Chipotle Technical Training

Host: Don Binkley

WOOD STONE

UTILITIES SPECIFICATIONS

PL-4836-4-CT SPECIFICATIONS

Gas:

3/4-inch FNPT gas inlet
107,000 BTU/hr Natural Gas (NG)
102,000 BTU/hr Propane (LP)
Maximum gas inlet pressure
½ psi (14 inches W.C.)

Electrical:

120 VAC, .7 A, 50/60 Hz
Equipped with a NEMA 5-15P plug for use with a standard 120 VAC 15 A or 20 A outlet.
Refer to data plate when installing.

Venting:

The Plancha must be vented with a Type 1 hood. This appliance must be installed and vented in accordance with NFPA 96 and all relevant national and local codes, subject to the approval of the local authority having jurisdiction.

PL-3636-3-CT SPECIFICATIONS

Gas:

3/4-inch FNPT gas inlet
76,000 BTU/hr Natural Gas (NG)
71,000 BTU/hr Propane (LP)
Maximum gas inlet pressure
½ psi (14 inches W.C.)

Electrical:

120 VAC, .7 A, 50/60 Hz
Equipped with a NEMA 5-15P plug for use with a standard 120 VAC 15 A or 20 A outlet.
Refer to data plate when installing.

Venting:

The Plancha must be vented with a Type 1 hood. This appliance must be installed and vented in accordance with NFPA 96 and all relevant national and local codes, subject to the approval of the local authority having jurisdiction.

Troubleshooting Basics

1. <u>Verify exhaust hood is on and running.</u>
2. Verify Plancha is plugged in to a working outlet. (if you are not sure if outlet is working, try an alterative closer outlet.
3. Verify both if equipped GFI breaker and outlet are not tripped. Verify with trying to reset.
4. Verify gas hose is completely engaged at quick disconnect. Verify gas shut off valve is fully open

5. Check that the ANSUL system has not been triggered
6. If applicable look for an electrical reset box on the wall. Verify if the red light is illuminated. Also push in the reset button and see if light illuminates
7. If no electrical reset is used, then verify the manual cable style has not been triggered.. See examples of different types possibly used.

DETAILED SEQUENCE OF OPERATION / GAS PLANCHA

Plancha is plugged in. 24VAC transformer and DC power supply

Power Switch ON. Red RESET light illuminates. Latching relay on Buffer Board latches. AC power is sent to Ignition Module.

Ignition Module opens Main Gas Valve using Pilot output.

Gas flows to Zip Tubes. Spark from Ignition Module lights supervised Pilot . Pilot lights Zip Tubes which serve as a ignition source for all burners

When Ignition Module senses Pilot flame it enables main electrical output which supplies power to A1 Control Board. RED RESET light turns off.

If Pilot fails to light, or ignition module does not prove, Ignition Module will retry (3 15 second trials), then locks out. Red RESET light remains illuminated

A1 Control Board receives DC power from the Buffer Board.

