

Model P77-3-SC30 Incinerator

Three Burner, Two Thermocouple, AutoPreheat, Upper Burner Modulation, Individual Lower Burner On/Off, Water Spray, Hi-Hi Shutdown, Chart Recorder (optional)

Installation and Operators Manual



Note exact model you purchase may look different than image due to design options.

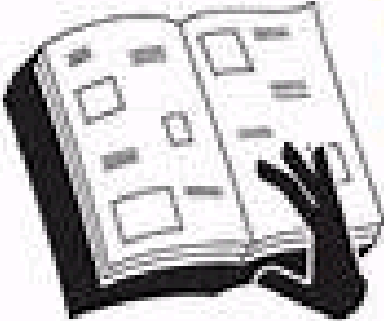
WARRANTY WARNING

- 1. Tampering with orifices in the burner without factory consent will void warranty.**
- 2. Factory has cured the incinerator but in the future any repairs of the lining may need to undergo a cure process, consult your dealer.**
- 3. Cracks in lining are normal and allow stress relief.**

All Installations Must Be In Accordance With State and Local Codes and it is the responsibility of the owner and installer to assure all codes are met



**PERSONAL PROTECTIVE EQUIPMENT
FOR CRUSHING, HEAT , ABRASION, AND DUST**

	<p>⚠ WARNING</p> <p>Failure to read and understand operator's manual & all safety signs could result in serious injury. Manual must remain with machine.</p>
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<p>⚠ DANGER</p>	
	<p>Do not store flammable materials in this area</p>

<p>⚠ WARNING</p>	
<p>HOT SURFACE DO NOT TOUCH</p>	

<p>NOTICE</p>	
	
<p>Keep area clean.</p>	

<p>⚠ DANGER</p>	
	
<p>Lock-out equipment before servicing.</p>	

	<p>⚠ CAUTION</p> <p>Equipment starts automatically Lockout and tagout before servicing.</p>
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MODEL P77-3 SC30 SPECIFICATIONS

Table 1: WASTE CHAMBER

CHAMBLER CAPACITY:	2540 lbs. of waste at 33 lbs/cu ft
CHAMBER VOLUME:	77 cubic feet
DOOR DIMENSION:	30" x 79"
HEIGHT TO DOOR:	54"
REFRACTORY:	4", 2800°f, 126 lbs/cubic feet
JACKET MATERIAL:	3/16" steel
HEIGHT TO TOP OF CHAMBER:	55" varies

Table 2: STACK AND SECONDARY

STACK:	(3) 18" Dia., 48" Long Steel Cast Lined
STACK CAP:	(1) 18" Diameter Stainless Steel
SECONDARY CHAMBER	(1) Aluminized Steel with Refractory Lining

Table 3: BURNERS

MODEL: OIL	(3) Beckett SF Oil Burner W/ Flame Safety
MODEL: GAS	(1) Midco 121 AND (2) Midco 83 w/safety controls
11/32" (350Kbtu) limiting orifices each lower burners	
OPERATION:	Remote Standing Control Box with Temperature Controls & Optional Recording

Table 4: GENERAL

INTERNAL DIMENSIONS:	32" W x 44" H x 83" L (less stack).
OVERALL DIMENSIONS (APPROX.), INCLUDING COUNTERBALANCE WEIGHTS, BURNER, STACK AND STACK CAP	6.7 ft W x 13.5 ft L x 26 ft H
ELECTRICAL SERVICE:	Standard-115 volt, 60hz, 30 amp, Also available -- 220 volts, 50hz, 15 amp
WATER, FRESH (BURN CHAMBER SPRAY)	Min. 60 psi at 0.8 gpm
GAS SERVICE BASED ON MAX RATING OF THE THREE BURNERS: (ACTUAL BURN IS LESS, FACTORY SETS FLOW AND CONTROL TURNS THEM ON AND OFF)	2,800,000 BTUH (piping sized accordingly) Natural Gas: 7" W.C. (with burners operating) Liquid Propane: 11" W.C. (with burners operating)
FUEL OIL SET RATE OF THREE BURNERS: (ACTUAL BURN IS LESS, CONTROL TURNS THEM ON AND OFF)	Fuel Oil 3 burners x 3 gph = 9 GPH Burners pumps move (not burn) approx 3x flow in two pipe operation.
TOTAL WEIGHT:	18,500 lbs (approximate, varies with features)
PAD REQUIREMENTS (MINIMUM):	6' W x 11' L x 6" Thick Concrete.
PAINT:	1200 degree primer 1200 degree paint

Table 5: CHARGING RATE

PATHOLOGICAL:	Approximate 1650 lbs. per charge at 33 lbs/cu ft of typical pathological waste with a BTU/lb rating of 1000. Less pounds for volatile wastes. Chamber may be recharged during burn with proper heat resistant safety attire that protects from flash and heat contact. Allow cool down for ash removal.
BURN RATE:	Will vary but may range up to 125lb./hr.

If on-site testing is required it is the responsibility of the purchaser and your Firelake dealer can assist in the process. Outside installation is recommended with a minimum metal roof and three-sided metal shelter, provided a **minimum** of four (4) foot clearance from any combustible material. Installations may have special insurance or fire code requirements. Advise your insurance firm of the final placement. Must be installed in accordance with local codes and ordinances, subject to governing regulatory agencies. Consult local Fire Authorities for approval of roof penetrations and clearances.

PACKING LIST

Primary Chamber Components

1	Primary Chamber w/ top & door assembly including weight box with arms.
1	Connector Stack 3 foot tall, may be attached to primary chamber
1	Toggle Clamp Ash door
3	Toggle Clamp Door

Stack Components

3	4' x 18" Painted Steel Lined Stack section with coupler for thermocouple
1	18" Stainless Steel Stack Cap
1	Secondary Burn Chamber

Burner & Hardware Gas

1	Upper Burner Midco Gas Burner
2	Lower Burner Midco Gas Burner
3	Burner Cover

Control Box

1	Control Panel, includes one or more of any of following to meet customer needs
	Digital Timer
	Digital Temperature Control
	Chart Recorder (if ordered)
	Lights, Switches, Breakers

Note: Counter weight material is supplied by factory and placed in fill box at end of door arms. Sand or gravel is typical and weight used should be tuned to allow a slow rise of the door and remain open on its own.

This incinerator must be assembled and connected to utilities by persons qualified to assure proper operation. The Operator must read this manual and understand the operation and safety before attempting use. Ash must be routinely removed by persons using proper protective clothing like masks and glove. Only qualified service people are to adjust controls or install components. Qualified is one who is engaged in, responsible for, or thoroughly familiar with the permitting, installation and operation of incineration appliances, who is experienced in such work and is familiar with the precautions required, and who will comply with all the requirements of the Authority having jurisdiction over the installation. Refer to details in this manual for other information.

SITE INFORMATION

PLACEMENT AND CONSTRUCTION RECOMMENDATIONS

- The incinerator is designed for indoor or outdoor installation on a concrete slab.
- For ease of operation and to protect the equipment we suggest the unit be installed in a three or four sided shelter with roof. Allow service space to load and unload and service the burners and controls. Allow ample cross ventilation to prevent the room from exceeding 130F. The shelter 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 the "**Combustible Roof Construction Diagram**" in this manual.

Photo of unit on a concrete surface



Photo applies to P50 or P77 Main Chamber with SC30 Secondary Chamber

Weight box and swing arms behind main chamber



Photo applies to P50 or P77 Main Chamber

Stack Cap bolted on stack flange



Secondary Chamber aligned on connector stack.



Photo applies to P50 or P77 Main Chamber with SC30 Secondary Chamber

COMBUSTIBLE ROOF CONSTRUCTION (MINIMUM REQUIREMENT SHOWN) ACTUAL PENETRATION DESIGN AND SUPPORTS MAY BE DIFFERENT FOR GIVEN SITE.

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.

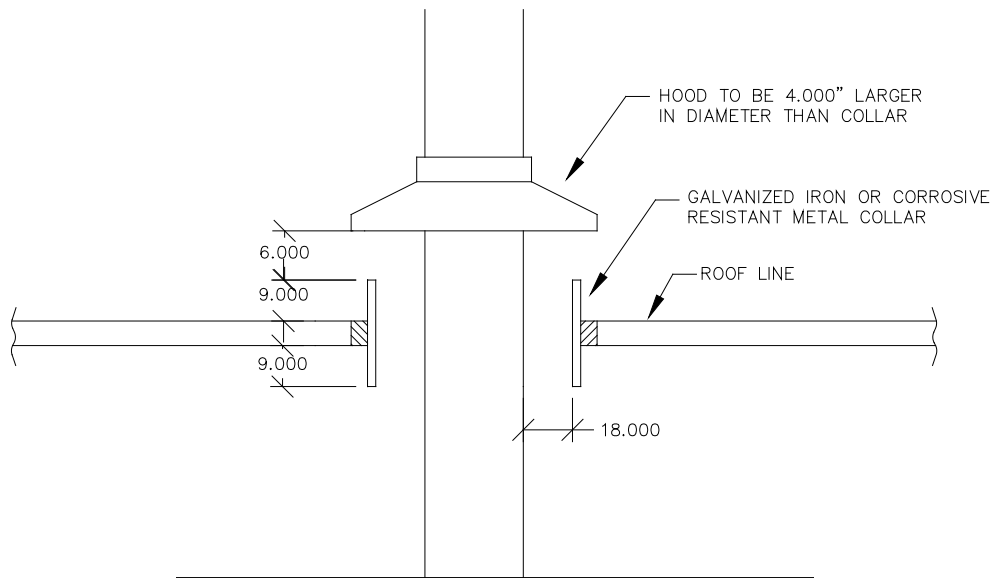


Figure 3: Combustible Roof Construction Diagram

Chambers, Stack, Control Box Assembly P50/P77-3 SC30

Read through the complete manual before attempting assembly

1. Confirm all assemblies are present before attempting assembly. Refer to picture. Major components would be three burners, a control box, secondary chamber, main chamber, door arms and weight box, stack cap and stacking.
2. Using a lift and lifting from under the main chamber position the main chamber of incinerator on pad. Pad should be level but if there is a slight slope in the pad it is best to have the high end at the stack end. Allow space for the counter arms to swing, waste loading, removing ash, servicing, and maximize distance to combustible materials. Anchoring the chamber to the pad is optional. The weight of the incinerator normally resists movement.
3. Note that if the main chamber is off level the stack will be forced off vertical.
4. To prevent downdraft the stack should be 10 feet taller than any building within 25 feet.
5. Review Flange Connection Procedure then apply mastic, rope to top of stack section extending from main chamber. Use same flange instructions for all flange assemblies to come. Align Secondary Chamber and lower on to Connector Stack. Secure with bolts, washers, nuts.
6. Attach the Stack Cap with bolts, washers, nuts to the four foot Stack Section. Apply mastic, rope to top of Secondary Chamber. Lower the assembly on to Secondary Chamber and secure with bolts, washers, nuts.
7. Field installer and customer are to determine if there is a need and arrange for reinforcement of chambers and stack to meet local weather/seismic codes.
8. Mount the Suspended Control Box with arms away from the incinerator and out of traffic routes. Umbilicals of wiring have been factory assembled and rolled up inside or under the Control Box. These umbilicals will need to be unrolled and connected to subboxes on the incinerator as indicated by labeling on the wires and boxes. Umbilicals may lay on floor or suspended. Any additional work to control box to withstand weather/seismic requirements is to be designed and installed by field installer.
9. Plan ahead to size water and fuel lines and pipe locations to not interfere with operations. Piping must also be of proper size to deliver adequate btu at proper pressure for burners. Have piping done by experienced installer to assure proper fuel delivery.

WARNING STATEMENTS ON LOADING WASTE

Some waste contains highly volatile liquids or compressed gases. Never load these as they could cause an explosion or fire. Sort such wastes from the standard waste stream and dispose of them in a safe manner.

Oils, greases, plastics, and rubber are examples of material that can add heat to the burn chamber quickly. Such materials should be burned cautiously and in small quantity until experience dictates how much to mix within the standard wastes and still be able to burn cleanly and safely.

Failure to manage and be cautious with waste loading can lead to a melt down of the internal linings, damage of seals, burner failure, or harm to operators and facilities.

