



Mealstream 400 SERIES

S E R V I C E M A N U A L

Part No. 32Z3311 Issue No. 9

For all Mealstream 401 and 403 models for GB & Europe manufactured from January 2001

CAUTION MICROWAVE EMISSIONS

**DO NOT BECOME EXPOSED TO EMISSIONS FROM THE MICROWAVE
GENERATOR OR PARTS CONDUCTING MICROWAVE ENERGY**

S E R V I C E M A N U A L

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SAFETY CODE

This manual is designed to assist engineers who have been on a recognised product familiarisation and training course run by Merrychef Limited. It has been prepared to offer technical guidance for the Merrychef Mealstream 400 range of Combination Microwave Ovens.

Please remember that it is wiser **not** to attempt a service task if you are unsure of being able to complete it competently, quickly, and above all **safely**.

To avoid injury to yourself, and to protect the appliance from possible damage, please follow this Safety Code when servicing these ovens.

Before attempting to repair the oven, check it for microwave leakage.

Check that the oven is not emitting microwaves, even when supposedly not in operation.

Check that the oven is not operating continuously, whether the display indicates cooking or not.

Always discharge the HT capacitors before working on the oven using a suitably insulated 10 MΩ Resistor

Before removing the rear cover from the oven ensure you do the following:

- Switch off the mains supply and remove the plug from the wall socket.
or
- If the oven is hard wired, ensure that the power is turned off at the isolator switch.

Note: the On/Off switch on the oven is **not** adequate protection against electric shock, as it does not isolate all of the internal wiring from the Electrical Supply.

Upon completion of a service on a Mealstream 401/403 oven, or before reconnecting the appliance to the mains supply for testing, check all of the following points:

- All internal electrical connections are correct.
- All wiring insulation is correct and is not touching a sharp edge.
- All Earth connections are electrically and mechanically secure.
- All four door safety interlocks are secure and mechanically sound.
- The door operation is smooth, and the arms run freely in the slots.
- The door activates all four of the door interlock switches **in the correct order**.
- All fuse-holder safety covers are correctly fitted.
- The temperature sensor is correctly connected to the Power PCB.

Before finishing the service call, recheck the following points:

- All of the electronics are functioning correctly, and all of the touch pads are working.
- The turntable is rotating correctly.
- The power output of the oven is correct (see pages 12 & 13).
- Microwave emission is below permissible limit - 5 mW/cm² (see BS EN 60335-2-90).
- Oven has correct 50mm air gap all round and 150mm above.
Air flow should not be restricted.

Product specifications: Mealstream 401 & 403 models

ELECTRONIC CONTROLS: (EC401 & EC403 models)

Model N°: RMC1003 + Voltage + Frequency + Current + Controls —

— + Phase + MenuKey + Catalytic converter

For example: **RMC100345XE52MK**
230-240V, 50Hz, 30A, Series 5 Controls, Twin Phase, MenuKey

Model prefix	Voltage	Frequency	Current	Control Type	Supply Phase	MenuKey	Catalytic converter*
RMC1003	2 = 220-230V a.c.	5 = 50 Hz 6 = 60 Hz	EE = 13A	5 = Series 5 controls	2 = Twin Phase	MK	C
	4 = 230-240V a.c.		XE = 30A				
			XX = 30A				

* A Catalytic converter is fitted to Mealstream 403 models only

MANUAL CONTROLS (RD401 models)

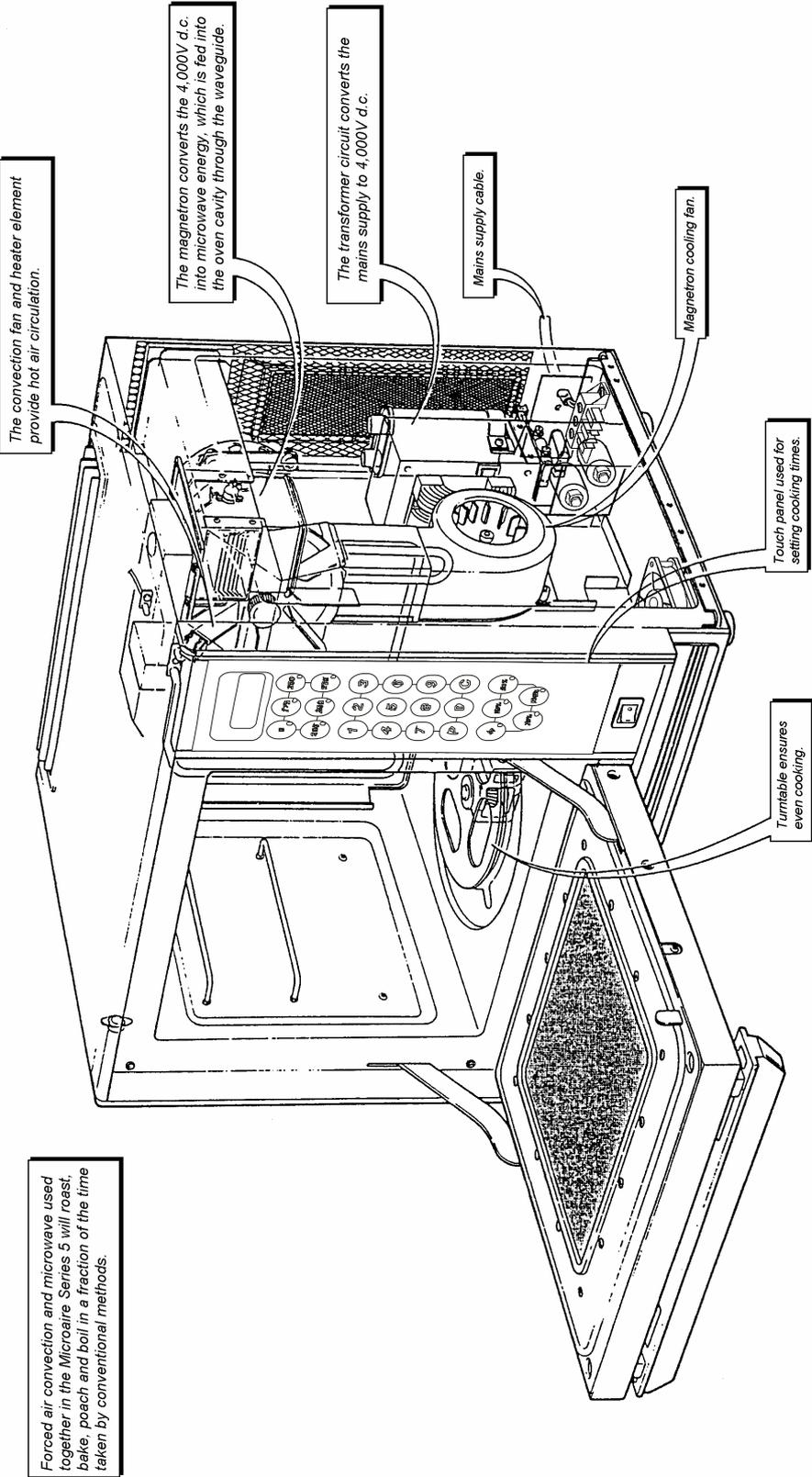
Model N°: RMC1003 + Voltage + Frequency + Current

Model prefix	Voltage	Frequency	Current
RMC1003	2 = 220-230V a.c. 4 = 230-240V a.c.	5 = 50 Hz 6 = 60 Hz	CD2 = 13amp XD2 = 30amp

Power Requirements		See RATING PLATE on rear of oven
Power Output (IEC 705)	Microwave 100% Convection Combination	700W (_EE, _XE) 3000W (_XX5) 700W + 1500W (_EE) 700W + 3000W (_XE) 1000W + 3000W (_XX5)
External Dimensions	Height Width Depth	530 mm (Plus 150 mm minimum clearance above) 550 mm (Plus 50 mm minimum clearance each side) 575 mm (Plus 50 mm clearance behind)
Internal Dimensions	Height Width Depth Turntable Capacity	315 mm 330 mm 330 mm 300 mm Diameter 34.3 litres
Weight	Nett Gross packed	All models except XX5 45kg, XX5 55kg All models except XX5 58kg, XX5 68kg
Construction	Cavity Casework	Vitreous Enamel Coated Steel 304 Stainless Steel Anodised Aluminium Extrusions
Settings	Microwave Temperature Timer	100%,75%,50%,25%, Convection only Off, 175°C, 200°C, 225°C, 250°C, 275°C Up to 30 minutes Up to 3 cooking stages of up to 30 minutes each (Programmed)

Principles of operation

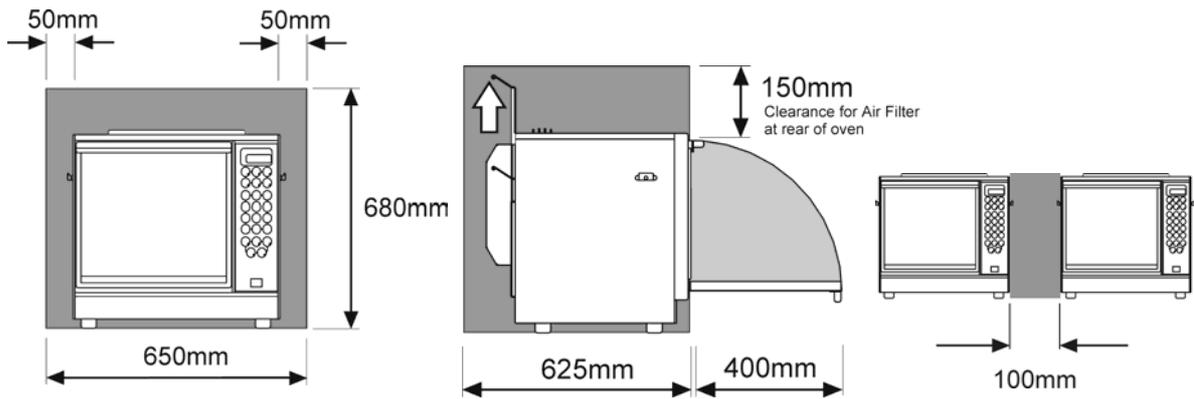
Principles of Operation



Installation instructions

Positioning the Oven

In order to maintain adequate ventilation for air intake and exhaust, and to allow access for cleaning the air filters, you must allow a minimum of 50mm clearance at the sides and rear of the oven, and at least 150mm above. Air intake temperature should not exceed 35°C. Excessive temperature will lead to reduced operating duty cycle or premature ageing of internal components.



NEVER Install an oven above fryers, grills, griddles or any other major heat source.

NEVER Stack machines on top of each other - always use a double stand.

ALWAYS Place containers in the cavity carefully - impact damage may chip the vitreous enamel coating.

Electrical installation:

WARNING: This appliance must be earthed.

Failure to do so may result in electric shock and death

WARNING



All models (30A) must be connected to a separate electrical supply rated at 30 Amps by a qualified and approved electrician. A suitable 30 amp rated isolating switch with a 3mm contact gap on both poles should be fitted for each oven installed.

Establishments with standard (Type 'B') circuit breakers are sensitive to 'surges' which occur on switching on freezers, refrigerators and other catering equipment, including microwave ovens. Because of this, we strongly recommend that a separate Type 'C' circuit breaker (designed specifically for this type of equipment) must be fitted. An individual, suitably rated circuit breaker should be fitted for each oven installed.

Models RMC1003__EE5, RMC1003__CD2

The power outlet used must be individually fused. It is essential that the socket is properly installed and earthed. It should be fed from a circuit which is suitable for high power electrical appliances and it is important that this circuit is not overloaded.