Temperature Potentiometers

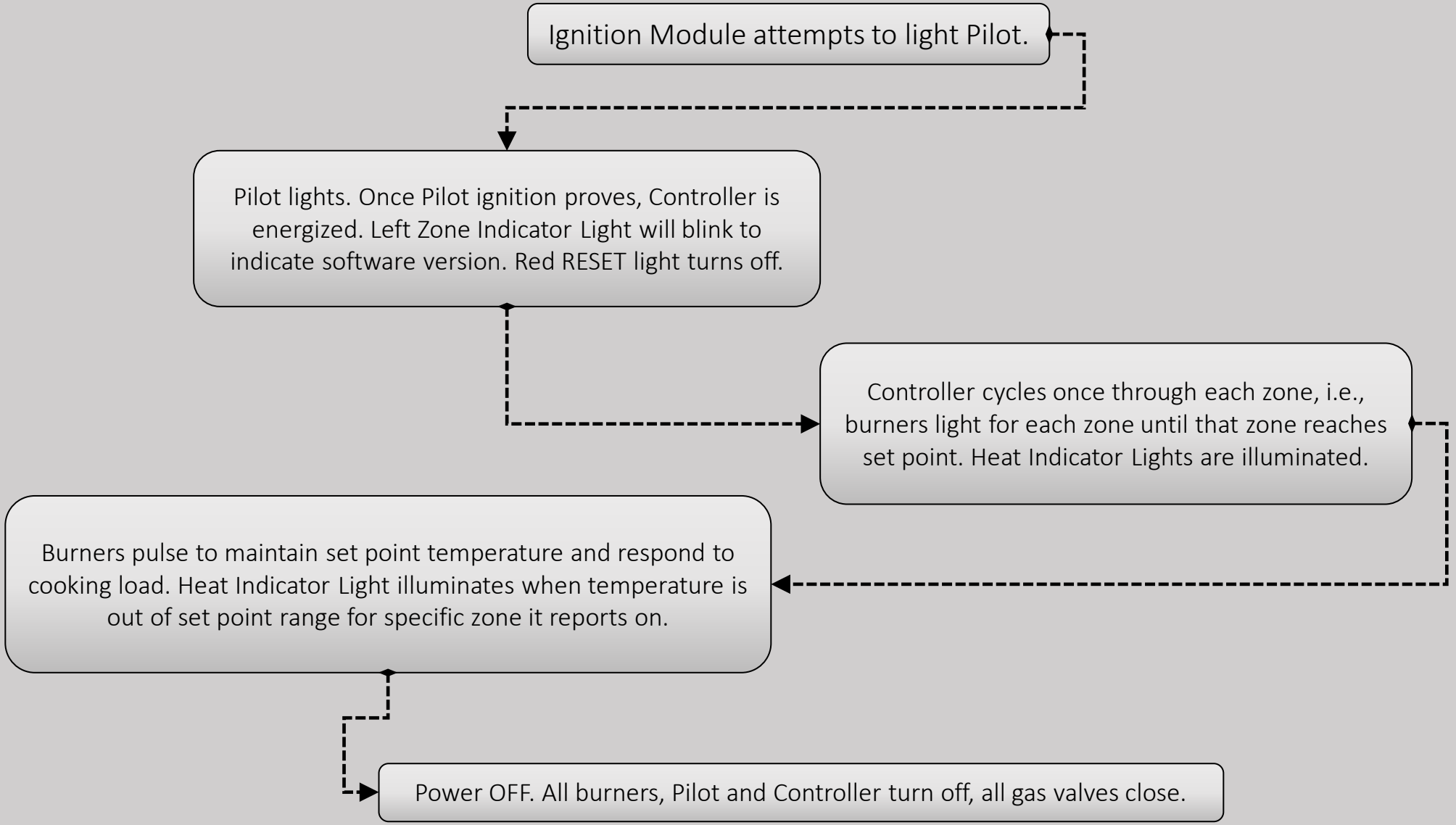
Thermocouples

A1 control goes through self- check (approximately 30 seconds).

If cook zone is below set point, burners light for each zone until that zone reaches set point. Then Burners pulse to maintain set point temperature and respond to cooking load. (See CONTROL SYSTEM operation details on next pages Depending upon software version).

Power OFF. All burners, Pilot and Controller turn off, Gas Valves close.

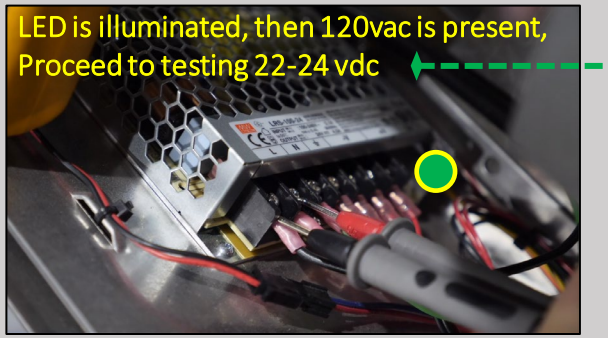
When Power Switch first turned ON - Red RESET light illuminates. (normal operation)



Basic Electrical Troubleshooting Plancha that will not power on

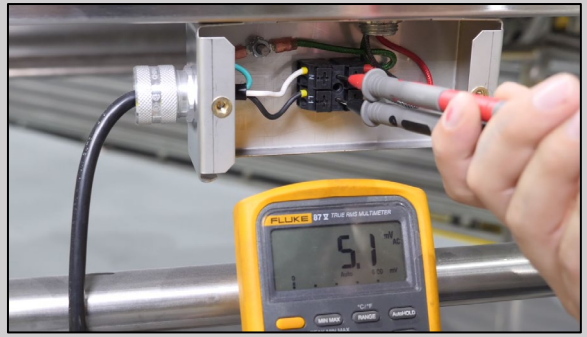
No power after actuating the power switch and/or no lights illuminated

Check for 120 volt at the primary outlet. If the voltage is measured proceed to power supply .

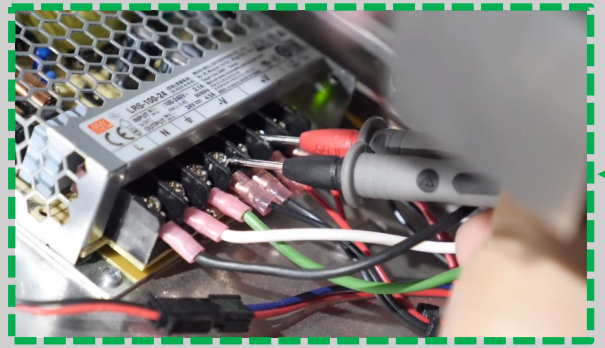


1. Test for 120v on power supply at L- N.
2. If no voltage is measured.
3. Test for voltage at the connector

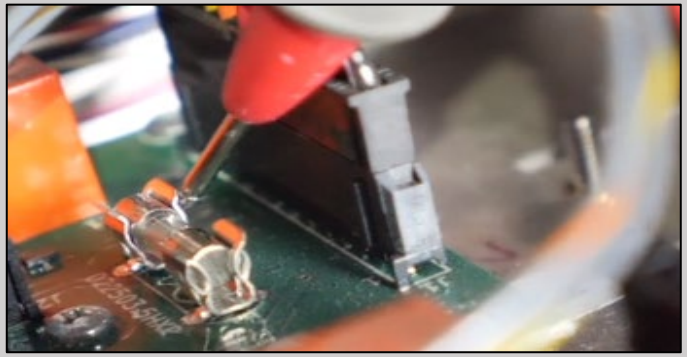
1. Check for power (120vac) at the Molex connector.
2. 120vac is not measures check terminal block at the rear of plancha.



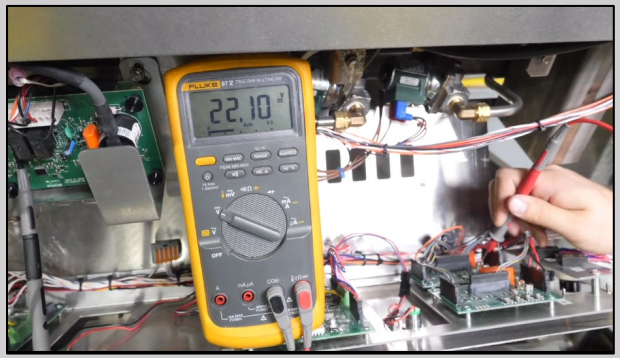
1. Check for power (120vac) at the terminal block at the rear of the Plancha.
2. If no voltage is measured inspect power cord for damage and replace power cord.



