Shenandoah

A600-1GLP, A600-1GN, A600-1O
110V and 220V
INCINERATOR
Installation and Operators Manual

Agile Mfg.
DELIVERING EXCELLENCE

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WARRANTY WARNING

1. **Tampering with orifices in the burner will void warranty.**
2. **Failure to cure refractory before using will void warranty.**

Installation and Operators Manual

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CONTENTS

LIMITED WARRANTY

Warranty

Agile Manufacturing, a division of CTB, Inc., WARRANTOR, warrants to the original purchaser for a period of one (1) year from date of purchase or delivery to original purchase, products manufactured by it which are installed and operated according to WARRANTY'S instructions that are furnished and/or are available to purchaser upon request, and installed according to other applicable Federal, State, and local codes or regulations and upon substantiation that said products were installed correctly, were not abused, and or defective. The exact nature of said warranty and exclusive remedy for breach of warrantor is as follows:

WARRANTOR will refund or credit to purchaser's account an amount equal to the original purchase price or at WARRANTOR'S option repair or replace at WARRANTOR'S expense products found to be defective in workmanship or material. If a problem occurs which the purchaser believes is covered by this warranty, then purchaser shall contact the seller giving the seller sufficient information to enable a resolution to the problem. If the seller is unable or unwilling to resolve the problem and purchaser is still convinced that it is covered by the warranty the purchaser should contact the manufacturer at the address listed in the following paragraph and provide a description in writing of the problem and the attempts made to resolved it. "Seller" as used herein shall mean the dealer or distributor from whom the product was purchased.

No product or part thereof may be returned pursuant to this warranty without first receiving specific written permission to do so. All request should be addressed to Agile Manufacturing at 720 Industrial Park Road Anderson, MO 64831requesting specific authority for returning merchandise pursuant to this warranty with reasons for the request.

Limitations

Products which are abused or neglected are not covered under this Warranty. WARRANTOR shall not be responsible for the costs of removal or reinstallation of its products and shall not be liable for transportation costs to and from it factory. Further, WARRANTOR shall not be liable for replacement, repair, or refund for component parts not manufactured by it.

Use of parts for modification or repair of the unit or any component not authorized or manufactured by Agile Manufacturing, specifically for this product shall void this warranty.

IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICALUR PURPOSE ARE LIMITED TO THE SAME PERIOD OF TIME AS THIS EXPRESS LIMITED ONE (1) YEAR WARRANTY AND ARE SPECIFICALLY DISCLAIMED THEREAFTER.

AGILE MANUFACTURING, SHALL NOT LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, OR CONTINGENT DAMAGES OR EXPENSES ARISING DIRECTLY OR INDIRECTLY FROM ANY DEFECT IN THE PRODUCT HEREBY WARRANTED.

THIS WARRANTY SHALL BE **VOID** IF SOLVENTS OR OTHER HIGHLY INFLAMABLE FLUIDS, SUCH AS BUT NOT LIMITED TO, BENZENE, METHYLETHYL, KETONES, TOLUENE, XYLENE, OR NAPTHA ARE BURNED IN OR MIXED WITH OIL FOR BURNING IN USED OIL-FIRED BURINING HEATERS OR FURNACES.

For those states that do not allow limitations on how long an implied warranty lasts, this limitation may not apply. Similarly, for those states that do not allow the exclusion on limitations of incidental or consequential damages, the above exclusions of indirect, incidental, or consequential damages may not apply.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Agile Manufacturing is not responsible for any undertaking, representation, or warranty made by dealer, distributor, or other persons, beyond those expressly set forth in this warranty.

WARRANTY WARNINGS

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A600 INCINERATOR SPECIFICATIONS

Table 1: WASTE CHAMBER

CHAMBLER CAPACITY:	600 lbs. Type IV waste (poultry)
CHAMBER VOLUME:	18.9 cubic feet
DOOR DIMENSION:	26” x 30”
HEIGHT TO DOOR:	32.75”
REFRATORY:	3", 2800°f, 126 lbs/cubic feet
JACKET MATERICAL:	14 gauge aluminized steel
HEIGHT TO TOP OF CHAMBER:	34”

Table 2: STACK

DIMINENSIONS:	(2) 12" Dia., 60" L
JACKET:	SS 304-2B 16 GA
STACK CAP:	SS 304-2B: 18 GA (12" Dia. X 14" H)

Table 3: BURNER

MODEL: NAT GAS and LP	One (1) Midco 121-DS Direct Main Flame Spark Ignition Electronic Flame Safety, 100% Shut-offs, 1,200,000 BTUH (maximum)
MODEL: OIL	One (1) Beckett SF Oil Burner W/ Flame Safety, 390,000 BTUH
OPERATION:	One (1) 12 Hour Manual Timer

Table 4: GENERAL

EXTERNAL DIMENSIONS:	36" W x 34" H x 60" L (less stack).
OVERALL DIMENSIONS (APPROX.), INCLUDING COUNTERBALANCE WEIGHTS, BURNER, STACK AND STACK CAP	56” W x 213” H x 75” L
ELECTRICAL SERVICE:	Standard-110 volt, 60hz, 20 amp, Also available -- 220 volts, 50hz, 10 amp
GAS SERVICE:	530,000 BTUH (piping sized accordingly) Natural Gas: 7" W.C. (with burner operating) Liquid Propane: 11" W.C. (with burner operating)
GAS/FUEL CONSUMPTION:	Natural Gas = 530 CFH Liquid Propane = 5.8 GPH Fuel Oil = 3.0 GPH
TOTAL WEIGHT:	lbs (approx)
PAD REQUIREMENTS:	12’ W x 14’ L x 4" D (if sheltered) 8’ W x 10’ L x 4" D (if not sheltered)
PAINT:	1200 degree primer 1200 degree paint

Table 5: CHARGING RATE

PATHOLOGICAL:	Up to 600 lbs. per charge of typical pathological waste with a BTU/lb rating of 1000. Batch loaded allowing complete burn-out 6-8 hours, cool down and ash removal before reloading
BURN RATE:	Approx. 75lb./hr.

