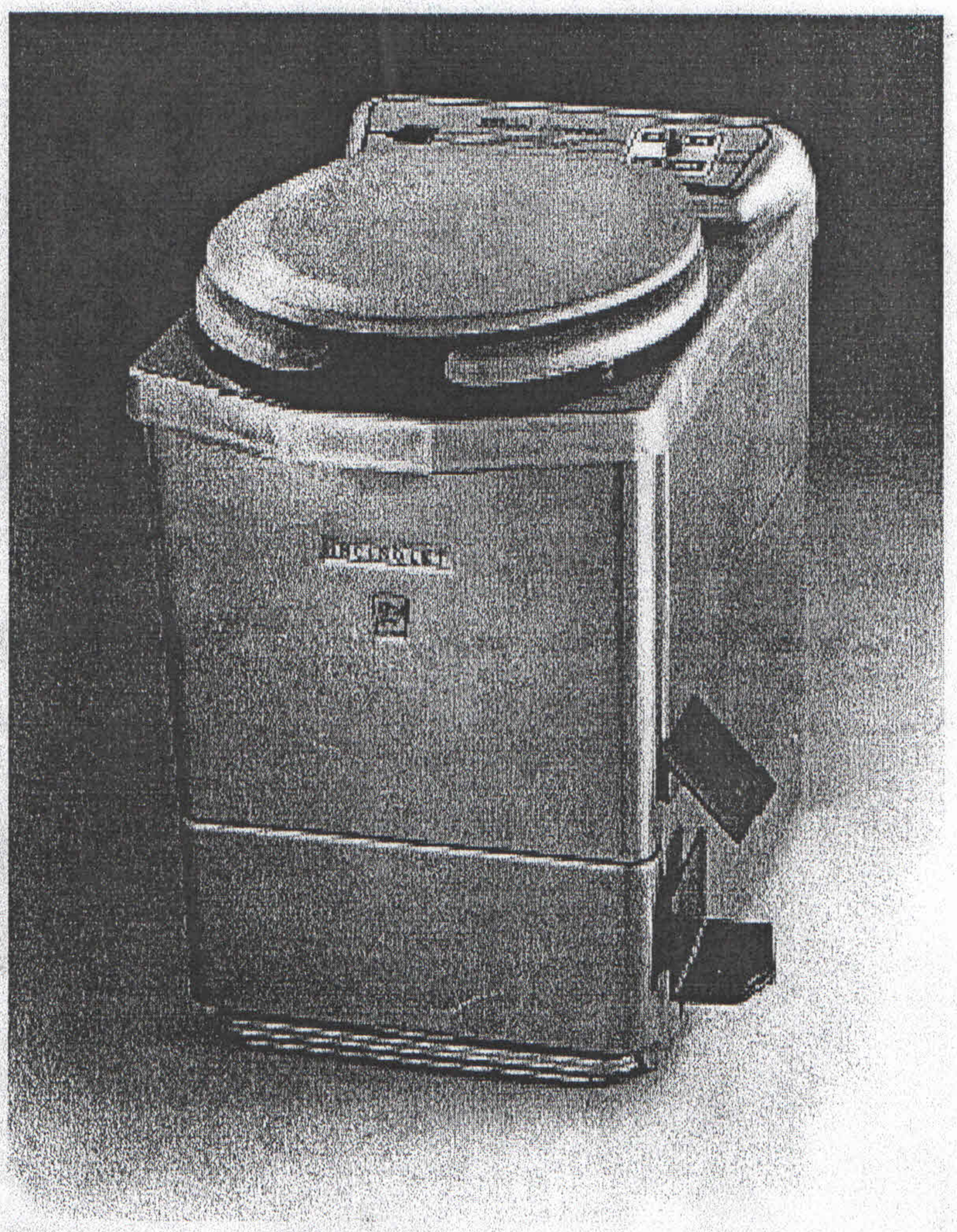
INCINOLET

Electric Incinerating Toilets

Troubleshooting Manual



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Revised 10/01/2012

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5	Odor outside	check catalyst, venting, clean toilet
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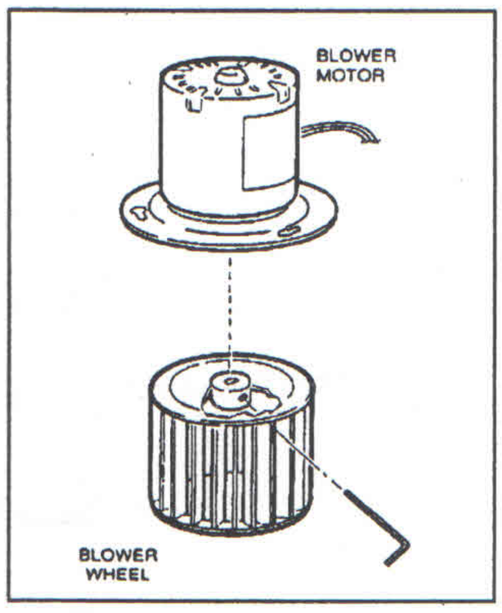
BLOWER MOTOR & WHEEL



Clean blower shell and housing every 90 days, or any time excessive noise and vibration occur.

1. Remove top of INCINOLET.
2. Disconnect two wires on side of control box to free motor.
3. Loosen (no need to remove) 3 screws holding blower motor plate. Twist and lift motor over screw slots to remove it.
4. Use 1/8" Allen wrench to remove set screw in wheel hub.
5. Clean grease and dirt from wheel with hot soapy water or a degreasing cleaner.
6. Replace wheel if corroded or if vibration indicates it is out of balance.
7. Clean inside of blower housing occasionally.

BLOWER STOPS AT END OF HEATING CYCLE

Blower should be on from 30 to 55 minutes *after* heater cuts off. Unplug toilet, remover access panel, inspect for and tighten any loose wiring. Replace blower thermostat (ITS)

BLOWER STOPS MID-CYCLE THEN COMES BACK ON – Replace blower motor.

BLOWER OFF & ON AT CYCLE END

It is normal for blower to stop for 4 or 5 minutes, then start again for a few minutes, a couple of times at end of cycle. If however, blower stops and starts rapidly, blower (ITS) thermostat is faulty. Replace ITS thermostat.

BLOWER DOESN'T WORK – BUT EVERYTHING ELSE DOES

Blower must come on immediately when start button is pushed and should not stop while heater is on. If not, check blower wheel to be sure it's not binding. Listen to blower motor for a humming sound (like motor is trying to start). This would indicate bad motor bearings. Measure voltage at terminal block on side of control box. If motor has voltage, replace motor. If no voltage, replace timer.

Check timer block. Check voltage from timer to red 3 of controller block (R3 to R7).

BLOWER STARTS A FEW MINUTES AFTER HEATER STARTS – Replace Relay.

BLOWER, HEATER WON'T *STAY* ON

If timer, blower and heater come on when start button is pushed but turn off as soon as start button is released, remove controller, then push button. If blower stays on, input voltage is too low. If blower will not stay on, replace timer.

BLOWER RUNS ON

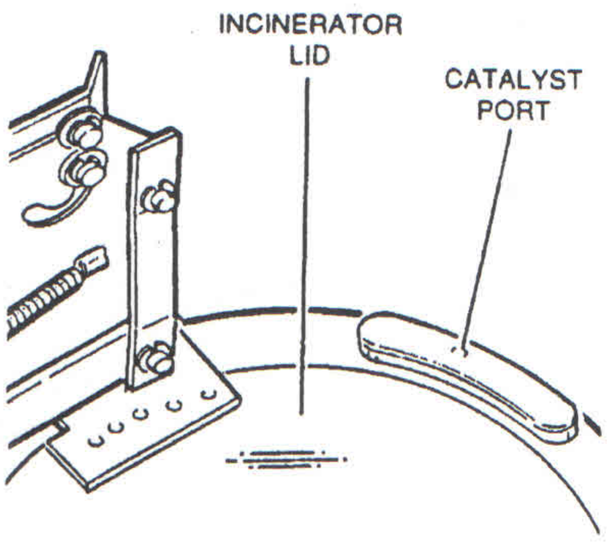
To check for bad ITS thermostat, do this: Unplug toilet. Pull timer out of socket. Plug toilet in. If fan comes on (without pushing start button), replace ITS thermostat.

VIBRATION - Clean or replace blower wheel.

TIPS FOR REMOVING BLOWER WHEEL FROM SHAFT:

1. Remove motor and wheel assembly from housing.
2. Insert a file or other rigid metal piece between wheel and base of motor.
3. With motor down, place file across jaws of vise or other holder so weight of motor rests on file.
4. Tap end of motor shaft with hammer to drive shaft through wheel hub without damage to motor.

CATALYST



Renew Catalyst

INCINOLET uses a heat-activated catalyst to suppress smoke and odor. The catalyst, white pellets, is located within the incinerator chamber, between the inner and outer walls. These walls are perforated to allow the blower to draw smoke and odor through the catalyst. Catalyst pellets should remain effective for many years. To check catalyst, unscrew two acorn nuts and remove cover to catalyst chamber. If chamber is not completely full, add catalyst. It is normal for catalyst pellets to darken over time.

Catalyst is platinum iridium. Catalyst in oldest toilets looked like aquarium gravel, since about 1993, it looks like small spheres. Old catalyst does not need to be removed, just add to it till port is full. New catalyst can be added to old. Color does not affect effectiveness of catalyst.

Catalyst port is located on the top surface of the incineration chamber, toward the back of the toilet (northwest quadrant). It is a slot about 5 inches long and ¾ inches wide, covered with a lid.

