

# Service

## Commercial Microwave Oven

This manual replaces RE220002 Rev. 5.

This manual is to be used by qualified appliance technicians only. Amana does not assume any responsibility for property damage or personal injury for improper service procedures done by an unqualified person.



Models and manufacturing numbers in this manual are located below and on page 4.

A1200S	P4020008302
A1225S	P1185701M
FS10EVP	P4020003901
FS10EVP.000	
FS10EVP.A	
FS10EVP.B	
FS10EVP.C	
FS10EVP.D	
FS10EVP.E	
FS10EVP.F	
FS11	P1302104M
FS11EVP	P1186001M
FS14EVP	P4020004901
FS14EVP.000	
FS14EVP.A	
FS14EVP.B	
FS14EVP.C	
FS14EVP.D	
FS14EVP.E	
FS14EVP.F	
FS16EVP	P1185901M
FS17	P1302105M
FS17EVP	P1185902M
FS20	P1302106M
FS20EVP	P1185903M
FSP10	P4020004102
FSP10.A	
FSP10.B	
FSP10.C	
FSP10.D	
FSP10.E	
FSP10SS	P4020004103
FSP11	P1185802M
FSP11	P1302102M
FSP11LW	P1302103M
FSP11LW	P1185805M
FSP11SS	P1185803M
VEND10	P4020004101
VEND10.000	
VEND10.A	
VEND10.B	
VEND10.C	
VEND10.F	
VEND10.G	
VEND10.H	
VEND10.J	
VEND10.K	
VEND10.L	
VEND11	P1185801M
VEND11B	P1185804M
VEND11	P1302101M

RE220002  
Revision 6  
March 1999

# Important Product Information



## WARNING

Precautions to be observed before and during servicing to avoid possible exposure to excessive microwave energy.

- (A) Do not operate or allow oven to be operated with the door open.
- (B) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
  - Interlock operation
  - Proper door closing
  - Seal and sealing surfaces (arcing, wear, and other damage)
  - Damage to or loosening of hinges and latches
  - Evidence of dropping or abuse
- (C) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, wave guide or transmission line, and cavity for proper alignment, integrity, and connections.
- (D) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before oven is released to the consumer.
- (E) Check microwave leakage to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the consumer.

## WIRING

Good service practice is to never route wiring over terminals and/or sharp edges. This applies to any wiring without regard to the circuit voltage. Wire insulation material and thickness is designed and regulated for electrical spacing purpose only, but cannot always be relied upon because of possible cuts and/or abrasions, which can occur during servicing.



## WARNING

To avoid risk of electrical shock, injury, or death, make sure these grounding instructions are followed.

## Grounding Instructions



## WARNING

Do not remove grounding prong when installing grounded appliance in a home or business that does not have three wire grounding receptacle, under no condition is grounding prong to be cut off or removed. It is the personal responsibility of the consumer to contact a qualified electrician and have properly grounded three prong wall receptacle installed in accordance with appropriate electrical codes

Should a two prong adapter plug be required temporarily it is the personal responsibility of the consumer to have it replaced with properly grounded three prong receptacle or the two prong adapter properly grounded by a qualified electrician in accordance with appropriate electrical codes.

## Servicing of Grounded Products

The standard accepted color coding for grounding wires is GREEN or GREEN WITH YELLOW STRIPE. These ground leads are NOT to be used as current carrying conductors. It is extremely important that the technician replace any and all grounds prior to completion of the service call. Under no condition should ground wire be left off causing a potential hazard to technicians and consumer.

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## REPLACE MANUAL C-SM033 WITH THIS MANUAL, RE220002.

REV. 1—ADDED MODEL FSP10SS, P4020004103 TO MANUAL. THIS MODEL IS SIMILAR TO MODEL FSP10, P4020004102.

REV. 2—ADDED MODEL FSP11SS, P1185803M TO MANUAL. THIS MODEL IS SIMILAR TO MODEL FSP11, P1185802M.

REV. 3—ADDED MODEL VEND11B, P1185804M, P1302101M; FSP11SS, P1302102M; FSP11LW, P1302103M; FSP11EVP, P1302104M; FS17EVP, P1302105M; AND FS20EVP, P1302106M TO MANUAL.

REV.4—ADDED MODELS FS17EVP, P1185902M; AND FS20EVP, P1185903M TO THIS MANUAL.

REV. 5—CORRECTED MODEL IDENTIFICATION FS17EVP TO FS17; FS20EVP TO FS20; FSP11EVP TO FSP11; FS11SS TO FS11; AND VEND11B TO VEND 11 ALONG WITH ASSOCIATED TEXT. ADDED FSP11LW, P1185805M.

REV. 6—CORRECTED MODELS ASSIGNED TO WIRING DIAGRAM, AND ADDED NEW CONTROLLER TESTING PROCEDURE.

# Models and Manufacturing Numbers

**NOTE:** For easier identification, the MODEL numbers are in alpha numerical order.

<u>MODEL</u>	<u>M/N</u>	<u>MODEL</u>	<u>M/N</u>	<u>MODEL</u>	<u>M/N</u>
A1200S	P4020008302	FS14EVP	P4020004901	VEND10	P4020004101
A1225S	P1185701M	FS14EVP.000		VEND10.000	
FS10EVP	P4020003901	FS14EVP.A		VEND10.A	
FS10EVP.000		FS14EVP.B		VEND10.B	
FS10EVP.A		FS14EVP.C		VEND10.C	
FS10EVP.B		FS14EVP.D		VEND10.F	
FS10EVP.C		FS14EVP.E		VEND10.G	
FS10EVP.D		FS14EVP.F		VEND10.H	
FS10EVP.E		FS16EVP	P1185901M	VEND10.J	
FS10EVP.F		FS17	P1302105M	VEND10.K	
FS11	P1302104M	FS17EVP	P1185902M	VEND10.L	
FS11EVP	P1186001M	FS20	P1302106M	VEND11	P1185801M
		FS20EVP	P1185903M	VEND11B	P1185804M
		FSP10	P4020004102	VEND11	P1302101M
		FSP10.A			
		FSP10.B			
		FSP10.C			
		FSP10.D			
		FSP10.E			
		FSP10SS	P4020004103		
		FSP11	P1185802M		
		FSP11LW	P1185805M		
		FSP11LW	P1302103M		
		FSP11SS	P1185803M		

# Important Information

Pride and workmanship go into every product to provide our customers with quality products. It is possible, however, that during its lifetime a product may require service. Products should be serviced only by a qualified service technician who is familiar with the safety procedures required in the repair and who is equipped with the proper tools, parts, testing instruments and the appropriate service manual. **REVIEW ALL SERVICE INFORMATION IN THE APPROPRIATE SERVICE MANUAL BEFORE BEGINNING REPAIRS.**

## Important Notices for Consumers and Servicers



### WARNING

To avoid risk of serious injury or death, repairs should not be attempted by an unauthorized person, dangerous conditions (such as exposure to electrical shock) may result.



### CAUTION

Amana will not be responsible for any injury or property damage from improper service procedures. If performing service on your own product, assume responsibility for any personal injury or property damage which may result.

To locate an authorized servicer, please consult your telephone book or the dealer from whom you purchased this product. For further assistance, contact 1 (800) 628-5782 first, if no answer contact the following number.

CONSUMER AFFAIRS DEPT.  
AMANA  
AMANA, IOWA 52204

OR  
CALL

1 (800) 843-0304

If outside the United States contact:

AMANA  
ATTN: CONSUMER AFFAIRS DEPT  
2800 220th Trail  
AMANA, IOWA 52204, USA  
Telephone: (319) 622-5511  
Facsimile: (319) 622-2180  
TELEX: 4330076 AMANA  
CABLE: "AMANA", AMANA, IOWA, USA

## Recognize Safety Symbols, Words, and Labels



### DANGER

**DANGER**—Immediate hazards which **WILL** result in severe personal injury or death.



### WARNING

**WARNING**—Hazards or unsafe practices which **COULD** result in severe personal injury or death.



### CAUTION

**CAUTION**—Hazards or unsafe practices which **COULD** result in minor personal injury or product or property damage.

# Important Safety Information



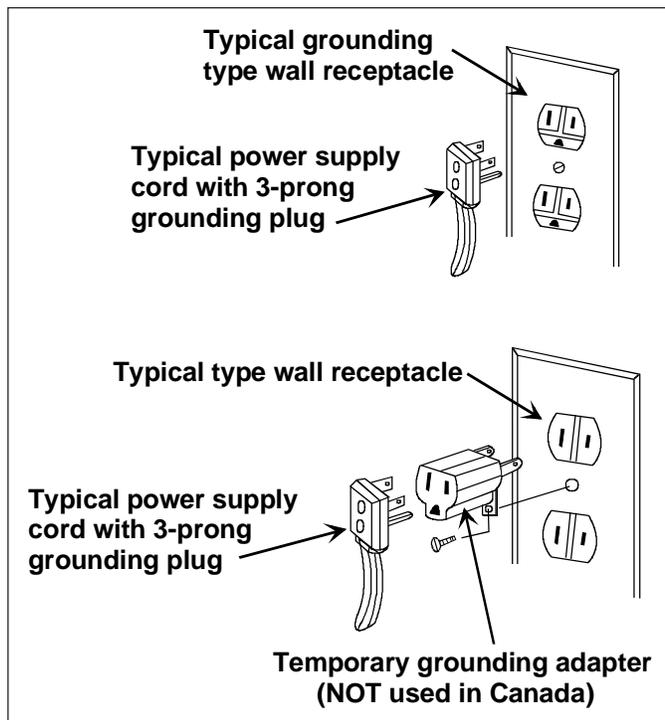
## CAUTION

Do not become exposed to radiation from the microwave generator or other parts conducting microwave energy.

Basic design of this microwave oven makes it an inherently safe device to both use and service. However, there are some precautions which should be followed when servicing microwave oven to maintain this safety. These are as follows:

1. Always operate unit from an adequately grounded outlet. Do not operate on a two-wire extension cord.
2. Before servicing unit (if unit is operable) perform microwave leakage test.
3. Oven should never be operated if door does not fit properly against seal, hinge/hinge bearings are damaged or broken; choke is damaged, (pieces missing, etc.); or any other visible damage can be noted. Check choke area to ensure that this area is clean and free of all foreign matter. If any above problems occur take the following steps:
  - Tell the user not to operate the oven.
  - Contact Amana immediately.
4. If oven operates with door open and produces microwave energy, take the following steps:
  - Tell the user not to operate the oven.
  - Contact Amana immediately.
5. Always have oven disconnected when outer case is removed except when making "live" tests called for in the service manual. Do not reach into equipment area while unit is energized. Make all connections for the test and check them for tightness before plugging cord into outlet.
6. Always ground capacitors on magnetron filter box and H.V. capacitor with an insulated-handle screwdriver before working in high voltage area of equipment compartment. Some types of failures will leave a charge in capacitors and the discharge could cause a reflex action which could make you injure yourself.
7. In the area of the transformer, capacitor, diode, and magnetron there is HIGH VOLTAGE. When unit is operating, keep area clean and free of anything which could possibly cause an arc or ground, etc.
8. **DO NOT** for any reason defeat interlock switches, there is no valid reason for this action at any time; nor will it be condoned by Amana.
9. Microwave oven should never be operated with:
  - Any components removed and/or bypassed
  - Any of the safety interlocks are found to be defective
  - Any of the seal surfaces are defective, missing, or damaged
10. To ensure that unit does not emit excessive microwave leakage and to meet Department of Health and Human Services guidelines check oven for microwave leakage using Narda Model 8100, 8200, Holaday HI1500, HI1501, or Simpson 380M leakage monitor as outlined in instructions. Maximum leakage level allowed is 4mw/cm<sup>2</sup>.
11. If servicer encounters an emission reading over 4mw/cm<sup>2</sup>, servicer is to cease repair and contact Amana Service Department immediately for further direction. Amana will contact the proper Government Agency upon verification of test results.
12. Install or locate this equipment **ONLY** in accordance with the installation instructions in this manual.
13. Some products such as whole eggs and sealed containers – for example, closed glass jars – may explode and **SHOULD NOT** be **HEATED** in this equipment.
14. Use this equipment **ONLY** for its intended use as described in this manual. Do not use corrosive chemicals or vapors in this equipment. This type of equipment is specifically designed to heat or cook. It is not designed for industrial or laboratory use.
15. As with any equipment, **CLOSE SUPERVISION** is necessary when used by **CHILDREN**.
16. **DO NOT** operate this equipment if it has a damaged cord or plug, if it is not working properly, or if it has been damaged or dropped.
17. This equipment, including power cord, must be serviced **ONLY** by qualified service personnel. Special tools are required to service equipment. Contact nearest authorized service facility for examination, repair, or adjustment.
18. **DO NOT** cover or block any openings on the equipment.
19. **DO NOT** store this equipment outdoors. **DO NOT** use this product near water – for example, near a kitchen sink, in a wet basement, or near a swimming pool, and the like.
20. **DO NOT** immerse cord or plug in water.
21. Keep cord **AWAY** from **HEATED** surfaces.
22. **DO NOT** let cord hang over edge of table or counter.

# Important Product Grounding and Outlet Information



**NOTE:** 120 Volt, 15 A. Cord and Receptacle shown.

Typical instructions also apply to 120 V, 20 AMP, and 208/240 V cords and receptacles.

Proper grounding and polarization of 120 V wall outlets.

For the safety of our customers and the service technician **ALL** appliances having a three (3) prong power cord **MUST** be connected to a properly polarized AND grounded wall outlet.

This information was written for those who do not understand grounding and polarization of a wall outlet. A 120 Volt wall outlet must always be wired as shown in Figure 1.

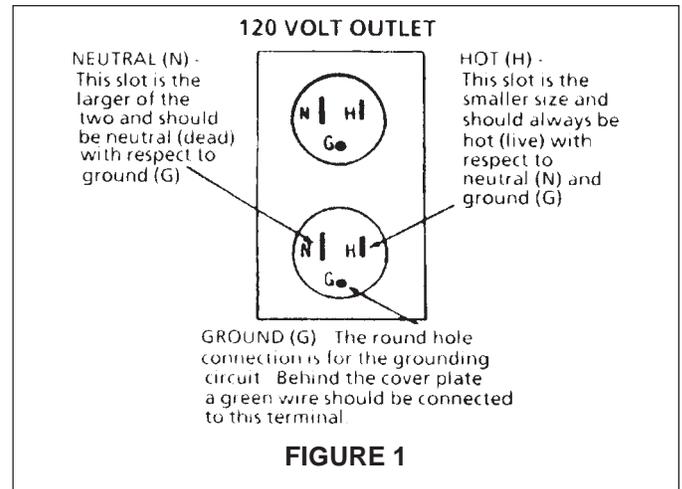
## Explanations

**Polarization**—This means that the larger slot must be neutral and the small slot must be hot (live).

**Mispolarized**—The outlet is miswired so that the larger slot is hot (live) and the smaller slot is neutral.

**Grounded**—This means the round hole connection is connected to earth ground through a connection to the main power panel.

**Ungrounded**—The round hole connection is not complete to earth ground and/or the main power panel.



# Important Product Grounding and Outlet Information

## Test Procedures (2 Methods)

### Method 1

Purchase and use a ground monitor (Figure 2, Page 8) available under Amana Part Number R0193001 or it can be purchased locally. The lamps inside the monitor indicates a correctly or incorrectly wired outlet by instructions imprinted on the monitor body.

### Method 2

**Voltmeter** - (Use scale over 125 Volts A.C.)

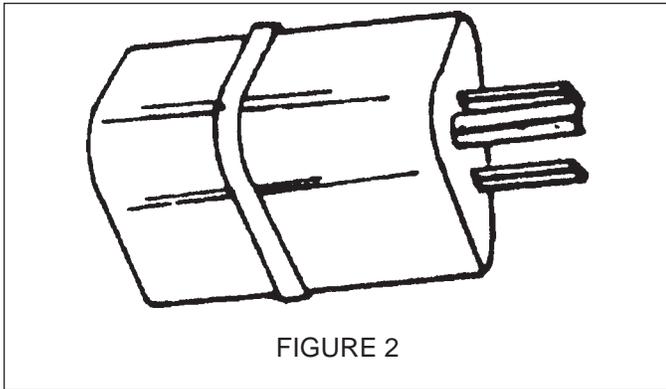
**Test A** - "H" to "N" must indicate line voltage.

**Test B** - "H" to "G" must indicate line voltage.

**Test C** - "N" to "G" must indicate zero (0) volts.

If "N" to "G" indicates line voltage the outlet is mispolarized.

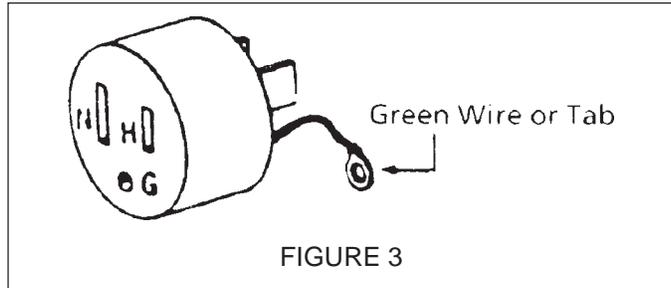
If "H" to "G" indicates zero (0) volts the outlet is not grounded.



 **WARNING**

Wiring changes or grounding of wall outlet are to be made only by a qualified electrician.

In the event a grounding adaptor (not used in Canada) has been **TEMPORARILY** installed the test procedures described in Methods 1 and 2 above should be used (Figure 3).



**NOTE:** The green wire or tab should be connected to a proper ground by a qualified electrician.

### General Test Information

Most testing in the manual is conducted with an ohmmeter using a multiplier scale of X10k (k-thousand ohms). When using this scale, it is important that your fingers do not touch the metal parts of the test probes. To do so will give a false indicate of the ohm reading.

# Specifications

Models	A1200S	A1225S	FS10EVP FSP10 FSP11	FS11 FS11EVP	FS14EVP	FS16EVP	FS17 FS17EVP	FS20 FS20EVP	VEND10	VEND11
<b>Power Source</b>										
Voltage AC	120	120	120	120	208/240	208/240	208/230	208/230	120	120
Amperage (Single Unit)	20	20	20	20	20	20	20	20	20	20
Frequency	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz
Single Phase (3 Wire Earthed)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Power Output</b>										
Standard Test	1100 W	1100 W	1100 W	1100 W	1400 W	1500 W	1600 W	1900 W	1100 W	1100 W
IEC 705 Test	1200 W	1200 W	1200 W	1200 W	1500 W	1600 W	1700 W	2000 W	1200 W	1200 W
Operating Frequency	2450 MHz	2450 MHz	2450 MHz	2450 MHz	2450 MHz	2450 MHz	2450 MHz	2450 MHz	2450 MHz	2450 MHz
<b>Power Consumption</b>										
Standby Condition	0	0	0	0	0	0	0	0	0	0
Idle Condition	200 W	200 W	200 W	200 W	300 W	300 W	300 W	300 W	200 W	200 W
Cook Condition	2100 W	2100 W	2100 W	2100 W	2800 W	2800 W	2800 W	2800 W	2100 W	2100 W
<b>Dimensions</b>										
<b>Cabinet</b>										
Width	20.5" 52.1cm	20.5" 52.1cm	20.5" 52.1cm	20.5" 52.1cm	20.5" 52.1cm	20.5" 52.1cm	20.5" 52.1cm	20.5" 52.1cm	20.5" 52.1cm	20.5" 52.1cm
Height	14.9" 37.8cm	14.9" 37.8cm	14.9" 37.8cm	14.9" 37.8cm	14.9" 37.8cm	14.9" 37.8cm	14.9" 37.8cm	14.9" 37.8cm	14.9" 37.8cm	14.9" 37.8cm
Depth	21" 53.34cm	21" 53.34cm	21" 53.34cm	21" 53.34cm	21" 53.34cm	21" 53.34cm	21" 53.34cm	21" 53.34cm	21" 53.34cm	21" 53.34cm
<b>Cooking Cabinet</b>										
Capacity	.75 cu ft .02 cu m	.75 cu ft .02 cu m	.75 cu ft .02 cu m	.75 cu ft .02 cu m	.75 cu ft .02 cu m	.75 cu ft .02 cu m	.75 cu ft .02 cu m	.75 cu ft .02 cu m	.75 cu ft .02 cu m	.75 cu ft .02 cu m
Width	12.8" 32.5cm	12.8" 32.5cm	12.8" 32.5cm	12.8" 32.5cm	12.8" 32.5cm	12.8" 32.5cm	12.8" 32.5cm	12.8" 32.5cm	12.8" 32.5cm	12.8" 32.5cm
Height	7.8" 19.8cm	7.8" 19.8cm	7.8" 19.8cm	7.8" 19.8cm	7.8" 19.8cm	7.8" 19.8cm	7.8" 19.8cm	7.8" 19.8cm	7.8" 19.8cm	7.8" 19.8cm
Depth	13" 33cm	13" 33cm	13" 33cm	13" 33cm	13" 33cm	13" 33cm	13" 33cm	13" 33cm	13" 33cm	13" 33cm
<b>Power Cord</b>										
NEMA	5-20R	5-20R	5-20R	5-20R	6-20R	6-20R	6-20R	6-20R	5-20R	5-20R

Adjust tap connector to either 208 or 230/240 volt source on the following models:

FS14EVP  
 FS16EVP  
 FS17  
 FS17EVP  
 FS20  
 FS20EVP

# CAUTIONS and WARNINGS to be Observed During Disassembly and Troubleshooting

Unlike many other appliances, the microwave oven is high-voltage, high-current equipment. Though it is free from danger in ordinary use, extreme care should be taken during repair.



## CAUTION

Servicemen should remove their watches whenever working close to or replacing the magnetron.

### Checking the ground

Do not operate on a 2-wire extension cord. The microwave oven is designed to be used when grounded, it is imperative, therefore, to make sure it is grounded properly before beginning repair work.



## WARNING

After the oven is turned off, an electric charge may remain in the high voltage capacitor. When replacing or checking parts, remove the power plug from the outlet and short the terminal of the high voltage capacitor (terminal of lead wire from diode) to chassis ground with an insulated handle screwdriver and discharge.



## DANGER

There is high voltage present, with high current capabilities in the circuits of the high voltage winding and filament winding of the high voltage transformer. It is extremely dangerous to work on or near these circuits with the oven energized. Do not measure the voltage in the high voltage circuit including filament voltage of the magnetron.



## WARNING

Never touch any circuit with your hand nor with an insulated tool during operation.

When parts must be replaced, remove the power cord from the outlet.



## WARNING

When the fuse is blown due to the operation of the monitor switch, replacement of complete interlock switch must be performed.

1. This is mandatory. Refer to page 29 for the necessary adjustments for this switch assembly.
2. When replacing the fuse, confirm that it has the appropriate rating for these models.



## CAUTION

Avoid inserting nails, wire, etc. through and holes in the unit during operation.

Never insert a wire, nail, or any other metal object through the lamp holes on the cavity or any other holes or gaps because such object may work as an antenna and cause microwave leakage.

### Confirm After Repair

1. After repair or replacement of parts, make sure that the screws of the oven, etc. are neither loose nor missing.
2. Make sure that all electrical connections are tight before inserting the plug into the wall outlet.
3. Check for microwave leakage. (Refer to procedure for measuring microwave leakage.)

# General Information and Operating Instructions

## Service Access

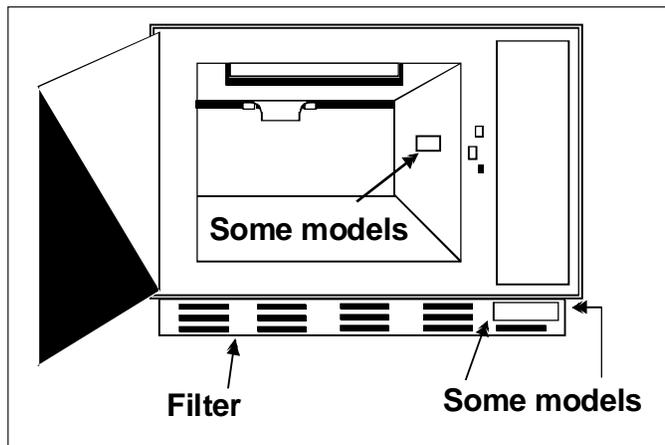
Component servicing is done by lowering the back panel, removing the control panel assembly, and component module panel. Refer to the disassembly section for specific components replacement and adjustment procedures.



### WARNING

All component mounting panels must be grounded to the oven chassis before performing any troubleshooting.

## Serial Plate Location



## Installation Instructions

1. Unpack the oven carefully and examine it for shipping damage. If damage is evident, notify the local carrier immediately and file a damage claim. Menumaster assumes no liability for damage incurred in transit.
2. If the oven has been stored in an extremely cold area, wait several hours before plugging the oven into an outlet.
3. Remove all material from the oven interior.
4. Place the oven in the chosen location. Make sure there is at least one inch of clearance on the top and side and the air intake (filter) is not close to a high temperature source. Example: A deep fat fryer.

5. The FS14EVP, FS16EVP, FS17, FS17EVP, FS20, FS20EVP oven must be adjusted to the proper supply voltage. This oven is manufactured preset for 240 volts. If the supply voltage is less than 220 volts, remove the small cover on the back of the oven and move the voltage adjusting connector to the 208 volt tap connector. Incorrect tap setting can cause component damage.
6. Plug the FS10 EVP, FSP10, FSP11, FSP11SS and VEND10 oven into a standard 120 volt outlet. Plug the FS14 EVP, FS16EVP, FS17, FS17EVP, FS20, FS20EVP into a 208 or 240 volt outlet. Be sure the electrical outlet is rated for at least 20 amperes and the microwave oven is the only appliance on the circuit.

## Important Electrical Grounding Instructions

This appliance must be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This appliance is equipped with a cord having a grounding wire with a grounding plug. The plug must be plugged into an outlet that is properly installed and grounded.



### WARNING

Improper use of the grounding plug can result in a risk of electric shock.

Consult a qualified electrician or serviceman if the grounding instructions are not completely understood, or if doubt exists as to whether the appliance is properly grounded.

If it is necessary to use an extension cord, use only a three-wire extension cord that has a three-blade grounding plug, and a three-slot receptacle that will accept the plug on the appliance. The marked rating of the extension cord shall be equal to or greater than the electrical rating of the appliance.

7. Verify correct operation by performing system diagnosis test.

# General Information and Operating Instructions

## Operation of FS10EVP, FS11EVP, FSP10, FSP10SS, FSP11, FSP11SS, FS14EVP, FS16EVP and VEND10.C, .F, .G, .H, .J, .K, .L, VEND10, VEND11, A1200S, A1225S

These models can be operated two ways:

### A. Preprogrammed operation.

1. Open oven door, place food on shelf and close door.
2. Push one of the buttons 1-0. The display will indicate the number of the button in use, the percentage of power, and the total programmed time. The time will count down in the display.

**NOTE:** If "two stage cooking" has been preprogrammed, it is normal for the % power indicator light to shift from defrost to another power level during the heating cycle.

3. When the time expires, an audible tone will sound. Open oven door and remove food. If no buttons are pushed after the last heating cycle, the oven will shut down in 60 seconds.

If the door is not completely latched and a button is pushed, an audible tone will sound, the colon may flash, but no number will appear in the display.

To change programmed items or power levels, see programming instructions.

If a button is programmed for zero time, on early models nothing will happen when that button is pushed. On newer models an audible tone may sound but no numbers will appear in the display.

### B. Change time operation.

**NOTE:** On early models, this feature may be deactivated as part of the programming instructions.

1. Open oven door, place food on shelf and close door.
2. Push the change time button.
3. Use button 1 to 0 to enter the desired time. Example: Time desired is 2:40. Push button 2, then, 4, then, 0. The display will show 2:40.
4. Push the desired power level button. The heating cycle will begin, the oven will count down to zero and an audible tone will sound.

Use of the "change time" feature will not disturb the times or power levels preset on button 1-0.

## Operation of VEND10.A, .B

1. Open oven door, place food on shelf and close door.
2. Push one of button 1-7. The display will indicate the number of the button in use, "cook" or "defrost", and the total programmed time. The time will count down in the display.

**NOTE:** If "two stage cooking" has been preprogrammed, it is normal for the % power indicator light to shift from defrost to cook during the heating cycle.

3. When the time expires, an audible tone will sound. Open oven door and remove food. If no buttons are pushed after the last heating cycle, the oven will shut down in 60 seconds.

If the door is not completely latched and a button is pushed, an audible tone will sound, the colon may flash, but no number will appear in the display.

To change programmed times or power levels, see programming instructions.

If a button is programmed for zero time, on early models nothing will happen when that button is pushed. On newer models an audible tone may sound but no number will appear in the display.

## Preventive Maintenance

**NOTE:** Do not use scouring pads, powders or other abrasive materials on any of the oven surfaces.

### Regularly

1. Wipe up all spillage as it occurs.
2. Do not allow food particles or grease to collect on the plastic stirrer cover and light cover or on the inner door and oven cavity front surfaces. A build-up of food or grease in these areas can result in damage to the surfaces as well as in loss of cooking power.

### Daily

1. Wipe the plastic stirrer cover and oven light cover with a cloth or sponge dampened in a mild detergent solution.
2. Wipe all surfaces in the oven cavity with the dampened cloth or sponge and then dry with a clean cloth.
3. Wipe the inner door surface and oven cavity front with a mild detergent solution, making sure to remove all food particles.

### Weekly

1. Remove the air intake filter and wash it in hot water to remove grease and dust that collects and obstructs the air flow.
2. Check the door assembly for hinge and latch tightness.

### Semi-Annually

1. Perform radio frequency (r.f.) leakage test. Test anytime r.f. leakage is suspected or maintenance is performed on door assembly, interlock system, or magnetron.
2. Verify correct operation by performing System Diagnosis.

## Service Perspective

All references to components are as viewed from the rear of the oven.

# Test Procedures

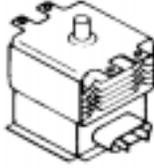
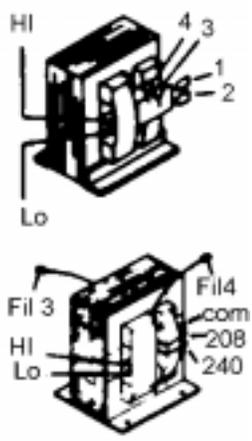


**DANGER**

High voltages are present during the cook cycle. Extreme caution should be observed at all times.

Before touching any oven components or wiring, *always* unplug the oven from its power source and *discharge the capacitor* by shorting across the capacitor terminals with an insulated handle screwdriver.