Must be installed in accordance with local codes and ordinances, subject to regulatory agencies. Stack test data is available from the distributor for permit application. If on-site testing is required, it is the responsibility of the purchaser and can be arranged through the distributor. Outside installation is recommended with a simple metal roof or three-sided metal shelter, provided a **minimum** of four (4) foot clearance from any combustible material. Inside installations may have special insurance requirements. Factory must be advised.

A600 PACKING LIST

Primary Chamber Components

1	Primary Chamber w/ top & door assembly
2	Counter Weight Arms
8	Counter Weights

Chamber & Stack Hardware

16	3/8 - 16 x 3/4 bolts
16	3/8 - 16 nuts
4	5/16 -18 nuts
4	5/16 - 18 x 9 bolts
8	5/16ID X 2"OD fender washers
1	Latch

Stack Components

1	5’ SS Stack section
1	5’ SS Stack Extension
1	2’ refractory lined stack section
1	Stack cap

Burner & Hardware

1	Burner Midco J121-DS or Beckett SF
1	Burner cover
1	3/4" Gas cut off valve (NAT Gas and LP only)
1	Pressure gauge (NAT Gas and LP only)
1	Oil filter (oil burner only)
4	¼ - 20 X ½ bolts (oil burner only)
4	¼ - 20 nuts (oil burner only)
2	Brass flare ell (oil burner only)
1	Brass flare fitting (oil burner only)
2	Brass flare nut (oil burner only)
1	1/4 x 3/8 bushing (oil burner only)
1	1/2 x 3/8 bushing (oil burner only)
1	3/8 x 2 pipe nipple (oil burner only)

SITE INFORMATION

Placement and Construction Recommendations

- The A600 incinerator is designed for outdoor installation on a concrete slab 6’ x 8’ x 4" thick. (12’ x 14’ x 4" if sheltered)
- The A600 may be installed in a three sided shelter, but must comply with local building and fire codes for clearances from combustible walls and materials. A minimum clearance of 4’ around the incinerator is recommended for service and maintenance.
- For recommended construction of a metal chimney through a combustible roof, **See Figure 3: "Combustible Roof Construction Diagram" on page 11**

Electrical Service

115 volts, 60hz, 20 amp for NAT Gas, LP, & Fuel Oil

- Electrical service can be supplied by plugging into the cord set.

NOTE: Polarity must be maintained or the burners will not operate. If burners "lock out" after approximately 5 seconds and the blower continues to operate, then the polarity is incorrect. It should be corrected at the power source, not in the incinerator control.

220 volts, 50hz, 10 amp for NAT Gas & LP

- Electrical service can be supplied through the electrical cord at the burner by adding the type of plug that will fit your application.

220 volts, 50hz, 10 amp Fuel Oil only

1. Loosen the (2) screws and swing open the transformer.
2. Make wire connections as follows:

Electrical Service	Connections at Transformer
L1	Black wire with wire nut
L2	White wire with wire nut

3. Close transformer and tighten screws.
4. Connect the electrical cord from the burner to the timer as follows:

Electrical Cord	Timer terminal
Black wire	L1
White wire	T1

Fuel Supply

NAT Gas and LP

PIPING:

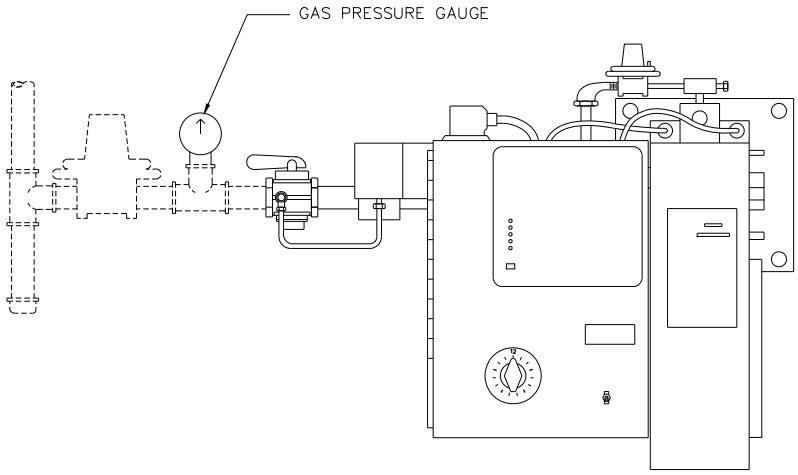
1. Install gas train with 3/4" minimum dia. pipe or tubing. Larger pipe may be needed depending on the gas supply and regulator location. The A600-1G requires 530,000 BTUH for operation.
2. Using soap solution, leak test all gas connections.

REGULATOR:

1. Use a properly sized regulator which maintains reduced pressure under static conditions when no gas is flowing. (Dead end lock up).
2. For best results install regulator as near as possible to the incinerator.
3. Regulate LP gas to 11" W.C., NAT gas to 7" W.C. (while burner is burning).
4. Do not exceed 14" W.C. under static conditions when there is no gas flow.

PRESSURE GAUGE:

- A gas pressure gauge is supplied with each incinerator and should be located between the regulator and gas shut off valve, as close to the burner as possible. See below.