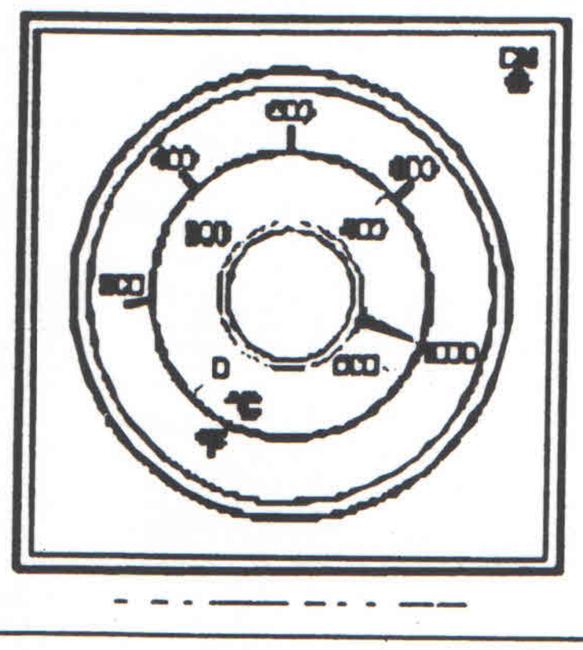
Some older toilets have a port which is covered with a lid crimped like a paint can lid (about 5 inches long, ¾ inches wide).

Current toilets (SN 2, 3, 4, or 5----) have a flat lid on the catalyst port with two acorn nuts.

ODOR OUTSIDE

1. Catalyst port perforations are clogged. Clean chamber wall behind heater coil with small brush.
2. Incinerator lid is hanging open, allowing odor to escape.
3. Urine on floor or within insulation of chamber - Clean.
4. Remove catalyst pellets with small vacuum to remove dust, then replace them in catalyst port.

CONTROLLER



TIMER & TEMPERATURE CONTROLLER
THE KEY TO TROUBLESHOOTING

Timer and temperature controller are within control box in upper right corner of housing, accessible with top removed. Timer has two lights: green and red.

Temperature controller has one red light. A steady green light on timer indicates unit has power and is ready for operation. When start button is pushed, green light begins blinking and the red light comes on and stays on for a timed interval, during which the temperature controller is activated and its red light is on. Controller red light means that the relay is activated and supplying power to heater. Controller red light stays on until (1) timer cuts off after the timed interval, or (2) heater reaches maximum allowed temperature and thermocouple signals controller to open relay. In actual operation, when timer reaches end of timed interval, its red light goes off, and blinking green light turns steady again. During the timed interval, controller red light will be on constantly until heater reaches about 1200 degrees F, at which point controller red light goes off and the relay opens. Controller red light comes on again after 30 seconds or so, stays on for about 40 seconds, then goes off again, and so on until the end of timed interval.

Controller responds to the output from the thermocouple, which measures heater temperature. When the temperature of the lower coil of the heater reaches approximately 1200 degrees F., controller shuts down the relay, which cuts off the heater. When heater temperature falls to about 1000 degrees F., controller again activates relay and heater comes on. Heater is off, then on, about twice a minute.

CONTROLLER LIGHT OFF – NO HEAT, BLOWER WORKS

Test thermocouple (see page 11). If it's OK, then replace controller.

CONTROLLER LIGHT ON - NO HEAT, BLOWER WORKS

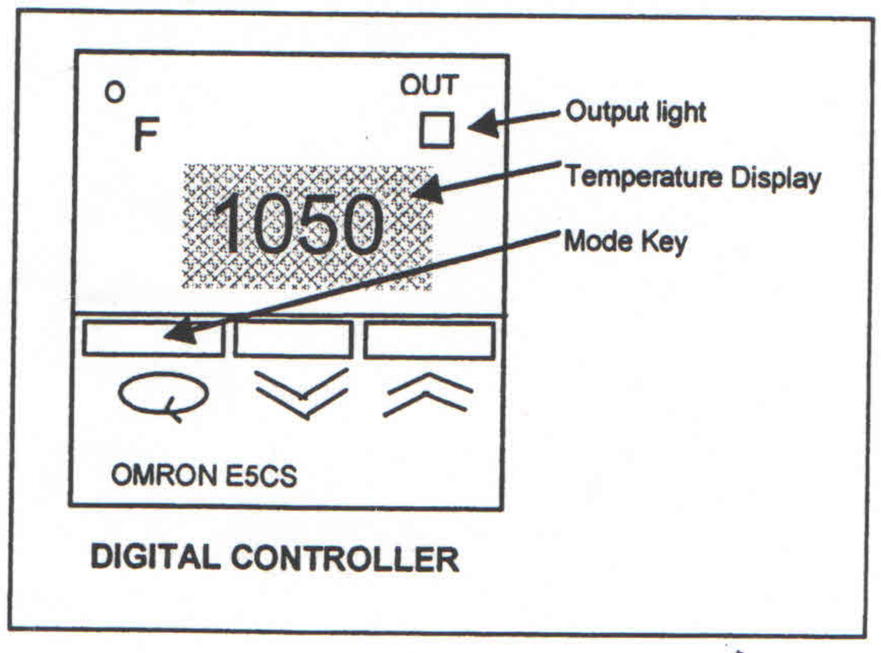
Measure voltage at heater terminals. If you have full voltage, replace heater.
If no voltage, inspect orange circuit for bad connections. If connections are OK, replace relay.

HEATER RUNS ON (Paktronic controller – only on pre-1993 units)

While toilet is running, pull timer. If heater stays on, replace Paktronic controller. (This part is no longer available.)

Notes:

1. Clicking noise in top box is relay, not controller.
2. Paktronic controllers (used on pre-1993 toilest) have a relay built in, so if heater runs on, Replace controller.
3. Controller has 2 inputs: Timer and Thermocouple.
4. Controller light goes out if thermocouple is bad, but will be on if relay is bad.



DIGITAL CONTROLLER

Ditigal Controller will replace analog controller in 2013. It will fit the 8-prong socket already in use for both the 120 volt and 240 volt analog controllers. The maximum temperature setting for 120 volt units is 1050 degrees and it is 999 degrees for the 240 volt units. Touch the "Mode Key" to toggle between those two temperatures. The lower portion of the top opens, but those settings have already been made. DO NOT CHANGE SETTINGS EXCEPT WITH THE "MODE KEY"!

HEATER

NO HEAT - BLOWER ON, 3 LIGHTS OK

Remove top, examine timer and controller. If both timer and controller lights are on, then heater may have failed. To verify, remove access panel, measure voltage directly across heater terminals - not from terminal to ground. If voltage appears, replace heater. If no voltage, check orange wire circuit for bad connections. Measure voltage across TS and ITS thermostats. There should be no voltage. If there is voltage, replace thermostat If all is OK, check relay. To verify bad relay, measure voltage across contacts 0 and 1 on relay. If there is voltage, replace relay.

NO HEAT – BLOWER ON, NO CONTROLLER LIGHT

1. Test thermocouple (p.11) If controller light comes on, & blower works, replace thermocouple.
2. If controller light does not come on, replace controller.

CIRCUIT BREAKER GOES OFF WHEN BUTTON IS PUSHED

This indicates heater may be shorted to ground. Unplug toilet and remove access panel. Remove orange lead wires to heater terminals. Push start button. If blower comes on and circuit breaker does not trip, heater is shorted. Replace heater.

Unplug toilet. Examine all wiring which might be grounded by touching housing. Replace any bare wires. Using ohmmeter, measure continuity to ground, also from heater terminal to terminal. 120 volts should read 8 ohms, 240volts should read 16 ohms.

HEATER DOESN'T GET RED / HOT ENOUGH

1. Check controller setting. It should be set at 1000 degrees F., or higher.
2. Suspect thermocouple. Test by twisting gray and purple wires together. If you get full heat, replace thermocouple.
3. Next, test voltage across both heater terminals. If you have full voltage, but still not enough heat, replace heater.

Note: In older units (with single pole relay – REL001 and REL002), 240v. heater coils can short out and see only 120 volts. The coil will not be bright red all the way around and can run on longer than the time set on the timer. Replace heater.

HEATER, BLOWER WON'T *STAY* ON

If timer, blower and heater come on when start button is pushed but turn off as soon as start button is released, replace timer. To test: Pull controller. If blower stays on, then check voltage at outlet to be sure it's enough. Voltage may be too low.

HEATER RUNS ON

1. Check timer. In pre-Omron units, Replace timer. If there is vibration, suspect that it has wrecked the relay inside the timer. Replace timer.
2. Before S/N TR 25300 or CF 33250 – we used REL005 (120v.) and REL006 (240v.) – single pole relays. A 240-volt heater could short to ground and see only 120 volts. Heater could run on. Replace heater coil.
3. If toilet has Paktronic controller, it may be bad. (This part is no longer available.)

WIRES BURN OFF AT HEATER TERMINALS

Connection is not tight enough. If connection is loose, it heats then oxidizes, then it gets hotter and corrodes more till it is finally hot enough to burn through the connector.

HEATER ON FOR SHORT PERIOD (10-15 MIN.), THEN OFF FOR 10-15 MIN.

Indicates poor connection at STS or TS thermostat, causing overheating and then an open circuit.

Chart of Heaters

020	240	3500	7-7/8 (21.7cm)	4	5-32-44-15	* 20-22xxx	med 8-5/8
007	240	3500	7-1/2 (20.7cm) 16A	4	5-32-44-16	22xxx	EUROPE
021	240	1800	6-3/16 10A	3	5-32-266-14	3xxxx	EUROPE
041	240	1800	7-1/2	4	5-32-44-36	572xx	EUROPE
002	208	3200	8-1/4	4	5-32-44-13	1xxxx	
009	208	3500	7/12	4	5-32-44-18	22xxx	
022	208	1800	6-3/16	3	5-32-266-15	3xxxx	
003	120	3400	8-1/4	4	5-32-44-6	1xxxx	
008	120	2400	7-7/8	3	5-32-266-2	* 20-22xxx	
013	120	1800	7-1/2	3	5-32-266-5	22xxx	
023	120	1800	6-3/16	3	5-32-266-16	3xxxx	
040	120	1800	7-1/2	4	5-32-44-35	572xx	
028	120	1250	6-3/16	2	5-32-267-9	CF-2	
033	120	1000				CF-1	
010	220	3200	7-1/2		5-32-44-21	JAPAN TR	
006	200	3600				JAPAN 2xxxx	
017	100	1800	6-3/16	3	5-32-266-18	JAPAN 3xxxx	
036	100	1800	7-1/2	3	5-32-266-23	JAPAN TR	<2008, 2011>
	100	300	2-1/4	2	3-32-888-76	JAPAN	after burn
038	200	450	2-1/4	2	3-32-888-77	JAPAN	after burn
	100	450	2-1/4	2	3-32-46-35-1	JAPAN	ab 2011>
	200	600	2-1/4	2	3-32-46-35-2	JAPAN	ab 2011>
**** Important to check traveler sheet for proper heater.***							

Notes:

Manufacturer's part number, volts, and watts is imprinted on the sheath near terminal.
120 volts – green dot near terminal
208 volts – blue dot near terminal
240 volts – red dot near terminal

HEA041 – 120v. 1800w. – purple dot near terminal.