ALL FLANGE CONNECTIONS

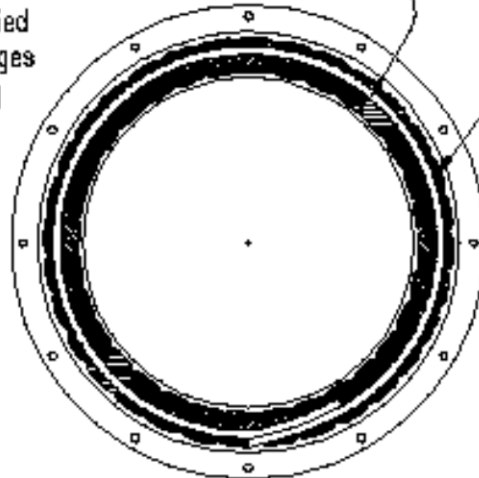
**Purpose: create air tight flange to flange connection and continue a refractory lining from stack to stack. IF mastic is used and pushes out seam smooth to match interior wall.
Mastic is also called “furnace cement” “mud”.**

Flange Connection Procedure

Apply mastic to all voids on refractory surface and create a thin layer 360 degrees around. Put no mastic on steel flange. See Typical Prepared Surface diagram.

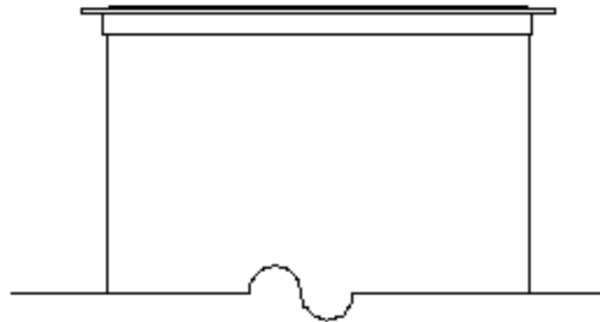
Press small gasket rope into the mastic, 360 degrees around.

NOTE: Mastic and rope are applied only to one face of joining flanges unless voids in the "dry" mating refractory surface are present. In that case, apply mastic to restore the "dry" side surface to be flush with the steel flange.



Typical Prepared Surface

Pile a 1.5 to 2 inch wide donut of mastic at 1/16 to 1/8 inch above the steel flange.
CAUTION – excess mastic can squeeze out and interfere with combustion gas flow. Scrape off excess from the interior and exterior after bolting flanges.
Experience will teach how to prep for a clean finish.



DETAILED ASSEMBLY INSTRUCTION

ELECTRICAL SERVICE

THIS INCINERATOR HAS BEEN BUILT TO OPERATE ON ONE OF THE FOLLOWING POWER SUPPLIES.
NEVER CONNECT A 115V TO A 220V SYSTEM OR A 220V TO 115V SYSTEM.

115 volts, 60hz, 30 amp or 220 volts, 50hz, 15 amp for diesel units
115 volts, 60hz, 20 amp or 220 volts, 50hz, 10 amp for gas units

- Electrical service is to be field supplied to the standing control box on the terminal strip as factory labels indicate.
- Have a Disconnect mounted near the Control Box.
- Unroll factory cables and attach labeled wires to smaller boxes on incinerator where matching factory labels indicate.
- Note that burners fire only Fuel Oil or Gas, not interchangeable. Read the section for your style burner.

WATER SERVICE PROTECT FROM FREEZING !

A WATER SPRAY BOX IS FACTORY ATTACHED TO THE INCINERATOR. A FRESH WATER LINE MUST BE FIELD INSTALLED TO THE CONNECTION ON THE WATER QUENCH SPRAY BOX. THIS LINE MAY BE FLEX OR HARD PIPED OR A COMBINATION OF BOTH. DELIVERY OF CLEAN FRESH WATER MUST BE A MINIMUM 60 PSI AT 0.8 GPM.

FUEL SUPPLY

Fuel Oil Models

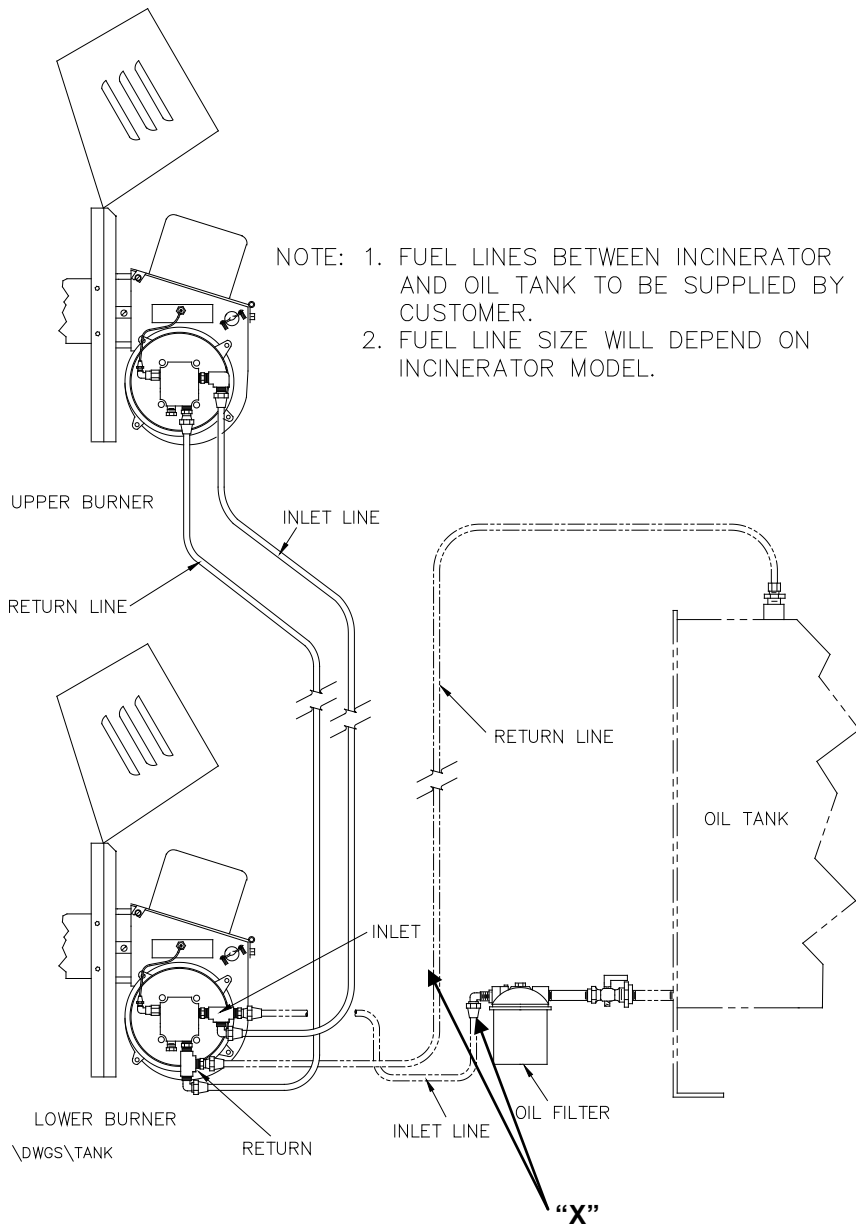
OIL TANK:

1. Since tanks vary in size and fixtures, you may need to make adaptations to use the parts supplied. Placing the tank to allow gravity flow to burners is ideal but limit line pressure head to 3 psi (nfpa rule) or no more than 10 psi (pump vendor limit) at the burner pumps. Pressure limit applies to supply and return lines at pumps. If gravity feed is not used limit the burner pump lift to 10 feet head. Note: Lift requires vacuum and is more suspect to air leaks and erratic starting of burner. Assure fittings are sealed.
2. It is important that a filter be provided in the Supply line between the tank and the incinerator. The Return fuel line allowing fuel back to the tank must be open for free flow. Placing valves or other devices in this line is not suggested as accidental dead heading and resistance can ruin oil pumps.
3. The fuel supply outlet to the burners may come from the underside of the storage tank or be pulled up through a dip tube from the top. If problems from condensation are anticipated the moisture will collect in the bottom of the tank and can cause misfiring or rust in the burner fuel pumps leading to failure. Drain water or extract it before it gets to the filter or burner pump.

PIPING:

1. A flaring connection is used on ends of the copper tubing.
2. Assemble 1/2" copper tubing to burners as shown.
3. Never use thread tape, use liquid or paste sealant.
4. Factory prebuilt piping is optional and must be ordered at time of purchase.

FUEL OIL CONNECTIONS



TIP: TANK LOCATION - HAVING FUEL GRAVITY FLOW IS BETTER THAN HAVING BURNER PUMPS SUCK FUEL UPWARD. BE SURE ARRANGEMENT MEETS LOCAL CODE AND NEVER EXCEED PUMP INLET PRESSURE.

"X" A TEE IS USED ON LINES SHOWN TO CONNECT THE THIRD BURNER LOCATED AT THE OPPOSITE END OF THE CREMATOR. THE THIRD BURNER IS NOT SHOWN FOR CLARITY.

ALTERNATE METHOD: USE TWO FILTERS IN PARALLEL FROM THE TANK. USE ONE FILTER TO FEED THE LOWER BURNERS AND ONE TO THE UPPER BURNER.

Gas Models

LP-Liquid Propane at 11 inches water pressure (21 mmHg) while operating.

NG-Natural Gas at 7 inches water pressure (13 mmHg) while operating.

Burners used are rated 800,000 or 1,200,000 or more Btu each and need gas pressure of 11 inches water column LP, or 7 inches water column Natural Gas while running. Actual gas flow will average less than rated and fluctuate depending on many factors. Local gas experts should make the final decision on pipe size. Have a trained pipe and gas person install the lines per codes that apply. Use gas approved thread sealant that is liquid or paste, not tape. Allow for future service that may require pipes to be separated. Use a drip leg to protect burners. Purge and leak test all lines before running unit.

TIP: Never exceed 14 inches water column in gas lines or it may seize the valves or regulators. Use the gauge(s) supplied or install one of your choice.

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 burners are burning).
4. Do not exceed 14" W.C.

PRESSURE GAUGE:

- A gas pressure gauge is supplied with each incinerator and should be located as close to the burner as possible. See below.
- Place a manual gas valve near burner.
- Allow for disconnecting lines, use proper fittings to facilitate service if needed.



Typical pipe assembly. Some customers have Firelake factory build the gas train thus may be different than shown.

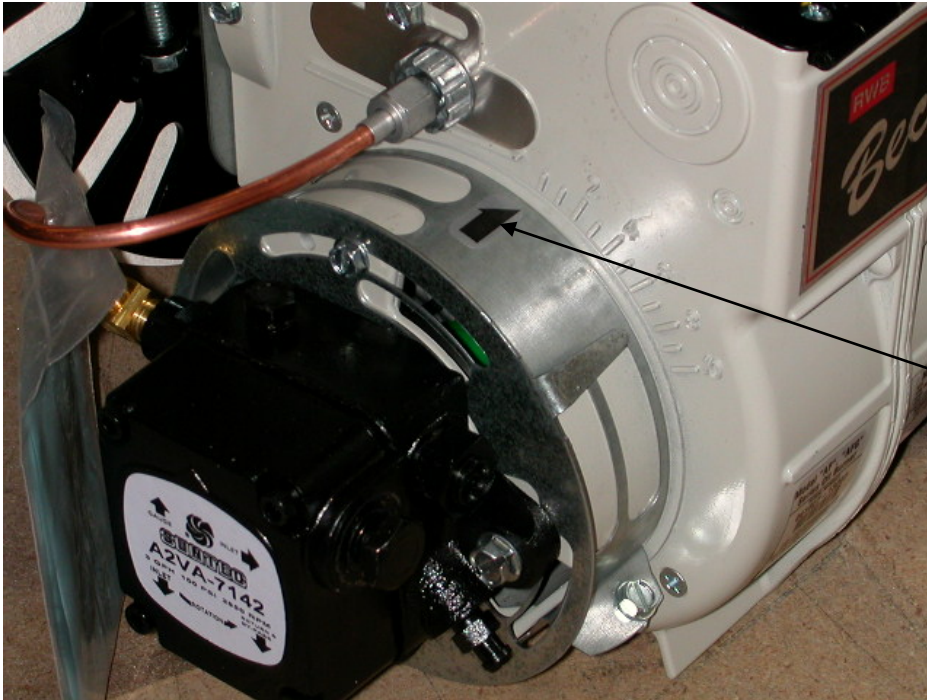
Thermocouples

Screw thermocouple in opening (apply never-seize on threads or similar antilocking paste) and only hand tighten in port. Connect wires and conduit. Connection: **yellow wire to the + side** and **red wire to the – side**.

Space conduit away from hot metal surfaces to prevent melting.

TIP: if controller shows SnSr or similar display the thermocouple is not wired proper, the red or yellow wire failed, or the inner ceramic element is failed. To confirm the controller is working shut off power to incinerator, put jumper wire across screws where red/yellow attach to controller. If a temperature is now shown on the controller it is good. Fix problem in thermocouple or its wires.