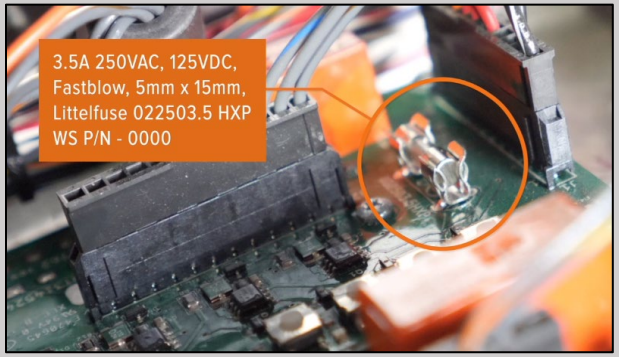
1. Test for 24vdc on power supply at V+ & V- if no voltage is found.
2. Remove all 24vdc wires from power supply and retest for voltage.
3. If still no voltage, replace the power supply.



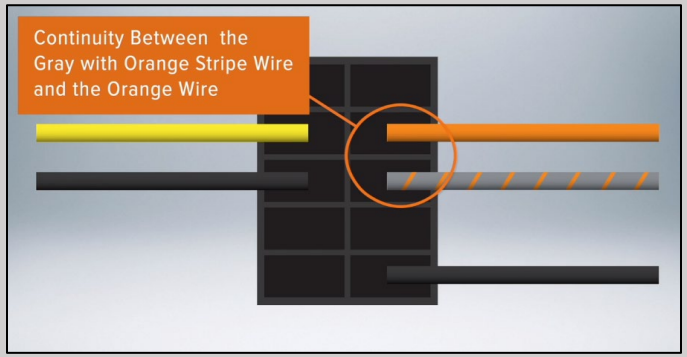
Check for voltage on the fuse located on the A2 Buffer board. Check each side of the fuse to ground.



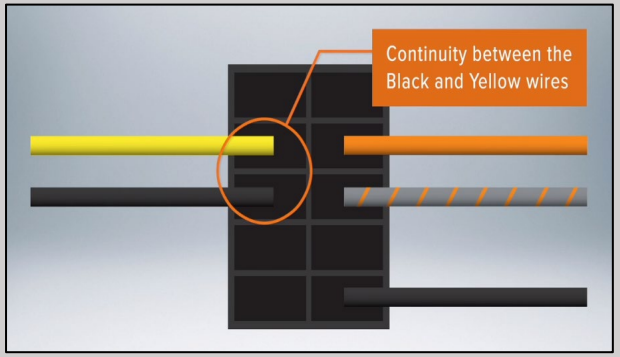
If 22-24vdc is present, inspect for damaged wires in the 22-24vdc circuit.



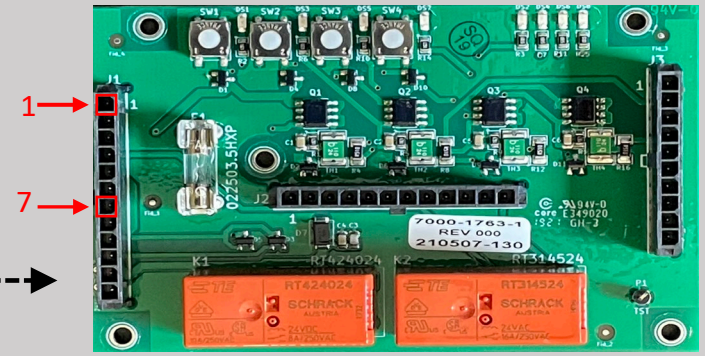
1. If the fuse has blown, Check the circuit for short. Then replace fuse and retest and verify no additional shorts occur.
2. If fuse tests good proceed to testing power switch.



1. With the power switch in the start(momentary) position check for continuity.
2. 2. If no continuity is found replace the power switch.
3. If continuity is measured Move to other terminals on the switch



1. With the power switch in the on (stationary) position check for continuity
2. If no continuity is found replace the power switch.
3. If continuity is measured proceed to buffer board.

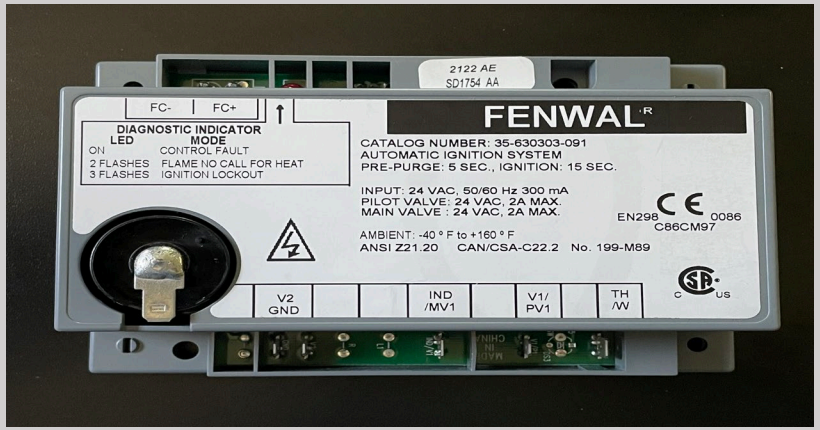


1. If the power switch tested good. Remove Connector from J1 on buffer board and check for voltage between pins 1 & 7 for 22-24vdc.
2. Verify the connections are secure and not damaged. If voltage is present, then replace the board.