Relay

Relay acts as a switch that controls electric current to the heater within the time constraints of the timer and the temperature constraints of the controller. Relay is located in the control box beside the timer and controller.

To replace relay:
1. Remove six lead wires to relay terminals. Carefully mark so you can reattach in proper positions.
2. Hold back spring clips that hold relay in place.
3. Pry relay out. Replace and reattach wires.

HEATER COMES ON BY ITSELF WHEN PLUGGED IN (NO FAN)

1. Heater may be grounded – coils not entirely red, timer red light not on. Replace heater coil.
2. If little button on side of relay doesn't spring in and out when touched, it's bad. Replace relay.

NO VOLTAGE AT HEATER TERMINALS, BUT FAN WORKS, LIGHTS ARE OK

Inspect orange circuit for bad connection. If OK, replace relay.

NO HEAT – BLOWER ON, 3 LIGHTS OK

Check voltage at terminals. If you have full voltage, replace heater. If no voltage, measure voltage across contacts 0 and 1 on relay. If there *is* voltage, replace relay. NOTE: Contacts 0 and 1 are input contacts, so if there is no voltage out, it's a bad relay. To check voltage, connectors must be raised slightly for proper voltmeter contact.

Check orange circuit for failed connections. If all are OK, replace relay.

ERRATIC OPERATION

Check for loose or burned wires. If there are none, replace relay.

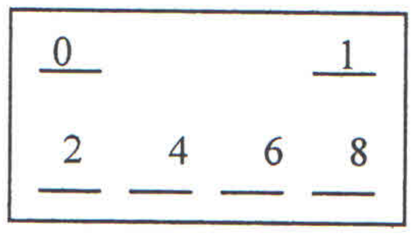
Notes:

1. Small button protruding from side of relay goes in when start button is pushed. If not springy to the touch, replace relay

2. Before July, 1997: We used REL005 (120v.) and REL006 (240v.) - single pole relays. A 240 volt heater could short to ground and see only 120 volts. Heater could run on. (before S/N TR 25300 or CF 33250). Wires: tan 0 to 0, tan 1 to 1, orange and white to 2 and 4, **OR** to 6 and 8.

3. After July 1997: We've been using a double pole relay - REL007 (120v.) and REL008 (240v.). If Traveler Sheet doesn't say "double pole", then it's a single pole.

4. Wires are attached to posts 0 and 1 (input).
   Also to 2 and 4 OR 6 and 8 (output).
   Never attach wires in a 2 and 6 or 4 and 8 combination.
   Newer units have 6 posts (after TR 25300 or CF 33250).



Relay

0 = tan 0
1 = tan 1
2 = white 3
4 = orange 4
6 = orange 2
8 = orange 8

5. Clicking noise in top box is relay and means it's trying to work but can't.

6. Paktronic controller (used before 1993) has relay built into it, so if heater runs on, replace controller.

To make a double pole relay a single pole: 0 and 1 are input. For output, use either 2 and 4 **OR** 6 and 8.
Double pole: REL007 (120 volts) and REL008 (240 volts) – used after July, 1997.
Single pole: REL005 (120 volts) used before SN 33250 and REL006 (240 volts) used before SN 25300.

START SWITCH

Pushing the start button closes the start switch, which engages a timer. Timer begins a new cycle each time start switch is closed. Timer doesn't accumulate time, merely starts over again.

On older units, if fan and heater come on when unit is plugged in, start switch could be stuck. Not likely, so check other things.

<u>HEATER AND BLOWER COME ON WITHOUT PUSHING BUTTON</u>

Start switch could be stuck or broken. Replace start switch.

THERMOCOUPLE

Thermocouple, type K, develops a small voltage proportional to the temperature of the heater. Thermocouple, in combination with the temperature controller, limits temperature of the heater and prevents overheating. Thermocouple is located to the right of and midway between heater terminals. Tip of thermocouple makes contact with the lower heater coil. Thermocouple has two wires within a yellow sheath. Red wire must be connected to purple lead #7 within the "F" wire nut. Yellow wire must be connected to gray lead #6 in "E" wire nut.

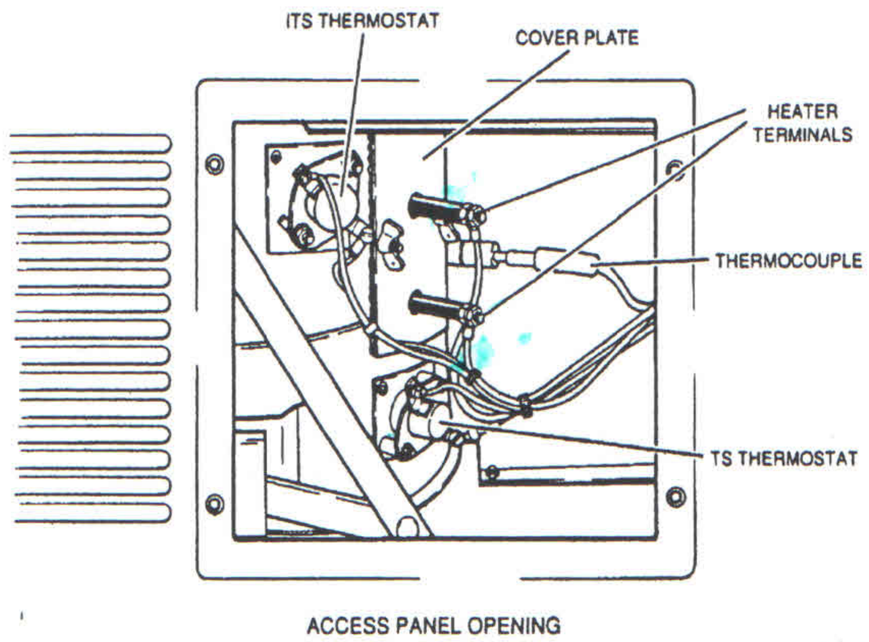


FIG. 5

IMPORTANT: EXACT PROCEDURE MUST BE FOLLOWED TO PREVENT OVERHEATING AND HEATER FAILURE:

1. To replace thermocouple, disconnect wire leads with "E" and "F" wire nuts. Then push in knurled rod, turn to disengage, pull out thermocouple.
2. To install new thermocouple, reverse procedure. Make sure that wire with red core is connected to purple #7 and yellow core wire is connected to gray #6.
3. After inserting thermocouple, be sure that the tip is making contact with lower heater coil along outer surface of coil.

THERMOCOUPLE
- Red ⟷ Purple
- Yellow ⟷ Gray

RED LIGHT ON CONTROLLER MEANS THERMOCOUPLE IS OK

TO TEST THERMOCOUPLE: Twist gray and purple wires together. Plug unit in, push button. If you get heat, replace thermocouple. If not, test heater and controller. If thermocouple is not working, red light on controller will be off.

Notes: A faulty thermocouple may show up in one of these ways:

1. Premature heater failure (e.g. a heater failing within three or four months).
2. Failure of the interior walls of the incinerator chamber.
3. User complains of excessively high temperature on outside of toilet.
4. Inconsistent heater performance.
5. Heater "doesn't burn as well as it used to".

If a heater fails prematurely or user complains of excessive temperature – Replace thermocouple. - Recommend replacing thermocouple when heater is replaced.

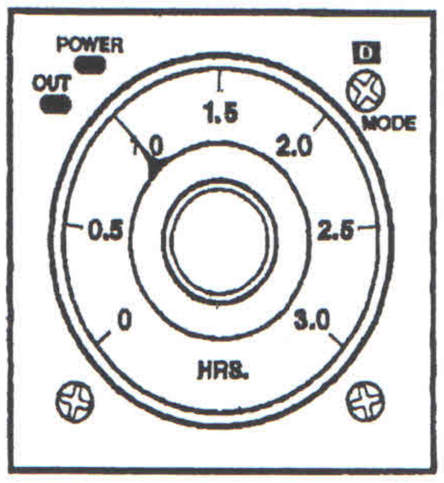
Threads on thermocouple adaptor are: 1/8-27 NPT.

THERMOSTATS

Part #	Old Part #				
THE002	100106	L-290	TS	Heater	screws (long)
THE012		L-325			spades
THE015		L-250			spades
THE011	100105	F-130	ITS	Blower	screws (was F-140)
THE014		F-130			spades
THE005	100147	L-145	STS	Safety	screws (was L-125)
THE013		L-140			spades

Change from screw to spade connectors was made at about these serial numbers:
CF/RV (small chambers) spades: 30936
TR/WB (large chambers) spades: 23302

1. SAFETY THERMOSTAT (**STS**) shuts heater off if air temperature inside toilet reaches about 145 F. It is located on the front surface of the control box at the upper right rear of the unit. To replace, disconnect voltage, remove top of unit, disconnect lead wires to old thermostat, and replace.
2. BLOWER THERMOSTAT (**ITS**) turns fan off when outside skin of chamber cools to 130F and will turn fan on again if temperature increases. It is accessible through access panel opening, just to the left of the heater terminals. To replace, follow same procedure as for STS above.
3. LIMIT THERMOSTAT (**TS**) turns heater off if skin of chamber reaches a temperature of 300F. It is located below the ITS blower thermostat and heater terminals, outside ashpan compartment. To replace, follow same instructions as for other thermostats.



