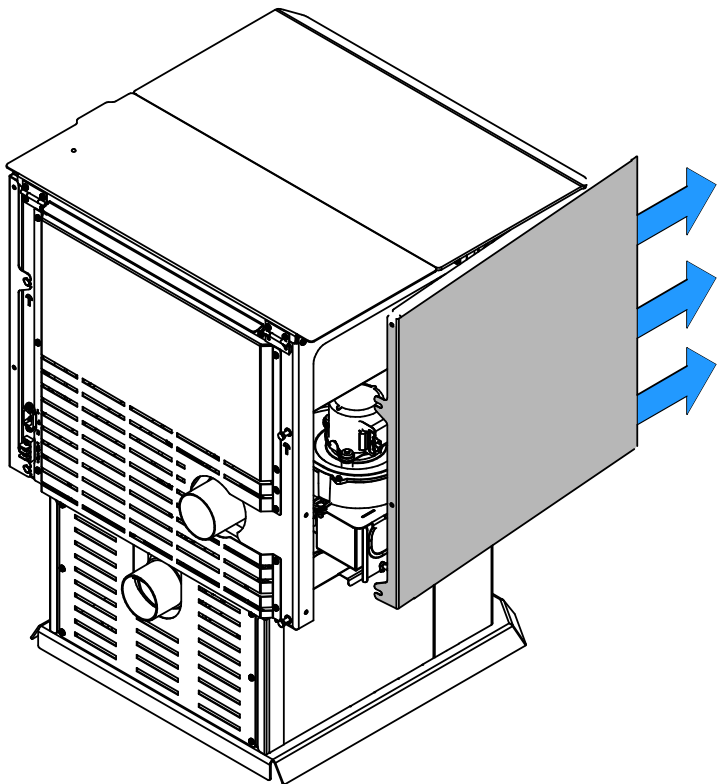
PART(S) REQUIRED :



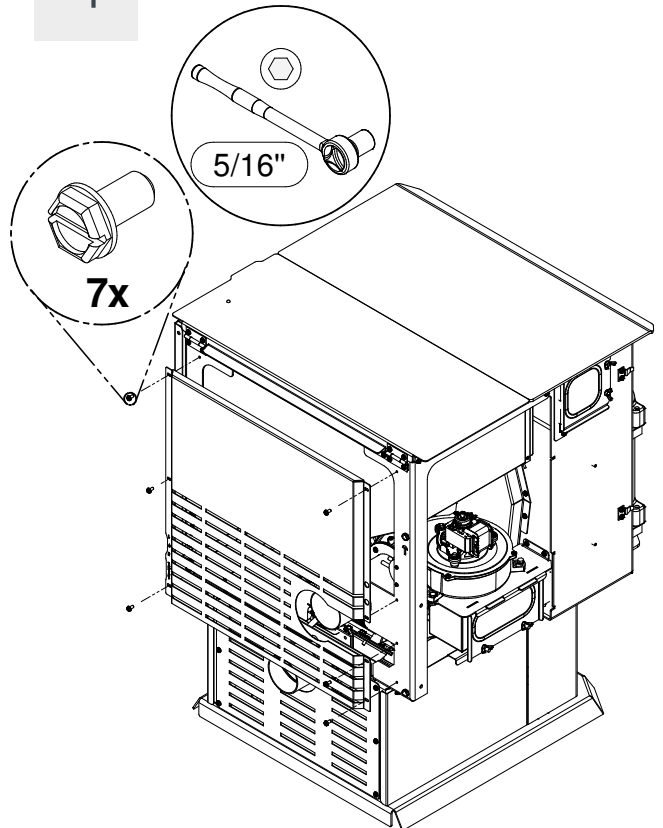
PROCEDURE :



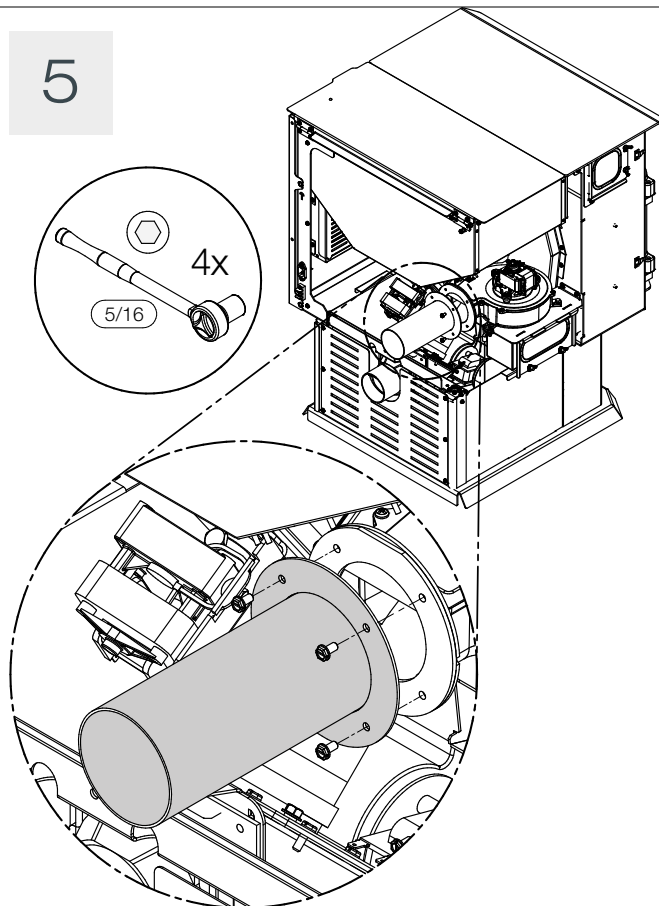
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4

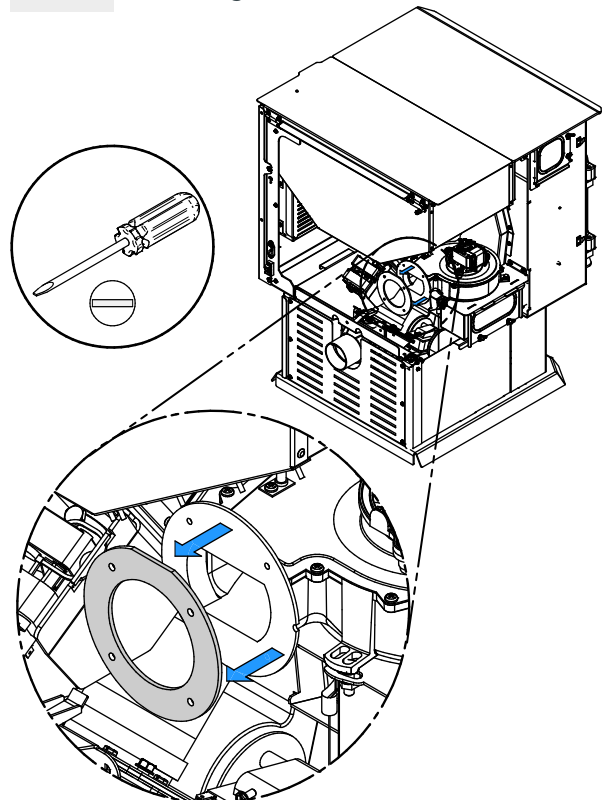


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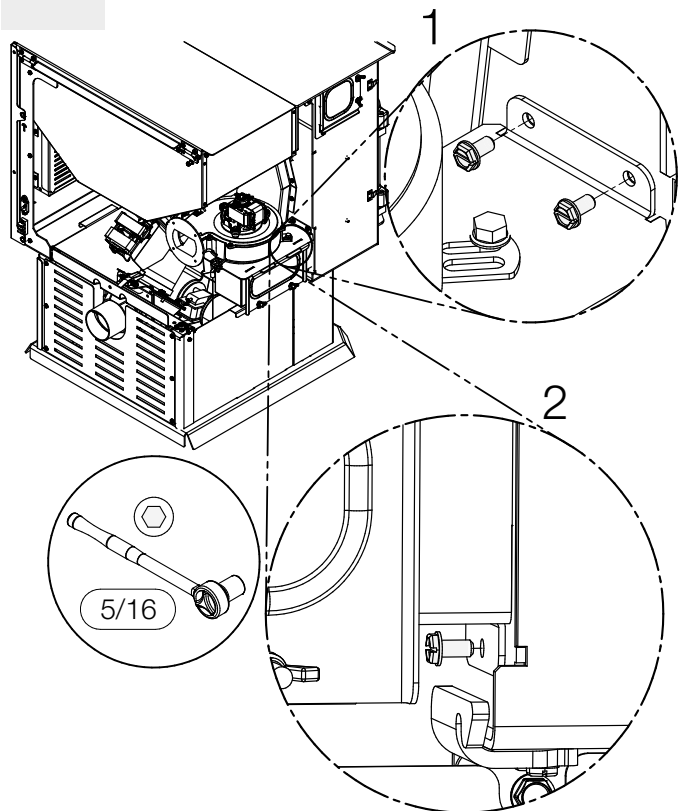


6

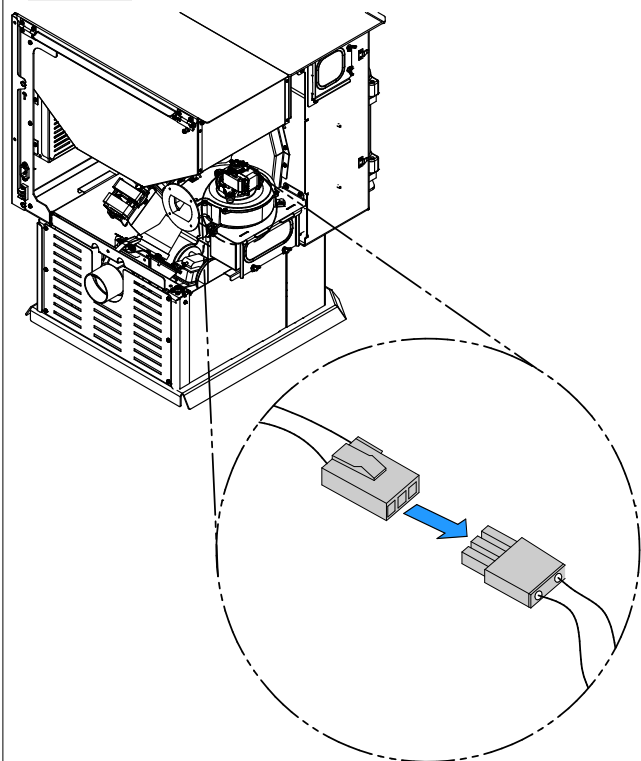
Use the screwdriver to remove the blower gasket.



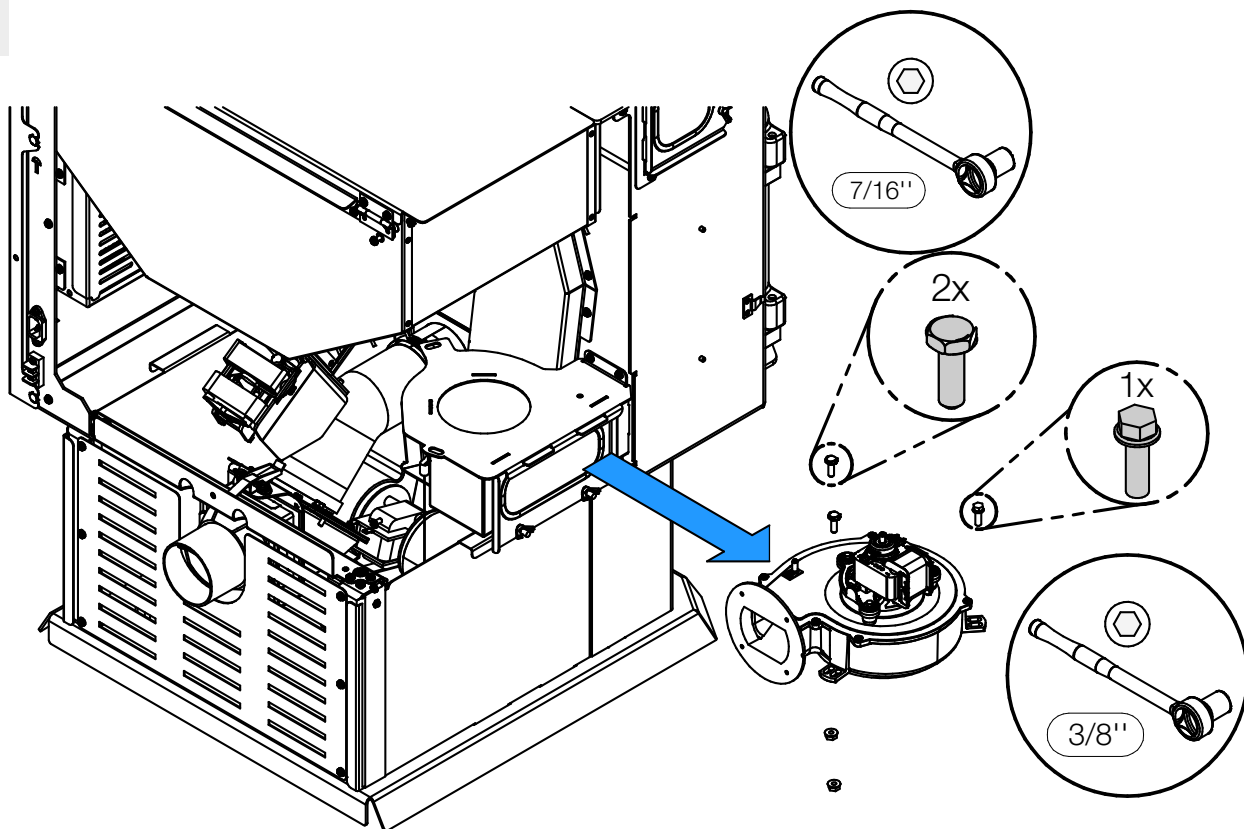
7



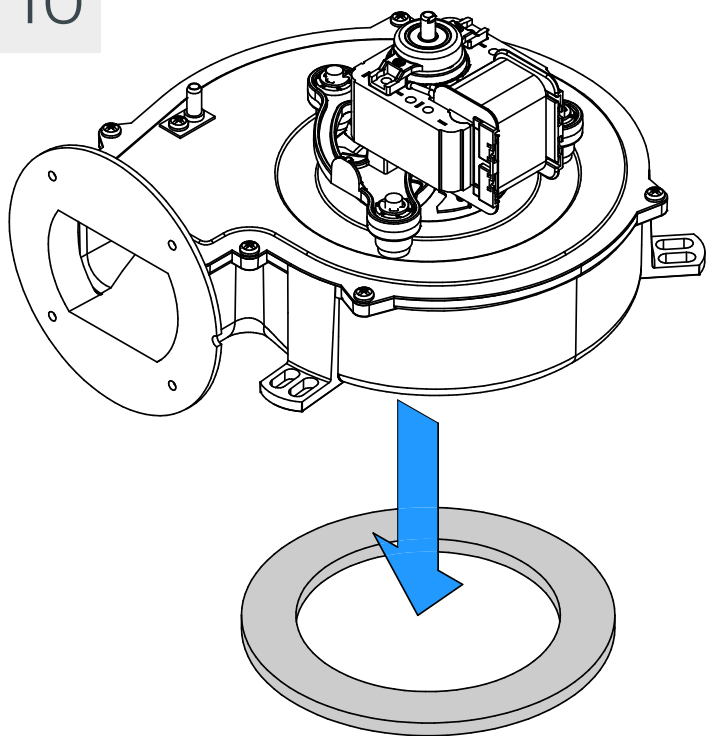
8



9



10



11

Install the gasket on the exhaust blower before to replace it on the pellet stove.

| | | | | | |
|---|------------------|-----|-----------------------|-----|------------|
| <h1>HOW TO REPLACE THE COMBUSTION BLOWER</h1> | Document # | | Model Name and Number | | |
| | HT00161-A | | OSBURN 2500 (OP00025) | | |
| | Document Version | | Serial Number | | Date |
| | 01 | 100 | to | ... | 2017-12-04 |

WARNING

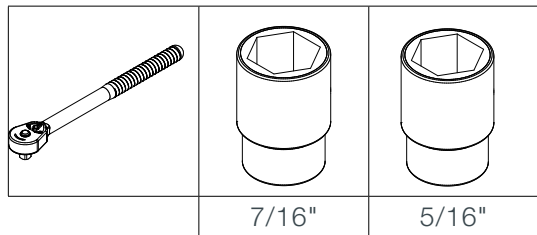
NEVER MANIPULATE OR REPLACE A COMPONENT WHEN THE STOVE IS HOT.

DANGER

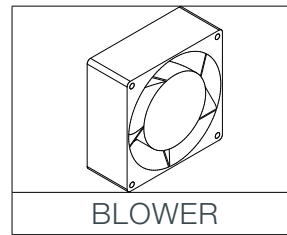
DISCONNECT ALL SOURCE OF POWER BEFORE MANIPULATING OR REPLACING A COMPONENT.

For part numbers visit our web site <https://www.osburn-mfg.com/en/replacement-parts/> For more information, contact us at 418-908-8002 or by email at tech@sbi-international.com

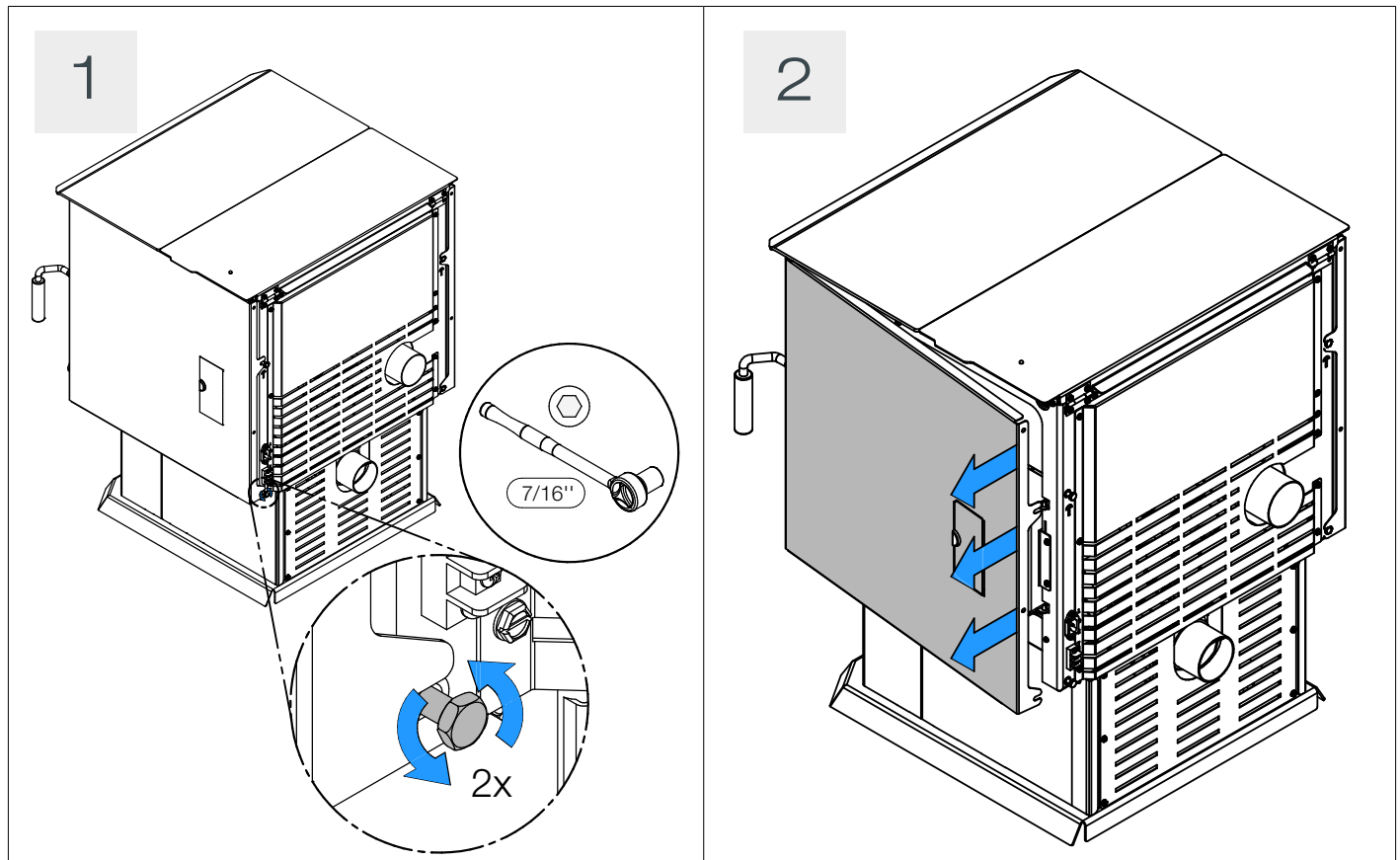
TOOL(S) REQUIRED :



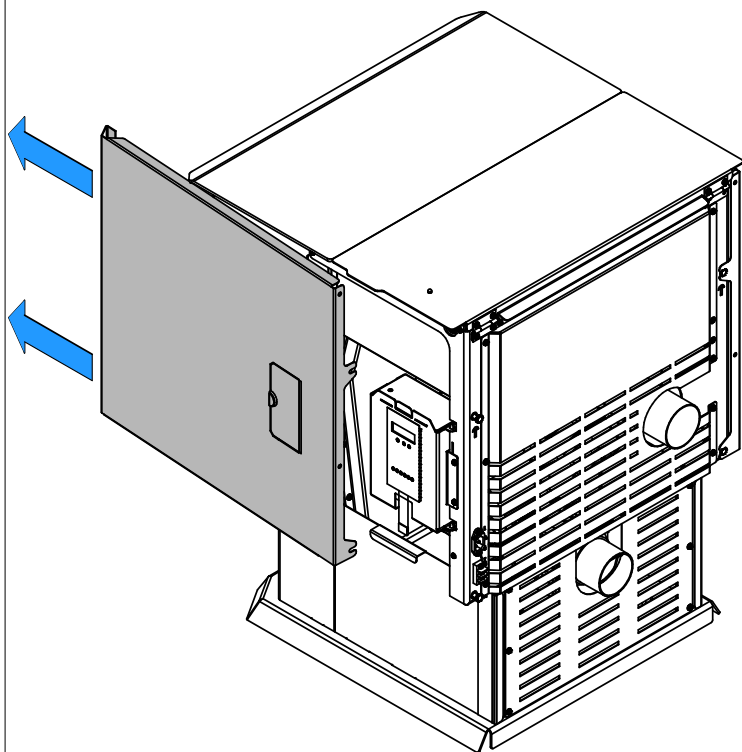
PART(S) REQUIRED :



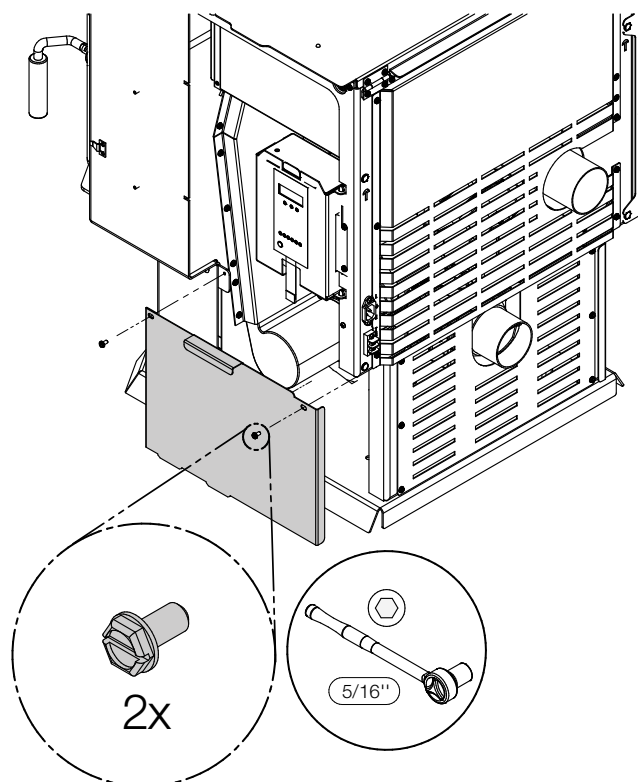
PROCEDURE :