## High Voltage Component Test Chart

COMPONENT	TEST SET-UP	NORMAL READING (Approximate)
<p>CAPACITOR</p> 	<p>DISCHARGE THE CAPACITOR</p> <p>Remove wires from capacitor terminals and connect ohmmeter, set on highest resistance scale to terminals.</p> <p>Also check between each terminal and the capacitor case.</p>	<p>BETWEEN TERMINALS: Analog meter should momentarily deflect toward zero then return a resistance greater than 5 meg ohms. If no deflection occurs, or if continuous deflection occurs, replace capacitor.</p> <p>TERMINAL TO CASE: Infinite resistance.</p>
<p>DIODE</p>  <p>TYPE I</p>  <p>TYPE II</p>	<p>DISCHARGE THE CAPACITOR Isolate the diode by disconnecting the wiring. On type I diodes remove both wires. On type II diodes disconnect one wire to diode.</p> <p>It is not necessary to remove the mounting screw.</p> <p>Connect ohmmeter, set on highest resistance scale, to diode terminals.</p> <p>Reverse meter leads for second testing.</p> <p>On type I diodes, test from each terminal to ground.</p>	<p>Infinite resistance should be measured in one direction and 50,000 to 200,000 ohms in the opposite direction:</p> <p>NOTE: Ohmmeter must be an analog meter and contain a battery of 6 volts minimum.</p> <p>EACH TERMINAL TO GROUND: (Type I only) Infinite resistance.</p>
<p>MAGNETRON</p> 	<p>DISCHARGE THE CAPACITOR</p> <p>Remove wires from magnetron and connect ohmmeter to its terminals.</p> <p>Also check between each terminal and ground.</p>	<p>BETWEEN TERMINALS : Less than 1 ohm.</p> <p>EACH TERMINAL TO GROUND: Infinite resistance.</p> <p>NOTE: This test is not conclusive. If the oven does not heat and all other components test good replace the magnetron and retest.</p>
<p>POWER TRANSFORMER</p> 	<p>DISCHARGE THE CAPACITOR</p> <p>To check primary winding, remove wires from terminals (marked 1 &amp; 2 FS-10 EVP, VEND-10, or COM &amp; 208 OR 240 FS-14 EVP). Connect ohmmeter between primary terminals.</p> <p>Check from each primary terminal to ground.</p> <p>Also check high voltage winding, remove wire from either secondary terminal marked HI or LO terminal and oven chassis ground.</p> <p>To check filament windings, remove filament leads 3 &amp; 4 and measure resistance across leads.</p> <p>Also check between each terminal and ground.</p>	<p>PRIMARY: Less than 1 ohm</p> <p>EACH TERMINAL TO GROUND: Infinite resistance</p> <p>HI TO GROUND: 40 to 80 ohms</p> <p>LO TO GROUND: 40 to 80 ohms</p> <p>DEPENDENT ON TRANSFORMER MANUFACTOR</p> <p>FILAMENT: Less than 1 ohm</p> <p>FILAMENT TO GROUND: Infinite resistance.</p>

# Test Procedures



## DANGER

High voltages are present during the cook cycle. Extreme caution should be observed at all times.

Before touching any oven components or wiring, *always* unplug the oven from its power source and *discharge the capacitor* by shorting across the capacitor terminals with an insulated handle screwdriver.

### First Isolation Test (FS14, FS16)

Power output of approximately 700 watts indicates one high voltage section is functioning normally and one high voltage section is defective. The following procedures will isolate the defective high voltage section.

1. Disconnect and isolate the common wire from the primary of the left power transformer,
2. Perform power output check.
  - A. If the output power is normal (550 - 750 watts), go on to step 3.
  - B. If low or no power is indicated, the problem is in the right high voltage section. Perform high voltage component tests on components of right high voltage section.
3. Reconnect wire to left transformer.
4. Disconnect and isolate the common wire from the primary of the right power transformer.
5. Perform power output check.
 

If low or no power is indicated, the problem is in the left high voltage section. Perform high voltage component tests on components of left high voltage section.

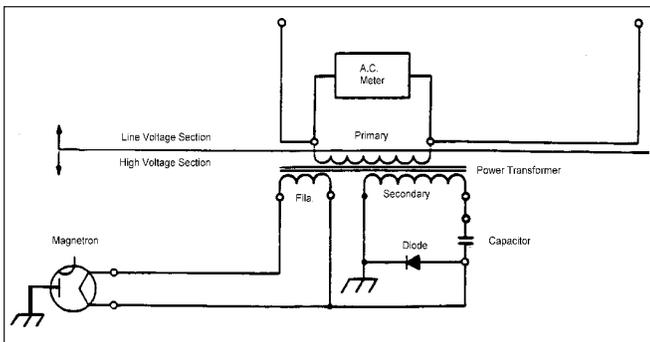
### Second Isolation Test

Perform the isolation test when little or no heat is produced by the oven, but all other operations appear normal. This test isolates the problem to either the high voltage section or the line voltage section of the oven.

1. Connect a meter capable of measuring 250volts AC across the primary of one power transformer.
2. Put the oven into a cook cycle and observe the voltage reading. Measure the voltage across the primary of the second power transformer.

**Procedure A:** If the primary voltages are normal, (1line voltage AC) proceed to the high voltage tests in this section.

**Procedure B:** If low or no voltage is indicated, the problem is in the line voltage portion of the oven.



### Interlock switch module tests

The interlock switch module is activated by the door and door latch assembly. All interlock, monitor and door sensing functions are performed by this module.

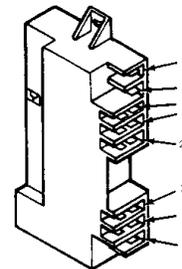
1. Unplug the oven power cord, remove the control panel assembly, and remove the interlock switch module.
2. Disconnect wire leads from the terminals to be tested and reinstall the interlock switch module.
3. With an ohmmeter, check continuity between terminals using the test chart below.
4. If improper indications are given, check the door and latch for proper activation of switches. If door activation checks OK, replace Interlock Switch Module.

X Indicates Contacts	Primary Interlock	Secondary Interlock	Interlock Monitor	Door Logic (Sense)
Terminals	8 - 3	6 - 7	1 - 6	4 - 5
Function				
Door Open			X	
Door Closed	X	X		X



## WARNING

For continued protection against radiation hazard, replace only with manufactures parts catalog numbered switch.



Interlock Switch Module

# Test Procedures

## DANGER

High voltages are present during the cook cycle. Extreme caution should be observed at all times.

Before touching any oven components or wiring, *always* unplug the oven from its power source and *discharge the capacitor* by shorting across the capacitor terminals with an insulated handle screwdriver.

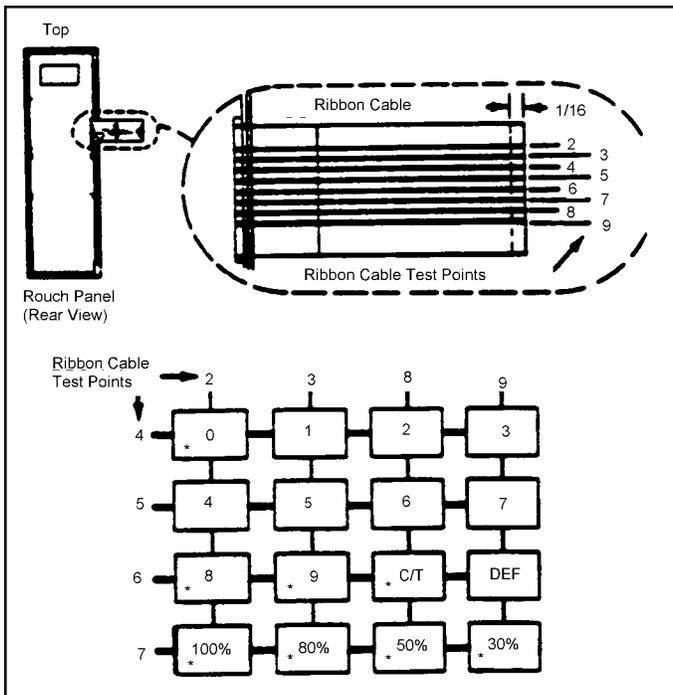
### Touch Panel Test

The touch panel operation can be tested with an ohmmeter on the R x 1 scale.

## CAUTION

Over-flexing the ribbon cable will damage the silver circuit. Pointed test leads cannot be used on ribbon cable silver circuit or silver circuit will be damaged. Scratching of the ribbon cable will damage the silver circuit. Static discharge can damage the controller. Avoid touching any part of the circuitry on the back of the controller. Do not bend ribbon cable forward.

1. Unplug the oven power cord and remove the control panel.
2. Disconnect ribbon cable from circuit board by applying even pressure to both sides of ribbon cable and pull outward from ribbon cable connector.
3. Touch ohmmeter test leads to ribbon cable test points indicated on appropriate test chart. Resistance should be more than 1 Meg ohms between ribbon cable test points until a touch panel pad is depressed. With a touch panel pad depressed, the resistance between connecting test points should be less than 100 ohms.
4. If improper indications are given, replace defective touch panel assembly.
5. Inspect ribbon cable silver circuit; if any silver circuit is missing from the connector end of the ribbon cable, evenly trim 1/16" off end of ribbon cable as shown to assure good electrical connection with circuit board connector.
6. Apply even pressure to both sides of ribbon cable while inserting cable into ribbon cable connector.



\* These Buttons are not present on VEND-10. VEND10.C has all the buttons shown except 80%, 50%, and 30% with the 100% button used as the START button.

# Test Procedures



## DANGER

High voltages are present during the cook cycle. Extreme caution should be observed at all times.

Before touching any oven components or wiring, *always* unplug the oven from its power source and *discharge the capacitor* by shorting across the capacitor terminals with an insulated handle screwdriver.

### Low Voltage (Controller) Transformer Test

An operational test can be performed to verify proper operation of the low voltage transformer.

1. Disconnect power to the oven and remove the control panel assembly.
2. With a voltmeter set to appropriate VAC scale, perform the following test set-ups, measure and record the voltage indicated on the meter.

**Procedure A:** If the proper AC voltages were measured as shown on the test chart, the low voltage transformer operation is normal.

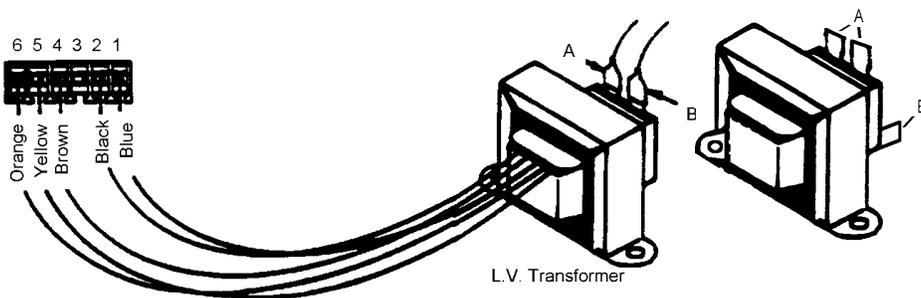
**Procedure B:** If abnormal reading was measured at test points 2-4, 1-6, 5-6, as indicated on the test chart but normal voltage was measured at test points A-B, replace low voltage transformer. If no voltage was measured at test points A-B, check wire connections and circuit diagnosis for other possible causes.



## WARNING

Do not touch any oven components or wiring during oven operation.

TEST SET-UPS	TEST POINTS	NORMAL VOLTAGE (Approximate)
Attach meter leads to wire harness test points A - B, apply power to oven and open oven door.	A & B	120 VAC on all models except FS14.EVP.00, FS14EVP.A, and FS14EVP.B which is 208 - 230 VAC.
Disconnect power and remove L.V. transformer connector attached to the control circuit board and attach meter leads into harness side of connector at test points shown in chart. Apply power to oven and open oven door.	2 (Blue) - 4 (Brown) 1 (Black) - 6 (Orange) 5 (Yellow) - 6 (Orange)	2.6 VAC 23 VAC 46 VAC



A1200S, A1225S, FSP10,  
FSP-11, VEND10, VEND11

FS14EVP,  
FS16EVP

# Test Procedures



## DANGER

High voltages are present during the cook cycle. Extreme caution should be observed at all times.

Before touching any oven components or wiring, *always* unplug the oven from its power source and *discharge the capacitor* by shorting across the capacitor terminals with an insulated handle screwdriver.

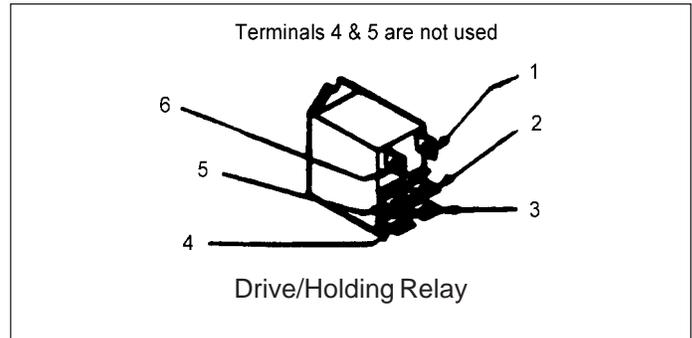
### Drive and Holding Relay Test

Drive relay is on .000 and .A models only

1. Disconnect power to oven, and remove but do not disconnect the control panel assembly. Lower the back panel to the service position.
2. Perform test set-ups as indicated on the Test Chart below.

**NOTE:** Test "Drive" or "Holding" relays one at a time. Do not disconnect both relays at the same time.

**NOTE:** If necessary, remove the component module panel assembly to connect test leads. Replace the module assembly prior to performing all tests except the first two resistance checks.



TEST SET-UP	TEST POINTS	NORMAL READINGS (Approximate)	CORRECTIVE ACTION
<ol style="list-style-type: none"> <li>1. Disconnect power.</li> <li>2. Remove harness leads from relay terminals 1 &amp; 6</li> </ol>	1 to 6	250 to 350 ohm	Replace the relay and retest
<ol style="list-style-type: none"> <li>1. Reconnect harness leads to terminals 1 &amp; 6.</li> <li>2. Remove harness leads from terminals 2 &amp; 3, and insulate to prevent electrical short.</li> </ol>	2 to 3	Infinite ohms	Replace relay and retest
<ol style="list-style-type: none"> <li>1. Reconnect power.</li> <li>2. Program oven for 15 seconds and put oven into a COOK cycle.</li> </ol>	1 to 6	22 Volts DC	Replace the controller and retest
<ol style="list-style-type: none"> <li>1. DRIVE RELAY  Program oven for 15 seconds and put oven into a COOK cycle.</li> </ol>	2 to 3	Less than 1 ohm during cook and for 60 seconds after cook cycle, then infinite ohms.	Replace the relay and retest.
<ol style="list-style-type: none"> <li>1. HOLDING RELAY  Plug in oven</li> </ol>	2 to 3	Less than 1 ohm for 60 seconds, then infinite ohms.	Replace the relay and retest

# Test Procedures



High voltages are present during the cook cycle. Extreme caution should be observed at all times.

Before touching any oven components or wiring, *always* unplug the oven from its power source and *discharge the capacitor* by shorting across the capacitor terminals with an insulated handle screwdriver.

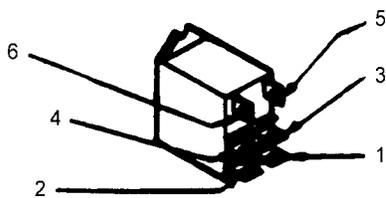
## Holding Relay Test Models

### VEND-10 .F, .G, .H, .J, VEND-10, and VEND-11

1. Disconnect power to oven, and remove but do not disconnect the control panel assembly. Lower the back panel to the service position.
2. Perform test set-ups as indicated on the Test Chart below.

**NOTE:** If necessary, remove the component module panel assembly to connect test leads. Replace the module assembly prior to performing all tests except the first two resistance checks.

TEST SET-UP	TERMINAL TEST POINT	NORMAL READING	CORRECTIVE ACTION
Disconnect power. Remove harness leads from relay terminals 5 & 6.	5 to 6	250 to 350 ohms	Replace the relay and retest.
Reconnect harness leads to terminals 5 & 6. Remove harness leads from terminals 1 & 3, and insulate to prevent electrical short.	1 to 3	Infinite ohms	Replace relay and retest.
Reconnect power. Program oven for 15 seconds and put oven into a COOK cycle.	5 to 6	22 Volts DC	Replace the controller and retest



Holding Relay

## Triac Module Test

1. Unplug the oven power cord, lower the back panel and *discharge the capacitor(s)*. On FS14, remove the left magnetron inlet duct.
2. **COMPLETELY REMOVE THE HIGH VOLTAGE LEAD** that connects the capacitor to the transformer high voltage terminal (marked "HI" or "LO"). On the FS14EVP also remove the lead between the second capacitor and high voltage transformer terminal (marked "HI" or "LO").



High voltages are present at the high voltage secondary terminals during a cook cycle.

3. With a voltmeter capable of measuring 250 VAC, attach the meter leads to triac terminal MT1 (WHT) and MT2 (RED). NOTE: Triac harness leads remain connected.



Do not touch any oven components or wiring during oven operation. Attach meter leads with alligator clips when making operational tests.

4. Perform the following test; measure and record the voltage indicated on the meter.

### Test Set Up

Set the VEND10 oven to operate on defrost for one minute. Set the FS10 or FS14 oven to operate at 50% power level for one minute.

### Normal Output Voltage

On VEND10 and FS10 ovens voltage alternates from 120 VAC to less than 5 VAC. On FS14 ovens alternates from 208/240 volts to less than 5 VAC. FS10 and FS14 alternates approximately every 6 seconds, VEND10 alternation will vary.

### Corrective Action—If abnormal output voltage is measured.

If controller tests check okay, replace the triac module and retest.

	<p>Triac</p> <p>This triac is used in models with P130210_M series</p>	<p>Disconnect wires to triac.</p> <p>Measure resistance from:            MT1 to MT2            MT1 to Gate            MT2 to Gate            All terminals to ground</p>	<p><b>Caution - Do not operate oven with wire to terminal MT2 removed.</b></p> <p>Infinite            Approximately 40 Ω or more            Infinite            Infinite</p>
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# Test Procedures

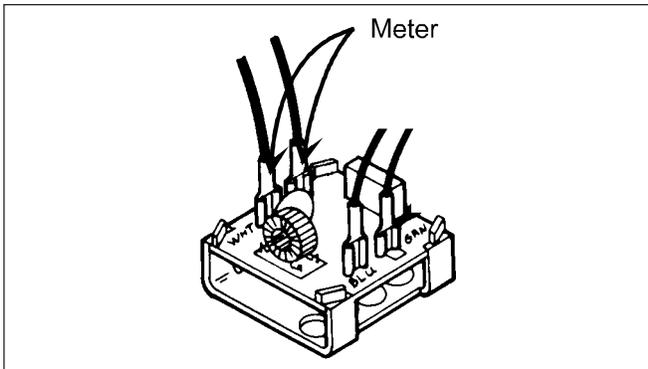


## DANGER

High voltages are present during the cook cycle. Extreme caution should be observed at all times.

Before touching any oven components or wiring, *always* unplug the oven from its power source and *discharge the capacitor* by shorting across the capacitor terminals with an insulated handle screwdriver.

### Controller Triac Drive Test



**NOTE:** This test is provided for reference only. The controller self diagnosis test is normally all that is required to verify normal controller operation.

1. Unplug the oven power cord, lower the back panel and *discharge the capacitor(s)*. On some models, remove the left magnetron inlet duct.
2. Connect voltmeter to triac module terminals marked GRN and BLU.
3. Apply power to the oven and put the oven into a cook cycle on full (100%) power setting. The meter should indicate 1 to 6 volts AC during the cook cycle and zero volts after completion of the cook cycle.

If abnormal readings were measured, replace the controller and retest.

### Cook Relay Test

**Models VEND -10.000, .A, .B, .C**

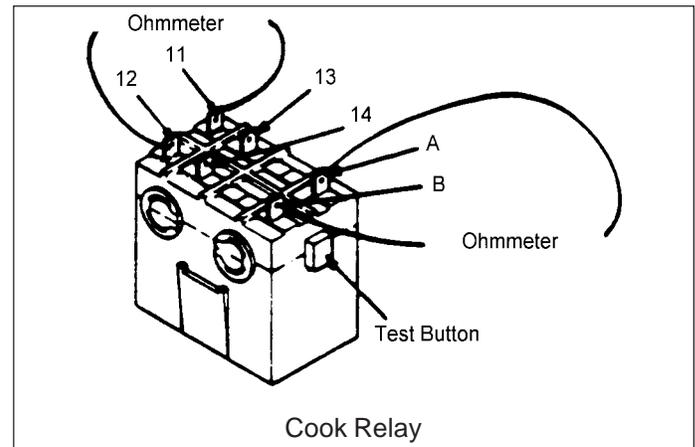
1. Unplug the oven power cord and remove the control panel assembly.
2. Disconnect wiring from cook relay terminals.
3. Connect ohmmeter across cook relay terminals A and B.
4. Meter should indicate approximately 900 ohms.

**Procedure A:** If meter indicates approximately 900 ohms, go on to Step 5.

**Procedure B:** If improper indications are given, replace the cook relay and retest.

5. Connect ohmmeter across relay terminals 11 and 12 as shown below.
6. Press and hold test button on cook relay. Meter should indicate continuity, (0 ohms). If not, the cook relay is defective.

7. Release test button. Meter should indicate infinity. If not, the cook relay is defective.
8. Connect ohmmeter across relay terminals 13 and 14.
9. Repeat steps 6 and 7.



### Stirrer Motor Test

1. Unplug the oven power cord, lower the back panel, and *discharge the capacitor(s)*. On some models, remove the left magnetron inlet duct.
2. Connect a meter capable of measuring 120 volts AC across the input leads to the stirrer motor.
3. Apply power to oven and open oven door.

Meter should indicate approximately 120 volts AC.

**Procedure A:** If meter indicates 120 volts AC but motor does not operate, replace the motor. (Check the stirrer blade to be sure it is not binding on stirrer cover.)

**Procedure B:** If meter indicates zero volts, check oven wiring continuity and system diagnosis.

### Blower Motor Test

1. Unplug the oven power cord, lower the back panel, *discharge the capacitor(s)*.
2. Check the blower wheel to be sure it is not binding or frozen.
3. Connect a ohmmeter capable of measuring 120 volts AC across the input leads to the blower motor.
4. Apply power to oven and open oven door.

Meter should indicate approximately 120 volts AC.

**Procedure A:** If meter indicates 120 volts AC but motor does not operate, replace the motor.

**Procedure B:** If meter indicates zero volts, check oven wiring continuity and system diagnosis.

# Test Procedures



**DANGER**

High voltages are present during the cook cycle. Extreme caution should be observed at all times.

Before touching any oven components or wiring, *always* unplug the oven from its power source and *discharge the capacitor* by shorting across the capacitor terminals with an insulated handle screwdriver.

## Auto Transformer Test

### FS-14EVP and FS-16EVP only

1. Unplug oven power cord and remove but do not disconnect the control panel assembly.
2. With alligator clips, connect a meter capable of measuring 250 volts AC across the 0 volt and 240 volt terminals of the auto transformer.
3. Apply power to the oven and open the oven door. A normal indication should be 220 to 256 volts AC. Unplug the oven. If voltages are low or high, check that the voltage adjusting connector is set for the proper source voltage.
4. Connector meter across the 0 volt and 120 volt terminals.
5. Apply power to the oven, open the oven door and note the voltage.
6. Disconnect power to the oven. Connect meter across the 120 volt and 240 volt terminals.
7. Apply power to the oven, open the oven door, note the voltage and unplug the oven.

Voltages in steps 5 (terminals 0 and 120 volts) and 7 (terminals 120 and 240 volts) should be within 15 volts of the same and should be approximately half of the input voltage measured in step 3. If the voltages in steps 5 and 7 differ by more than 15 volts or are not approximately half the voltage measured in step 3, replace the auto transformer and retest.

## Thermal Protector Test

Unless an overheating condition exists, a continuity check across the thermal protector contacts should indicate a closed circuit (< 1 ohm).

1. Magnetron thermal protector
  - A. Early production units contained resettable magnetron thermal protectors.
  - B. Units produced with the following revision levels do not reset:
    - FS10EVP.D
    - FS14EVP.D
    - FSP10.C
    - VEND10.F
2. Cavity thermal protectors will not reset.

**DISPLAY**

⊕

⊕

**Ribbon connector**

Pin 1 →

K2

D

E

F

C

G

A

B

⊕

**Connector**

Pin 1 ↓

K1

⊕

### New Controller

**208–230 VAC units**

FS20	P1302106M
FS 17	P1302105M

**120 VAC units**

FS11	P1302104M
FSP11	P1302102M
FSP11LW	P1302103M
VEND11	P1302101M

**Pin Description**

A—Line voltage to auto transformer  
 B—Line voltage to K1 connector  
 C—Line out from controller to high voltage transformers  
 D—To triac MT1 pin  
 E—To triac MT2 pin  
 F—Gate voltage (.8 VAC) to triac  
 G—Line in to controller relay contact to H.V. transformer

**K1 Connector**

Pin 1 to Pin 3—Line voltage to controller  
 Pin 6 and Pin 7—Voltage to logic switch  
 Pin 9—Ground

# Disassembly Procedures

## **WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge capacitor(s) before following any disassembly procedures.

### Back Panel Removal/Service Position

1. Place the oven so there is something to support the back panel when it is lowered.
2. Remove the four screws and lower the back panel to an approximate horizontal position. The back panel is now in the service position.
3. To remove back panel:

#### FS10 and VEND10

- A. Disconnect H.V. wires to capacitor and diode.
- B. Disconnect panel to chassis ground wire.

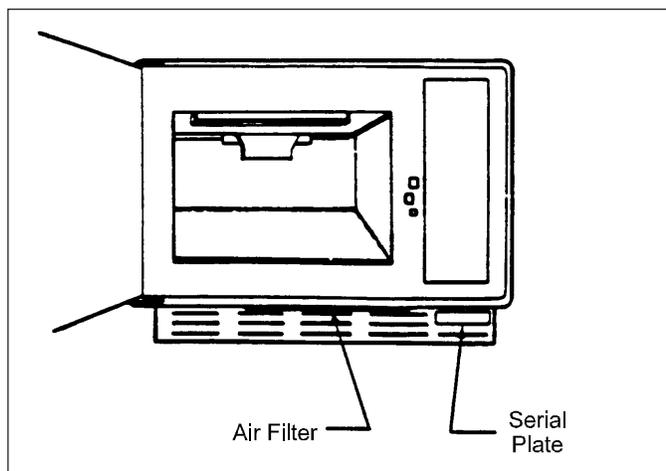
#### FS14

- A. Disconnect panel to chassis ground wire.
- B. Remove both voltage adjusting connector assemblies.

## **CAUTION**

To prevent possible electrical shock, this wire must be reconnected when the back panel is replaced.

- C. Power cord.



### Cavity Lamp Replacement

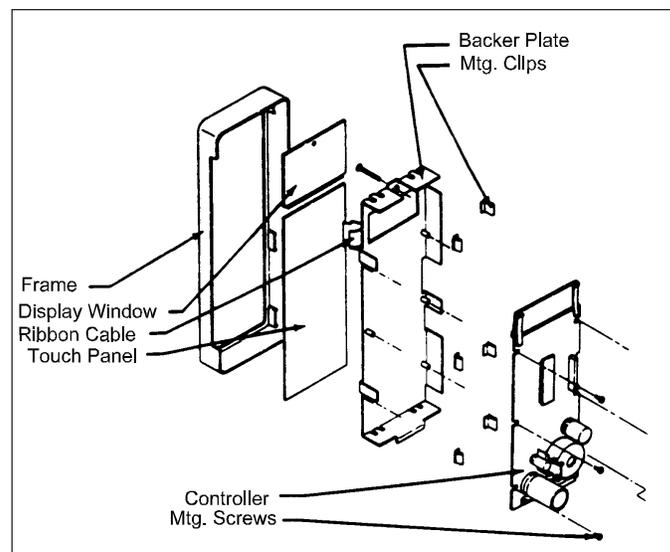
1. Unplug the oven.
2. Remove screw and open the lamp access cover.
3. Replace the cavity lamp. Do not overtighten the lamp.

### Control Panel Assembly Removal

1. Loosen the 3/32" allen-head screw located near the top of the control panel assembly.
2. Pull the control panel assembly forward and disconnect the two wire connectors from the control panel assembly.

### Control Panel Disassembly

1. Remove the control panel assembly.
2. Disconnect the ribbon cable by applying even pressure to both sides of the ribbon cable and pulling outward from the ribbon cable connector.
3. Remove six screws and remove controller.
4. Pry off six clips and remove panel and display window.



## **CAUTION**

Static discharge can damage the controller. Avoid touching any part of the circuitry on the back of the controller.

### Installation

1. Visually inspect ribbon cable silver circuit; if any silver circuit is missing from the connector end of the ribbon cable, evenly trim 1/16" off end of ribbon cable to assure good electrical connection with ribbon cable connector.
2. Apply even pressure to both sides of ribbon cable while inserting cable into ribbon cable connector. Visually inspect for proper alignment of silver circuit to connector tabs.

# Disassembly Procedures



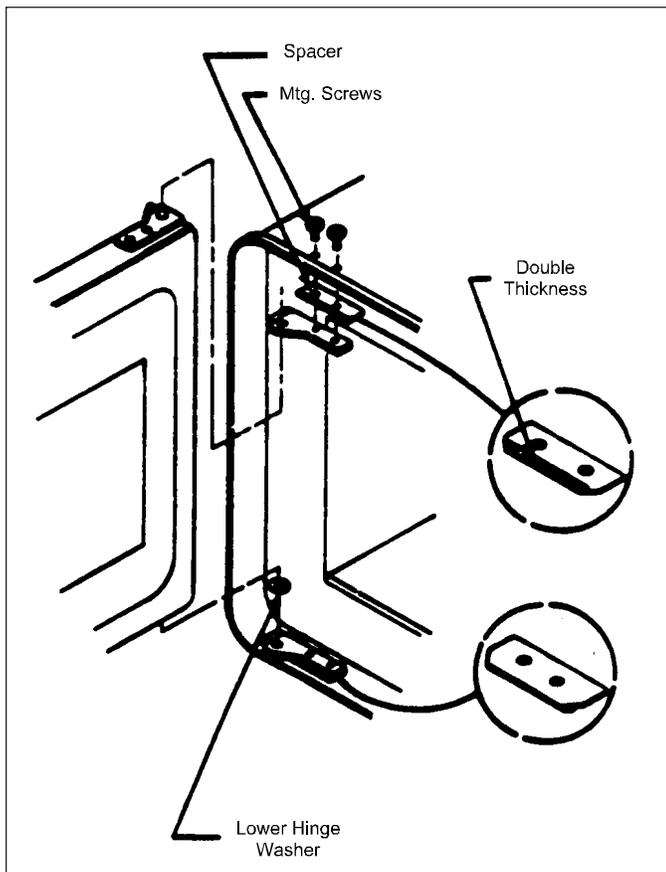
## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge capacitor(s) before following any disassembly procedures.

### Door Assembly Replacement and Adjustment

The following door replacement and adjustment procedures will normally limit radio frequency leakage to less than 1 mw/cm<sup>2</sup> at 5 cm. Although the maximum allowable leakage is 4 mw/cm<sup>2</sup> at 5 cm, effort should be made to ensure that leakage levels are well below the 4 mw/cm<sup>2</sup> at 5 cm.

1. Unplug the power cord.
2. Remove two upper hinge mounting screws.
3. Tilt top of door away from oven and remove door from oven.
4. Remove lower hinge washer from old door and install onto new door.