TIMER

If 3 lights are on and blower works, timer is OK.

Timer is set to 75 minutes at factory. Timer activates temperature controller. Controller output is connected to the coil of a relay, which controls the electric current to the heater.

Timer also controls exhaust blower. Blower and heater come on and both stay on for 75 minutes together. After heater cuts off, blower continues on until incinerator area has cooled to about 130 degrees F.

TIMER & TEMPERATURE CONTROLLER
THE KEY TO TROUBLESHOOTING

Timer and temperature controller are within control box in upper right corner of housing, accessible with top removed. Timer has two lights: green and red. Temperature controller has one red light. A steady green light on timer indicates unit has power and is ready for operation. When start button is pushed, green light begins blinking and the red light comes on and stays on for a timed interval, during which time temperature controller is activated and its red light is on. Controller red light means that the relay is activated and supplying power to heater. Controller red light stays on until (1) timer cuts off after the timed interval, or (2) heater reaches maximum allowed temperature and thermocouple signals controller to open relay. In actual operation, when timer reaches end of timed interval, its red light goes off, and blinking green light turns steady again. During the timed interval, controller red light will be on constantly until heater reaches about 1200 degrees F, at which point controller red light goes off and the relay opens. Controller red light comes on again after 30 seconds or so, stays on for about 40 seconds, then goes off again, and so on until the end of timed interval.

TIMER ADJUSTMENT

Timer dial reads 0 to 3 hrs. Timer pointer reads 1.25 hrs. If INCINOLET is used primarily for solids deposits in rapid succession and incineration is incomplete, move pointer to 1.5 hrs or higher. If used throughout the day, both for urine and solids, timer would be best set at 1.25 hrs. To adjust timer, remove top (see p. 6). Turn dial so timer reads new setting. Replace top. DON'T MAKE ANY ADJUSTMENT REQUIRING SCREWDRIVER.

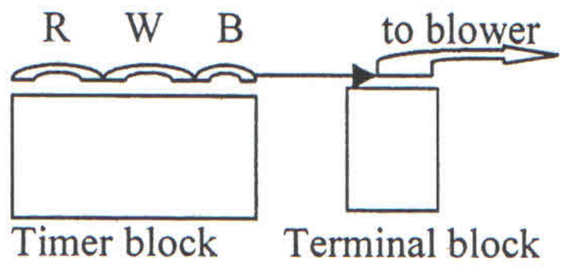
NOTHING WORKS – TIMER GREEN LIGHT ON, DOESN'T FLASH – Replace timer.

BLOWER STOPS MID-CYCLE THEN COMES BACK ON

1. Blower motor may be overheating. If it's a Dayton motor, Replace motor.
2. Timer has a relay inside. See notes below. Replace timer.

BLOWER DOESN'T WORK – EVERYTHING ELSE DOES

Check white and blue jumpers on timer block.



BLOWER ON, TIMER LIGHTS ON, NO CONTROLLER LIGHT

1. Short thermocouple (gray and purple wires). If controller light comes on, replace thermocouple.
2. Remove controller and reinsert. If light comes on, suspect loose wire to base or bad contact in either timer or controller base.
3. Check voltage into controller base from timer. With voltmeter check voltage from terminal #7 to #4 or from #7 to ground (unit housing). If no voltage at #7 and timer lights are on and blower is on, either timer base or controller base is bad and should be replaced.

TIMER DOESN'T RESET WHEN BUTTON IS PUSHED, BUT TIMES OK

May be set to "Mode A" or broken in the mode part. Replace timer.

NOTES:

Omron timer has a relay inside. If, for instance, the relay that allows current to flow through white jumper wires to blower gets too hot, it would shut down the blower till the internal relay has time to cool down, then it may come back on again.

Manual Timer Units: Black wire from heater terminal goes to blower motor.

TIMERS

Part #	Old Part #	Description	Replace With
TIM---	10021ET	Robert Shaw, 115-230v.	TIM005 – KIT
TIM002	100184SY	QCS, fixed, 60 minutes, 220v.	
TIM004	100184	ATC, Blue, variable, 240v.	
TIM005	100244	Precision, Manual 240v	
TIM006		QCS, fixed, 70 minutes, 120v.	
TIM008		QCS, Red-Blue, 120v. – 240v.	*Toggle Switch Unit- Offer to rebuild toilet.
TIM009	81Q2B614	Eagle, orange, variable 240v.	
TIM010	81Q2B614	Eagle, orange, variable 115v.	
TIM013	LCR2FF	Syrelec, orange, fixed 220v.	TIM009
TIM014	LCR2FF	Syrelec, orange, fixed 110v.	
TIM015	LCR2H-AS	Syrelec, orange, variable 220v.	TIM009
TIM016	H3CR	Omron, either 120v. or 240v.	
TIM017		MH Rhodes, Manual, 30/60 min, for old units – timer low on side.	
TIM018		MH Rhodes, manual, 90/120 min, for CF-2 only	

Wiring Instructions

	From Unit	To Wall
120 volts	Black (power) White (neutral) Green (ground)	Black (hot) White (neutral) Green or Copper (ground)
240 volts	Black (power) White (power) Green (ground)	Black (hot) Red (hot) Green or Copper (ground) cap off extra White from wall
120 / 208 volts **120 / 240 volts (old)**	Black (power) White (neutral) Red (power) Green (ground)	Black (hot) White (neutral) Red (hot) Green or Copper (ground)

If there are only 3 wires from the wall, just match by color.

Black is always hot.
Green is always ground.

INCINOLET is grounded internally through the furnished cord and plug. Make certain your circuit has adequate grounding.

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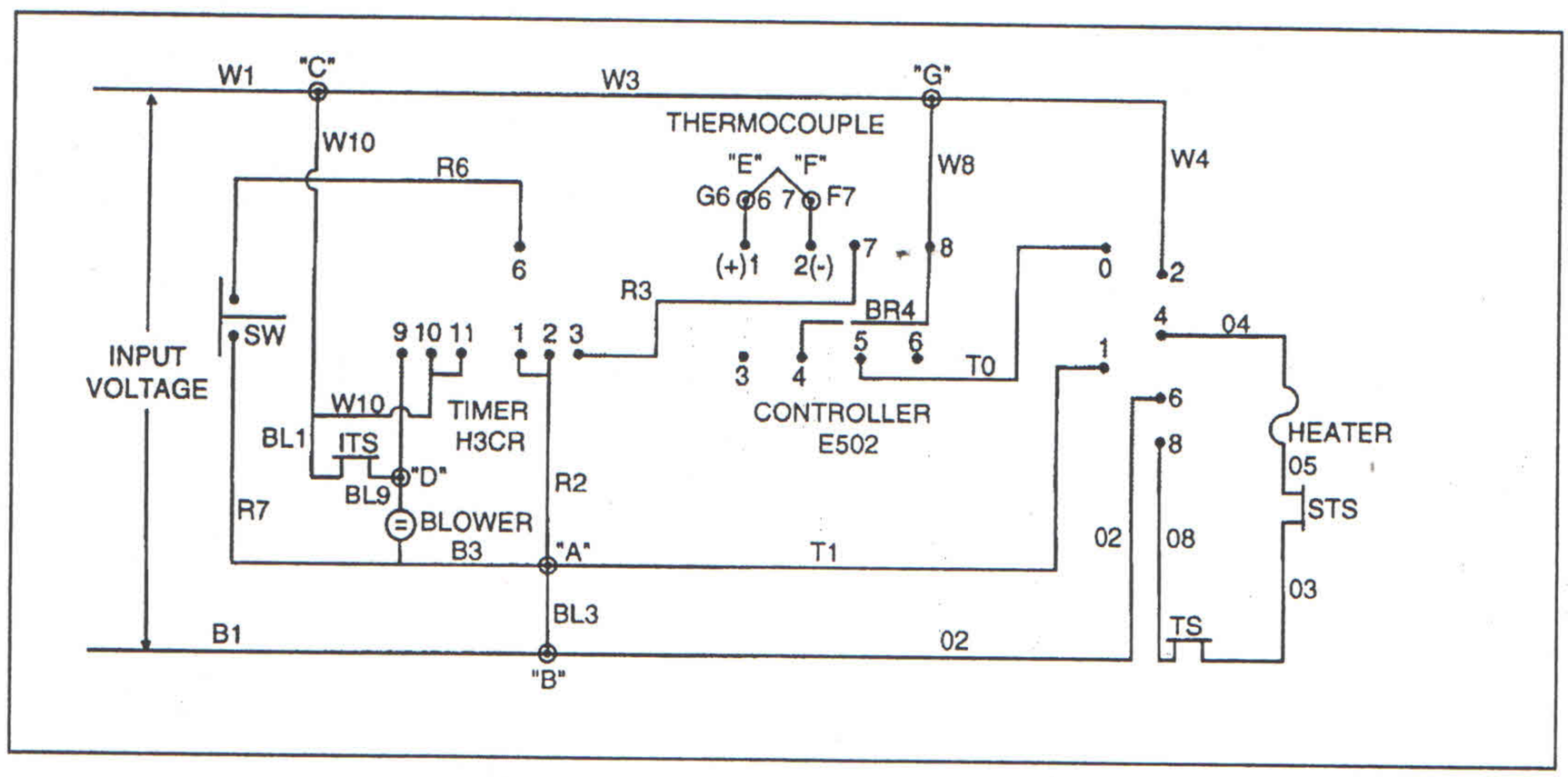
120 Volt Wiring Diagram



Wire colors: Black=B Red=R Blue=BL Orange=O Gray=G Purple=P Tan=T White=W Brown=BR
Thermocouple Lead 6 is (+) Thermocouple Lead 7 is (-)