Where an approved and fitted moulded plug is supplied we strongly recommend that this plug is never removed.

However certain establishments may require a different plug to be fitted. In this case, the wiring instructions shown should be observed.

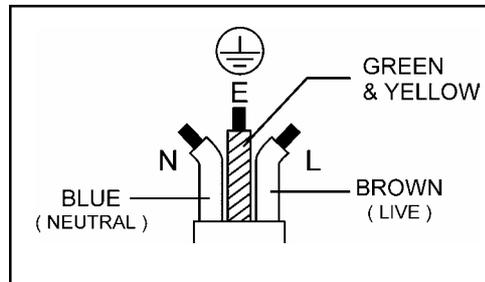


Diagram 1

Models RMC1003__XE5, RMC1003__XD, RMC1003__XX5

When supplied, single phase models are fitted with a Blue 32Amp Plug approved to BS4343. Wiring cable colours as shown in Diagram 1

The Circuit Breaker should be rated at 45A (TypeC).

TWIN PHASE

Models RMC1003__XE52, RMC1003__XX52

The Mealstream 401 oven Twin Phase models should be connected as shown in Diagram 2.

The Circuit Breaker should be rated at 20A per phase (TypeC).

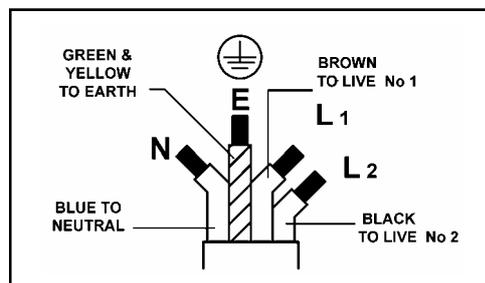
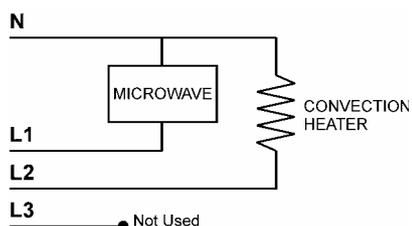


Diagram 2

Simplified loading Diagram

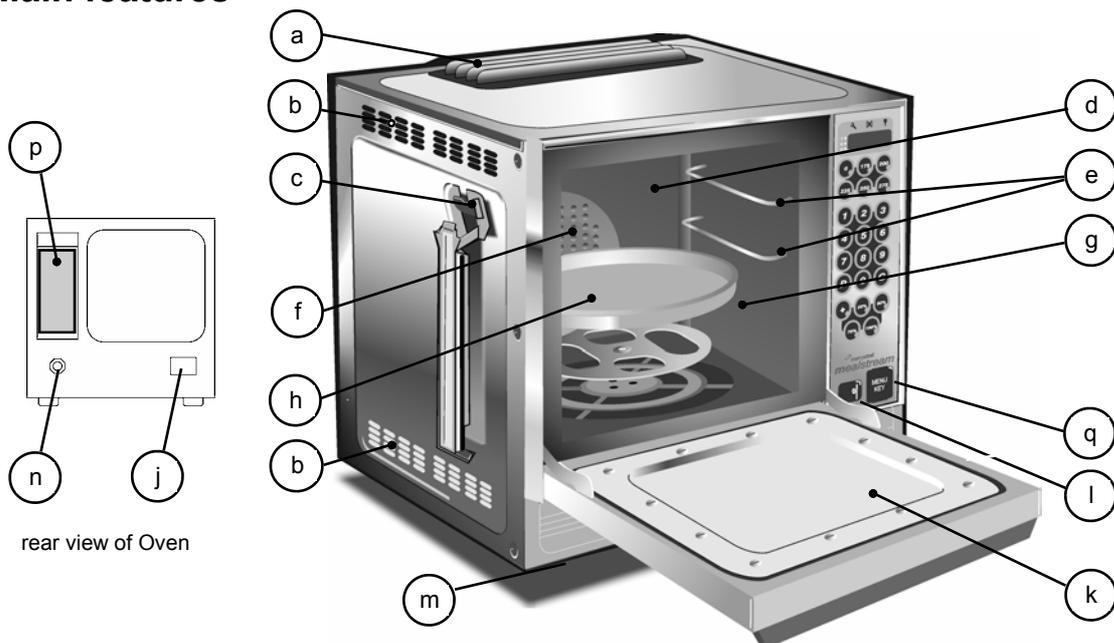


Error codes and diagnostics

The control panel will identify some of the most common problems by flashing an error message code in the time display window.

Error Message		Possible Cause	Service
	1 2	1 Door not fully shut 2 Possible electrical fault	Close door fully. Check Microswitch Door Circuit Check Microswitch Connection to PCB Check Ribbon Cable Check Relay PCB & Logic PCB
	1 2 3 4 5	1 No time has been set 2 Invalid time has been set 3 Invalid program has been set 4 Number pad failure 5 Memory Failure running a Program	Set a time Set a valid time Use call-back to check program (Menukey: no key downloaded) Membrane key short circuit Re-Program Pad, if fault repeats replace Logic PCB
	1	1 Oven is not at correct temperature to start program Operator Error !!	Allow oven to reach correct Programmed temperature
	1	1 Magnetron overheating	Check that magnetron cooling fan is working correctly Check air filters Check location and air inlet temperature Note : this will lead to condition shown below
	1 2	1 Magnetron has overheated but has now recovered 2 Internal diagnostic fault	Check that magnetron cooling fan and turntable are working correctly Check installation, air inlet temperature and air filters
	1	1 Oven control area is overheating	Check air filters. Check axial fan Check installation for hot air intake
		MenuKey removed before the download is complete or the process has been interrupted	Switch oven off and begin the MenuKey download again

Main features



a STEAM OUTLET

Allows steam and excess pressure to escape from the oven cavity. It must be kept clear.

b AIR OUTLET

Warm air is vented here. It must be kept clear.

c TRAY HANDLE RESTS

There is one on each side of the oven for convenient storage of the tray handle.

d BAFFLE PLATE

Forms the inside rear of the oven and covers the hot air circulation fan. Removable for cleaning by unscrewing the four wing nuts which hold it in place. This must be cleaned on a regular basis, and kept free of debris.

BAFFLE PLATE & CATALYTIC CONVERTOR (EC403 model only)

Allows extraction free cooking. Should be removed regularly for cleaning. (Do not spray/put caustic cleaner directly into the catalytic converter as this will cause permanent damage)

e RUNNERS

These mounted on each side of the oven cavity to support the rectangular racks or oven trays, and are for use in **Convection mode only**.

f HOT AIR FAN

Situated behind the baffle plate, and circulates the hot air through the baffle plate, over the heating element, and around the edge of the baffle plate back into the cavity.

g OVEN CAVITY

The oven cavity is mainly constructed from vitreous enamelled steel panels. It must be kept clean.

h TURNTABLE TRAY

The vitreous enamelled turntable tray fits onto the turntable disc in the bottom of the oven cavity, and rotates during cooking to ensure an even distribution of microwave energy.

i AIR INLETS

Additional air inlets are situated along the lower edge of the left-hand side panel, and must not be obstructed.

j RATING PLATE

The rating plate is situated on the rear of the oven, and states the Model, Serial Number, Electrical Ratings and Manufacturers Tel no.

k DOOR

The door consists of a thermally insulated inner section, and an additional air gap provided by a twin skinned door front to lower the surface temperature.

l ON/OFF SWITCH

This is used to turn the oven On or Off.

IT DOES NOT ISOLATE INTERNAL WIRING FROM THE ELECTRICAL SUPPLY.

m FEET

These feet are fitted to ensure adequate airflow under the oven. They must not be removed.

n ELECTRICAL SUPPLY LEAD

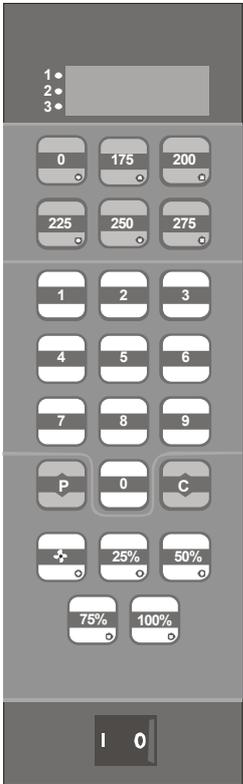
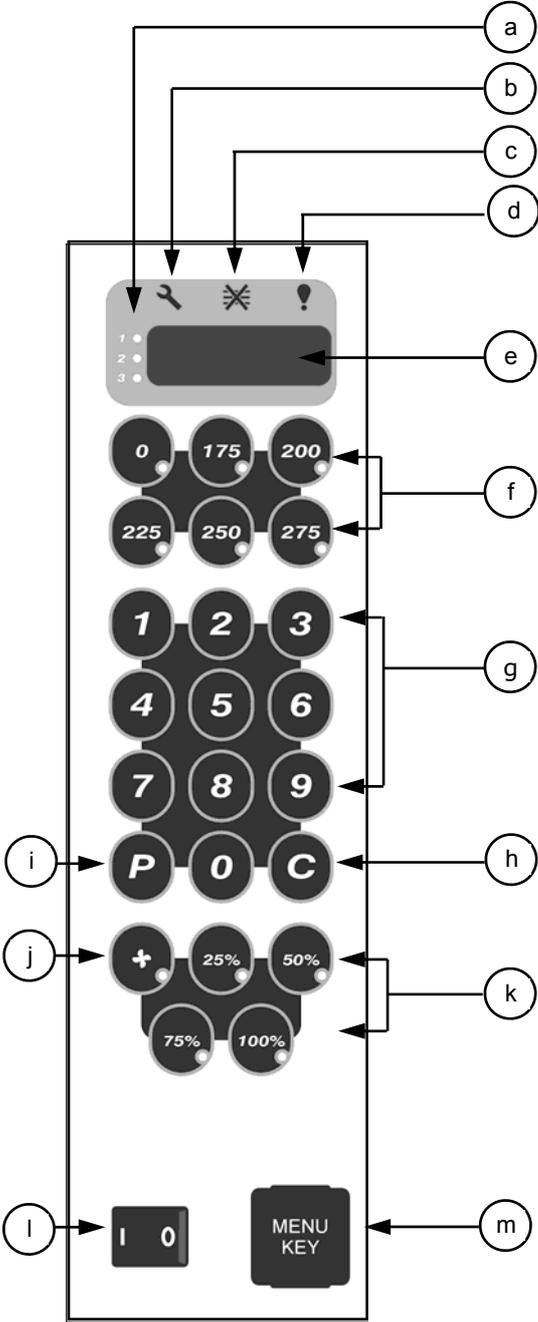
p AIR FILTER

Main intake for cooling air for internal components. Must be clear of obstructions.