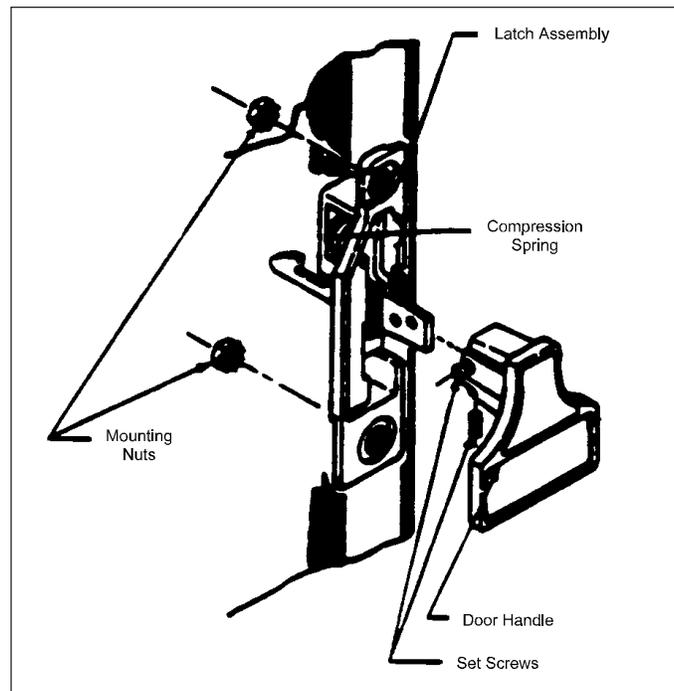


5. Install new door into lower hinge, leaving the door 1/2 way open. Place upper hinge and spacer on the top door pin. Spacer must be installed with the double thickness toward the oven front and toward the cavity overhang as shown. Install upper hinge mounting screws. Leave screws loose.
6. Close oven door.

7. Press the door against the cavity faceplate near the hinges and tighten upper hinge mounting screws.
8. If necessary, adjust the interlock switch module as described under the INTERLOCK SWITCH MODULE ADJUSTMENT in this section.
9. Check the oven for proper operation. Check the oven door operation for radio frequency leakage around the door with an approved radio frequency measuring device to ensure less than 4 mw/cm<sup>2</sup> emissions at 5 cm. in compliance with U.S. Government Department of Health and Human Services 21 CFR, Subchapter J, Performance Standard for Microwave Ovens.

### Door Latch Assembly Replacement

1. Remove door from oven as described in DOOR REPLACEMENT AND ADJUSTMENT.
2. Disassemble door as described in Door Disassembly.
3. Loosen two set screws and remove door handle.
4. Remove two nuts and remove the door latch assembly.



5. Install door latch assembly and reassemble door using new plastic inner window.
6. Install door on hinges as described under DOOR REPLACEMENT AND ADJUSTMENT.
7. Check the oven for proper operation. Check for radio frequency leakage around the door.

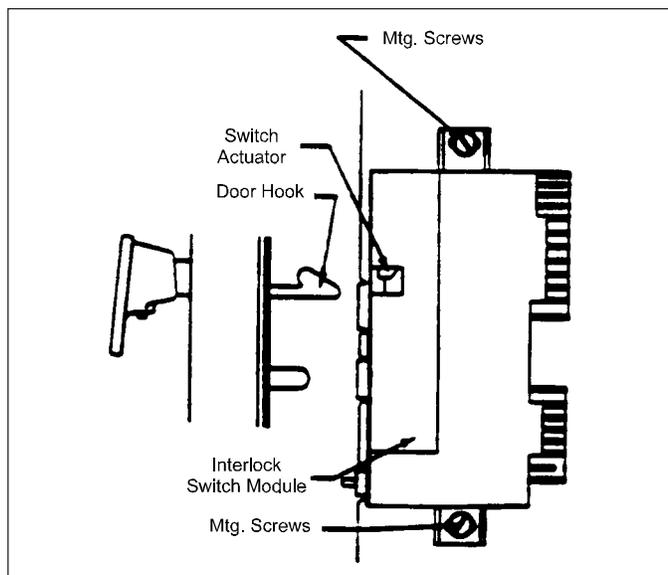
# Disassembly Procedures

## **WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge capacitor(s) before following any disassembly procedures.

### Interlock Switch Module Adjustment

1. Remove the control panel assembly.
2. Loosen the two screws that mount the interlock switch module to the cavity assembly.
3. With the oven door closed, align the switch module to the door hook to provide maximum activation of the switch actuator.



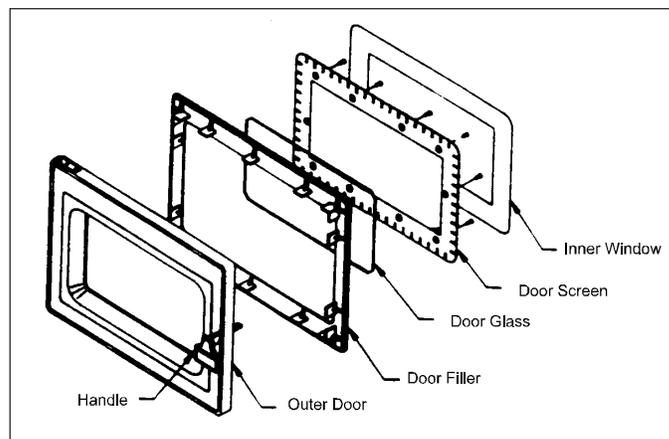
4. Retighten module mounting screws.
5. Check the oven for proper door closure and switch operation.
6. Check the oven for proper operation and radio frequency leakage around the door.

### Door Disassembly

1. Remove door from oven as described in DOOR REPLACEMENT AND ADJUSTMENT in this section.
2. Place door front down on a flat protected surface with the door handle extending over the edge of the surface.
3. Peel off the adhesive mounted inner window.
4. Remove door screen mounting screws and remove door screen.
5. Remove outer window.
6. Remove door filler.

### Door Assembly

1. Place door, front down, on a flat protected surface with the door handle extending over edge of surface.
2. Install outer window.
3. Mount door screen and door filler on outer door.
4. Install door screen mounting screws keeping outer door as flat as possible.
5. Install adhesive mounted inner window.



6. Install door on hinges as described under DOOR REPLACEMENT AND ADJUSTMENT in this section.
7. Check the oven for proper operation. Check for radio frequency leakage around the door.

### Exhaust Transition Duct Replacement

1. Lower the back panel to the service position.
2. Pull the duct toward the oven rear.
3. Rotate the bottom of the duct clockwise to remove.
4. To replace, insert rib on wrap into slot on top of duct. Lift up on bottom tabs on duct and rotate bottom of duct counterclockwise to secure tabs to lower rail on wrap.
5. Slide duct toward oven front.

# Disassembly Procedures



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge capacitor(s) before following any disassembly procedures.

### Right Blower Air Duct Replacement

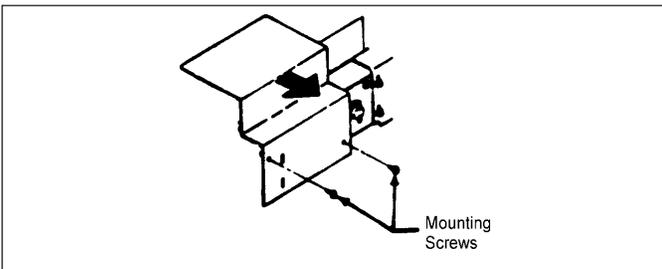
1. Lower the back panel to the service position.
2. Remove the exhaust transition duct.
3. Remove the air diverter by removing the two plastic push rivets and disconnecting the rear tab from the slot on the blower air duct.
4. Remove two duct mounting screws from magnetron.
5. Firmly grasp the bottom of the duct and pull it out (considerable force is required).
6. To replace, start the top of the duct into the oven at about a 45° angle. Rotate the bottom of the duct into position (force is required). When correctly positioned, the duct fits down over the blower housing and the mounting holes align with the magnetron.
7. Replace mounting screws, air diverter, and exhaust transition duct.

### Left Blower Air Duct Replacement (some models only)

1. Lower back panel to the service position.
2. Remove 2 duct mounting screws from magnetron.
3. Lift duct about 1" and rotate duct counter clockwise to remove.
4. To replace, tilt back of the duct slightly downward, insert top of duct near top of wrap and rotate duct clockwise into place.
5. Place the locating tabs into the blower housing and install 2 screws into magnetron.

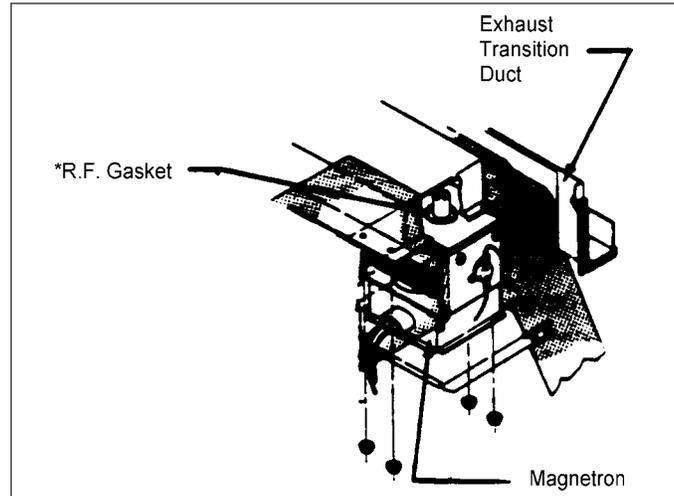
### Magnetron Exhaust Duct Replacement

1. Lower the back panel to the service position.
2. Remove two duct toward oven rear to remove.
3. Replace duct and screws.



### Magnetron Replacement

1. Remove magnetron inlet and exhaust duct.
2. Disconnect the wires to the magnetron thermal protector.
3. Disconnect the wires to the magnetron terminals.
4. Remove the blower assembly (some models only).



5. Remove four magnetron mounting nuts.
6. Lower the magnetron. Rotate bottom of the right magnetron toward the oven rear. Rotate bottom of left magnetron toward the left side of the oven.
7. Put foam tape on replacement magnetron.

**NOTE:** When connecting wires to magnetron terminals, observe polarity per the wiring schematic/diagram.

**NOTE:** Radio frequency gasket must be installed before magnetron is installed.

**NOTE:** Check oven for leakage to ensure 4 mw/cm<sup>2</sup> leakage at 5 cm.

# Disassembly Procedures

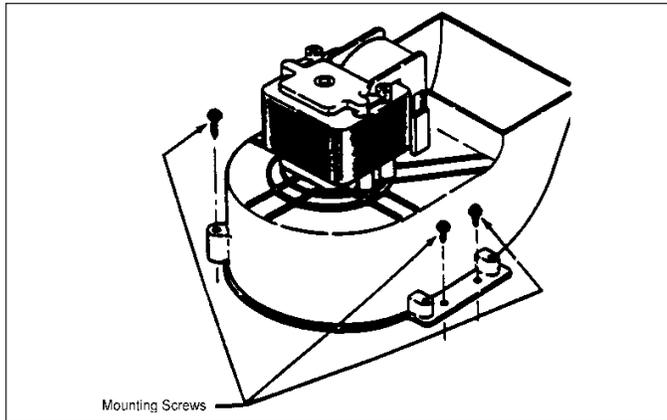


**WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge capacitor(s) before following any disassembly procedures.

## Blower Replacment

1. Remove magnetron inlet duct.
2. Remove blower motor ground lead screw from the oven base.



3. Disconnect two blower motor wires.
4. Remove mounting screws and lift out blower assembly. The left blower assembly (FS14 only) has two mounting screws located toward the rear of the oven. The right blower asseembly has two mounting screws toward the rear of the oven and one mounting screw near the high voltage transformer.

## Right (Rear) High Voltage Transformer Replacement

1. Lower the back panel to the service position.
2. Remove the right blower air duct and the magnetron exhaust duct (FS14 only).
3. Disconnect the transformer leads.
4. Remove four transformer mounting screws.

## Left (Side) High Voltage Transformer Replacement

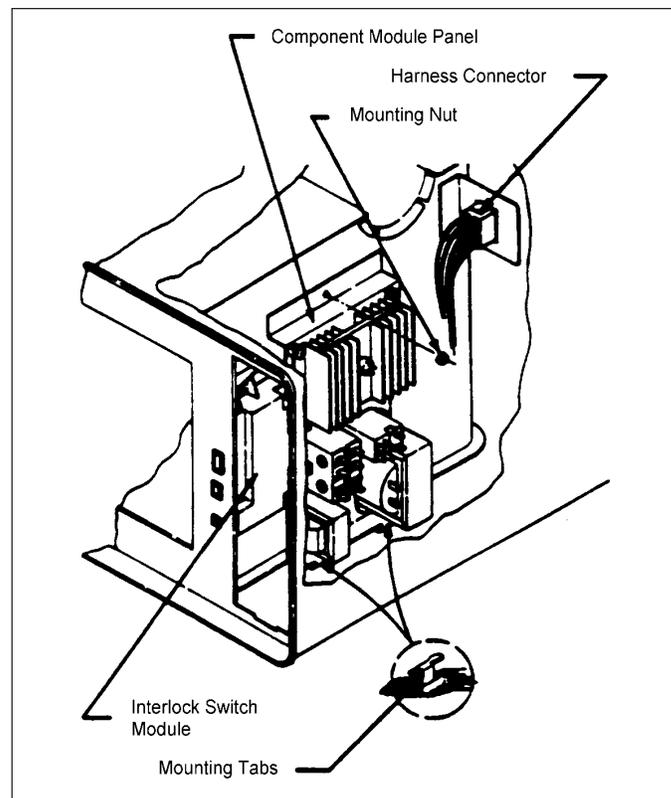
1. Lower the back panel to the service position.
2. Remove the left blower air duct and left blower assembly.
3. Disconnect the transformer leads.
4. Remove two transformer mounting screws.

## Component Module Panel Removal

### Model VEND-10.000, .A, .B, .C

1. Remove the control panel assembly.
2. Locate the top and bottom release tabs on the panel harness connector located above and to the rear of the component module panel. Press the tabs against the connector housing and pull the connector toward the oven front to disconnect the connector.
3. Remove two interlock switch module screws and remove the switch module. Do not disconnect wires to the switch module.
4. Remove the nut at the top of the component module panel. Pull the top of the panel away from the cavity wall until it clears the stud.
5. Pull the component module panel toward the front of the oven and lift up to separate the two tabs from slots in the oven base.
6. Slowly pull the interlock switch module and component module panel through the control panel opening. Move wires around as required to clear the opening.

**NOTE:** After replacement, perform interlock switch module adjustment. Perform Radio Frequency Leakage Test Procedures.



# Disassembly Procedures



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge capacitor(s) before following any disassembly procedures.

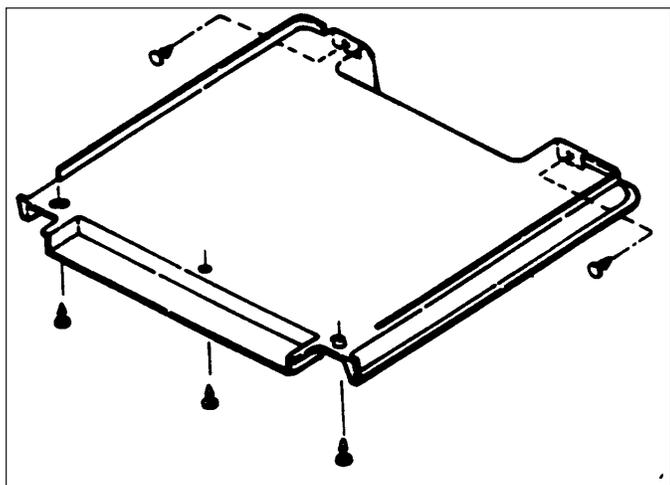
### Component Module Panel Removal

(Model VEND-10.F, .G, .H, .J, VEND-10, VEND-11)

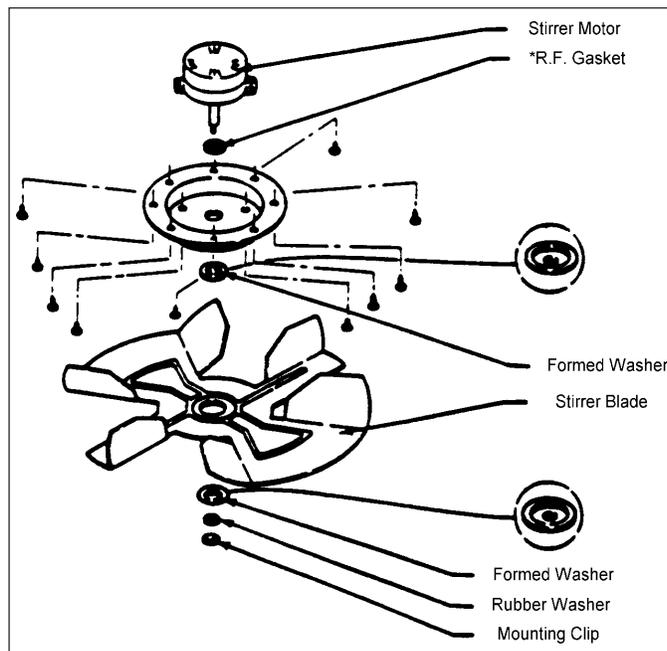
1. Remove the control panel assembly.
2. Remove two interlock switch module screws and remove the switch module. Do not disconnect wires to the switch module.
3. Remove the nut at the top of the component module panel. Pull the top of the panel away from the cavity wall until it clears the stud.
4. Pull the component module panel toward the front of the oven and lift up to separate the two tabs from slots in the oven base.
5. Slowly pull the interlock switch module and component module panel through the control panel opening. Move wires around as required to clear the opening.

**NOTE:** After replacement, perform interlock switch module adjustment. Perform Radio Frequency Leakage Test Procedures.

### Stirrer Cover Removal



### Stirrer Assembly Removal



**NOTE:** Formed washers were used on early production only. Formed washers are not used with replacement stirrer blades.

**NOTE:** If installed, formed washers must be installed as shown.

**NOTE:** Check oven for leakage to ensure less than 4 mw/cm<sup>2</sup> leakage at 5 cm.

**NOTE:** Radio Frequency gasket must be installed as shown.

# Disassembly Procedures

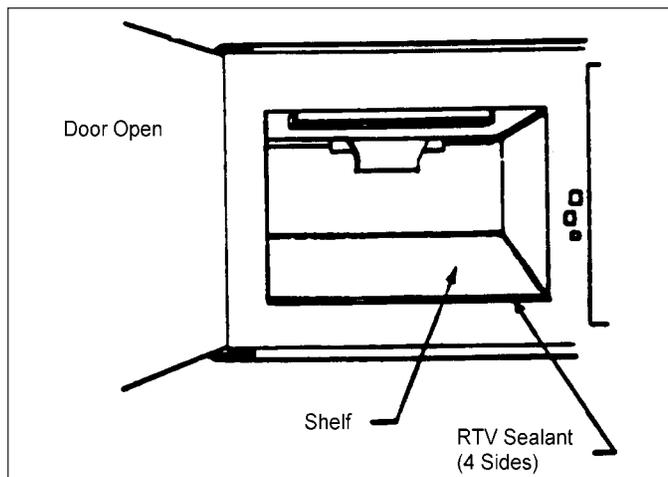


## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge capacitor(s) before following any disassembly procedures.

### Shelf Replacement

1. Carefully cut through the sealant bead around the perimeter of the shelf with a single edge razor blade or a strong, thin knife.
2. Using a thin knife blade or small screwdriver, begin to pry the shelf SLOWLY upward at the front edge.



3. Insert a second screwdriver and slowly break the seal completely until the shelf is free.
4. Clean the old sealant from the cavity base and install the new shelf.
5. Lay a bead of new sealant around the shelf perimeter.

**NOTE:** For even seam, spray RTV with water before removing excess.

6. Clean excess sealant off the shelf with a single edge razor blade. Allow 24 hours of curing time before using the oven.

### Cavity Thermal Protector Replacement

1. Lower the back panel to the service position.
2. Remove the screw and open lamp access cover.
3. Remove cavity lamp bulb.
4. Remove screw located above cavity lamp.
5. Pull down on cavity thermal protector.
6. Disconnect cavity thermal protector leads at the connector near the back panel.

### Cavity Replacement

1. Remove the following components of subassemblies (refer to individual replacement procedures if necessary):
  - A. Control panel assembly.
  - B. Complete door assembly and hinges.
  - C. Interlock switch module and component module panel.
  - D. Stirrer cover, stirrer blade, stirrer motor and light lens.
  - E. Air ducts.
  - F. Back panel assembly; on FS14 disconnect wire bundle near left transformer.
  - G. Cavity lamp socket and cavity thermal protector.
2. Drill out five pop rivets that secure the base to the cavity. (One rivet at each front corner, one rivet just behind the back of the air filter, and one rivet near each blower assembly.)
3. Remove cavity assembly from oven base.
4. Remove control panel mounting nut, interlock switch module mounting clips and back panel mounting clips from the old cavity and install on the new cavity.
5. Rivet new cavity assembly to base.
6. Install all components or assemblies that were removed.
7. Adjust door per door adjustment procedure.
8. Check all wire connections for correct location and tightness.
9. Plug in oven. Run operational check, power test and Radio Frequency Leakage test.

# Magnetron Service Information

## Proper Handling of Magnetron Tubes

A magnetron tube must be handled with care. When handling a tube, always handle by the housing only. Use caution not to touch or strike the ceramic or metal portion at the top.

**NOTE:** The carton used to ship service replacement tubes is reusable. All inoperative tubes must be returned to the factory in the carton.

## Magnetron Failure Modes

Magnetron failures that have been identified are generally grouped into the categories shown below:

1. **Shorted**
  - a. **Air**—This is a case where the tube has had the vacuum envelope destroyed and air has entered the tube. This will cause internal arcing and high secondary circuit if high voltage is applied.
  - b. **R.F. Capacitors**—May short to chassis. This condition will also cause loss of high voltage.
2. **Open Heater (Filament)**—Can be determined by ohmmeter when the transformer leads are disconnected. Resistance is normally less than on OHM; the filament does not short internally. Any tube removed should be checked since usage tends to make the filament more fragile. Later handling or shipping may open the filament and thereby mask the true failure mode when checked at the factory.
3. **Low Power**—Caused by "wearout" of emission characteristics of the directly heated cathode. Symptoms are: (1) the tube current will take longer to get to the operating point than a new tube (normally about 2 - 3 seconds), (2) the tube current does not get high enough to cause the tube to oscillate with normal line voltage. The current will be low, (3) the oven produces low power into a load, two-thirds or less than normal.
4. **Physical Damage**—Caused by mishandling of magnetron tube.

# Procedure for Measuring Microwave Energy Leakage



## WARNING

Check for radiation leakage before and during every servicing. Should the leakage be more than  $4\text{mW}/\text{cm}^2$  (to allow for measurement uncertainty) inform Amana Appliances immediately. After repairing or replacing any radiation safety device, keep a written record for future reference, as required by the Department of Health and Human Services and CDRH regulation. This requirement must be strictly observed. In addition, the leakage reading must be recorded on the service repair ticket while in the customer's location.

### Equipment

- Electromagnetic radiation monitor
- Glass thermometer  $212^\circ\text{F}$ . or  $100^\circ\text{C}$ .
- 600 cc glass beaker

### Procedure for Measuring Radiation Leakage

Note before measuring:

- a. Do not exceed meter full scale deflection. Leakage monitor should initially be set to the highest scale.
  - b. To prevent false readings the test probe should be held by the grip portion of the handle only. The scan speed is equal to 1" per antenna revolution of 1" per second if antenna speed is unknown. Areas to be checked are all seal areas, window, and any venting parts.
  - c. Leakage with the outer panel removed . . .  $4\text{mW}/\text{cm}^2$  or less.
  - d. Leakage for a fully assembled oven with door normally closed . . .  $4\text{mW}/\text{cm}^2$  or less.
  - e. Leakage for fully assembled oven (before the latch switch (primary) is interrupted) while pulling the door . . .  $4\text{mW}/\text{cm}^2$  or less.
1. Pour  $275 \pm 15$  cc (9 oz.  $\pm 1/2$  oz) or  $20 \pm 5^\circ\text{C}$ . ( $68^\circ\text{F}$ .  $\pm 9^\circ\text{F}$ .) water in beaker which is graduated to 600 cc and place the beaker in the center of the oven.
  2. Set the radiation monitor to 2450 MHz and use it following the manufacturer's recommended test procedures to assure correct results.
  3. While measuring the leakage, always use the two inch (5 cm) spacer supplied with the probe.
  4. Press the start pad or turn on the timer and with the magnetron oscillating, measure the leakage by holding the probe perpendicular to the surface being measured.

### Measurement with the Outer Panel Removed

Whenever you replace the magnetron, measure for radiation leakage before the outer panel is installed and after all necessary components are replaced or adjusted. Special care should be taken in measuring around the magnetron.



## DANGER

To avoid risk of severe personal injury or death, avoid contacting any high voltage components.

### Measurement with a Fully Assembled Oven

After all components, including the outer panel are fully assembled, measure for radiation leakage around the door periphery, the door viewing window, the exhaust opening, and air inlet openings.

### Record Keeping and Notification After Measurement

- After any adjustment or repair to a microwave oven, a leakage reading must be taken. Record this leakage reading on the repair ticket even if it is zero.

A copy of the repair ticket and the microwave leakage reading should be kept by repair facility.

# Troubleshooting Procedures



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Directions for System Diagnosis Flow Chart

A test set-up is described at the beginning of each test sequence. Directly below the test set-up is a description of the normal oven operation(s) (identified by a question mark).

If oven operation is normal, follow the YES sequence down the left side of the page.

If oven operation is abnormal, follow the NO sequence to the right side of the page.

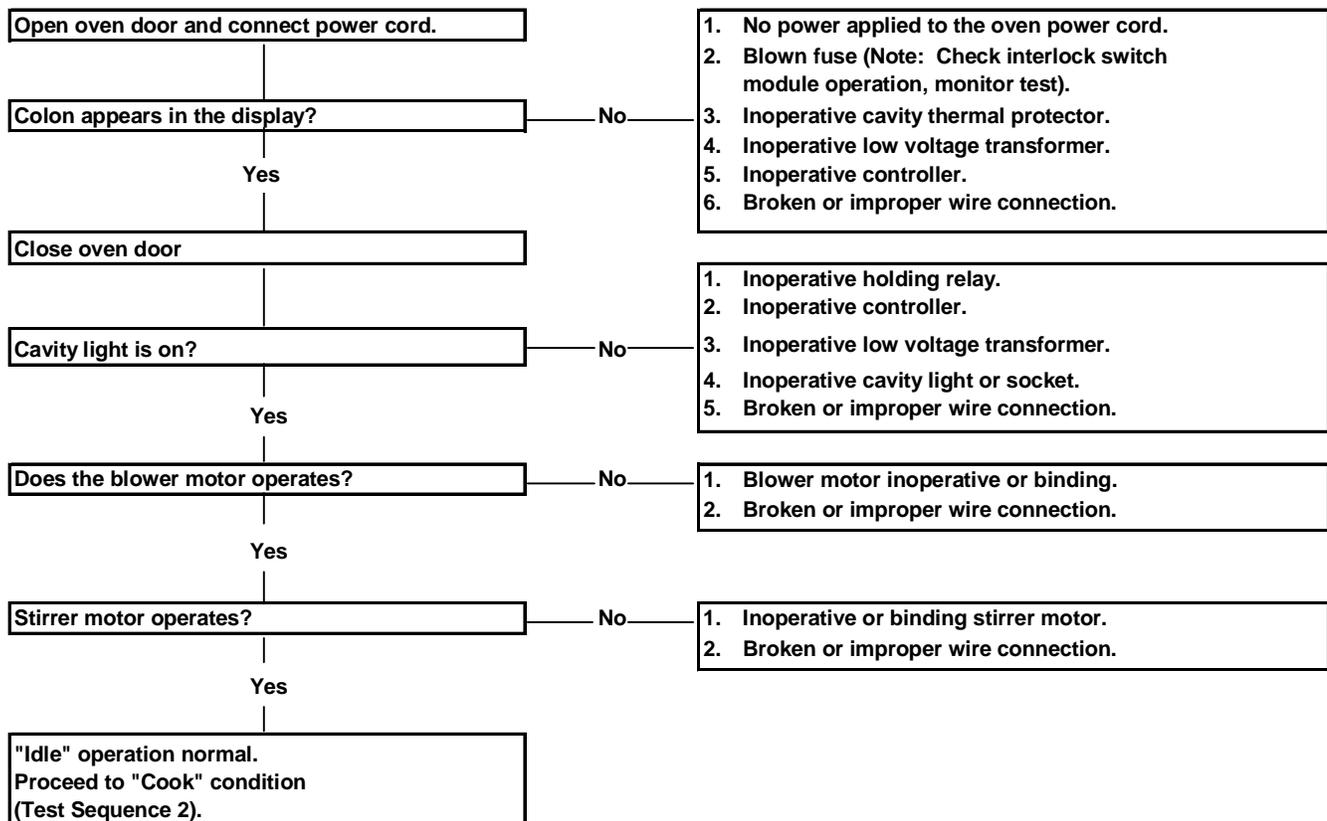
To effectively use this flow chart, the directions below must be followed:

- Always start at test sequence 1, perform each test set-up, do not skip test sequences.
- Verify normal operation(s) following each test set-up before going on to the next test sequence or set-up.
- When abnormal operation is identified, disconnect power to the oven, *DISCHARGE CAPACITOR(S)*, determine cause starting with the first possible cause, correct the failure, then start over at test sequence one to verify normal operation.

**NOTE:** Always check for failed or improper wiring before servicing.

### Diagnosis for VEND-10.000, .A, .B, .C, FS-10EVP, FS-14, FSP-10

#### Test Sequence 1: Idle Condition



# Troubleshooting Procedures

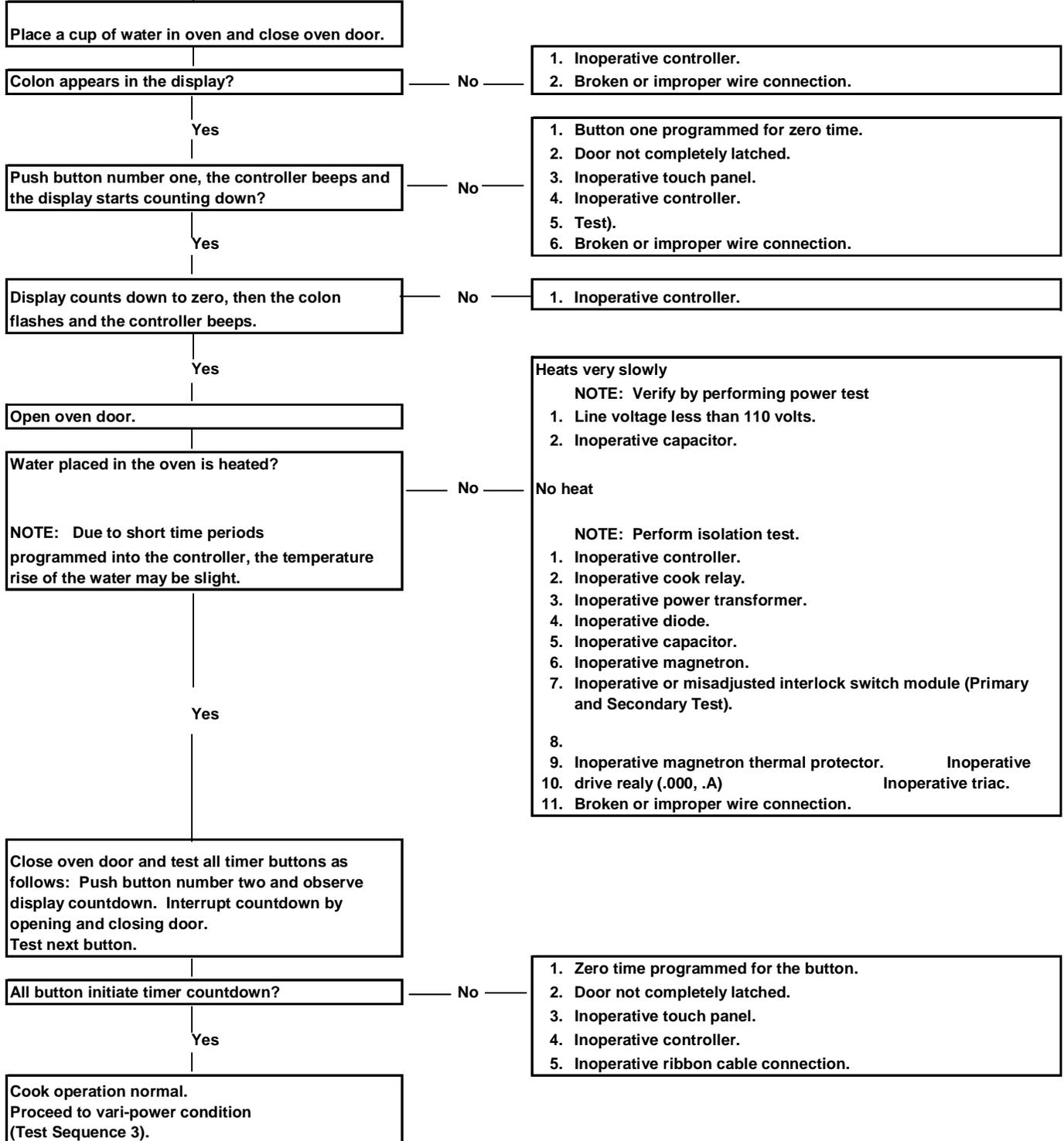


## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Diagnosis for VEND-10.000, .A, .B, .C, FS-10EVP, FS-14, FSP-10

#### Test Sequence 2: Cook Condition



# Troubleshooting Procedures



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Diagnosis for VEND-10.000, .A, .B, .C, FS-10EVP, FS-14, FSP-10

#### Test Sequence 3: Vari-Power Condition

Open oven door, place a cup of cool water in oven, close door, push button one and note time in display, open door and program button one for one minute of defrost as described, push button one.