OIL BURNER SETTINGS & AIR ADJUSTMENTS

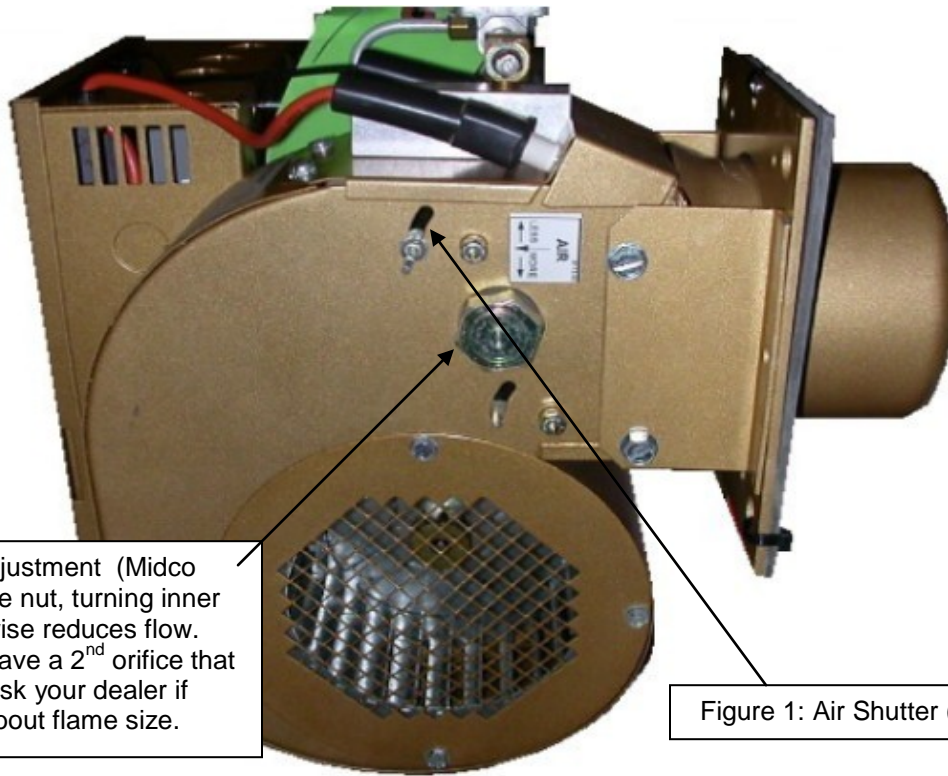


Air Band indicator is normally set to 0. Waste conditions may need field adjustment to allow more air to the burn process. Excessive opening may create unwanted positive pressure in the chamber and possible smoke to escape the seals.



Air Shutter indicator
Upper burner is normally set to 10,
Lower burner normally set to 8.
Waste conditions may need field adjustment to allow more air to the burn process. Excessive opening may create unwanted positive pressure in the chamber and possible smoke to escape the seals.

GAS BURNER SETTINGS & AIR ADJUSTMENTS



Gas Flow Adjustment (Midco burner), remove nut, turning inner screw clockwise reduces flow. Some burners have a 2nd orifice that limits flow, ask your dealer if concerns about flame size.

Figure 1: Air Shutter (Midco burner)

Model: Mid Continent Model J-121

<u>Air Shutter</u>	<u>Fuel</u>	<u>Pilot Orifice</u>	<u>Burner Orifice</u>	<u>MAX. BTUH</u>
Open	LP	#52	None	1,200,000
Open	NAT.	#50	None	1,200,000

Model: Mid Continent Model J-83

<u>Air Shutter</u>	<u>Fuel</u>	<u>Pilot Orifice</u>	<u>Burner Orifice</u>	<u>BTUH</u>
Half	LP	#58	15/64	350,000
Half	NAT	#55	11/32	350,000

Operating Instructions

Safety cannot be overemphasized when charging the incinerator. The following heat resistant garments should be worn when charging or unloading:

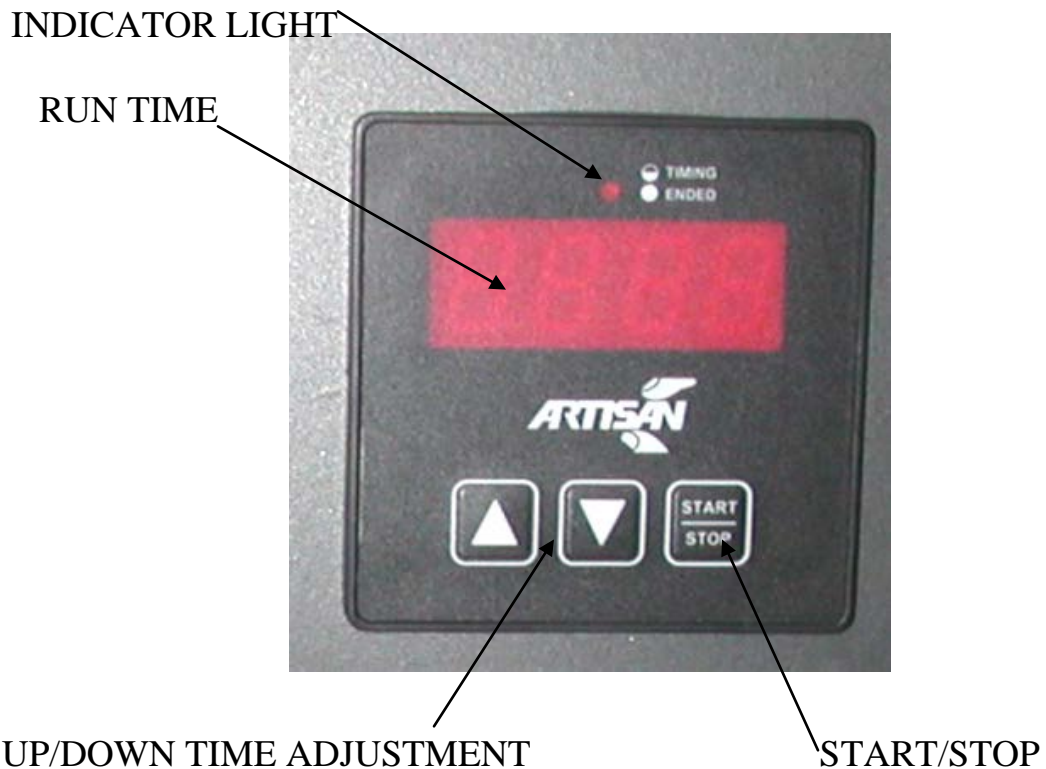
**Insulated gloves.
Full length face shield.
Full length sleeves for arm protection.**

Unprotected persons are not to be in area when charging.

1. Open door latches and remove any ashes before loading the incinerator. Caution inside chamber could be hot or flames present.
2. Load incinerator. Start off with a minimum amount of waste (significantly less than capacity) to gain experience with how your waste type burns. Excess volatile material can overcome chamber with heat and cause smoke or damage. **Keep the waste away from the burner ports and allow a gap of 4 inches along top of waste so flue gases can reach stack or poor combustion and burner damage may occur.**
5. Start incinerator by setting the digital timer for the desired burn time and press ON. Experience dictates time.
6. Upper burner starts preheating and will climb in temperature to preset value. Lower burners come on when preheat value is reached.
7. Lower burners may cycle on/off to save fuel and control heat. Upper burner is firing anytime timer is engaged and HI limit not tripped.
8. The incinerator will automatically shut off when the burn is completed.
9. Best outcome is white gray ash, color and texture varies by waste. Operator opinion varies on burn time selected and degree of burn out compared to fuel usage.

WARNING – Opening load door to access waste chamber while power is on may lead to bodily harm. The burners are automatically controlled and may come on unexpectedly. Flames from burning waste can also escape from the chamber if the door is opened.

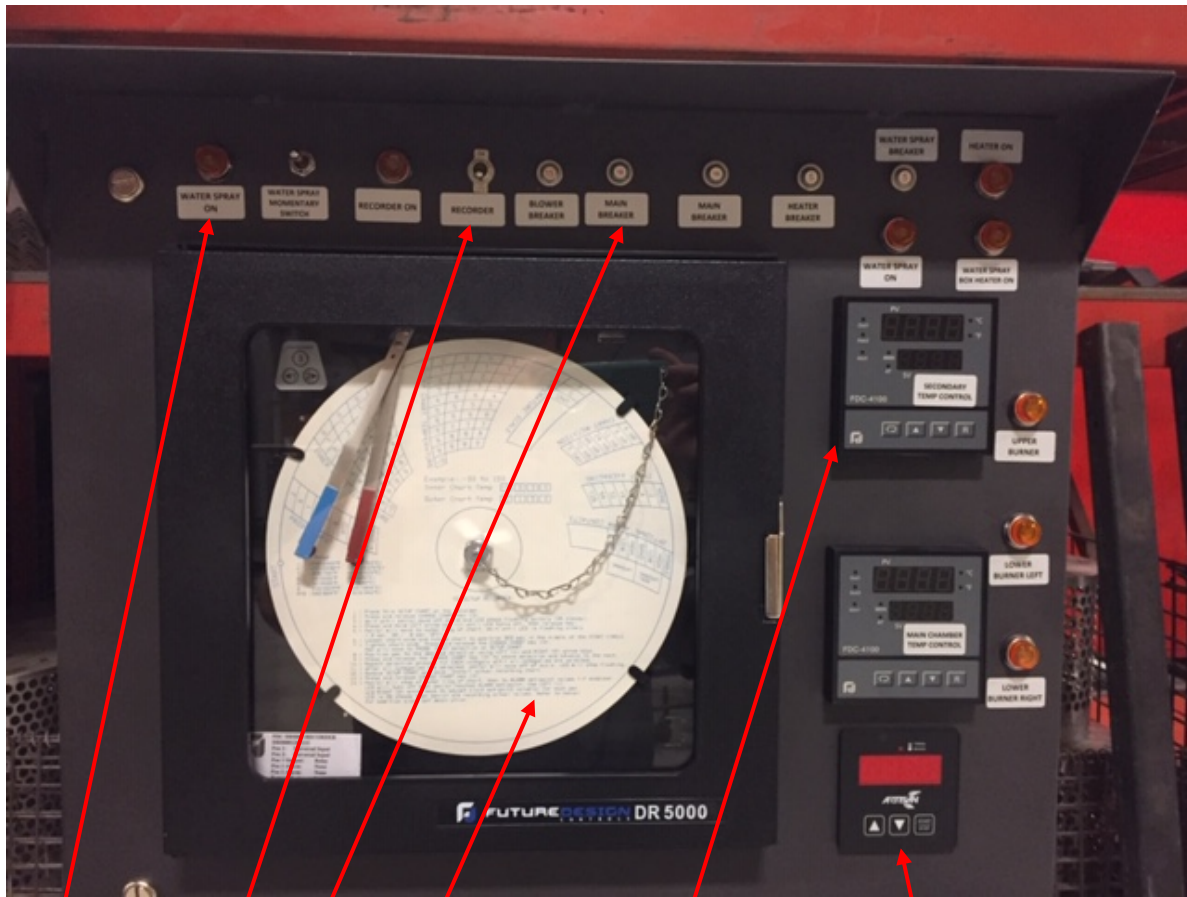
DIGITAL TIMER OPERATION



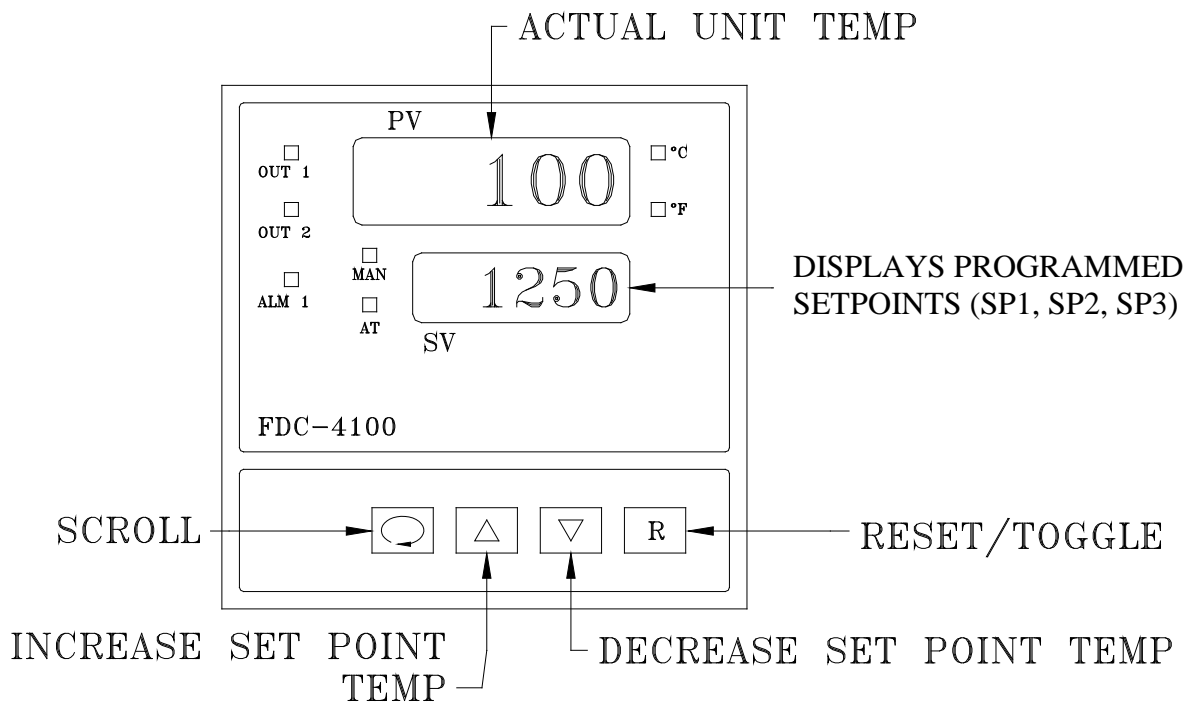
START BURNER BY SETTING THE TIMER FOR THE DESIRED HOURS OF BURN TIME. PRESS START, THIS WILL START THE BURNER. A FULL LOAD OR COLD CHAMBER START MAY NEED 8 HOURS DEPENDING ON MANY FACTORS LIKE FROZEN ANIMALS, OUTSIDE TEMPERATURE, FATTY CONTENT OF LOAD. EXPERIENCE WILL SHOW HOW TO PREDICT THE TIME AND ACHIEVE A BURN AS COMPLETE AS DESIRED.