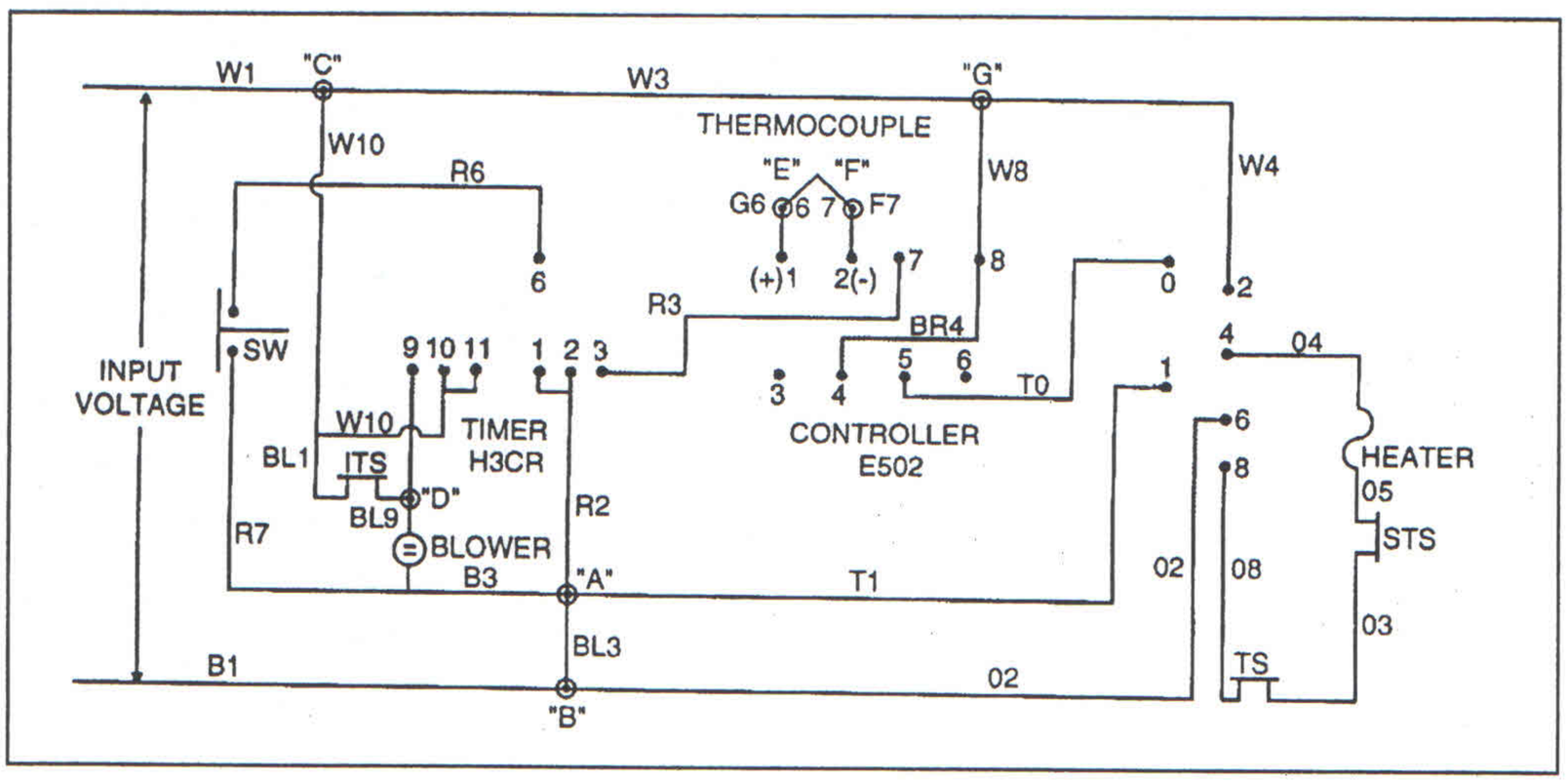
A, B, C, D, E, F and G are Wire Nuts:

A connects BL3, R7, B3, R2, T1
B connects B1, BL3, O2
C connects W1, W3, W10
D connects BL9, BL9
E connects G6, G
F connects P7, 7
G connects W3, W4, W8

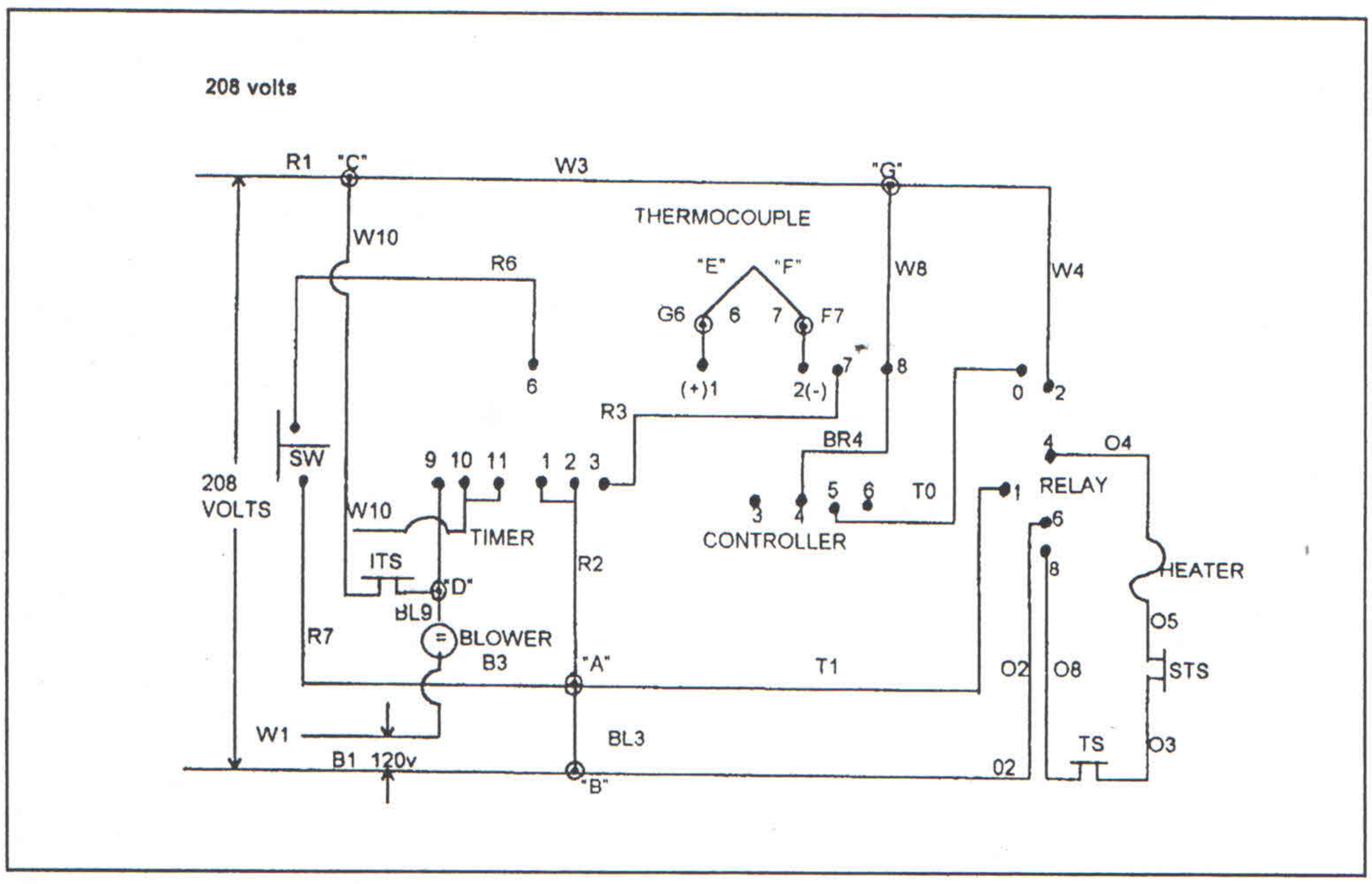
Control Elements

ITS – Inverse thermostat for blower F-130
STS – Safety thermostat L-140
TS – Limit thermostat L-325
SW – Start switch