FUEL SUPPLY (CONTINUED)

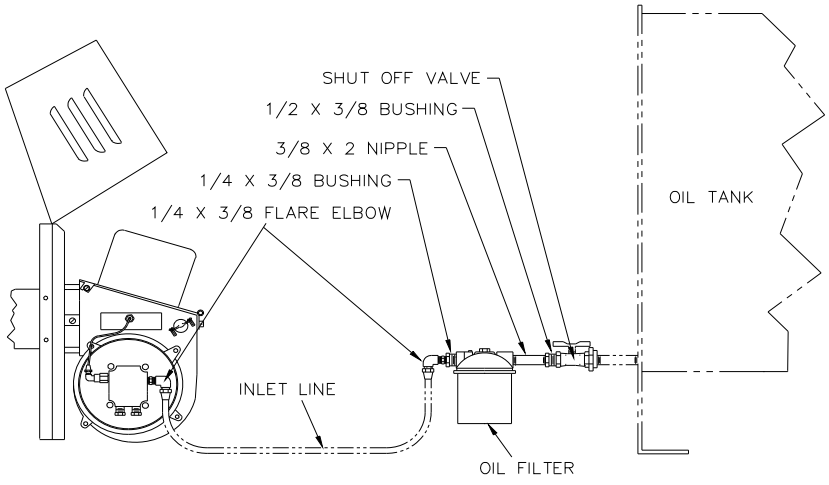
Fuel Oil

OIL TANK:

1. Since tanks vary in size and fixtures, you may need to make adaptations to use the parts supplied.
2. It is important that a filter be provided in the line between that tank and the incinerator.
3. If the flow outlet is on the underside of the tank, extend a threaded nipple about 2” into the tank to avoid problems from condensation in the bottom of the tank.

PIPING:

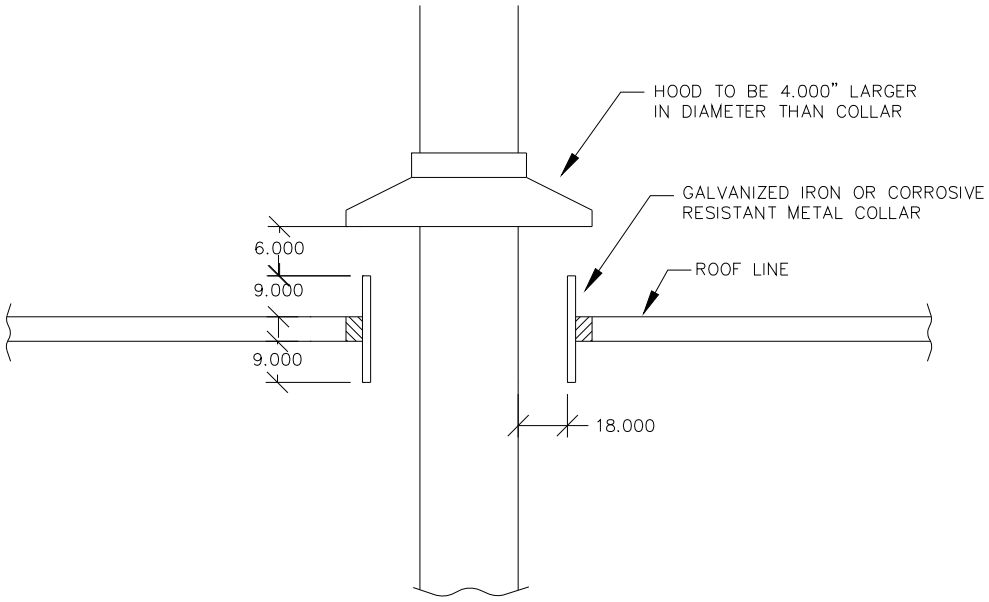
1. A flaring tool will be needed to form the ends of the copper tubing.
2. Assemble 3/8” copper tubing, oil filter, shut-off valve and fittings between the oil tank and the burner.



COMBUSTIBLE ROOF CONSTRUCTION

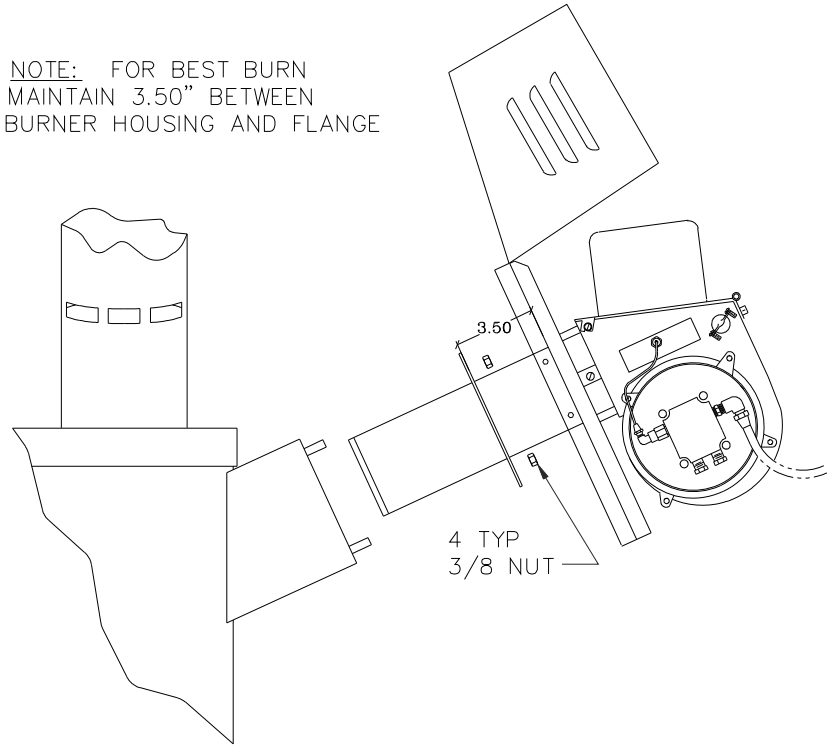
RECOMMENDED CONSTRUCTION FOR METAL CHIMNEY THROUGH COMBUSTIBLE ROOF

1. DIMENSIONS ARE MINIMUM DISTANCES
2. BASED ON NFPA 82
3. CONSULT LOCAL BUILDING CODES
4. STOCK SHOULD EXTEND NOT LESS THAN 10 FT. HIGHER THAN ANY BUILDING WITHIN 25 FT.