TIP: SHOULD THE TIMER NOT RESPOND TO TOUCH SHUT OFF POWER A FEW TIMES AND SEE IF THAT RESETS TIMER

MAIN CONTROL PANEL



FDC TEMPERATURE CONTROL OPERATION



UP & DOWN arrows (triangles) may be used by operator to adjust preheat. SCROLL & RESET should only be used to view or change programming. Only trained programming persons should reprogram, and only when they are CERTAIN the change will not harm the apparatus or surroundings.



SP value is shown in green. SP1 will always be shown by default, other SP values can be viewed by clicking recycle button bottom left pad (oval loop). While a given SP is visible that SP value may be changed with arrow up and down pads beside the recycle pad.

DO NOT ALTER SP VALUES WITHOUT THOROUGH KNOWLEDGE OF CONSEQUENCES FROM DOING SO.

Upper FDC: SP1-target temperature in Secondary. Lower burners will come on at

90 degrees over SP2. SP3-HI limit value all burners shut off to prevent over firing or meltdown.

Lower FDC: SP1- value where lower burner "B1" (far end) will shut off to save fuel. SP2- value where lower burner "B2" (stack end) will shut off to save fuel at 90 degrees over SP2. SP3- Activates cooling water spray.

Output indicators for SP1, SP2, & SP3
SP indicators are either illuminated or not depending on if each SP value is met or not met at the time.



DETAILED SEQUENCE OPERATION

- Starting the timer starts the upper burner and preheats the upper chamber.
- When preheat is reached output 2 on upper FDC goes live and starts the lower burners. When the lower burners fire they often force cooler chamber air up and drop the temperature, causing temporary recycling during the preheat on lower burners. The upper burner will maintain firing to hold around SP1 upper FDC.
- Waste will soon start burning. All burners are firing. Some brief smoke or ash may be seen at startup leaving the stack. This depends on what is burned and how efficiently the ash was removed prior to the next burn.
- Associated burner indicator lights on control box will be on. If a burner light is on this means the burner should be firing, does not mean the burner has established a flame.

- During the burn if the temperature in the waste chamber exceeds programming for SP1 on lower FDC the “B1” burner fuel will be shut off until the temperature drops 90 degrees (90 degrees difference is the maximum the control can be set for on any FDC output). Then the burner will automatically refire.
- During the burn if the temperature in the waste chamber exceeds programming for SP2 on lower FDC the “B2” burner fuel will be shut off until the temperature drops 90 degrees (90 degrees difference is the maximum the control can be set for on any FDC output). Then the burner will automatically refire.
- During the burn if the temperature in the secondary chamber exceeds upper FDC SP3 (HI limit) all burners fuel will be shut off until the temperature drops 90 degrees. Then the burners will automatically refire.
- During the burn if the temperature in the waste chamber exceeds programming for SP3 on lower FDC the water spray will activate until the temperature drops 90 degrees (90 degrees difference is the maximum the control can be set for on any FDC output).
- Note on some models any FDC output not used can be utilized by the customer. This is a dry light duty amp load contact.
- As the waste burns the temperatures rise and then taper back over time.
- When the Timer expires or power is turned to OFF all burners will stop firing.
- Note on gas burners; a thermal sensor monitors temperature in the burner body. When the burner power is off for any reason and heat trips this sensor it will start the burner’s fan to cool the burner. This is to counter heat that may backflow from the internal chambers for any reason.
- Note on gas burners; a manual switch is on their housing box. The switch can be used to over-ride the FDC settings and shut off the burner’s fuel. Manually using the toggle switch may be done with the two lower burners if the waste gets the chamber burning positive pressure, rumbling, smoke or other things that indicate the waste loaded was too high a heat value and not able to burn properly. The burners can be restarted after the waste calms down.

For future reference you may want to record all the SP settings on the FDC’s, ask your Dealer to show you. (Note that some models do not use all the settings in their operation.)

Upper FDC

SP1_____.

SP2_____.

SP3_____.

Lower FDC

SP1_____.

SP2_____.

SP3_____.

MAINTENANCE SCHEDULE

DAILY

1. Check burners for smooth ignition.
 - Check gas pressure before and during operation.
 - Check fuel tank level.
 - Clean inlet to fans, remove debris, bugs from burner housing area.
 - Keep unnecessary tools and materials from incinerator area.
 - Never store combustibles on or near the incinerator.

2. Check primary chamber for wear.
 - Remove ash.
 - Check rope seals, replace as needed.
 - Check burner noses where possible to assure no debris has settled there.

WEEKLY

1. Check gas drip legs for moisture and debris, drain off.
2. Check oil filter for accumulation of water, rust, sludge, and replace as needed.
3. Check condition of hinges, pins on door weights.
4. Replace paper in chart recorder if one is being used.

MONTHLY

1. Check for gas or oil leaks in fittings.
2. Check for loosened bolts in chamber, stack, and loader.
3. Clean and repaint any worn areas before surfaces get corroded.

YEARLY

1. Disconnect power and fuel lines from burners.
2. Take burners to a work bench and examine for wear.
3. Replacing the head at the end of the burner tube, electrodes, & nozzles are common.
4. Clean the fan and inside of the burner. Use a mild abrasive cloth or wire to remove rust.
5. Replace battery in optional chart recorder.

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

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

If incinerator does not burn properly

11. Have the ashes been removed at the beginning of the day?
12. Be sure there is no obstruction blocking the burner tube.
13. Is the air shutter in the full open position? See diagram in "BURNER SETTINGS" section of this manual.
14. 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.

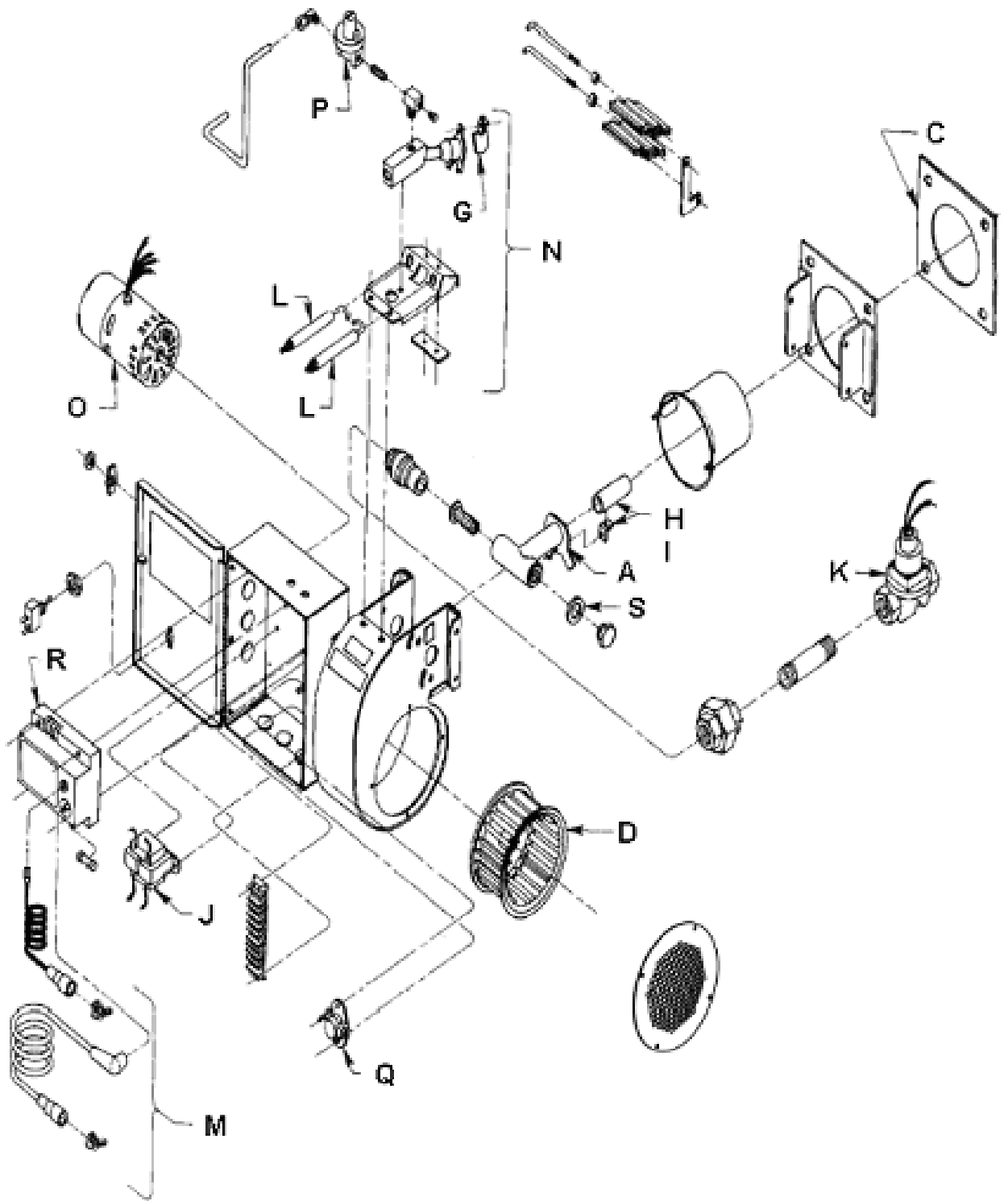
No oil spray through nozzle

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. Confirm No. 1 Fuel Oil (Kerosene) or No. 2 Fuel Oil (Diesel) is being used.
2. Are ashes or other obstructions blocking the burner tube?
3. Are the air bands adjusted correctly?