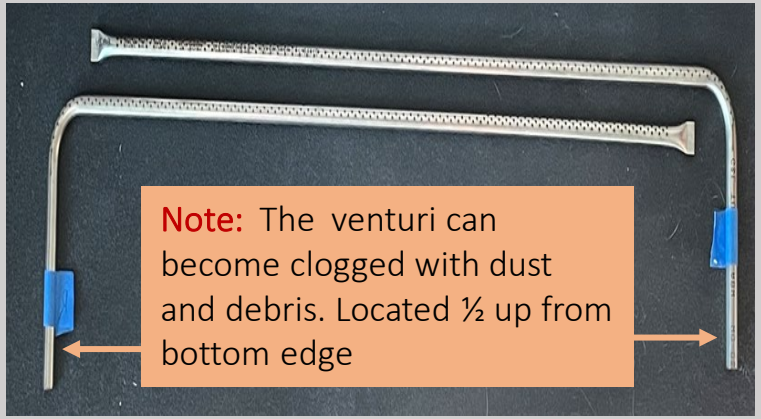
Ignition System Components

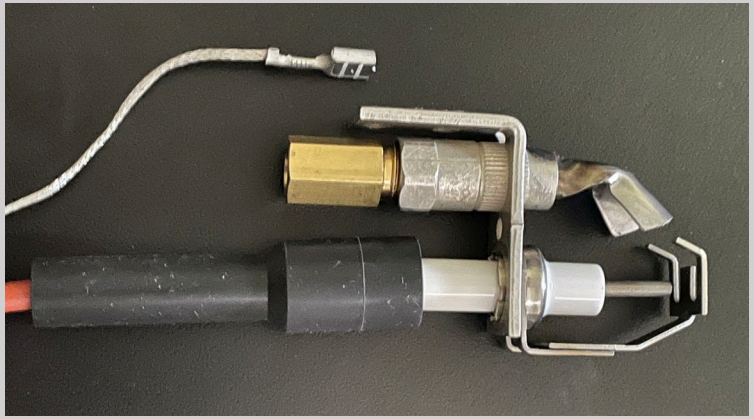
With power switch turned on 120 vac is sent to transformer

24vac sent to ignition control module on terminal TH/W



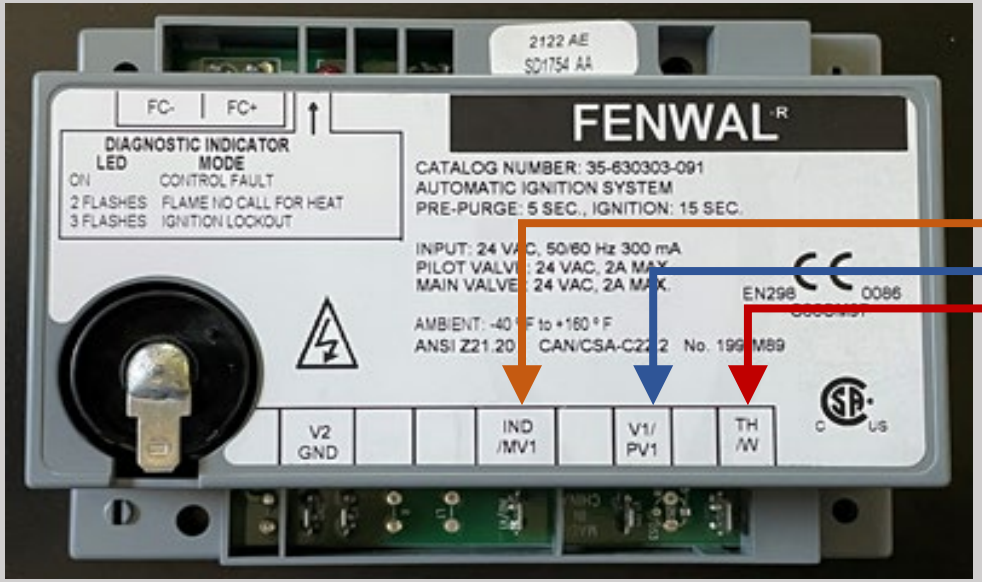
1. 24vac output from IND/MV1 is sent to coil on ½ main valve, at the same time spark is being sent to the ignitor to light pilot &zip tube's
2. Once the pilot has been lit and ignition module senses pilot flame. Power is sent out to main control board (**A1**).





Troubleshooting Ignition Failure

Reference Basic troubleshooting page 3 first



TH/W Will have 24vac input directly from the 120/24vac transformer when power switch is in the on position

V1/PV sends 24vac out to Main& Pilot Valve sending gas through the main manifold through both zip tubes and pilot assembly.

IND/MV1 sends 24vac out to pin#3 on J1 on the buffer board

Ignition Module Specification

Ignition Trials: 3

Minimum Flame Lockout: 0.7 µA minimum

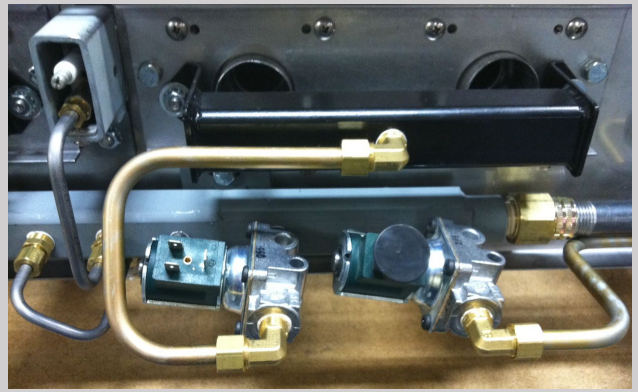
Pre-Purge Time: 5 seconds

Ignition Time: 15 seconds

- Check for proper incoming gas pressure. 6“ - 10” **NG** 10” – 12”**LP**
- Inspect ignition cable for damage (cracked and/or crumbling at the ignitor.
- Connections are secure.
- Ground wire is connected securely to ignitor and all other ground in the unit.
- Check for 22 - 24vac on main valve coil
- Clean out the pilot orifice
- Make sure flame rod is clean.

