

**OPERATING INSTRUCTIONS FOR
SERIES 800 CONTROLLERS
MODELS: 811AJMK/822AJMK**

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SERIES 800 CONTROLLERS

FEATURES

- Melt Cycle
- Boil Mode
- 2 temperature probe input
- 2 stage temperature per probe
- Pressure solenoid control
- No cook start on bad probe until timer mode programmed.

SAFETY FEATURES

- Entire unit shut down, both controllers when either probe exceeds 400°F.
- Detection of failed probe.
- Warning of excessive temperature - HI message.

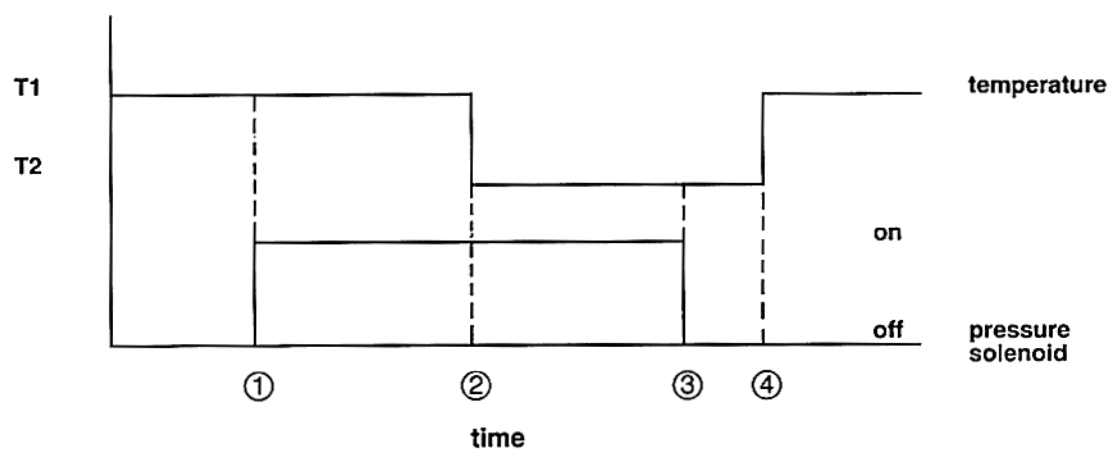
BACK-UP FEATURES

- Probe failure reverts control to mechanical thermostat.

DESCRIPTION OF A STANDARD COOK CYCLE

A cook cycle starts when the operator presses a cook key and places the product into the cooking vat. The computer will control at temperature (T1) which is the programmed first stage temperature associated with the product key pressed. The relay to close the pressure solenoid will be activated. When the elastic time reaches the pre-alarm time, the computer will automatically select the next cook-

ing temperature (T2) to which the vat is to be controlled. The pressure solenoid will remain activated. At the completion of the cook cycle, the done alarm will signal and the pressure solenoid will release. The operator should remove the product and press the product key at this time. Not until the product key is pressed will the computer return the vat to the initial cook temperature (T1).



1. Operator starts cook cycle.

Computer controls to T1 and counts elastic minutes, also activating pressure solenoid.

2. Pre-alarm time.

Computer signals audio alarm.
Computer automatically controls to T2 and continues to count elastic minutes.

3. Cook cycle done.

Computer signals audio alarm.
Computer deactivates pressure solenoid.

4. Operator responds to cook done.

Computer returns temperature to T1.

OPERATION

With the unit powered, the 2 probes attached and the cooking appliance at its normal operating temperature, the unit is ready to operate.

The display should show — standby



COOK CYCLE (1 STAGE TEMPERATURE)

To start cooking cycle, touch any cycle key momentarily.



If the unit is properly programmed, the correct cooking time will display in the display area. This will immediately start to count down in “elastic” seconds. Depending on the actual temperature of the fryer, the time will count faster or slower than actual seconds. The temperature will automatically be controlled to the programmed cook temperature. The solenoid for the pressure switch will activate.



If displayed immediately, and the unit starts to signal, the key being operated is not programmed. (See programming page)



If the unit is correctly programmed, it will count down and give the “done” signal, a steady beeping tone. Cancel this signal with another touch of the same cycle key used to start the time.