240 Volt Wiring Diagram



208 Volt Wiring Diagram



ELECTRICAL OPERATION

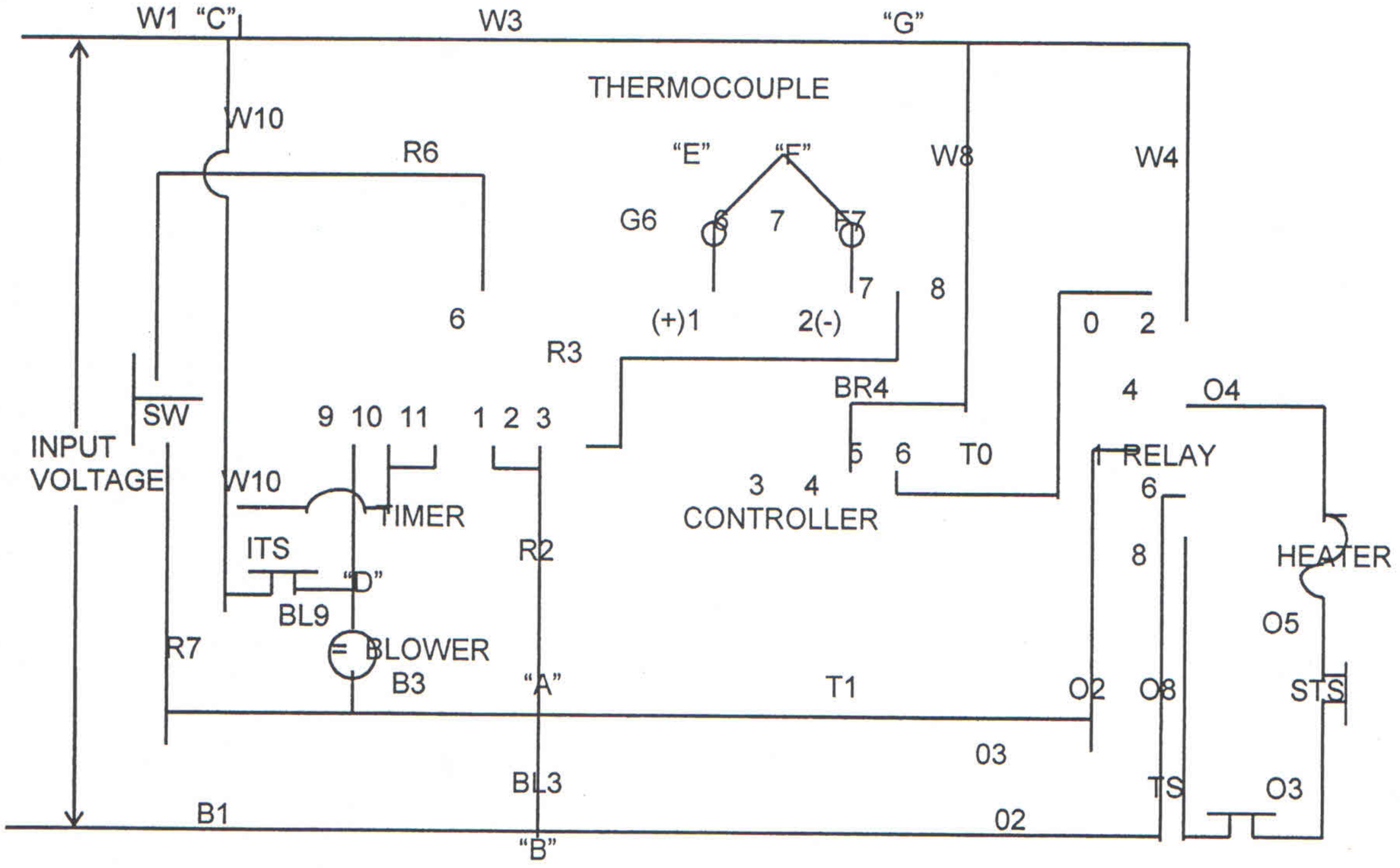
1 Pushing the start button closes the start switch which engages a timer. Timer begins a new cycle each time start switch is closed. Timer doesn't accumulate time, merely starts over again.

2 Timer is set to 60 minutes at factory. Timer activates temperature controller. Controller output is connected to the coil of a relay, which controls the electric current to the heater.

3 Temperature controller responds to the output from a thermocouple, which measures heater temperature. When the temperature of the lower coil of the heater reaches approximately 1200 degrees F., controller shuts down the relay, which cuts off the heater. When heater temperature falls to about 1000 degrees F., controller again activates relay and heater comes on. Heater is off, then on, about twice a minute.

4 Timer also controls exhaust blower. Blower and heater come on and both stay on for 60 minutes together. After heater cuts off, blower continues on until incinerator area has cooled to about 130 degrees F.

5 Blower thermostat (ITS) closes when it senses a temperature of 130 degrees F., and stays closed, to keep the blower fan on after the heating cycle is over, until incinerator temperature falls below 130 degrees F., about 30 to 50 minutes later.



SEQUENCE OF EVENTS WHEN START BUTTON IS PUSHED

1. Power is on, timer light is steady green. Power is also supplied to point 10 (from white lead) and point 2 (from black lead).
2. When start button is pushed, switch is closed, power is supplied to contact 6 on timer which activates two internal switches within the timer: Switch 9-10 controls power to blower, and switch 2-3 controls power to controller.
3. Controller must have 2 input voltages:
   a. across point 7, supplied from timer when switch 2-3 closes and point 8 from white lead, and
   b. from thermocouple across 1 & 2 on controller.

4 With both voltages supplied, controller switch 4-5 closes, supplying voltage to relay coil contact 0, relay contact 1 being supplied from black input lead. Voltage now appears across both input terminals of relay coil which activates it.

5 Relay coil now causes switches 2-4 and 6-8 to close, supplying power to heater through STS and TS thermostats.

Installation

1. Remove all packing materials – including cardboard inside ashpan panel.
2. Set unit on floor in desired position:
   Allow about 4" clearance at rear for wiring and vent-line connection.
   Allow at least 2" on left side and plenty of room on the right side to operate foot pedal.
3. Install mounting plate to floor – Only Models RV and WB.
4. Connect vent-line.
5. Plug INCINOLET into the proper receptacle on a 20-amp circuit.

Mounting Plate – Models RV and WB only

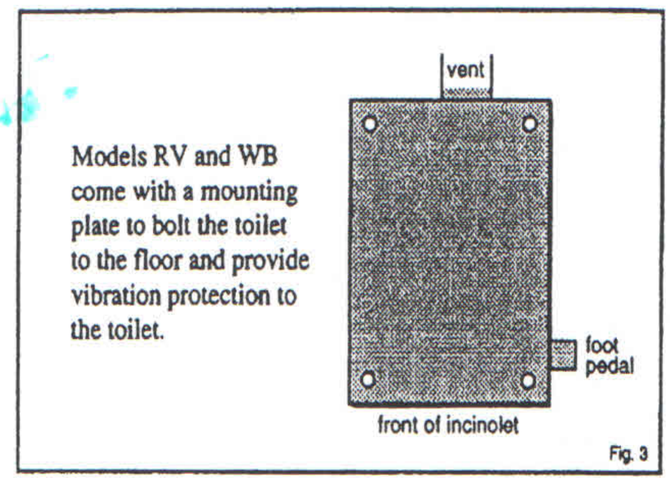


Fig. 3

Electrical Preparation

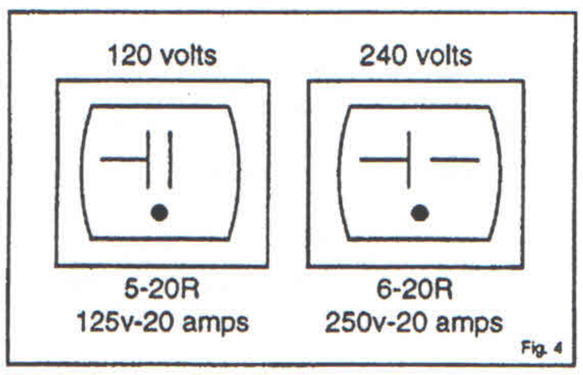


Fig. 4

20-amp plug and is meant to fit only into a 20-
he outlet you intend to use for the INCINOLET is not the proper type,
ptacle. You breaker. Do not attempt to defeat this safety feature by
n any way. Power cord is 4 feet long. Extension cords should not be
nce.

Venting:

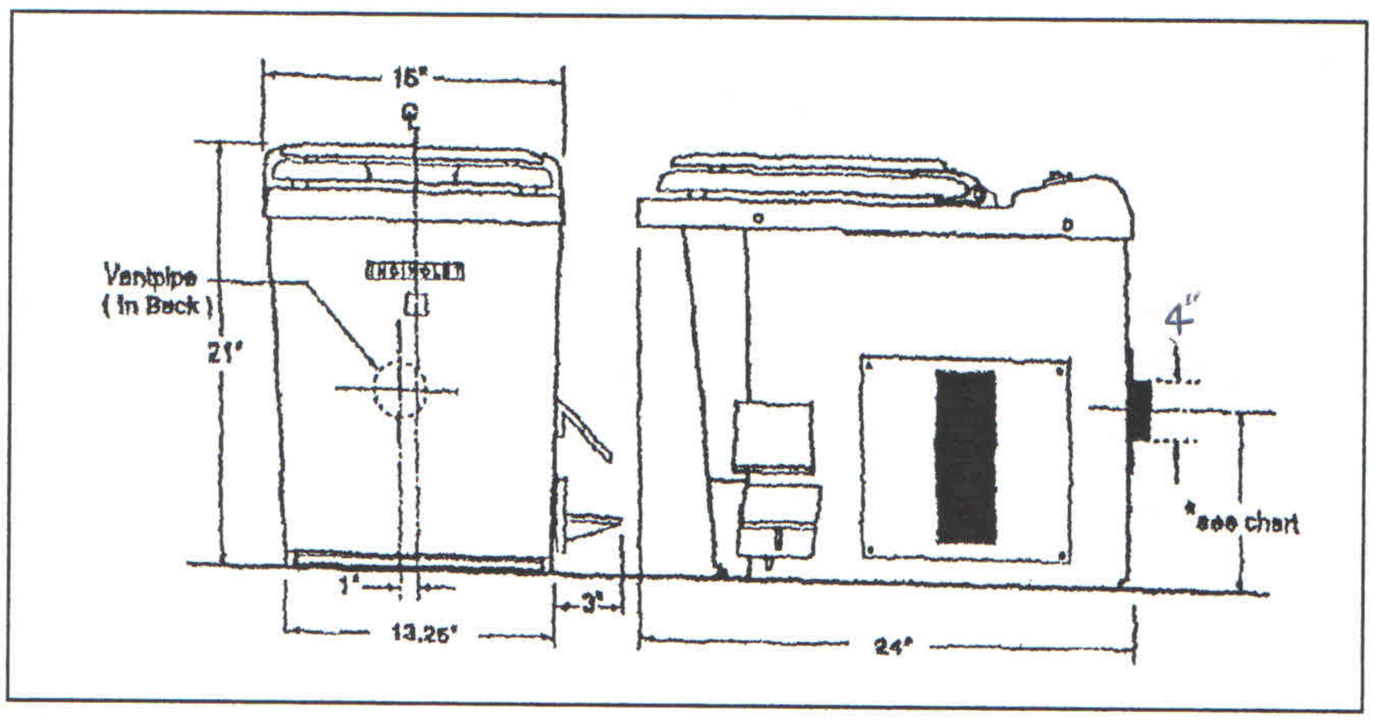
1. Allow for plenty of make-up air into toilet room with door louvers or an air gap along bottom of room door.
2. NEVER USE AN OVERHEAD EXHAUST FAN WHILE INCINOLET IS RUNNING. It might overpower the exhaust fan within the unit and cause smoke and odor to come into the room.
3. DO NOT cover the end of the vent-line with fine mesh window screen. Use ¼ inch mesh ("hardware cloth") if you must use something to keep "critters" out of the vent-line.
4. Increase diameter of vent pipe if 2 elbows or more than 10 feet of vent-line is required.