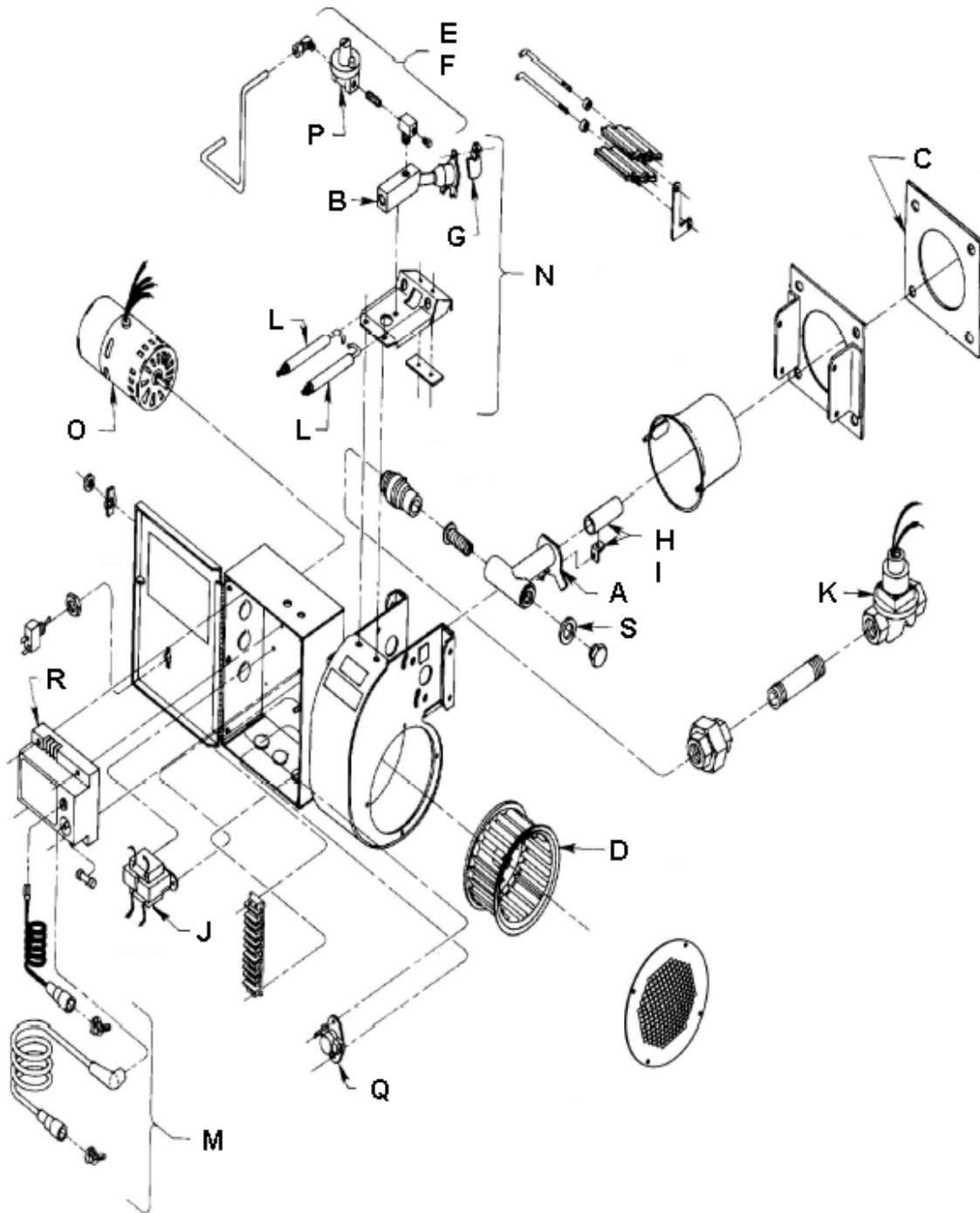
MIDCO BURNER (J121-DS) EXPLODED VIEW



PARTS LIST: MIDCO burner (J121-DS)

Key	Part Number	Description
A	33116	Manifold
C	31603	Flange Gasket
D	31586	Blower Wheel
G	33140	Ground Barrier Kit
H	31581	Main Gas Port and Tube Kit – PROPANE
I	31582	Main Gas Port and Tube Kit – NATURAL
J	33129	Transformer 115/1/50-60 Primary, 24V-30VA Or
	101420	Transformer 220/24V 50/60 Hz, 35VA
K	101419	3/4" NPT Gas Valve -- 24 Volt
L	31574	Electrode (spark or flame) - 2 required
M	101427	Electrode Wires, Boots and Strain Reliefs
N	33133	Ignitor Assembly
O	31579	Motor, 115/1/50-60 Hz Or
	101426	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	31583	PROPANE Conversion Kit
Not Shown	31584	NATURAL Conversion Kit

MIDCO BURNER (J83-DS) EXPLODED VIEW

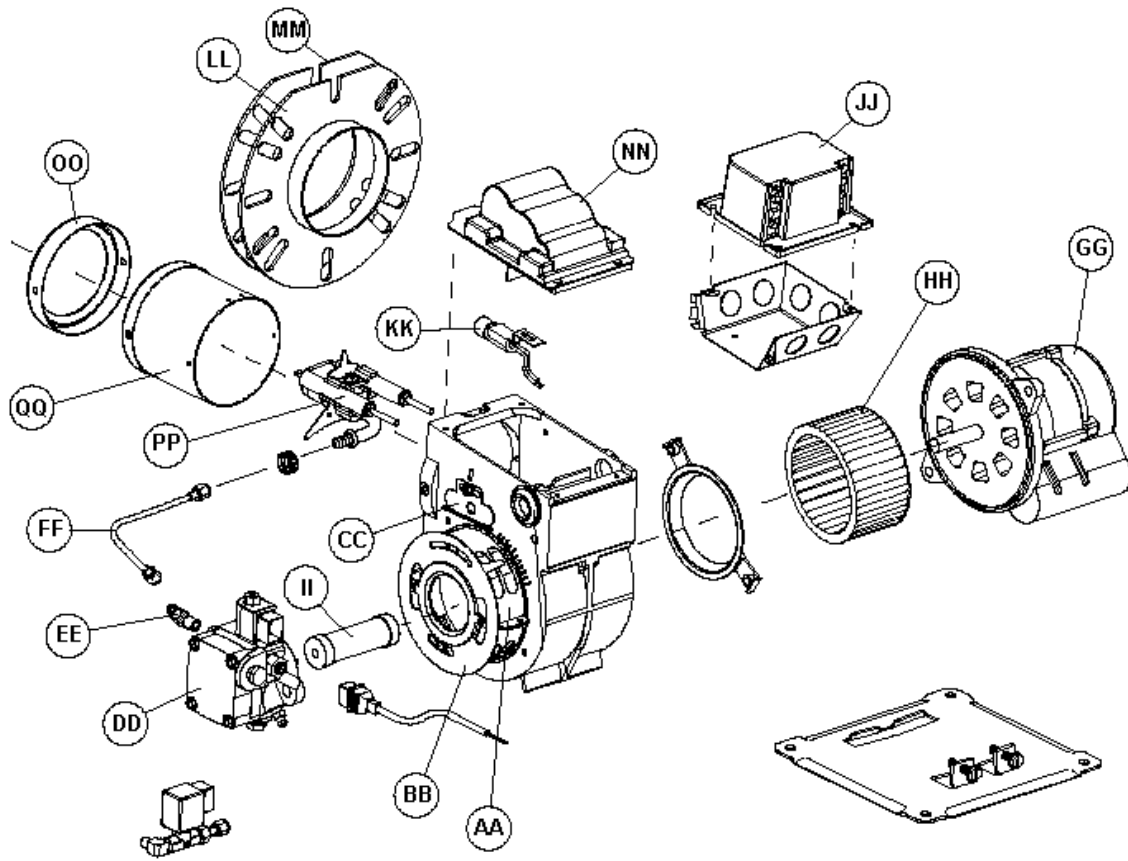


See parts list on following page.

PARTS LIST: MIDCO BURNER (J83-DS)

Key	Part Number	Description
A	33116	Manifold
B	33117	Ignitor Gas Inlet Block, Tube and Ignitor Tip Assembly
C	31603	Flange Gasket
D	33125	Blower Wheel
E	34292	Ignitor Control Piping NATURAL -- #55 Drill (.052)
F	34290	Ignitor Control Piping PROPANE -- #58 Drill (.042)
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	Transformer 115/1/50-60 Primary, 24V-30VA Or
	101420	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	Motor, 115/1/50-60 Hz Or
	101426	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 (AF) EXPLODED VIEW

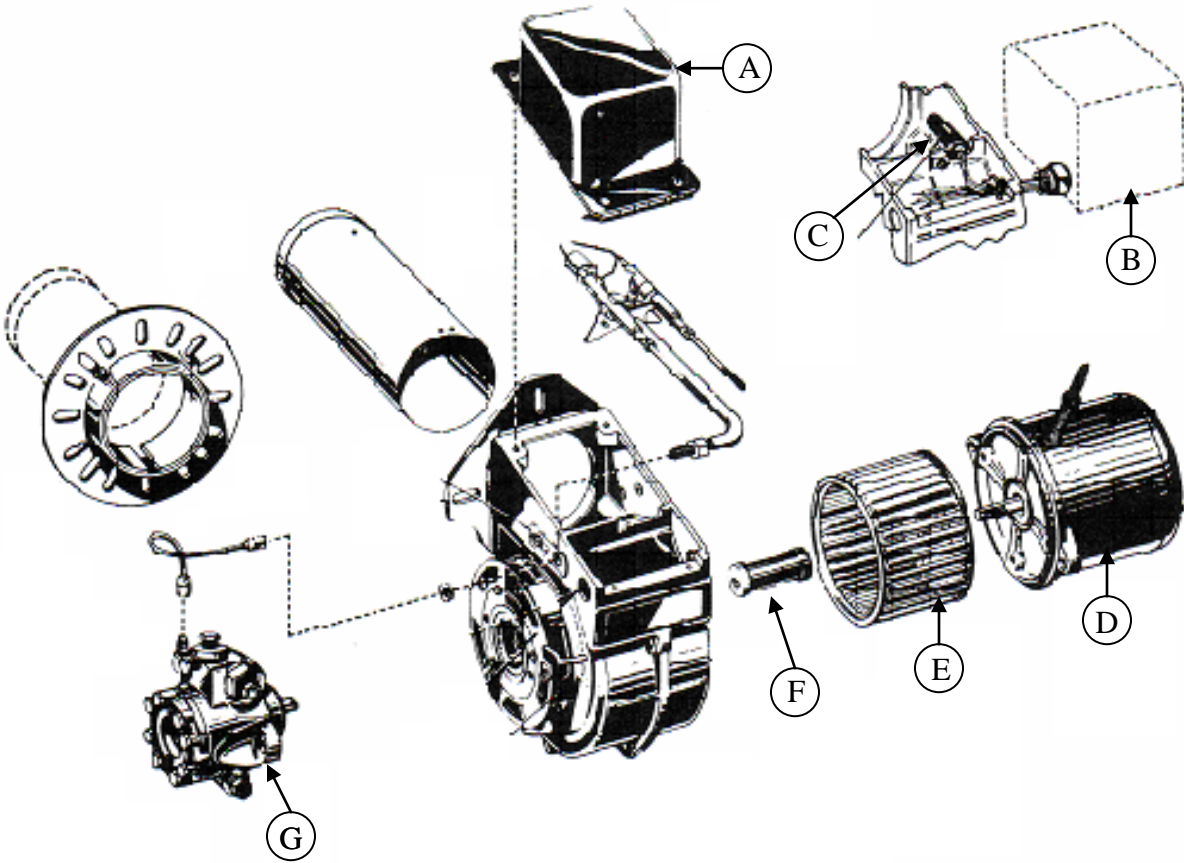


See parts list on following page.

PARTS LIST: BECKETT BURNER (AF)

Item	Description	Part Number
AA	Air band assembly – 8 slot	32322
BB	Air shutter – 8 slot	52321
CC	Escutcheon plate	32323
DD	Pump A2VA7116 (<i>Suntec</i>) 110V 220V	32341 10176130
EE	Pump elbow	57210
FF	Connector tube assembly – 8”	101472
GG	Motor 110V 220V	57208 call
HH	Blower wheel (use only RWB replacement)	57204
II	Coupling	32340
JJ	Primary Control 110V 220V	101279 call
KK	Cad cell detector	57209
LL	Flange – universal, adjustable, incl. gasket	32365
MM	Gasket only	32320
NN	Transformer 110V 220V	10170910 call
OO	Retention head	32335
PP	Electrode kit F head air tubes longer than 9”	101474
QQ	Air Tube	32351
Not Shown	Nozzle: 0.65 X 70A	24050

BECKETT BURNER (SF) EXPLODED VIEW



See parts list on following page.