PRE-ALARMS (2 STAGE TEMPERATURE)

If the unit is programmed with pre-alarms, the pre-alarm will signal at its pre-set time during the cooking cycle. This signal, a dual rhythm beeping, will last 5 seconds and then self-cancel. The unit will then continue its counting toward:



The pre-alarm signal may be manually cancelled by touching the cycle switch. At pre-alarm time, the temperature controller will automatically switch to the second cook temperature (T2). If cook temperature is to remain the same throughout the cook cycle, T2 must be programmed the same as T1.

SUMMARY OF DISPLAY FUNCTIONS

NORMAL MODE

Probe open or shorted (1 probe system). For 2 probe units press temp key to observe which probe is bad.

A black rectangular display with the white text "Prob" centered inside.

Temp is less than 25°F below set point. For 2 probe units press temp to observe which probe is low.

A black rectangular display with the white text "Lo" centered inside.

Temp is greater than 40°F over set point. For 2 probe units, press temp to observe which probe is HI.

A black rectangular display with the white text "Hi" centered inside.

Standby — fryer is normal cooking range, computer in computer mode, and no cooking cycle in progress.

A black rectangular display with four white dashes "----" centered inside.

Standby — computer in timer mode.
Computer function bypassed, no probe problems.

A black rectangular display with a 3x4 grid of white dashes "----" centered inside.

Standby — computer in timer mode.
Computer function bypassed, probe failure

A black rectangular display with a 2x4 grid of white dashes "----" centered inside.

1) During a cooking cycle, the least time in minutes and seconds remaining, until the product is done and is displayed in the display window.

A black rectangular display with the white text "1:23" centered inside.

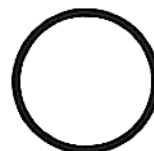
2) At turn on of fryer — the fryer recovery time (if feature is available on unit).

A black rectangular display with the white text "Pr--" centered inside.

Programming mode.
Signifies program standby mode.

SUMMARY OF COOK KEYS

- 1) Cook keys are used:
 - a) To start/cancel cook cycles.
 - b) To silence pre-alarms, cook alarms.
 - 2) A cook cycle can be cancelled by pressing its cook key. Its associated LED will extinguish.
-



TEST KEY - FRYER RECOVERY (If equipped with option)

Upon fryer cold start up, the computer will automatically start a fryer recovery test at 275°F, and measure the amount of time until 325°F is reached. This time will be shown in the display, and cooking operation is inhibited until the test key is pressed. This allows the fryer's heating capability to be checked easily on a daily basis. For the sake of uniformity of this test, the fryer shortening should be stirred when the fryer is at about 250°F, and all solid shortening should be melted.

If the fryer has a broken probe, (**Prob** is displayed). At the time when the unit is being powered up, if **Prob** is displayed the computer needs to be placed into the timer mode (see timer operation) and the recovery test is eliminated. Cooking may begin immediately.



SCAN KEY

Pressing and holding **SCAN** will cause the remaining cook time for each key currently cooking to be displayed in sequence for 1 second. The key associated with the cook time displayed is designated by the rapid flashing of its LED indicator.

Pre-alarm, Hold alarm, or Done alarm will override the scan function.



TIMER KEY

- 1) When in programming mode, pressing the **TIMER** key followed by any cook key will put the displayed probe into **TIMER** operation and display **P r n :** or **P r n :**.

NOTE: The group of keys associated with the probe is automatically in **TIMER** if there is a shorted or open probe, and if cooking, will continue cooking as a timer. Under this condition the display shows **Prob** for 1 or 2 probe systems (on 2 probe units, pressing **TEMP** will show which probe is bad).

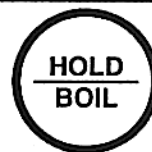
- 2) If a key is in timer and in standby, the display is **|||||** or **|||||**. It can be returned to computer by pressing the **TIMER** key and any cook key, when in programming mode.
 - 3) If power is removed when the unit is in **TIMER** operation, when power is reapplied it reverts to computer operation.
-



SUMMARY OF COOK KEYS (Cont.)

HOLD/BOIL

The Hold/Boil key will activate boil mode when the temperature is below 212°F.