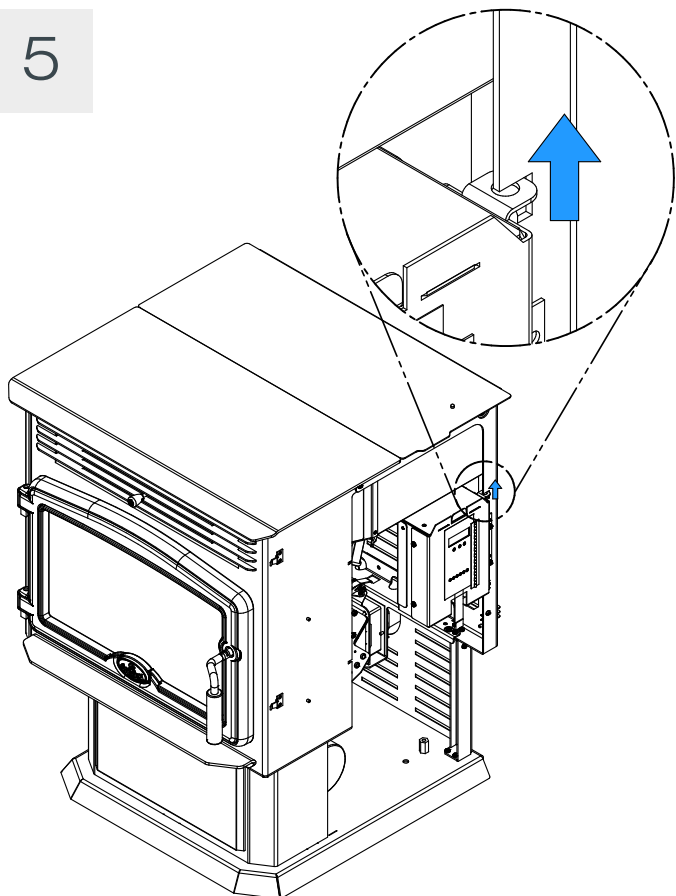
3



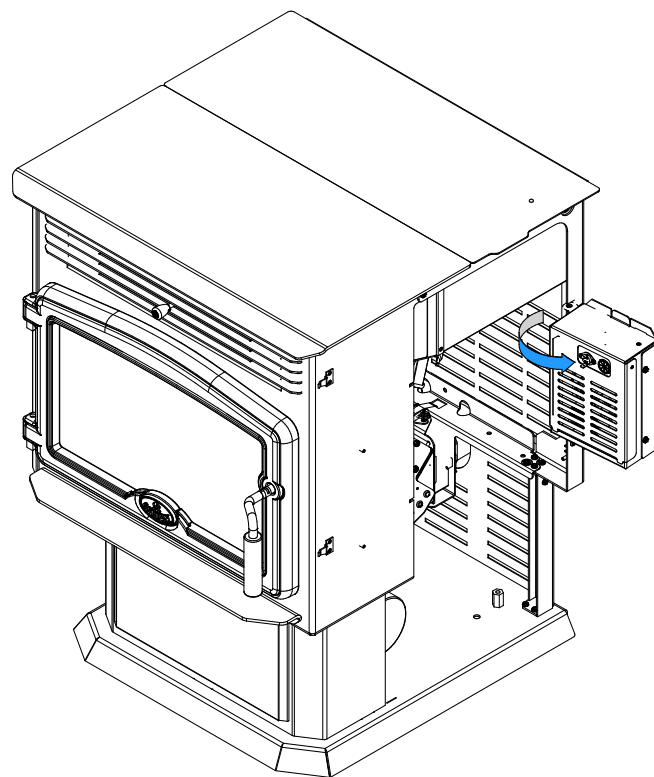
4



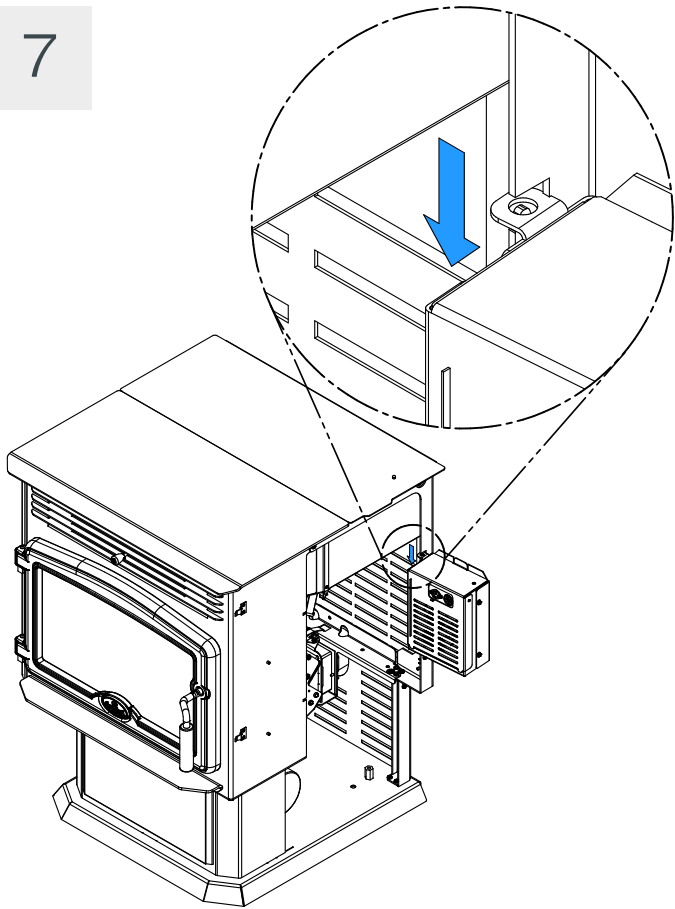
5



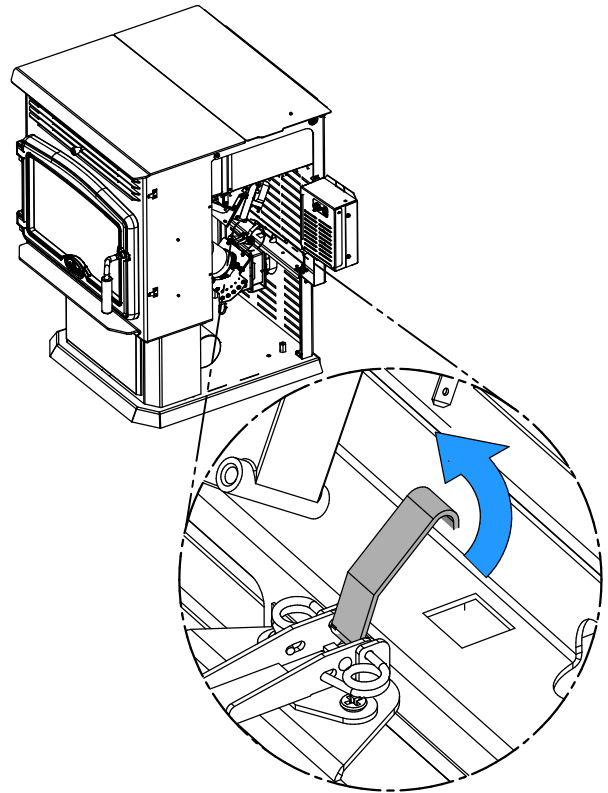
6



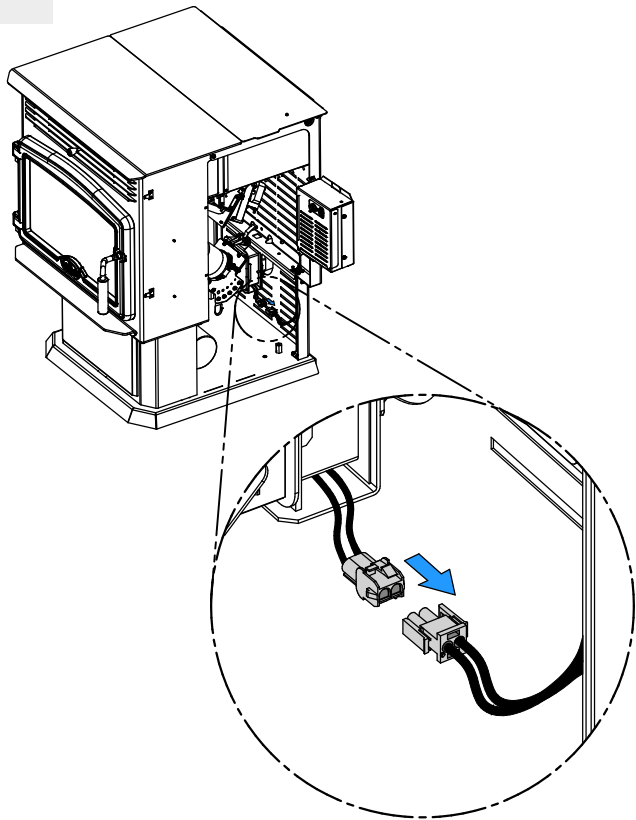
7



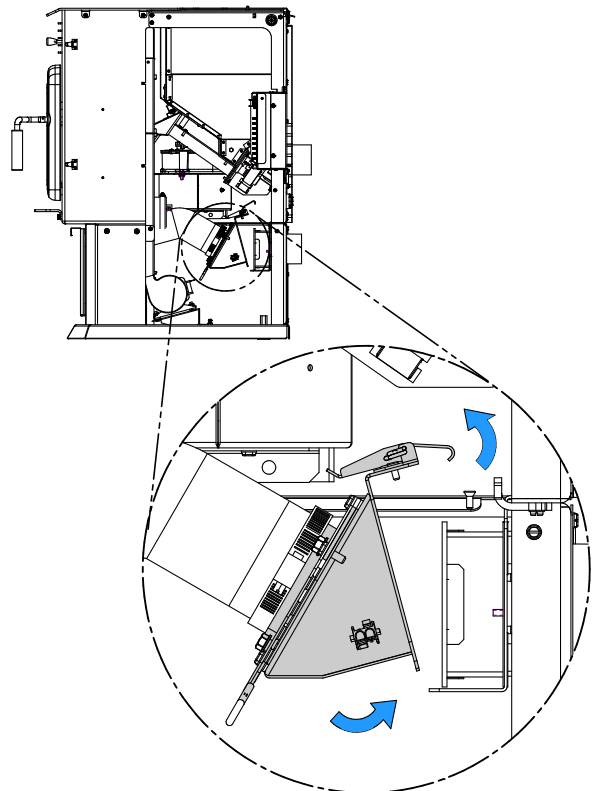
8



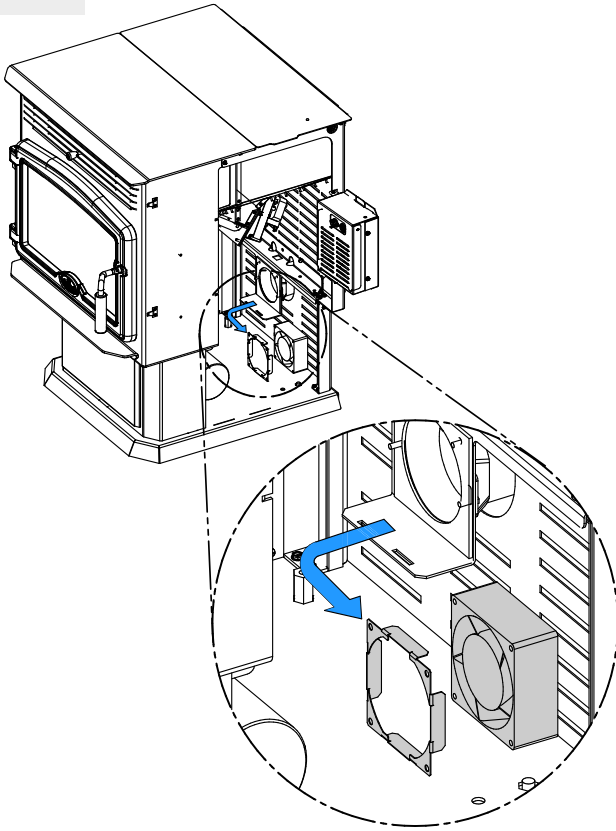
9



10



11



12

Follow previous steps in reverse order to reinstall.

| | | | | | |
|------------------------|------------------|--|-----------------------|----|------|
| TROUBLESHOOTING | Document # | | Model Name and Number | | |
| | HT00162-A | | OSBURN 2500 (OP00025) | | |
| | Document Version | | Serial Number | | Date |
| | 01 | | 100 | to | ... |

| WARNING | |
|----------------|--|
| | NEVER MANIPULATE OR REPLACE A COMPONENT WHEN THE STOVE IS HOT. |

| DANGER | |
|---------------|--|
| | DISCONNECT ALL SOURCE OF POWER BEFORE MANIPULATING OR REPLACING A COMPONENT. |

Pour connaître les numéros de pièces visitez notre site web au <https://www.osburn-mfg.com/fr/pieces-de-remplacement/> Pour tout autre renseignements contactez-nous au 418-908-8002 ou par courriel tech@sbi-international.com

When an electrical component seems to be defective, it is possible to test it by following the procedure given below. Testing components is only possible when the stove is OFF and that all the components are no more in function.

I/O description :

INPUT

Thermistor: Resistance reading the exhaust gas temperature.

F-160: Temperature Sensor, normally Open.

L-250 Automatic reset: Temperature sensor, normally closed

Hopper Switch: When the hopper is closed, switch is closed.

Lexan (Diaphragm switch): 6-switch diaphragm receiving user commands.

OUTPUT*

Igniter: 115V, 2.4A, 275W, 48Ω

Evacuation motor: 115V, 1.1A, 127W

Convection motor: 115V, 0.9A, 96W,

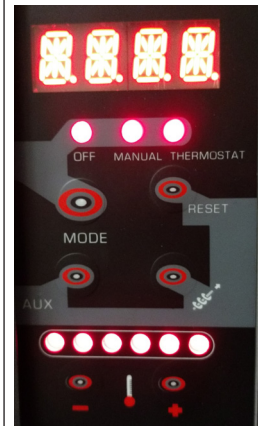
Screw Motor: 115V, 190mA, 1.5RPM

*Note that the values are for reference only and may vary. If measured values are more or less than 30% of the value mentioned, it is considered good.

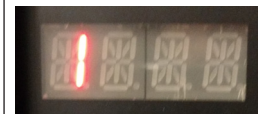
To access the test mode, press on the «RESET» and «AUGER» buttons simultaneously for 3 seconds. Each segment of each section of the display will turn on in sequence. Press «MODE».



Complete display and all LED's light up simultaneously. Press «MODE».



«MODE» button key test. Number 1 shown. Press «MODE».



«RESET» button key test. Number 2 shown. Press «RESET».



«AUX» button key test. Number 3 shown. Press «AUX».



«AUGER» button key test. Number 4 shown. Press «AUGER».



«-» button key test. Number 5 shown. Press «-».



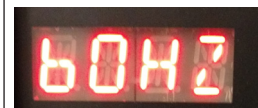
«+» button key test. Number 6 shown. Press «+».













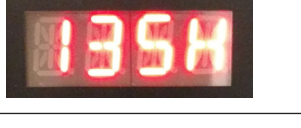
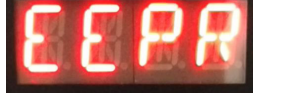
The voltage of the power source is displayed. Press «MODE».



The frequency of the power source is displayed. Press «MODE».



| | |
|---|---|
| <p>Displays «PASS» if polarity is good, «FAIL» if polarity is reversed or if there is a poor or no electrical ground. Press «MODE».</p> |  |
| <p>Convection blower test. Displays the electrical voltage followed by a «C» alternating with the current, followed by an «I» . Press «MODE».</p> |  |
| <p>Exhaust blower test. Displays the electrical voltage followed by an «E» alternating with the current, followed by an «I» . Press «MODE».</p> |  |
| <p>Combustion blower test. Displays electrical voltage followed by a «B» alternating with the current, followed by an «I» . Press «MODE».</p> |  |
| <p>Ignitor test. Displays «IGNITOR» alternating with the current, followed by an «I» . Press «MODE».</p> |  |
| <p>Auger test. Displays «AUGER» alternating with the current, followed by an «I» . Press «MODE».</p> |  |
| <p>Displays «INPUTS» and shows the status of different components when the unit is cold.</p> <p>OFF DEL: Pressure switch</p> <p>MANUAL DEL: Hopper switch</p> <p>THERMOSTAT DEL: Thermostat</p> <p>FEED RATE 1 : (non operative)</p> <p>FEED RATE 2 : F160 (normally open)</p> <p>FEED RATE 3 : L250 (normally closed)</p> <p>FEED RATE 4 : (non operative)</p> <p>FEED RATE 5 : Thermistor</p> <p>FEED RATE 6 : (non operative)</p> <p>Press «MODE».</p> |  |

| | |
|--|---|
| <p>Displays «P_CHECK» and verifies the pressure switch. Press «MODE».</p> |  |
| <p>Displays the thermistor temperature. Press «MODE».</p> |  |
| <p>Displays the igniting time of the stove. Press «MODE».</p> |  |
| <p>Displays the operating time of the stove. Press «MODE».</p> |  |
| <p>Displays «EEPROM PASS» or «EEPROM FAIL». Validate that the control board's EEPROM is functional. To exit the test mode, Press «MODE».</p> |  |



CERTIFICATE OF CALIBRATION



Certificate Number: 2016002444

Page 1 of 1

| | | | |
|----------------------|--|--------------------------|---------------------|
| Manufacturer: | American Meter Company | RMA: | AC16081504 |
| Model: | DTM-200A | Workorder: | 2016002444 |
| Description: | Flow Meter | Barcode: | AL00021168-P |
| Serial: | 07J264834 | Received: | In Tolerance |
| ID: | SBI-103 | Calibration Date: | 23-Sep-2016 |
| Customer: | STOVE BUILDER INTERNATIONAL INC. 250 RUE DE COPENHAGUE ST-AUGUSTIN-DE-DESMAURES QC, G3A 2H3 | Calibration Due: | 23-Sep-2017 |
| | | Temperature: | 20.81°C |
| | | Humidity: | 53.9%RH |
| | | Procedure: | SOP751-F01 (Rev.02) |

Alpha Controls & Instrumentation Inc. certifies that the instrument listed above meets or exceeds manufacturing specifications. It has been calibrated using equipment and/or standards whose accuracies are traceable to the National Institute of Standards and Technology (NIST), or have been derived from acceptable values of natural physical constants, or by the ratio type of self-calibration.

Tolerance is based on manufacturer specification if not stated otherwise. Calibration results relate to items calibrated only.

This certificate shall not be reproduced except in full without written approval of Alpha Controls and Instrumentation Inc.

STANDARDS USED

| Description | Model | ID | Cal Date | Due Date |
|--------------------------|-----------------------|-------------|-------------|-------------|
| Flow Transfer Standard | Alicat MCRM-250SLPM-D | FLOW-CAL-02 | 10-Dec-2015 | 10-Dec-2016 |
| Stopwatch | Exttech HW30 | MISC-SWT-04 | 04-Apr-2016 | 04-Apr-2017 |
| Pressure Calibrator | Druck DPI 150 | PRE-CAL-02 | 09-Sep-2016 | 09-Sep-2017 |
| High Precision HC2 probe | Rotronic HC2-SH | TRH-PRB-07 | 29-Jul-2016 | 29-Jan-2017 |

Notes: Test Data attached.

Performed by:

Slava Peciurov

(digitally signed)

Reviewed by:

Ben Lemelin

(digitally signed)

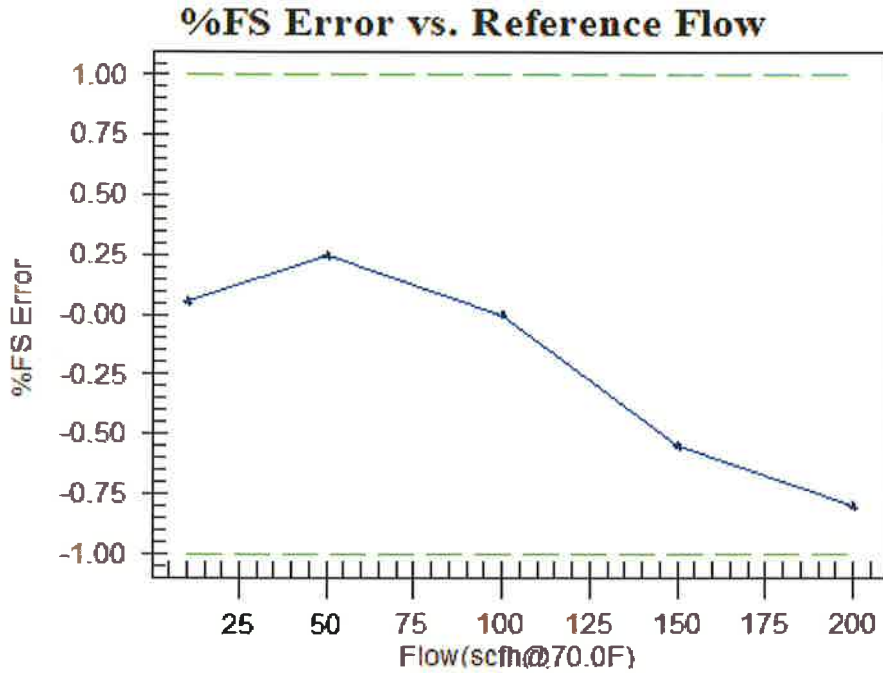
Flow Test Data Report

Date: Sep 23 2016
Operator: Slava Peciurov
Gas: Air
Test Data File: C:\DHI\COMPASS for Flow\Data\American Meter Company\07J264834\20160923_000.dat

DUT

Manufacturer American Meter Company
Model DTM-200A
SN 07J264834
ID
Flow Range 0.000 to 200.000 scfh@70.0F
Output Range 0.000 to 200.000 scfh@70.0F
Tolerance 1 %Span

| Set Point (scfh@70.0F) | Ref Flow (scfh@70.0F) | DUT Flow (scfh@70.0F) | DUT Output (scfh@70.0F) | %Rdg Error | %FS Error | Status |
|---------------------------|--------------------------|--------------------------|----------------------------|------------|-----------|--------|
| 10.000 | 9.9958 | 10.100 | 10.100 | 1.043 | 0.052 | Pass |
| 50.000 | 49.9998 | 50.500 | 50.500 | 1.000 | 0.250 | Pass |
| 100.000 | 99.9995 | 100.000 | 100.000 | 0.001 | 0.000 | Pass |
| 150.000 | 149.9993 | 148.900 | 148.900 | -0.733 | -0.550 | Pass |
| 200.000 | 199.9990 | 198.400 | 198.400 | -0.799 | -0.799 | Pass |



Dry Gas Metering System Calibration

Y factor for Method 5G sampling

Manufacturer: American Meter Company
 Model: DTM-200A
 Serial Number: 90R054300

| |
|---|
| Average Gas Meter y Factor 1.007 |
|---|

Calibration Date: 10-28-16
 Calibrated by: Vincent Pelletier
 Calibration Frequency: 6-months
 Next Calibration Due: 03-08-16
 Instrument Range: 1.000 cfm
 Standard Temp.: 73 oF
 Standard Press.: 29.92 "Hg
 Barometric Press.: 30.24 "Hg
 Signature/Date: *Vincent Pelletier* 2016-10-28

Previous Calibration Comparison

| | | | |
|------------|------------|----------------|-----------|
| Date | 2015-03-30 | Acceptable | |
| | | Deviation (5%) | Deviation |
| y Factor | 1.003 | 0.05015 | 0.004 |
| Acceptance | | | |

Current Calibration

| | |
|------------------------|-------------------|
| Acceptable y Deviation | 0.050 |
| Maximum y Deviation | 0.002 |
| Acceptance | Acceptable |

Reference Standard *

| | | |
|------------|--------------|-----------------------|
| Standard | Model | Standard Test Meter |
| Calibrator | S/N | 07J264834 |
| | Calib. Date | Sept. 23, 2016 |
| | Calib. Value | 0.9900 y factor (ref) |

| Calibration Parameters | Run 1 | Run 2 | Run 3 |
|---|--------------|--------------|--------------|
| Vacuum ("Hg) | 0.00 | 0.00 | 0.00 |
| dH ("H2O) | 0.00 | 0.00 | 0.00 |
| Initial Reference Meter | 839.711 | 842.225 | 861.646 |
| Final Reference Meter | 842.200 | 861.646 | 868.037 |
| Initial DGM | 846.264 | 848.745 | 867.939 |
| Final DGM | 848.723 | 867.939 | 874.244 |
| Temp. Ref. Meter (°F), Tr | 65.6 | 65.8 | 64.8 |
| Temperature DGM (°F), Td | 67.6 | 67.8 | 67.5 |
| Time (Minutes) | 30.0 | 120.0 | 32.0 |
| Net Volume Ref. Meter, Vr | 2.489 | 19.421 | 6.391 |
| Net Volume DGM, Vd | 2.459 | 19.194 | 6.305 |
| Gas Meter y Factor = | 1.006 | 1.006 | 1.009 |
| Gas Meter y Factor Deviation (from avg.) | 0.001 | 0.001 | 0.002 |
| Orifice dH@ | 0.00 | 0.00 | 0.00 |
| Orifice dH@ Deviation (from avg.) | 0.000 | 0.000 | 0.000 |

where: 0.08196667

1. Deviation = |Average value for all runs - current run value|
2. $y = [Vr \times (y \text{ factor (ref)}) \times (Pb) \times (Td + 460)] / [Vd \times (Pb + (dH / 13.6)) \times (Tr + 460)]$
3. $dH@ = 0.0317 \times dH / (Pb (Td + 460)) \times [(Tr + 460) \times \text{time}] / Vr]^2$

* Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272

Dry Gas Metering System Calibration

Y factor for Method 5G sampling

Manufacturer: American Meter Company
 Model: DTM-200A
 Serial Number: 98Z332226

| |
|---|
| Average Gas Meter y Factor 1.002 |
|---|

Calibration Date: 10-28-16
 Calibrated by: Vincent Pelletier
 Calibration Frequency: 6-months
 Next Calibration Due: 04-26-17
 Instrument Range: 1.000 cfm
 Standard Temp.: 73 oF
 Standard Press.: 29.92 "Hg
 Barometric Press.: 30.24 "Hg
 Signature/Date: *Vincent Pelletier* 2016-10-28