PARTS LIST: BECKETT BURNER (SF)

Item	Part Number	Description
A	101255 101266	Ignition Transformer 120v/60hz Ignition Transformer 220v/50hz
B	101273 101268	Primary Safety Control 120v/60hz Primary Safety Control 220v/50hz
C	57209	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: 3.00 x 30A

REPLACEMENT PARTS - WATER BOX

MOMENTARY SWITCH (WATER) 28209
SOCKET FOR AMBER LIGHT 10066
AMBER LIGHT 28033
THERMOSTAT 24107
HEAT STRIP 24100



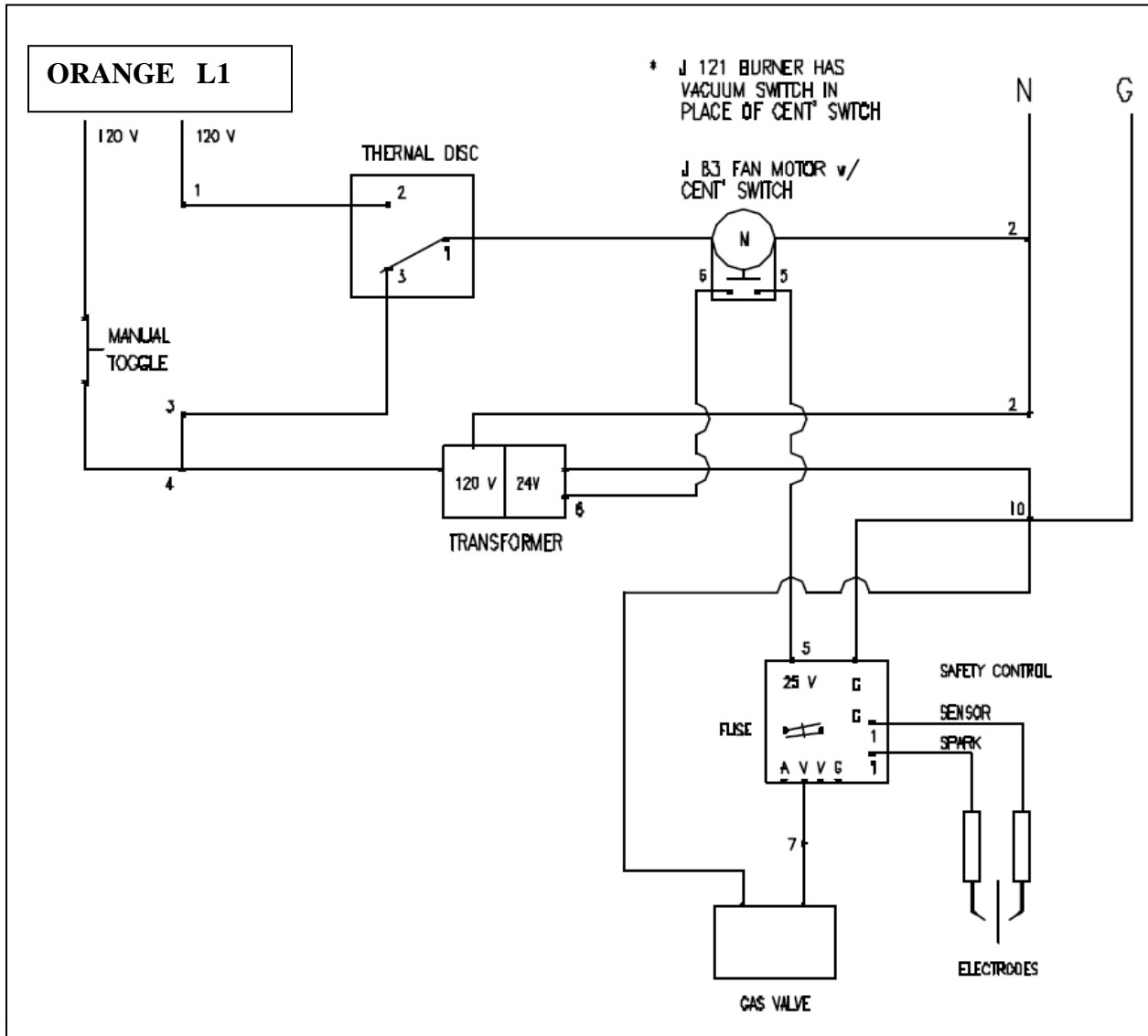
SOLENOID 28167
LATCH FOR DOOR 28130

CYLINDER 28211
WATER NOZZLE 28123 (NOT VISIBLE)
BREATHING VENT PLUG 35741 (NOT VISIBLE)
GAUGE 28180

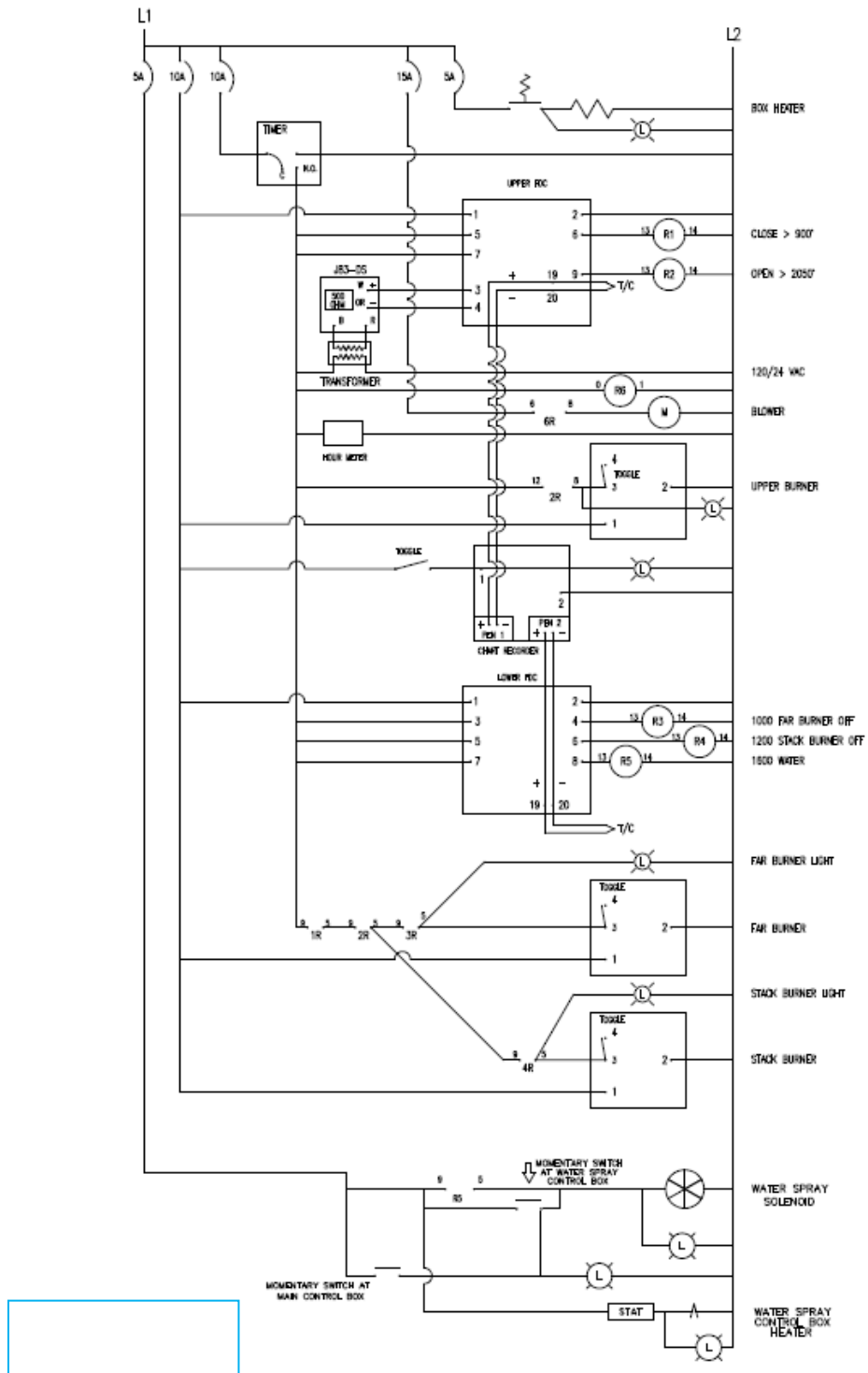
RED FLEX HOSE 28196
ADJUSTABLE HOSE CLAMP 10829400