ASSEMBLY INSTRUCTIONS

1. Position the incinerator on the concrete slab as needed for fuel and electrical hook up.
2. Bolt the 5’ stainless steel stack to the 2’ refractory lined stack using (8) 3/8 – 16 x 3/4 flange bolts and (8) 3/8 – 16 flange nuts.
3. Slide the 5’ stainless stack over the 5’ ss stack below.
4. Position the stack cap over the top of the stack and secure with (3) #10 X 1/2 sheet metal screws.
5. Bolt the toggle clamp to the primary chamber at the mount bracket using (4) 3/8-16x3/4 flange bolts and (4) 3/8-16 flange nuts.
6. Attached the counter weight arms to the door arms using (6) 3/8-16x3/4 flange bolts and (6) 3/8-16 flange nuts.
7. Bolt the counter weights to the counter weight arms (be sure door is clamped closed) with (4) 5/16-18 x 9 bolts, (4) 5/16 - 18 Nylock nuts and (8) 5/16 X 2 washers.
8. Attach the burner and housing as described below.
    a. For Nat Gas & LP burners - Attach the burner cover and burner to the primary chamber with (4) 3/8-16 flange nuts.
    b. For Fuel Oil Burners -
        1. Make sure that the flange on the burner tube is about 5 ¾“ from the burner housing.
        2. Attach the burner cover to the bracket on the burner with (4) 1/4 - 20 X 1/2 bolts and nuts.
        3. Attach the burner to the primary chamber with (4) 3/8-16 flange nuts.



BURNER SETTINGS & AIR ADJUSTMENTS

Table 1: Midco J121-DS Burner

FUEL	AIR SHUTTER	PILOT ORIFICE	ORIFICE	BTUH
LP	Open*	#58	9/32	530,000
NAT.	Open*	#55	25/64	530,000

*The air shutter is adjusted to the FULL OPEN position from the factory and should never be moved.