q MenuKey

Electronic controls: Mealstream EC401, EC403

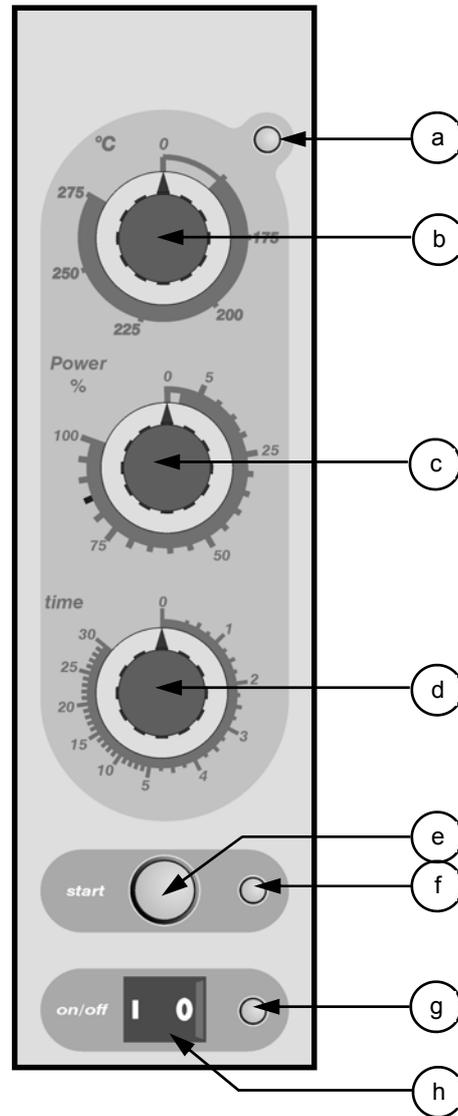
a	Stage LED's
b	Service Indicator
c	Air Filter Block Indicator
d	Operator error indicator
e	Program Display
f	Temperature Set Pads
g	Time / Program Number Pads
h	Cancel/ Callback Pad
i	Program Pad
j	Convection Pad
k	Microwave power Pads
l	On/Off switch
m	MenuKey socket



Starbucks model

Manual controls: Mealstream RD401

a	Temperature Amber Neon
b	Temperature Control
c	Microwave Power Control
d	Timer
e	Start Pushbutton
f	Cook cycle Red Neon
g	Power Amber Neon
h	On/Off switch



Procedure A - Power Output Test

In accordance with BS EN 60335-2-90

This test is given in the BSI test standard for microwave ovens. It is reproduced below - not so that you can follow it, but to show you why it is impractical in normal conditions. A simplified procedure, which gives a good approximation to the BSI power output, is given in Procedure B which follows.

Note: This test can only be carried out on a **COLD** oven. If the oven has been operating, even for only a few seconds, the power given will be lower than the oven rating. This test must also be carried out at a stable voltage - the voltage in most kitchens varies considerably even within the period of the test. If the oven has been operating, go to **Procedure B**.

You will need:

- A thermometer capable of reading to $\pm 0.1^{\circ}\text{C}$.
- A cylindrical borosilicate glass container, 190 mm diameter, with a wall thickness of 3 mm or less.
- A calculator.
- A set of scales capable of reading 1 kg to an accuracy of ± 1 g.
- A glass or plastic stirrer.
- A jug capable of holding over 1 litre of water.
- Drinkable water which is at a temperature of $10^{\circ}\text{C} \pm 1^{\circ}\text{C}$.
- A "Variac" or similar variable transformer capable of supplying the oven to ensure a stable voltage.

WARNING: *The Borosilicate Glass container has thin walls and is therefore fragile - take care not to break it during use.*

Method

A cylindrical container of borosilicate glass is used for the test. It has a maximum thickness of 3mm, an external diameter of approximately 190mm and a height of approximately 90mm. The mass of the container is determined.

At the start of the test, the oven and the empty container are at ambient temperature. Potable water having an initial temperature of $10^{\circ}\text{C} \pm 1^{\circ}\text{C}$ is used for the test. The temperature of the water is measured immediately before it is poured into the container.

A quantity of $1000\text{g} \pm 5\text{g}$ of water is added to the container and its actual mass obtained. The container is then immediately placed in the middle of the oven on the turntable. The appliance is supplied at rated voltage and operated at the maximum power setting. The time for the water temperature to attain $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$ is measured. The oven is then switched off and the final water temperature is measured within 60seconds.

NOTES

- 1 The water is stirred before its temperature is measured.
- 2 Stirring and measuring devices are to have a low heat capacity.

The microwave power output is calculated from the formula:

$$P = \frac{4.187 M_W (T_2 - T_1) + 0.55 M_C (T_2 - T_0)}{t}$$

where

- P is the microwave power output, in watts;
- M_W is the mass of the water, in grams;
- M_C is the mass of the container, in grams;
- T_0 is the ambient temperature, in $^{\circ}\text{C}$;
- T_1 is the initial temperature of the water, in $^{\circ}\text{C}$;
- T_2 is the final temperature of the water, in $^{\circ}\text{C}$;
- t is the heating time in seconds, excluding the magnetron filament heat-up time.

Procedure B - Simplified Power Output Test

You will need:

- A thermometer capable of reading to $\pm 0.1^{\circ}\text{C}$.
- A Polypropylene tray approximately 200 mm x 200 mm.
- A measuring jug.
- A calculator.
- Water which is at a temperature of $10^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

- 1 Measure 1 litre of cold water into the tray using the measuring jug.
- 2 Measure the water temperature, and record it as T[s].
- 3 Place the tray on the turntable in the oven and close the door.
- 4 Turn the oven on.
- 5 Set the timer to 1:02. (For Manual controls use a stopwatch set to 1 minute 2 seconds)
- 6 Press the "100%" power pad.
- 7 When the oven beeps, open the door and remove the tray.
- 8 Stir the water thoroughly, and measure its temperature. Record this as T[e].

Calculation:

- 1 $T[r] = T[e] - T[s]$.
- 2 Power = $70 \times T[r]$. Power is in Watts.

The power given by the above test should be within $\pm 10\%$ of the rated power.

Procedure C - Power Transformer Test

You will need:

- A Digital Multi-meter (D.M.M.)
- A Megger or similar resistance meter using 500V d.c.
 - 1 Isolate the oven from the mains supply.

WARNING: *High voltages and large currents are present at the secondary winding and filament winding of the Power Transformer. It is very dangerous to work near this part when the oven is on. NEVER make any voltage measurements at the High Voltage circuits, including the magnetron filament.*

WARNING: *Even when the oven is not cooking, the Power Transformer has High Voltages present because of the Soft Start circuit. Isolate the oven before testing.*

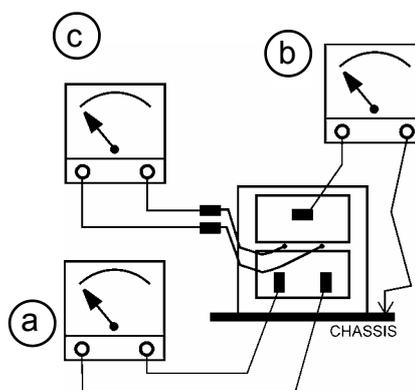
- 2 Ensure that the High Voltage Capacitor is discharged before commencing work.
- 3 Remove all connections from the Power Transformer.
- 4 Using a D.M.M., check the continuity of the windings. Results should be as follows:

a	Mains winding between tags	Approx. 1.3Ω
b	High Voltage winding	Approx. 50-100 Ω
c	Filament winding between terminals	Less than 1 Ω

- 5 Using a Megger, test the insulation resistance between:

Primary winding and chassis	Pass if over 10 M Ω
Filament winding and chassis	Pass if over 10 M Ω

One end of the High Voltage winding is connected to the chassis, so this is not tested.



Procedure D - High Voltage Capacitor Test

You will need: A Digital Multi-meter (D.M.M.)
A Megger or similar resistance meter using 500V d.c.

WARNING: High voltages and large currents are present at the High Voltage Capacitor. It is very dangerous to work near this part when the oven is on. **NEVER** make any voltage measurements at the High Voltage circuits, including the magnetron filament .

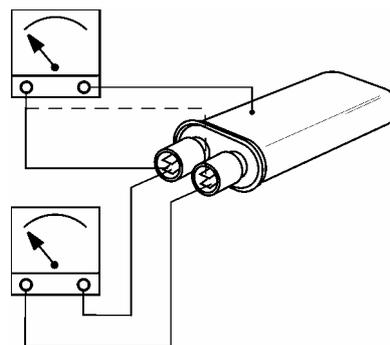
WARNING: Even when the oven is not cooking, the High Voltage Capacitor has High Voltages present because of the Soft Start circuit. Isolate the oven before testing.

1. Isolate the oven from the mains supply.
2. Ensure that the High Voltage Capacitor is discharged before commencing work.
3. Remove all connections from the High Voltage Capacitor.
4. Using a D.M.M., check for continuity between the terminals &

Between Terminals	Pass if approximately 10 MΩ
Between Terminals and Case	Pass if open circuit

5. Using a Megger, test the insulation resistance between the terminals and the case.

Between Terminals and Case	Pass if over 100 MΩ
----------------------------	---------------------



Procedure E - High Voltage Rectifier Test

You will need:

A Megger or similar resistance meter using 500V d.c.

WARNING: High voltages and large currents are present at the High Voltage Rectifier. It is very dangerous to work near this part when the oven is on. **NEVER** make any voltage measurements at the High Voltage circuits, including the magnetron filament .

WARNING: Even when the oven is not cooking, the High Voltage Rectifier has High Voltages present because of the Soft Start circuit. Isolate the oven before testing.

1. Isolate the oven from the mains supply.
2. Ensure that the High Voltage Capacitor is discharged before commencing work.
3. Remove all connections from the High Voltage Rectifier.
4. Using the Megger, test for continuity in both directions. Compare results with the table.

Open Circuit both ways	FAIL
Conducts one way only	PASS
Short Circuit both ways	FAIL
Conducts one way, leaks the other	FAIL

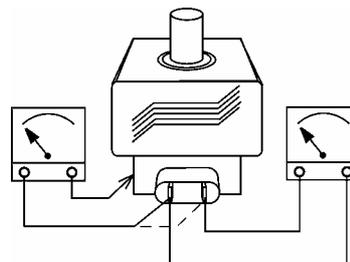
Procedure F - Magnetron Test

You will need:

A Megger or similar resistance meter using 500V d.c.

A Magnetron can be tested for an open filament or a short circuit by carrying out a continuity check.

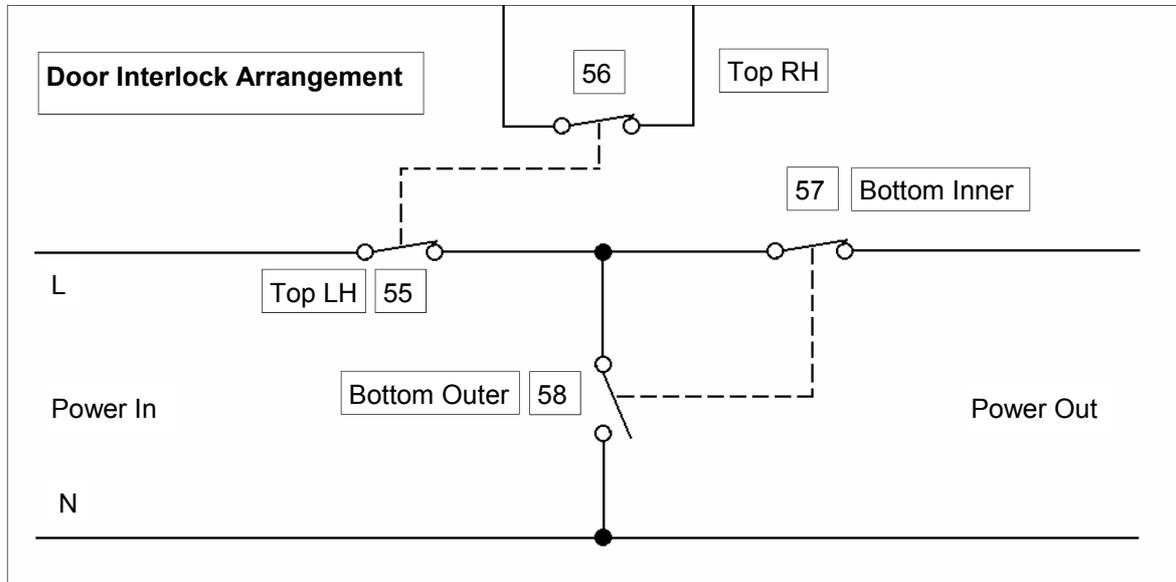
1. Isolate the oven from the mains supply.
2. Ensure that the High Voltage Capacitor is discharged before commencing work.
3. Remove all connections from the Magnetron.
4. A continuity check across the Filament terminals should be 1ohm or less
5. A continuity check between each filament terminal and the metal outer should read open.