Oven starts and times down, cavity light changes brilliance and the oven sound varies in intensity (pulses) twice approximately every 12 seconds indicating vari-power operation, the water is warmed?

No

Oven operates on high only or does not heat at all.

1. Inoperative triac.
2. Inoperative controller

Yes

Vari-power operation normal, reprogram button one to the time noted above, proceed to shutdown condition (Test Sequence 4).

#### Test Sequence 4: Shutdown Condition

60 seconds after a cook cycle or door transition, all components shut off?

No

1. Inoperative controller.
2. Inoperative holding relay.
3. Broke or improper wire connection.

Yes

Oven operation is normal.

# Troubleshooting Procedures

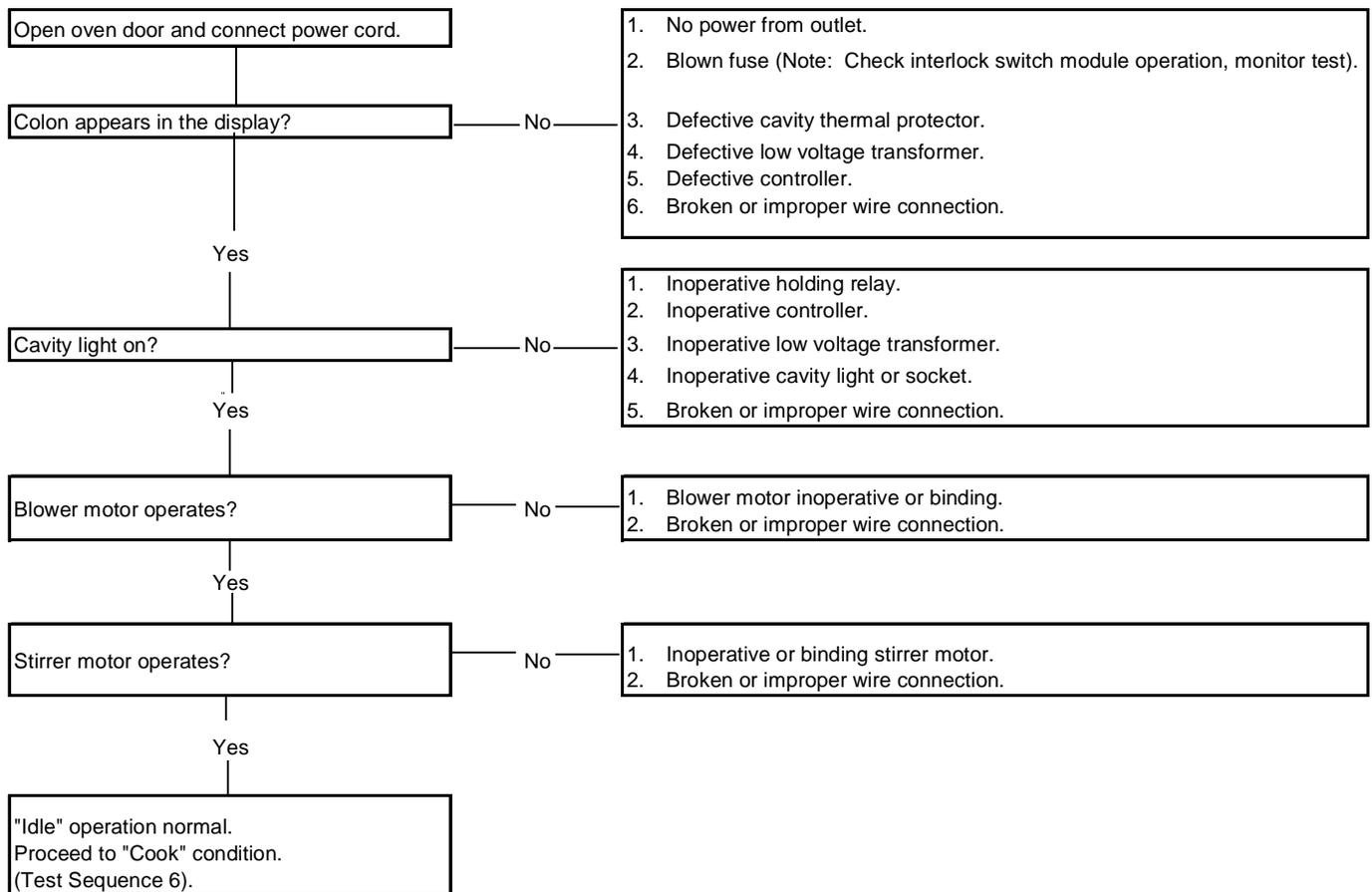


## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Diagnosis for VEND-10.F, .G

#### Test Sequence 5: Idle Condition



# Troubleshooting Procedures



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Diagnosis for VEND-10.F, .G

#### Test Sequence 6: Cook Condition

Place a cup of water in oven and close oven door.

Cavity light is on?

No

1. Inoperative controller.
2. Broken or improper wire connection.

Yes

Push button number one, the controller beeps and the display starts counting down?

No

1. Button one programmed for zero time.
2. Door not completely latched.
3. Inoperative touch panel.
4. Inoperative controller.
5. Inoperative or misadjusted door interlock switch module (Logic Test).
6. Broken or improper wire connection.

Yes

Display counts down to zero, and the controller beeps, and display shows "DONE".

No

1. Inoperative controller.

Yes

Open oven door.

Water placed in the oven is heated?

No

Heats very slowly  
NOTE: Verify by performing power test

1. Line voltage less than 110 volts.
2. Inoperative magnetron

No heat

NOTE: Perform isolation test.

1. Inoperative controller.
2. Inoperative power transformer.
3. Inoperative diode.
4. Inoperative capacitor.
5. Inoperative magnetron.
6. Inoperative or misadjusted interlock switch module (Primary and Secondary Test).
7. Inoperative triac.
8. Broken or improper wire connection.

NOTE: Due to short time periods programmed into the controller, the temperature rise of the water may be slight.

Yes

Close oven door and test all timer buttons as follows: Push button number two and observe display countdown. Interrupt countdown by opening and closing door. Test next button.

All button initiate timer countdown?

No

1. Zero time programmed for the button.
2. Door not completely latched.
3. Inoperative touch panel.
4. Inoperative controller.

Yes

Cook operation normal. Proceed to vari-power condition (Test Sequence 7).

# Troubleshooting Procedures



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Diagnosis for VEND-10.F, .G

#### Test Sequence 7: Vari-Power Condition

Open oven door, place a cup of cool water in oven, close door, push button one and note time in display, open door and program button one for one minute of defrost, push button one.

Oven starts and times down, cavity light changes brilliance and the oven sound varies in intensity (pulses) twice approximately every 12 seconds indicating defrost operation, the water is warmed?

No

Oven operates on high only or does not heat at all.

1. Inoperative triac.
2. Inoperative controller

Yes

Defrost operation normal, reprogram button one to the time noted above, proceed to shutdown condition (Test Sequence 8).

#### Test Sequence 8: Shutdown Condition

60 seconds after a cook cycle or door transition, all components shut off?

No

1. Inoperative controller.
2. Inoperative holding relay.
3. Broke or improper wire connection.

Yes

Oven operation is normal.

# Troubleshooting Procedures

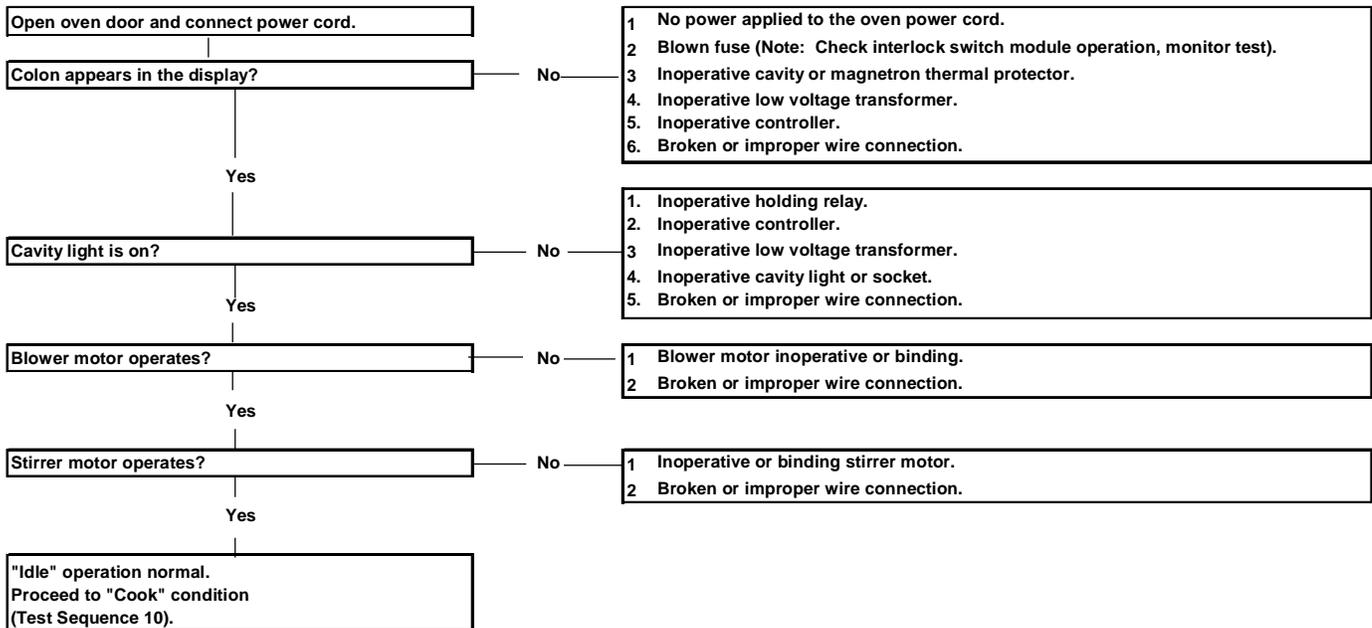


## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Diagnosis for VEND-10.H, .J, VEND-10, VEND-11, A1200S, A1225S, FSP-11, FS-11EVP, FS-16EVP

#### Test Sequence 9: Idle Condition



# Troubleshooting Procedures

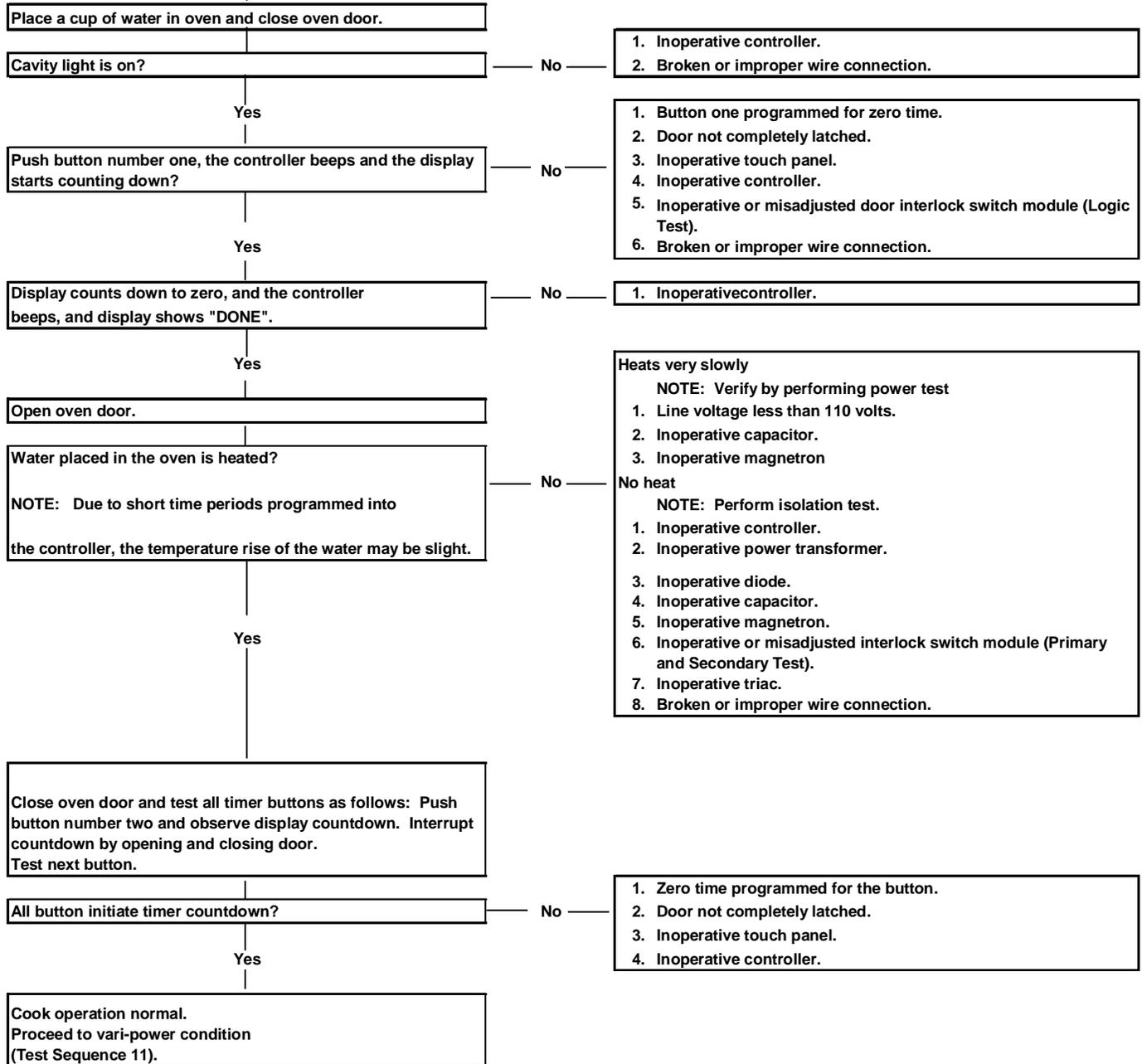


## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Diagnosis for VEND-10.H, .J, VEND-10, VEND-11, FSP-11, FS-11EVP, FS-16EVP

#### Test Sequence 10: Cook Condition



# Troubleshooting Procedures



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Diagnosis for VEND-10.H, .J, VEND-10, VEND-11, FSP-11, FS-11EVP, FS-16EVP

#### Test Sequence 11: Defrost II Condition

Open oven door, place a cup of cool water in oven, close door, push button one and note time in display, open door and program button one for one minute of defrost, push button one.

Oven starts and times down, cavity light changes brilliance and the oven sound varies in intensity (pulses) twice approximately every 12 seconds indicating defrost operation, the water is warmed?

No

Oven operates on high only or does not heat at all.

1. Inoperative triac.
2. Inoperative controller

Yes

Defrost operation normal, reprogram button one to the time noted above, proceed to shutdown condition (Test Sequence 12).

#### Test Sequence 12: Shutdown Condition

60 seconds after a cook cycle or door transition, all components shut off?

No

1. Inoperative controller.
2. Inoperative holding relay.
3. Broke or improper wire connection.

Yes

Oven operation is normal.

# Troubleshooting Procedures

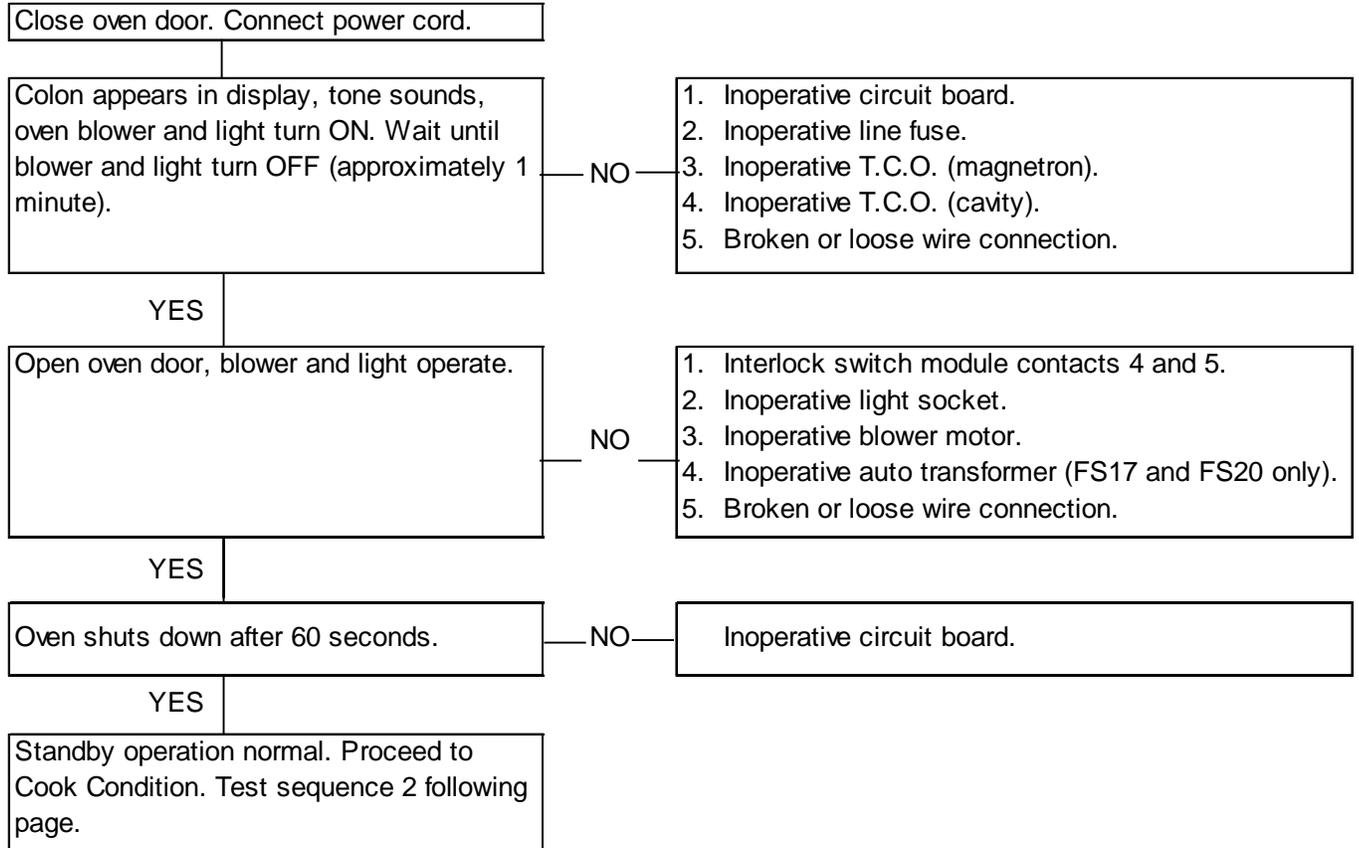


## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Troubleshooting Flow Chart for Units with Electronic Timers Models P130210\_M Series

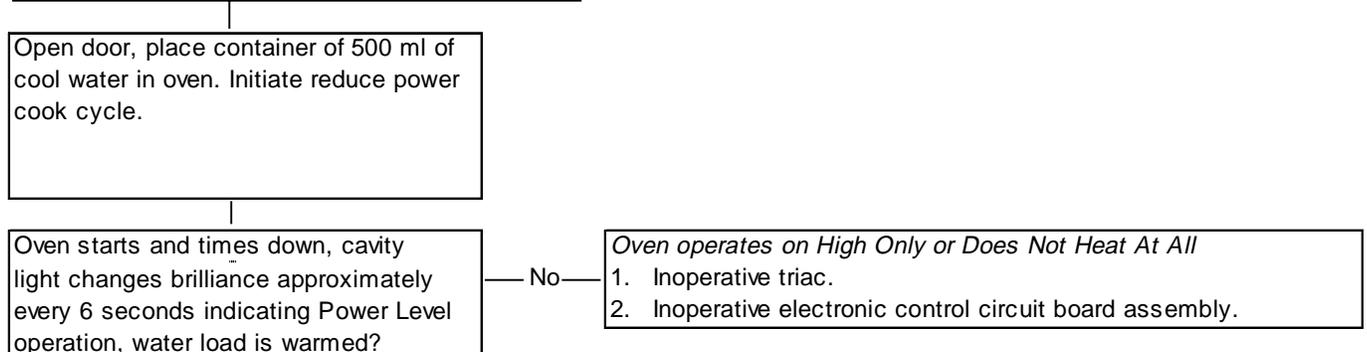
#### Test Sequence 1: STANDBY CONDITION



Proceed to Test Sequence 2 and then return to perform Test Sequence 3

### Troubleshooting Flow Chart for Units with Electronic Timers Models P130210\_M Series

#### Test Sequence 3: POWER LEVEL CONDITION



# Troubleshooting Procedures



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Troubleshooting Flow Chart for Units with Electronic Timers Models P130210\_M Series

#### Test Sequence 2: COOK CONDITION

Open door, place container of water in oven (1000 ml).  
Initiate cook cycle.

Note: Conditional Schematic for Cook Condition shown on next page.

Controller beeps when data is entered, display counts down?

No

#### *Control Will Not Program*

1. Inoperative touch panel assembly.
2. Inoperative circuit board.

#### *Control Programs But Will Not Count Down*

1. Inoperative interlock switch module (door sense test).
2. Inoperative circuit board.

Yes

Cavity Light on? Blower motor operates?

No

1. Inoperative electronic control circuit board assembly.
2. Interlock Switch Module inoperative or out of adjustment. (Primary or Secondary test).
3. Blower motor inoperative or binding.
4. Broken or loose wire connection.

Yes

Stirrer blades rotate?

No

1. Inoperative stirrer system.
2. Broken or loose wire connection.

Yes

Display counts down to zero, display shows "DONE" and control beeps.

No

1. Inoperative electronic control circuit board assembly.
2. Broken or loose wire connection.

Yes

Open oven door; water placed in oven cavity was heated?

No

#### *Heats Very Slowly*

Note: Verify by performing power tests.

1. Voltage selector plug (FS17 and FS20 only).
2. Low line voltage.
3. Inoperative power transformer.
4. Inoperative capacitor.
5. Inoperative magnetron.
6. Inoperative diode.
7. Broken or loose wire connection.

#### *No Heat*

1. Inoperative diodes.
2. Inoperative capacitors.
3. Inoperative magnetrons.
4. Inoperative transformers.
5. Inoperative circuit board.
6. Inoperative triac.
7. Broken or loose wire connection.

Yes

Cook operation normal; proceed to Power Level condition.  
Test Sequence 3, previous page .

# VEND-10, 11 Programming Instructions



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

## VEND-10.000, .A

As shipped from the factory, the controller in the oven is preset to "cook" (Full Power) and standard times as shown below:

Button	Time	Button	Time
1	:10	5	1:00
2	:20	6	1:30
3	:30	7	2:00
4	:45		

### To reprogram the times you want:

1. Open the oven door; leave it open.
2. Enter the "manager's mode" (programming) code "614" (push button 6, 1, and 4).
3. Close the oven door, note flashing colons which indicate you are in the "manager's mode". If one minute elapses before you push a button, the oven will shut down. To continue programming, re-enter the "manager's mode" and begin with the last button you were programming.

**NOTE:** For each button to be programmed:

4. Push the button to be reprogrammed. Note that the button number and programmed time appear in the display.
5. To change cook times:
 

Push and hold in button 1 to change seconds	"00:01"
Push and hold in button 2 to change tens of seconds	"00:10"
Push and hold in button 3 to change minutes	"01:00"
Push and hold in button 4 to change tens of minutes	"10:00"

**NOTE:** *If you miss the number you want, continue to hold. Momentary pushes will advance the count one number at a time.*

6. When you have entered the time you want, push button 5.
7. Push the button to be reprogrammed, then push the defrost button. The defrost button is located behind the \*\* symbol. The defrost time previously programmed will appear in the display (blank = 0 defrost time).
8. To change defrost time:
 

Push and hold in button 1 to change seconds	"00:01"
Push and hold in button 2 to change tens of seconds	"00:10"
Push and hold in button 3 to change minutes	"01:00"
Push and hold in button 4 to change tens of minutes	"10:00"

**NOTE:** *If you miss the number you want, continue to hold. Momentary pushes will advance the count one number at a time.*

9. When you have entered the time you want, push button 5.
10. If you want to reprogram another button, repeat steps 4 through 9.
11. When you have completed programming the buttons you wish to change, open and close the oven door to exit the "manager's mode" and go back to normal operation.

**NOTE:** If you programmed a "defrost" time and a "cook" time on the same button, that button will provide "two-stage" cooking.

**Example:** If you select 2:00 of "defrost" plus 1:00 of "cook" time on a button. The total cycle time will equal time will equal 3:00 for that button. The oven will defrost for two minutes and heat the food from frozen to ready per your instructions.

## "Cook Count"

To use the "Cook Count" feature:

1. Open the oven door; leave it open.
2. Enter the access code "613" to begin the "Cook Count" mode (push buttons 6, 1, and 3).
3. Close the oven door.
4. The oven display will show "C:" for count and will provide the total number of heating cycles for all ten buttons combined. The left 4 digits will be displayed for three seconds followed by the right 3 digits.

### Example:

"0045" for three seconds  
 "Blank" for two seconds  
 "817" for three seconds

In this example, the total number of heating cycles on all buttons is 45, 817.

5. Push each button to obtain the count for that specific button.

### Example:

Push button 4, note button 4 in the display.  
 Display shows left 3 digits for three seconds: "003".  
 Blank for two seconds.  
 Display shows right 3 digits for three seconds: "247".  
 The count for button 4 is 3,247 heating cycles.

6. After obtaining the counts, open the oven door to exit the "Cook Count" mode or let the oven shut itself down (in 60 seconds)

# VEND-10, 11 Programming Instructions



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### VEND-10.B

As shipped from the factory, the controller in the oven is preset to one second of defrost time plus full power time to equal the standard times as shown below:

Button	Time	Button	Time
1	:10	5	1:00
2	:20	6	1:30
3	:30	7	2:00
4	:45		

Any button may be programmed for:

- Heating items from 1 second to 39 minutes and 59 seconds (:01 to 39:59).
- Defrost II time from 1 second to 39 minutes and 59 seconds (:01 to 39:59).
- "Two Stage" cooking - Defrost II (up to 39:59) followed by full power heating (up to 39:59). This allows you to defrost and reheat food to serving temperature with a single button push.

#### To reprogram the times you want:

1. Open the oven door; leave it open.
2. Enter the programming code "614" (push buttons 6, 1 and 4).
3. Close the oven door, note "PROG" in the display which indicates you are in the programming mode.
4. Push the button to be reprogrammed. Note that the button number and the defrost programmed time appear in the display.
5. The change times:
  - Push and hold in button 1 to change seconds "00:01"
  - Push and hold in button 2 to change tens of seconds "00:10"
  - Push and hold in button 3 to change minutes "01:00"
  - Push and hold in button 4 to change tens of minutes "10:00"

**NOTE:** If you miss the number you want, continue to hold. Momentary pushes will advance the count one number at a time.

**NOTE:** A minimum of one second of defrost time must be entered in the first stage of each button.

6. Push button 5. The display will show the previously set second stage time.
7. To change second stage time, repeat step 5 above.
8. Push button Programming of the button is complete.

**Example:** If you select 2:00 of "Defrost II" plus 1:00 of full power on a button, the total cycle time will equal 3:00 for that button. The oven will defrost for two minutes and heat for one minute to heat the food from frozen to ready, per your instructions.

9. Go back to step 4 for the next button to be programmed.
10. When you have completed programming the buttons you wish to change, open and close the oven door to exit the programming mode and go back to normal operation.

### Cook Count

To use the "Cook Count" feature:

1. Open the oven door; leave it open.
2. Enter the access code "613" to begin the "Cook Count" mode (push buttons 6, 1, and 3).
3. Close the oven door.
4. The oven display will show "Count" and will provide the total number of heating cycles for all 7 buttons combined.
5. Push each button to obtain the count for that specific button.
6. After obtaining the counts, open the oven door to exit the "Cook Count" mode and revert to normal operation.

### Volume Adjustment for End-of-Cook Cycle Tone

1. Open the oven door; leave it open.
2. Press button 6, 1 and 6.
3. Close the door and "Off", "Low", "Medium", or "High" will appear in the display.
4. To change volume to "Off" press button 1. To change volume to "Low" press button 2. To change volume to "Medium" press button 3. To change volume to "High" press button 4.
5. Open and close the oven door to revert to normal operation.

### VEND-10.C, .F., .G, .H, .J, .K, .L

As shipped from the factory, the controller in the oven is preset to 100% power and standard times as shown below:

Button	Time	Button	Time
1	:10	6	1:00
2	:20	7	1:15
3	:30	8	1:30
4	:45	9	1:45
5	:50	10	2:00

(10 is shown as 0 on panel)

# VEND-10, 11 Programming Instructions



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Programming times only

Any button may be programmed for heating times from 1 second to 39 minutes and 59 seconds (:01 to 39:59)

#### To reprogram the times you want:

1. Open the oven door; leave it open.
2. Enter the programming code "614" (push buttons 6, 1, and 4).
3. Close the oven door, note "PROG" in the display which indicates you are in the Program Entry Mode.