Vent pipe can run horizontally or vertically. Venting materials can be placed within a wall and INCINOLET can be placed close to a wall at the back. Allow 6 to 8 inches on the right side (facing the toilet) to operate the foot pedal.

Vertical vent-line should terminate with a rain cap. For horizontal venting use a dryer flap or add a PVC elbow turned downward to prevent back-drafting.

Center of the 4-inch diameter vent hole on the back of INCINOLET varies by model. See chart below for the proper measurement for your toilet. Center of vent hole is 8 inches in from foot pedal side of toilet, 6 inches in from other side.

Center of vent hole – **up from floor:**	
Model CF	10"
Model RV	10-1/4"
Model TR	10"
Model WB, 120 v.	10-1/4"
Model WB, 240 v.	10-1/4"
Model WB, 208 v.	10-1/4"



For proper operation, vent-line must be as straight as possible with a minimum of elbows. Maximum length of 4-inch diameter pipe is 20 feet with 2 elbows. Use larger diameter pipe for longer runs.

Improper venting can cause odor within the room and overheating of the unit. Blower draws smoke from the incinerator through the catalyst to remove odors. If vent line is too small, too crooked or too long, the blower cannot push enough air through the vent-line to do its function. Overheating and odor will result.

For best performance, use the shortest possible run and a minimum number of elbows. Do not vent into an attic space or crawl space. Assemble vent pipe pieces securely. Tape all connections.

Run the vent pipe horizontally to outside. At this point, you may:

1. Put on a dryer flap or add a PVC elbow turned downward to prevent back-drafting, or
2. Turn a PVC elbow upward, add pipe, and terminate with a rain cap.
3. Vent-line can be placed within a wall and run up through the roof, terminating with a rain cap.

Connect 4" PVC coupling and pipe to the vent collar at the rear of the unit. Secure the PVC coupling to the vent collar with a few drops of silicon rubber cement. DO NOT USE MUCH, FOR YOU MAY WISH TO REMOVE THE COUPLING AT A LATER TIME.

Care and Cleaning

1. Empty ashpan when ash is about ½ inch deep. EXCESSIVE ASH BUILD-UP CAUSES ODOR, SHORTENS HEATER LIFE, AND DECREASES EFFICIENCY. If ash is caked and hard to remove, just soak insert pan for a few minutes in warm water.
2. Wipe up urine spills as they happen.
3. Every 6 months – clean blower wheel and inside of INCINOLET.

- Unplug unit and remove top.
- Clean inside with a detergent o a spray cleaner such as Formula 409 (Do not use pine cleaners).
- Remove blower wheel and clean
- **DO NOT STEAM CLEAN.**
- Stainless steel polish can be used outside to keep finish nice.

Do not use pine oil type cleaners (like Pine Sol). The residue smells like burning urine when toilet gets hot.

INCINOLET – HEATER REPLACEMENT

Unplug INCINOLET or turn off circuit breaker before making any repairs to your INCINOLET toilet.

TO REMOVE OLD HEATER

Remove top and bowl sections by removing the two screws from each side of the top. Unscrew and remove the rubber boot over the start button. Remove ashpan panel (lower front) and pull out ashpan. Remove access panel on right side. Hold incinerator open either by wedging down the foot pedal or blocking the flushing mechanism in open position.

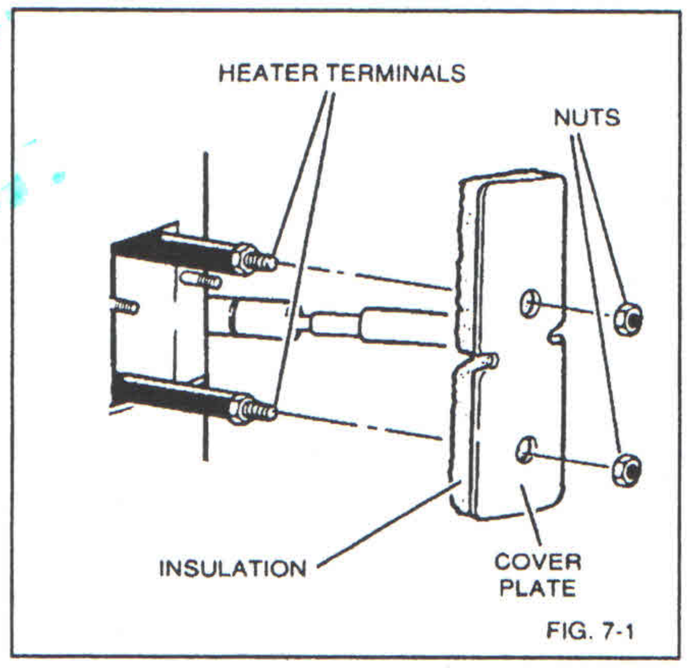


FIG. 7-1

Carefully remove thermocouple without disconnecting wiring. Thermocouple is located to the right of and mid-way between heater terminals. Tip of thermocouple makes contact with lower heater coil within the chamber. To remove, twist bayonet connector and pull out. Do not deform thermocouple.

Disconnect orange heater wires and remove cover plate and insulation around heater cold ends. (Fig. 7-1)

Push up on heater coils to clear heater brackets (Fig. 7-2)

Note: Brackets may be wedged tightly in slots in the chamber wall. It is okay to remove brackets, but not absolutely necessary.

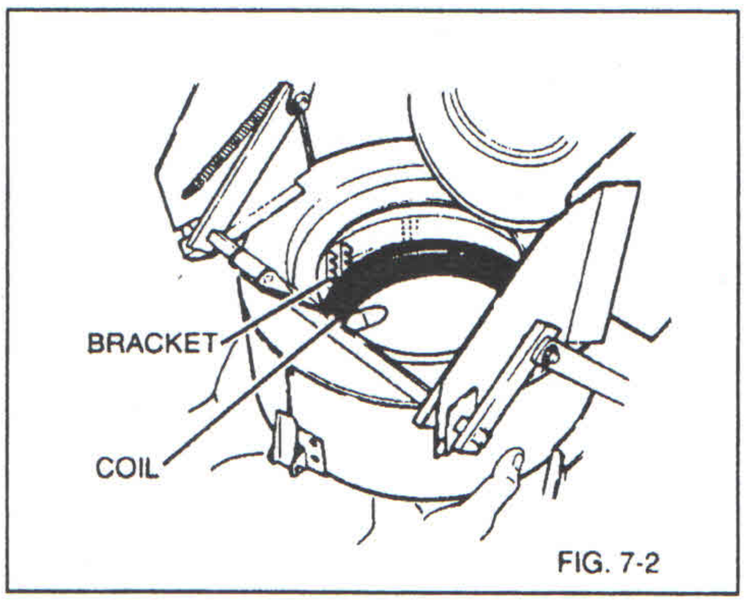


FIG. 7-2

Remove heater from ashpan opening (Fig. 7-3)

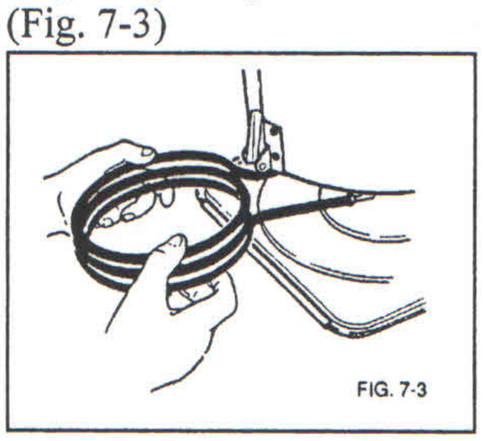


FIG. 7-3

TO INSTALL NEW HEATER

Reverse above procedure. Locate heater in brackets, making sure that brackets are seated in the slots within the chamber wall. (Fig. 7-2) IMPORTANT: LOCATE HEATER IN LOWEST POSITION WITHIN THE HEATER BRACKET.

Replace insulation and cover over heater cold ends. (Fig. 7-1)

New heater coils are furnished with a hex nut already firmly tightened against the mica insulation (do not remove), two washers next, and two nuts on the end of the heater stud. To install the wiring on the new heater studs, remove the two nuts and one washer. Place the eyelet terminal of the orange lead wire over the heater stud, then a washer, then one nut. You may want to use a wrench or pliers to hold the stationery nut in place. Hold the orange wire in one hand while tightening the nut with the other hand. Tighten until the orange wire terminal is quite secure and cannot be turned. Put on the second nut and hand tighten to hold the first nut in place.

Replace thermocouple by pushing knurled cylinder to compress the spring inside. Turn to engage the stud, then release. The spring must be under compression to insure that the tip of the thermocouple makes contact with the outer surface of heater coil.

THERMOCOUPLE MUST CONTACT HEATER COIL.

Replace access panel, ashpan and ashpan panel. Hold bowl halves in the closed position while lowering top into position on toilet. Replace two screws on either side and the rubber boot over the start button. Plug toilet in and be sure circuit breaker is on. Start cycle to test heater and total operation.