Previous Calibration Comparison

| | | | |
|------------|------------|----------------|-----------|
| Date | 2015-03-30 | Acceptable | |
| | | Deviation (5%) | Deviation |
| y Factor | 1.006 | 0.0503 | 0.004 |
| Acceptance | | | |

Current Calibration

| | |
|------------------------|-------------------|
| Acceptable y Deviation | 0.050 |
| Maximum y Deviation | 0.001 |
| | |
| Acceptance | Acceptable |

Reference Standard *

| | | |
|---------------------|--------------|-----------------------|
| | Model | Standard Test Meter |
| Standard Calibrator | S/N | 07J264834 |
| | Calib. Date | Sept. 23, 2016 |
| | Calib. Value | 0.9900 y factor (ref) |

| Calibration Parameters | Run 1 | Run 2 | Run 3 |
|--|--------------|--------------|--------------|
| Vacuum ("Hg) | 0.00 | 0.00 | 0.00 |
| dH ("H2O) | 0.00 | 0.00 | 0.00 |
| Initial Reference Meter | 825.914 | 831.864 | 836.619 |
| Final Reference Meter | 831.816 | 836.584 | 839.664 |
| Initial DGM | 546.358 | 552.255 | 556.965 |
| Final DGM | 552.208 | 556.926 | 559.982 |
| Temp. Ref. Meter (°F), Tr | 65.2 | 66.0 | 65.2 |
| Temperature DGM (°F), Td | 66.6 | 66.9 | 66.9 |
| Time (Minutes) | 30.0 | 30.0 | 30.0 |
| Net Volume Ref. Meter, Vr | 5.902 | 4.720 | 3.045 |
| Net Volume DGM, Vd | 5.85 | 4.671 | 3.017 |
| Gas Meter y Factor = | 1.001 | 1.002 | 1.002 |
| Gas Meter y Factor Deviation (from avg.) | 0.001 | 0.000 | 0.000 |
| Orifice dH@ | 0.00 | 0.00 | 0.00 |
| Orifice dH@ Deviation (from avg.) | 0.000 | 0.000 | 0.000 |

where: 0.195

1. Deviation = |Average value for all runs - current run value|
2. $y = [V_r \times (y \text{ factor (ref)}) \times (P_b) \times (T_d + 460)] / [V_d \times (P_b + (dH / 13.6)) \times (T_r + 460)]$
3. $dH@ = 0.0317 \times dH / (P_b (T_d + 460)) \times [(T_r + 460) \times \text{time}] / V_r]^2$

* Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272

Thermal Metering System Calibration

Y factor for Method 5G sampling

Manufacturer: Rockwell International
 Model: S-275
 Serial Number: 00938

| |
|---|
| Average Gas Meter y Factor 0.983 |
|---|

Calibration Date: 06-02-16
 Calibrated by: Vincent Pelletier
 Calibration Frequency: 6-month
 Next Calibration Due: 12-01-16
 Instrument Range: 1.000 cfm
 Standard Temp.: 68.1 oF
 Standard Press.: 29.92 "Hg
 Barometric Press.: 30.1 "Hg
 Signature/Date: *Vincent Pelletier* 2016-06-02

Previous Calibration Comparison

| | | | |
|------------|----------------------|----------------|-----------|
| Date | N/A | Acceptable | |
| | | Deviation (5%) | Deviation |
| y Factor | N/A | 0 | 0.983 |
| Acceptance | Out of Limits | | |

Current Calibration

| | |
|------------------------|-----|
| Acceptable y Deviation | N/A |
| Maximum y Deviation | N/A |
| | |
| Acceptance | N/A |

Reference Standard *

| | | |
|------------|--------------|-----------------------|
| Standard | Model | Standard Test Meter |
| Calibrator | S/N | 07J264834 |
| | Calib. Date | Sept. 02, 2015 |
| | Calib. Value | 0.9931 y factor (ref) |

| Calibration Parameters | Run 1 | Run 2 | Run 3 |
|--|--------------|--------------|--------------|
| Vacuum ("Hg) | 0.00 | 0.00 | 0.00 |
| dH ("H2O) | 0.00 | 0.00 | 0.00 |
| Initial Reference Meter | 700.100 | 705.285 | 711.504 |
| Final Reference Meter | 705.051 | 711.066 | 719.923 |
| Initial DGM | 501.239 | 506.448 | 512.697 |
| Final DGM | 506.211 | 512.369 | 521.162 |
| Temp. Ref. Meter (°F), Tr | 73.2 | 73.6 | 74.0 |
| Temperature DGM (°F), Td | 74.2 | 74.0 | 74.8 |
| Time (Minutes) | 51.0 | 30.0 | 30.0 |
| Net Volume Ref. Meter, Vr | 4.951 | 5.781 | 8.419 |
| Net Volume DGM, Vd | 4.972 | 5.921 | 8.465 |
| Gas Meter y Factor = | 0.991 | 0.970 | 0.989 |
| Gas Meter y Factor Deviation (from avg.) | 0.007 | 0.013 | 0.006 |
| Orifice dH@ | 0.00 | 0.00 | 0.00 |
| Orifice dH@ Deviation (from avg.) | 0.000 | 0.000 | 0.000 |

where: 0.097490196

1. Deviation = |Average value for all runs - current run value|
2. $y = [Vr \times (y \text{ factor (ref)}) \times (Pb) \times (Td + 460)] / [Vd \times (Pb + (dH / 13.6)) \times (Tr + 460)]$
3. $dH@ = 0.0317 \times dH / (Pb (Td + 460)) \times [(Tr + 460) \times \text{time}] / Vr]^2$

* Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272

Thermal Metering System Calibration


Y factor for Method 5G sampling

Manufacturer: American Meter Company
 Model: DTM-200A
 Serial Number: SBI-046 (90R054300) Système 1

Previous Calibration Comparison

| | | | |
|------------|-------------------|----------------|-----------|
| Date | 2016-10-28 | Acceptable | |
| | | Deviation (5%) | Deviation |
| y Factor | 1.003 | 0.05015 | 0.000 |
| Acceptance | Acceptable | | |

| |
|---|
| Average Gas Meter y Factor 1.003 |
|---|

Calibration Date: 11-15-16
 Calibrated by: Claude Paré
 Calibration Frequency: Post Test Calibration
 Next Calibration Due: ---
 Instrument Range: 1.000 cfm
 Standard Temp.: 69.2 oF
 Standard Press.: 29.92 "Hg
 Barometric Press.: 30.06 "Hg
 Signature/Date:  2016-11-15

Current Calibration

| | |
|------------------------|-------------------|
| Acceptable y Deviation | 0.050 |
| Maximum y Deviation | 0.001 |
| Acceptance | Acceptable |

Reference Standard *

| | | |
|------------|--------------|-----------------------|
| Standard | Model | Standard Test Meter |
| Calibrator | S/N | 07J264834 |
| | Calib. Date | 23-sept-16 |
| | Calib. Value | 0.9900 y factor (ref) |

| Calibration Parameters | Run 1 | Run 2 | Run 3 |
|---|--------------|--------------|--------------|
| Vacuum ("Hg) | 0.00 | 0.00 | 0.00 |
| dH ("H2O) | 0.00 | 0.00 | 0.00 |
| Initial Reference Meter | 869.1 | 874.3 | 879.8 |
| Final Reference Meter | 874.1 | 879.3 | 884.8 |
| Initial DGM | 39.574 | 44.733 | 50.184 |
| Final DGM | 44.532 | 49.694 | 55.14 |
| Temp. Ref. Meter (°F), Tr | 68.2 | 68.7 | 70.7 |
| Temperature DGM (°F), Td | 69.9 | 71.5 | 72.9 |
| Time (Minutes) | 35.0 | 35.0 | 35.0 |
| Net Volume Ref. Meter, Vr | 5.000 | 5.000 | 5.000 |
| Net Volume DGM, Vd | 4.958 | 4.961 | 4.956 |
| Gas Meter y Factor = | 1.002 | 1.003 | 1.003 |
| Gas Meter y Factor Deviation (from avg.) | 0.001 | 0.001 | 0.000 |
| Orifice dH@ | 0.00 | 0.00 | 0.00 |
| Orifice dH@ Deviation (from avg.) | 0.000 | 0.000 | 0.000 |

where: 0.141657143

1. Deviation = |Average value for all runs - current run value|
2. $y = [Vr \times (y \text{ factor (ref)}) \times (Pb) \times (Td + 460) / [Vd \times (Pb + (dH / 13.6)) \times (Tr + 460)]$
3. $dH@ = 0.0317 \times dH / (Pb (Td + 460)) \times [(Tr + 460) \times \text{time}] / Vr \text{ } ^2$

* Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272

Thermal Metering System Calibration

Y factor for Method 5G sampling

Manufacturer: American Meter Company
 Model: DTM-200A
 Serial Number: SBI-047 (98Z332226) Système 2

Previous Calibration Comparison

| | | | |
|------------|-------------------|----------------|-----------|
| Date | 2016-10-28 | Acceptable | |
| | | Deviation (5%) | Deviation |
| y Factor | 1.006 | 0.0503 | 0.006 |
| Acceptance | Acceptable | | |

| |
|---|
| Average Gas Meter y Factor 1.000 |
|---|

Calibration Date: 11-15-16
 Calibrated by: Claude Paré
 Calibration Frequency: Post Test Calibration
 Next Calibration Due: ---
 Instrument Range: 1.000 cfm
 Standard Temp.: 70.9 oF
 Standard Press.: 29.92 "Hg
 Barometric Press.: 30.03 "Hg
 Signature/Date: *Claude Paré* 2016-11-15

Current Calibration

| | |
|------------------------|-------------------|
| Acceptable y Deviation | 0.050 |
| Maximum y Deviation | 0.001 |
| Acceptance | Acceptable |

Reference Standard *

| | | |
|------------|--------------|-----------------------|
| Standard | Model | Standard Test Meter |
| Calibrator | S/N | 07J264834 |
| | Calib. Date | 23-sept-16 |
| | Calib. Value | 0.9900 y factor (ref) |

| Calibration Parameters | Run 1 | Run 2 | Run 3 |
|---|--------------|--------------|--------------|
| Vacuum ("Hg) | 0.00 | 0.00 | 0.00 |
| dH ("H2O) | 0.00 | 0.00 | 0.00 |
| Initial Reference Meter | 886.9 | 892.1 | 897.3 |
| Final Reference Meter | 891.9 | 897.1 | 902.3 |
| Initial DGM | 735.362 | 740.535 | 745.702 |
| Final DGM | 740.335 | 745.502 | 750.674 |
| Temp. Ref. Meter (°F), Tr | 71.2 | 71.5 | 72.0 |
| Temperature DGM (°F), Td | 73.7 | 73.8 | 74.3 |
| Time (Minutes) | 33.0 | 33.0 | 33.0 |
| Net Volume Ref. Meter, Vr | 5.000 | 5.000 | 5.000 |
| Net Volume DGM, Vd | 4.973 | 4.967 | 4.972 |
| Gas Meter y Factor = | 1.000 | 1.001 | 1.000 |
| Gas Meter y Factor Deviation (from avg.) | 0.000 | 0.001 | 0.000 |
| Orifice dH@ | 0.00 | 0.00 | 0.00 |
| Orifice dH@ Deviation (from avg.) | 0.000 | 0.000 | 0.000 |

where: 0.15069697

1. Deviation = |Average value for all runs - current run value|
2. $y = [V_r \times (y \text{ factor (ref)}) \times (P_b) \times (T_d + 460) / [V_d \times (P_b + (dH / 13.6)) \times (T_r + 460)]$
3. $dH@ = 0.0317 \times dH / (P_b (T_d + 460)) \times [(T_r + 460) \times \text{time}] / V_r]^2$

* Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272

Thermal Metering System Calibration

Y factor for Method 5G sampling

Manufacturer: Rockwell international
 Model: S-275
 Serial Number: SBI-276 (009388)

| |
|---------------------------------------|
| Average Gas Meter y Factor |
| 0.997 |

Calibration Date: _____
 Calibrated by: Claude Paré
 Calibration Frequency: Post Test Calibration
 Next Calibration Due: 06-30-00
 Instrument Range: 1.000 cfm
 Standard Temp.: 71.7 oF
 Standard Press.: 29.92 "Hg
 Barometric Press.: 30 "Hg
 Signature/Date: *Claude* 2016-11-16

Previous Calibration Comparision

| | | | |
|------------|------------|----------------|-----------|
| Date | 2016-11-15 | Acceptable | |
| | | Deviation (5%) | Deviation |
| y Factor | 0.983 | 0.04915 | 0.014 |
| Acceptance | Acceptable | | |

Current Calibration

| | |
|------------------------|------------|
| Acceptable y Deviation | 0.050 |
| Maximum y Deviation | 0.002 |
| Acceptance | Acceptable |

Reference Standard *

| | | |
|------------|--------------|-----------------------|
| | Model | Standard Test Meter |
| Standard | S/N | 07J264834 |
| Calibrator | Calib. Date | 23-sept-16 |
| | Calib. Value | 0.9900 y factor (ref) |

| Calibration Parameters | Run 1 | Run 2 | Run 3 |
|---|--------------|--------------|--------------|
| Vacuum ("Hg) | 0.00 | 0.00 | 0.00 |
| dH ("H2O) | 0.00 | 0.00 | 0.00 |
| Initial Reference Meter | 903.2 | 908.5 | 913.7 |
| Final Reference Meter | 908.2 | 913.5 | 918.7 |
| Initial DGM | 622.21 | 627.47 | 632.645 |
| Final DGM | 627.17 | 632.435 | 637.62 |
| Temp. Ref. Meter (°F), Tr | 72.2 | 72.4 | 72.1 |
| Temperature DGM (°F), Td | 72.2 | 72.4 | 72.1 |
| Time (Minutes) | 32.0 | 33.0 | 33.0 |
| Net Volume Ref. Meter, Vr | 5.000 | 5.000 | 5.000 |
| Net Volume DGM, Vd | 4.96 | 4.965 | 4.975 |
| Gas Meter y Factor = | 0.998 | 0.997 | 0.995 |
| Gas Meter y Factor Deviation (from avg.) | 0.001 | 0.000 | 0.002 |
| Orifice dH@ | 0.00 | 0.00 | 0.00 |
| Orifice dH@ Deviation (from avg.) | 0.000 | 0.000 | 0.000 |

where:

0.155

1. Deviation = |Average value for all runs - current run value|
2. $y = [V_r \times (y \text{ factor (ref)}) \times (P_b) \times (T_d + 460) / [V_d \times (P_b + (dH / 13.6)) \times (T_r + 460)]$
3. $dH@ = 0.0317 \times dH / (P_b (T_d + 460)) \times [(T_r + 460) \times \text{time}] / V_r^2$

* Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272

Appendix F
Unit Pre-Burn Documentation

09-08-2016

| Elapsed Time (min) | Flue temp °F | Room temp °F | Tunnel dry bulb °F | top °F | back °F | right °F | left °F | bottom °F | scale lbs |
|--------------------|--------------|--------------|--------------------|--------|---------|----------|---------|-----------|-----------|
| 0 | 431.67 | 77.91 | 114.52 | N/A | N/A | N/A | N/A | N/A | 5.94 |
| 10 | 360.24 | 78.29 | 124.57 | N/A | N/A | N/A | N/A | N/A | 5.45 |
| 20 | 334.72 | 78.31 | 120.85 | N/A | N/A | N/A | N/A | N/A | 4.95 |
| 30 | 329.64 | 78.14 | 119.19 | N/A | N/A | N/A | N/A | N/A | 4.46 |
| 40 | 328.12 | 77.07 | 118.34 | N/A | N/A | N/A | N/A | N/A | 3.96 |
| 50 | 327.58 | 76.46 | 117.95 | N/A | N/A | N/A | N/A | N/A | 3.47 |
| 60 | 327.50 | 76.15 | 117.98 | N/A | N/A | N/A | N/A | N/A | 2.97 |
| 70 | 320.08 | 76.93 | 117.03 | N/A | N/A | N/A | N/A | N/A | 2.48 |
| 80 | 317.38 | 76.55 | 117.02 | N/A | N/A | N/A | N/A | N/A | 1.98 |
| 90 | 305.30 | 75.85 | 114.52 | N/A | N/A | N/A | N/A | N/A | 1.49 |
| 100 | 326.99 | 75.82 | 116.07 | N/A | N/A | N/A | N/A | N/A | 0.99 |
| 110 | 334.06 | 75.90 | 116.63 | N/A | N/A | N/A | N/A | N/A | 0.50 |
| 120 | 319.16 | 75.90 | 115.71 | N/A | N/A | N/A | N/A | N/A | 0.00 |

09-14-2016

| Elapsed Time (min) | Flue temp °F | Room temp °F | Tunnel dry bulb °F | top °F | back °F | right °F | left °F | bottom °F | scale lbs |
|--------------------|--------------|--------------|--------------------|--------|---------|----------|---------|-----------|-----------|
| 0 | 214.02 | 77.94 | 96.05 | N/A | N/A | N/A | N/A | N/A | 1.48 |
| 10 | 209.86 | 77.54 | 95.05 | N/A | N/A | N/A | N/A | N/A | 1.23 |
| 20 | 202.91 | 77.18 | 93.80 | N/A | N/A | N/A | N/A | N/A | 1.00 |
| 30 | 198.50 | 77.14 | 92.92 | N/A | N/A | N/A | N/A | N/A | 0.79 |
| 40 | 208.92 | 75.40 | 93.00 | N/A | N/A | N/A | N/A | N/A | 0.49 |
| 50 | 204.78 | 75.22 | 92.44 | N/A | N/A | N/A | N/A | N/A | 0.25 |
| 60 | 207.35 | 74.79 | 92.22 | N/A | N/A | N/A | N/A | N/A | 0.00 |

09-20-2016

| Elapsed Time (min) | Flue temp °F | Room temp °F | Tunnel dry bulb °F | top °F | back °F | right °F | left °F | bottom °F | scale lbs |
|--------------------|--------------|--------------|--------------------|--------|---------|----------|---------|-----------|-----------|
| 0 | 227.97 | 71.70 | 83.41 | N/A | N/A | N/A | N/A | N/A | 1.17 |
| 10 | 228.29 | 70.72 | 83.41 | N/A | N/A | N/A | N/A | N/A | 0.98 |
| 20 | 226.14 | 71.34 | 83.36 | N/A | N/A | N/A | N/A | N/A | 0.79 |
| 30 | 225.70 | 71.89 | 83.88 | N/A | N/A | N/A | N/A | N/A | 0.58 |
| 40 | 222.54 | 72.27 | 83.89 | N/A | N/A | N/A | N/A | N/A | 0.40 |
| 50 | 229.61 | 71.63 | 83.87 | N/A | N/A | N/A | N/A | N/A | 0.19 |
| 60 | 229.35 | 73.34 | 84.90 | N/A | N/A | N/A | N/A | N/A | 0.00 |

09-26-2016

| Elapsed Time (min) | Flue temp °F | Room temp °F | Tunnel dry bulb °F | top °F | back °F | right °F | left °F | bottom °F | scale lbs |
|--------------------|--------------|--------------|--------------------|--------|---------|----------|---------|-----------|-----------|
| 0 | 325.15 | 70.19 | 73.52 | N/A | N/A | N/A | N/A | N/A | 3.76 |
| 10 | 266.10 | 70.42 | 72.98 | N/A | N/A | N/A | N/A | N/A | 3.44 |
| 20 | 254.52 | 70.26 | 72.47 | N/A | N/A | N/A | N/A | N/A | 3.13 |
| 30 | 249.93 | 69.19 | 71.45 | N/A | N/A | N/A | N/A | N/A | 2.82 |
| 40 | 252.53 | 69.71 | 72.59 | N/A | N/A | N/A | N/A | N/A | 2.50 |
| 50 | 246.58 | 69.83 | 70.06 | N/A | N/A | N/A | N/A | N/A | 2.19 |
| 60 | 250.46 | 69.73 | 70.39 | N/A | N/A | N/A | N/A | N/A | 1.88 |
| 70 | 239.39 | 69.02 | 69.97 | N/A | N/A | N/A | N/A | N/A | 1.56 |
| 80 | 238.06 | 69.83 | 70.66 | N/A | N/A | N/A | N/A | N/A | 1.25 |
| 90 | 241.14 | 69.20 | 70.44 | N/A | N/A | N/A | N/A | N/A | 0.94 |
| 100 | 242.22 | 69.47 | 71.84 | N/A | N/A | N/A | N/A | N/A | 0.63 |
| 110 | 243.76 | 69.80 | 69.81 | N/A | N/A | N/A | N/A | N/A | 0.31 |
| 120 | 207.79 | 69.57 | 70.66 | N/A | N/A | N/A | N/A | N/A | 0.00 |

09-27-2016

| Elapsed Time | Flue temp | Room temp | Tunnel dry bulb | top | back | right | left | bottom | scale |
|--------------|-----------|-----------|-----------------|-----|------|-------|------|--------|-------|
|--------------|-----------|-----------|-----------------|-----|------|-------|------|--------|-------|

| (min) | °F | °F | °F | °F | °F | °F | °F | °F | lbs |
|-------|--------|-------|-------|-----|-----|-----|-----|-----|------|
| 0 | 300.32 | 70.12 | 73.04 | N/A | N/A | N/A | N/A | N/A | 3.99 |
| 10 | 266.92 | 70.26 | 72.32 | N/A | N/A | N/A | N/A | N/A | 3.66 |
| 20 | 256.75 | 70.05 | 71.93 | N/A | N/A | N/A | N/A | N/A | 3.33 |
| 30 | 247.89 | 69.18 | 72.51 | N/A | N/A | N/A | N/A | N/A | 2.99 |
| 40 | 254.72 | 69.65 | 68.88 | N/A | N/A | N/A | N/A | N/A | 2.66 |
| 50 | 255.66 | 69.64 | 71.46 | N/A | N/A | N/A | N/A | N/A | 2.33 |
| 60 | 257.68 | 69.92 | 70.37 | N/A | N/A | N/A | N/A | N/A | 2.00 |
| 70 | 254.48 | 69.97 | 68.77 | N/A | N/A | N/A | N/A | N/A | 1.66 |
| 80 | 259.14 | 69.71 | 69.93 | N/A | N/A | N/A | N/A | N/A | 1.33 |
| 90 | 256.97 | 70.57 | 71.52 | N/A | N/A | N/A | N/A | N/A | 1.00 |
| 100 | 254.24 | 70.16 | 69.74 | N/A | N/A | N/A | N/A | N/A | 0.67 |
| 110 | 255.05 | 70.27 | 71.37 | N/A | N/A | N/A | N/A | N/A | 0.33 |
| 120 | 212.94 | 70.66 | 71.65 | N/A | N/A | N/A | N/A | N/A | 0.00 |

09-28-2016

| Elapsed Time (min) | Flue temp °F | Room temp °F | Tunnel dry bulb °F | top °F | back °F | right °F | left °F | bottom °F | scale lbs |
|--------------------|--------------|--------------|--------------------|--------|---------|----------|---------|-----------|-----------|
| 0 | 299.91 | 71.79 | 94.15 | N/A | N/A | N/A | N/A | N/A | 4.26 |
| 10 | 268.92 | 71.21 | 89.18 | N/A | N/A | N/A | N/A | N/A | 3.91 |
| 20 | 265.63 | 71.26 | 87.77 | N/A | N/A | N/A | N/A | N/A | 3.55 |
| 30 | 262.23 | 70.93 | 87.28 | N/A | N/A | N/A | N/A | N/A | 3.20 |
| 40 | 262.26 | 71.15 | 87.16 | N/A | N/A | N/A | N/A | N/A | 2.84 |
| 50 | 259.03 | 70.95 | 87.17 | N/A | N/A | N/A | N/A | N/A | 2.49 |
| 60 | 265.44 | 71.14 | 87.30 | N/A | N/A | N/A | N/A | N/A | 2.13 |
| 70 | 265.08 | 71.49 | 87.71 | N/A | N/A | N/A | N/A | N/A | 1.78 |
| 80 | 267.73 | 71.01 | 87.66 | N/A | N/A | N/A | N/A | N/A | 1.42 |
| 90 | 265.14 | 71.62 | 87.71 | N/A | N/A | N/A | N/A | N/A | 1.07 |
| 100 | 263.80 | 71.97 | 87.83 | N/A | N/A | N/A | N/A | N/A | 0.71 |
| 110 | 260.51 | 71.96 | 87.36 | N/A | N/A | N/A | N/A | N/A | 0.36 |
| 120 | 214.38 | 71.46 | 83.92 | N/A | N/A | N/A | N/A | N/A | 0.00 |