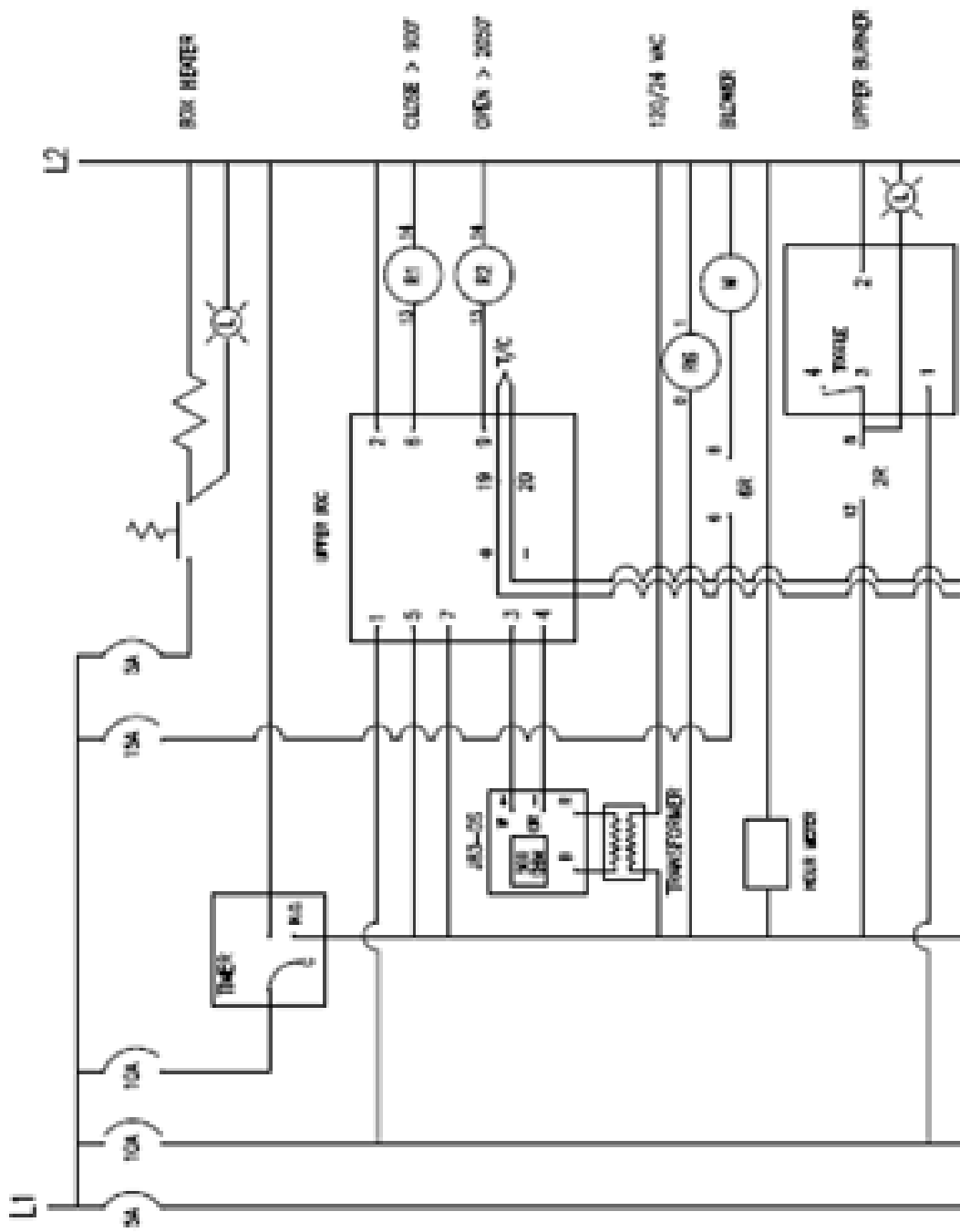
METAL PAINTED BOX W/O CONTROLS 94685, FALSE BACK FOR BOX 6016

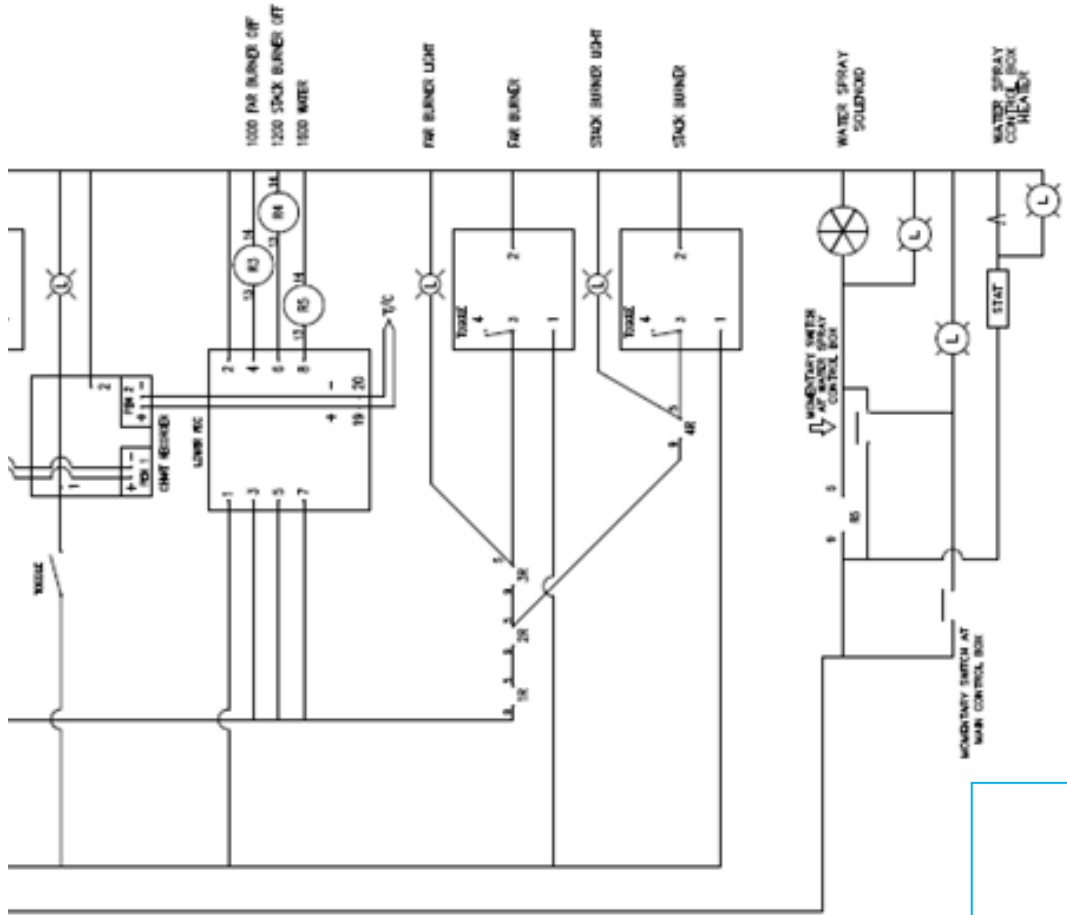
MIDCO BURNER INTERNAL WIRING



INCINERATOR WIRING DIAGRAM







**LINKAGE
DIAGRAM**

REFERENCE SHEET

LOWER FDC 4100

Input from thermocouple in burn chamber

Hold [Scroll] Button (arrow in oval shape) 5 Seconds to display menu, press UP/DOWN buttons while within each parameter to change setting. Use Scroll to move to next parameter. Push [R] button when done to save settings.

Parameter	Setting		
SEt	-----		<Scroll>
LocK	nonE		<Scroll>
inPt	y_tC		<Scroll>
unit	0F		<Scroll>
dP	no.dP		<Scroll>
SP1L	0		<Scroll>
SP1H	2498		<Scroll>
SHiF	0		<Scroll>
FiLt	0.5		<Scroll>
Pb	0		<Scroll>
out1	rEYr		<Scroll>
o1.tY	rELY		<Scroll>
o1.Ft	oFF		<Scroll>
o1HY	90	Greater value lessens burner #1 cycling	<Scroll>
rAmP	nonE		<Scroll>
out2	Py.Lo		<Scroll>
O2.tY	rELY		<Scroll>
O2.Ft	oFF		<Scroll>
O2HY	90	Greater value lessens burner #2 cycling	<Scroll>
AL.Fn	Py.Hi		<Scroll>
AL.md	norm		<Scroll>
AL.HY	90	Water spray activates	<Scroll>
AL.ft	Off		<Scroll>
Comm	nonE		<Scroll>
SEL 1 - 8	nonE		<Scroll>
			<Scroll>

REFERENCE SHEET

UPPER FDC 4100 Modulating

Input from thermocouple above secondary

Hold [Scroll] Button (arrow in oval shape) 5 Seconds to display menu, press UP/DOWN buttons while within each parameter to change setting. Use Scroll to move to next parameter. Push [R] button when done to save settings.

Parameter	Setting		
SEt	----		<Scroll>
Lock	nonE		<Scroll>
inPt	y_tC		<Scroll>
unit	0F		<Scroll>
dP	no.dP		<Scroll>
SP1L	0		<Scroll>
SP1H	2498		<Scroll>
SHiF	0		<Scroll>
FiLt	0.5		<Scroll>
Pb	100		<Scroll>
ti	0		<Scroll>
td	0		<Scroll>
out1	rEYr	Target temperature modulation	<Scroll>
o1.tY	4-20		<Scroll>
o1.Ft	25		<Scroll>
Of.st	25		<Scroll>
rAmP	none		<Scroll>
out2	Py.Hi		<Scroll>
O2.ty	rEly		<Scroll>
O2.Ft	off		<Scroll>
O2.HY	90	Greater value lessens preheat cycling	<Scroll>
AL.Fn	PY.Hi		<Scroll>
AL.md	norm		<Scroll>
AL.HY	90	Greater value lessens HI limit cycling	<Scroll>
AL.Ft	oFF		<Scroll>
Comm	nonE		<Scroll>
Comm	nonE		<Scroll>
SEL 1 - 8	nonE		<Scroll>

4970

Configurable Countdown Timer



The 4970 is a highly flexible countdown interval timer with digital display of timing controlling a set of high current output contacts. The timing cycle range can be configured for any of the following values: 00:01-99:59 Minutes:Seconds, 00:01-99:59 Hours:Minutes, 0001-9999 Seconds, and 00.01-99.99 Seconds. The two arrow buttons on the front panel are used to set the time, the Up button increases the time and the Down decreases it. The longer a button is held down the faster the rate at which the time value will change, the time value rolls around at both ends of the time range.

The Start/Stop button performs multiple functions. Pressing the Start/Stop button while the timer is Idle will energize the output power relay contacts and the controller begins counting down the time on the display, once the display reaches 0 the contacts de-energize and the unit alarms for 5 seconds and then returns to the original cycle time. Pressing the Start/Stop button while the controller is timing will pause the controller at the current time and de-energize the output relay contacts. Pressing the Start/Stop button while in pause mode causes the output relay to energize and the controller continues timing from the point at which it was paused. Should the Start/Stop switch be held down for longer than two seconds while in pause mode the controller will reset and the display will return to the original starting time.

Should power fall during a timing cycle the controller remembers the last time value and will recover upon restoration of power dependant on its configuration. The 4970 always remembers the last Interval time programmed and when first powered up resets to that time. The LED above the 4 digit display flashes during the timing cycle to indicate timing and is on continuously when the cycle is ended. The 4970 can be configured with a variety of time range, timing adjustment, alarming, power recovery, and power conservation options, see the second page for information.

Specifications

- Operating Voltage:** 12VDC -10/+20%, 115VAC ±15%, 230VAC ±15%, 24VAC ±10%, 50/60 Hz for AC.
- Current Consumption:** See table for operating current at nominal input voltages; Idle = display on, Timing = display & relay on, Standby = display off (option LP:02 selected)
- Timing Accuracy:** ±0.5% of set time.
- LED Digital Display:** Four digit red LED, 0.56" characters.
- Timing Cycle Memory:** All data stored in non-volatile memory, 10 yr. min. retention with no power.
- Audible Alarm:** Solid state alarm operating dependant on unit configuration.
- Output Contact Ratings:** See table below for various load types and voltages.
- Agency Listing:** UL File E47858: Appliance Controls - Component ATN22 (US), ATN28 (Can)
- Mounting:** 2.63 sq. cutout accepts timer which is secured with supplied bracket & nut. Mounting nut must be tightened to 3 Inch pounds.
- Wiring:** .25" Quick Connect terminals.
- Operating Temperature:** 0°C to 70°C.
- Data Sheet Revision Date:** January 23, 2012

	Operating Current (mA)		
	Idle	Timing	Standby
12V DC	55	135	20
115V AC	22	30	10
230V AC	10	15	8.0
24V AC	105	150	95

Ordering Information

Part Number	Operating Voltage
4970-1	12V DC
4970-2	115V AC
4970-3	230V AC
4970-4	24V AC

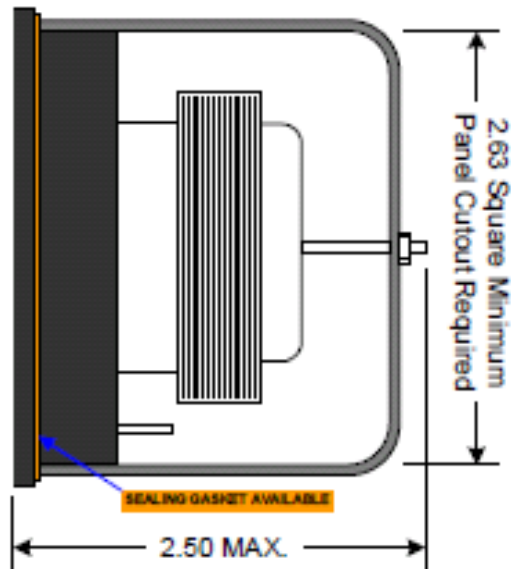
	Output Contact Ratings	
	NO Contacts	NC Contacts
Resistive Inductive	20A @ 125/240VAC, 30VDC 6A @ 277VAC	10A @ 125/240VAC, 30VDC 3A @ 277VAC
Motor	2HP @ 240VAC 1HP @ 125VAC	1/2HP @ 240VAC 1/2HP @ 125VAC
LRA/FLA	60A LRA @ 240VAC 20A FLA @ 240VAC	33A LRA @ 240VAC 10A FLA @ 240VAC
Ballast	6A @ 125/277VAC	3A @ 125/277VAC

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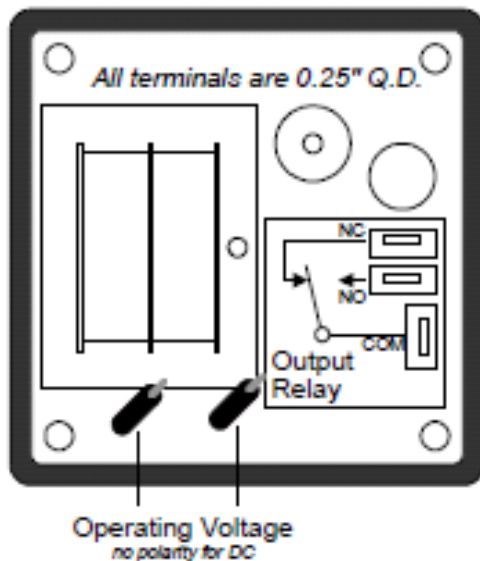
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Artisan Controls Corporation, 111 Confield Ave, Bldg B13-18, Randolph, New Jersey 07868, USA

Mechanical



Wiring



Configuration

The 4970 can be configured to any of four time ranges by performing the following. Press and hold the down button (center) and apply the power. The unit will display one of the four ranges per this chart

- 0 = 00.01 - 99.99 seconds
- 1 = 00:01 - 99:59 minutes:seconds
- 2 = 0001 - 9999 seconds
- 3 = 00:01 - 99:59 hours:minutes

To change the timing range use the up and down buttons to change the displayed value to the range desired, then turn the controller off. The next time the controller is turned on it will be operating in the selected time range.

More detailed configurations such as styles of beeping and limiting the time range are available by using the Start/Stop button in a similar manner, please refer to the 4970 Users Manual for details

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FDC (Future Design Control) Specification Review



- Power Input:
 - 90-264VAC 50/60hz
 - 11-26VAC / 11-36VDC optional
- Input sample rate - 5 scans/second
- Input Resolution - 18 Bit [262,144] [click here for 18 Bit descr.](#)
- Inputs - Universal Thermocouple & RTD
 - Linear mA/VDC inputs available as special order
- Control Outputs: Up to 2 isolated PID control outputs; to have two PID outputs #1 must be PID & output #2 is default PID Cool. Available outputs are:
 - relay 2A/240 VAC resistive [spst]
 - ssr driver - 5VDC/30mA or 14VDC/40mA
 - triac 1A/240VAC
 - 4-20/0-20mA into 500 ohms
 - 1-5/0-5VDC or 1-10/0-10VDC
- Alarm Outputs 100 Series: Up to 2 configurable outputs when Output #2 configured as an alarm.
 - Alarm #1: Form C Relay 2A/240 VAC resistive
 - Alarm #2/Output#2: Form A Relay 2A/240 VAC resistive
- Alarm Output C21 & C91: One alarm when when Output #2 configured as Alarm #1.
 - Relay Form A 2A/240 VAC resistive
- Communications: Modbus RS232, RS485 or VDC or mA retransmission
 - RS232, RS485 & Retransmission are mutually exclusive options.
 - C91 1/16 DIN: Communications and Control Output #2 are mutually exclusive.
- Transmitter Power Supply [isolated] is available in lieu of control output #2.
- Security: Software configurable - allows
 - None: All parameters are unlocked
 - Set: Setup Configuration Data is locked
 - User: All data locked except SP#1
 - All: All data locked
- Nema-4x / IP65:
 - Standard C21
 - Optional 9100, 8100, 4100
 - Not Available C91 [see DIN Accessories for external splash guards.]
- C21 / C91 Single Display Controls: Color Options:
 - Red or Green

FDC Manual not included. Programming is not encouraged w/o factory help or help from FDC