Door interlock operation

The door on the oven is monitored by four microswitches. Three of these are used in the conventional “Primary, Secondary and Monitor” switch arrangement shown below, while the fourth is a low-voltage switch linked directly to the control circuitry.

The switches operate as follows:



1. Primary Interlock [55 , Top Left-Hand] and Low voltage [56 , Top Right-Hand] Switches

Operate simultaneously. Either will cut off the microwave emissions from the oven when the door is opened: the Primary switch by breaking the mains supply circuit to the transformers, and the Low-Voltage switch by breaking the relay circuit on the Power / Relay PCB.

2. Monitor [58 , Bottom Outer] and Secondary Interlock [57 , Bottom Inner] Switches.

Operate simultaneously. The Monitor switch will produce a short circuit across the mains supply if the Primary interlock switch is faulty, thus blowing the microwave fuse and rendering the oven inoperative. The Secondary interlock switch will cut off the microwave emission if all three of the other switches have failed.

Note: If operation of the Monitor switch has caused the Microwave Fuse to blow, the Primary and Monitor microswitches must be changed, as they may have been damaged by the high short-circuit currents involved.

Error Light Operation

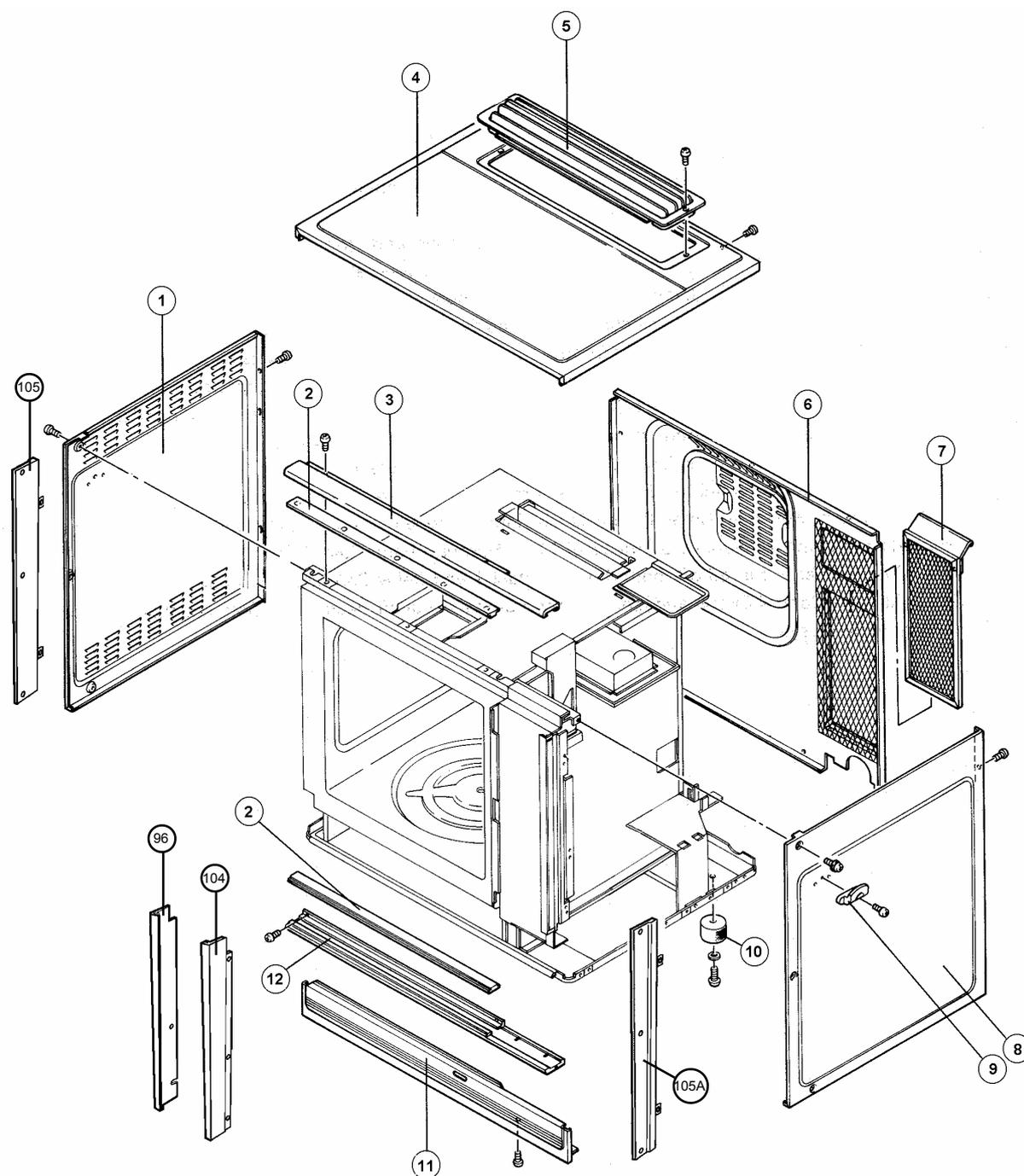
The “Air Filter Blocked” light and “Service” light are triggered by the internal circuitry. If the magnetron overheats, the error code “E:7” is displayed on the front panel, and both the “Air Filter Blocked” and the “Service” indicators will light. Once the magnetron has cooled sufficiently to allow the oven to restart, the “Service” light will remain illuminated until the oven is turned off.

This fault may have been triggered by one of the following causes:

- Air inlet on rear of machine being obstructed.
- High air inlet temperature.
- Slow running cooling fan, jammed turntable or broken gearbox (cooling fan also drives turntable).
- Faulty magnetron overheat 'stat or associated wiring.

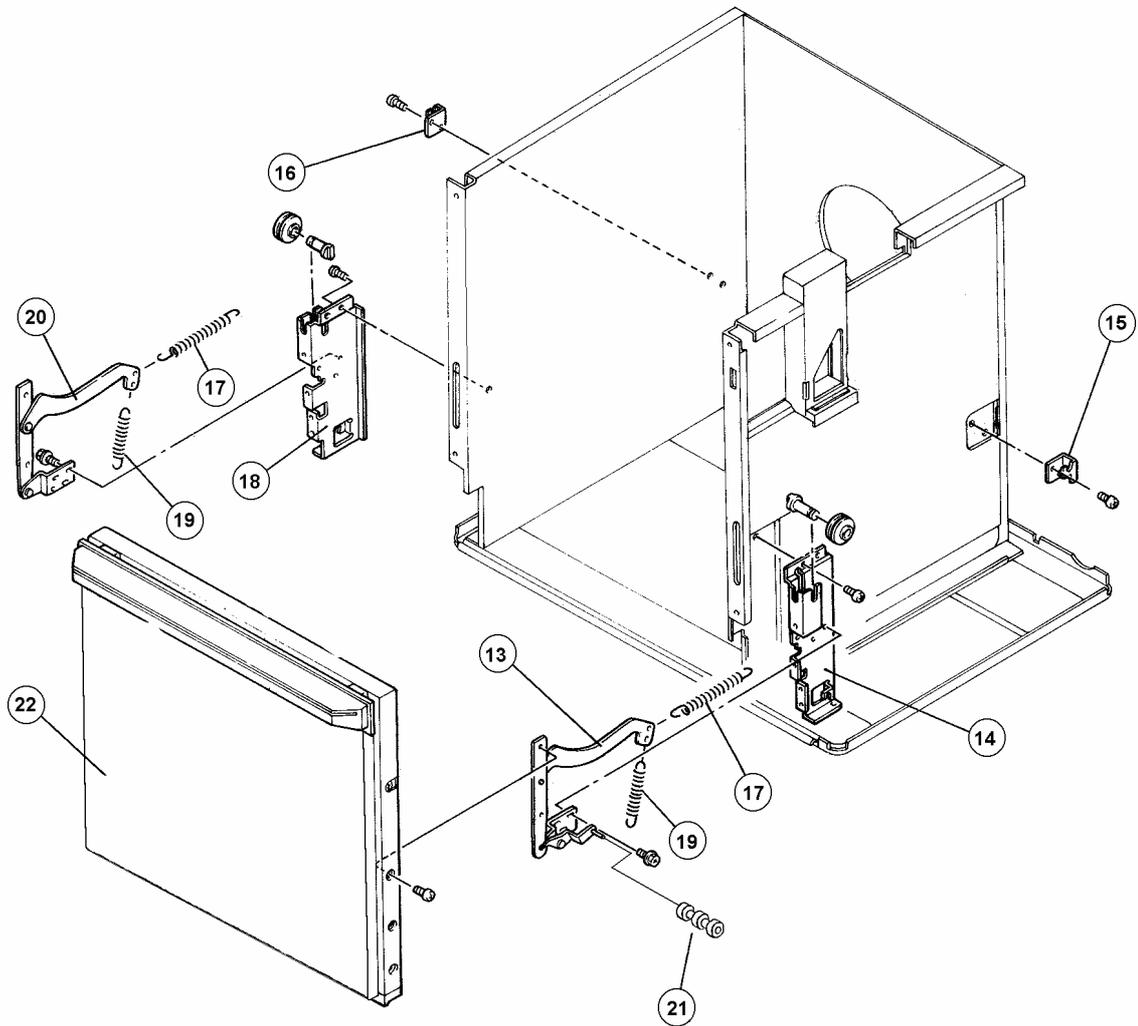
Note that the customer may not have noticed that the oven displayed “E:7”, and so the reported fault may be misleading.