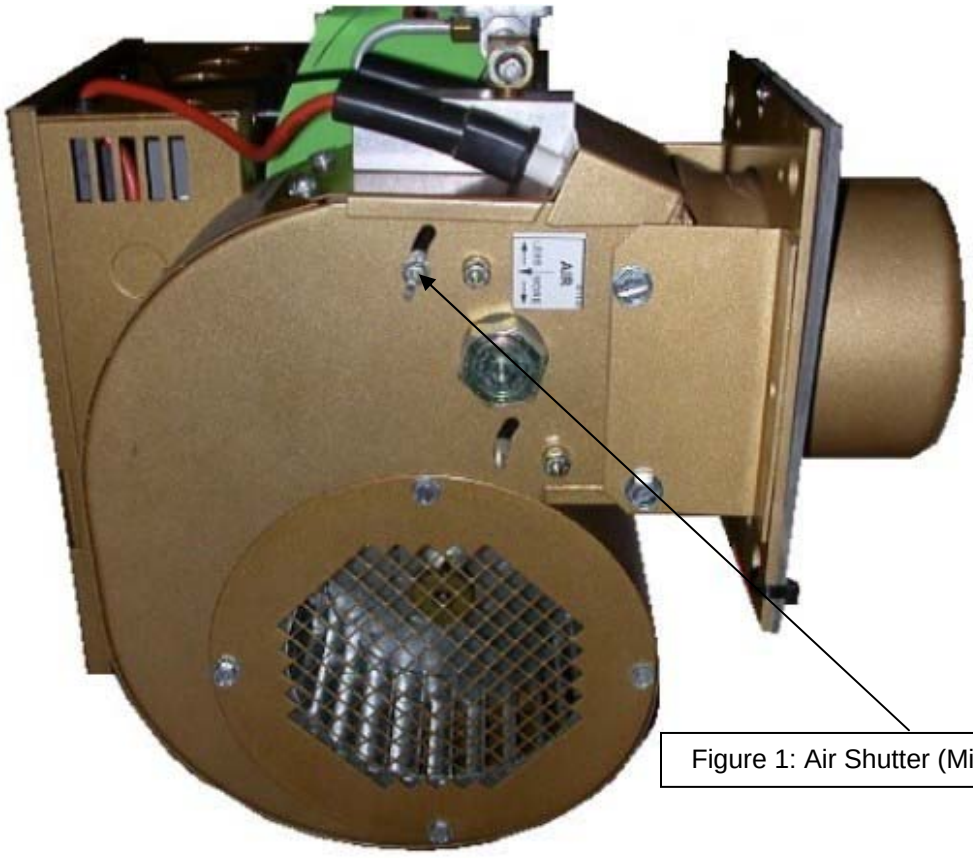


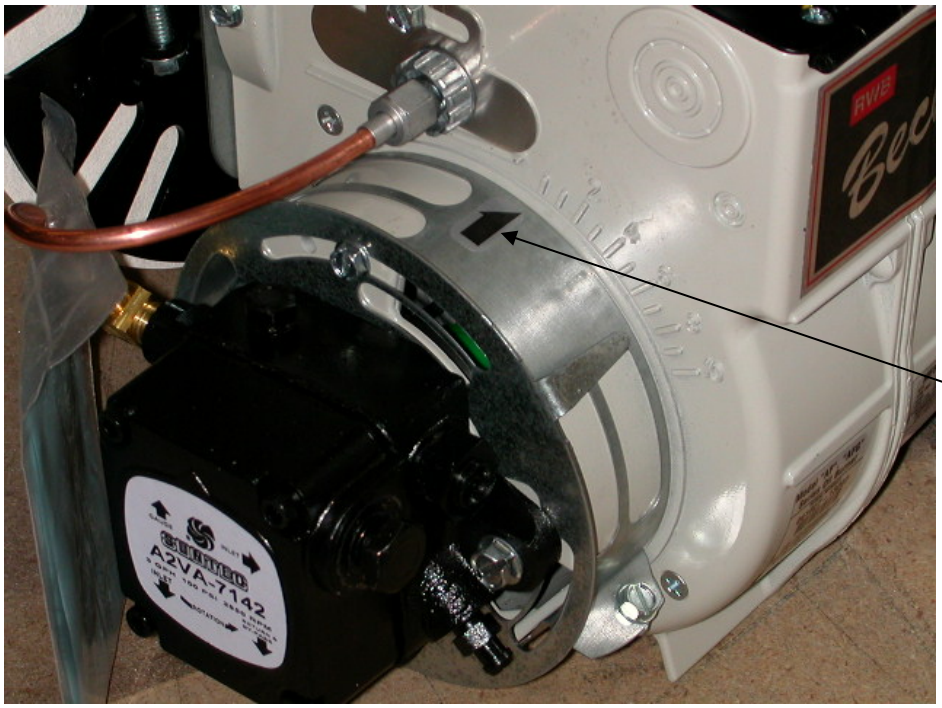
Figure 1: Air Shutter (Midco burner)

BURNER SETTINGS & AIR ADJUSTMENTS (continued)

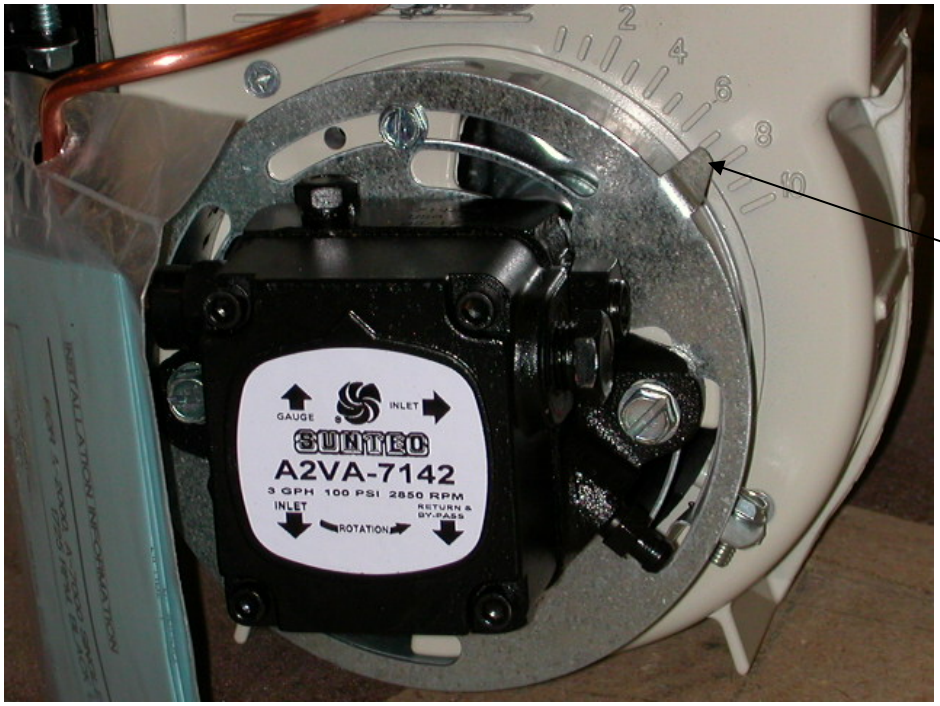
Table 2: Beckett SF Burner

FUEL	AIR SHUTTER	AIR BAND	NOZZLE	RETENTION HEAD	BTUH
#2 Fuel Oil (Diesel)	Closed **	#8 **	3.0 GPH 30 degrees A	F31	390,000

**These openings are approximate. Final adjustments may be necessary at installation.



Air Band indicator
(Beckett burner)



Air Shutter indicator
(Beckett burner)

GAS PRESSURE ADJUSTMENTS

(for NAT Gas and LP only)

***PROPER GAS PRESSURE IS CRITICAL TO THE OPERATION OF THE INCINERATOR**

Gas pressure must be adjusted when the burner is operating and set as follows:

Note: A gas pressure gauge is supplied with each incinerator (NAT Gas and LP only).

Nat Gas = 7" W.C.
L.P. Gas = 11" W.C.

OPERATING INSTRUCTIONS

Curing of the refractory is essential prior to burning the first load of waste. See "REFRACTORY CURING PROCEDURE" below.

1. Remove ashes before loading the incinerator.
2. Load incinerator. Keep the waste 6"-8" away from the burner port.
3. Start burner by setting the timer for the desired burn time. A full load will normally burn out in 6-8 hours.
4. The incinerator will automatically shut off when the burn is completed.
5. For best results, burn daily to a white ash.

REFRACTORY CURING PROCEDURE

Table 1: REFRACTORY CURING PROCEDURE

Procedure	Time
Start burner and burn for	5 minutes
Allow to cool for	15 minutes
burn	5 minutes
cool	15 minutes
burn	15 minutes
cool	15 minutes
burn	15 minutes
cool	15 minutes
burn	30 minutes
cool	15 minutes
burn	30 minutes
cool	15 minutes
burn	1 hour
cool	15 minutes
burn	1 hour
cool	15 minutes
burn	1 hour
cool	15 minutes
burn	2 hour
cool	15 minutes
burn	3 hours
Total Time	12 hours(approximate)

There will be hairline cracks and minor scaling of the refractory when curing is complete. This is a normal result of the curing process.

TROUBLE SHOOTING

Nat Gas & LP Models

No spark at electrodes

1. Is burner blower operating? Possible defective blower motor.
2. Clean electrodes and pilot igniter assembly. Apply heat if moisture is present.
3. Check electrode position. See drawing in Midco manual for proper adjustment.
4. Defective Honeywell Control Board. Check voltage to 25V terminal on board.
5. Check service breaker, timer, electrical connections, and polarity.