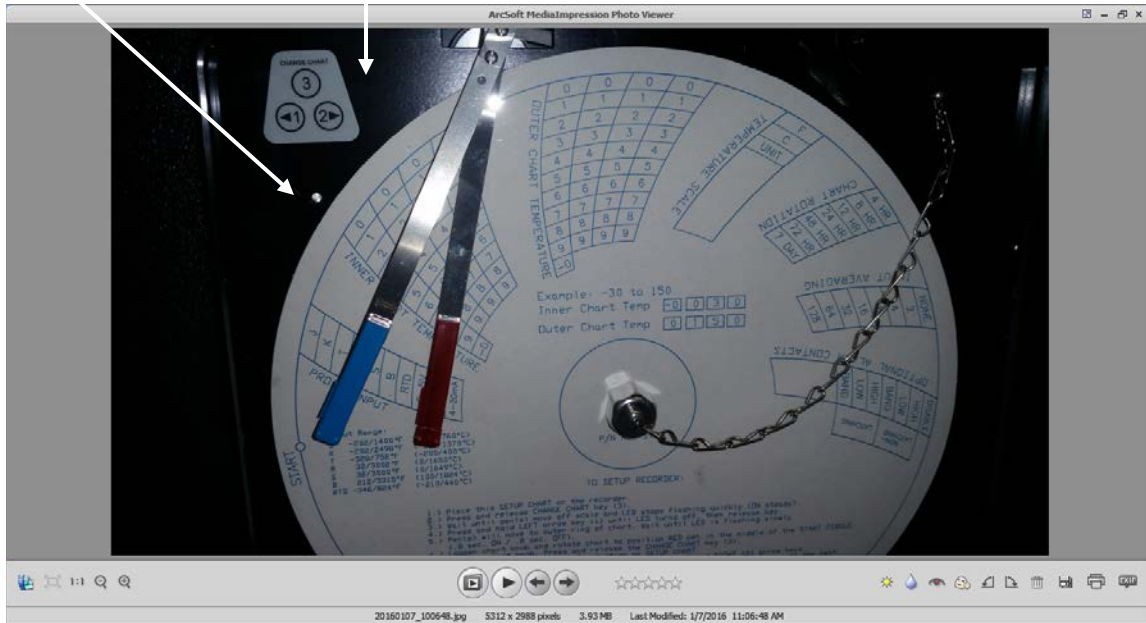
CHART RECORDER (optional)

A Chart Recorder (when ordered as an option) in the control box records the temperature of each thermocouple. The recorder is factory programmed. A toggle switch is there to cut power to the recorder if desired.

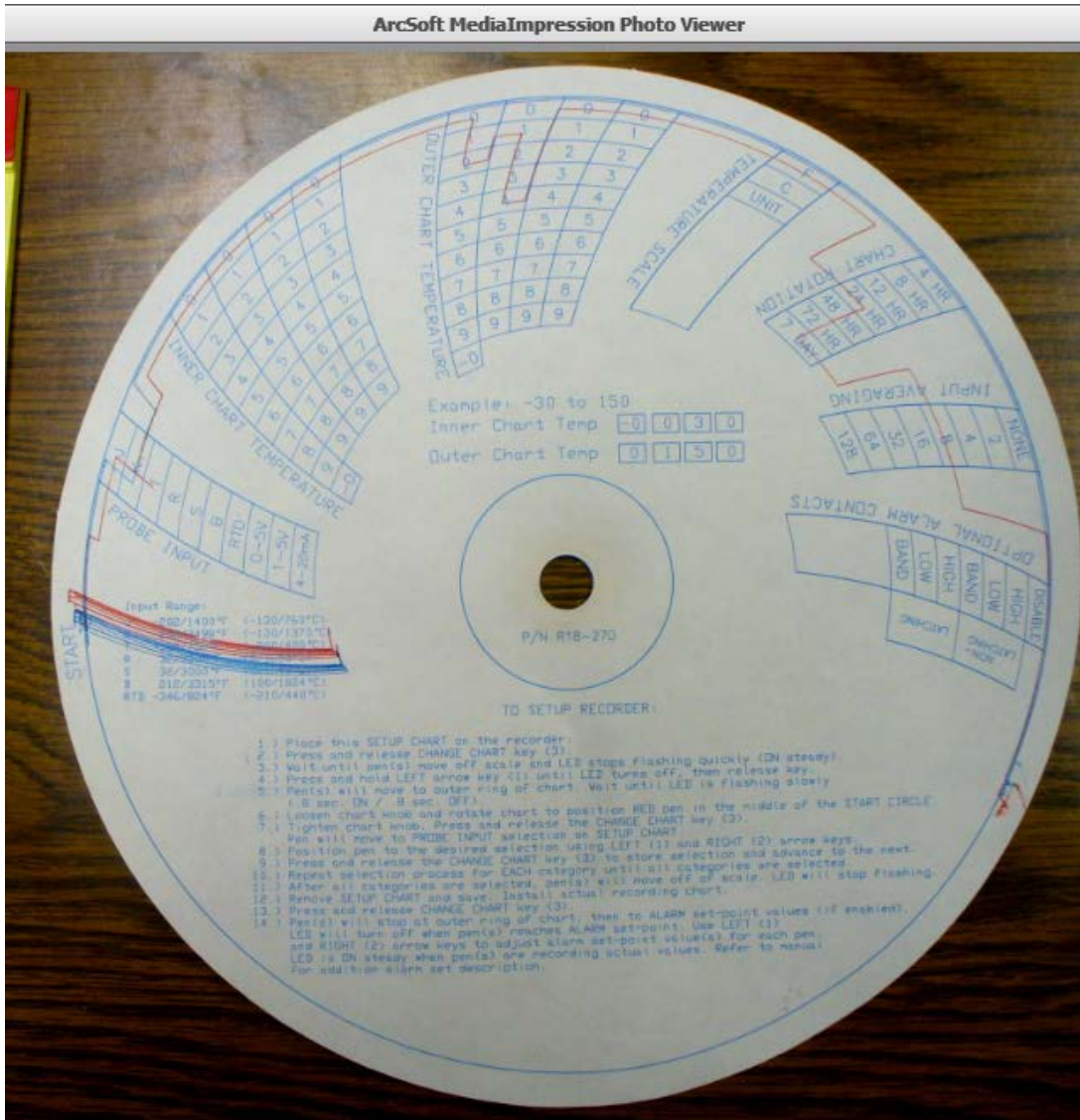


- Charts operate 24/7. Each week the chart needs to be replaced or the ink will overlap past data. See user manual for Recorder to familiarize. Refer to information on **Dual Pen Universal Ink Style. Page 14 is significant.** Simply open the face, press pad "3", and wait for pens to relocate, be patient. When action has stopped unscrew center nut holding chart, place new chart on and align day/time, screw nut down to hold in place. Press pad "3" again. Close recorder face.
- The recorder has an indicator light too. Field reprogramming is possible by using a provided blank setup chart and following the instructions printed on it. Also **see complete FDC CHART RECORDER USER MANUAL for recorder to familiarize. Refer to information in that manual for Dual Pen Universal Ink Style. Page 20 is significant.** First attempt may take 15 minutes, once you see how it works the next attempt will only take a couple minutes. A 9v battery may be installed on the recorder, it will continue to track temperature if power is lost. Life is about 2 days. Note the small green led on the recorder may flash on/off indicating low battery volts or no battery. The led will be steady green when the battery is proper.

Indicator light. Push pads 1,2,3 blank setup chart shown below



Finished programmed setup chart , values to be entered are Type K on both pens, "0000", "2400", "F", "24", "8", disabled (off chart).



TIP: When programming the chart over the thermocouple column the red pen will respond to < and > pad keys, move red pen over “K” and touch “3” on pad. You will see the blue pen slightly shift, now you need to use the < and > pads to locate the blue pen over “K”. Touch “3” on the pad and the chart will advance to next column.

Curing of the refractory has been factory done. If any new refractory is added later it is essential to cure prior to burning the first load of waste. See "REFRACTORY CURING PROCEDURE" table.

1. Remove ashes before loading the incinerator.
2. Load incinerator. Keep the waste 6"-8" away from the burner port.
3. Start upper timer with desired hours time. Upper burner fires and preheat starts.
After preheat is satisfied start lower timer with desired hours time (starts lower burner).
4. The incinerator will automatically shut off when the upper timer ends.
5. For best results, burn daily to a white ash. Load waste near hot part of flame.

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)

Curing creates hairline cracks, minor scaling of the refractory after curing is complete. This is a normal result of the curing process.

Curing Log

Each operation takes 1 hour prior to temperature change.

If the unit has steam releasing from the refractory hold that temperature until the steam dissipates and then continue.

	SET TEMP	ACTUAL TEMP.	OPERATOR
Hour 1	250° F	_____	_____
Hour 2	250° F	_____	_____
Hour 3	250° F	_____	_____
Hour 4	250° F	_____	_____
Hour 5	250° F	_____	_____
Hour 6	250° F	_____	_____
Hour 7	300° F	_____	_____
Hour 8	400° F	_____	_____
Hour 9	500° F	_____	_____
Hour 10	600° F	_____	_____
Hour 11	700° F	_____	_____
Hour 12	800° F	_____	_____
Hour 13	900° F	_____	_____
Hour 14	1000° F	_____	_____
Hour 15	1100° F	_____	_____
Hour 16	1200° F	_____	_____

WARRANTY ON COMPONENT PARTS

Professional Incinerators & Crematories

Grates & Thermocouples

Incinerator grates and thermocouples are not manufactured by Firelake Manufacturing, LLC and are therefore exempt under our regular warranty on the opposite side of this page. Firelake Manufacturing, LLC will, however, warrant grates and thermocouples used on Professional Incinerators for a period of ninety days (3 months) from date of installation. This warranty applies to grates and thermocouples found to be defective in workmanship or material and does not apply to grates or thermocouples installed incorrectly or grates which have been abused.

Controls, Recorders, and Burners

Most of our suppliers warrant their products for at least one year. If a part is found to be defective in workmanship or material within one (1) year from date of purchase, Firelake Manufacturing, LLC will either issue a replacement part or credit our customer's account for the defective part. The defective part must be returned to Firelake Manufacturing, LLC. We will in turn handle the warranty claim with our suppliers. Should our suppliers determine that the part was not in warranty, Firelake Manufacturing, LLC will charge our customer for the credit or replacement part previously issued.

FIRELAKE MFG., LLC LIMITED WARRANTY

Firelake Mfg., LLC, (“Firelake”) warrants each new product manufactured by it to be free from defects in material or workmanship for one-year from and after the date of initial installation by or for the original purchaser. If such a defect is found by the Firelake to exist within the one-year period, Firelake will, at its option, (a) repair or replace such product free of charge, F.O.B. the factory of manufacture, or (b) refund to the original purchaser the original purchase price, in lieu of such repair or replacement. Labor costs associated with the replacement or repair of the product are not covered by Firelake.

CONDITIONS AND LIMITATIONS

1. The product must be installed by and operated in accordance with the instructions published by the Firelake or Warranty will be void.
2. Warranty is void if all components of the system are not original equipment supplied by Firelake.
3. This product must be purchased from and installed by an authorized distributor or certified representative thereof or the Warranty will be void.
4. Malfunctions or failure resulting from misuse, abuse, negligence, alteration, accident, or lack of proper maintenance shall not be considered defects under the Warranty.
5. This Warranty applies only to systems for animal and medical waste. Other applications in industry or commerce are not covered by this Warranty unless prior written acceptance is granted by Firelake.
6. The product must be installed according to applicable federal, State, and local codes or regulations or Warranty will be void.
7. Use of parts for modification or repair of the product or any component not authorized or manufactured by FIRELAKE MFG., LLC, specifically for this product shall void this Warranty.
8. THIS WARRANTY SHALL BE **VOID** IF BURNER ORIFICES HAVE BEEN TAMPERED WITH OR REFRACTORY WAS NOT PROPERLY CURED.

Firelake shall not be liable for any consequential or special damage which any purchaser may suffer or claim to suffer as a result of any defect in the product. “Consequential” or “special damages” as used herein include, but are not limited to, lost or damaged products or goods, costs of transportation, lost sales, lost orders, lost income, increased overhead, labor and incidental costs and operational inefficiencies.

WARRANTY PROCEDURE

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 the purchaser is still convinced that the problem is covered by this Warranty, the purchaser should contact the FIRELAKE at the address listed below and provide a description in writing of the problem and the attempts made to resolve 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 from FIRELAKE. All requests should be addressed to the Virginia office of FIRELAKE MFG., LLC at 919 Cottontail Trail, Mount Crawford Virginia 22841, requesting specific authority for returning merchandise pursuant to this Warranty stating the reasons for the request.

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Effective 7/04

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