**NOTE:** Some flickering in the display during programming is normal.

4. Push the button to be reprogrammed. Note that the button number and programmed time appear in the display.
5. To change cook times:

Push and hold in button 1 to change seconds	"00:01"
Push and hold in button 2 to change tens of seconds	"00:10"
Push and hold in button 3 to change minutes	"01:00"
Push and hold in button 4 to change tens of minutes	"10:00"

**NOTE:** *If you miss the number you want, continue to hold. Momentary pushes will advance the count one number at a time.*

6. When you have entered the time you want, push button 5, 0 and 5.
7. If you want to reprogram another button, repeat steps 4, 5, and 6.
8. When you have completed programming the buttons you wish to change, open and close the oven door to exit the programming mode and go back to normal operation.

#### Programming notes:

1. If you make an error while programming, push the "0" button once to clear the error. Go back to the programming step you were performing.
2. If two stage heating has been previously programmed, total time for a button will be defrost time plus the time you just programmed.

See two stage programming instructions below.

### Programming Defrost II First Stage Only

1. Open the oven door; leave it open.
2. Enter the programming code "614" (push button 6, 1 and 4).
3. Close the oven door, note "PROG" in the display which indicates you are in the programming mode.
4. Push the button to be reprogrammed. Note that the button number appears in display and power level; 100% or Defrost II appears in the display.
5. To change to Defrost II, push Defrost II button.
6. When you have completed programming the buttons you wish to change, open and close the oven door to exit the programming mode and go back to normal operation.

### Programming Times and Two Stage Heating

Any button may be programmed for:

- Heating times from 1 second to 39 minutes and 59 seconds 9:01 to 39:59)
- Power level; 100% or Defrost II
- "Two Stage" cooking: Defrost II (up to 39:59) plus 100% power, (up to 39:59) combined into a single button. This allows you to defrost and reheat food to serving temperature with a single button push.

# VEND-10, 11 Programming Instructions



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### VEND-10.C, .F, .G, .H, .J, .K, .L, VEND-10, VEND-11

#### To reprogram the times you want:

1. Open the oven door, leave it open.
2. Enter the programming code "614" (push buttons 6, 1 and 4).
3. Close the oven door, note "PROG" in the display which indicates you are in the programming mode.

If you make an error while programming, push the "0" button once to clear the error. Go back to the programming step you were performing.

#### For each button to be programmed:

4. Push the button to be reprogrammed. Note that the button number and first stage programmed time appear in the display.
5. To change cook times:

Push and hold in button 1 to change seconds	"00:01"
Push and hold in button 2 to change tens of seconds	"00:10"
Push and hold in button 3 to change minutes	"01:00"
Push and hold in button 4 to change tens of minutes	"10:00"

**NOTE:** *If you miss the number you want, continue to hold. Momentary pushes will advance the count one number at a time.*

6. To select 100% power, push the start button; to select Defrost II, push the Defrost II button.
7. Push button 5 to move to the next step. The display will show the previously set second stage time.
8. To change second stage time, repeat step 5 above.
9. Defrost II is not an option in the second stage. The second stage will always be full power.
10. Push button 5. Programming of the button is complete.

Example: If you select 2:00 of "Defrost II" plus 1:00 of 100% power on a button, the total cycle time will equal 3:00 for that button. The oven will defrost for two minutes and heat for one minute to heat the food from frozen to ready, per your instructions.

11. Go back to steps 4 - 10 for the next button to be programmed.
12. When you have completed programming the buttons you wish to change, open and close the oven door to exit the programming mode and go back to normal operation.

### Cook Count

To use the "Cook Count" feature:

1. Open the oven door; leave it open.
2. Enter the access code "613" to begin the "Cook Count" mode (push buttons 6, 1 and 3).
3. Close the oven door.
4. The oven display will show "Count" and will provide the total number of heating cycles for all 10 buttons combined.
5. Push each button to obtain the count for that specific button.
6. After obtaining the counts, open the oven door to exit the "Cook Count" mode or let the oven shut itself down (in 60 seconds).

### How to Use the Change Time Feature

1. Open the oven door, place food on shelf and close the door.
2. Push the change time button.
3. Use buttons 1 through 0 to enter the time (up to 39:59). Example: Push 2, 4 and 0 for 2:40.
4. To start the cook cycle, push start for 100% power or Defrost II.
5. If the door is opened, the cooking cycle will stop. To resume cooking, close the door and press the desired button.

### Volume Adjustment for End-of-Cook Cycle Tone

1. Open the oven door; leave it open.
2. Press buttons 6, 1 and 6.
3. Close the door and "Off", "Low", "Medium" or "High" will appear in the display.
4. To change volume to "Off", press button 1. To change volume to "Low", press button 2. To change volume to "Medium", press button 3. To change volume to "High", press button 4.
5. Open and close the oven door to revert to normal operation.

# FS-10, 11, 14, 16 ,17, 20 Programming Instructions



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

As shipped from the factory, the controller in the oven is present to 100% power and standard times as shown below

Button	Time	Button	Time
1	:10	6	1:00
2	:20	7	1:15
3	:30	8	1:30
4	:45	9	1:45
5	:50	10	2:00

(10 is shown as 0 on panel)

### Programming Times Only

Any button may be programmed for heating times from 1 second to 39 minutes and 59 seconds (:01 to 39:59).

#### To Reprogram the Times You Want:

1. Open the oven door, leave open.
2. Enter the "Manager's Mode" (programming) code "614", push buttons 6,1 and 4.
3. Close the oven door, note "PROG" or flashing colons on early models in display indicating the timer is in the "Manager's Mode".

**NOTE:** Early production ovens (Rev. 000, .A) show flashing colons, all other revisions (.B and later) will show "PROG" in the display.

4. Push the button to be reprogrammed. Note that the button number and programmed time appears in the display.
5. To change cook times:
 

Push and hold in button	
1 to change seconds	"00:01"
Push and hold in button	
2 to change tens of seconds	"00:10"
Push and hold in button	
3 to change minutes	"01:00"
Push and hold in button	
4 to change tens of minutes	"10:00"

**NOTE:** If you miss the number you want, continue to hold. Momentary pushes will advance the count one number at a time.

6. When you have entered the time you want, push button 5.
7. If you want to reprogram another button, repeat steps 4,5 and 6.
8. When you have completed programming the buttons you wish to change, open and close the oven door to exit the "Manager's Mode" and go back to normal operation.

### Programming Notes:

1. If you make an error while programming push the "Change Time" button once to clear the error. Go back to the programming step you were on.
2. While you are programming, if one minute elapses before you push a button, the oven will shut down. To continue programming, re-enter the "Manager's Mode" and begin with the last button you were programming.
3. If two stage heating has been previously programmed, total time for a button will be defrost time plus the time you just programmed.

**NOTE:** See two-stage programming instructions below.

### Programming Power Level Only

1. Open the oven door, leave open.
2. Enter the "Manager's Mode" (programming) code "614", push buttons 6,1 and 4.
3. Close the oven door, note "PROG" or flashing colons on early models in display indicating the timer is in the "Manager's Mode".

**NOTE:** Early production ovens (Rev. 000, .A) show flashing colons, all other revisions (.B and later) will show "PROG" in the display.

4. Push the button to be reprogrammed. Note that the button number appears in the display and an indicator light appears near one of the power level settings (100%, 80%, 50% or 30%).
5. To change to a different power level, push the desired button: 100%, 80%, 50% or 30%. Push button 5.
6. If you want to change power level on another button, repeat steps 4 and 5.
7. When you have completed programming the buttons you wish to change, open and close the oven door to exit the "Manager's Mode" and go back to normal operation.

# FS-10, 11, 14, 16, 17, 20 Programming Instructions



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Programming Times, Power Levels and Two-Stage Heating

#### Any button may be programmed for:

- Heating time from 1 second to 39 minutes and 59 seconds (:01 to 39:59).
- Any of the five power levels: 100%, 80%, 50%, 30% or Defrost II.
- "Two-Stage" cooking: Defrost II (up to 39:59) plus any of the other four power levels (100%, 80%, 50% or 30%; up to 39:59) combined into a single button. This allows you to defrost and reheat food to serving temperature with a single button push.

#### To reprogram the times you want:

1. Open the oven door, leave open.
2. Enter the "Manager's Mode" (programming) code "614", push buttons 6, 1 and 4.
3. Close the oven door, note "PROG" or flashing colons on early models in display indicating the timer is in the "MANAGER'S MODE".

**NOTE:** Early production ovens (Rev. 000, .A) show flashing colons, all other revisions (.B and later) will show "PROG" in the display.

If you make an error while programming, push the "Change Time" button once to clear the error. Go back to the programming step you were on.

If one minute elapses before you push a button the oven will shut down. To continue programming, re-enter the "Manager's Mode" and begin with the last button you were reprogramming.

#### For each button to be programmed:

4. a. Push the button to be reprogrammed. Note that the button number and the programmed time appear in the display.
- b. Push the "Defrost II" button. The "Defrost II" time previously programmed will appear in the display (0 to 39:59; blank = 0). *To change the time, go to the Time Change Procedure on page \*\*.*
- c. Push button 5 to move to the next step.
- d. Push the same button number you were programming. The time previously programmed at 100%, 80%, 50% or 30% will appear in the display. (0 to 39:50; blank =0). *To change to time, refer to the Time Change Procedure.*
- e. To change to a different power level, push the desired button: 100%, 80%, 50% or 30%.
- f. Push button 5.

**NOTE:** If you programmed a "Defrost II" time plus another time at 100%, 80%, 50% or 30% power on the same button, that button will provide "two-stage" cooking.

**Example:** If you select 2:00 of "Defrost II" plus 1:00 of 80% power on a button, the total cycle time will equal 3:00 for that button. The oven will defrost for two minutes and heat for one minute to heat the food from frozen to ready, per your instructions.

5. Go back to step 4a for the next button to be programmed.
6. When you have completed programming the buttons you wish to change, open and close the oven door to exit the "Manager's Mode" and go back to normal operation, or let the oven shut itself down (in 60 seconds).
7. Time change procedures for steps 4b and 4d:

Push and hold in button 1 to change seconds	"00:01"
Push and hold in button 2 to change tens of seconds	"00:10"
Push and hold in button 3 to change minutes	"01:00"
Push and hold in button 4 to change tens of minutes	"10:00"

**NOTE:** If you miss the number you want, continue to hold. Momentary pushes will advance the count one number at a time.

When you have entered the time you want, go to step 4c or 4e.

### Deactivation and Reactivation of "Change Time" Button

1. Open the oven door, leave open.
2. Enter the "Manager's Mode" (programming) code "614" by pushing buttons 6, 1 and 4. If you make an error, close the oven door and go back to step 1.
3. Close oven door.

Note: "PROG" or flashing colons on early models in display indicating the timer is in the "MANAGER'S MODE". If not, repeat from step 1.

**NOTE:** Early production ovens (Rev. 000, .A) show flashing colons, all other revisions (.B and later) will show "PROG" in the display.

4. Push the "Change Time" button.
5. To deactivate the "Change Time" feature, push button 9. To reactivate the "Change Time" feature, push button 8.
6. Open and close the oven door to exit the "Manager's Mode" and go back to normal operation, or let the oven shut itself down (in 60 seconds).

# FS-10, 11, 14, 16 ,17, 20 Programming Instructions



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Cook Count

To use the "Cook Count" feature:

1. Open the oven door, leave open.
2. Enter the access code "613" to enter the "Cook Count" mode, push buttons 6, 1 and 3.
3. Close the oven door.
4. The oven display will show "C" for count and will provide the total number of heating cycles for all ten buttons combined. The left 4 digits will be displayed for three seconds, followed by the right three digits.

#### Example:

"0045" for three seconds

"Blank" for two seconds

"817" for three seconds

**NOTE:** In this example, the total number of heating cycles on all buttons is 45, 817.

5. Push each button to obtain the count for that specific button.

#### Example:

Push button 4, note button 4 in the display.

Display shows left 3 digits for three seconds: "003".

Blank for two seconds.

Display shows right 3 digits for three seconds: "247".

The count for button 4 is 3,247 heating cycles.

6. After obtaining the counts, open the oven door to exit the "Cook Count" mode or let the oven shut itself down (in 60 seconds).

# FSP-10, 11 Programming Instructions



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

Oven is shipped with "change time power pad cover". Cover change time and power level pads after programming oven to discourage program tampering.

**Pad Number Display**—Indicates number pad being used or programmed.

**Change Time Pad**—Press to initiate time change sequence.

**Time Display**—Indicates time remaining during cooking cycle. Also displays time being programmed into oven.

**☒ Defrost II**—Use to initiate defrost operation.

**Start**—Use to initiate full power cooking (with change time feature). Also use in full power programming.

**Pads 1-10**—Preset at 100% power for times below. Can be changed to accommodate specific menu needs.

Pad	Time	Pad	Time
1	:10	6	1:00
2	:20	7	1:15
3	:30	8	1:30
4	:40	9	1:45
5	:50	0	2:00

## Programming Notes:

1. Read all instructions before programming oven.
2. To clear programming error press **0** pad once. Return to programming instructions.
3. Cursors flickering in display during programming is normal.

## Full Power Cooking

Heat food up to 39 minutes and 59 seconds.

1. Open oven door.
2. Press pads **6,1,4** to enter programming mode.
3. Close oven door. "PROG" displays indicating programming mode.
4. Press number pad to be programmed. Pad number, previously set time, and power level display.
5. Press pad **0** to clear display.
6. Enter required time:

Press pad <b>1</b>	
to change seconds	"00:01"
Press pad <b>2</b>	
to change tens of seconds	"00:10"
Press pad <b>3</b>	
to change minutes	"01:00"
Press pad <b>4</b>	
to change tens of minutes	"10:00"
7. Press **START**.
8. Press pad **5**.
9. Press pads **0,5** to lock program into memory.
10. To reprogram another pad repeat steps 4-9. To exit programming mode open and close oven door.

## Summary of Full Power Cooking

1. Open door.
2. Press **6,1,4**.
3. Close door.
4. Press number to be reprogrammed.
5. Press pad **0**.
6. Enter required time.
7. Press **START**.
8. Press **5**.
9. Press **0,5**.
10. Repeat steps 4-9 or open and close door.

## Defrosting

Defrost II pad can be set up to 39 minutes and 59 seconds.

1. Follow steps 1-6 in "Full Power Cooking" section.
2. Press **Defrost II** pad
3. Press numbers **5, 0, 5** to lock program into memory.
4. To program another pad repeat steps 1-3 above.

**NOTE:** Open and close the oven door to exit programming mode.

## Two-Stage cooking

Combine defrost and full power cooking into a single pad.

1. Follow steps 1-6 in "Full Power Cooking" section.
2. Press **Defrost II** pad.
3. Press number **5** to advance to second stage.
4. Follow steps 5-6 in "Full Power Cooking" section to enter full power cooking time.
5. Press number **5** to lock program into memory.
6. To program another pad repeat steps 1-5 above.

**NOTE:** Open and close oven door to exit programming mode.

# FSP-10, 11 Programming Instructions



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Change Time Feature

Select different times and power levels for unique food items without disturbing preset number pads.

1. Open oven door, place food in oven. Close door.
2. Press **Change Time**.
3. Press numbers to enter desired time (up to 39 minutes 59 seconds).

**Example:** time desired is 2 minutes 40 seconds, press pads **2, 4, 0**. "2:40" displays.

**NOTE:** To cancel error press **Change Time** . Enter desired time.

4. If defrost is desired, press **Defrost II** pad. If 100% power is desired press **Start** pad. Heating cycle begins. Oven counts down from selected time.
5. If door is opened, cycle stops. Close door and press **Defrost II** or **Start** to resume. If remaining time is not needed, remove food. Remaining time displays until 60 second blower shut-off occurs or another cook cycle is initiated by pressing a preprogrammed pad.
6. Signal sounds when cycle is complete. Remove food. Oven is ready for next heating cycle.

### Cook Count Feature

Use oven to keep track of operations. Timer memory totals number of heating cycles for each pad and for all pads combined, from the time the oven was put into operation.

1. Open oven door.
2. Press numbers **6, 1, 3** to enter cook count mode.
3. Close oven door. Oven displays "COUNT" and total number of heating cycles for all pads combined.
4. To obtain count for individual pad, press desired pad.
5. To exit cook count mode open oven door.

### Change Signal Volume

Four volume settings are available for end-of-cycle signal:

1. Off-no tone.
2. Low
3. Medium
4. High

### Preset volume is high.

1. Open door.
2. Press pads **6, 1, 6** to enter programming mode.
3. Close door. Volume setting displays.
4. Press pad for desired volume:
  - 1** off
  - 2** low
  - 3** medium
  - 4** high.
5. To exit programming mode open and close door.

### Clearing Display of Random Digits

If incorrect numbers are pressed during programming mode, random digits and letters may display during cooking and standby periods. To clear display:

1. Open oven door.
2. Press numbers **6, 1, 5**.
3. Close oven door.
4. Press number 1 until "00, 5E" displays.
5. Open and close oven door to exit.

# A1200S, A1225S Programming Instructions



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

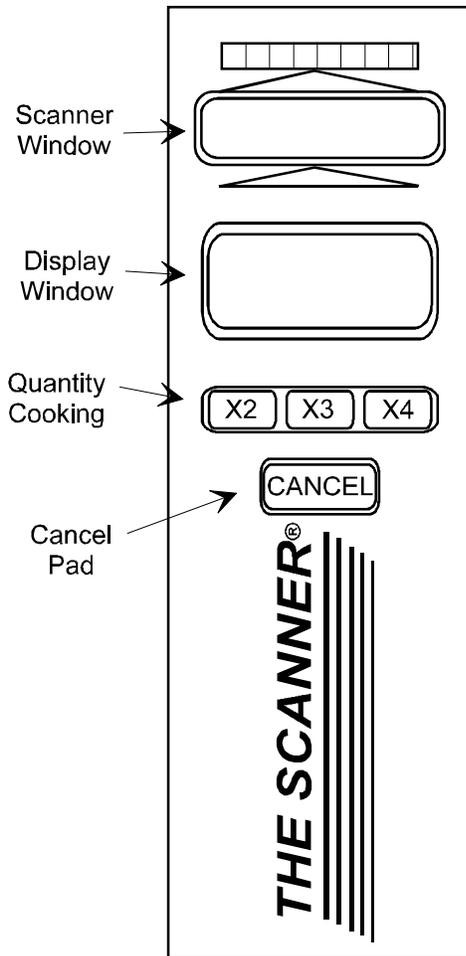
The scanner is designed to cook foods by scanning the food item's Universal Product Code (UPC) or by manually operating the oven.

**Scanner Window**—Used to scan product UPC.

**Display Window**—Shows time countdown during cooking, reheating, or defrosting and show messages. When the oven is in an idle state the Display Window always flashes "READY TO SCAN".

**Quantity Cooking ("X2", "X3", "X4")**—Use to cook 2, 3, or 4 food items that have the same UPC.

**Cancel Pad ("CANCEL")**—If pressed once, the UPC or programming that is in process is stopped and the Display Window flashes "READY TO SCAN".



## Display Messages

This oven will display a number of messages when programming or during various oven operations.

**READY TO SCAN**—When plugged in, the Display Window will flash "READY-TO-SCAN".



**PLACE FOOD IN OVEN**—this message will flash after the bar code has been scanned and the recipe is in the memory.



**RESUME OR CANCEL**—This message will flash whenever the door is opened during cooking.



**READY TO ENJOY**—After cooking cycle, this message will flash until the door is opened to remove the food. The oven will beep while the message is flashing.



**THANK YOU**—After cooking is complete and the door is opened, this message will flash once.



**NOT IN MEMORY**—This message will flash when a bar code is scanned and the recipe is not in memory. This message lasts only until the beeps have sounded, then the Display Window will flash "READY-TO SCAN".



**SCAN**—This message is displayed when the bar code is scanned, but not read correctly. Scan the bar code again.



**WAIT**—This message is displayed while the oven is searching its memory for a stored recipe after a bar code has been scanned.



**UPROG**—This programming message is displayed to indicate that the oven is ready to be programmed.



**IN MEM**—This message is displayed to indicate the UPC just scanned is stored in memory.



# A1200S, A1225S Programming Instructions



To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

**NEW**—This message is displayed to indicate that the UPC just scanned has not been previously stored in memory.



**QTY 1, QTY 2, QTY 3, QTY 4**—Each of these messages indicates the quantity of food items to be cooked.



**COUNT**—Total UPC cook count information is stored in the memory and may be viewed by entering code 612.



**PRINT**—Total UPC cook counts may be accessed by entering code 611.



**REMOVABLE KEYPAD**—This oven is shipped with the removable keyboard packed in the USE AND CARE manual. The removable keyboard has a special adhesive on the back side for easy installation and removal.

**NUMBER PADS (0-9)**—Used to enter numbers into the Display Window.

**POWER PAD (Pwr)**—Used to enter power levels. When pressed, the Display Window show "PWR 100"; holding down the Power Pad will slew the power level from 100% down to 10%.

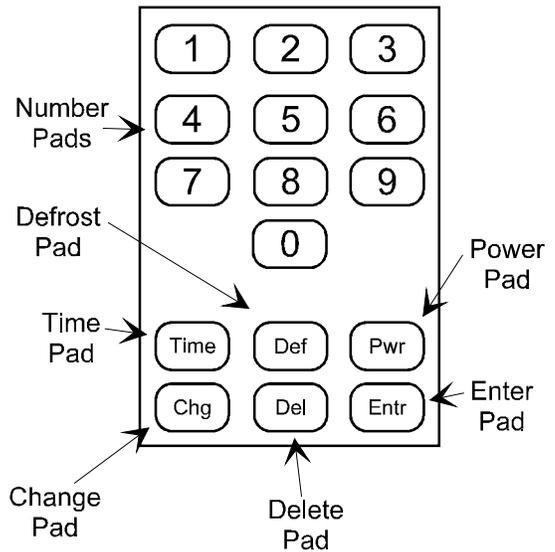
**DEFROST PAD (Def)**—When pressed, the Display Window message is "PWR DF". The defrost time is divided into four power levels (80%, 60%, 40%, 20%).

**TIME PAD (Time)**—Used to enter time into the Display Window.

**DELETE PAD (Del)**—Used to remove a UPC associated recipe from scanner memory.

**CHANGE PAT (Chg)**—Used to change recipe or time in memory.

**ENTER PAD (Entr)**—Used to start the recipe while programming or to start cooking when using manual cooking.

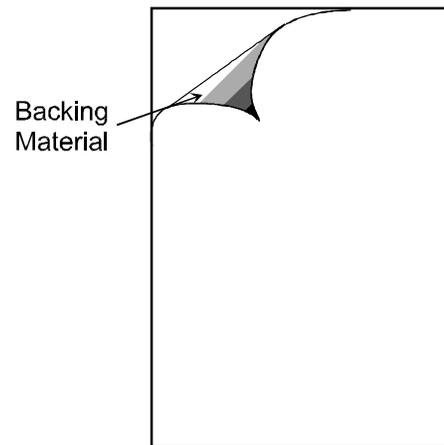


## Removable Keyboard Installation

When programming is complete the Removable Keyboard can be stored for future programming.

After reinstalling backing material, place the Removable Keyboard in the USE AND CARE manual.

1. Remove the backing material from the backside of the removable keyboard as shown below.



Removable Keyboard (Back View)

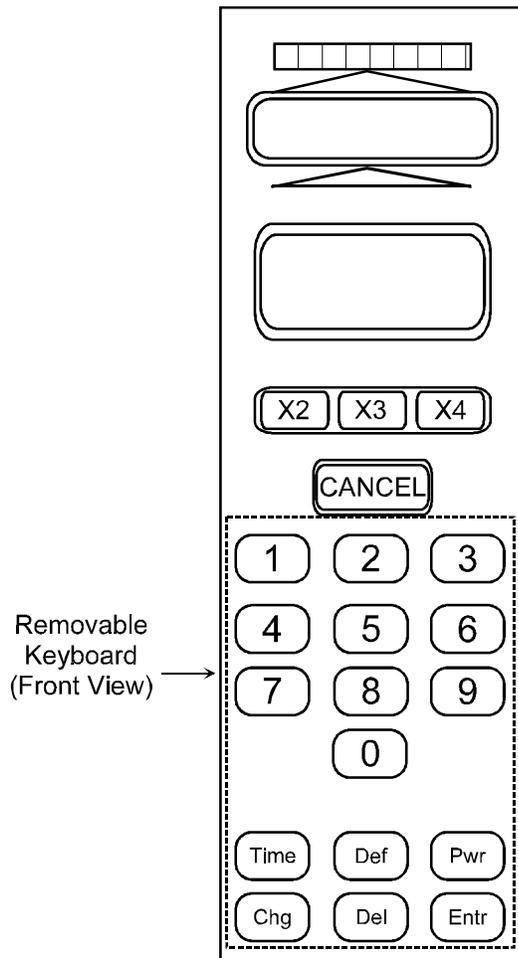
2. To install the Removable Keyboard onto the Scanner Panel: align the bottom of the Removable Keyboard with the inside bottom of the Scanner Panel and press the Removable Keyboard into place.
3. The oven is ready to be programmed.

# A1200S, A1225S Programming Instructions



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.



Scanner Panel with Removable Keyboard Installed

## Bar Code Programming

### Entering a New UPC into Memory

1. Place the Removable Keyboard onto the Scanner Panel.
2. Open door and press number pads 6, 1, 4.
3. Close door. The display shows "UPROG" showing the oven is ready to be programmed.
4. Scan the food product's UPC (bar code) by centering the UPC in front of the oven's scanner window - no more than on-half inch from oven.
  - NEW" displays if UPC is not in memory.
  - "IN MEM" displays if the UPC is programmed.
  - "UPROG" displays and an error tone sounds if the bar code is not UPC.
5. Press Time Pad ":" displays, enter time.
  - Press DEF or power (Pwr) Pad to set desired power level.

**NOTE:** Defrost can only be entered in first stage.

6. To complete one stage cooking press the enter (Entr) pad or repeat step five for two stage cooking.
7. "UPROG" displays indicating the oven has placed a UPC program in memory and is ready to program the next UPC.
8. Open and close the door to exit programming.

### Deleting a UPC from Memory

1. Place the removable keyboard onto the Scanner Panel.
2. Open door and press number pads 6, 1, 4.
3. Close door.
4. Scan UPC.
5. "IN MEM" displays.
6. Press the delete (Del) pad. "UPROG" displays.
7. Open and close door to exit programming.

### Programming Booklet to Enter a New UPC into Memory

1. Place the Removable Keyboard onto the Scanner Panel.
2. Open door and press number pads 6, 1, 4.
3. Close door. The display shows "UPROG" showing the oven is ready to be programmed.
4. Select a food item and scan its UPC into Scanner Window.
5. Find C-10 Bar Code with desired cooking time and power.
6. Scan appropriate C-10 Bar Code.
7. "UPROG" displays and a beep sounds indicating program is accepted.
8. Open and close oven door to exit programming.

### Changing a UPC in Memory

1. Place the Removable Keyboard onto the Scanner Panel.
2. Open door and press number pads 6, 1, 4.
3. Close door. The display shows "UPROG" showing the oven is ready to be programmed.
4. Scan the UPC to change.
5. "IN MEM" displays.
6. Press time pad and number pads to enter desired time. Existing time is displayed.
7. Press power (Pwr) pad to enter desired power setting. Check power pad to verify setting is correct.
8. Press change (Chg) pad. "UPROG" displays.
9. Open and close oven door to exit programming.

# A1200S, A1225S Programming Instructions



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

### Bar Code (UPC) Cooking

The Scanner Oven cooks food products by reading the UPC symbol.

**NOTE:** "READY TO SCAN" flashes when the oven is idle.

1. Open door to activate oven.
2. Scan food product's UPC by centering the UPC in front of oven's scanner window no more than one-half inch from the oven.
  - A beep indicates the UPC was correctly read; "PLACE FOOD IN OVEN" flashes in the Display Window.
  - No beep indicates the UPC was not read; rescan the UPC.
  - Rapid beeping indicates the UPC is not entered into the oven's memory, the Display window will flash "NOT IN MEMORY".
3. The Display Window will show "PLACE FOOD IN OVEN" which indicates the time is set to cook 1 food item. To cook 2 to 4 of the same food item, push the appropriate quantity pad (X2, X3, X4) once. Pushing a quantity twice will cancel the multiple quantity cooking and the display window will read "QTY 1".
4. Place food in oven and close the door. the oven will start automatically and the Display Window will show the time counting down.

**NOTE:** Opening the door during cooking will stop the cooking and the Display Window will flash "RESUME OR CANCEL". when the door is closed, the oven will resume cooking.

**NOTE:** If two-stage cooking is programmed, the Display Window will show the time for both stages.

5. When the cooking is complete, the oven will beep for 60 seconds or until the door is opened. The Display Window will flash "READY TO ENJOY" until the door is opened. Open the door to take the food and the display will flash "THANK YOU" one time. After 60 seconds the Display Window continues to display "READY TO ENJOY" after the door is opened.
6. Close the door and the Display Window will flash "READY TO SCAN".

### Manual Cooking

The following is an example of how to enter a cooking cycle of one minute, thirty seconds at 50% power.

1. Place the removable onto the Scanner Panel.
2. Open the door and place the food item on the oven shelf.
3. Press the time pad, ":" displays.
4. Press number 1 pad, " : 1" displays.
5. Press number 3 pad, " :13" displays.
6. Press number 0 pad, " 1:30" displays.
7. Press power (Pwr) pad, "PWR 100" displays.
8. Press power (Pwr) pad until display window shows "50", "PWR 50" displays.
9. Close the door. When cooking is complete, the oven will beep for 60 seconds or until the door is opened, and the Display Window will flash "READY TO ENJOY" until the door is opened.
10. Open the door, remove the food and the Display Window will flash "THANK YOU" once.

**NOTE:** Opening the door during cooking will stop the cooking and the Display Window will flash "RESUME OR CANCEL". When the door is closed, the oven will resume cooking.

11. Close the door and the Display window will flash "READY TO SCAN".

### Manual Cooking with Defrost

Defrost may be selected by pressing the defrost (Def) pad. The Display Window will show "PWR DF". The defrost cycle is divided into four power levels.

The following is an example of a defrost cycle for two minutes. The oven will automatically defrost for:

- 30 seconds at 80% power, then
- 30 seconds at 60% power, then
- 30 seconds at 40% power, then
- 30 seconds at 20% power.

1. Place the removable onto the Scanner Panel.
2. Open the door and place the food item on the oven shelf.
3. Press the time pad, ":" displays.
4. Press number 2 pad, " : 2" displays.
5. Press number 0 pad, " :20" displays.
6. Press number 0 pad, " 2:00" displays.
7. Press defrost (Def) pad, "PWR DF" displays.
9. Close the door. When cooking is complete, the oven will beep for 60 seconds or until the door is opened, and the Display Window will flash "READY TO ENJOY" until the door is opened.
10. Open the door, remove the food and the Display Window will flash "THANK YOU" once.

# A1200S, A1225S Programming Instructions



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

**NOTE:** Opening the door during cooking will stop the cooking and the Display Window will flash "RESUME OR CANCEL". When the door is closed, the oven will resume defrosting.

11. Close the door and the Display window will flash "READY TO SCAN".

## UPC Count Feature

This commercial microwave oven may be used to total the number of heating cycles for each UPC since the oven was put into operation.

1. Open door and leave open.
2. Enter "UPC Count" mode by pressing pads 6, 1, 2.
3. Close the door.
4. The display Window will show "COUNT" and then the total number of heating cycles.
5. Scan each UPC you want to count. The control beeps and displays count when UPC is accepted.
6. Open and close door to return to normal operation.