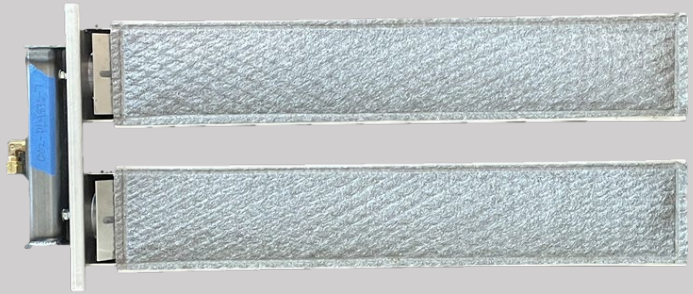
Gas Burner Troubleshooting

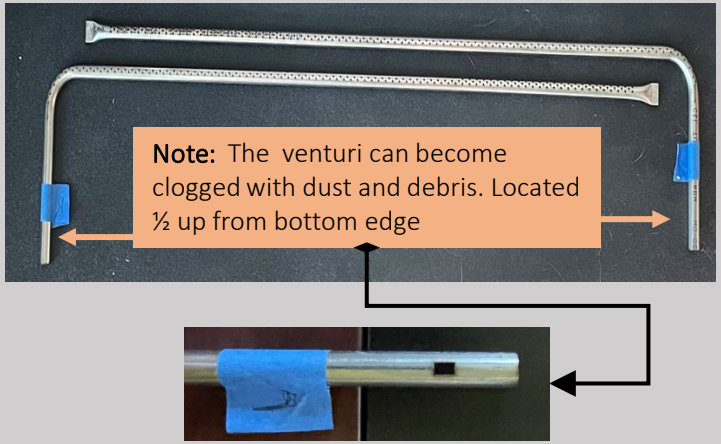
- Each zone has its own individual controlled burner assembly
- 1.ea 22vdc gas valve per zone
- Gas valve receives power from the buffer board
- Burners can be manually energized by pushing the corresponding button on the buffer board.
- Burners will ignite from the zip tubes



Troubleshooting Steps

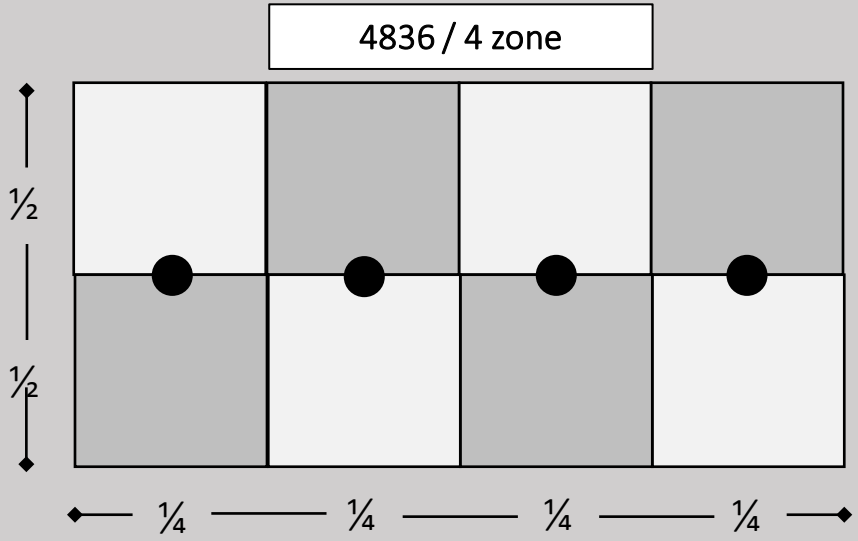
1. Check for proper manifold pressure
2. Engage corresponding button on buffer board to send power to burner valve
3. If no voltage is measured check circuit wiring for any damage.
4. Disconnect the wires to the gas valve and re measure for voltage.
   NOTE: Turn off power first before removal of wires from valve. Then turn power back on to continue voltage test.
5. If no voltage is detected, then replace buffer board.
   NOTE: Follow static discharge precautions when handling new buffer board.
6. When manually sending voltage via buffer board test button; verify the sound of the valve clicking if burner does not light then replace the valve.
7. Verify the zip tubes are working properly with established flame full length of tube.
8. Remove burner cassette and inspect for damage to the mesh on the burner and/or debris





❖ Zip Tube – Zip tubes run the full length of the plancha and are the ignition source for the burners. If burners are slow to light inspect the zip tubes, especially near the base where the air-port is located, as well as the zip tube orifices are clean

Temperature Check and Troubleshooting

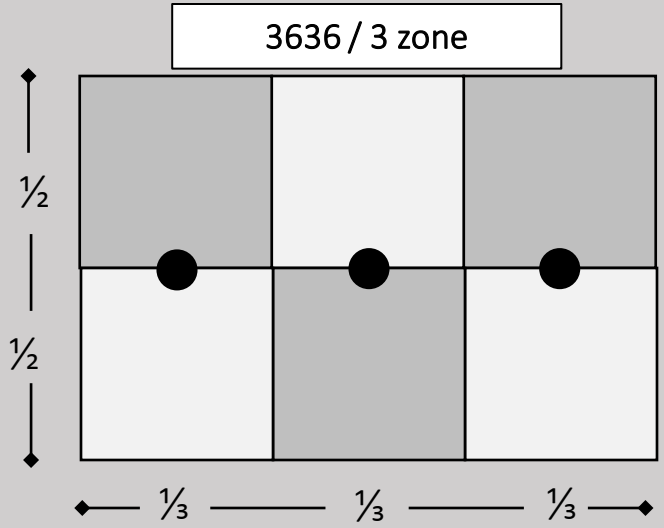


SURFACE TEMPERATURE MEASUREMENT PROCEDURE

1. From a cold start: Turn on the Plancha and wait at least 70 minutes before taking temperature measurements. If Plancha is heated up / in use: Allow 15 minutes of inactivity to stabilize after last cooking run. *Make certain grill surface is clean.*