Flushing Mechanism

To replace Foot Pedal or "1st Arm Assembly"

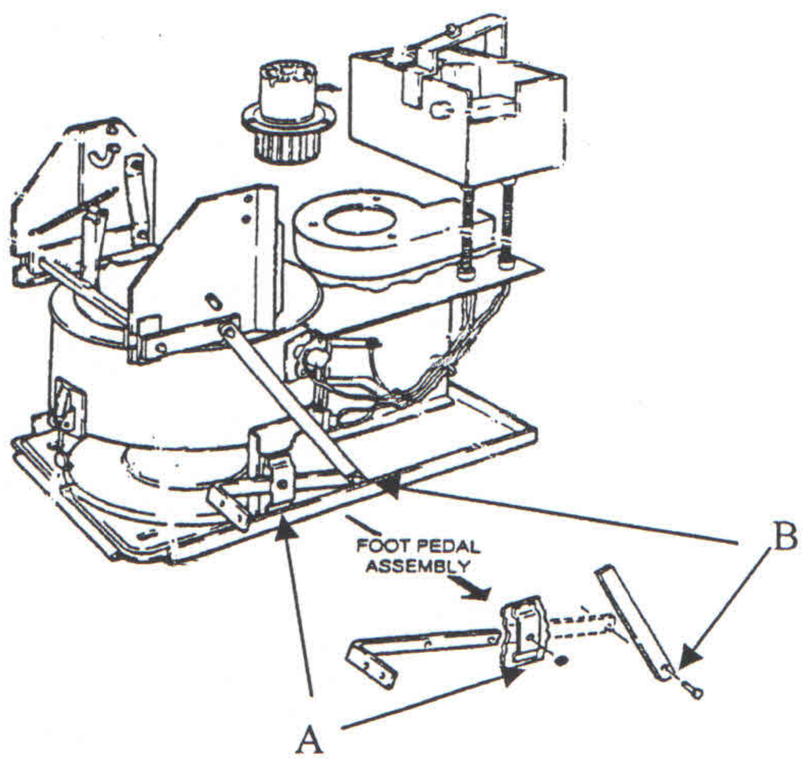
Preparation:

1. Remove Ashpan Panel and Ashpan from toilet.
2. Remove top of toilet by removing 4 large screws (two on each side of top), and rubber boot on start button.
3. Remove black plastic foot pedal from 1st arm assembly by removing 2 screws that hold it in place.
4. Remove side panel of toilet on foot pedal side of toilet. There are visible screws in the top right corner and screws down the side at the back. There are screws inside the toilet holding side panel to front panel. There are also some screws under the toilet holding the side panel to the base of the toilet. It is not necessary to remove foot pedal protector.

The Repair:

1. To remove old assembly, first remove bolt in the center of the bracket (see A on diagram below). You can see the nut on the outside of the bracket. There is an access hole in the inside of the chamber, through which you put a screwdriver to hold the head of the bolt while you remove the nut from the outside.
2. Remove flat-head rivet (looks like a large bolt with a "c" clip or cotter pin holding it on) from the end of the old assembly (B on diagram).
3. Remove old L-shaped assembly and put new one in its place.
4. Replace the bolt and one spacer (metal washer) so that the arm pivots in the bracket. Finish with one more spacer (metal washer) and the nut.
5. Replace flat head rivet from the inside of toilet, in this order toward the outside: rivet – vertical bar – nylon washer – 1st arm assembly – nylon washer – cotter pin. Open out ends of cotter pin to secure.
6. Test operation of flushing mechanism.

NOTE: If your old flat-head rivet was held in place with a "c" clip instead of a cotter pin, you may wish to replace the old flat-head rivet at the top end of the vertical bar while you have the toilet apart. We will gladly send you a new one with cotter pin and nylon washers upon your request.



Reassemble Toilet:

1. Replace side panel with all screws attaching to front panel, bottom, back panel and screws in top right corner (attaching onto control box). Check to see that black plastic foot pedal protector is in place.
2. Replace top. Bowl halves must be in closed position to fit properly. Replace 4 large screws and screw on rubber boot over start button.
3. Place ashpan in toilet and put on front ashpan panel.
4. Attach black plastic foot pedal to foot pedal bar with two bolts.

BOWL HALF ADJUSTMENTS

1. Take the top off the toilet

2. There is a square rod that runs horizontally over the top of the chamber with a vertical rod sticking up from the center of it. At the top of that vertical rod is a white roller (you'll see the "U" shaped bracket if the roller is missing).

3. Replace roller if it's missing.

4. If the vertical rod is threaded, you need to unscrew it or the "U" shaped bracket till an adjustment is made upward about 1/4 inch or so. If vertical rod is not threaded (older units), then just bend the vertical rod toward the back of the toilet a little bit. (Adjustment would be upward or toward the back of the toilet. This "closes" the front bowl half a bit, then the back bowl half follows. Adjust whatever amount is needed to ensure that the bowl halves meet when in the "closed" position.)

If bowl halves stick or are difficult to open with foot pedal when toilet is new, it's usually because the toilet has been turned upside down in shipping. The adjustment is easy. Just take off the top. Remove the 4 large screws and the rubber boot over the start button and lift the whole top off the toilet. With the bowl halves together in the closed position (you may want to close them with a little piece of tape), set the top level on the toilet and replace the screws and boot. That should be all it takes.

When bowl halves are closed, there should be no gap between them. If there is a gap, take the top off the toilet as above. You will notice a square bar across the top front of the incineration chamber. In the center of this bar is a vertical U-shaped bracket which holds a white roller. If the roller is missing, replace it. If roller is OK, then adjust the vertical bar upward by unscrewing it a turn or two. If the INCINOLET is very old, the rod is not threaded, so just bend it toward the back of the toilet about ¼-inch. These adjustments will move the front bowl half a little higher and the back half will follow, allowing more room for the incinerator chamber lid to open.

Make these adjustments in small increments, setting the top back on the toilet each time till the bowl halves meet and the lid does not scrape when you push the foot pedal down.

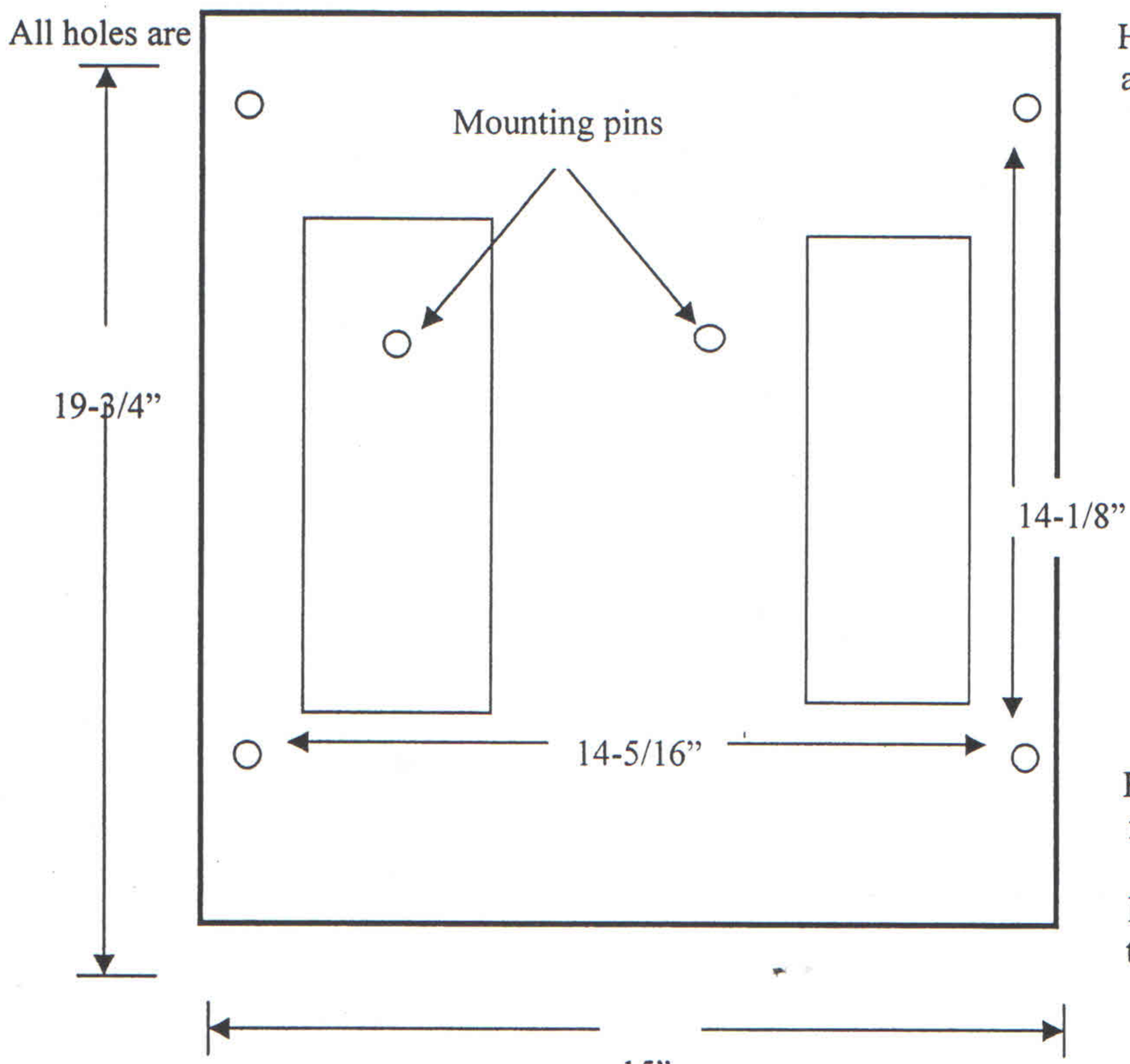
INCINOLET Mounting Plate

Models WB and RV are supplied with a mounting plate that serves to secure the toilet against movement and protect it from vibration. When placed on the mounting plate, the center of the vent hole on the back of the INCINOLET is up from the floor as follows:

Model WB 120 volts	10-1/4"
Model WB 240 volts	10-1/4"
Model RV	10-1/4"

All current models have a 4" diameter vent collar.

Mounting Plate



Holes are 3/8" down from back edge, and 5/16" in from side edges.

Front holes are 5-1/4" in from front edge of plate.

Mounting plate is approx. .062" thick. There is no pitch to holes.

Front of INCINOLET