## Tone Volume

Four separate volume settings are available for the audible tone signalling the end of the cooking cycle - Off, Low, Medium, and High. The factory preset volume is high.

### Adjusting the volume

1. Place the removable keyboard onto the Scanner Panel.
2. Open the door and leave open. Enter program entry mode by pressing pads 6, 1, 6.
3. Close the door and the display will indicate one of the following volume messages "OFF", "LOW", "MEDIUM", or "HIGH".
4. To change volume to "OFF" press pad 1.  
To change volume to "LOW" press pad 2.  
To change volume to "MEDIUM" press pad 3.  
To change volume to "HIGH" press pad 4.
5. Open and close the door to return to normal operations.

## Clearing Display Window of Random Digits

**NOTE:** The four-position switch located on the back of the circuit board must be activated before the 6, 1, 5 code will be accepted.

If the wrong pads are pressed when entering the programming mode, a moving array of random digits and letters may occur in the Display Window during cooking and standby periods. Follow this procedure to clear the Display Window of unwanted characters:

1. Open the door and leave open.
2. Press pads 6, 1, 5.
3. Close the door.
4. Press pad 1 until "00:2F" appears in the Display Window.
5. Open and close door to return to normal operations.

# Scrolling Message Procedure



## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

Messages can be programmed to appear in the display during the cook cycle or after the 60 second shutdown (idle).

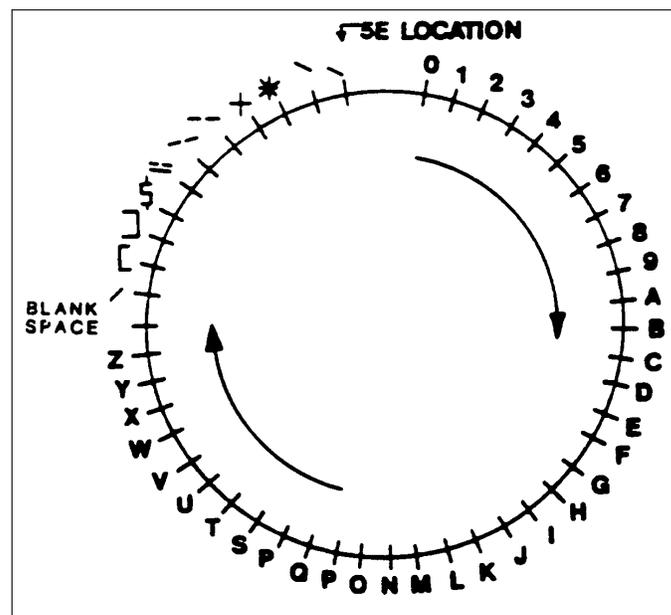
1. Open the oven door, leave open.
2. Press buttons 6, 1 and 5.
3. Close the oven door. Five characters (letters, numbers, etc.) will appear in the display.
4. The location of characters (lines down and spaces across have been assigned identifiers from "0" through "F" as shown:

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	0	-	-	-	-	-	-	-	-	-	-	-	-	-	4F
6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6F
7	0	-	-	-	-	-	-	-	-	-	-	-	-	-	8F
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	0	-	-	-	-	-	-	-	-	-	-	-	-	-	AF
A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B	0	-	-	-	-	-	-	-	-	-	-	-	-	-	CF
C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D	0	-	-	-	-	-	-	-	-	-	-	-	-	-	EF
E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Circles = location to start writing  
Squares = end of writing location  
00 - 4F is the idle message location  
50 - 6F is the first cook message  
70 - 8F is the second cook message  
90 - AF is the third cook message  
B0 - CF is the fourth cook message  
D0 - EF is the fifth cook message

6. To enter the message:
  - a. Use button 4 to slew to the desired location.
  - b. Use button 3 to slew to the desired space for the character location.
  - c. Use button 1 to slew to the letter or number want to write. You can use button 2 to advance 10 letters or numbers at a time.
  - d. Again use button 3 to move to the next open character location. Repeat step c to enter the next letter or number in your message.
  - e. Repeat this process until the message has been programmed, then use button 3 to enter an end-of-message "5E" in the next location.
  - f. To delete a message, program an end-of-message "5E" as the first character in the message.

The drawing below shows the sequence of characters as they are slewed into the display by button 1.



5. To simplify programming a scrolling message. Make a copy of the character location chart shown. Write the message on the copy in the correct location.

7. Open and close the oven door to revert to normal operation.

### Cook Message Notes:

No cook message will appear unless the cook time is 20 seconds or longer.

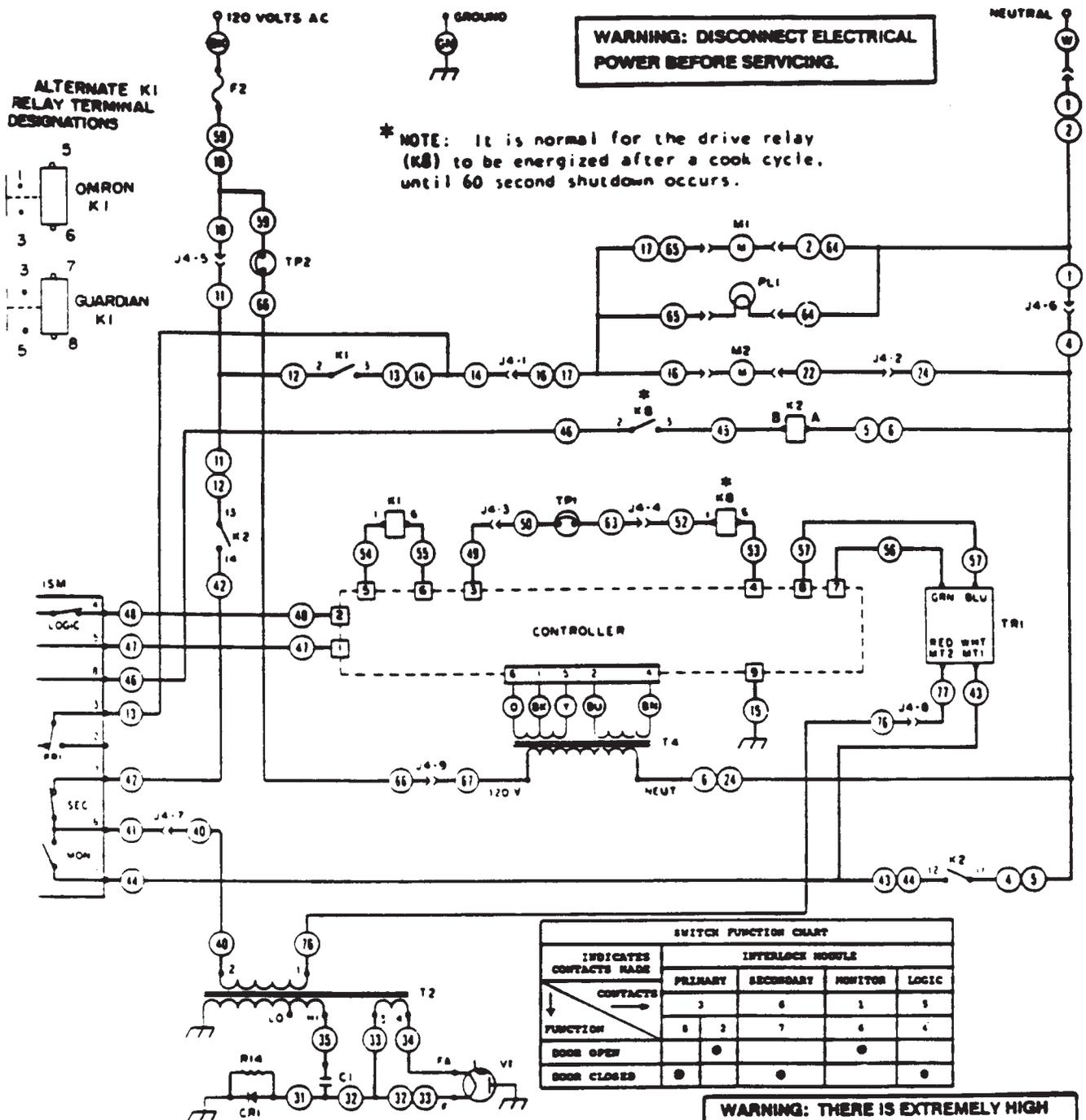
Cook message one will appear the first time the oven is started. The second time the oven is started, message two will appear, etc.

# Wiring Schematic/Diagram



**WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.



**DANGER**

HIGH VOLTAGE

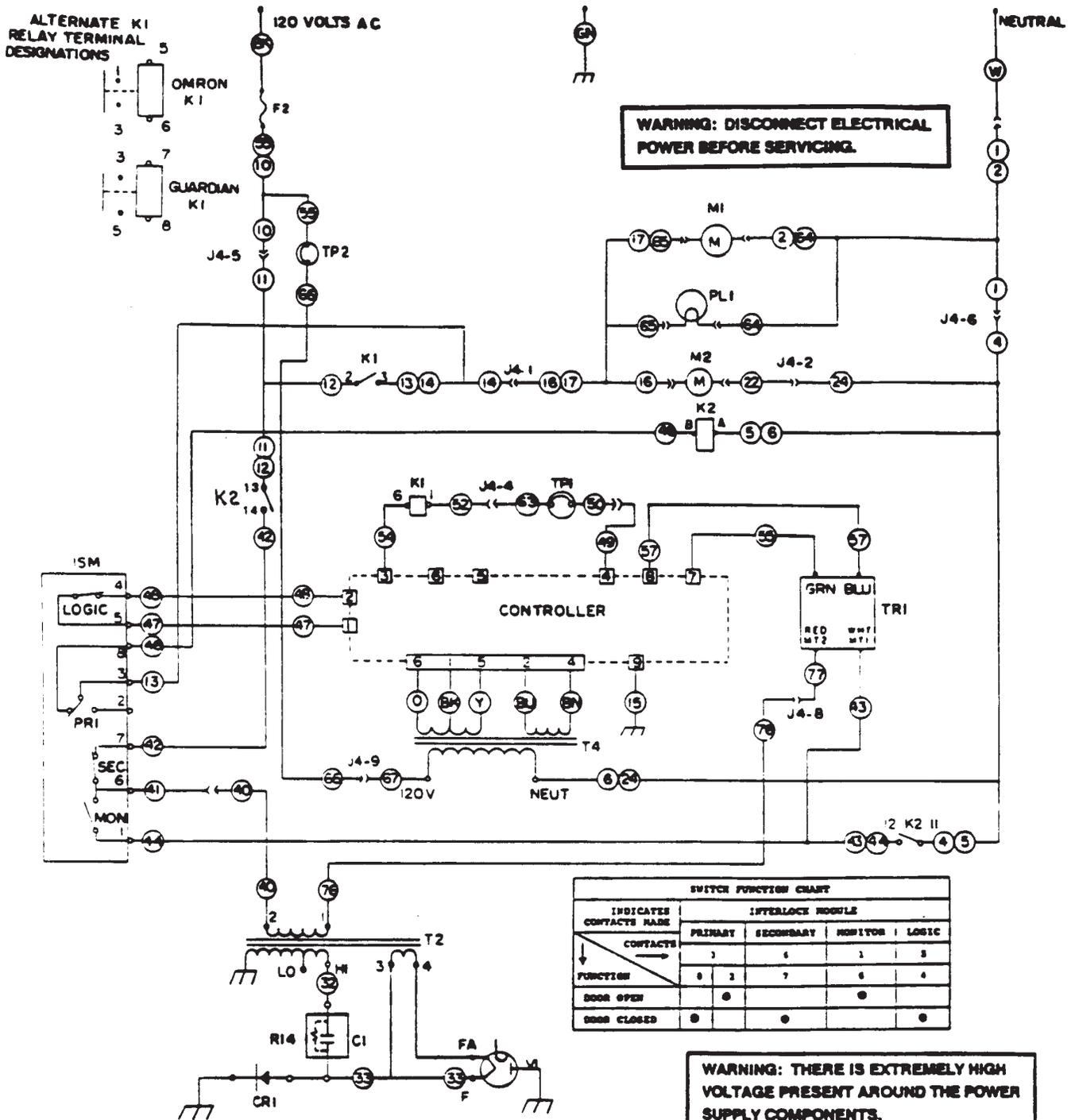
VEND10.000  
VEND10.A

# Wiring Schematic/Diagram



**WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.



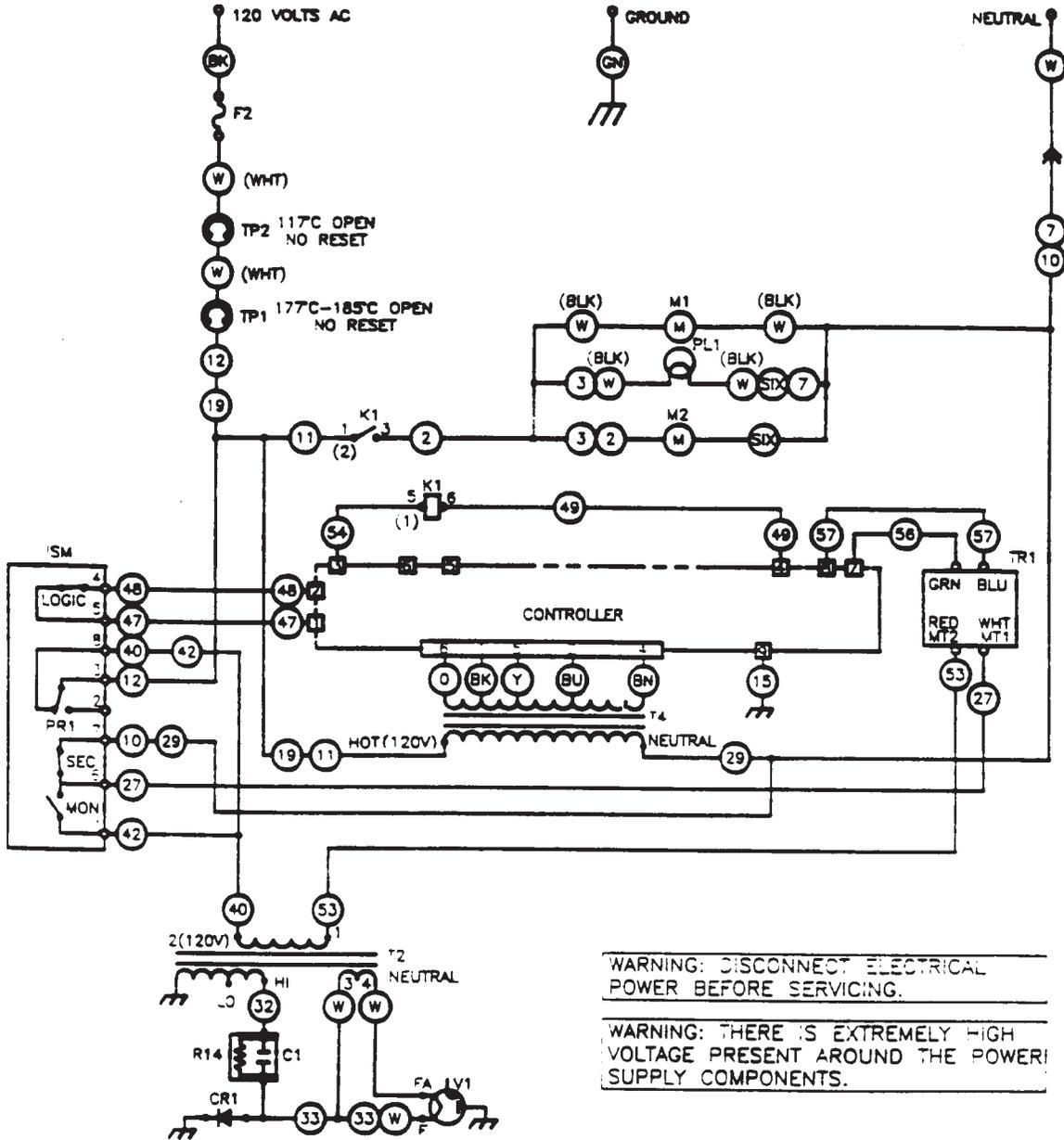
**DANGER**  
HIGH VOLTAGE

VEND10.B  
VEND10.C  
FS10EVP.B  
FS10EVP.A

# Wiring Schematic/Diagram

**WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.



**WARNING: DISCONNECT ELECTRICAL POWER BEFORE SERVICING.**

**WARNING: THERE IS EXTREMELY HIGH VOLTAGE PRESENT AROUND THE POWER SUPPLY COMPONENTS.**

**DANGER**  
HIGH VOLTAGE

VEND10.F  
VEND10.G



# Wiring Schematic/Diagram



**WARNING**

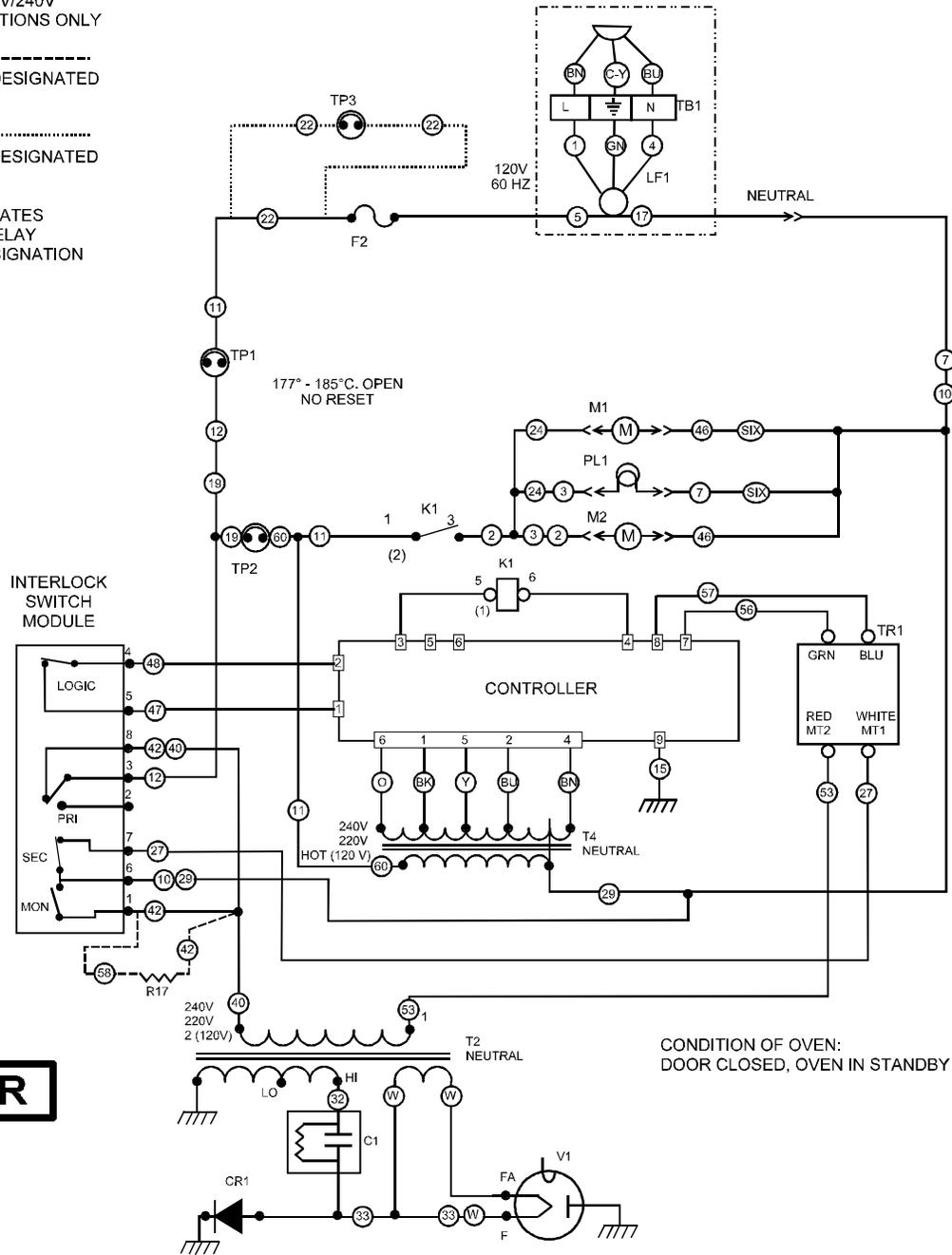
To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

NOTE: -----  
INDICATES 220V/240V  
50 HZ APPLICATIONS ONLY

NOTE: -----  
INDICATES U-DESIGNATED  
MODELS ONLY

NOTE: -----  
INDICATES E-DESIGNATED  
MODELS ONLY

NOTE: ( ) INDICATES  
ALTERNATE RELAY  
TERMINAL DESIGNATION



**DANGER**  
HIGH VOLTAGE

- |     |                         |     |                             |     |                   |
|-----|-------------------------|-----|-----------------------------|-----|-------------------|
| C1  | HIGH VOLTAGE CAPACITOR  | PL1 | CAVITY LIGHT                | R17 | SURGE RESISTOR    |
| CR1 | HIGH VOLTAGE DIODE      | T2  | HV TRANSFORMER              | TP3 | HV TRANSFORMER    |
| F2  | FUSE                    | T4  | LOW VOLTAGE TRANSFORMER     |     | THERMAL PROTECTOR |
| ISM | INTERLOCK SWITCH MODULE | TB1 | TERMINAL BLOCK              |     |                   |
| K1  | HOLDING RELAY           | TP1 | MAGNETRON THERMAL PROTECTOR |     |                   |
| LF1 | LINE FILTER             | TP2 | CAVITY THERMAL PROTECTOR    |     |                   |
| M1  | BLOWER MOTOR            | TR1 | TRIAC                       |     |                   |
| M2  | STIRRER MOTOR           | V1  | MAGNETRON                   |     |                   |

- |           |             |         |             |
|-----------|-------------|---------|-------------|
| VEND10.K  |             | FS10EVP | P4020003901 |
| VEND10.L  |             | FSP10.E |             |
| VEND10    | P4020004101 | FSP10   | P4020004102 |
| FS10EVP.F |             | FSP10SS | P4020004103 |

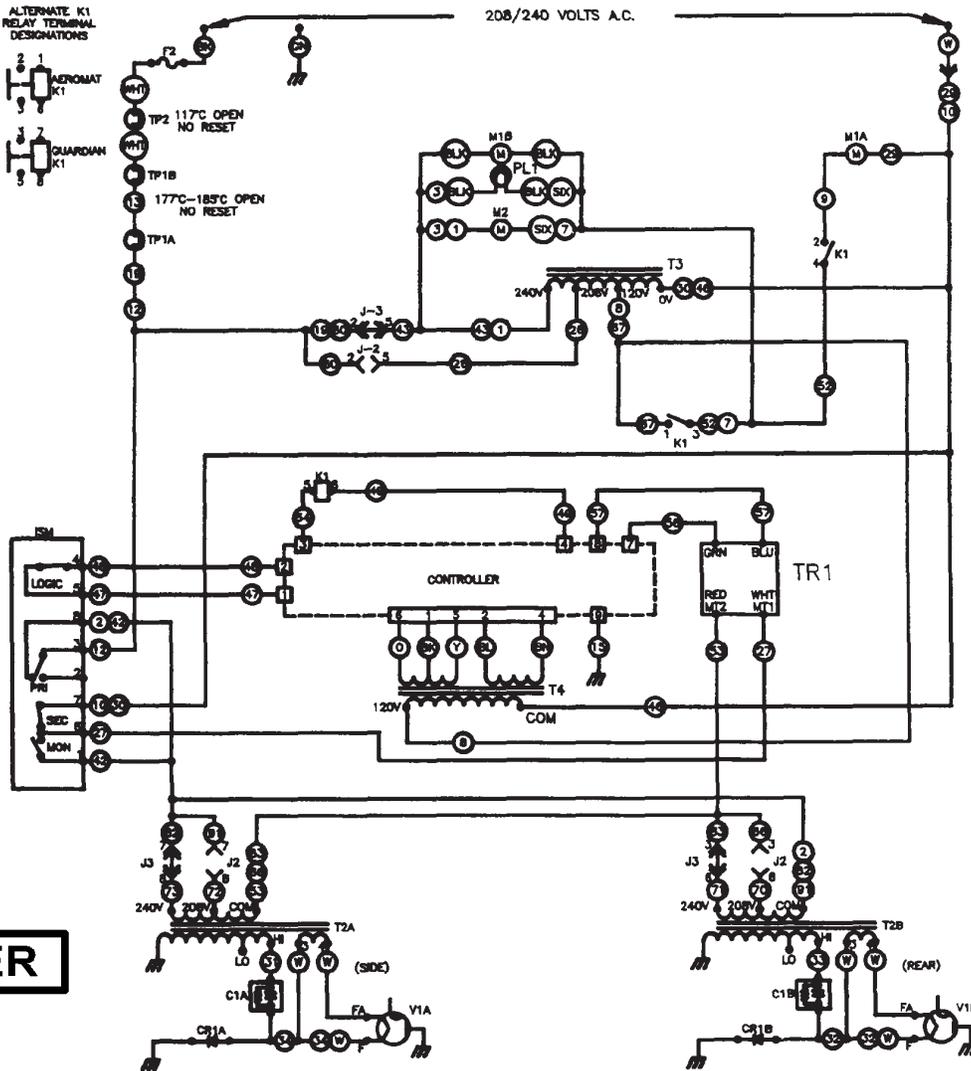


# Wiring Schematic/Diagram



**WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.



**DANGER**  
HIGH VOLTAGE

COMPONENT	TEST POINT	NORMAL READING
LV. TRANSFORMER OUTPUT VOLTAGES	2(BLU)-4(BN)	2.6 VAC •
	1(BLK)-6(ORN)	23 VAC •
	5(YEL)-6(ORN)	46 VAC •
CONTROLLER -TO- OVEN RELAY DRIVE VOLTAGE	PIN 3-PIN 4	22 VDC •
CONTROLLER -TO- TRIAC MODULE DRIVE VOLTAGE	PIN 8-PIN 7 (BLU) (GRN)	1 TO 6 VAC

• INDICATES NO LOAD READING

- C1 HIGH VOLTAGE CAPACITOR
- CR1 HIGH VOLTAGE DIODE
- F2 FUSE, 20A
- ISM INTERLOCK SWITCH MODULE
- J2 208 VOLT TAP CONNECTOR
- J3 240 VOLT TAP CONNECTOR
- K1 HOLDING RELAY
- M1 BLOWER MOTOR
- M2 STIRRER MOTOR
- PL1 CAVITY LIGHT
- R14 BLEEDER RESISTOR
- T2 HV TRANSFORMER
- T3 AUTO TRANSFORMER
- T4 LOW VOLTAGE TRANSFORMER
- TP1 MAGNETRON THERMAL PROTECTOR
- TP2 CAVITY THERMAL PROTECTOR
- TR1 TRIAC
- V1 MAGNETRON

□ - □ TIMER CONNECTOR PINS      ○ INDICATES WIRE NUMBERS

CONDITION OF OVEN: DOOR CLOSED, OVEN IN STANDBY

SWITCH FUNCTION CHART				
CONTACTS MADE CONTACTS	INTERLOCK MODULE			
	PRIMARY	SECONDARY	MONITOR	SENSE
FUNCTION	3	6	1	5
DOOR OPEN	8	2	7	6
DOOR CLOSED	•	•	•	•

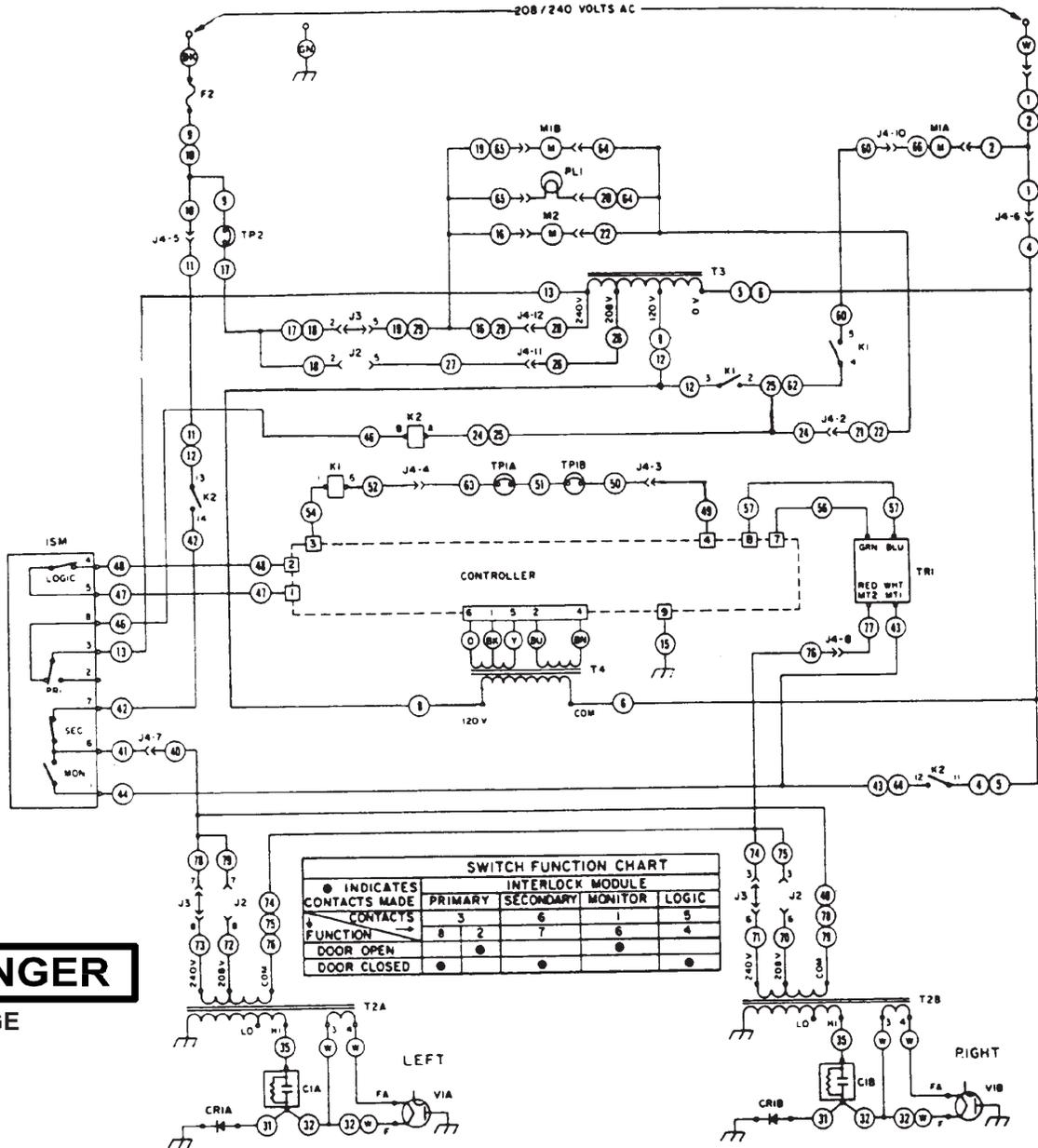
FS14EVP.C

# Wiring Schematic/Diagram



**WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.



**DANGER**  
HIGH VOLTAGE

- |     |                           |     |                             |
|-----|---------------------------|-----|-----------------------------|
| C1  | HIGH VOLTAGE CAPACITOR    | M1  | BLOWER MOTOR                |
| CR1 | HIGH VOLTAGE DIODE        | M2  | STIRRER MOTOR               |
| F2  | FUSE, 20A                 | PL1 | CAVITY LIGHT                |
| ISM | INTERLOCK SWITCH MODULE   | T2  | POWER TRANSFORMER           |
| J2  | 208 VOLT TAP CONNECTOR    | T3  | AUTO TRANSFORMER            |
| J3  | 240 VOLT TAP CONNECTOR    | T4  | LOW VOLTAGE TRANSFORMER     |
| J4  | COMPONENT PANEL CONNECTOR | TP1 | MAGNETRON THERMAL PROTECTOR |
| K1  | HOLDING RELAY             | TP2 | CAVITY THERMAL PROTECTOR    |
| K2  | COOK RELAY                | TR1 | TRIAC                       |
|     |                           | V1  | MAGNETRON                   |