TEMP KEY

When pressed and held, the fryer temperature will be displayed if no cook alarm, hold alarm, pre-alarm is active. According to number of probes, the display will show as follows:

Single probe: probe temp

Two probes

with Single Display:

The display alternates between:

1 probe temp left

2 probe temp right

The flashing prefix digit indicates which probe.



TROUBLESHOOTING

The microprocessor based computer uses the latest technology to produce high quality food products reliably. The unit has built in self-diagnostics that will indicate specific problems.

These diagnostic function to show that the computer is working correctly or improperly. The most common indication of a failure will be the display of **Prob**. This indicates that there has been a probe failure or the probe is disconnected. To determine what the specific problem is, exchange the probe for another unit. This should make the unit display ---- the standard condition for computer operation.

Incorrect cooking of product may be due to incorrectly set times or incorrectly set temperatures. Check both as described in programming instructions. Remember that the unit when operating in the computer mode will count in "elastic" time depending on whether the temperature is above or below the set temperature and the extent

of the difference in temperature will determine the amount of "stretch" or "shrink" in each elastic second.

To check the computer for correct real time, set the unit in the **Timer Mode** (with no cooking or holding in progress), the display will show:



Press a key that has a time displayed on it and check the time against an accurate watch.

The following displays will be seen on the computer under varying conditions. The displays indicate satisfactory operation except for #3 and #5.

1. Unit in standby computer operation OK.



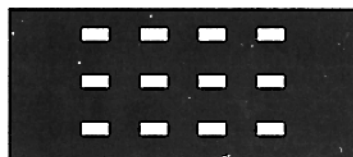
2. Unit in standby computer operation; temperature more than 25° below setpoint. On temperature control units, the heater should be full on or cycling on to automatically raise temperature. Press temp key to observe temperature.



3. Unit in cook or standby computer operation; temperature more than 40° above maximum setpoint - alarms sound simultaneously. Unit not OK.



4. Unit in standby timer operation; to get to computer operation. See "TIMER KEY" page 6.



5. Unit has probe failure indication; check probe or replace probe. Use emergency timer position * to operate computer while awaiting repair part - Unit not OK.



TROUBLESHOOTING (Cont.)

6. Unit displays time and does not count down. Unit is displaying **Recovery Time Test**. To cancel, touch



and unit is OK.



Or if the unit is in programming mode, touch



to see if display changes. See

Programming instructions

7. Unit is in program mode; to exit mode, touch



and



simultaneously. Unit is OK.

Unit is in temp display; - should appear only when **TEMP** button is pressed - Unit is OK.

OR

Unit is in programming mode - On two probe units, cook cycle LED's illuminate on one side of computer; all LED's illuminate on single probe units. Unit OK.