2. Take temperature measurements (3 or 4, depending on if model is 3 or 4 zone model) using a surface probe. Note measurement once reading has stabilized. Measurement points are shown on the diagram at left—one at the center of each zone.

3. Temperature reading at each point should be within the range 490-540 °F.

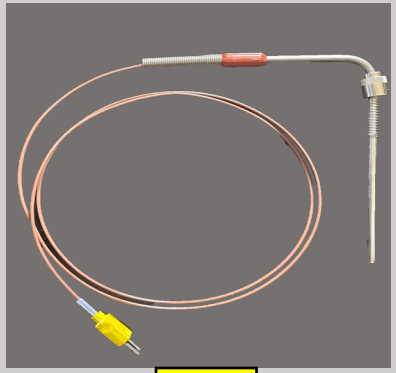


Recommended Thermocouple calibration tools

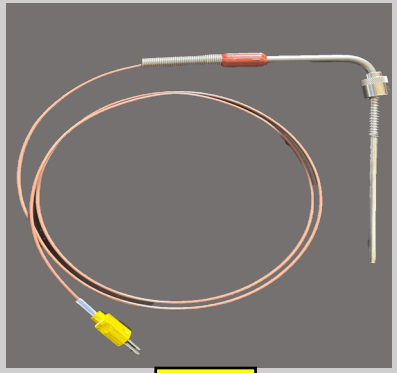
Not as accurate as digital

NOT ACCEPTABLE

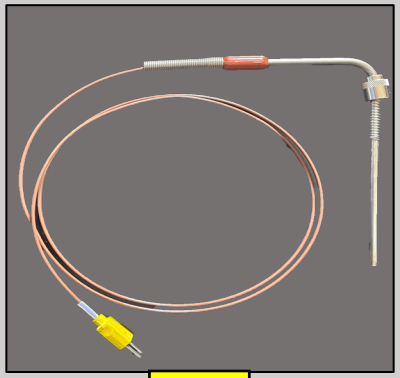
Temperature Controls



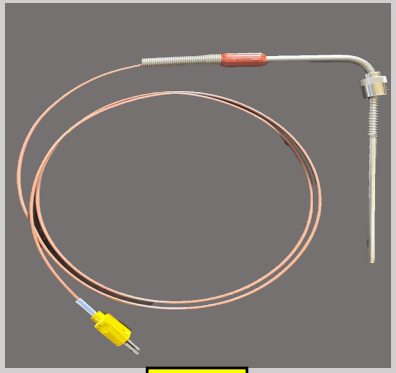
#1



#2



#3

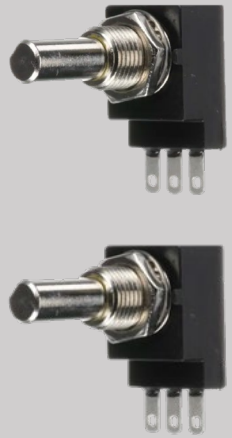


#4

Thermocouple Polarity

Positive +

Negative -



- Set point is determined by the potentiometers
- Each zone has its own temperature sensor. K-Type thermocouple
- Thermocouples are connected to main board. Main board send signal to the buffer board to maintain temperature.

Temperature Troubleshooting

- Verify the unit is properly level front to back, side to side.
- Unit not able to reach set point temperature: Verify all burners are functioning and lighting properly with correct manifold gas pressure.
- Check the thermocouples connectors at the rear of the bulkhead. Make sure they are plugged in, and lock pin is inserted
- Verify the thermocouples are plugged into the proper connector that corresponds to each zone. (Each thermocouple will have a number identification for location)
- Check for continuity on the thermocouple.
- Test for no continuity to ground is measured.
- Check the potentiometer for stable resistance when turning. The values should increase and decrease when turning the knob.
- Check the Thermocouple is fully secure in the bottom of the plate. The bayonet should be turned and locked in place

It is only necessary to calibrate the Pots if they have been replaced, or if the Control Board has been replaced or re-programmed.

If control board or a potentiometer has been replaced, perform the Potentiometer Calibration procedure. Turn OFF plancha. Set to 400, turn on, wait for LED on board (won't see this until pilot/zip tubes have lit. Hold button until LED flashes, release, adjust knobs to 550, press button again, Turn OFF plancha. Set temp.

PLANCHA CONTROL SYSTEM

SOFTWARE version's 2094 - 2095 - 2097

The temperature of the cooking surface is controlled by the 4-Channel Temperature Control Board (A1).
The cooking surface is divided into 4 temperature control zones, each with its own Thermocouple, Gas Valve, and two high efficiency IR Burners. Each zone also has an individual green LED status light on the front of the Control Panel. Each zone runs a completely independent control loop to maintain temperature and respond to cooking loads. On this model, each zone runs the full depth from front to back and 12 inches of the width. Zone 1 is the far-left zone and Zone 4 is the far-right zone (on three zone units, the left zone is 2 and the right zone is 4).The actual number of the zone doesn't matter unless you are correlating the Thermocouples, LEDs, Valve Control Channels, and Temperature Setting Potentiometers. Although there could be up to 4 temperature setting knobs, this unit (left side "veggie zone" divider) has one knob for zone 1 and one knob that controls all three of the other zones. Both knobs are hidden behind the access plate on the left front of the Control Panel. Some units may have a right-side divider. On those units, zones 1 – 3 are controlled by the top knob and zone 4, alone, is controlled by the bottom knob.