Principal components: casework



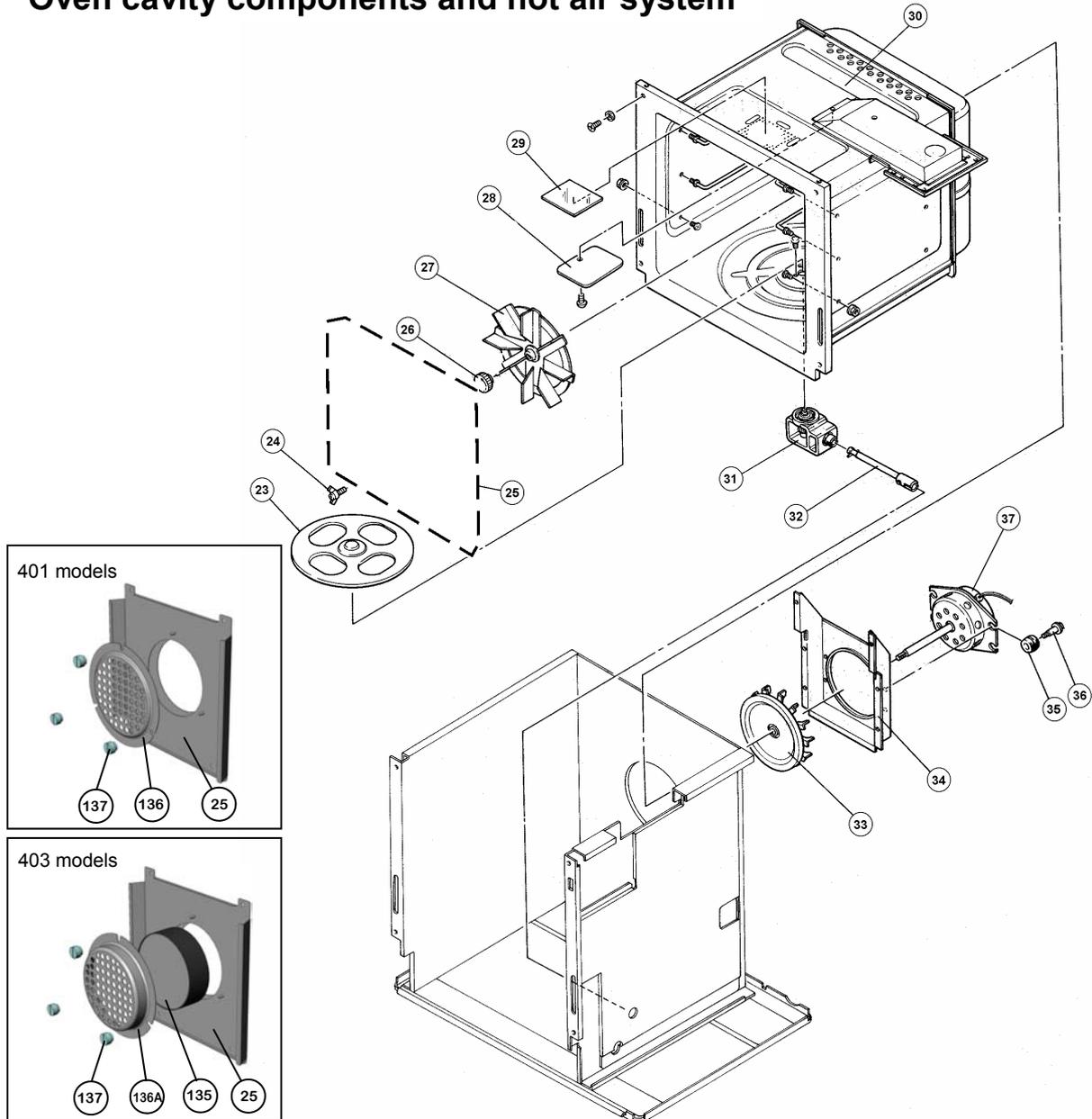
1	Side Panel (L/H)	MC3134	9	Handle Hanger	RCK6319
2	Ferrite	RMC6773	10	Rubber Foot	RMC6104
3	Upper Trim	MC3120X01	11	Front Lower Panel	MC3047
4	Top Plate	RMC6759E	12	Lower Trim	MC3122
5	Exhaust Gallery	RMC73372	96	PCB Retainer LH	40H0083
6	Rear Panel	MC3129	104	PCB Retainer RH	40H0084
7	Air Filter	MC3155	105	Side Trim LH	MC31211
8	Side Panel (R/H)	MC3133	105A	Side Trim RH	MC31212

Door mechanism



13	Door Stay (R/H)	MC3040
14	Hinge Body	MC30121X02
15	Hook (A)	RMC66171
16	Hook (B)	RMC66172
17	Door Spring (B)	MC3068X01
18	Hinge Body (L/H)	MC30122X01
19	Door Spring (A)	MC3067
20	Door Stay (L/H)	MC3046
21	Microswitch Guide	40H0076
22	Solid Door Assy Black	11H0071
22	Solid Door Assy Silver	MC3230X02

Oven cavity components and hot air system

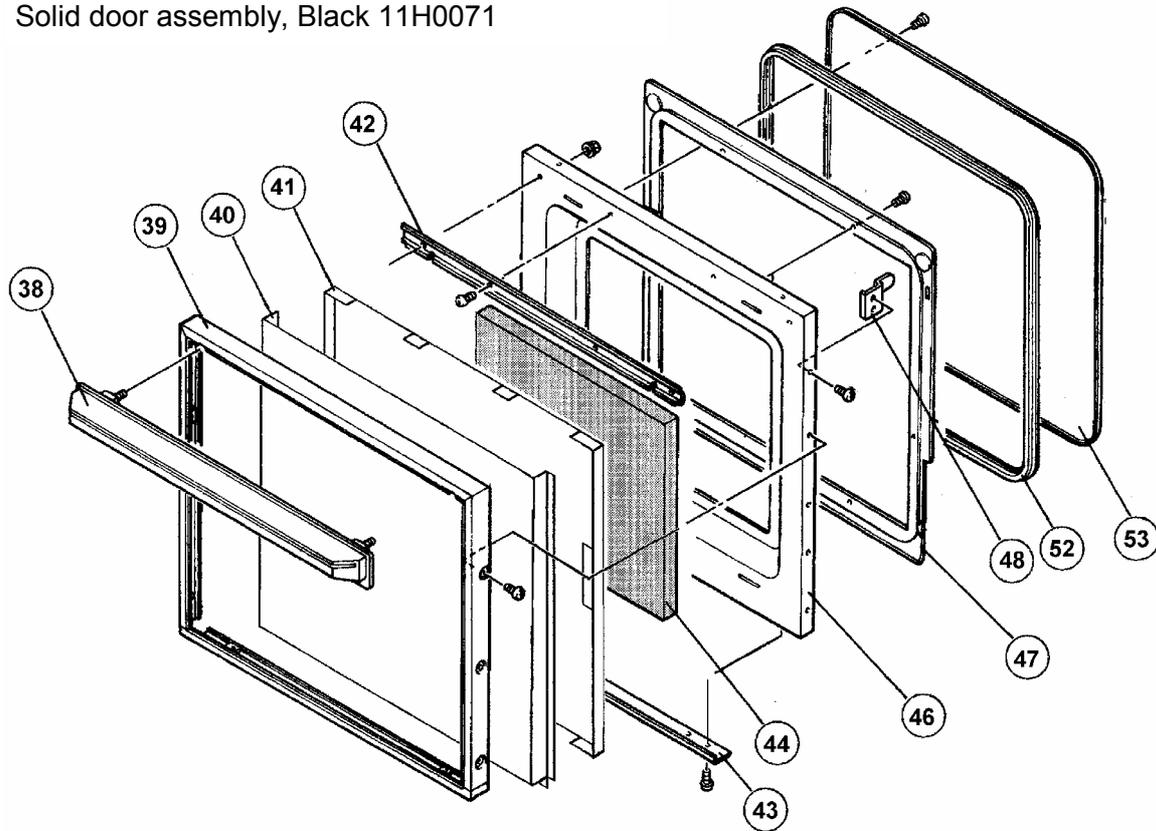


23	Turntable Disc	RMC7340X01	34	Motor Bracket	RMC7307X01
24	Baffle Plate Bolt	CP30326	35	Cushion Rubber	RCK8273
25	Baffle Plate	MC3018	36	Motor Fixing Screw	CP30310
26	Fan Fixing Cap	RCK7617	37	Hot Air Motor	MC3110
27	Fan	MC3111			
28	Partition Plate	11H0007			
29	Cavity Sealing Glass	RMC7043	135	Catalytic Converter	31Z1245
30	Oven Body	MC3013	136	Cat. Cover	40H0221
31	Gearbox	MC3216	136A	Vent Plate	40H0236
32	Shaft	RMC7391X01	137	Thumb nut	31Z4031
33	Cooling Fan	RMC7310			

Oven door assembly

Solid door assembly, Silver MC3230X02

Solid door assembly, Black 11H0071

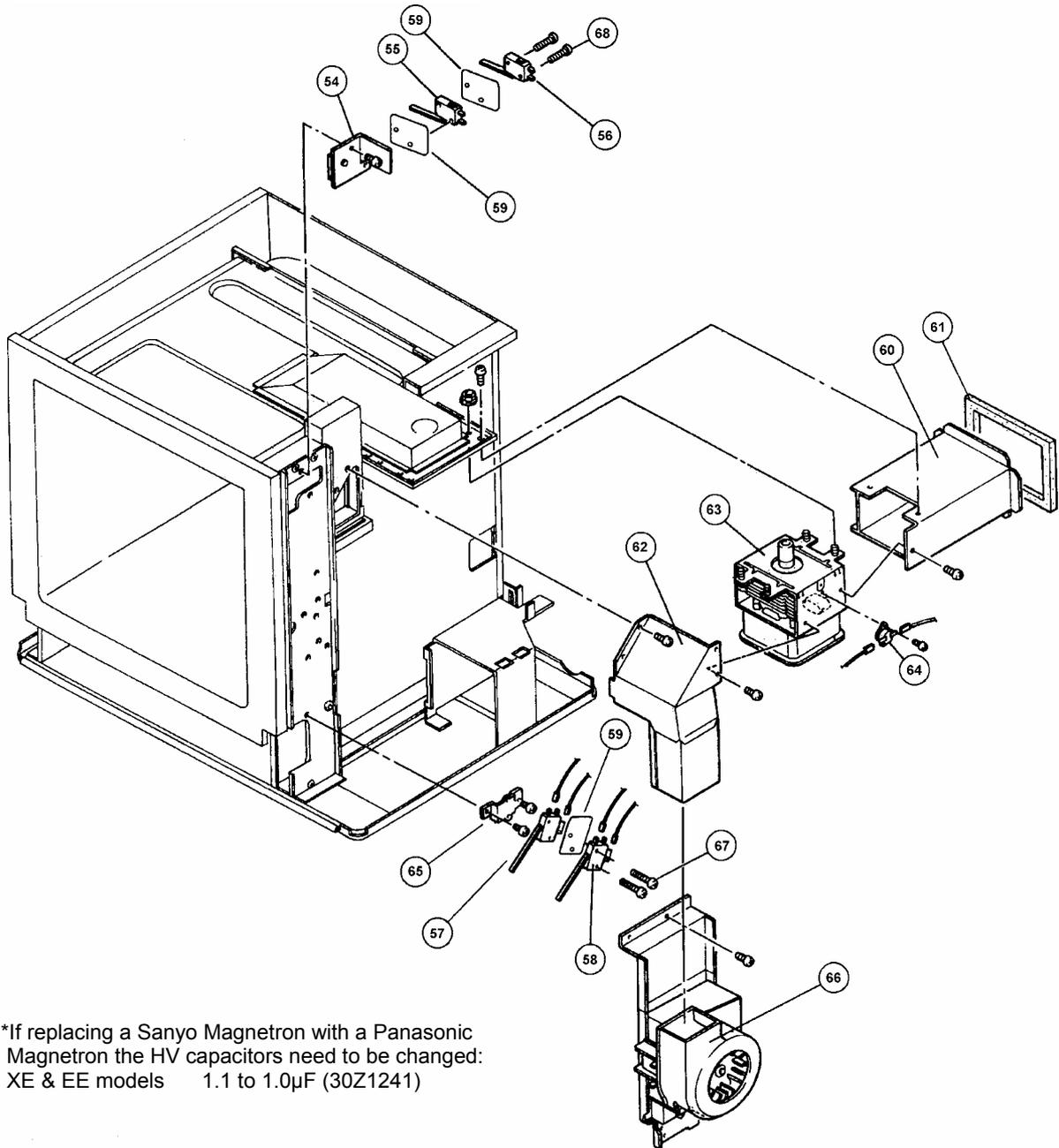


22	Solid Door Assy. Silver	11H0031
22	Solid Door Assy Black	11H0071
38	Door Handle Silver	RBR1285048
39	Door Frame (A) Black	MC30503
40	Door Cover Outer Silver	40H0080
40	Door Cover Outer Black	40H0082
41	Inner Panel	40H0081
42	Door Reinforcement	RMC70722
43	Door Frame (B)	MC3055
44	Insulation Wrap	32Z0001
46	Door Base Silver	MC3031KX04
47	Door Cover	MC3064
48	Plate - Door Switch	MC3056
52	Packing (B)	MC3065
53	Door Rear Plate	MC3066X01