18-10-2016

| Elapsed Time (min) | Flue temp °F | Room temp °F | Tunnel dry bulb °F | top °F | back °F | right °F | left °F | bottom °F | scale lbs |
|---------------------------|---------------------|---------------------|---------------------------|---------------|----------------|-----------------|----------------|------------------|------------------|
| 0 | 343.65 | 74.35 | 72.88 | N/A | N/A | N/A | N/A | N/A | 4.43 |
| 10 | 311.15 | 70.67 | 71.60 | N/A | N/A | N/A | N/A | N/A | 4.01 |
| 20 | 292.91 | 70.31 | 72.06 | N/A | N/A | N/A | N/A | N/A | 3.63 |
| 30 | 283.71 | 70.03 | 71.16 | N/A | N/A | N/A | N/A | N/A | 3.23 |
| 40 | 278.21 | 69.27 | 70.95 | N/A | N/A | N/A | N/A | N/A | 2.86 |
| 50 | 277.11 | 69.28 | 70.79 | N/A | N/A | N/A | N/A | N/A | 2.48 |
| 60 | 279.28 | 69.66 | 70.78 | N/A | N/A | N/A | N/A | N/A | 2.07 |
| 70 | 274.19 | 69.61 | 71.05 | N/A | N/A | N/A | N/A | N/A | 1.69 |
| 80 | 271.49 | 69.12 | 70.65 | N/A | N/A | N/A | N/A | N/A | 1.31 |
| 90 | 273.28 | 69.35 | 71.16 | N/A | N/A | N/A | N/A | N/A | 0.92 |
| 100 | 261.58 | 69.93 | 70.61 | N/A | N/A | N/A | N/A | N/A | 0.58 |
| 110 | 269.46 | 69.59 | 70.64 | N/A | N/A | N/A | N/A | N/A | 0.20 |
| 120 | 219.90 | 69.91 | 71.22 | N/A | N/A | N/A | N/A | N/A | 0.00 |

19-10-2016

| Elapsed Time (min) | Flue temp °F | Room temp °F | Tunnel dry bulb °F | top °F | back °F | right °F | left °F | bottom °F | scale lbs |
|---------------------------|---------------------|---------------------|---------------------------|---------------|----------------|-----------------|----------------|------------------|------------------|
| 0 | 331.94 | 70.82 | 98.68 | N/A | N/A | N/A | N/A | N/A | 4.51 |
| 10 | 293.34 | 71.09 | 95.12 | N/A | N/A | N/A | N/A | N/A | 4.14 |
| 20 | 280.55 | 71.40 | 93.63 | N/A | N/A | N/A | N/A | N/A | 3.73 |
| 30 | 273.34 | 71.73 | 92.64 | N/A | N/A | N/A | N/A | N/A | 3.35 |
| 40 | 270.95 | 71.83 | 92.17 | N/A | N/A | N/A | N/A | N/A | 2.97 |
| 50 | 262.83 | 71.71 | 91.45 | N/A | N/A | N/A | N/A | N/A | 2.60 |
| 60 | 265.12 | 71.28 | 91.40 | N/A | N/A | N/A | N/A | N/A | 2.21 |
| 70 | 264.80 | 70.52 | 91.52 | N/A | N/A | N/A | N/A | N/A | 1.81 |
| 80 | 263.42 | 71.57 | 91.46 | N/A | N/A | N/A | N/A | N/A | 1.44 |
| 90 | 267.54 | 71.54 | 91.63 | N/A | N/A | N/A | N/A | N/A | 1.02 |

| | | | | | | | | | |
|-----|--------|-------|-------|-----|-----|-----|-----|-----|------|
| 100 | 268.92 | 71.45 | 91.69 | N/A | N/A | N/A | N/A | N/A | 0.62 |
| 110 | 266.86 | 72.07 | 91.66 | N/A | N/A | N/A | N/A | N/A | 0.24 |
| 120 | 221.48 | 72.12 | 86.47 | N/A | N/A | N/A | N/A | N/A | 0.00 |

19-10-2016 & 20-10-2016

| Elapsed Time (min) | Flue temp °F | Room temp °F | Tunnel dry bulb °F | top °F | back °F | right °F | left °F | bottom °F | scale lbs |
|--------------------|--------------|--------------|--------------------|--------|---------|----------|---------|-----------|-----------|
| 0 | 189.29 | 69.88 | 80.77 | N/A | N/A | N/A | N/A | N/A | 35.29 |
| 10 | 235.58 | 69.21 | 85.02 | N/A | N/A | N/A | N/A | N/A | 34.83 |
| 20 | 249.54 | 70.10 | 86.93 | N/A | N/A | N/A | N/A | N/A | 34.44 |
| 30 | 257.06 | 68.77 | 88.20 | N/A | N/A | N/A | N/A | N/A | 34.06 |
| 40 | 258.92 | 68.26 | 88.43 | N/A | N/A | N/A | N/A | N/A | 33.66 |
| 50 | 256.02 | 67.91 | 88.24 | N/A | N/A | N/A | N/A | N/A | 33.29 |
| 60 | 259.12 | 68.09 | 88.44 | N/A | N/A | N/A | N/A | N/A | 32.91 |
| 70 | 261.24 | 68.18 | 88.52 | N/A | N/A | N/A | N/A | N/A | 32.51 |
| 80 | 258.61 | 68.17 | 89.25 | N/A | N/A | N/A | N/A | N/A | 32.12 |
| 90 | 262.09 | 67.54 | 88.96 | N/A | N/A | N/A | N/A | N/A | 31.74 |
| 100 | 184.62 | 68.36 | 83.42 | N/A | N/A | N/A | N/A | N/A | 31.69 |
| 110 | 127.77 | 66.97 | 78.70 | N/A | N/A | N/A | N/A | N/A | 31.74 |
| 120 | 217.09 | 67.64 | 85.16 | N/A | N/A | N/A | N/A | N/A | 31.28 |
| 130 | 243.75 | 67.33 | 88.16 | N/A | N/A | N/A | N/A | N/A | 30.89 |
| 140 | 247.42 | 67.14 | 88.83 | N/A | N/A | N/A | N/A | N/A | 30.53 |
| 150 | 259.62 | 68.24 | 90.20 | N/A | N/A | N/A | N/A | N/A | 30.13 |
| 160 | 265.52 | 70.07 | 91.21 | N/A | N/A | N/A | N/A | N/A | 29.76 |
| 170 | 268.75 | 70.81 | 91.64 | N/A | N/A | N/A | N/A | N/A | 29.37 |
| 180 | 265.73 | 71.12 | 91.63 | N/A | N/A | N/A | N/A | N/A | 29.04 |
| 190 | 269.45 | 71.37 | 91.71 | N/A | N/A | N/A | N/A | N/A | 28.65 |
| 200 | 266.30 | 69.39 | 91.57 | N/A | N/A | N/A | N/A | N/A | 28.28 |
| 210 | 266.01 | 66.55 | 90.53 | N/A | N/A | N/A | N/A | N/A | 27.84 |
| 220 | 266.68 | 65.95 | 90.31 | N/A | N/A | N/A | N/A | N/A | 27.42 |
| 230 | 265.88 | 65.61 | 90.19 | N/A | N/A | N/A | N/A | N/A | 27.00 |
| 240 | 258.83 | 68.51 | 90.35 | N/A | N/A | N/A | N/A | N/A | 26.63 |

| | | | | | | | | | |
|-----|--------|-------|-------|-----|-----|-----|-----|-----|-------|
| 250 | 263.99 | 70.14 | 91.01 | N/A | N/A | N/A | N/A | N/A | 26.29 |
| 260 | 262.46 | 70.33 | 90.94 | N/A | N/A | N/A | N/A | N/A | 25.92 |
| 270 | 264.52 | 70.57 | 90.87 | N/A | N/A | N/A | N/A | N/A | 25.54 |
| 280 | 265.02 | 70.85 | 91.03 | N/A | N/A | N/A | N/A | N/A | 25.16 |
| 290 | 266.08 | 71.48 | 91.49 | N/A | N/A | N/A | N/A | N/A | 24.78 |
| 300 | 264.91 | 71.77 | 91.63 | N/A | N/A | N/A | N/A | N/A | 24.42 |
| 310 | 265.22 | 71.21 | 91.25 | N/A | N/A | N/A | N/A | N/A | 24.04 |
| 320 | 262.69 | 71.14 | 90.95 | N/A | N/A | N/A | N/A | N/A | 23.66 |
| 330 | 263.40 | 71.22 | 91.02 | N/A | N/A | N/A | N/A | N/A | 23.29 |
| 340 | 260.52 | 70.96 | 90.61 | N/A | N/A | N/A | N/A | N/A | 22.90 |
| 350 | 264.99 | 71.01 | 91.02 | N/A | N/A | N/A | N/A | N/A | 22.52 |
| 360 | 261.83 | 70.90 | 90.84 | N/A | N/A | N/A | N/A | N/A | 22.14 |
| 370 | 256.36 | 70.92 | 90.54 | N/A | N/A | N/A | N/A | N/A | 21.80 |
| 380 | 255.69 | 71.30 | 90.42 | N/A | N/A | N/A | N/A | N/A | 21.41 |
| 390 | 265.34 | 71.11 | 90.85 | N/A | N/A | N/A | N/A | N/A | 21.00 |
| 400 | 264.71 | 70.60 | 90.88 | N/A | N/A | N/A | N/A | N/A | 20.61 |
| 410 | 260.89 | 70.84 | 90.64 | N/A | N/A | N/A | N/A | N/A | 20.24 |
| 420 | 261.95 | 70.92 | 90.68 | N/A | N/A | N/A | N/A | N/A | 19.85 |
| 430 | 267.36 | 70.72 | 90.97 | N/A | N/A | N/A | N/A | N/A | 19.44 |
| 440 | 261.64 | 71.40 | 90.58 | N/A | N/A | N/A | N/A | N/A | 19.06 |
| 450 | 261.98 | 70.95 | 90.59 | N/A | N/A | N/A | N/A | N/A | 18.67 |
| 460 | 269.23 | 70.53 | 90.96 | N/A | N/A | N/A | N/A | N/A | 18.25 |
| 470 | 270.29 | 70.59 | 91.06 | N/A | N/A | N/A | N/A | N/A | 17.87 |
| 480 | 263.69 | 70.54 | 90.66 | N/A | N/A | N/A | N/A | N/A | 17.49 |
| 490 | 261.11 | 70.52 | 90.07 | N/A | N/A | N/A | N/A | N/A | 17.11 |
| 500 | 263.79 | 71.08 | 90.45 | N/A | N/A | N/A | N/A | N/A | 16.70 |
| 510 | 262.51 | 70.41 | 90.49 | N/A | N/A | N/A | N/A | N/A | 16.30 |
| 520 | 262.90 | 70.01 | 90.37 | N/A | N/A | N/A | N/A | N/A | 15.91 |
| 530 | 264.20 | 70.19 | 90.36 | N/A | N/A | N/A | N/A | N/A | 15.52 |
| 540 | 258.13 | 70.63 | 89.85 | N/A | N/A | N/A | N/A | N/A | 15.15 |
| 550 | 261.14 | 70.62 | 90.17 | N/A | N/A | N/A | N/A | N/A | 14.75 |
| 560 | 263.59 | 70.37 | 90.15 | N/A | N/A | N/A | N/A | N/A | 14.35 |
| 570 | 262.16 | 70.60 | 90.10 | N/A | N/A | N/A | N/A | N/A | 13.96 |
| 580 | 262.19 | 70.73 | 89.87 | N/A | N/A | N/A | N/A | N/A | 13.55 |

| | | | | | | | | | |
|-----|--------|-------|-------|-----|-----|-----|-----|-----|-------|
| 590 | 261.90 | 70.65 | 89.67 | N/A | N/A | N/A | N/A | N/A | 13.16 |
| 600 | 260.74 | 70.45 | 89.56 | N/A | N/A | N/A | N/A | N/A | 12.77 |
| 610 | 260.18 | 70.41 | 89.34 | N/A | N/A | N/A | N/A | N/A | 12.39 |
| 620 | 259.57 | 70.57 | 89.46 | N/A | N/A | N/A | N/A | N/A | 12.00 |
| 630 | 260.17 | 70.54 | 89.42 | N/A | N/A | N/A | N/A | N/A | 11.60 |
| 640 | 258.59 | 70.69 | 89.17 | N/A | N/A | N/A | N/A | N/A | 11.20 |
| 650 | 258.56 | 70.03 | 89.19 | N/A | N/A | N/A | N/A | N/A | 10.83 |
| 660 | 253.46 | 70.53 | 88.63 | N/A | N/A | N/A | N/A | N/A | 10.48 |
| 670 | 256.43 | 71.37 | 88.89 | N/A | N/A | N/A | N/A | N/A | 10.07 |
| 680 | 259.78 | 70.39 | 88.98 | N/A | N/A | N/A | N/A | N/A | 9.68 |
| 690 | 259.69 | 70.14 | 88.98 | N/A | N/A | N/A | N/A | N/A | 9.29 |
| 700 | 258.45 | 70.34 | 88.83 | N/A | N/A | N/A | N/A | N/A | 8.89 |
| 710 | 259.37 | 70.55 | 88.69 | N/A | N/A | N/A | N/A | N/A | 8.50 |
| 720 | 258.69 | 69.89 | 88.77 | N/A | N/A | N/A | N/A | N/A | 8.10 |
| 730 | 251.47 | 69.94 | 88.00 | N/A | N/A | N/A | N/A | N/A | 7.75 |
| 740 | 258.10 | 69.71 | 88.35 | N/A | N/A | N/A | N/A | N/A | 7.36 |
| 750 | 257.81 | 70.56 | 88.33 | N/A | N/A | N/A | N/A | N/A | 6.96 |
| 760 | 260.13 | 69.55 | 88.51 | N/A | N/A | N/A | N/A | N/A | 6.55 |
| 770 | 254.78 | 69.78 | 87.97 | N/A | N/A | N/A | N/A | N/A | 6.20 |
| 780 | 256.57 | 70.21 | 88.20 | N/A | N/A | N/A | N/A | N/A | 5.82 |
| 790 | 262.95 | 69.34 | 88.17 | N/A | N/A | N/A | N/A | N/A | 5.40 |
| 800 | 261.62 | 69.82 | 88.46 | N/A | N/A | N/A | N/A | N/A | 4.99 |
| 810 | 259.50 | 70.15 | 88.18 | N/A | N/A | N/A | N/A | N/A | 4.63 |
| 820 | 258.37 | 69.51 | 88.26 | N/A | N/A | N/A | N/A | N/A | 4.24 |
| 830 | 257.17 | 69.39 | 87.96 | N/A | N/A | N/A | N/A | N/A | 3.87 |
| 840 | 256.30 | 69.96 | 87.97 | N/A | N/A | N/A | N/A | N/A | 3.49 |
| 850 | 255.54 | 69.57 | 87.58 | N/A | N/A | N/A | N/A | N/A | 3.11 |
| 860 | 260.04 | 69.58 | 88.01 | N/A | N/A | N/A | N/A | N/A | 2.71 |
| 870 | 266.12 | 69.45 | 88.71 | N/A | N/A | N/A | N/A | N/A | 2.31 |
| 880 | 266.25 | 69.65 | 88.49 | N/A | N/A | N/A | N/A | N/A | 1.91 |
| 890 | 266.09 | 69.44 | 88.65 | N/A | N/A | N/A | N/A | N/A | 1.52 |
| 900 | 263.95 | 69.35 | 88.44 | N/A | N/A | N/A | N/A | N/A | 1.13 |
| 910 | 254.11 | 69.61 | 87.62 | N/A | N/A | N/A | N/A | N/A | 0.77 |
| 920 | 259.88 | 69.14 | 87.73 | N/A | N/A | N/A | N/A | N/A | 0.35 |

930 260.25 69.19 88.03 N/A N/A N/A N/A N/A 0.00

20-10-2016 & 21-10-2016

| Elapsed Time (min) | Flue temp °F | Room temp °F | Tunnel dry bulb °F | top °F | back °F | right °F | left °F | bottom °F | scale lbs |
|---------------------------|---------------------|---------------------|---------------------------|---------------|----------------|-----------------|----------------|------------------|------------------|
| 0 | 255.55 | 68.51 | 90.86 | N/A | N/A | N/A | N/A | N/A | 36.01 |
| 10 | 269.82 | 68.45 | 91.86 | N/A | N/A | N/A | N/A | N/A | 35.63 |
| 20 | 269.70 | 70.90 | 93.37 | N/A | N/A | N/A | N/A | N/A | 35.26 |
| 30 | 271.24 | 70.77 | 93.50 | N/A | N/A | N/A | N/A | N/A | 34.90 |
| 40 | 268.75 | 71.18 | 93.61 | N/A | N/A | N/A | N/A | N/A | 34.51 |
| 50 | 271.66 | 71.02 | 93.93 | N/A | N/A | N/A | N/A | N/A | 34.13 |
| 60 | 274.53 | 71.14 | 93.82 | N/A | N/A | N/A | N/A | N/A | 33.76 |
| 70 | 270.10 | 71.22 | 93.76 | N/A | N/A | N/A | N/A | N/A | 33.38 |
| 80 | 272.60 | 71.12 | 93.93 | N/A | N/A | N/A | N/A | N/A | 32.98 |
| 90 | 269.86 | 71.50 | 93.83 | N/A | N/A | N/A | N/A | N/A | 32.60 |
| 100 | 273.63 | 71.55 | 94.11 | N/A | N/A | N/A | N/A | N/A | 32.22 |
| 110 | 264.78 | 70.97 | 93.09 | N/A | N/A | N/A | N/A | N/A | 31.88 |
| 120 | 276.30 | 71.35 | 93.79 | N/A | N/A | N/A | N/A | N/A | 31.47 |
| 130 | 271.50 | 71.26 | 93.69 | N/A | N/A | N/A | N/A | N/A | 31.09 |
| 140 | 271.36 | 71.51 | 93.49 | N/A | N/A | N/A | N/A | N/A | 30.71 |
| 150 | 274.80 | 71.03 | 94.05 | N/A | N/A | N/A | N/A | N/A | 30.31 |
| 160 | 275.42 | 70.82 | 93.87 | N/A | N/A | N/A | N/A | N/A | 29.92 |
| 170 | 279.06 | 71.05 | 93.87 | N/A | N/A | N/A | N/A | N/A | 29.52 |
| 180 | 272.53 | 70.93 | 93.63 | N/A | N/A | N/A | N/A | N/A | 29.13 |
| 190 | 273.41 | 71.22 | 93.60 | N/A | N/A | N/A | N/A | N/A | 28.72 |
| 200 | 281.36 | 70.83 | 94.21 | N/A | N/A | N/A | N/A | N/A | 28.30 |
| 210 | 274.19 | 70.59 | 93.72 | N/A | N/A | N/A | N/A | N/A | 27.93 |
| 220 | 274.16 | 70.92 | 93.44 | N/A | N/A | N/A | N/A | N/A | 27.53 |
| 230 | 271.35 | 70.98 | 93.35 | N/A | N/A | N/A | N/A | N/A | 27.15 |
| 240 | 269.06 | 70.75 | 92.74 | N/A | N/A | N/A | N/A | N/A | 26.78 |
| 250 | 272.92 | 70.81 | 93.33 | N/A | N/A | N/A | N/A | N/A | 26.38 |
| 260 | 259.15 | 71.30 | 92.32 | N/A | N/A | N/A | N/A | N/A | 26.04 |

| | | | | | | | | | |
|-----|--------|-------|-------|-----|-----|-----|-----|-----|-------|
| 270 | 268.81 | 70.66 | 92.98 | N/A | N/A | N/A | N/A | N/A | 25.61 |
| 280 | 272.22 | 70.86 | 93.06 | N/A | N/A | N/A | N/A | N/A | 25.22 |
| 290 | 268.15 | 70.42 | 92.70 | N/A | N/A | N/A | N/A | N/A | 24.85 |
| 300 | 270.05 | 71.17 | 92.88 | N/A | N/A | N/A | N/A | N/A | 24.47 |
| 310 | 274.85 | 70.87 | 92.93 | N/A | N/A | N/A | N/A | N/A | 24.08 |
| 320 | 274.02 | 70.50 | 93.08 | N/A | N/A | N/A | N/A | N/A | 23.68 |
| 330 | 265.38 | 70.56 | 92.63 | N/A | N/A | N/A | N/A | N/A | 23.33 |
| 340 | 271.48 | 70.50 | 92.76 | N/A | N/A | N/A | N/A | N/A | 22.93 |
| 350 | 277.10 | 70.59 | 93.23 | N/A | N/A | N/A | N/A | N/A | 22.53 |
| 360 | 272.10 | 70.97 | 93.21 | N/A | N/A | N/A | N/A | N/A | 22.16 |
| 370 | 273.24 | 70.42 | 92.90 | N/A | N/A | N/A | N/A | N/A | 21.76 |
| 380 | 275.22 | 70.58 | 93.40 | N/A | N/A | N/A | N/A | N/A | 21.37 |
| 390 | 274.83 | 70.71 | 93.03 | N/A | N/A | N/A | N/A | N/A | 20.99 |
| 400 | 269.56 | 70.41 | 92.71 | N/A | N/A | N/A | N/A | N/A | 20.61 |
| 410 | 277.61 | 70.37 | 92.93 | N/A | N/A | N/A | N/A | N/A | 20.21 |
| 420 | 272.70 | 70.48 | 92.90 | N/A | N/A | N/A | N/A | N/A | 19.83 |
| 430 | 271.18 | 70.04 | 92.69 | N/A | N/A | N/A | N/A | N/A | 19.44 |
| 440 | 274.23 | 70.10 | 92.78 | N/A | N/A | N/A | N/A | N/A | 19.05 |
| 450 | 271.34 | 70.07 | 92.37 | N/A | N/A | N/A | N/A | N/A | 18.67 |
| 460 | 269.33 | 70.09 | 92.35 | N/A | N/A | N/A | N/A | N/A | 18.30 |
| 470 | 270.86 | 70.01 | 92.53 | N/A | N/A | N/A | N/A | N/A | 17.93 |
| 480 | 274.65 | 69.83 | 92.65 | N/A | N/A | N/A | N/A | N/A | 17.53 |
| 490 | 269.34 | 69.79 | 92.21 | N/A | N/A | N/A | N/A | N/A | 17.14 |
| 500 | 277.89 | 70.20 | 92.86 | N/A | N/A | N/A | N/A | N/A | 16.74 |
| 510 | 277.12 | 69.61 | 92.86 | N/A | N/A | N/A | N/A | N/A | 16.33 |
| 520 | 277.31 | 69.59 | 92.93 | N/A | N/A | N/A | N/A | N/A | 15.93 |
| 530 | 278.96 | 69.28 | 93.11 | N/A | N/A | N/A | N/A | N/A | 15.51 |
| 540 | 277.88 | 69.66 | 92.69 | N/A | N/A | N/A | N/A | N/A | 15.11 |
| 550 | 271.90 | 69.89 | 92.08 | N/A | N/A | N/A | N/A | N/A | 14.73 |
| 560 | 273.90 | 69.54 | 92.25 | N/A | N/A | N/A | N/A | N/A | 14.33 |
| 570 | 274.79 | 69.99 | 92.44 | N/A | N/A | N/A | N/A | N/A | 13.93 |
| 580 | 273.03 | 70.10 | 92.05 | N/A | N/A | N/A | N/A | N/A | 13.56 |
| 590 | 271.52 | 69.35 | 92.16 | N/A | N/A | N/A | N/A | N/A | 13.18 |
| 600 | 274.01 | 68.90 | 92.23 | N/A | N/A | N/A | N/A | N/A | 12.79 |

| | | | | | | | | | |
|-----|--------|-------|-------|-----|-----|-----|-----|-----|-------|
| 610 | 274.10 | 69.57 | 92.20 | N/A | N/A | N/A | N/A | N/A | 12.40 |
| 620 | 261.74 | 69.62 | 91.21 | N/A | N/A | N/A | N/A | N/A | 12.06 |
| 630 | 263.55 | 69.84 | 91.38 | N/A | N/A | N/A | N/A | N/A | 11.69 |
| 640 | 264.76 | 69.65 | 91.54 | N/A | N/A | N/A | N/A | N/A | 11.32 |
| 650 | 267.36 | 69.86 | 91.43 | N/A | N/A | N/A | N/A | N/A | 10.93 |
| 660 | 268.69 | 69.66 | 91.89 | N/A | N/A | N/A | N/A | N/A | 10.54 |
| 670 | 273.14 | 70.17 | 92.21 | N/A | N/A | N/A | N/A | N/A | 10.14 |
| 680 | 270.02 | 70.20 | 91.58 | N/A | N/A | N/A | N/A | N/A | 9.78 |
| 690 | 270.07 | 70.06 | 91.97 | N/A | N/A | N/A | N/A | N/A | 9.40 |
| 700 | 270.25 | 70.31 | 91.85 | N/A | N/A | N/A | N/A | N/A | 9.02 |
| 710 | 272.92 | 69.79 | 92.21 | N/A | N/A | N/A | N/A | N/A | 8.62 |
| 720 | 267.40 | 69.54 | 91.78 | N/A | N/A | N/A | N/A | N/A | 8.25 |
| 730 | 271.49 | 69.88 | 91.95 | N/A | N/A | N/A | N/A | N/A | 7.86 |
| 740 | 272.39 | 70.48 | 92.14 | N/A | N/A | N/A | N/A | N/A | 7.47 |
| 750 | 273.37 | 70.20 | 92.39 | N/A | N/A | N/A | N/A | N/A | 7.09 |
| 760 | 272.45 | 70.74 | 92.34 | N/A | N/A | N/A | N/A | N/A | 6.69 |
| 770 | 273.82 | 70.10 | 92.24 | N/A | N/A | N/A | N/A | N/A | 6.30 |
| 780 | 272.33 | 70.12 | 92.24 | N/A | N/A | N/A | N/A | N/A | 5.92 |
| 790 | 276.86 | 69.70 | 92.45 | N/A | N/A | N/A | N/A | N/A | 5.50 |
| 800 | 273.18 | 69.84 | 92.27 | N/A | N/A | N/A | N/A | N/A | 5.12 |
| 810 | 277.12 | 69.93 | 92.64 | N/A | N/A | N/A | N/A | N/A | 4.71 |
| 820 | 271.10 | 70.50 | 92.33 | N/A | N/A | N/A | N/A | N/A | 4.32 |
| 830 | 275.69 | 70.42 | 92.45 | N/A | N/A | N/A | N/A | N/A | 3.90 |
| 840 | 273.84 | 70.10 | 92.06 | N/A | N/A | N/A | N/A | N/A | 3.52 |
| 850 | 271.37 | 70.10 | 91.96 | N/A | N/A | N/A | N/A | N/A | 3.13 |
| 860 | 276.12 | 70.31 | 92.37 | N/A | N/A | N/A | N/A | N/A | 2.73 |
| 870 | 269.26 | 70.09 | 91.77 | N/A | N/A | N/A | N/A | N/A | 2.35 |
| 880 | 269.06 | 69.79 | 91.61 | N/A | N/A | N/A | N/A | N/A | 1.96 |
| 890 | 268.85 | 69.91 | 91.63 | N/A | N/A | N/A | N/A | N/A | 1.58 |
| 900 | 270.40 | 69.48 | 91.46 | N/A | N/A | N/A | N/A | N/A | 1.21 |
| 910 | 274.59 | 69.12 | 91.87 | N/A | N/A | N/A | N/A | N/A | 0.80 |
| 920 | 270.96 | 69.76 | 91.69 | N/A | N/A | N/A | N/A | N/A | 0.41 |
| 930 | 271.25 | 69.22 | 92.01 | N/A | N/A | N/A | N/A | N/A | 0.00 |