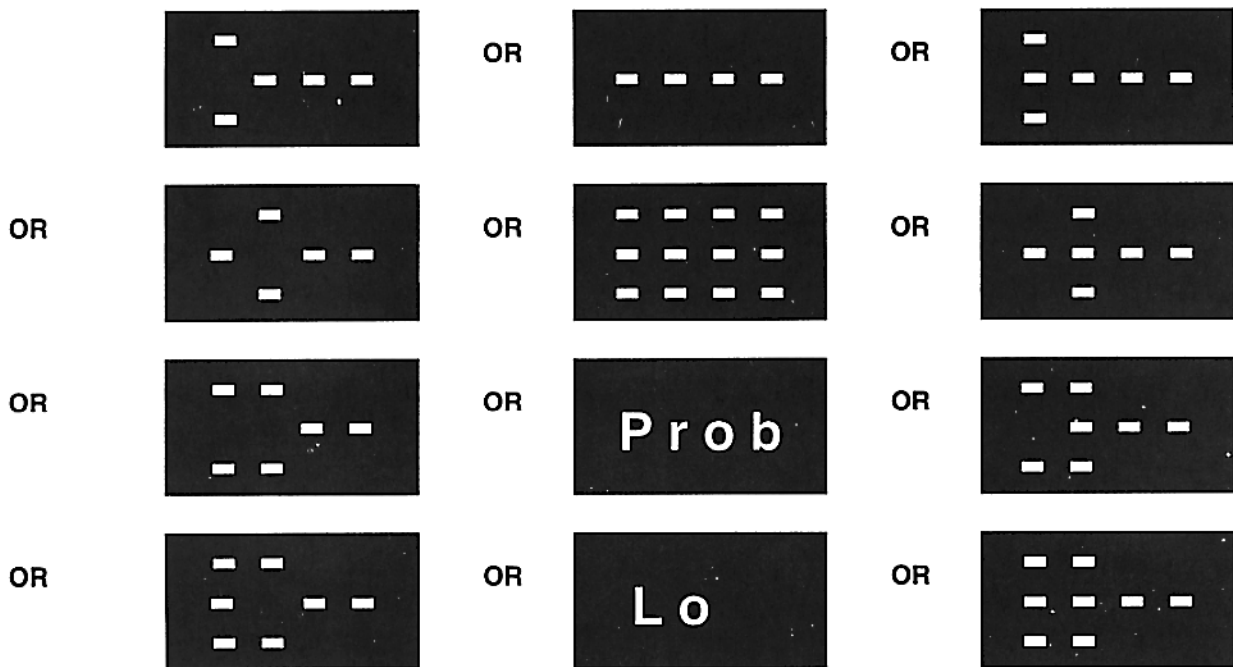


See programming temperature section of manual.

* See programming instructions.

PROGRAMMING

Be sure that no keys are operated and that the computer displays:



before attempting to enter program mode (This can easily be accomplished by unplugging and re-plugging the computer from its power source).

Press **SCAN** and **TEMP** simultaneously. The right display shows a four digit code if a dash pattern was present. Press **HOLD** and **TEST** keys simultaneously. The display will show **Pr--** on right display indicating the program mode standby state.

PROGRAMMING COOK TIME:

1. Press product key to be checked or modified. Its corresponding LED will flash at the cook done rate and the cook time will be displayed in the display. To change a cook time, the **SLOW**, **FAST**, and **XFAST** keys located on the bottom row allow selectable rates of incrementing the time (or temperature) being programmed.

Minimum Time: 00:00

Maximum Time: 99:59

After a maximum count is reached, the count will roll through zero and continue incrementing.

2. If it is not desired to change cook time, press **SCAN** to return to program standby (See Note 1.). If it is desired to change cook time, "roll" in the new time using the **SLOW**, **FAST** and **XFAST** advance keys. One the new time is correct, press **SCAN** to step to program standby (See Note 1.).

Pre-alarm, Hold and Temperature settings are programmed in a similar manner.

NOTE 1: If pre-alarms have been factory configured for this unit and key, then the first pre-alarm will be displayed and the corresponding LED will flash at the pre-alarm rate. If these are not to be set, step through them with the **SCAN** key as described below.

PROGRAMMING PRE-ALARM TIMES:

1. If specified, pre-alarm capability is programmed at the factory.
2. The unit must be in standby mode **Pr--** and the cook time is viewed and/or changed as previously described. Then when the **SCAN** is pressed, the first pre-alarm time is displayed for that key, and the corresponding LED will flash at the pre-alarm rate. The time may be changed as previously described, or the **SCAN** may be pressed to view the second pre-alarm. The second pre-alarm may be changed if desired, then the **SCAN** is pressed again to view the third pre-alarm.

DESCRIPTION: INSTALLATION MANUAL

PROGRAMMING (Cont.)

PROGRAMMING PRE-ALARM TIMES (Cont.)

The third pre-alarm may be changed if desired, then the **SCAN** is pressed again to return the unit to program idle mode. Pre-alarms not used may be programmed to 0:00. Units may have from none to three pre-alarms on from one to eight pairs of keys.

PROGRAMMING TEMPERATURE:

In program standby with display **Pr--**, press **TEMP** key to enter temperature programming. The keys associated with the first probe will all light steady and the temperature of that probe will show in the display, prefixed by the probe number. If desired, change temp and then press **SCAN** to advance to next set temperature of probe. After all probes are displayed, pressing the **SCAN** key will return control to programming standby mode. The computer will only accept temperatures within the cooking range. If the temperature is too large or too small and the **SCAN** key is pressed to enter the new temp, the error beep will sound, and the "old" program temperature will reappear.