Magnetron and door interlock components

Model RMC1003__EE5

Model RMC1003__XE5

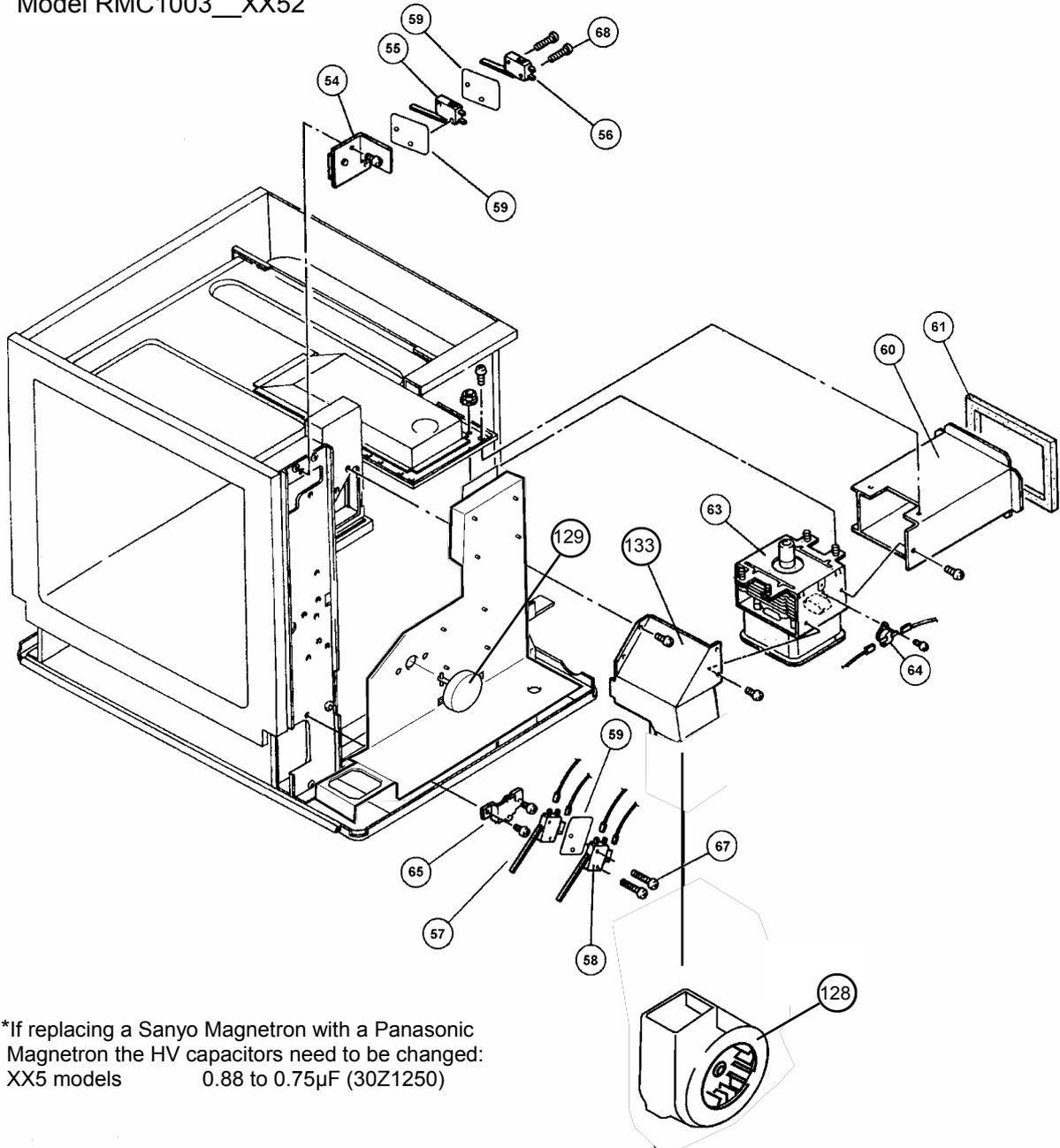


*If replacing a Sanyo Magnetron with a Panasonic Magnetron the HV capacitors need to be changed:
XE & EE models 1.1 to 1.0 μ F (30Z1241)

54	Door Switch Bracket	40H0023	62	Inlet Duct	RMC7193X01
55	Primary Microswitch	30Z0240	63	*Magnetron	30Z1171
56	Low Voltage Microswitch	30Z0240	64	Magnetron Cut-out	30Z0088
57	Secondary Microswitch	30Z0240	65	Switch Bracket	RMC7101X01
58	Monitor Microswitch	30Z0240	66	Blower Assembly	MC3141
59	Microswitch Insulator	31Z0115	67	M3 x 25 Pan Head Pozi	31Z3093
60	Outlet Duct	MC3037	68	M3 x 30 Pan Head Pozi	31Z3118
61	Foam Tape	31Z0042			

Magnetron and door interlock components

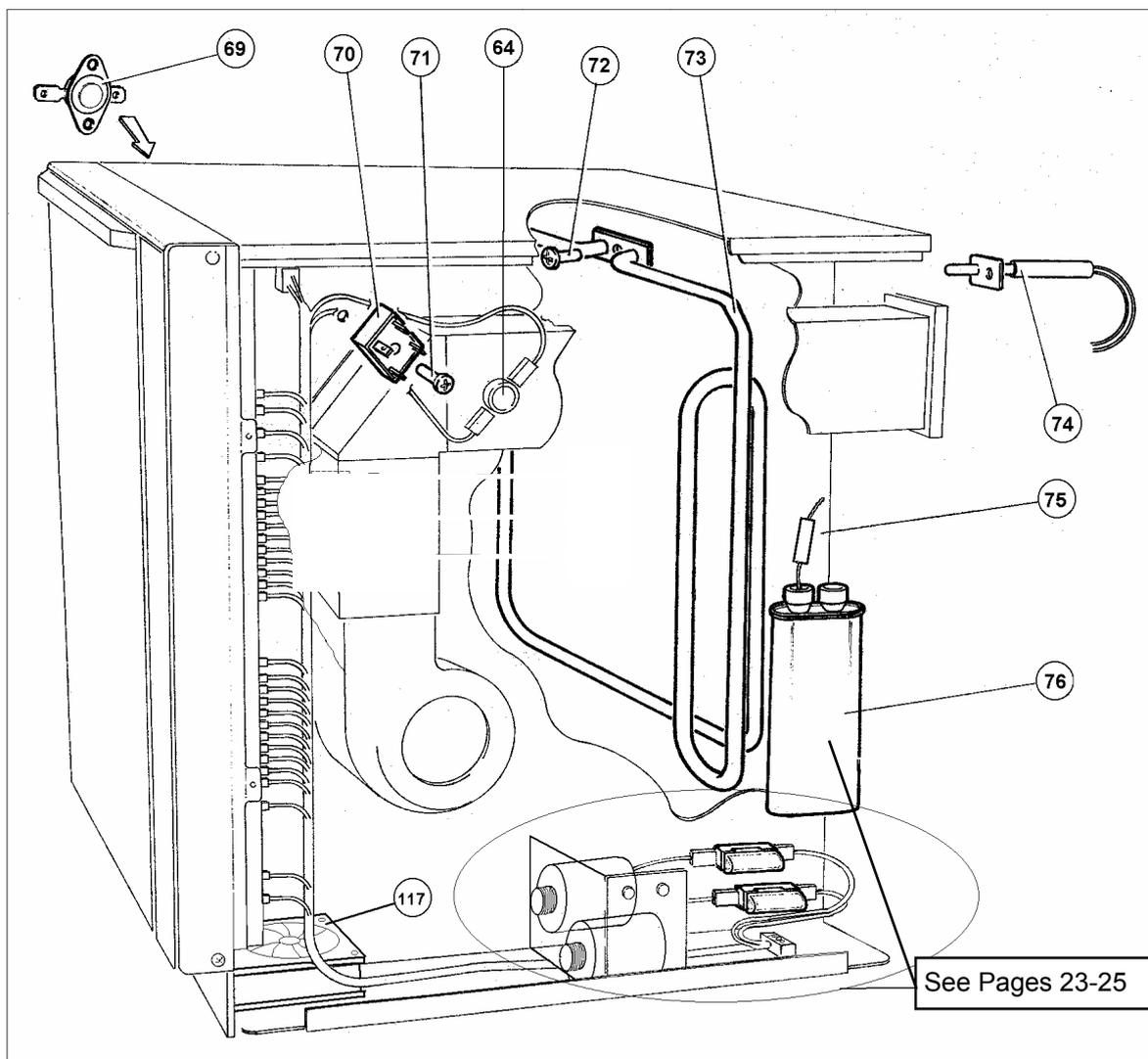
Model RMC1003__XX5
Model RMC1003__XX52



*If replacing a Sanyo Magnetron with a Panasonic Magnetron the HV capacitors need to be changed:
XX5 models 0.88 to 0.75 μ F (30Z1250)

54	Door Switch Bracket	40H0023	64	Magnetron Cut-out	30Z0088
55	Primary Microswitch	30Z0240	65	Switch Bracket	RMC7101X01
56	Low Voltage Microswitch	30Z0240	67	M3 x 25 Pan Head Pozi	31Z3093
57	Secondary Microswitch	30Z0240	68	M3 x 30 Pan Head Pozi	31Z3118
58	Monitor Microswitch	30Z0240	128	Cooling Fan 230V 50Hz	30Z1128
59	Microswitch Insulator	31Z0115	128	Cooling Fan 230V 60Hz	30Z1190
60	Outlet Duct	MC3037	129	Turntable Motor	RMC5055EX
61	Foam Tape	31Z0042	133	Inlet Duct	40H0176
63	*Magnetron	30Z1171			