21-10-2016

| Elapsed Time (min) | Flue temp °F | Room temp °F | Tunnel dry bulb °F | top °F | back °F | right °F | left °F | bottom °F | scale lbs |
|---------------------------|---------------------|---------------------|---------------------------|---------------|----------------|-----------------|----------------|------------------|------------------|
| 0 | 325.37 | 67.77 | 96.84 | N/A | N/A | N/A | N/A | N/A | 4.14 |
| 10 | 287.71 | 66.78 | 93.02 | N/A | N/A | N/A | N/A | N/A | 3.79 |
| 20 | 271.26 | 66.98 | 91.11 | N/A | N/A | N/A | N/A | N/A | 3.44 |
| 30 | 272.67 | 67.14 | 90.70 | N/A | N/A | N/A | N/A | N/A | 3.08 |
| 40 | 267.72 | 67.74 | 90.76 | N/A | N/A | N/A | N/A | N/A | 2.73 |
| 50 | 262.02 | 67.55 | 90.05 | N/A | N/A | N/A | N/A | N/A | 2.38 |
| 60 | 262.31 | 67.20 | 89.84 | N/A | N/A | N/A | N/A | N/A | 2.03 |
| 70 | 265.35 | 67.56 | 89.95 | N/A | N/A | N/A | N/A | N/A | 1.65 |
| 80 | 266.20 | 67.61 | 90.24 | N/A | N/A | N/A | N/A | N/A | 1.28 |
| 90 | 265.33 | 67.74 | 90.38 | N/A | N/A | N/A | N/A | N/A | 0.93 |
| 100 | 266.89 | 68.23 | 90.50 | N/A | N/A | N/A | N/A | N/A | 0.56 |
| 110 | 268.83 | 67.90 | 90.52 | N/A | N/A | N/A | N/A | N/A | 0.20 |
| 120 | 217.66 | 68.50 | 86.04 | N/A | N/A | N/A | N/A | N/A | 0.00 |

24-10-2016

| Elapsed Time (min) | Flue temp °F | Room temp °F | Tunnel dry bulb °F | top °F | back °F | right °F | left °F | bottom °F | scale lbs |
|---------------------------|---------------------|---------------------|---------------------------|---------------|----------------|-----------------|----------------|------------------|------------------|
| 0 | 325.37 | 67.77 | 96.84 | N/A | N/A | N/A | N/A | N/A | 4.14 |
| 10 | 287.71 | 66.78 | 93.02 | N/A | N/A | N/A | N/A | N/A | 3.79 |
| 20 | 271.26 | 66.98 | 91.11 | N/A | N/A | N/A | N/A | N/A | 3.44 |
| 30 | 272.67 | 67.14 | 90.70 | N/A | N/A | N/A | N/A | N/A | 3.08 |
| 40 | 267.72 | 67.74 | 90.76 | N/A | N/A | N/A | N/A | N/A | 2.73 |
| 50 | 262.02 | 67.55 | 90.05 | N/A | N/A | N/A | N/A | N/A | 2.38 |
| 60 | 262.31 | 67.20 | 89.84 | N/A | N/A | N/A | N/A | N/A | 2.03 |
| 70 | 265.35 | 67.56 | 89.95 | N/A | N/A | N/A | N/A | N/A | 1.65 |
| 80 | 266.20 | 67.61 | 90.24 | N/A | N/A | N/A | N/A | N/A | 1.28 |
| 90 | 265.33 | 67.74 | 90.38 | N/A | N/A | N/A | N/A | N/A | 0.93 |

Appendix G
Stack-loss Efficiency data results

This Excel spreadsheet calculates solid fuel appliance efficiency and heat output in accordance with the procedure specified in CSA B415.1-10. In general the column headings correspond to the variables used in the Standard.

All data from a test run are entered on the "Data" sheet. The cells requiring data entry are highlighted. Please note that input data can be entered in either yard/pound or SI units. Select the units in cells F4 and F5 of the "Data" sheet.

Particulate emissions determined using the dilution tunnel method should be entered in cell C13 of the "Data" sheet as total grams of emissions.

Since oxygen concentrations are calculated for the efficiency determination, entry of measured oxygen data is optional. However, it might be useful to include the measured oxygen values for comparison to the calculated values for diagnostic purposes. A deviation of more than 1 or 2 percentage points can indicate inaccurate CO, CO₂, or fuel composition input data.

Selection of an appliance type in cell F2 of the "Data" sheet is needed for the air/fuel ratio calculation in accordance with Clause 16.3.5 of the Standard.

The "CSA B415.1 Calculations" and "Report" sheets include calculation of efficiencies based on the Lower Heating Value (LHV) of the fuel, which is not required in CSA B415.1-10. The LHV is calculated from the Higher Heating Value (HHV) and fuel composition data in accordance with ASTM E711.

The "CSA B415.1 Calculations" sheet is locked and password protected to prevent inadvertent modifications.

The "Chart" sheet includes a chart of flue gas composition data and fuel consumption. The range of cells in the "CSA B415.1 Calculations" sheet to be charted or plotted might need to be adjusted to correspond to the number of data points entered.

Please report any errors or problems to Tony Joseph at CSA.

Tony Joseph
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Spreadsheet created by: Rick Curkeet, PE, Intertek Testing Services, NA Inc.
Version 2.4 15 April 2010

VERSION: 2.4 2010-04-15

Manufacturer: SBI
 Model: ECO-55
 Date: 01-11-2016
 Run: 1
 Control #: G102747001

Appliance Type: Pellet (Cat, Non-Cat, Pellet)

Temp. Units F (F or C)
 Weight Units lb (kg or lb)

Default Fuel Values

| | D. Fir | Oak |
|-------------|--------|--------|
| HHV (kJ/kg) | 19,810 | 19,887 |
| %C | 48.73 | 50 |
| %H | 6.87 | 6.6 |
| %O | 43.9 | 42.9 |
| %Ash | 0.5 | 0.5 |

Test Duration: 360
 Output Category: Integ

Fuel Data

| | D. Fir | |
|------|--------|-------|
| HHV | 20,236 | kJ/kg |
| %C | 48.73 | |
| %H | 6.87 | |
| %O | 43.785 | |
| %Ash | 0.615 | |

Wood Moisture (% wet): 4.50
 Load Weight (lb wet): 12.71
 Burn Rate (dry kg/h): 0.92
 Total Particulate Emissions: 5.78 g

Note 1: For other fuels, use the heating value and fuel composition determined by analysis of fuel sample in accordance with Clause 9.2.

Averages 0.02 3.02 17.90 253.65 72.31

| Elapsed Time (min) | Fuel Weight Remaining (lb) | Flue Gas Composition (%) | | | Flue Gas Temp. (°F) | Room Temp |
|--------------------|----------------------------|--------------------------|-----------------|----------------|---------------------|-----------|
| | | CO | CO ₂ | O ₂ | | |
| 0 | 12.71 | 0.01 | 6.13 | 14.65 | 373.1 | 71.2 |
| 10 | 11.92 | 0.02 | 6.33 | 13.98 | 376.1 | 76.6 |
| 20 | 11.16 | 0.01 | 6.42 | 14.37 | 371.7 | 72.2 |
| 30 | 10.38 | 0.01 | 6.21 | 15.29 | 370.4 | 73.3 |
| 40 | 9.61 | 0.01 | 6.61 | 13.85 | 375.6 | 73.3 |
| 50 | 8.78 | 0.01 | 6.78 | 13.62 | 379.4 | 77.5 |
| 60 | 7.99 | 0.01 | 6.75 | 13.94 | 377.6 | 72.9 |
| 70 | 7.57 | 0.02 | 4.85 | 17.62 | 320.0 | 72.2 |
| 80 | 7.21 | 0.02 | 3.24 | 18.05 | 287.6 | 69.1 |
| 90 | 6.82 | 0.01 | 2.91 | 17.78 | 280.7 | 68.1 |
| 100 | 6.46 | 0.01 | 2.79 | 18.01 | 271.3 | 69.9 |
| 110 | 6.14 | 0.02 | 2.60 | 17.95 | 268.4 | 71.4 |
| 120 | 5.80 | 0.02 | 2.66 | 18.46 | 266.1 | 72.0 |
| 130 | 5.43 | 0.02 | 2.84 | 18.11 | 266.2 | 72.2 |
| 140 | 5.07 | 0.01 | 2.73 | 17.98 | 265.3 | 72.5 |
| 150 | 4.69 | 0.02 | 2.69 | 18.00 | 269.5 | 72.5 |
| 160 | 4.32 | 0.02 | 2.83 | 18.08 | 271.9 | 72.7 |
| 170 | 3.95 | 0.03 | 2.94 | 18.37 | 271.1 | 72.6 |
| 180 | 3.57 | 0.02 | 2.86 | 18.09 | 273.5 | 73.0 |

Note 2: In cases where the "Fuel Weight Remaining" is the same for three or more readings in a row, a "divide by zero error" will occur in the calculation sheet. In such cases, adjust the weight values by interpolation between the first occurrence and the next reading showing a decrease in weight.

Manufacturer: SBI
Model: ECO-55
Date: 01-11-2016
Run: 1
Control #: G102747001
Test Duration: 360 min

Note: In the "Input data", "Calc. % O₂", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a], [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3 to 13.7.5.

| | HHV | LHV |
|-----------|--------|--------|
| Eff | 70.27% | 75.82% |
| Comb Eff | 99.50% | 99.50% |
| HT Eff | 70.62% | 76.20% |
| Output | 13,052 | kJ/h |
| Burn Rate | 0.92 | kg/h |
| Grams CO | 46 | g |
| Input | 18,574 | kJ/h |
| MC wet | 4.50 | |
| Averages | 0.02 | 3.02 |

Ultimate CO₂
 CO_{2-ult} 19.63
 F₀
 1.054

| | | Air Fuel Ratio (A/F) | | |
|-----------------------------|--------------|--|---------|--------|
| Overall Heating Efficiency: | 70.27% | Dry Molecular Weight (M _d): | 29.19 | |
| Combustion Efficiency: | 99.50% | Dry Moles Exhaust Gas (N _d): | 1105.08 | %HC |
| Heat Transfer Efficiency: | 70.62% | Air Fuel Ratio (A/F) | 31.75 | 0.8 |
| Heat Output: | 12,381 Btu/h | 13,052 | kJ/h | |
| Heat Input: | 17,620 Btu/h | 18,574 | kJ/h | |
| Burn Duration: | 6.00 | h | | |
| Burn Rate: | 2.02 | lb/h | 0.918 | kg/h |
| Stack Temp: | 250.3 | Deg. F | 121.3 | Deg. C |

| INPUT DATA | | | | Oxygen Calculation | | | Input Data | | Combust | Heat | Net | Air | Wet Wt | % Wet | Dry Wt. | % Dry | Total | Carbon |
|--------------|-----------------------|----------|-----------------------|--------------------|----------------------|----------------------------|---------------|----------------|---------|------------|-------|------------|--------|------------|----------------------|------------|-------|----------|
| Elapsed Time | Weight Remaining (kg) | % CO [e] | % CO ₂ [d] | Excess Air EA | Total O ₂ | Calc. % O ₂ [g] | Flue Gas (°C) | Room Temp (°C) | Eff % | Transfer % | Eff % | Fuel Ratio | Now Wt | Consumed x | Now Wt _{dn} | Consumed y | Input | /12= [a] |
| 0 | 5.77 | 0.01 | 6.13 | 219.6% | 20.53 | 14.39 | 189.5 | 21.8 | 100.5% | 74.4% | 74.8% | 19.4 | 5.77 | 0.00 | 5.51 | 0.00 | 0 | 4.06 |
| 10 | 5.41 | 0.02 | 6.33 | 209.2% | 20.52 | 14.18 | 191.2 | 24.8 | 100.4% | 75.0% | 75.3% | 18.7 | 5.41 | 6.22 | 5.16 | 6.22 | 10259 | 4.06 |
| 20 | 5.06 | 0.01 | 6.42 | 205.2% | 20.51 | 14.08 | 188.7 | 22.3 | 100.5% | 75.2% | 75.6% | 18.5 | 5.06 | 12.20 | 4.84 | 12.20 | 6752 | 4.06 |
| 30 | 4.71 | 0.01 | 6.21 | 215.4% | 20.52 | 14.31 | 188.0 | 23.0 | 100.5% | 74.9% | 75.2% | 19.1 | 4.71 | 18.33 | 4.50 | 18.33 | 6795 | 4.06 |
| 40 | 4.36 | 0.01 | 6.61 | 196.4% | 20.50 | 13.88 | 190.9 | 23.0 | 100.4% | 75.5% | 75.9% | 18.0 | 4.36 | 24.39 | 4.16 | 24.39 | 7015 | 4.06 |
| 50 | 3.98 | 0.01 | 6.78 | 189.0% | 20.49 | 13.70 | 193.0 | 25.3 | 100.4% | 75.9% | 76.2% | 17.5 | 3.98 | 30.92 | 3.80 | 30.92 | 7102 | 4.06 |

Moisture Content M_{Cwb} : 4.5

Combustion Efficiency: 99.50%
 Total Input (kJ): 111,445 105,701 (Btu)
 Total Output (kJ): 78,310 74,273 (Btu)
 Efficiency: 70.27%
 Total CO (g): 45.81

Moisture of Wood (wet basis): 4.5
 Initial Dry Weight $W_{t_{do}}$ (kg): 5.51
 Moisture Content Dry 4.71

Dry kg : 5.51
 CA: 48.73
 HY: 6.87
 OX: 43.785

Load Weight (kg): 5.77
 Fuel Heating HHV LHV
 Value in kJ/kg - CV: 20,236 18,755 Btu/lb 8705.8 8068.5

| 6.87 | 2.74 | 20236.00 | 4.50 | 79.25 | 21.02 | 0.74 | 2.61 | -0.03 | 0.07 | 40.92 | 321.25 | 0.40 | -0.46 | 1381.12 | 35.48 | 2.62 | 396.29 | 4008.65 | 3018.66 | 2935.88 | 2903.24 |
|-----------------|----------|-----------|------------|-------------------------------|-------|------|------|-------|--------------|--------------------------|----------------|------|-------|----------------|------------------|----------|--------|--|----------------|---------|----------------|
| Fuel Properties | | | Mw | Mass Balance | | | | | kg Wood per | Moles per kg of Dry Wood | | | | | | Moisture | Stack | Heat Content Change - Ambient to Stack | | | |
| Hydrogen | Oxygen | Calorific | Moisture | (moles/100 mole dry flue gas) | | | | | 100 mole dfp | | | | | | | Present | Temp | Flue Gas Constituent | | | |
| /1= [b] | /16= [c] | Value | Fuel Burnt | [h] | [u] | [w] | [j] | [k] | Nk | CO ₂ | O ₂ | CO | HC | N ₂ | H ₂ O | | K | CO ₂ | O ₂ | CO | N ₂ |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.46 | 21.08 | 1.51 | 5.22 | -0.02 | 0.15 | 40.92 | 96.09 | 0.08 | -0.14 | 530.46 | 34.85 | 2.62 | 462.63 | 6795.33 | 5062.54 | 4910.30 | 4858.54 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.47 | 21.08 | 1.56 | 5.39 | -0.02 | 0.15 | 40.88 | 91.55 | 0.11 | -0.13 | 513.20 | 34.82 | 2.62 | 464.30 | 6753.01 | 5026.11 | 4873.76 | 4822.63 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.48 | 21.08 | 1.58 | 5.47 | -0.02 | 0.16 | 40.92 | 89.76 | 0.08 | -0.13 | 506.55 | 34.83 | 2.62 | 461.88 | 6743.89 | 5024.46 | 4873.43 | 4822.04 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.47 | 21.08 | 1.53 | 5.29 | -0.02 | 0.15 | 40.91 | 94.26 | 0.09 | -0.14 | 523.55 | 34.84 | 2.62 | 461.17 | 6688.35 | 4983.15 | 4833.38 | 4782.41 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.50 | 21.09 | 1.63 | 5.63 | -0.02 | 0.16 | 40.91 | 85.91 | 0.08 | -0.13 | 491.98 | 34.82 | 2.62 | 464.04 | 6811.54 | 5071.88 | 4918.68 | 4866.97 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.51 | 21.09 | 1.67 | 5.77 | -0.02 | 0.17 | 40.91 | 82.67 | 0.07 | -0.12 | 479.74 | 34.81 | 2.62 | 466.15 | 6814.37 | 5069.33 | 4915.05 | 4863.62 |

| | | SUMS | | | | | | | | AVERAGE | SUMS | | | | | | | |
|-----------------|------------------|-------------|-----------------------------------|----------------|---------|----------------|-----------------|-----------------------|--------------------------|---------|-----------------|------------|-----------------|--------------------------|--------------|-------------|----------------|--|
| 3854.87 | 3513.39 | 295.54 | 6069.68 | 29491.90 | 4242.50 | 125252.55 | -15161.54 | 62312.43 | 4599.12 | 5859.64 | 31300.19 | -1278.40 | 32578.6 | 80890.5 | -1278.4 | 45.8 | -31.3 | |
| Temperature | | Room Temp K | Energy Losses (kJ/kg of Dry Fuel) | | | | | | | | Total Loss Rate | | | | | | | |
| | | | Flue Gas Constituent | | | | | | | | | Total Loss | Chemical Loss 1 | Sensible and Latent Loss | Total Output | Chem Loss 2 | Grams Produced | |
| CH ₄ | H ₂ O | | CO ₂ | O ₂ | CO | N ₂ | CH ₄ | H ₂ O Comb | H ₂ O Fuel MC | | | | | | | CO | HC | |
| 6654.18 | 5871.95 | 294.94 | 278.07 | 486.45 | 23.44 | 2577.27 | -128.12 | 1736.87 | 130.47 | 5104.47 | 0.00 | 0 | 0.00 | 0 | 0 | 0.00 | 0.00 | |
| 6623.45 | 5827.86 | 297.94 | 276.03 | 460.14 | 33.09 | 2474.97 | -117.18 | 1734.12 | 130.36 | 4991.54 | 2530.53 | -42 | 2573.01 | 7728 | -42 | 1.63 | -1.06 | |
| 6603.27 | 5827.87 | 295.46 | 275.93 | 451.01 | 22.38 | 2442.61 | -119.46 | 1734.37 | 130.36 | 4937.20 | 1647.26 | -32 | 1679.49 | 5104 | -32 | 0.73 | -0.71 | |
| 6548.74 | 5779.98 | 296.11 | 273.64 | 469.74 | 24.84 | 2503.84 | -124.83 | 1733.30 | 130.23 | 5010.76 | 1682.66 | -33 | 1716.08 | 5113 | -33 | 0.81 | -0.75 | |
| 6676.05 | 5881.75 | 296.12 | 278.65 | 435.73 | 22.63 | 2394.46 | -113.79 | 1735.62 | 130.50 | 4883.79 | 1692.93 | -31 | 1724.37 | 5322 | -31 | 0.76 | -0.70 | |
| 6689.02 | 5877.04 | 298.42 | 278.77 | 419.08 | 20.85 | 2333.26 | -109.92 | 1735.03 | 130.49 | 4807.55 | 1687.33 | -31 | 1718.43 | 5415 | -31 | 0.71 | -0.69 | |

Intertek Testing Services

Manufacturer: SBI
Model: ECO-55
Date: 01-11-2016
Run: 1
Control #: G102747001
Test Duration: 360
Output Category: Integ

Technicians: Claude Pelland

Test Results in Accordance with CSA B415.1-10

| | HHV Basis | LHV Basis |
|---------------------------------|-----------|-----------|
| Overall Efficiency | 70.3% | 75.8% |
| Combustion Efficiency | 99.5% | 99.5% |
| Heat Transfer Efficiency | 71% | 76.2% |

| | | | |
|---------------------------|--------|--------|----------------|
| Output Rate (kJ/h) | 13,052 | 12,381 | (Btu/h) |
| Burn Rate (kg/h) | 0.92 | 2.02 | (lb/h) |
| Input (kJ/h) | 18,574 | 17,620 | (Btu/h) |

| | | | |
|----------------------------------|------|-------|---------------|
| Test Load Weight (dry kg) | 5.51 | 12.14 | dry lb |
| MC wet (%) | 4.5 | | |
| MC dry (%) | 4.71 | | |
| Particulate (g) | 5.78 | | |
| CO (g) | 46 | | |
| Test Duration (h) | 6.00 | | |

| Emissions | Particulate | CO |
|-------------------------|-------------|------|
| g/MJ Output | 0.07 | 0.58 |
| g/kg Dry Fuel | 1.05 | 8.32 |
| g/h | 0.96 | 7.64 |
| lb/MM Btu Output | 0.17 | 1.36 |

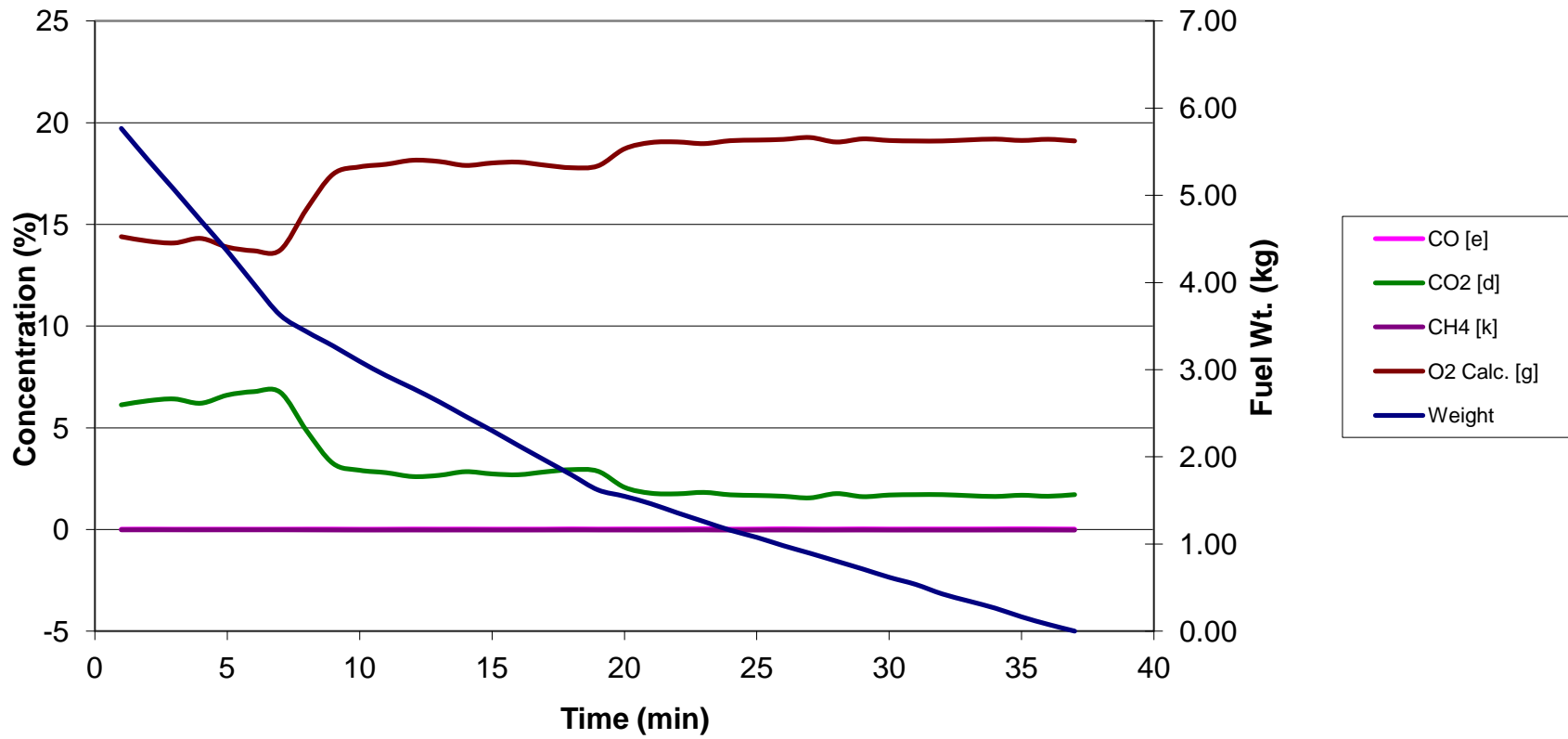
| | |
|-----------------------------|-------|
| Air/Fuel Ratio (A/F) | 31.75 |
|-----------------------------|-------|

VERSION:

2.4

2010-04-15

Run: 1



Note: In the legend, [d], [e], [g], and [k] refer to their respective variables in Clauses 13.7.3 and 13.7.5

This Excel spreadsheet calculates solid fuel appliance efficiency and heat output in accordance with the procedure specified in CSA B415.1-10. In general the column headings correspond to the variables used in the Standard.