Spark but no ignition

1. Confirm gas pressure. LP gas @ 11" WC or NAT gas @ 7" WC.
2. Clean electrodes and pilot igniter assembly. Apply heat if moisture is present.
3. Check electrode position. See drawing in Midco manual for proper adjustment.
4. Listen to confirm that solenoid gas valve is opening. Possible defective gas valve.
5. Check for dirt in brass pilot orifice tee.

If incinerator does not burn properly

1. Have the ashes been removed at the beginning of the day?
2. Be sure there is no obstruction blocking the burner tube.
3. Is the air shutter in the full open position? See diagram in "BURNER SETTINGS" section of this manual.
4. Check gas pressure while the burner is burning. LP gas @ 11" WC or NAT gas @ 7" WC.

Fuel Oil Models

No spark at electrodes

1. Be sure there is no obstruction in the end of the burner tube and there is no soot build-up on the retention head, electrodes or nozzle.
2. Check all electrical connections.
3. Transformer may be burned out. Listen or look to see if there is an arc across the electrodes. Replace transformer if no spark is present.
4. Check for damage to electrodes.
5. Improper firing head adjustment. See Beckett burner installation manual.

No oil spray through nozzle

1. Defective motor. Check to see if blower wheel is turning. If not, check electrical connections and voltage to motor.
2. Air in fuel line. Check all fittings between burners and at fuel tank for tightness. Air may be bled from the fuel line at the fuel pump.
3. Dirt or water in oil tank.
4. Check the plastic coupling between motor and pump for tight fit.
5. Check for clogged filter at tank or on nozzle.
6. Be sure there are no kinks in the oil line.
7. Check the tubing between the pump and nozzle for blockage.
8. Defective pump.

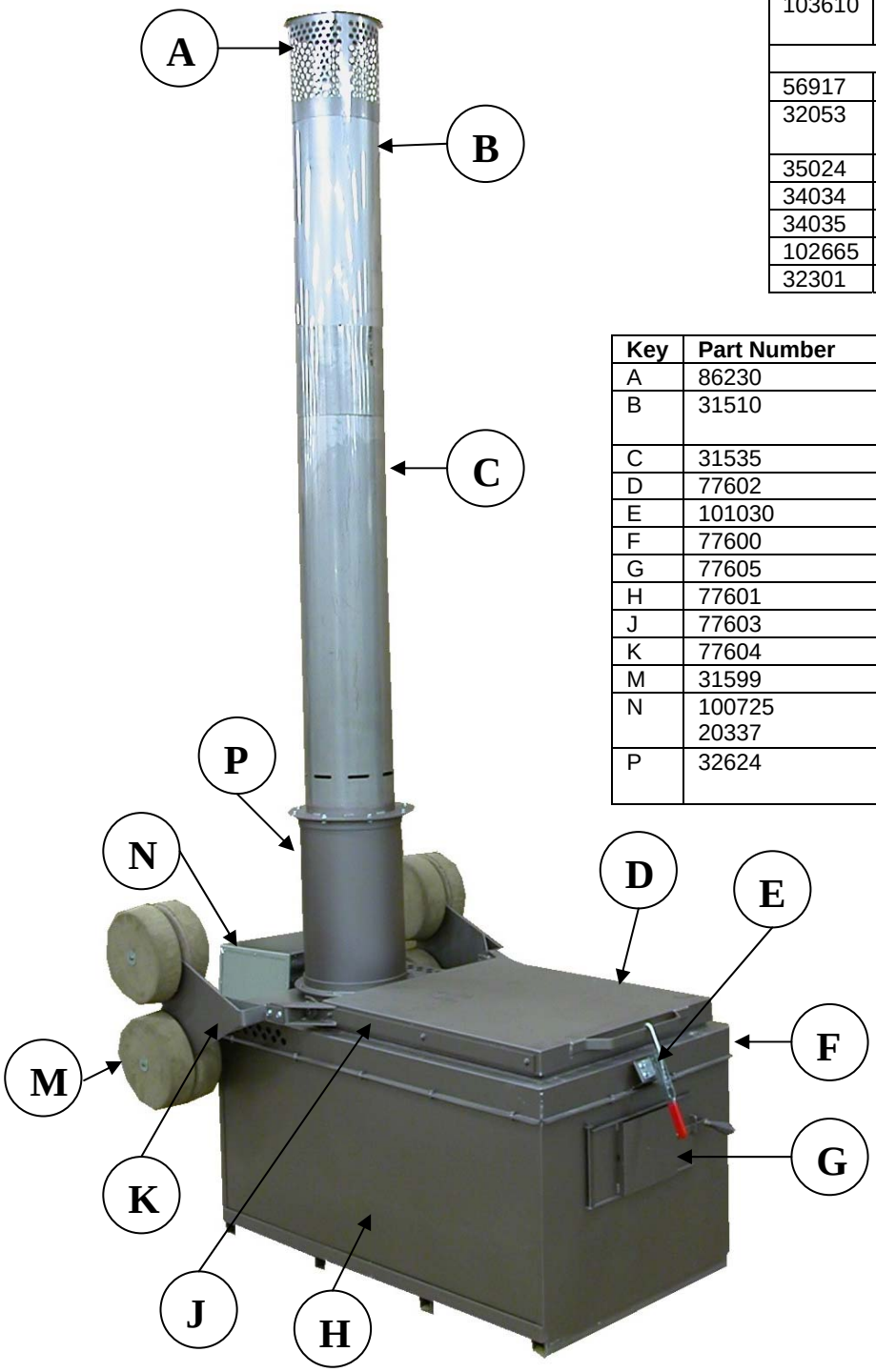
If incinerator does not burn properly

1. Have the ashes been removed at the beginning of the day?
2. Be sure there is no obstruction blocking the burner tube.
3. Are the air bands adjusted correctly? (See "BURNER SETTINGS" section in this manual).
4. Is No. 1 Fuel Oil (Kerosene) or No. 2 Fuel Oil (Diesel) being used as fuel?