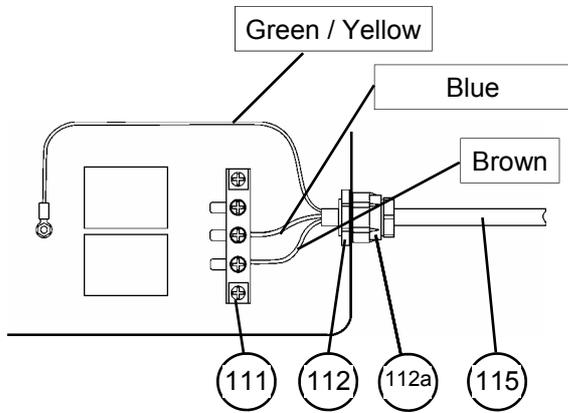
Major electrical components



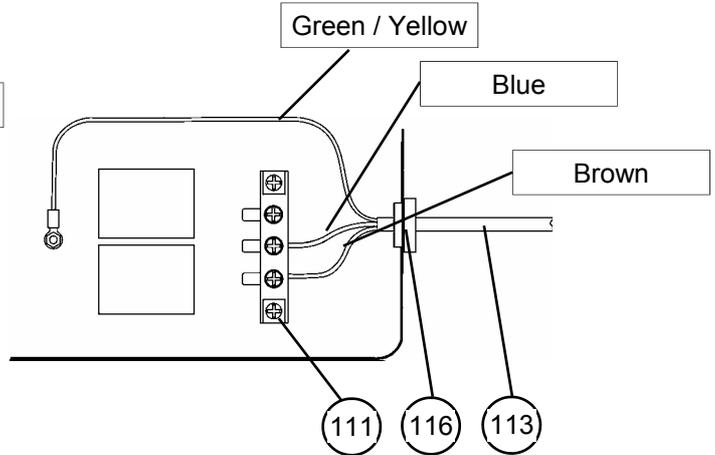
64	Magnetron Overheat Switch	30Z0088	74	Temperature Sensor	50E123
69	Cavity Overheat Switch	30Z1031	75	HV Diode Assembly	11H0010
70	Bridge Rectifier (_EE only)	341520	117	Axial Fan, 80mm	310010
71	No. 8 Screw	31Z3107			
72	M5 Screw	101825			
73	Heating Element 220V	40H0077			
73	Heating Element 240V	40H0009			

Input wiring, filters and fuses

Model RMC1003__XE5, XD



Model RMC1003__EE5, CD2

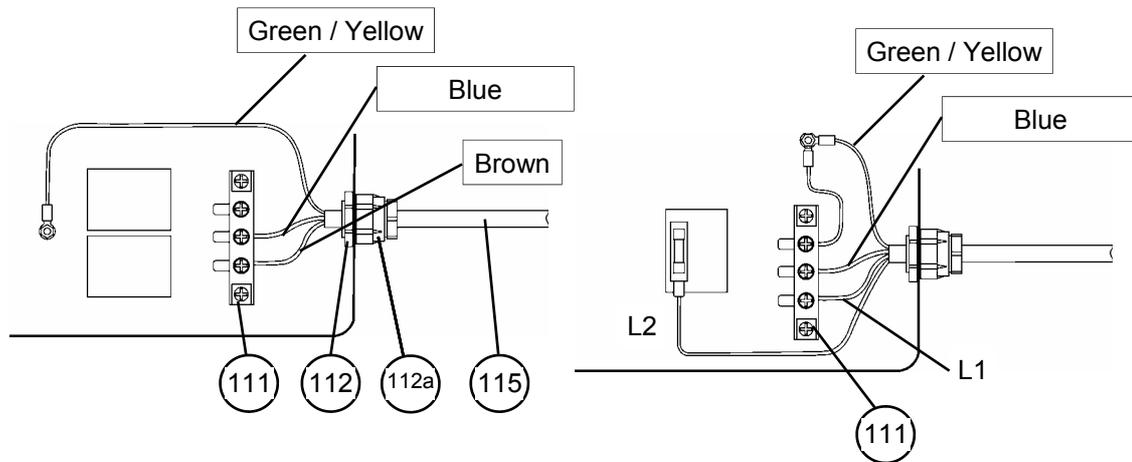


111	Mains Input Block	31Z0328
112	Cable Gland	31Z1070
112A	Cable Gland Nut	31Z1082
113	Input Cable Assembly	31Z0220
115	XE5 Input Cable Assembly	302030
116	Strain Relief Grommet	31Z1036

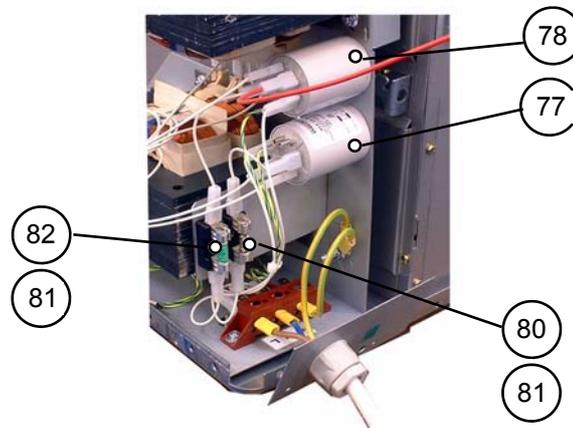


77	Microwave Mains Filter 16A	30Z0997
78	Heater Mains Filter 16A	30Z0997
79	Fuse Cover	20Z1080
80	Fuse 10A HRC	30Z0217
81	Fuse Holder 1"	30Z0231
82	Fuse 13A	30Z0456

Input wiring details: Model RMC1003__XX5, XX52

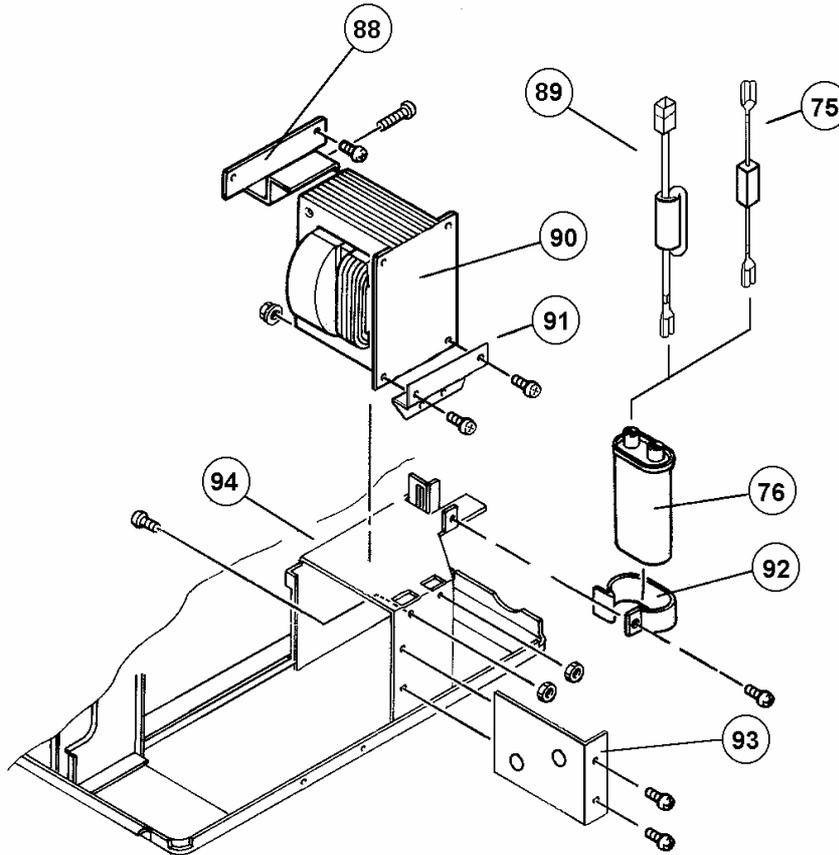


111	Mains Input Block	31Z0328
112	Cable Gland	31Z1070
112A	Cable Gland Nut	31Z1082
113	Input Cable Assembly	31Z0220
	XX5 Input Cable Assembly	
116	Strain Relief Grommet	31Z1036



77	Microwave Mains Filter 16A	30Z0997
78	Heater Mains Filter 16A	30Z0997
80	Fuse 10A HRC	30Z0217
81	Fuse Holder 1"	30Z0231
82	Fuse 13A	30Z0456

HT Components: RMC1003__EE5/ XE5



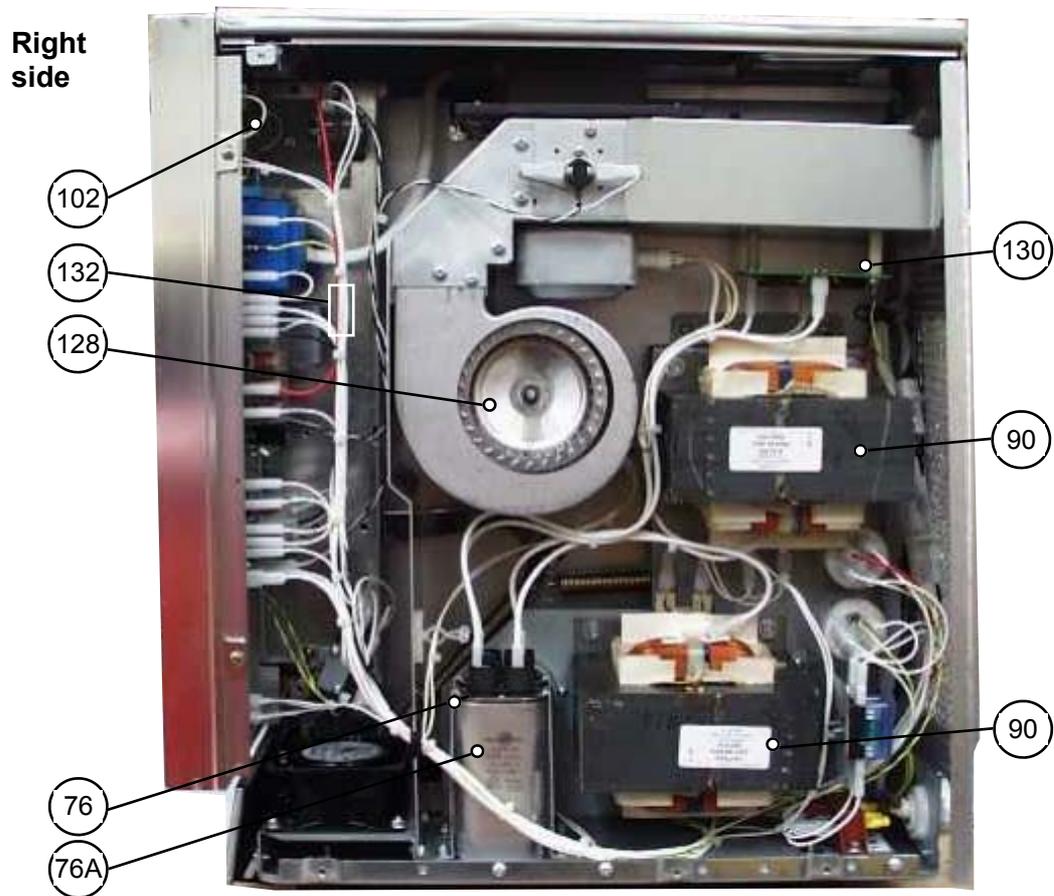
□

75	HV Diode Assembly	11H0010
88	HT Transformer Top Bracket	MC3127
89	HV Lead Assembly, Ferrite	11H0025
90	*Transformer 208-240V 50Hz	30Z1233
90	*Transformer 208-240V 60Hz	30Z1230
91	HT Transformer Bottom Bracket	40H0070
92	Capacitor Band	RMC7215
93	Filter Bracket	40H0065
94	HT Transformer Support Bracket	MC3024