1 - 9 TIMER CONNECTOR PINS      1 INDICATES WIRE NUMBERS

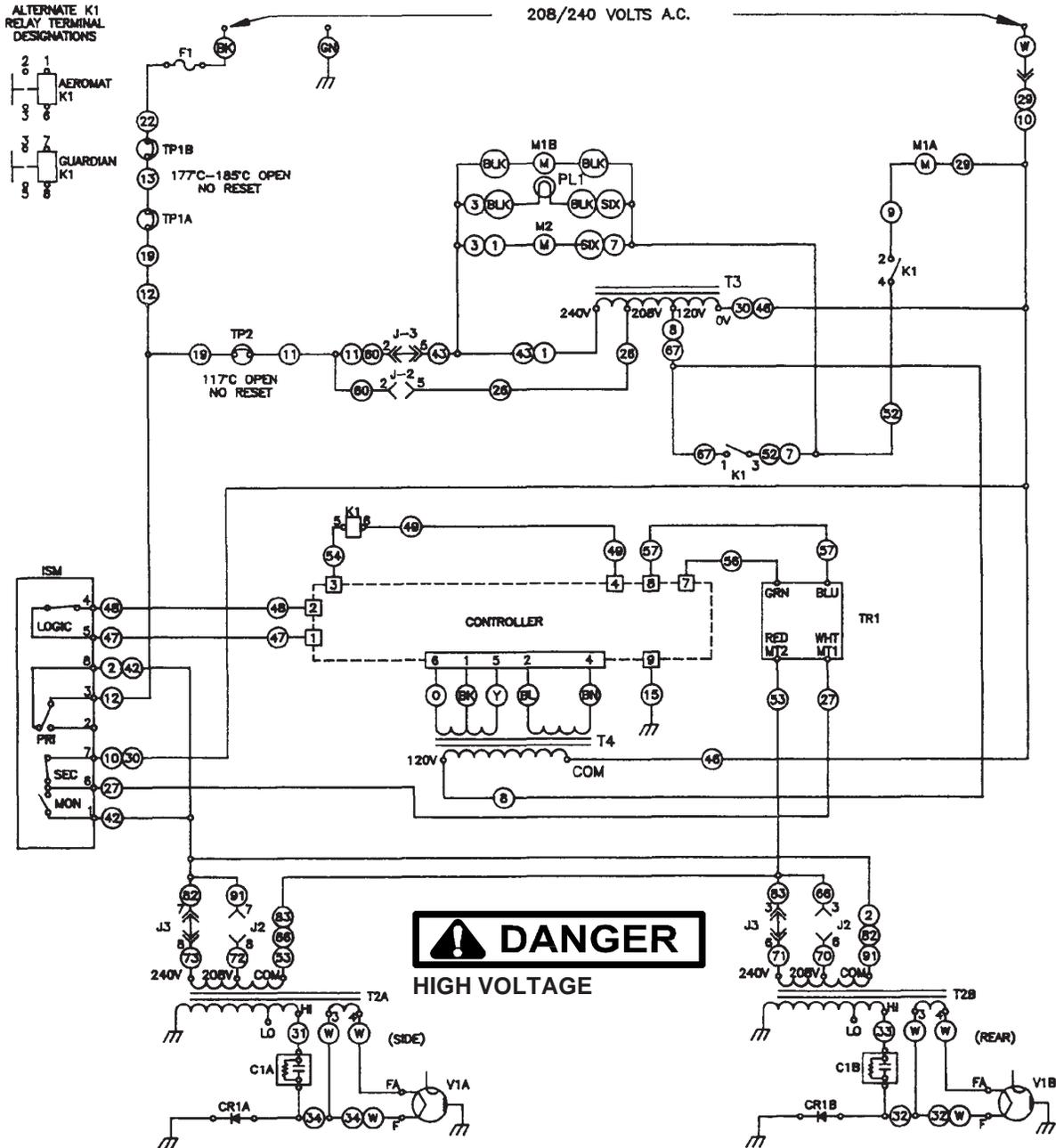
CONDITION OF OVEN: DOOR CLOSED, OVEN IN STANDBY

# Wiring Schematic/Diagram



**WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.



**⚠ DANGER**  
HIGH VOLTAGE

COMPONENT	TEST POINT	NORMAL READING
L.V. TRANSFORMER OUTPUT VOLTAGES	2(BLU)-4(BN)	2.5 VAC •
	1(BLK)-6(ORN)	23 VAC •
	5(YEL)-8(ORN)	48 VAC •
CONTROLLER -TO- OVEN RELAY DRIVE VOLTAGE	PIN 3-PIN 4	22 VDC •
CONTROLLER -TO- TRIAC MODULE DRIVE VOLTAGE	PIN 8-PIN 7 (BLU) (GRN)	1 TO 6 VAC

• INDICATES NO LOAD READING

- C1 HIGH VOLTAGE CAPACITOR
- CR1 HIGH VOLTAGE DIODE
- F1 FUSE, 20A
- ISM INTERLOCK SWITCH MODULE
- J2 208 VOLT TAP CONNECTOR
- J3 240 VOLT TAP CONNECTOR
- K1 HOLDING RELAY
- M1 BLOWER MOTOR
- M2 STIRRER MOTOR
- PL1 CAVITY LIGHT
- T2 H.V. TRANSFORMER
- T3 AUTO TRANSFORMER
- T4 LOW VOLTAGE TRANSFORMER
- TP1 MAGNETRON THERMAL PROTECTOR
- TP2 CAVITY THERMAL PROTECTOR
- TR1 TRIAC
- V1 MAGNETRON

CONTACTS MADE	INTERLOCK MODULE			
	PRIMARY	SECONDARY	MONITOR	SENSE
FUNCTION	8	2	6	1
DOOR OPEN	•	•	•	•
DOOR CLOSED	•	•	•	•

⏏ - ⏏ TIMER CONNECTOR PINS      ○ INDICATES WIRE NUMBERS  
CONDITION OF OVEN: DOOR CLOSED, OVEN IN STANDBY

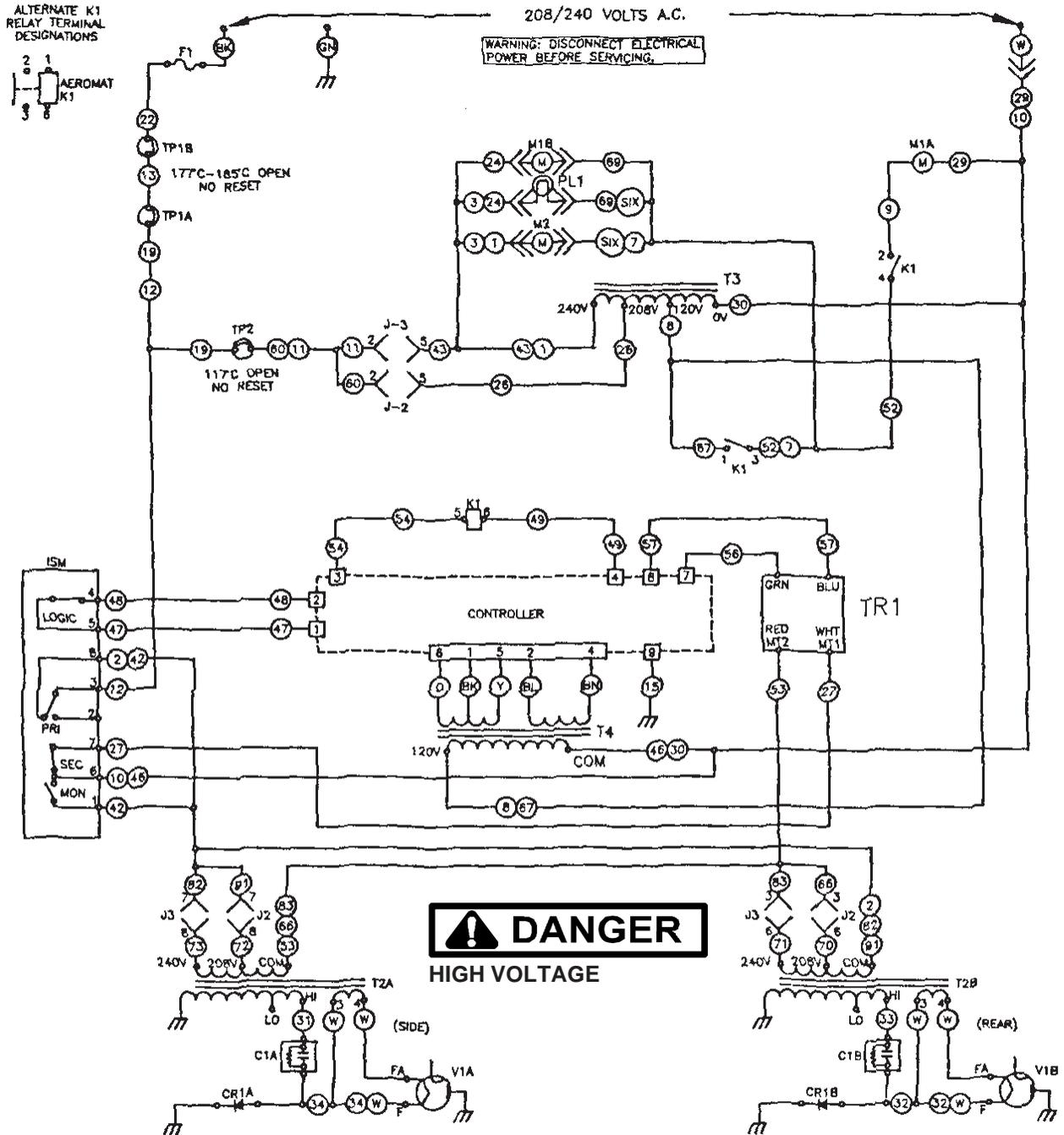
FS14EVP.E

# Wiring Schematic/Diagram



**WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.



C1 HIGH VOLTAGE CAPACITOR  
 CR1 HIGH VOLTAGE DIODE  
 F1 FUSE, 20A  
 ISM INTERLOCK SWITCH MODULE  
 J2 208 VOLT TAP CONNECTOR  
 J3 240 VOLT TAP CONNECTOR  
 K1 HOLDING RELAY

M1 BLOWER MOTOR  
 M2 STIRRER MOTOR  
 PL1 CAVITY LIGHT  
 T2 H.V. TRANSFORMER  
 T3 AUTO TRANSFORMER  
 T4 LOW VOLTAGE TRANSFORMER  
 TP1 MAGNETRON THERMAL PROTECTOR  
 TP2 CAVITY THERMAL PROTECTOR  
 TR1 TRIAC  
 V1 MAGNETRON

[ 1 ] - [ 8 ] TIMER CONNECTOR PINS      ○ INDICATES WIRE NUMBERS  
 CONDITION OF OVEN: DOOR CLOSED, OVEN IN STANDBY

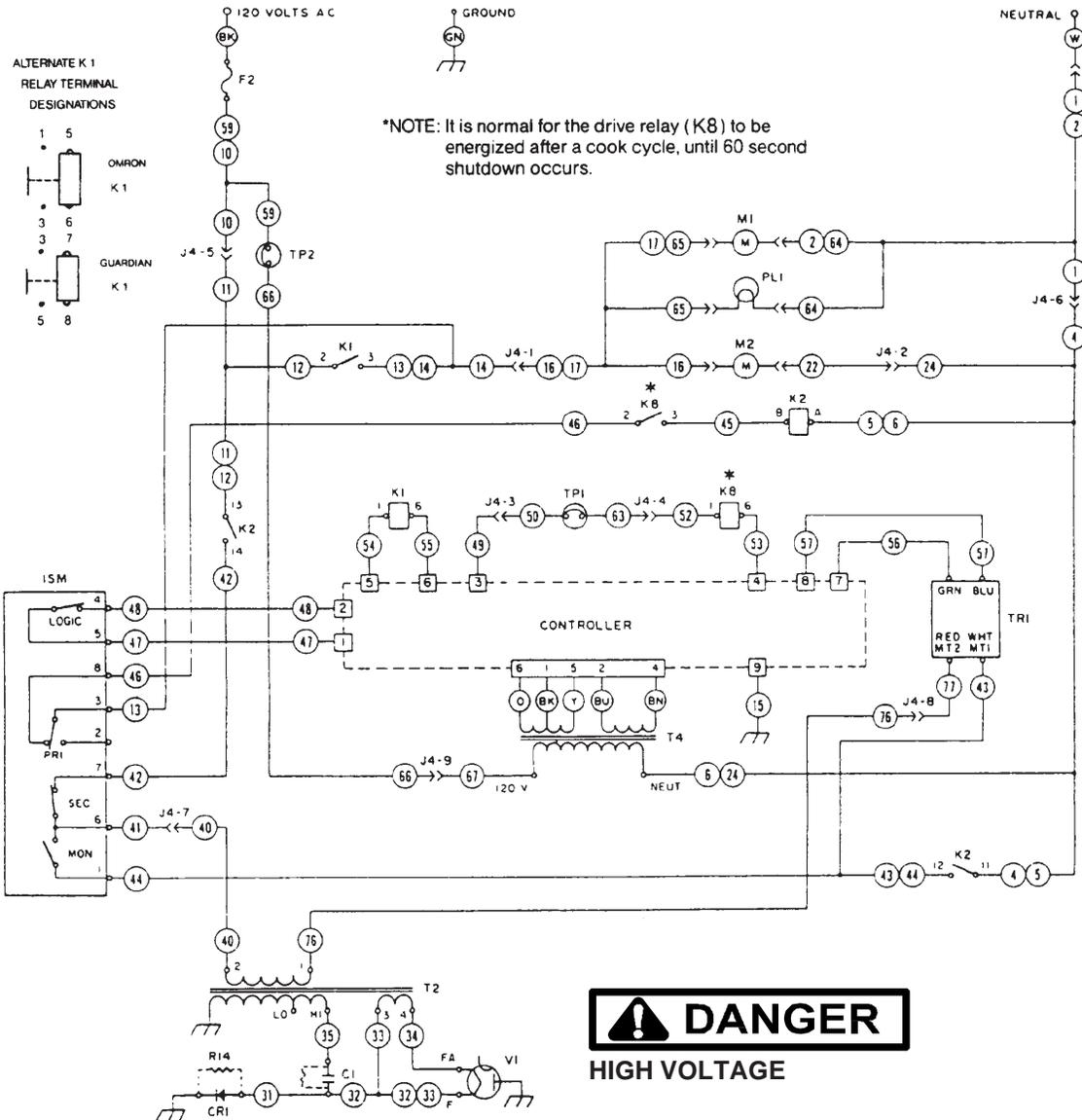
FS14EV.P.F  
 FS14.EVP      P4020004901

# Wiring Schematic/Diagram



**WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.



\*NOTE: It is normal for the drive relay (K8) to be energized after a cook cycle, until 60 second shutdown occurs.

**DANGER**  
HIGH VOLTAGE

COMPONENT	TEST POINT	NORMAL READING
LV. TRANSFORMER OUTPUT VOLTAGES	2(BLU)-4(BN)	2.6 VAC *
	1(BLK)-6(ORN)	23 VAC *
	5(YEL)-8(ORN)	46 VAC *
CONTROLLER -TO- OVEN RELAY DRIVE VOLTAGE	PIN 3-PIN 4 PIN 5-PIN 8	22 VDC * 22 VDC *
CONTROLLER -TO- TRIAC MODULE DRIVE VOLTAGE	PIN 8-PIN 7 (BLU) (GRN)	1 TO 6 VAC

\* INDICATES NO LOAD READING

- C1 HIGH VOLTAGE CAPACITOR
- CR1 HIGH VOLTAGE DIODE
- F2 FUSE, 30A
- ISM INTERLOCK SWITCH MODULE
- J4 COMPONENT PANEL CONNECTOR
- K1 HOLDING RELAY
- K2 COOK RELAY
- K8 DRIVE RELAY
- M1 BLOWER MOTOR
- M2 STIRRER MOTOR
- PL1 CAVITY LIGHT
- R14 BLEEDER RESISTOR
- T2 HV TRANSFORMER
- T4 LOW VOLTAGE TRANSFORMER
- TP1 MAGNETRON THERMAL PROTECTOR
- TP2 CAVITY THERMAL PROTECTOR
- TR1 TRIAC
- V1 MAGNETRON

□ - □ TIMER CONNECTOR PINS    ○ INDICATES WIRE NUMBERS  
CONDITION OF OVEN: DOOR CLOSED, OVEN IN STANDBY

FUNCTION	INTERLOCK MODULE			
	PRIMARY CONTACTS	SECONDARY CONTACTS	MONITOR	SENSE
DOOR OPEN	8	2	7	6
DOOR CLOSED	•	•	•	•

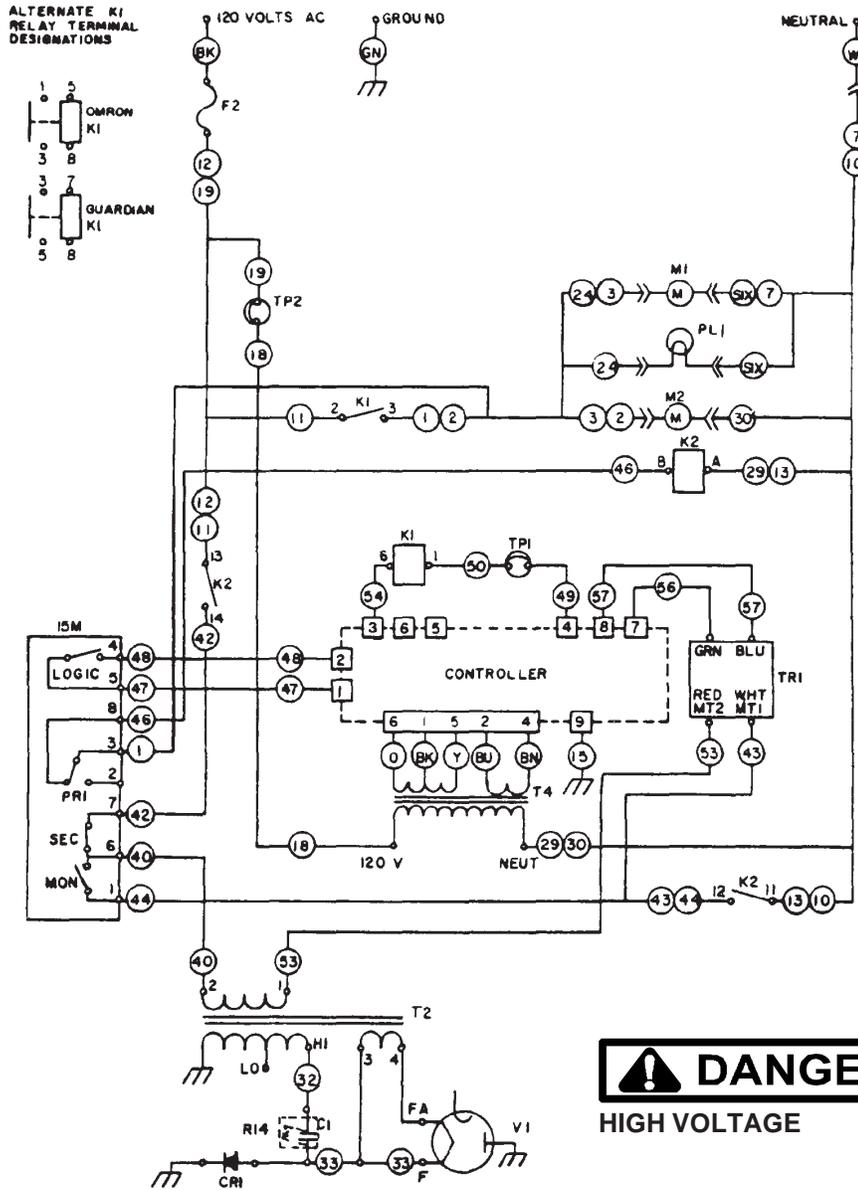
FS10EVP.000  
FSP10EVP.A

# Wiring Schematic/Diagram



**WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.



**! DANGER**  
HIGH VOLTAGE

COMPONENT	TEST POINT	NORMAL READING
L.V. TRANSFORMER OUTPUT VOLTAGES	2(BLU)-4(BN)	2.6 VAC *
	1(BLK)-5(ORN)	23 VAC *
	5(YEL)-6(ORN)	46 VAC *
CONTROLLER -TO- OVEN RELAY DRIVE VOLTAGE	PIN 3-PIN 4	22 VDC *
CONTROLLER -TO- TRIAC MODULE DRIVE VOLTAGE	PIN 8-PIN 7 (BLU) (GRN)	1 TO 6 VAC

\* INDICATES NO LOAD READING

- C1 HIGH VOLTAGE CAPACITOR
- CR1 HIGH VOLTAGE DIODE
- F2 FUSE, 30A
- ISM INTERLOCK SWITCH MODULE
- K1 HOLDING RELAY
- K2 COOK RELAY
- M1 BLOWER MOTOR
- M2 STIRRER MOTOR

- PL1 CAVITY LIGHT
- R14 BLEEDER RESISTOR
- T2 HV TRANSFORMER
- T4 LOW VOLTAGE TRANSFORMER
- TP1 MAGNETRON THERMAL PROTECTOR
- TP2 CAVITY THERMAL PROTECTOR
- TR1 TRIAC
- V1 MAGNETRON

□ - ■ TIMER CONNECTOR PINS    ○ INDICATES WIRE NUMBERS

CONDITION OF OVEN: DOOR CLOSED, OVEN IN STANDBY

SWITCH FUNCTION CHART				
CONTACTS MADE CONTACTS	INTERLOCK MODULE			
	PRIMARY	SECONDARY	MONITOR	SENSE
FUNCTION	3	6	1	5
DOOR OPEN	8	2	7	6
DOOR CLOSED	•	•	•	•

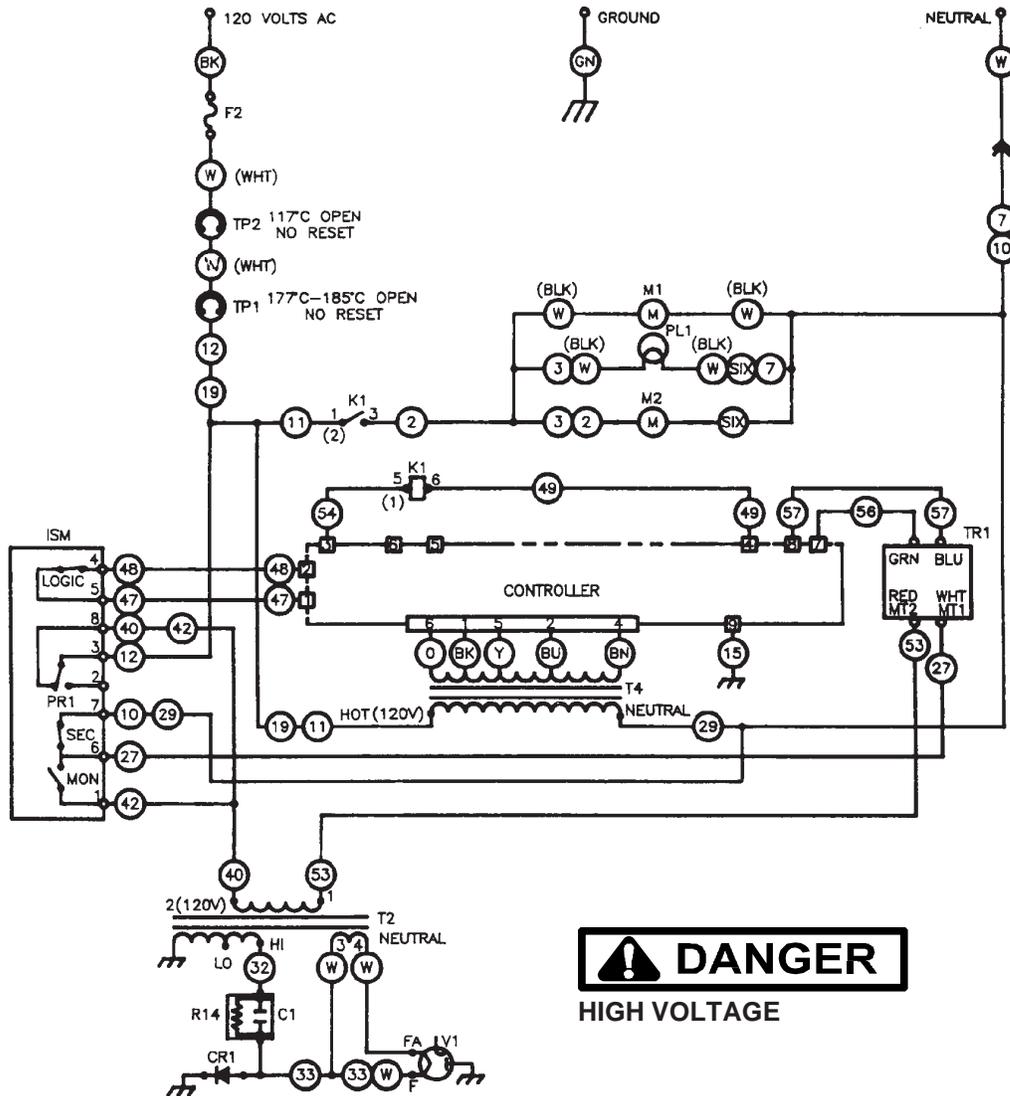
FS10EVP.C  
FSP10.B

# Wiring Schematic/Diagram



**WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.



**DANGER**  
HIGH VOLTAGE

- C1 HIGH VOLTAGE CAPACITOR
- CR1 HIGH VOLTAGE DIODE
- F2 FUSE, 30A
- ISM INTERLOCK SWITCH MODULE
- K1 HOLDING RELAY
- M1 BLOWER MOTOR
- M2 STIRRER MOTOR
- PL1 CAVITY LIGHT
- R14 BLEEDER RESISTOR
- T2 HV TRANSFORMER
- T4 LOW VOLTAGE TRANSFORMER
- TP1 MAGNETRON THERMAL PROTECTOR
- TP2 CAVITY THERMAL PROTECTOR
- TR1 TRIAC
- V1 MAGNETRON

TEST CHART		
COMPONENT	TEST POINT	NORMAL READING
L.V. TRANSFORMER OUTPUT VOLTAGES	2(BLU)-4(BN)	2.6 VAC *
	1(BLK)-6(ORN)	23 VAC *
	5(YEL)-6(ORN)	46 VAC *
CONTROLLER -TO- OVEN RELAY DRIVE VOLTAGE	PIN 3-PIN 4	22 VDC *
CONTROLLER -TO- TRIAC MODULE DRIVE VOLTAGE	PIN 8-PIN 7 (BLU) (GRN)	1 TO 6 VAC

\* INDICATES NO LOAD READING

□ - □ TIMER CONNECTOR PINS    ○ INDICATES WIRE NUMBERS

CONDITION OF OVEN: DOOR CLOSED, OVEN IN STANDBY

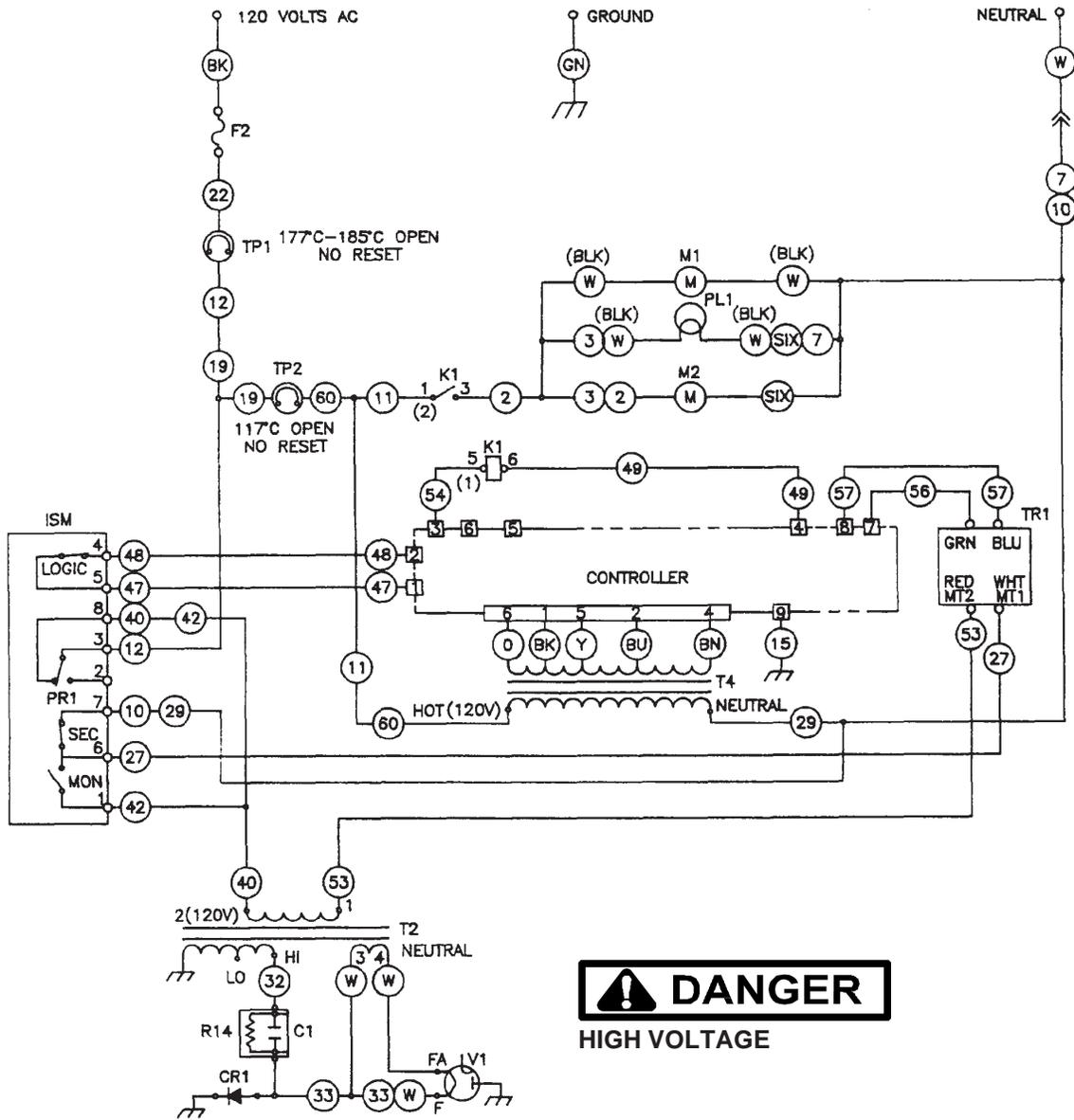
SWITCH FUNCTION CHART				
CONTACTS MADE	INTERLOCK MODULE			
	PRIMARY	SECONDARY	MONITOR	SENSE
CONTACTS	3	6	1	5
FUNCTION	8	2	7	6
DOOR OPEN	•			•
DOOR CLOSED	•		•	•

FS10EVP.D  
FSP10.C

# Wiring Schematic/Diagram

## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.