A600 PARTS LIST

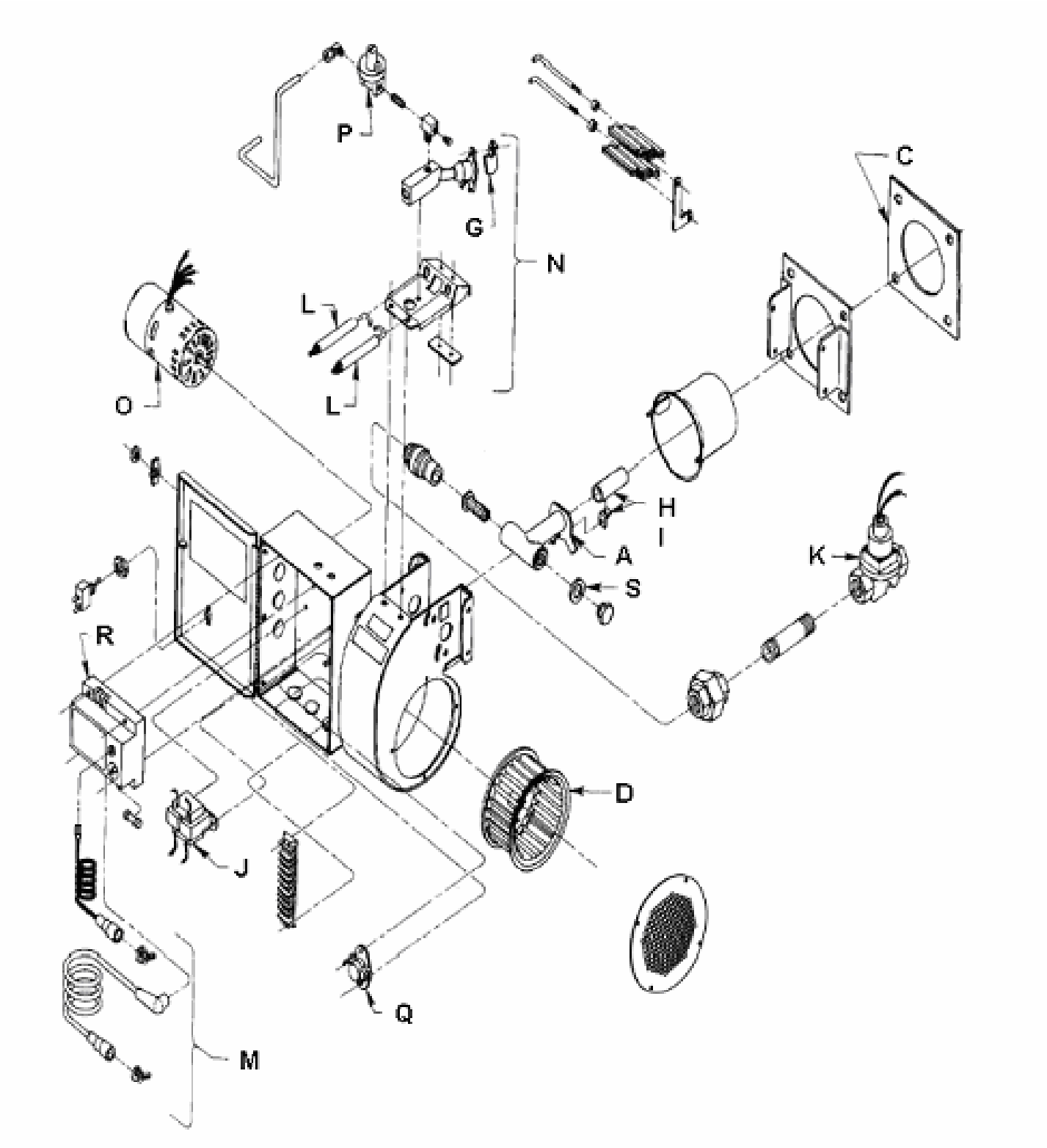
Table 1.A600-1 Parts

Parts not shown	
103356 103355 23041 31553 31552 23043	Natural Gas Burner 110V LP Burner 110V Fuel Oil Burner 110V Natural Gas Burner 220V LP Burner 220V Fuel Oil Burner 220V
103610	Main Chamber complete w/ top and door
Miscellaneous parts	
56917	Door Gasket (Fiberglass Rope,142")
32053	12 Hour Timer/Switch (gas & oil burners)
35024	Gas Pressure Gauge, 0-35" WC
34034	2-1/2 Lbs. Mastic Cement in Pint Can
34035	Refractory Cement (50 lb. bag)
102665	20 Lbs. Mastic Cement in Gallon Can
32301	Metallic Brown Spray Paint (can)



Key	Part Number	Description
A	86230	Stack Cap (Stainless Steel)
B	31510	Stack Extension, 5' x 12" dia. (Stainless Steel)
C	31535	Stack, 5' x 12" (Stainless Steel)
D	77602	Load Door
E	101030	Door Clamp
F	77600	Burn Chamber Top Only
G	77605	Ash Door
H	77601	Lower Burn Chamber Less Top
J	77603	Arm, Door Mount
K	77604	Arm, Weight Mount
M	31599	Counter Balance Weight
N	100725 20337	Housing, Gas & LP Burner Housing, Oil burner
P	32624	Stack, 2' x 14" diameter, Refractory Lined