All data from a test run are entered on the "Data" sheet. The cells requiring data entry are highlighted. Please note that input data can be entered in either yard/pound or SI units. Select the units in cells F4 and F5 of the "Data" sheet.

Particulate emissions determined using the dilution tunnel method should be entered in cell C13 of the "Data" sheet as total grams of emissions.

Since oxygen concentrations are calculated for the efficiency determination, entry of measured oxygen data is optional. However, it might be useful to include the measured oxygen values for comparison to the calculated values for diagnostic purposes. A deviation of more than 1 or 2 percentage points can indicate inaccurate CO, CO₂, or fuel composition input data.

Selection of an appliance type in cell F2 of the "Data" sheet is needed for the air/fuel ratio calculation in accordance with Clause 16.3.5 of the Standard.

The "CSA B415.1 Calculations" and "Report" sheets include calculation of efficiencies based on the Lower Heating Value (LHV) of the fuel, which is not required in CSA B415.1-10. The LHV is calculated from the Higher Heating Value (HHV) and fuel composition data in accordance with ASTM E711.

The "CSA B415.1 Calculations" sheet is locked and password protected to prevent inadvertent modifications.

The "Chart" sheet includes a chart of flue gas composition data and fuel consumption. The range of cells in the "CSA B415.1 Calculations" sheet to be charted or plotted might need to be adjusted to correspond to the number of data points entered.

Please report any errors or problems to Tony Joseph at CSA.

Tony Joseph
A.L.P. (Tony) Joseph
Project Manager, Energy & Utilities
Canadian Standards Association
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L4W 5N6
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E-mail: tony.joseph@csa.ca

Spreadsheet created by: Rick Curkeet, PE, Intertek Testing Services, NA Inc.
Version 2.4 15 April 2010

Manufacturer: SBI
Model: ECO-55
Date: 01-11-2016
Run: 1
Control #: G102747001
Test Duration: 60 min

Note: In the "Input data", "Calc. % O₂", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a], [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3 to 13.7.5.

| | HHV | LHV |
|-----------|--------|--------|
| Eff | 72.70% | 78.44% |
| Comb Eff | 99.50% | 99.50% |
| HT Eff | 73.06% | 78.83% |
| Output | 30,086 | kJ/h |
| Burn Rate | 2.05 | kg/h |
| Grams CO | 5 | g |
| Input | 41,386 | kJ/h |
| MC wet | 4.50 | |
| Averages | 0.01 | 6.46 |

Ultimate CO₂
 CO_{2-ult} 19.63
 F₀
 1.061

| | | Air Fuel Ratio (A/F) | | |
|-----------------------------|--------------|--|--------|--------|
| Overall Heating Efficiency: | 72.70% | Dry Molecular Weight (M _d): | 29.60 | |
| Combustion Efficiency: | 99.50% | Dry Moles Exhaust Gas (N _d): | 584.22 | %HC |
| Heat Transfer Efficiency: | 73.06% | Air Fuel Ratio (A/F) | 16.78 | 0.8 |
| Heat Output: | 28,540 Btu/h | 30,086 | kJ/h | |
| Heat Input: | 39,260 Btu/h | 41,386 | kJ/h | |
| Burn Duration: | 1.00 | h | | |
| Burn Rate: | 4.51 | lb/h | 2.045 | kg/h |
| Stack Temp: | 375.1 | Deg. F | 190.6 | Deg. C |

| INPUT DATA | | | | Oxygen Calculation | | | Input Data | | Combust | Heat | Net | Air | Wet Wt | % Wet | Dry Wt. | % Dry | Total | Carbon |
|--------------|-----------------------|----------|-----------------------|--------------------|----------------------|----------------------------|---------------|----------------|---------|------------|-------|------------|--------|------------|----------------------|------------|-------|----------|
| Elapsed Time | Weight Remaining (kg) | % CO [e] | % CO ₂ [d] | Excess Air EA | Total O ₂ | Calc. % O ₂ [g] | Flue Gas (°C) | Room Temp (°C) | Eff % | Transfer % | Eff % | Fuel Ratio | Now Wt | Consumed x | Now Wt _{dn} | Consumed y | Input | /12= [a] |
| 0 | 2.14 | 0.01 | 6.13 | 219.6% | 20.53 | 14.39 | 189.5 | 21.8 | 100.5% | 74.4% | 74.8% | 19.4 | 2.14 | 0.00 | 2.05 | 0.00 | 0 | 4.06 |
| 10 | 1.78 | 0.02 | 6.33 | 209.2% | 20.52 | 14.18 | 191.2 | 24.8 | 100.4% | 75.0% | 75.3% | 18.7 | 1.78 | 16.67 | 1.70 | 16.67 | 10347 | 4.06 |
| 20 | 1.43 | 0.01 | 6.42 | 205.2% | 20.51 | 14.08 | 188.7 | 22.3 | 100.5% | 75.2% | 75.6% | 18.5 | 1.43 | 33.33 | 1.36 | 33.33 | 6898 | 4.06 |
| 30 | 1.07 | 0.01 | 6.21 | 215.4% | 20.52 | 14.31 | 188.0 | 23.0 | 100.5% | 74.9% | 75.2% | 19.1 | 1.07 | 50.00 | 1.02 | 50.00 | 6898 | 4.06 |
| 40 | 0.71 | 0.01 | 6.61 | 196.4% | 20.50 | 13.88 | 190.9 | 23.0 | 100.4% | 75.5% | 75.9% | 18.0 | 0.71 | 66.67 | 0.68 | 66.67 | 6898 | 4.06 |
| 50 | 0.36 | 0.01 | 6.78 | 189.0% | 20.49 | 13.70 | 193.0 | 25.3 | 100.4% | 75.9% | 76.2% | 17.5 | 0.36 | 83.33 | 0.34 | 83.33 | 10347 | 4.06 |

Moisture Content M_{Cwb} : 4.5

Combustion Efficiency: 99.50%
 Total Input (kJ): 41,386 39,253 (Btu)
 Total Output (kJ): 30,086 28,535 (Btu)
 Efficiency: 72.70%
 Total CO (g): 5.37

Moisture of Wood (wet basis): 4.5
 Initial Dry Weight $W_{t_{do}}$ (kg): 2.05
 Moisture Content Dry 4.71

Dry kg : 2.05
 CA: 48.73
 HY: 6.87
 OX: 43.785

Load Weight (kg): 2.14
 Fuel Heating HHV LHV
 Value in kJ/kg - CV: 20,236 18,755 Btu/lb 8705.8 8068.5

| 6.87 | 2.74 | 20236.00 | 4.50 | 79.49 | 21.08 | 1.59 | 5.50 | -0.02 | 0.16 | 40.91 | 89.07 | 0.08 | -0.13 | 503.90 | 34.82 | 2.62 | 463.62 | 6782.39 | 5050.30 | 4897.79 | 4846.29 |
|-----------------|----------|-----------|------------|-------------------------------|-------|------|------|-------|--------------|--------------------------|----------------|------|-------|----------------|------------------|----------|--------|--|----------------|---------|----------------|
| Fuel Properties | | | Mw | Mass Balance | | | | | kg Wood per | Moles per kg of Dry Wood | | | | | | Moisture | Stack | Heat Content Change - Ambient to Stack | | | |
| Hydrogen | Oxygen | Calorific | Moisture | (moles/100 mole dry flue gas) | | | | | 100 mole dfp | | | | | | | Present | Temp | Flue Gas Constituent | | | |
| /1= [b] | /16= [c] | Value | Fuel Burnt | [h] | [u] | [w] | [j] | [k] | Nk | CO ₂ | O ₂ | CO | HC | N ₂ | H ₂ O | | K | CO ₂ | O ₂ | CO | N ₂ |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.46 | 21.08 | 1.51 | 5.22 | -0.02 | 0.15 | 40.92 | 96.09 | 0.08 | -0.14 | 530.46 | 34.85 | 2.62 | 462.63 | 6795.33 | 5062.54 | 4910.30 | 4858.54 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.47 | 21.08 | 1.56 | 5.39 | -0.02 | 0.15 | 40.88 | 91.55 | 0.11 | -0.13 | 513.20 | 34.82 | 2.62 | 464.30 | 6753.01 | 5026.11 | 4873.76 | 4822.63 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.48 | 21.08 | 1.58 | 5.47 | -0.02 | 0.16 | 40.92 | 89.76 | 0.08 | -0.13 | 506.55 | 34.83 | 2.62 | 461.88 | 6743.89 | 5024.46 | 4873.43 | 4822.04 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.47 | 21.08 | 1.53 | 5.29 | -0.02 | 0.15 | 40.91 | 94.26 | 0.09 | -0.14 | 523.55 | 34.84 | 2.62 | 461.17 | 6688.35 | 4983.15 | 4833.38 | 4782.41 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.50 | 21.09 | 1.63 | 5.63 | -0.02 | 0.16 | 40.91 | 85.91 | 0.08 | -0.13 | 491.98 | 34.82 | 2.62 | 464.04 | 6811.54 | 5071.88 | 4918.68 | 4866.97 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.51 | 21.09 | 1.67 | 5.77 | -0.02 | 0.17 | 40.91 | 82.67 | 0.07 | -0.12 | 479.74 | 34.81 | 2.62 | 466.15 | 6814.37 | 5069.33 | 4915.05 | 4863.62 |

| | | SUMS | | | | | | | | | AVERAGE | SUMS | | | | | | | |
|-----------------|------------------|-------------|-----------------------------------|----------------|--------|----------------|-----------------|-----------------------|--------------------------|---------|----------|-----------------|------------|-----------------|--------------------------|--------------|-------------|----------------|----|
| 6647.18 | 5856.78 | 296.40 | 1942.12 | 3147.78 | 169.39 | 17091.04 | -823.43 | 12146.24 | 913.05 | 4940.88 | 10892.62 | -200.81 | 11093.4 | 33942.7 | -200.8 | 5.4 | -4.6 | | |
| Temperature | | Room Temp K | Energy Losses (kJ/kg of Dry Fuel) | | | | | | | | | Total Loss Rate | Total Loss | Chemical Loss 1 | Sensible and Latent Loss | Total Output | Chem Loss 2 | Grams Produced | |
| CH ₄ | H ₂ O | | Flue Gas Constituent | | | | | | | | | | | | | | | CO | HC |
| | | | CO ₂ | O ₂ | CO | N ₂ | CH ₄ | H ₂ O Comb | H ₂ O Fuel MC | | | | | | | | | | |
| 6654.18 | 5871.95 | 294.94 | 278.07 | 486.45 | 23.44 | 2577.27 | -128.12 | 1736.87 | 130.47 | 5104.47 | 0.00 | 0 | 0.00 | 0 | 0 | 0.00 | 0.00 | | |
| 6623.45 | 5827.86 | 297.94 | 276.03 | 460.14 | 33.09 | 2474.97 | -117.18 | 1734.12 | 130.36 | 4991.54 | 2552.16 | -43 | 2595.00 | 7794 | -43 | 1.65 | -1.07 | | |
| 6603.27 | 5827.87 | 295.46 | 275.93 | 451.01 | 22.38 | 2442.61 | -119.46 | 1734.37 | 130.36 | 4937.20 | 1682.92 | -33 | 1715.84 | 5215 | -33 | 0.74 | -0.73 | | |
| 6548.74 | 5779.98 | 296.11 | 273.64 | 469.74 | 24.84 | 2503.84 | -124.83 | 1733.30 | 130.23 | 5010.76 | 1707.99 | -34 | 1741.91 | 5190 | -34 | 0.82 | -0.76 | | |
| 6676.05 | 5881.75 | 296.12 | 278.65 | 435.73 | 22.63 | 2394.46 | -113.79 | 1735.62 | 130.50 | 4883.79 | 1664.71 | -31 | 1695.63 | 5233 | -31 | 0.75 | -0.69 | | |
| 6689.02 | 5877.04 | 298.42 | 278.77 | 419.08 | 20.85 | 2333.26 | -109.92 | 1735.03 | 130.49 | 4807.55 | 2458.09 | -45 | 2503.40 | 7889 | -45 | 1.04 | -1.00 | | |

Intertek Testing Services

Manufacturer: SBI
Model: ECO-55
Date: 01-11-2016
Run: 1
Control #: G102747001
Test Duration: 60
Output Category: Max

Technicians: Claude Pelland

Test Results in Accordance with CSA B415.1-10

| | HHV Basis | LHV Basis |
|---------------------------------|-----------|-----------|
| Overall Efficiency | 72.7% | 78.4% |
| Combustion Efficiency | 99.5% | 99.5% |
| Heat Transfer Efficiency | 73% | 78.8% |

| | | | |
|---------------------------|--------|--------|----------------|
| Output Rate (kJ/h) | 30,086 | 28,540 | (Btu/h) |
| Burn Rate (kg/h) | 2.05 | 4.51 | (lb/h) |
| Input (kJ/h) | 41,386 | 39,260 | (Btu/h) |

| | | | |
|----------------------------------|------|------|---------------|
| Test Load Weight (dry kg) | 2.05 | 4.51 | dry lb |
| MC wet (%) | 4.5 | | |
| MC dry (%) | 4.71 | | |
| Particulate (g) | 1.04 | | |
| CO (g) | 5 | | |
| Test Duration (h) | 1.00 | | |

| Emissions | Particulate | CO |
|-------------------------|-------------|------|
| g/MJ Output | 0.03 | 0.18 |
| g/kg Dry Fuel | 0.51 | 2.62 |
| g/h | 1.04 | 5.37 |
| lb/MM Btu Output | 0.08 | 0.41 |

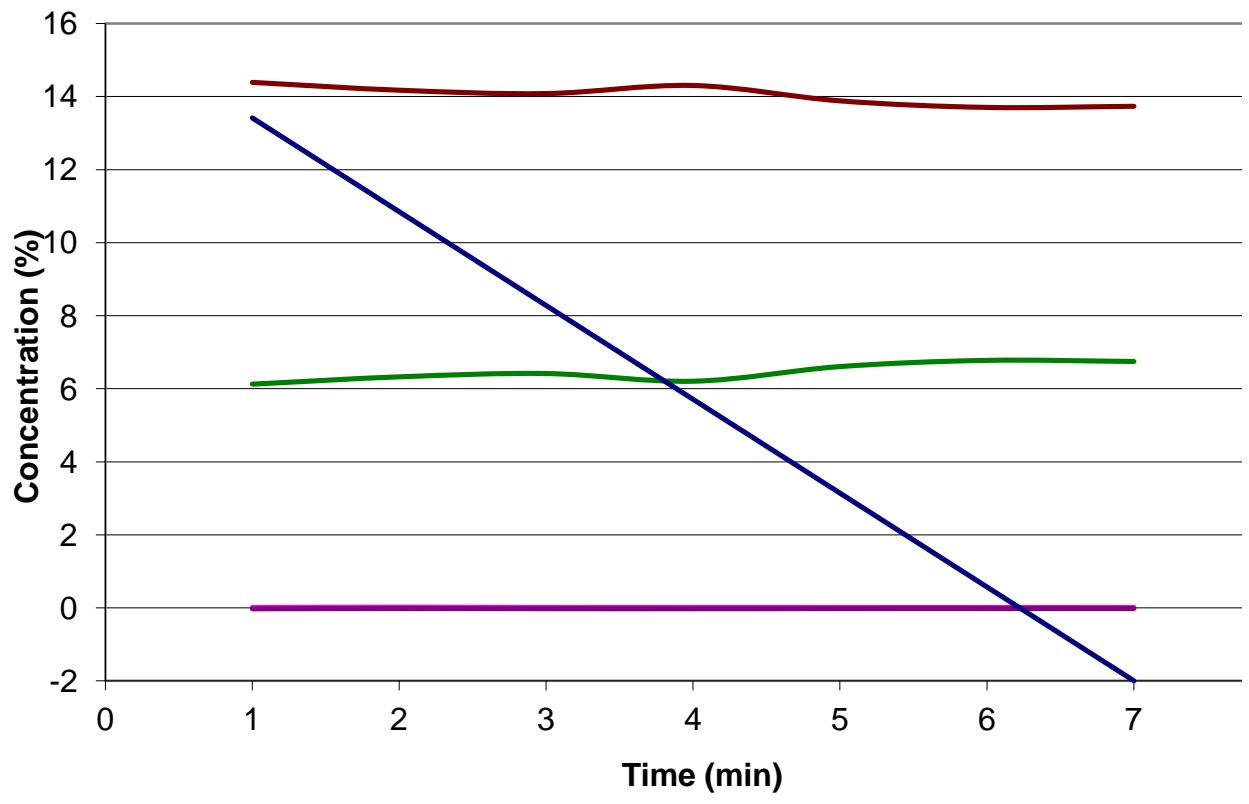
| | |
|-----------------------------|-------|
| Air/Fuel Ratio (A/F) | 16.78 |
|-----------------------------|-------|

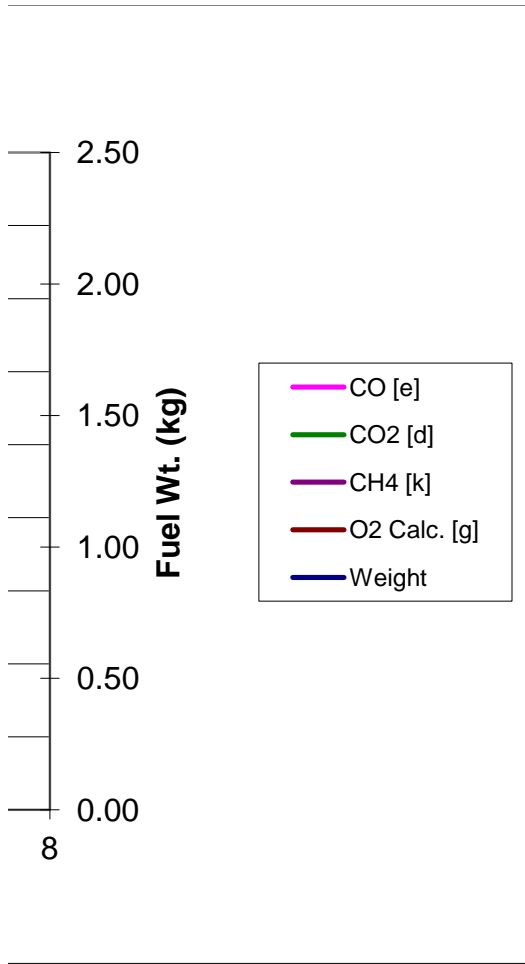
VERSION:

2.4

2010-04-15

Run: 1





Note: In the legend, [d], [e], [g], and [k] refer to their respective variables in Clauses 13.7.3 and 13.7.5

This Excel spreadsheet calculates solid fuel appliance efficiency and heat output in accordance with the procedure specified in CSA B415.1-10. In general the column headings correspond to the variables used in the Standard.

All data from a test run are entered on the "Data" sheet. The cells requiring data entry are highlighted. Please note that input data can be entered in either yard/pound or SI units. Select the units in cells F4 and F5 of the "Data" sheet.

Particulate emissions determined using the dilution tunnel method should be entered in cell C13 of the "Data" sheet as total grams of emissions.

Since oxygen concentrations are calculated for the efficiency determination, entry of measured oxygen data is optional. However, it might be useful to include the measured oxygen values for comparison to the calculated values for diagnostic purposes. A deviation of more than 1 or 2 percentage points can indicate inaccurate CO, CO₂, or fuel composition input data.

Selection of an appliance type in cell F2 of the "Data" sheet is needed for the air/fuel ratio calculation in accordance with Clause 16.3.5 of the Standard.

The "CSA B415.1 Calculations" and "Report" sheets include calculation of efficiencies based on the Lower Heating Value (LHV) of the fuel, which is not required in CSA B415.1-10. The LHV is calculated from the Higher Heating Value (HHV) and fuel composition data in accordance with ASTM E711.

The "CSA B415.1 Calculations" sheet is locked and password protected to prevent inadvertent modifications.

The "Chart" sheet includes a chart of flue gas composition data and fuel consumption. The range of cells in the "CSA B415.1 Calculations" sheet to be charted or plotted might need to be adjusted to correspond to the number of data points entered.

Please report any errors or problems to Tony Joseph at CSA.