The control scheme is different from earlier versions of this Plancha. Every zone is completely independent in time, as well as temperature response. If the temperature of a zone is too low or if it is dropping rapidly, the burners will be run to stop the temperature drop and replace the lost heat. Any zone may come on at any time and run if necessary. The only restrictions based on time are two: Once a burner is lit, it will run at least 10 seconds in consideration of combustion gas quality. Second, once a burner is lit, it cannot be restarted, after tuning off, in less than 30 seconds from the previous start. In practice this rapid cycling does not occur normally, but the time restriction in the firmware exists to prevent excessive wear of the gas valves.
As in the previous model, each zone status light is not tied to the burners (i.e., not switched each time the burner turns on), but rather is controlled by the computer based on the measured plate temperature and the requested set point. If the zone is warming up (when turned on, or to a new set point) or if it cools from too much load (big pot of water) the light will come on to indicate it is under target. Otherwise, if the plate is not too cool, the light stays off.
If a Thermocouple fails, (open circuit or becomes disconnected,) the software will detect this and turn off the associated valve and cause the matching status LED to blink.

If a Thermocouple shorts out and give an erroneously low reading, the software will not detect this. If the Thermocouples or valve controls are cross wired, one zone will stay cold and the other will run away open loop. The maximum temperature that the unit will reach with burner(s) in a lock on condition is about 850 °F (depending on ambient conditions).Care should be taken when reattaching or replacing Thermocouples that they are inserted correctly to avoid this condition. Although the equipment will probably not be damaged, such conditions may pose a hazard, especially if the required clearances to combustibles are not adhered to.

For Software version 2095 & 2097 only: The Burners in zones two and three will be lit during the time that the version code is being blinked out on DS2.

POT CALIBRATION FOR THE A1 CONTROL BOARD ON THE GAS PLANCHA

SOFTWARE version 5093

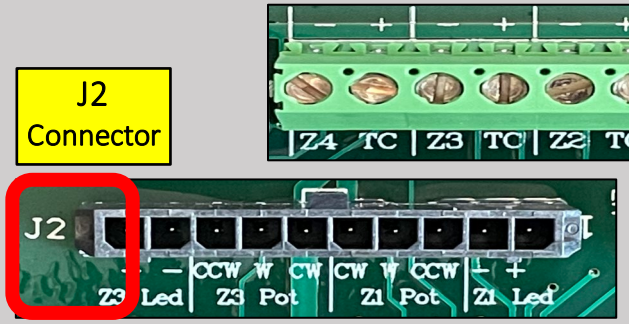
It is only necessary to calibrate the Pots if they have been replaced or if the Control Board has been replaced or re-programmed. DIP switches on the board are also read and stored during the calibration sequence. These instructions assume the Control Panel Assembly is bolted to the main griddle and burner section.(If Control Panel is being serviced in the absence of the Main Griddle Assembly, or if gas is not available, read through this section & the final note below before proceeding.)

1. Turn power OFF (Main Rocker Switch on Front Panel).Remove the small square cover on the Front Panel to expose the Temp. Setting (Potentiometer) Knobs and the Control Board with its White Push Button, green “ready” LED light and DIP switches.
2. Plug the Plancha into power and turn ON the gas supply. Turn on the Plancha. Listen for the clicking sound from the spark ignition and check that the Pilot and Zip Tubes light and stay on. Site Glasses are provided at the front and on both sides of the unit. Turn the Plancha back off with the Main Switch.
3. Turn each of the Temperature Dial Pots to 400 °F. Note: View knobs straight-on, not at an angle, for accuracy.
4. If it is necessary to set or change the DIP switches on the CPI Control Board, separate documentation will be provided. This is the final opportunity to make those changes.
5. Recheck that the Pots are set to exactly 400 °F.
6. Find the White Push Button on the Control Board and the green “ready” LED next to it (near the DIP switches).The green LED will be illuminated for a period when the Plancha is initially powered up.
7. Turn ON the power with the Main Rocker Switch on the Front Panel. The green LED on the Control Board and the left-most Heat Indicator Light blink a sequence indicating the software version–in this case “5093”.(On a three-zone Plancha, no outside Indicator Light will blink.) After the Pilot lights and Ignition stops sparking (ignition has proved), the Heat Indicator Light will turn OFF while the green LED will remain on solidly on for about 15 seconds. Within this 15 second window, press the White Button and hold for several seconds until the green LED begins to blink (the blink is very slow), then release it. At this time the board will read the DIP switches and the values at the low temperature setting of the Pots. This is the ONLY time the DIP switches are read. When the green LED begins blinking, these operations are complete.
8. Without delay (this step must be completed before the LED stops blinking—about 60 seconds from the first White Button push), change the Temperature Knobs to point exactly to 550 °F. Then press and hold the White Push Button again. The button can be released when the LED stops blinking (another few seconds).At this point the Pot midpoints will be read and the scale factor and offsets will be calculated and stored.
9. Turn OFF the power with the Main Rocker Switch on the Front Panel to set the calibration. Set the Pots to the desired value (note: 500 °F as of 6/16/16).To check the surface temperature against the set values, turn on the Plancha and let it stabilize for 70 minutes to get the most representative measurement. Take one reading per zone in the center of each zone as described in the Surface Temperature Measurement Procedure in the TROUBLESHOOTING section of this manual.