PROGRAMMING MELT CYCLE:

Melt cycle can have two modes of operation. "Automatic" which gives a melt cycle until 150°F or "Fry" which bypasses the melt cycle and goes into full heat immediately. The mode desired can be selected from the program mode. In program standby with **Pr--** on the display, press **TEST** key to enter Auto/Fryer programming. The display will show **Pr**, the probe number, and **A** or **F (Pr1A)**. Use a product key to change **A** to **F** or **F** to **A** if a change is desired. Press **SCAN** to step to the next probe. Pressing the **SCAN** button after viewing the last probe will put control into the programming standby mode **Pr--**.

MELT CYCLE BYPASS:

To override and eliminate the melt cycle continuously, program it out of operation as indicated in the section **PROGRAMMING MELT CYCLE**. On a one-time basis, the melt cycle can be overridden by pressing the **BOIL** key, raise the fryer above 150°F with full heat, then press the **BOIL** key again to return to normal fryer operation. This will bypass the melt cycle for that one instance only.

PROGRAMMING THE TIMER MODE:

In program standby with display **Pr--**, press **TIMER** key to enter timer mode programming. The display will show **Pr-1** with the dash flashing. Press any product key to toggle the dash to **or** and back to **-**. The single dash indicates computer mode. The double dash indicates timer mode with probe failure. The triple dash indicates timer mode with no probe failure. Press the **SCAN** key to advance to the next probe or after the last probe back to program standby. On two display units, the left display will show the idle pattern for up to four probes. Probe one to the left, counting across to probe four as the right most digit (1234).

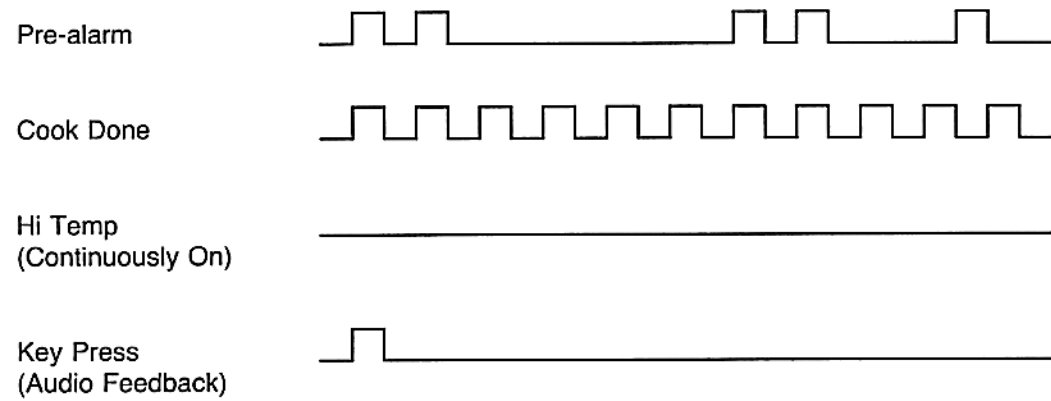
PROGRAM MODE EXIT:

Press **SCAN** and **TEMP** keys simultaneously to exit program mode and return to computer operation.

IMPORTANT NOTE: The computer must have **Pr--** in the display before attempting to exit program mode.

AUDIBLE AND VISUAL ALARMS

AUDIBLE PATTERN



CHECKLIST OF KEYS WITH PRE-ALARMS

1 _____	9 _____
2 _____	10 _____
3 _____	11 _____
4 _____	12 _____
5 _____	13 _____
6 _____	14 _____
7 _____	15 _____
8 _____	16 _____

CHECKLIST OF KEYS WITH HOLD TIMERS

1 _____	9 _____
2 _____	10 _____
3 _____	11 _____
4 _____	12 _____
5 _____	13 _____
6 _____	14 _____
7 _____	15 _____
8 _____	16 _____

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MANUAL ASSEMBLY: 116125-G1
STRATFORD CONTROL SYSTEMS, INC.
OPERATION MANUAL FOR SERIES 800 CONTROLLERS
FOR CCF-18FC

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