Tony Joseph
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Spreadsheet created by: Rick Curkeet, PE, Intertek Testing Services, NA Inc.
Version 2.4 15 April 2010

Manufacturer: SBI
Model: ECO-55
Date: 01-11-2016
Run: 1
Control #: G102747001
Test Duration: 120 min

Note: In the "Input data", "Calc. % O₂", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a], [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3 to 13.7.5.

| | HHV | LHV |
|-----------|--------|--------|
| Eff | 67.88% | 73.24% |
| Comb Eff | 99.50% | 99.50% |
| HT Eff | 68.22% | 73.61% |
| Output | 13,154 | kJ/h |
| Burn Rate | 0.96 | kg/h |
| Grams CO | 13 | g |
| Input | 19,378 | kJ/h |
| MC wet | 4.50 | |
| Averages | 0.02 | 3.28 |

Ultimate CO₂
 CO_{2-ult} 19.63
 F₀
 1.055

| | | Air Fuel Ratio (A/F) | | |
|-----------------------------|--------------|--|---------|--------|
| Overall Heating Efficiency: | 67.88% | Dry Molecular Weight (M _d): | 29.22 | |
| Combustion Efficiency: | 99.50% | Dry Moles Exhaust Gas (N _d): | 1036.28 | %HC |
| Heat Transfer Efficiency: | 68.22% | Air Fuel Ratio (A/F) | 29.77 | 0.8 |
| Heat Output: | 12,478 Btu/h | 13,154 | kJ/h | |
| Heat Input: | 18,382 Btu/h | 19,378 | kJ/h | |
| Burn Duration: | 2.00 | h | | |
| Burn Rate: | 2.11 | lb/h | 0.958 | kg/h |
| Stack Temp: | 276.0 | Deg. F | 135.5 | Deg. C |

| INPUT DATA | | | | Oxygen Calculation | | | Input Data | | Combust | Heat | Net | Air | Wet Wt | % Wet | Dry Wt. | % Dry | Total | Carbon |
|--------------|-----------------------|----------|-----------------------|--------------------|----------------------|----------------------------|---------------|----------------|---------|------------|-------|------------|--------|------------|----------------------|------------|-------|----------|
| Elapsed Time | Weight Remaining (kg) | % CO [e] | % CO ₂ [d] | Excess Air EA | Total O ₂ | Calc. % O ₂ [g] | Flue Gas (°C) | Room Temp (°C) | Eff % | Transfer % | Eff % | Fuel Ratio | Now Wt | Consumed x | Now Wt _{dn} | Consumed y | Input | /12= [a] |
| 0 | 2.01 | 0.01 | 6.75 | 190.3% | 20.49 | 13.73 | 189.5 | 21.8 | 100.4% | 75.9% | 76.2% | 17.6 | 2.01 | 0.00 | 1.92 | 0.00 | 0 | 4.06 |
| 10 | 1.84 | 0.02 | 4.85 | 303.3% | 20.62 | 15.76 | 160.0 | 22.3 | 100.6% | 74.1% | 74.6% | 24.4 | 1.84 | 8.33 | 1.76 | 8.33 | 4844 | 4.06 |
| 20 | 1.67 | 0.02 | 3.24 | 502.6% | 20.72 | 17.47 | 142.0 | 20.6 | 101.1% | 69.1% | 69.8% | 36.6 | 1.67 | 16.67 | 1.60 | 16.67 | 3230 | 4.06 |
| 30 | 1.50 | 0.01 | 2.91 | 572.1% | 20.75 | 17.83 | 138.2 | 20.1 | 101.5% | 67.3% | 68.3% | 40.8 | 1.50 | 25.00 | 1.44 | 25.00 | 3230 | 4.06 |
| 40 | 1.34 | 0.01 | 2.79 | 600.3% | 20.75 | 17.96 | 132.9 | 21.0 | 101.5% | 67.7% | 68.6% | 42.6 | 1.34 | 33.33 | 1.28 | 33.33 | 3230 | 4.06 |
| 50 | 1.17 | 0.02 | 2.60 | 648.9% | 20.77 | 18.15 | 131.3 | 21.9 | 101.3% | 66.5% | 67.4% | 45.5 | 1.17 | 41.67 | 1.12 | 41.67 | 3230 | 4.06 |

Moisture Content M_{Cwb} : 4.5

Combustion Efficiency: 99.50%
 Total Input (kJ): 38,756 36,758 (Btu)
 Total Output (kJ): 26,308 24,952 (Btu)
 Efficiency: 67.88%
 Total CO (g): 13.04

Moisture of Wood (wet basis): 4.5
 Initial Dry Weight $W_{t_{db}}$ (kg): 1.92
 Moisture Content Dry 4.71

Dry kg : 1.92
 CA: 48.73
 HY: 6.87
 OX: 43.785

Load Weight (kg): 2.01
 Fuel Heating HHV LHV
 Value in kJ/kg - CV: 20,236 18,755 Btu/lb 8705.8 8068.5

| 6.87 | 2.74 | 20236.00 | 4.50 | 79.27 | 21.03 | 0.81 | 2.82 | -0.03 | 0.08 | 40.97 | 237.27 | 0.24 | -0.35 | 1063.99 | 35.26 | 2.62 | 412.83 | 4690.61 | 3529.68 | 3432.26 | 3394.24 |
|-----------------|----------|-----------|------------|-------------------------------|-------|------|------|-------|--------------|--------------------------|----------------|------|-------|----------------|------------------|----------|--------|--|----------------|---------|----------------|
| Fuel Properties | | | Mw | Mass Balance | | | | | kg Wood per | Moles per kg of Dry Wood | | | | | | Moisture | Stack | Heat Content Change - Ambient to Stack | | | |
| Hydrogen | Oxygen | Calorific | Moisture | (moles/100 mole dry flue gas) | | | | | 100 mole dfp | | | | | | | Present | Temp | Flue Gas Constituent | | | |
| /1= [b] | /16= [c] | Value | Fuel Burnt | [h] | [u] | [w] | [j] | [k] | Nk | CO ₂ | O ₂ | CO | HC | N ₂ | H ₂ O | | K | CO ₂ | O ₂ | CO | N ₂ |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.50 | 21.09 | 1.66 | 5.74 | -0.02 | 0.17 | 40.91 | 83.22 | 0.08 | -0.12 | 481.80 | 34.81 | 2.62 | 462.63 | 6795.57 | 5062.71 | 4910.47 | 4858.70 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.38 | 21.05 | 1.19 | 4.14 | -0.02 | 0.12 | 40.90 | 132.89 | 0.15 | -0.19 | 669.45 | 34.95 | 2.62 | 433.17 | 5521.43 | 4138.56 | 4020.34 | 3976.64 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.27 | 21.03 | 0.80 | 2.78 | -0.03 | 0.08 | 40.96 | 220.92 | 0.22 | -0.32 | 1002.19 | 35.21 | 2.62 | 415.14 | 4832.96 | 3637.78 | 3537.63 | 3498.39 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.25 | 21.02 | 0.71 | 2.50 | -0.03 | 0.07 | 41.10 | 251.79 | 0.15 | -0.38 | 1119.17 | 35.33 | 2.62 | 411.33 | 4695.82 | 3537.88 | 3441.29 | 3402.95 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.24 | 21.02 | 0.68 | 2.40 | -0.03 | 0.07 | 41.06 | 264.27 | 0.20 | -0.40 | 1166.19 | 35.36 | 2.62 | 406.09 | 4441.97 | 3349.69 | 3259.00 | 3222.53 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.22 | 21.01 | 0.64 | 2.25 | -0.03 | 0.06 | 40.94 | 285.85 | 0.33 | -0.41 | 1247.40 | 35.39 | 2.62 | 404.48 | 4343.50 | 3275.98 | 3187.41 | 3151.71 |

| | | SUMS | | | | | | | | AVERAGE | SUMS | | | | | | | |
|-----------------|------------------|-------------|-----------------------------------|----------------|--------|----------------|-----------------|-----------------------|--------------------------|---------|-----------------|------------|-----------------|--------------------------|--------------|-------------|----------------|----|
| 4516.19 | 4107.23 | 295.09 | 2498.15 | 10518.79 | 877.64 | 45616.95 | -4043.34 | 22034.68 | 1636.12 | 6087.61 | 11773.93 | -480.25 | 12254.2 | 26982.0 | -480.3 | 13.0 | -11.0 | |
| Temperature | | Room Temp K | Energy Losses (kJ/kg of Dry Fuel) | | | | | | | | Total Loss Rate | Total Loss | Chemical Loss 1 | Sensible and Latent Loss | Total Output | Chem Loss 2 | Grams Produced | |
| CH ₄ | H ₂ O | | Flue Gas Constituent | | | | | | | | | | | | | | CO | HC |
| | | | CO ₂ | O ₂ | CO | N ₂ | CH ₄ | H ₂ O Comb | H ₂ O Fuel MC | | | | | | | | | |
| 6654.43 | 5872.15 | 294.94 | 277.98 | 421.31 | 22.15 | 2340.95 | -110.12 | 1734.88 | 130.48 | 4817.63 | 0.00 | 0 | 0.00 | 0 | 0 | 0.00 | 0.00 | |
| 5351.80 | 4809.67 | 295.49 | 225.85 | 549.97 | 42.36 | 2662.17 | -172.36 | 1704.69 | 127.69 | 5140.37 | 1230.61 | -31 | 1261.62 | 3614 | -31 | 0.99 | -0.74 | |
| 4651.06 | 4233.39 | 293.77 | 197.97 | 803.67 | 63.03 | 3506.06 | -289.63 | 1697.20 | 126.19 | 6104.50 | 974.28 | -36 | 1010.33 | 2255 | -36 | 0.98 | -0.83 | |
| 4511.83 | 4118.37 | 293.21 | 192.98 | 890.82 | 42.47 | 3808.47 | -343.43 | 1698.94 | 125.88 | 6416.14 | 1024.02 | -48 | 1071.85 | 2206 | -48 | 0.66 | -0.98 | |
| 4261.21 | 3900.44 | 294.18 | 182.39 | 885.21 | 56.03 | 3758.09 | -355.10 | 1692.50 | 125.31 | 6344.44 | 1012.57 | -48 | 1060.14 | 2217 | -48 | 0.87 | -1.01 | |
| 4165.55 | 3814.81 | 295.02 | 177.81 | 936.42 | 95.53 | 3931.45 | -368.13 | 1690.87 | 125.09 | 6589.04 | 1051.61 | -43 | 1095.01 | 2178 | -43 | 1.49 | -1.05 | |

Intertek Testing Services

Manufacturer: SBI
Model: ECO-55
Date: 01-11-2016
Run: 1
Control #: G102747001
Test Duration: 120
Output Category: Med

Technicians: Claude Pelland

Test Results in Accordance with CSA B415.1-10

| | HHV Basis | LHV Basis |
|--------------------------|-----------|-----------|
| Overall Efficiency | 67.9% | 73.2% |
| Combustion Efficiency | 99.5% | 99.5% |
| Heat Transfer Efficiency | 68% | 73.6% |

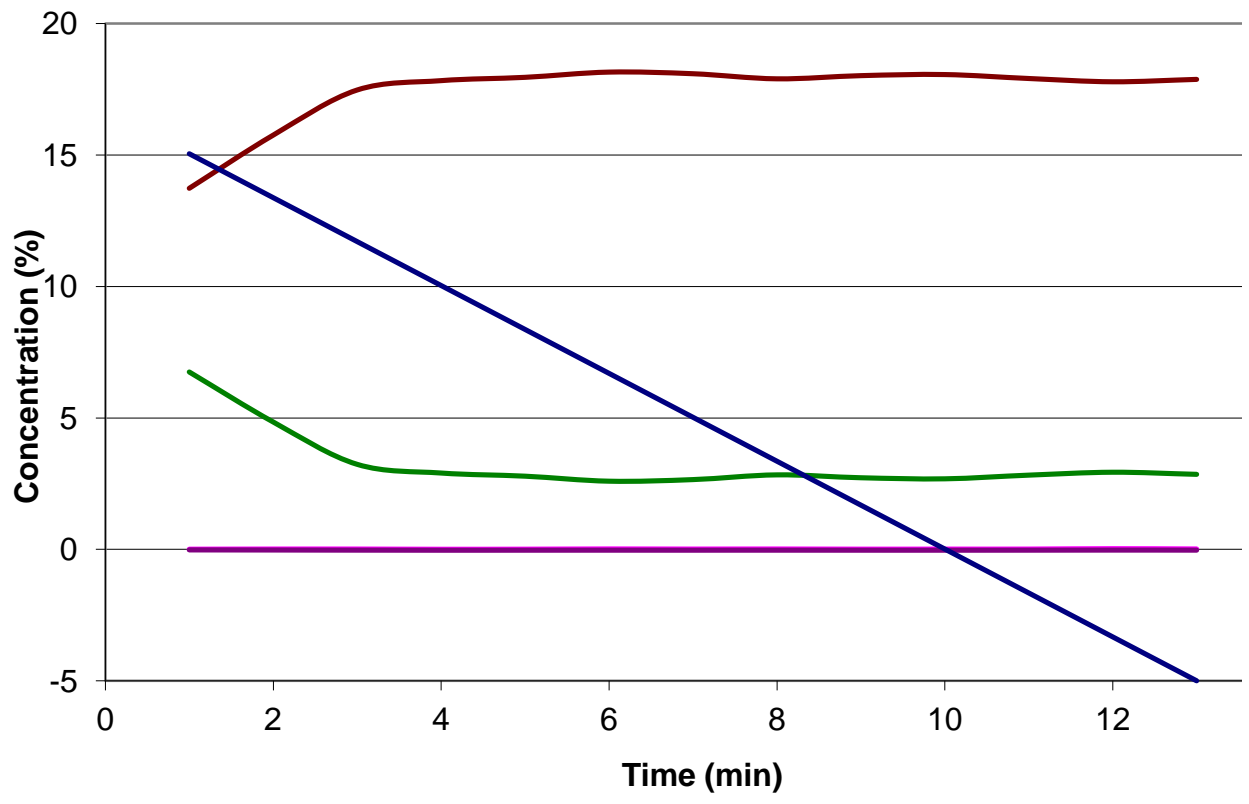
| | | | |
|--------------------|--------|--------|---------|
| Output Rate (kJ/h) | 13,154 | 12,478 | (Btu/h) |
| Burn Rate (kg/h) | 0.96 | 2.11 | (lb/h) |
| Input (kJ/h) | 19,378 | 18,382 | (Btu/h) |

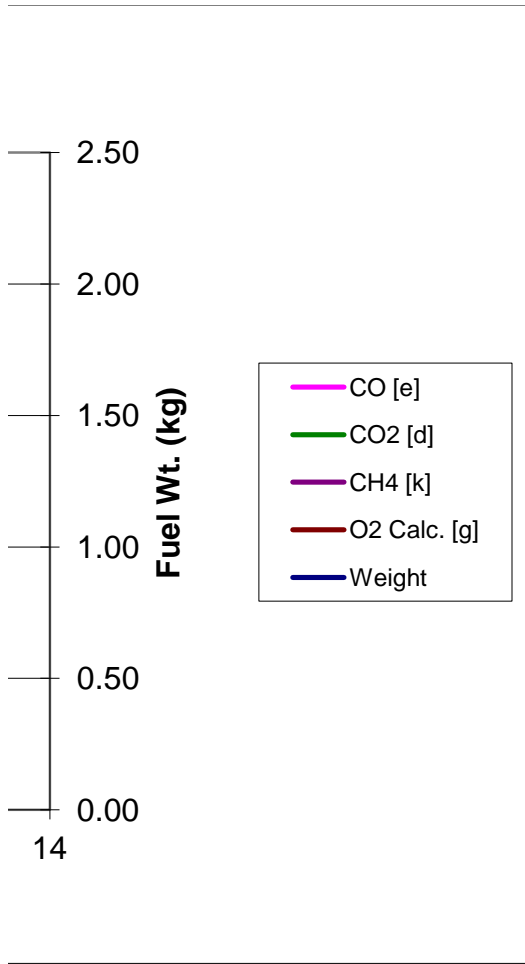
| | | | |
|---------------------------|------|------|--------|
| Test Load Weight (dry kg) | 1.92 | 4.22 | dry lb |
| MC wet (%) | 4.5 | | |
| MC dry (%) | 4.71 | | |
| Particulate (g) | 5.78 | | |
| CO (g) | 13 | | |
| Test Duration (h) | 2.00 | | |

| Emissions | Particulate | CO |
|------------------|-------------|------|
| g/MJ Output | 0.22 | 0.50 |
| g/kg Dry Fuel | 3.02 | 6.81 |
| g/h | 2.89 | 6.52 |
| lb/MM Btu Output | 0.51 | 1.15 |

| | |
|----------------------|-------|
| Air/Fuel Ratio (A/F) | 29.77 |
|----------------------|-------|

Run: 1





Note: In the legend, [d], [e], [g], and [k] refer to their respective variables in Clauses 13.7.3 and 13.7.5

This Excel spreadsheet calculates solid fuel appliance efficiency and heat output in accordance with the procedure specified in CSA B415.1-10. In general the column headings correspond to the variables used in the Standard.

All data from a test run are entered on the "Data" sheet. The cells requiring data entry are highlighted. Please note that input data can be entered in either yard/pound or SI units. Select the units in cells F4 and F5 of the "Data" sheet.

Particulate emissions determined using the dilution tunnel method should be entered in cell C13 of the "Data" sheet as total grams of emissions.

Since oxygen concentrations are calculated for the efficiency determination, entry of measured oxygen data is optional. However, it might be useful to include the measured oxygen values for comparison to the calculated values for diagnostic purposes. A deviation of more than 1 or 2 percentage points can indicate inaccurate CO, CO₂, or fuel composition input data.

Selection of an appliance type in cell F2 of the "Data" sheet is needed for the air/fuel ratio calculation in accordance with Clause 16.3.5 of the Standard.

The "CSA B415.1 Calculations" and "Report" sheets include calculation of efficiencies based on the Lower Heating Value (LHV) of the fuel, which is not required in CSA B415.1-10. The LHV is calculated from the Higher Heating Value (HHV) and fuel composition data in accordance with ASTM E711.

The "CSA B415.1 Calculations" sheet is locked and password protected to prevent inadvertent modifications.

The "Chart" sheet includes a chart of flue gas composition data and fuel consumption. The range of cells in the "CSA B415.1 Calculations" sheet to be charted or plotted might need to be adjusted to correspond to the number of data points entered.

Please report any errors or problems to Tony Joseph at CSA.

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Spreadsheet created by: Rick Curkeet, PE, Intertek Testing Services, NA Inc.
Version 2.4 15 April 2010

VERSION: 2.4 2010-04-15

Manufacturer: SBI
 Model: ECO-55
 Date: 01-11-2016
 Run: 1
 Control #: G102747001

Appliance Type: Pellet (Cat, Non-Cat, Pellet)

Temp. Units F (F or C)
 Weight Units lb (kg or lb)

Default Fuel Values

| | D. Fir | Oak |
|-------------|--------|--------|
| HHV (kJ/kg) | 19,810 | 19,887 |
| %C | 48.73 | 50 |
| %H | 6.87 | 6.6 |
| %O | 43.9 | 42.9 |
| %Ash | 0.5 | 0.5 |

Test Duration: 180
 Output Category: Min

Fuel Data

| | D. Fir | |
|------|--------|-------|
| HHV | 20,236 | kJ/kg |
| %C | 48.73 | |
| %H | 6.87 | |
| %O | 43.785 | |
| %Ash | 0.615 | |

Wood Moisture (% wet): 4.50
 Load Weight (lb wet): 3.57
 Burn Rate (dry kg/h): 0.52
 Total Particulate Emissions: 5.78 g

Note 1: For other fuels, use the heating value and fuel composition determined by analysis of fuel sample in accordance with Clause 9.2.

Averages 0.03 1.77 19.16 195.96 72.28

| Elapsed Time (min) | Fuel Weight Remaining (lb) | Flue Gas Composition (%) | | | Temp. (°F) | |
|--------------------|----------------------------|--------------------------|-----------------|----------------|------------|-----------|
| | | CO | CO ₂ | O ₂ | Flue Gas | Room Temp |
| 0 | 3.57 | 0.02 | 2.86 | 18.09 | 273.5 | 73.0 |
| 10 | 3.41 | 0.03 | 2.07 | 18.83 | 212.5 | 72.7 |
| 20 | 3.22 | 0.03 | 1.78 | 19.19 | 195.8 | 72.5 |
| 30 | 2.99 | 0.03 | 1.75 | 19.28 | 196.7 | 72.4 |
| 40 | 2.77 | 0.05 | 1.82 | 19.64 | 197.3 | 72.3 |
| 50 | 2.55 | 0.02 | 1.70 | 18.94 | 195.0 | 72.8 |
| 60 | 2.37 | 0.02 | 1.67 | 18.80 | 186.5 | 72.0 |
| 70 | 2.16 | 0.04 | 1.63 | 19.47 | 190.9 | 72.1 |
| 80 | 1.97 | 0.02 | 1.55 | 19.07 | 181.9 | 71.8 |
| 90 | 1.77 | 0.02 | 1.76 | 19.12 | 193.0 | 71.9 |
| 100 | 1.57 | 0.03 | 1.61 | 19.42 | 189.4 | 72.3 |
| 110 | 1.36 | 0.02 | 1.69 | 19.25 | 192.9 | 72.5 |
| 120 | 1.18 | 0.02 | 1.71 | 19.18 | 184.0 | 72.0 |
| 130 | 0.94 | 0.02 | 1.71 | 19.12 | 195.3 | 72.4 |
| 140 | 0.76 | 0.02 | 1.66 | 19.42 | 187.5 | 72.1 |
| 150 | 0.58 | 0.03 | 1.62 | 19.35 | 180.8 | 72.2 |
| 160 | 0.36 | 0.03 | 1.68 | 19.43 | 195.1 | 72.1 |
| 170 | 0.17 | 0.03 | 1.63 | 19.32 | 185.5 | 71.8 |
| 180 | 0.00 | 0.02 | 1.71 | 19.12 | 189.7 | 72.4 |

Note 2: In cases where the "Fuel Weight Remaining" is the same for three or more readings in a row, a "divide by zero error" will occur in the calculation sheet. In such cases, adjust the weight values by interpolation between the first occurrence and the next reading showing a decrease in weight.

Manufacturer: SBI
Model: ECO-55
Date: 01-11-2016
Run: 1
Control #: G102747001
Test Duration: 180 min

Note: In the "Input data", "Calc. % O₂", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a], [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3 to 13.7.5.

| | HHV | LHV |
|-----------|--------|--------|
| Eff | 67.16% | 72.46% |
| Comb Eff | 99.50% | 99.50% |
| HT Eff | 67.50% | 72.83% |
| Output | 7,008 | kJ/h |
| Burn Rate | 0.52 | kg/h |
| Grams CO | 28 | g |
| Input | 10,434 | kJ/h |
| MC wet | 4.50 | |
| Averages | 0.03 | 1.77 |

Ultimate CO₂
 CO_{2-ult} 19.63
 F₀
 1.044

| | | Air Fuel Ratio (A/F) | | |
|-----------------------------|-------------|--|---------|--------|
| Overall Heating Efficiency: | 67.16% | Dry Molecular Weight (M _d): | 29.04 | |
| Combustion Efficiency: | 99.50% | Dry Moles Exhaust Gas (N _d): | 1637.88 | %HC |
| Heat Transfer Efficiency: | 67.50% | Air Fuel Ratio (A/F) | 47.06 | 0.8 |
| Heat Output: | 6,648 Btu/h | 7,008 kJ/h | | |
| Heat Input: | 9,898 Btu/h | 10,434 kJ/h | | |
| Burn Duration: | 3.00 | h | | |
| Burn Rate: | 1.14 | lb/h | 0.516 | kg/h |
| Stack Temp: | 191.7 | Deg. F | 88.7 | Deg. C |

| INPUT DATA | | | | Oxygen Calculation | | | Input Data | | 101.9% | 69.0% | 70.3% | 67.90 | 0.80 | 50.32 | 0.77 | 50.32 | 32048 | 4.06 |
|--------------|-----------------------|----------|-----------------------|--------------------|----------------------|----------------------------|---------------|----------------|---------------|-----------------|-----------|----------------|------------|------------------|-------------|------------------|-------------|-----------------|
| Elapsed Time | Weight Remaining (kg) | % CO [e] | % CO ₂ [d] | Excess Air EA | Total O ₂ | Calc. % O ₂ [g] | Flue Gas (°C) | Room Temp (°C) | Combust Eff % | Heat Transfer % | Net Eff % | Air Fuel Ratio | Wet Wt Now | % Wet Consumed x | Dry Wt. Now | % Dry Consumed y | Total Input | Carbon /12= [a] |
| 0 | 1.62 | 0.02 | 2.86 | 581.6% | 20.75 | 17.88 | 134.2 | 22.8 | 101.2% | 68.3% | 69.2% | 41.4 | 1.62 | 0.00 | 1.55 | 0.00 | 0 | 4.06 |
| 10 | 1.55 | 0.03 | 2.07 | 836.7% | 20.80 | 18.72 | 100.3 | 22.6 | 101.6% | 69.6% | 70.7% | 57.1 | 1.55 | 4.48 | 1.48 | 4.48 | 2236 | 4.06 |
| 20 | 1.46 | 0.03 | 1.78 | 986.8% | 20.82 | 19.03 | 91.0 | 22.5 | 101.9% | 69.2% | 70.5% | 66.3 | 1.46 | 9.80 | 1.40 | 9.80 | 1841 | 4.06 |
| 30 | 1.36 | 0.03 | 1.75 | 1001.6% | 20.82 | 19.06 | 91.5 | 22.5 | 101.6% | 68.6% | 69.8% | 67.2 | 1.36 | 16.25 | 1.30 | 16.25 | 1973 | 4.06 |
| 40 | 1.26 | 0.05 | 1.82 | 952.4% | 20.82 | 18.97 | 91.8 | 22.4 | 100.9% | 69.4% | 70.0% | 64.1 | 1.26 | 22.41 | 1.20 | 22.41 | 1929 | 4.06 |
| 50 | 1.16 | 0.02 | 1.70 | 1044.6% | 20.83 | 19.12 | 90.5 | 22.6 | 102.5% | 68.4% | 70.1% | 70.0 | 1.16 | 28.57 | 1.10 | 28.57 | 1754 | 4.06 |

Moisture Content M_{Cwb} : 4.5

Combustion Efficiency: 99.50%
 Total Input (kJ): 31,303 29,689 (Btu)
 Total Output (kJ): 21,023 19,939 (Btu)
 Efficiency: 67.16%
 Total CO (g): 28.23

Moisture of Wood (wet basis): 4.5
 Initial Dry Weight $W_{t_{do}}$ (kg): 1.55
 Moisture Content Dry 4.71