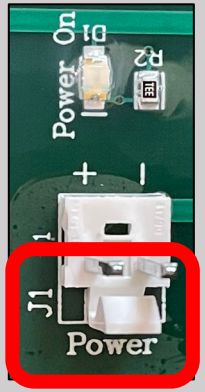
Note: If the Front Panel is separated from the Gas Section or if no gas is available, the Ignition Controller can be bypassed. There are two Bullet Connectors in the harness between the A2 (Buffer) board and the Ignition Controller Module. If both pair are separated and the male and female of the opposite pairs are reconnected (only the two from the Buffer Board side are required) the Control Board will run and allow calibration (and Valve test if connected to the Main Unit).The Main Valve will not operate, and the Pilot and Zip Tubes will not light. When reassembling, be sure to restore the Bullet Connectors before replacing cover

Board Connection Identifications

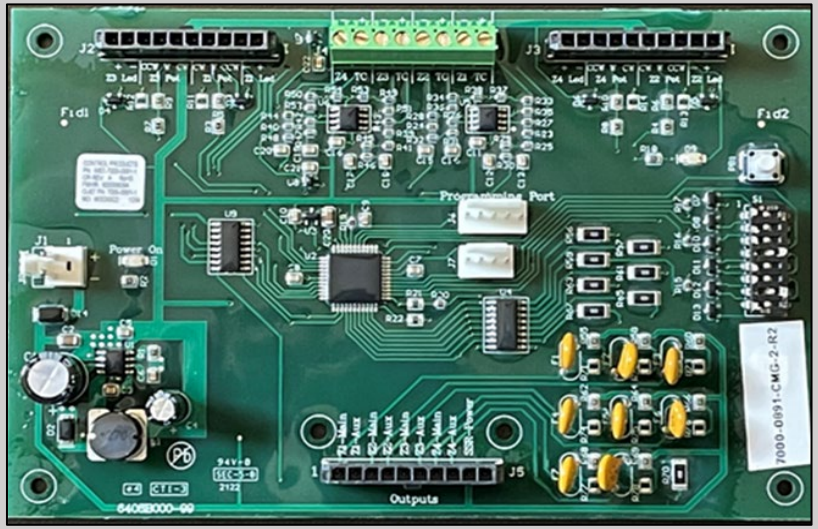
J2 Connector

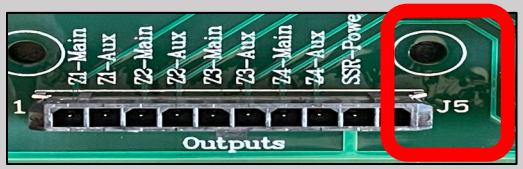


J1 Connector



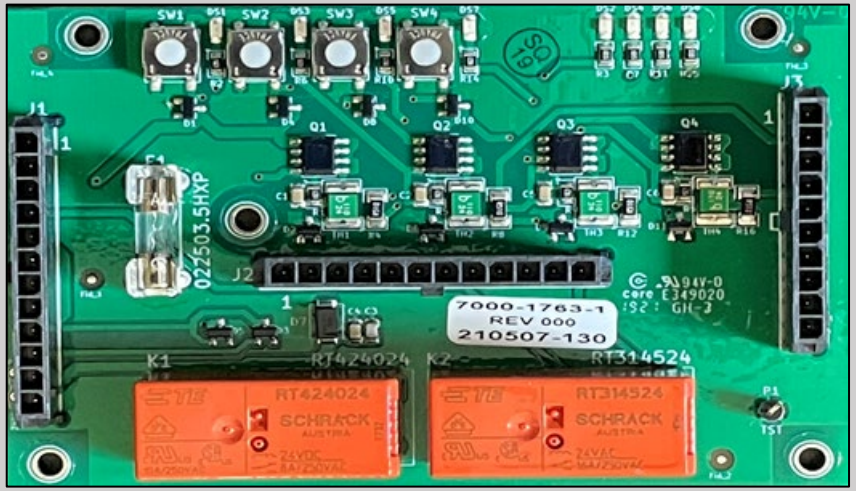
J1 Connector





J5 Connector

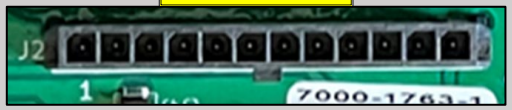
J1 Connector



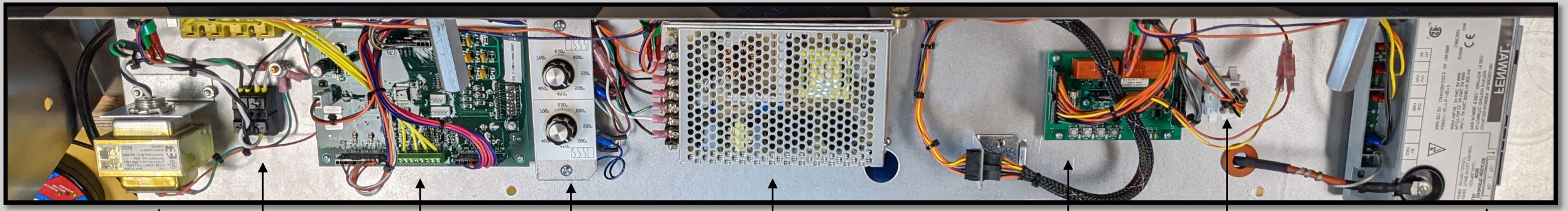
J3 Connector

F1 Fuse

J2 Connector



Bulkhead Component Identification



Service Video Link

https://vimeo.com/showcase/8441136

Password: **WSGPL**

1-360-650-1111

www.woodstone-corp.com