MIDCO BURNER (J121-DS) EXPLODED VIEW

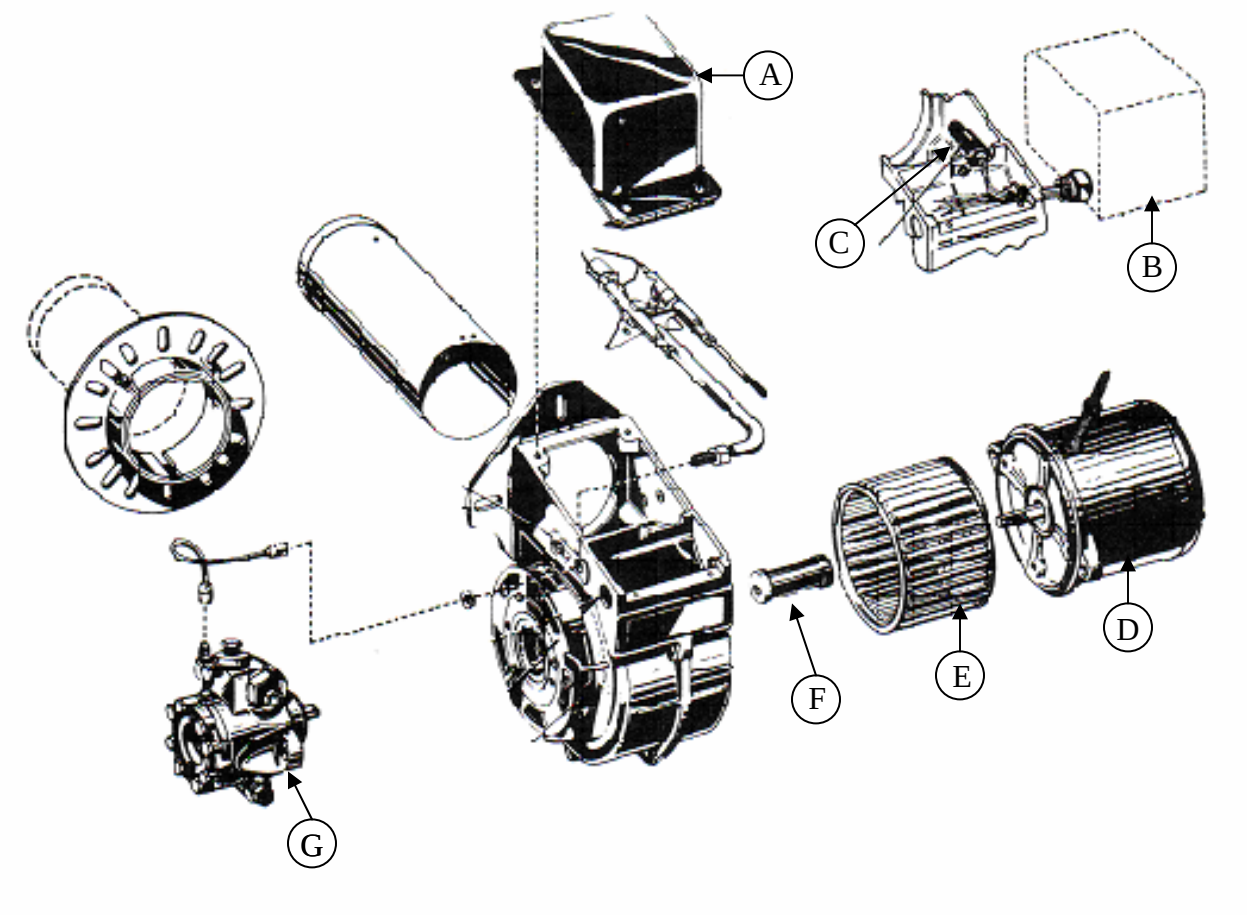


See parts list on following page.

PARTS LIST: MIDCO burner (J121-DS)

Key	Part Number	Description
A	33116	Manifold
C	31603	Flange Gasket
D	33125	Blower Wheel
G	33140	Ground Barrier Kit
H	33113	Main Gas Port and Tube Kit – PROPANE
I	31581	Main Gas Port and Tube Kit – NATURAL
J	33129 101420	Transformer 115/1/50-60 Primary, 24V-30VA Or Transformer 220/24V 50/60 Hz, 35VA
K	33109	3/4" NPT Gas Valve -- 24 Volt
L	33121	Electrode (spark or flame) - 2 required
M	33138	Electrode Wires, Boots and Strain Reliefs
N	33131	Ignitor Assembly
O	33126 101426	Motor, 115/1/50-60 Hz Or Motor, 220/1/60 Hz
P	33112	Ignitor Regulator 1/8 NPT
Q	33120	Thermal Switch
R	33151	DSI Electronic Control Board
S	33118	Input Adjuster Sealing Gasket
Not Shown	33136	PROPANE Conversion Kit
Not Shown	33135	NATURAL Conversion Kit

BECKETT BURNER (SF) EXPLODED VIEW



See parts list on following page.

PARTS LIST: BECKETT BURNER (SF)

Item	Part Number	Description
A	101271 101266	Ignition Transformer 120v/60hz Ignition Transformer 220v/50hz
B	101273 101268	Primary Safety Control 120v/60hz Primary Safety Control 220v/50hz
C	101269	Flame Detector
D	101270 101262	SF Burner Motor 120v/60hz AF Burner Motor 220v/50hz
E	101265	Blower Wheel
F	101263	Flexible Coupling
G	101264	Fuel Pump
Not Shown	101272	Solenoid Valve 120v/60hz
Not Shown	101267	Solenoid Valve 220v/50hz
Not Shown	101332	F310 Retention Head
Not Shown	101472	Connector Tube Assembly
Not Shown	101471	Air Tube Assembly
Not Shown	101473	Nozzle Line Electrode Assembly
Not Shown	101474	Electrode
Not Shown	22137	Nozzle: 2.50 x 30A