Dry kg : 1.55
 CA: 48.73
 HY: 6.87
 OX: 43.785

Load Weight (kg): 1.62
 Fuel Heating HHV LHV
 Value in kJ/kg - CV: 20,236 18,755 Btu/lb 8705.8 8068.5

| 6.87 | 2.74 | 20236.00 | 4.50 | 79.17 | 21.00 | 0.44 | 1.55 | -0.03 | 0.04 | 40.88 | 448.29 | 0.61 | -0.63 | 1860.97 | 35.83 | 2.62 | 364.24 | 2688.81 | 2044.78 | 1993.62 | 1970.43 |
|-----------------|----------|-----------|------------|-------------------------------|-------|------|------|-------|--------------|--------------------------|----------------|------|-------|----------------|------------------|----------|--------|--|----------------|---------|----------------|
| Fuel Properties | | | Mw | Mass Balance | | | | | kg Wood per | Moles per kg of Dry Wood | | | | | | Moisture | Stack | Heat Content Change - Ambient to Stack | | | |
| Hydrogen | Oxygen | Calorific | Moisture | (moles/100 mole dry flue gas) | | | | | 100 mole dfp | | | | | | | Present | Temp | Flue Gas Constituent | | | |
| /1= [b] | /16= [c] | Value | Fuel Burnt | [h] | [u] | [w] | [j] | [k] | Nk | CO ₂ | O ₂ | CO | HC | N ₂ | H ₂ O | | K | CO ₂ | O ₂ | CO | N ₂ |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.24 | 21.02 | 0.70 | 2.47 | -0.03 | 0.07 | 40.94 | 255.94 | 0.29 | -0.37 | 1134.43 | 35.30 | 2.62 | 407.34 | 4426.34 | 3335.74 | 3244.89 | 3208.69 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.19 | 21.00 | 0.51 | 1.80 | -0.03 | 0.05 | 40.88 | 369.61 | 0.51 | -0.52 | 1563.68 | 35.61 | 2.62 | 373.40 | 3047.41 | 2313.60 | 2254.78 | 2228.74 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.17 | 21.00 | 0.44 | 1.56 | -0.03 | 0.04 | 40.87 | 436.90 | 0.60 | -0.62 | 1817.91 | 35.79 | 2.62 | 364.17 | 2678.66 | 2037.80 | 1986.99 | 1963.84 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.16 | 21.00 | 0.43 | 1.54 | -0.03 | 0.04 | 40.72 | 443.39 | 0.74 | -0.61 | 1842.03 | 35.77 | 2.62 | 364.66 | 2700.61 | 2054.30 | 2003.03 | 1979.70 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.16 | 21.00 | 0.45 | 1.61 | -0.02 | 0.05 | 40.39 | 421.04 | 1.00 | -0.53 | 1756.71 | 35.63 | 2.62 | 364.99 | 2716.31 | 2066.12 | 2014.53 | 1991.07 |
| 6.87 | 2.74 | 20236.00 | 4.50 | 79.17 | 21.00 | 0.42 | 1.48 | -0.03 | 0.04 | 41.19 | 463.21 | 0.36 | -0.69 | 1918.13 | 35.95 | 2.62 | 363.68 | 2654.83 | 2019.83 | 1969.52 | 1946.56 |

| | | | SUMS | | | | | | | AVERAGE | SUMS | | | | | | |
|-----------------|------------------|-------------|-----------------------------------|----------------|---------|----------------|-----------------|-----------------------|--------------------------|-----------------|------------|-----------------|--------------------------|--------------|-------------|----------------|-------|
| 2541.84 | 2387.35 | 295.53 | 2088.62 | 17100.40 | 3299.57 | 68525.54 | -10736.16 | 31555.74 | 2305.70 | 6007.34 | 9500.93 | -622.47 | 10123.4 | 22547.3 | -622.5 | 28.2 | -16.3 |
| Temperature | | Room Temp K | Energy Losses (kJ/kg of Dry Fuel) | | | | | | | Total Loss Rate | Total Loss | Chemical Loss 1 | Sensible and Latent Loss | Total Output | Chem Loss 2 | Grams Produced | |
| CH ₄ | H ₂ O | | CO ₂ | O ₂ | CO | N ₂ | CH ₄ | H ₂ O Comb | H ₂ O Fuel MC | | | | | | CO | HC | |
| 4250.94 | 3883.39 | 295.95 | 181.23 | 853.74 | 81.95 | 3640.03 | -331.28 | 1689.35 | 125.27 | 6240.29 | 0.00 | 0 | 0.00 | 0 | 0 | 0.00 | 0.00 |
| 2889.33 | 2699.78 | 295.74 | 124.56 | 855.12 | 144.20 | 3485.04 | -465.69 | 1661.66 | 122.17 | 5927.06 | 654.89 | -35 | 690.38 | 1581 | -35 | 1.56 | -0.92 |
| 2530.63 | 2379.47 | 295.67 | 109.49 | 890.31 | 171.45 | 3570.07 | -549.73 | 1659.01 | 121.33 | 5971.94 | 543.41 | -34 | 577.80 | 1298 | -34 | 1.53 | -0.90 |
| 2551.80 | 2398.66 | 295.62 | 109.97 | 910.85 | 212.21 | 3646.66 | -540.45 | 1658.73 | 121.38 | 6119.36 | 596.60 | -32 | 628.59 | 1376 | -32 | 2.03 | -0.94 |
| 2566.91 | 2412.42 | 295.56 | 109.71 | 869.91 | 285.88 | 3497.73 | -474.65 | 1652.38 | 121.42 | 6062.37 | 577.91 | -18 | 595.96 | 1351 | -18 | 2.68 | -0.81 |
| 2507.76 | 2358.55 | 295.79 | 109.35 | 935.61 | 103.56 | 3733.75 | -618.56 | 1665.40 | 121.28 | 6050.39 | 524.33 | -45 | 568.87 | 1229 | -45 | 0.88 | -0.96 |

Intertek Testing Services

Manufacturer: SBI
Model: ECO-55
Date: 01-11-2016
Run: 1
Control #: G102747001
Test Duration: 180
Output Category: Min

Technicians: Claude Pelland

Test Results in Accordance with CSA B415.1-10

| | HHV Basis | LHV Basis |
|---------------------------------|-----------|-----------|
| Overall Efficiency | 67.2% | 72.5% |
| Combustion Efficiency | 99.5% | 99.5% |
| Heat Transfer Efficiency | 67% | 72.8% |

| | | | |
|---------------------------|--------|-------|----------------|
| Output Rate (kJ/h) | 7,008 | 6,648 | (Btu/h) |
| Burn Rate (kg/h) | 0.52 | 1.14 | (lb/h) |
| Input (kJ/h) | 10,434 | 9,898 | (Btu/h) |

| | | | |
|----------------------------------|------|------|---------------|
| Test Load Weight (dry kg) | 1.55 | 3.41 | dry lb |
| MC wet (%) | 4.5 | | |
| MC dry (%) | 4.71 | | |
| Particulate (g) | 5.78 | | |
| CO (g) | 28 | | |
| Test Duration (h) | 3.00 | | |

| Emissions | Particulate | CO |
|-------------------------|-------------|-------|
| g/MJ Output | 0.27 | 1.34 |
| g/kg Dry Fuel | 3.74 | 18.25 |
| g/h | 1.93 | 9.41 |
| lb/MM Btu Output | 0.64 | 3.12 |

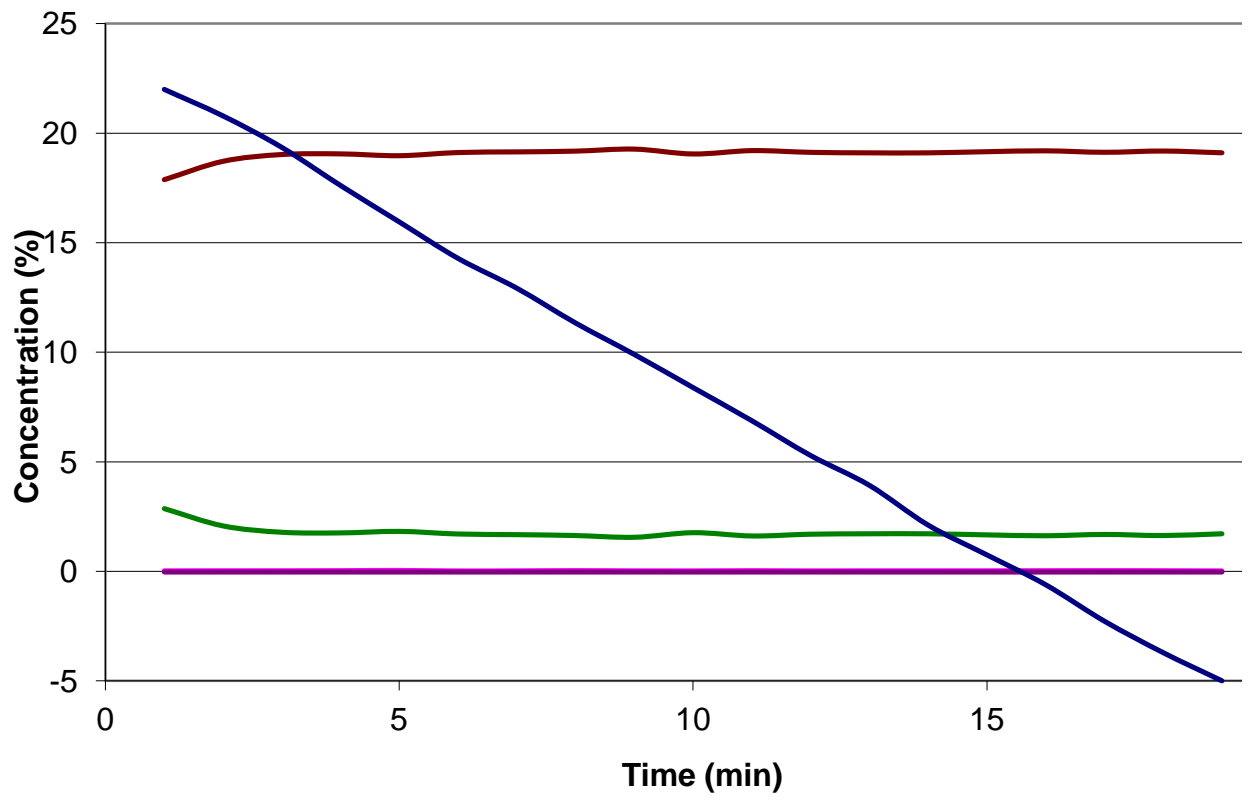
| | |
|-----------------------------|-------|
| Air/Fuel Ratio (A/F) | 47.06 |
|-----------------------------|-------|

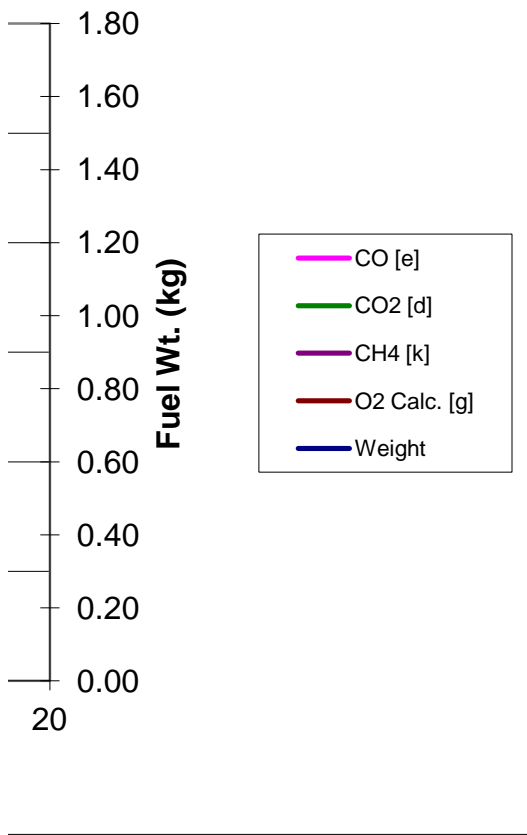
VERSION:

2.4

2010-04-15

Run: 1



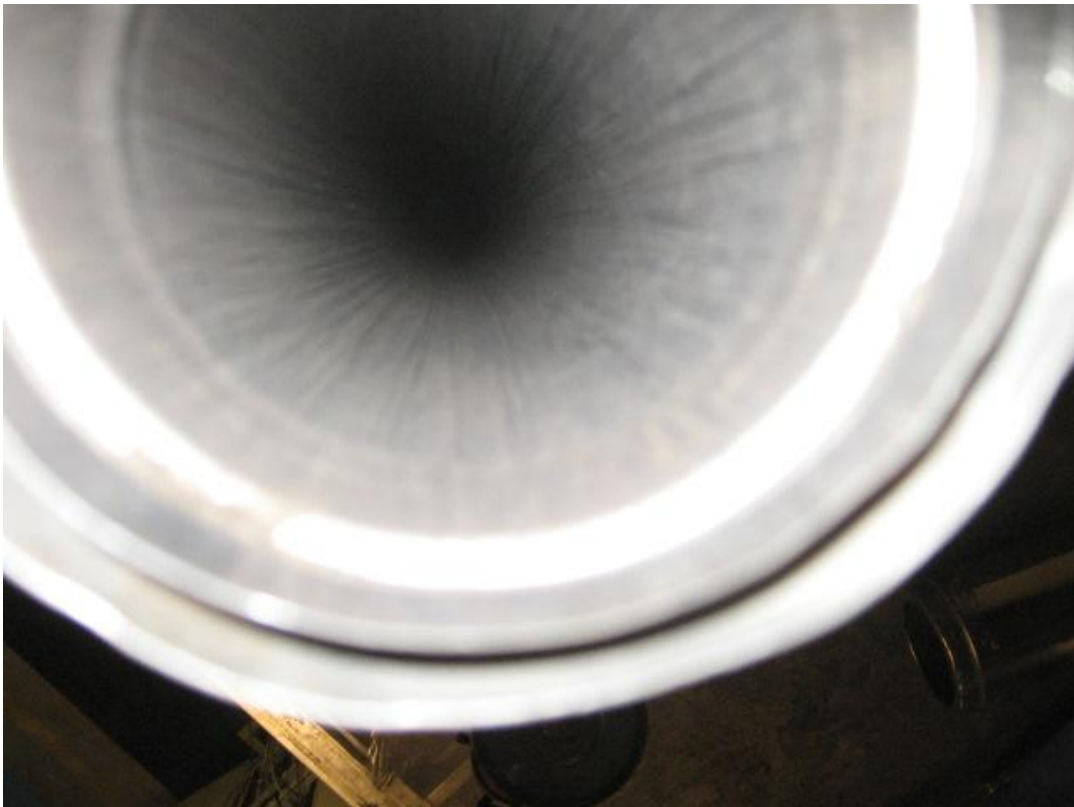


Note: In the legend, [d], [e], [g], and [k] refer to their respective variables in Clauses 13.7.3 and 13.7.5

Appendix H

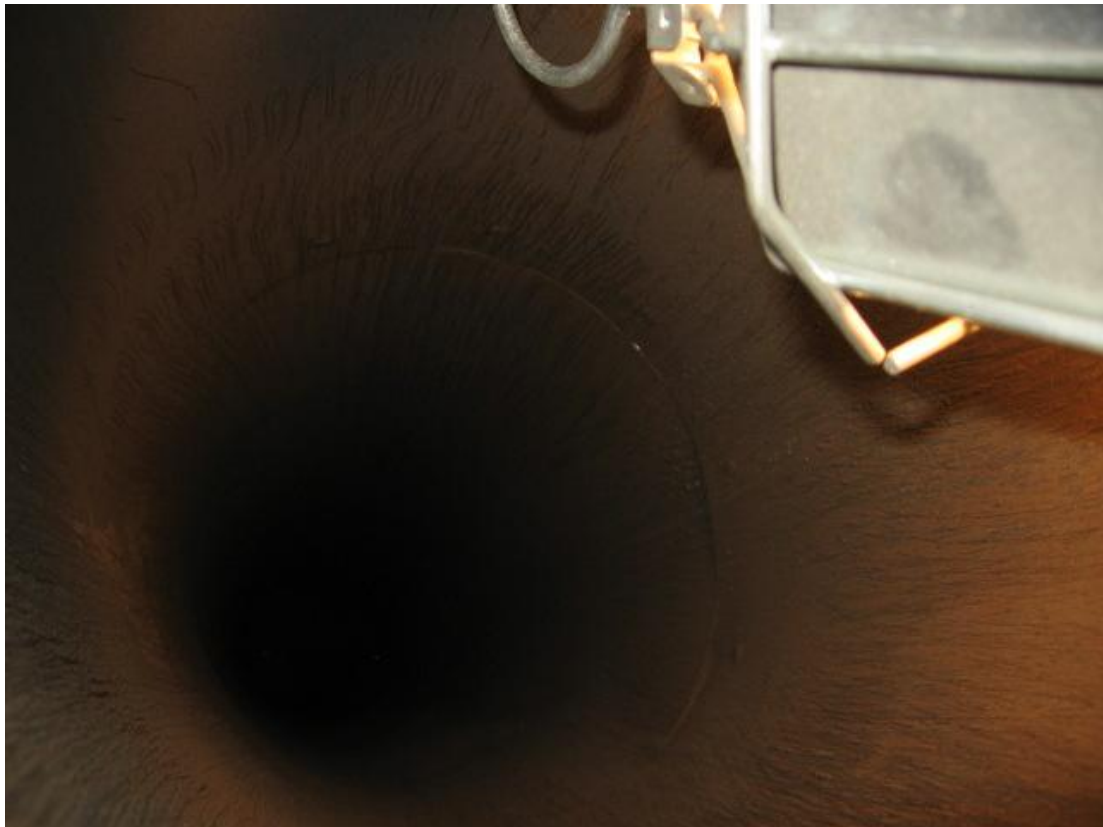
Tunnel Cleaning and Test Load Photographs

Date: October 25th, 2016

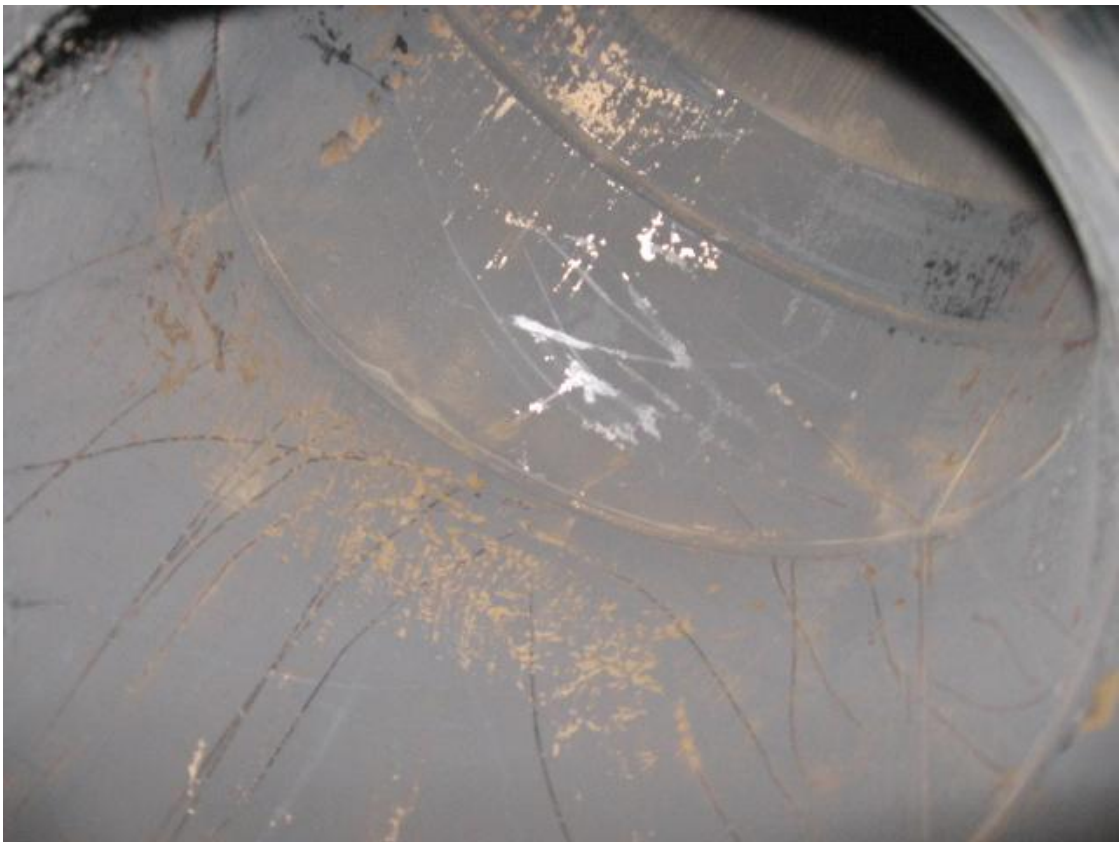








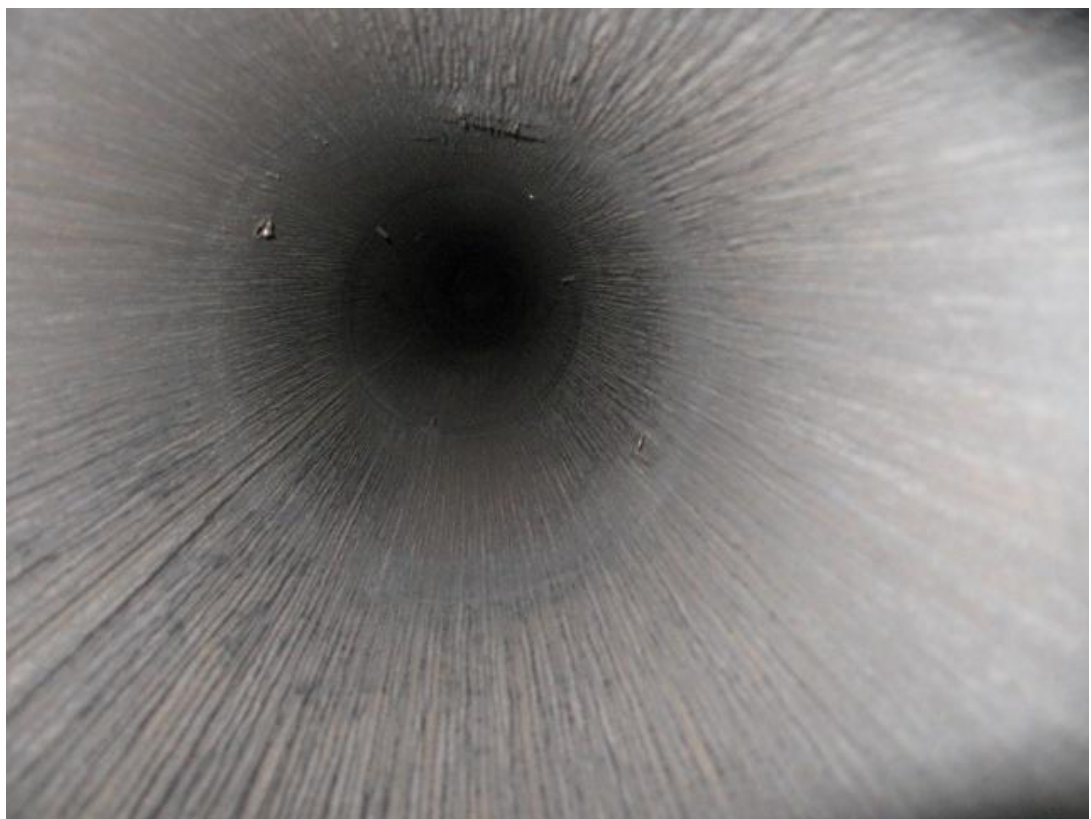










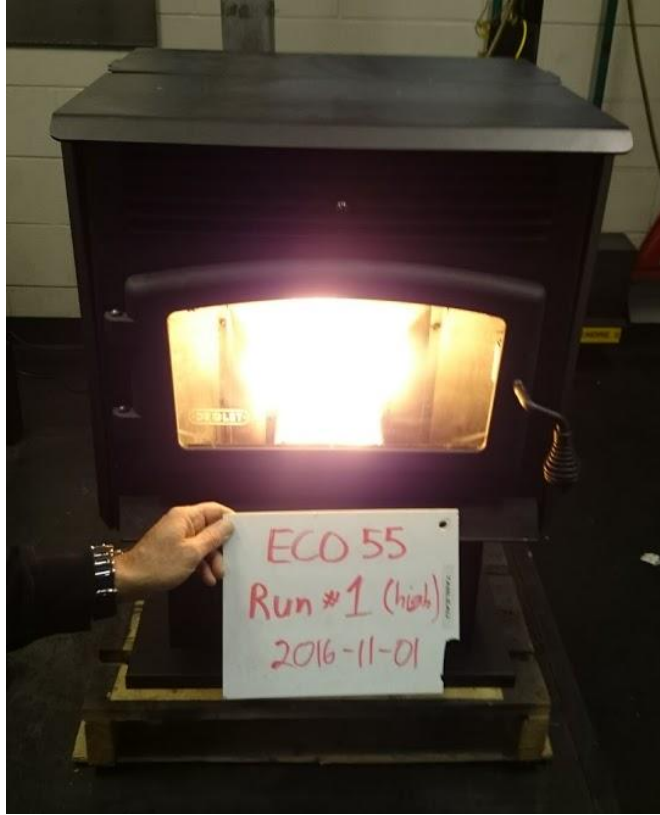


















Appendix I
EPA Correspondence



September 29th, 2016

Air Branch/Wood Heater Program Lead
Monitoring, Assistance, and Media Programs Division
Office of Compliance
U.S. EPA
1200 Pennsylvania Ave., NW
MS:2227A
Washington, DC 20004
Attn: Rafael Sanchez

Subject: 30 days notice for certification of model line name **ECO-55**

Dear Mr. Sanchez

The model line **ECO-55** and equivalent model ECO-55 ST are affected wood heaters under the amended U.S. Environmental Protection Agency 40 CFR Part 60 Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces; Final Rule, Subpart AAA §60.530.

Under section §60.534 (g), Stove Builder International Inc. ("SBI") is required to provide a 30 days' notice before the date of certification testing to begin. We would therefore like to notify you that we intend to start a certification program on the model line stated above on October 31th, 2016. This certification program is planned to end on November 1th, 2016.

We would like to inform you that we'll be using Test method ASTM E2779 in conjunction with ASTM E2515-11 and CSA B415.1-10 for certification of this model line.

The accredited laboratory performing the test will be a division of **Intertek Testing NA Ltd** located at:

1829, 32nd Avenue, Lachine
Quebec, Canada, H8T 3J1

And contact information at Intertek will be the following:

Claude Pelland, Eng
claude.pelland@intertek.com

Current address of Stove Builder International Inc. can be found at the bottom of this document and contact information at SBI will be:

Nicolas Gagnon, P.Eng.
ngagnon@sbi-international.com

Should you need additional documents, please let us know.

Sincerely,

A handwritten signature in black ink, appearing to read 'Nicolas Gagnon', written over a horizontal line.

Nicolas Gagnon, P.Eng.
Product Line Engineer
Stove Builder International Inc.