## DANGER

**HIGH VOLTAGE**

COMPONENT	TEST POINT	NORMAL READING
LV. TRANSFORMER OUTPUT VOLTAGES	2(BLU)-4(BN)	2.6 VAC *
	1(BLK)-8(ORN)	23 VAC *
	5(YEL)-6(ORN)	46 VAC *
CONTROLLER -TO- OVEN RELAY DRIVE VOLTAGE	PIN 3-PIN 4	22 VDC *
CONTROLLER -TO- TRIAC MODULE DRIVE VOLTAGE	PIN 8-PIN 7 (BLU) (GRN)	1 TO 6 VAC

\* INDICATES NO LOAD READING

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>C1 HIGH VOLTAGE CAPACITOR</li> <li>CR1 HIGH VOLTAGE DIODE</li> <li>F2 FUSE</li> <li>ISM INTERLOCK SWITCH MODULE</li> <li>K1 HOLDING RELAY</li> <li>M1 BLOWER MOTOR</li> <li>M2 STIRRER MOTOR</li> </ul> | <ul style="list-style-type: none"> <li>PL1 CAVITY LIGHT</li> <li>R14 BLEEDER RESISTOR</li> <li>T2 HV TRANSFORMER</li> <li>T4 LOW VOLTAGE TRANSFORMER</li> <li>TP1 MAGNETRON THERMAL PROTECTOR</li> <li>TP2 CAVITY THERMAL PROTECTOR</li> <li>TR1 TRIAC</li> <li>V1 MAGNETRON</li> </ul> |
|--|---|

SWITCH FUNCTION CHART				
● INDICATES INTERLOCK MODULE				
CONTACTS MADE	PRIMARY	SECONDARY	MONITOR	SENSE
FUNCTION	3	8	1	5
DOOR OPEN	8	2	7	6
DOOR CLOSED	●	●	●	●

CONDITION OF OVEN: DOOR CLOSED, OVEN IN STANDBY

- - ■ TIMER CONNECTOR PINS
- INDICATES WIRE NUMBERS
- ( ) INDICATES ALTERNATE RELAY TERMINAL DESIGNATION

FS10EVP.E  
FSP10.D

# Wiring Schematic/Diagram



**WARNING**

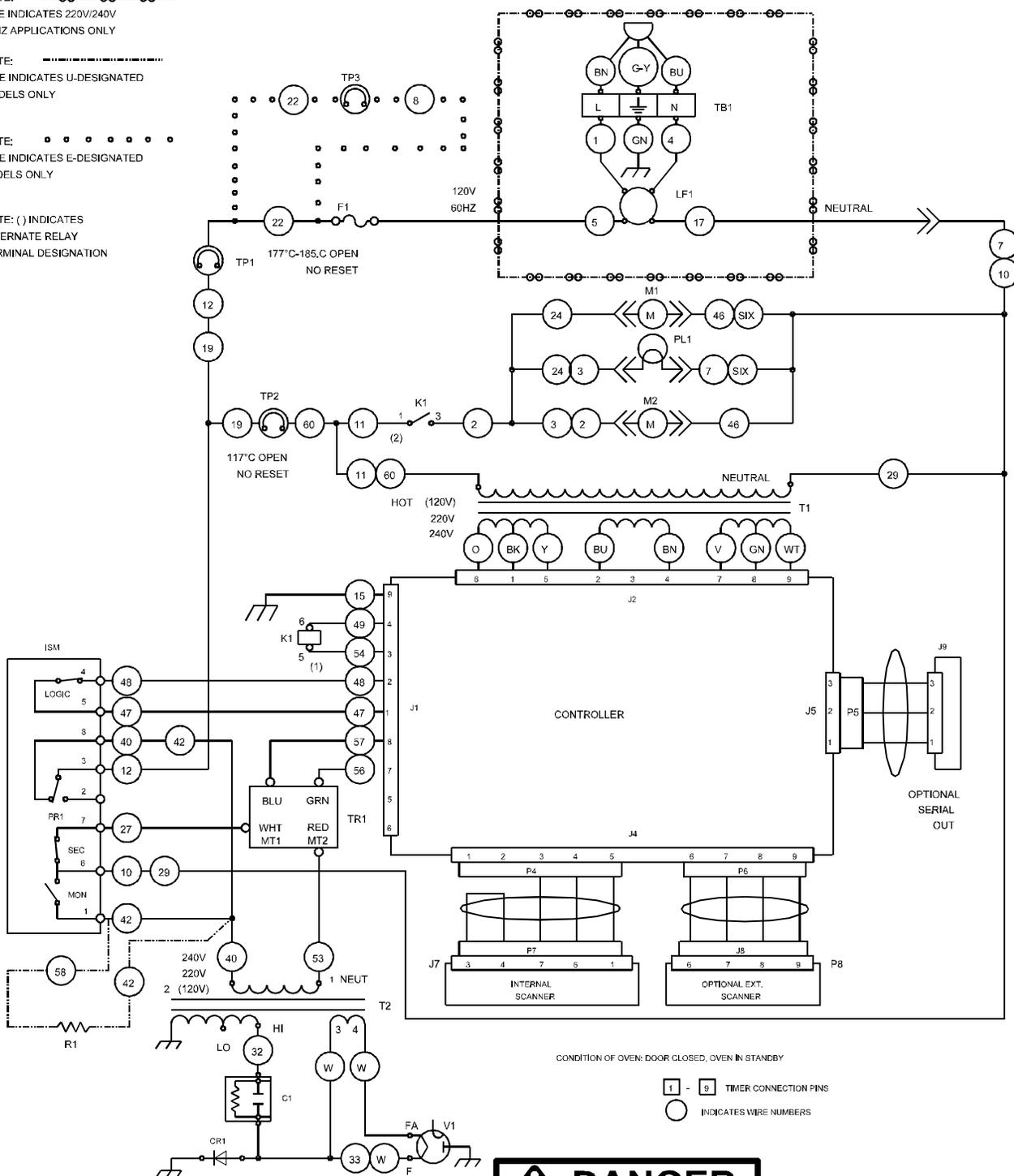
To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

NOTE: LINE INDICATES 220V/240V 50HZ APPLICATIONS ONLY

NOTE: LINE INDICATES U-DESIGNATED MODELS ONLY

NOTE: LINE INDICATES E-DESIGNATED MODELS ONLY

NOTE: ( ) INDICATES ALTERNATE RELAY TERMINAL DESIGNATION



CONDITION OF OVEN: DOOR CLOSED, OVEN IN STANDBY

TIMER CONNECTION PINS  
 INDICATES WIRE NUMBERS



- C1 HIGH VOLTAGE CAPACITOR
- CR1 HIGH VOLTAGE DIODE
- F1 FUSE
- ISM INTERLOCK SWITCH MODULE
- K1 HOLDING RELAY
- LF1 LINE FILTER
- M1 BLOWER MOTOR
- M2 STIRRER MOTOR
- PL1 CAVITY LIGHT

- R1 SURGE RESISTOR
- T1 LOW VOLTAGE TRANSFORMER
- T2 HV TRANSFORMER
- TB1 TERMINAL BLOCK
- TP1 MAGNETRON THERMAL PROTECTOR
- TP2 CAVITY THERMAL PROTECTOR
- TP3 HV TRANSFORMER THERMAL PROTECTOR
- TR1 TRIAC
- V1 MAGNETRON

10729001 REV 0

A1200S P4020008302

# Wiring Schematic/Diagram

## WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

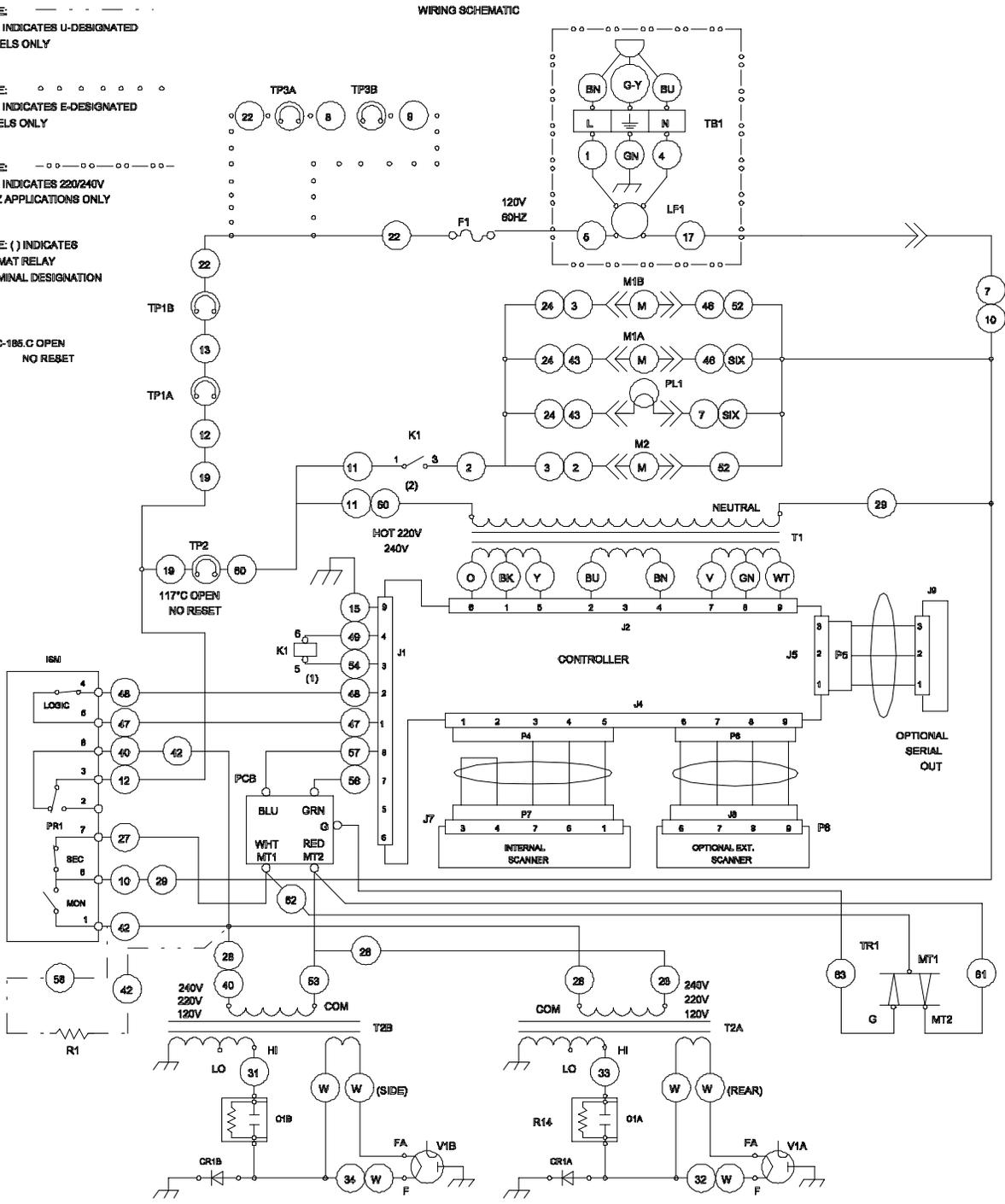
NOTE:   
 LINE INDICATES U-DESIGNATED   
 MODELS ONLY

NOTE:   
 LINE INDICATES E-DESIGNATED   
 MODELS ONLY

NOTE:   
 LINE INDICATES 220/240V   
 60HZ APPLICATIONS ONLY

NOTE: ( ) INDICATES   
 AROMAT RELAY   
 TERMINAL DESIGNATION

177°C OPEN   
 NO RESET



C1 HIGH VOLTAGE CAPACITOR  
 CR1 HIGH VOLTAGE DIODE  
 F1 FUSE, 15A  
 ISM INTERLOCK SWITCH MODULE  
 K1 HOLDING RELAY  
 LF1 LINE FILTER  
 M1 BLOWER MOTOR  
 M2 STIRRER MOTOR  
 PCB PRINTED CIRCUIT BOARD  
 PL1 CAVITY LIGHT

## DANGER

HIGH VOLTAGE

CONDITION OF OVEN DOOR CLOSED, OVEN IN STANDBY  
 ○ INDICATES WIRE NUMBERS

R1 SURGE RESISTOR  
 T1 LOW VOLTAGE TRANSFORMER  
 T2 HV TRANSFORMER  
 TB1 TERMINAL BLOCK  
 TP1 MAGNETRON THERMAL PROTECTOR  
 TP2 CAVITY THERMAL PROTECTOR  
 TP3 TRANSFORMER THERMAL PROTECTOR  
 TR1 TRIAC  
 V1 MAGNETRON

10794801 (REV 00)

A1225S P1185701M

# Wiring Schematic/Diagram



**WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.

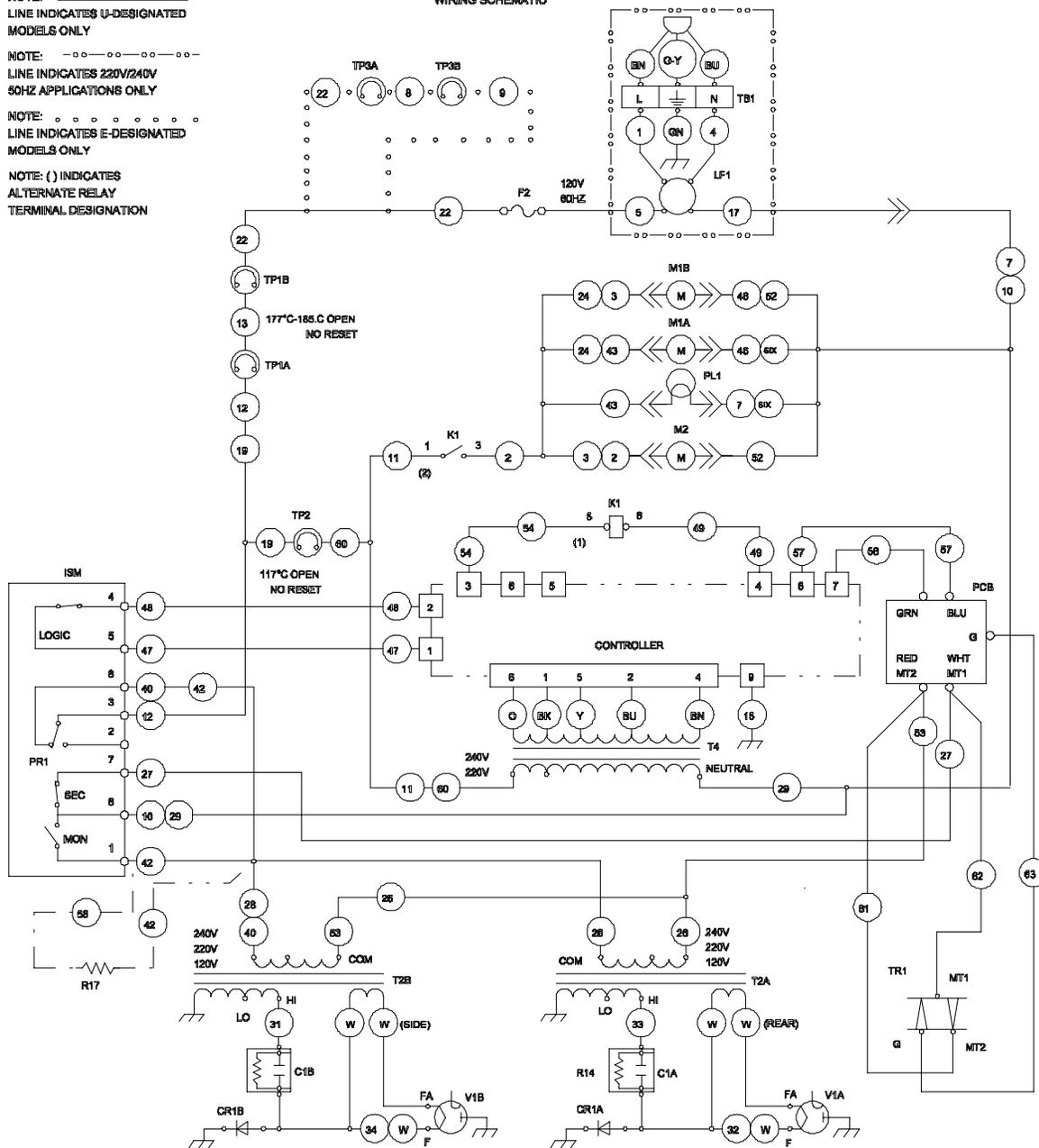
NOTE: \_\_\_\_\_  
LINE INDICATES U-DESIGNATED  
MODELS ONLY

NOTE: - - - - -  
LINE INDICATES 220V/240V  
50HZ APPLICATIONS ONLY

NOTE: \_\_\_\_\_  
LINE INDICATES E-DESIGNATED  
MODELS ONLY

NOTE: ( ) INDICATES  
ALTERNATE RELAY  
TERMINAL DESIGNATION

WIRING SCHEMATIC



C1 HIGH VOLTAGE CAPACITOR  
CR1 HIGH VOLTAGE DIODE  
F2 FUSE, 15A  
ISM INTERLOCK SWITCH MODULE  
K1 HOLDING RELAY  
LP1 LINE FILTER  
M1 BLOWER MOTOR  
M2 STIRRER MOTOR  
PCB PRINTED CIRCUIT BOARD  
% INDICATES WIRE NUMBERS



**HIGH VOLTAGE**

CONDITION OF OVEN: DOOR CLOSED,  
OVEN IN STANDBY

PL1 CAVITY LIGHT  
T2 HV TRANSFORMER  
T4 LOW VOLTAGE TRANSFORMER  
TB1 TERMINAL BLOCK  
TP1 MAGNETRON THERMAL PROTECTOR  
TP2 CAVITY THERMAL PROTECTOR  
TR1 TRIAC  
V1 MAGNETRON  
1 - 9 TIMER CONNECTOR PINS

10794901 REV 00

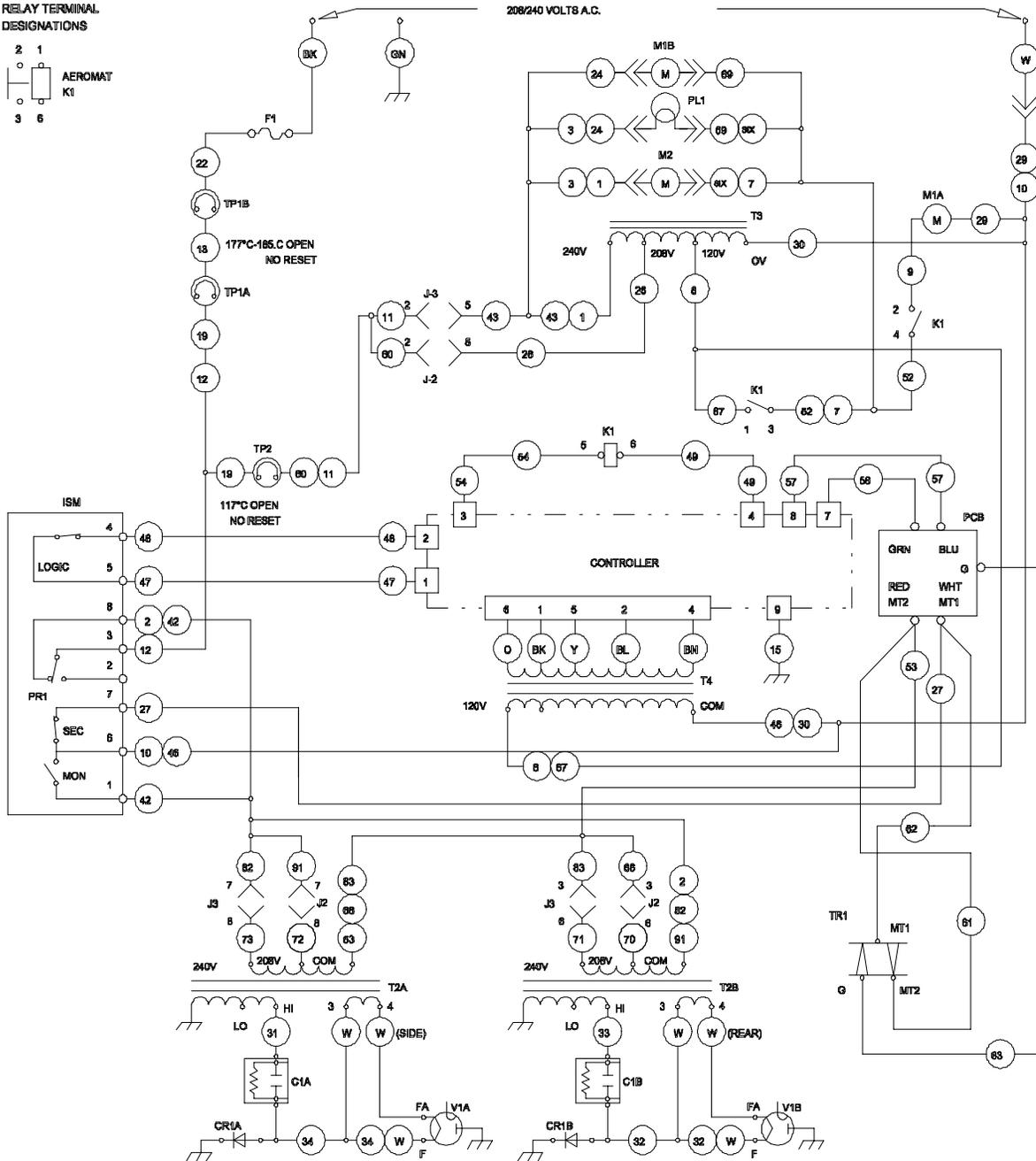
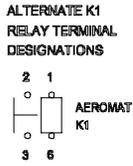
FS11EVP	P1186001M
FSP11	P1185802M
FSP11LW	P1185805M
FSP11SS	P1185803M
VEND11	P1185801M
VEND11B	P1185804M

# Wiring Schematic/Diagram



**WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.



C1 HIGH VOLTAGE CAPACITOR  
CR1 HIGH VOLTAGE DIODE  
F1 FUSE, 20A  
ISM INTERLOCK SWITCH MODULE  
J2 208 VOLT TAP CONNECTOR  
J3 240 VOLT TAP CONNECTOR  
K1 HOLDING RELAY  
M1 BLOWER MOTOR  
M2 STIRRER MOTOR  
PCB PRINTED CIRCUIT BOARD  
¼ INDICATES WIRE NUMBERS

**DANGER**  
**HIGH VOLTAGE**

CONDITION OF OVEN: DOOR CLOSED,  
OVEN IN STANDBY

PL1 CAVITY LIGHT  
T2 HV TRANSFORMER  
T3 AUTO TRANSFORMER  
T4 LOW VOLTAGE TRANSFORMER  
TP1 MAGNETRON THERMAL PROTECTOR  
TP2 CAVITY THERMAL PROTECTOR  
TR1 TRIAC  
V1 MAGNETRON  
1 - 8 TIMER CONNECTOR PINS

10794501 REV 00

FS16EVP  
FS17EVP  
FS20EVP

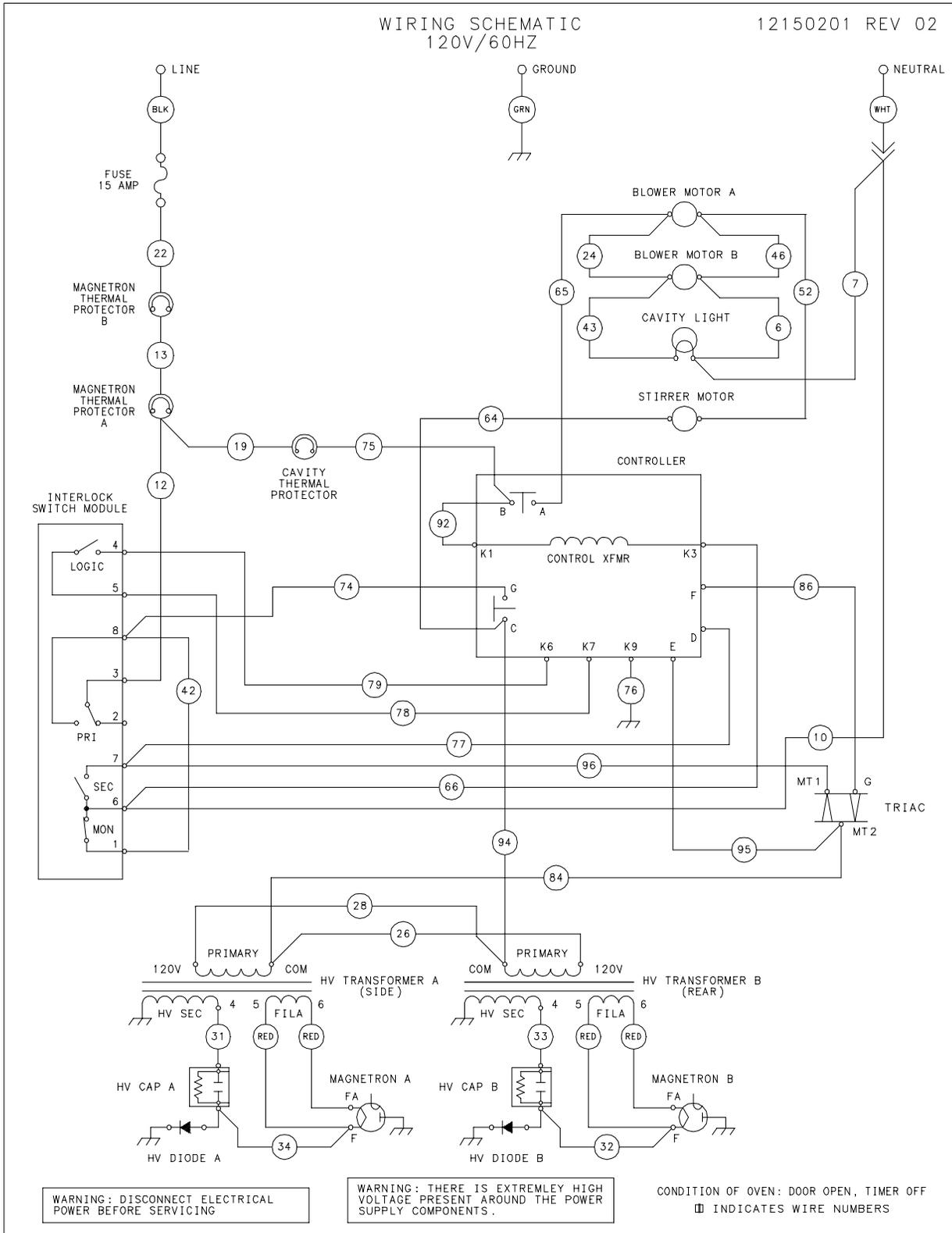
P1185901M  
P1185902M  
P1185903M

# Wiring Schematic/Diagram



**WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.



FS11  
FSP  
FSP11LW  
VEND11

P1302104M  
P1302102M  
P1302103M  
P1302101M

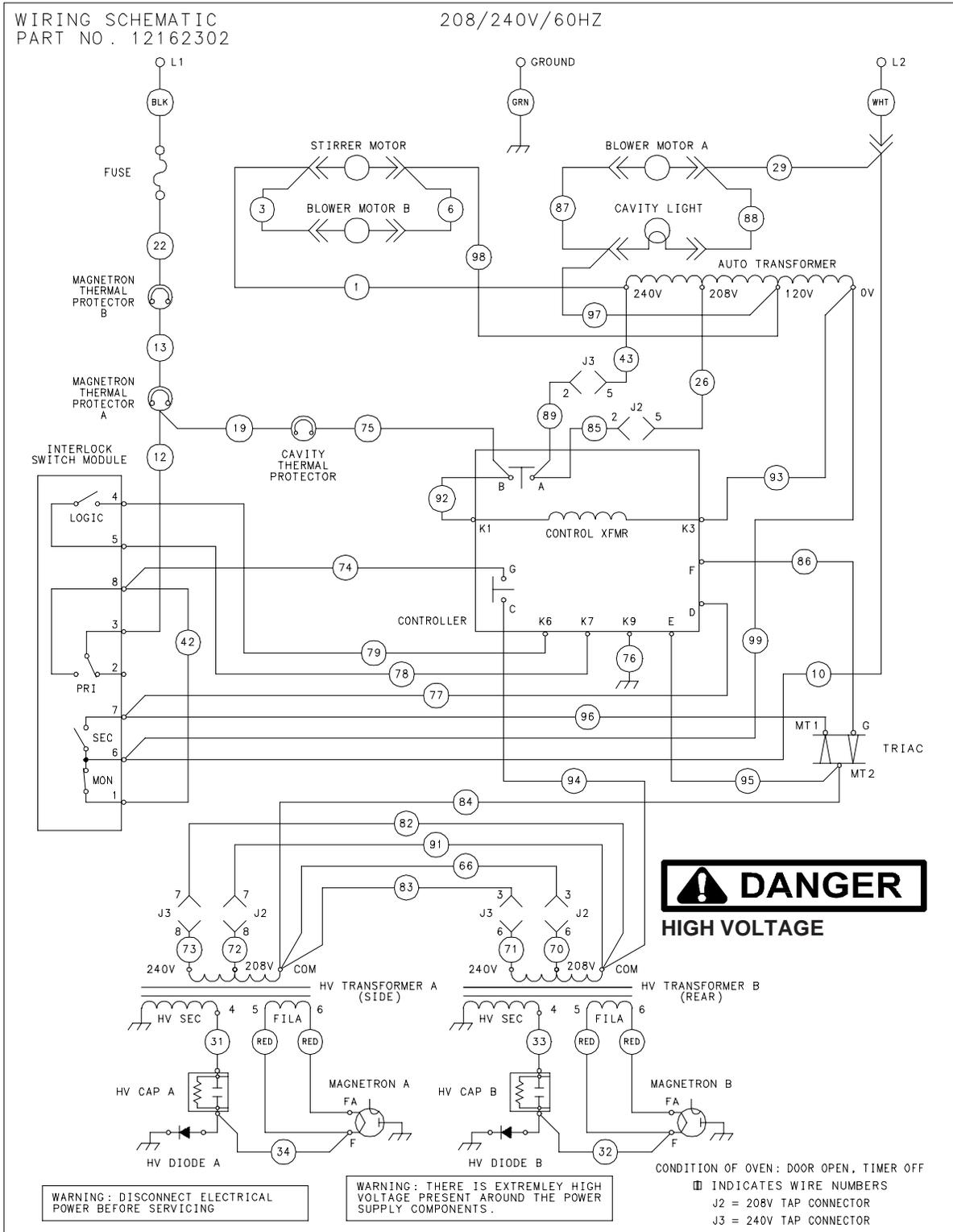
**DANGER**  
HIGH VOLTAGE

# Wiring Schematic/Diagram



**WARNING**

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit and discharge the capacitor before following any disassembly procedures.



FS17  
FS20

P1302105M  
P1302106M