76		
Oven Type	Capacitor Part No.	Value
50Hz EE, XE, CD2, XD2	30Z1331 x1	1.0uF 2500V
60Hz EE, XE	30Z1329 x1	0.75uF 2500V

*Transformer replacement see Appendix 3

HT & principle components: Models RMC1003__XX5, RMC1003__XX52

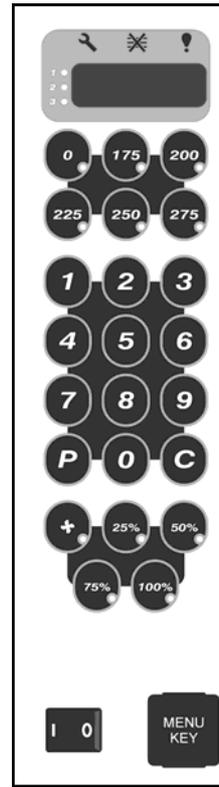
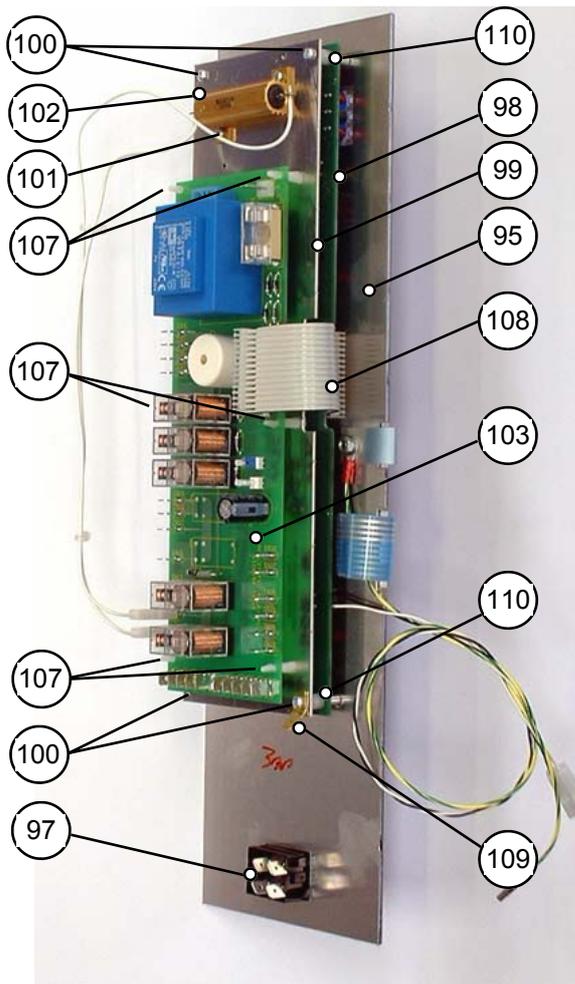


76A	Capacitor Clip	30Z1237
90	*Transformer 208-240V 50Hz	30Z1233
90	*Transformer 208-240V 60Hz	30Z1230
102	Resistor 470R 50W (Gold)	30Z0283
128	Cooling Fan 230V 50Hz	30Z1128
128	Cooling Fan 230V 60Hz	30Z1190
130	Diode Board	11H0058
132	Heater Relay	30Z0986

*Transformer replacement see Appendix 3

76		
Oven Type	Capacitor Part No.	Value
50Hz XX5	30Z1329 x2	0.75uF 2500V
60Hz XX5	30Z0385 x1	0.6uF 2500V
	30Z1329 x1	0.75uF 2500V

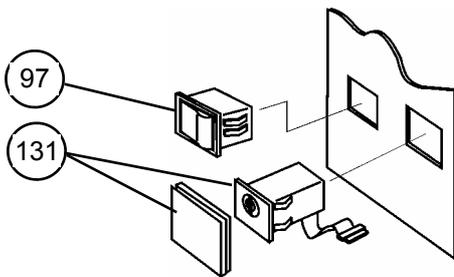
Electronic control panel assembly



Membrane Panel
Menukey
(Blue)



Membrane Panel
Starbucks
(Red/ Grey)

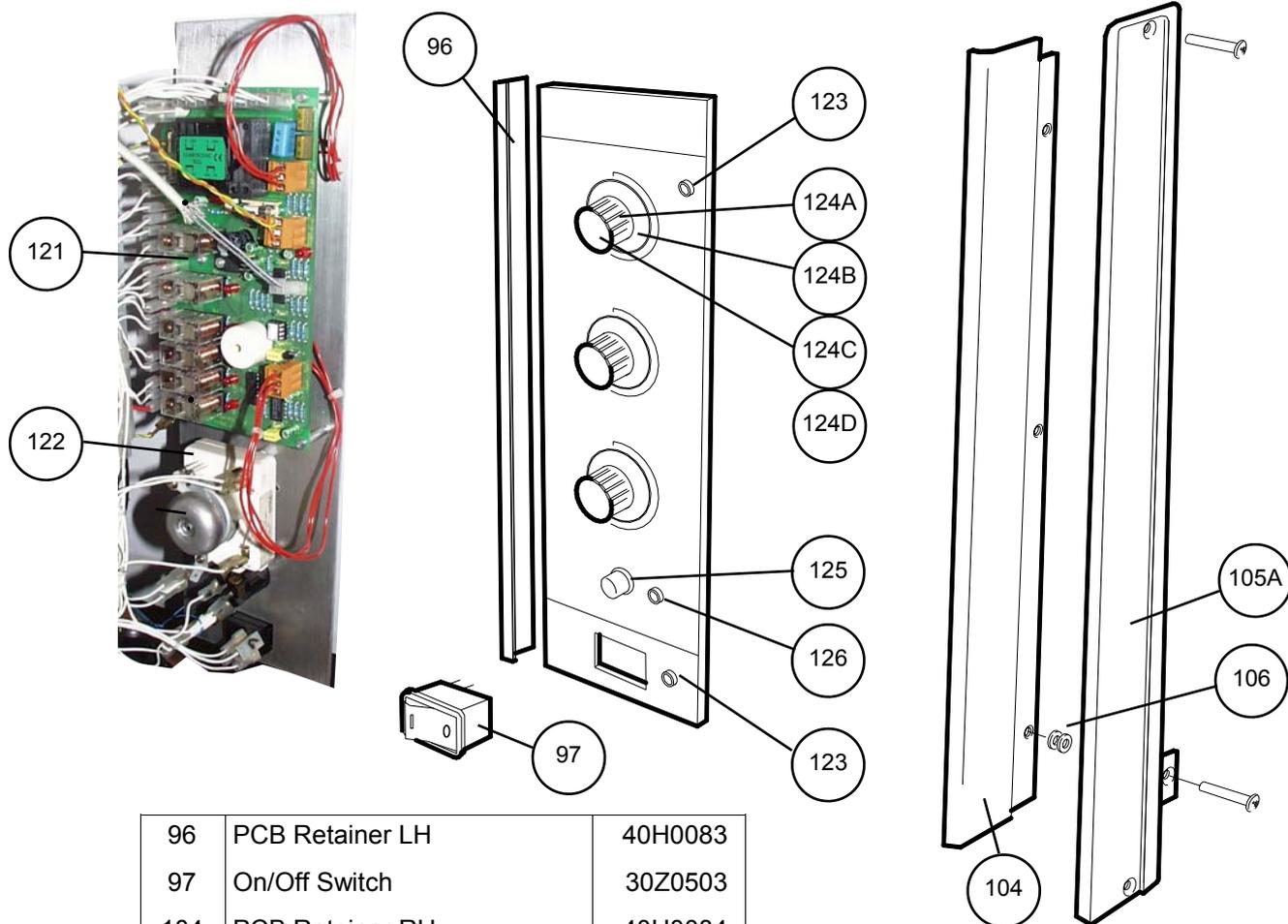


Model	Membrane Assy	Logic PCB
EE5, XE5, XX5	11H0060	11C0285
XX5 Starbucks	11H0024	11C0285
EE5, XE5, XX5 Menukey	11H0067	11C0066
XX5 Locare	11H0073	11C0066

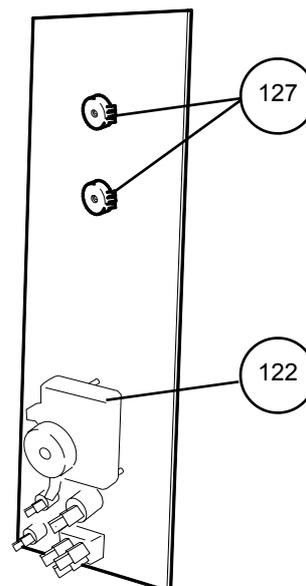
95	Membrane Assy	See Table
97	On/Off Switch	30Z0503
98	Logic Assy.	See Table
99	Support Shield	40H0075
100	M3 x 5 Screw	31Z3106
101	No. 4 x 3/8" Screw	31Z3112
102	470R 50W Resistor	30Z0283

103	Relay Assy. (_EE)	11C0286
103	Relay Assy. (_XE, _XX5)	11H0077
103	Relay Assembly Starbucks	11H0201
107	PCB Stand-off	31Z7010
108	15 Way Ribbon Connector	11Z0298
109	Single 0.25" Blade Tag	309610
110	M3 Nylon Support	31Z0206
131	Menukey Assembly	10C0148

Manual control panel assembly



96	PCB Retainer LH	40H0083
97	On/Off Switch	30Z0503
104	PCB Retainer RH	40H0084
105A	Side Trim RH	MC31212
106	M5 Flat Washer	31Z5004
121	PCB Assembly	11H0027
122	Timer	30Z0991
123	Amber Neon	316031
124A	Control Knob Black	313020
124B	Control Knob Skirt Red	313160
124B	Control Knob Skirt Blue	31Z1216
124C	Control Knob Cap Red	313220
124C	Control Knob Cap Blue	31Z1217
124D	Control Knob Shaft Adaptor	313030
124E	Control Knob Assy Black/Red	11C0173
124E	Control Knob Assy Blue	11C0406
125	Pushbutton (Start)	31Z0349
126	Red Neon	316030
127	Potentiometer	40C0892



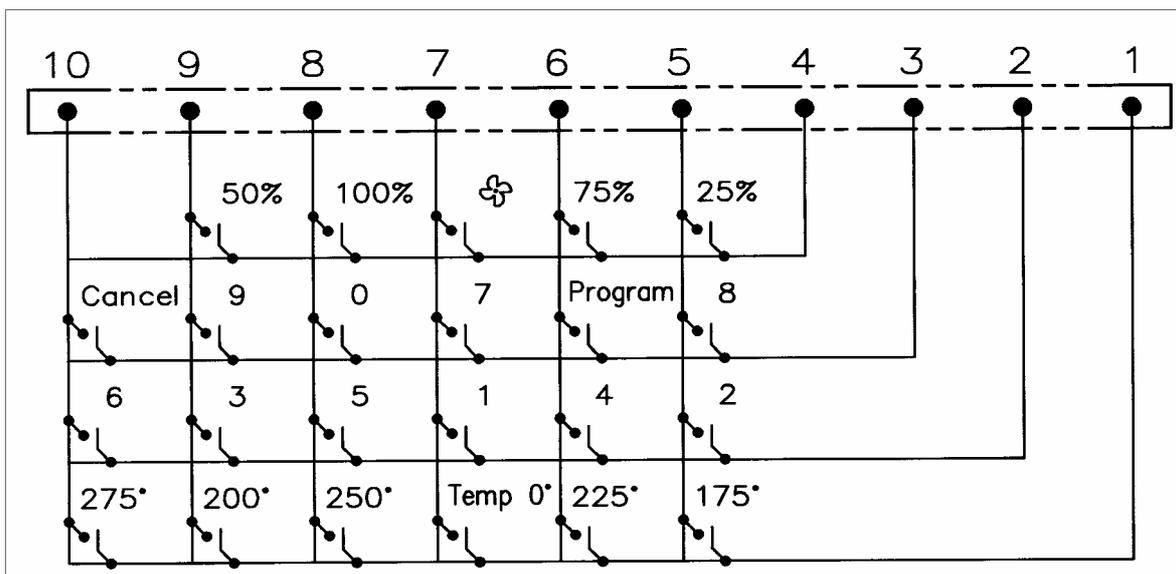
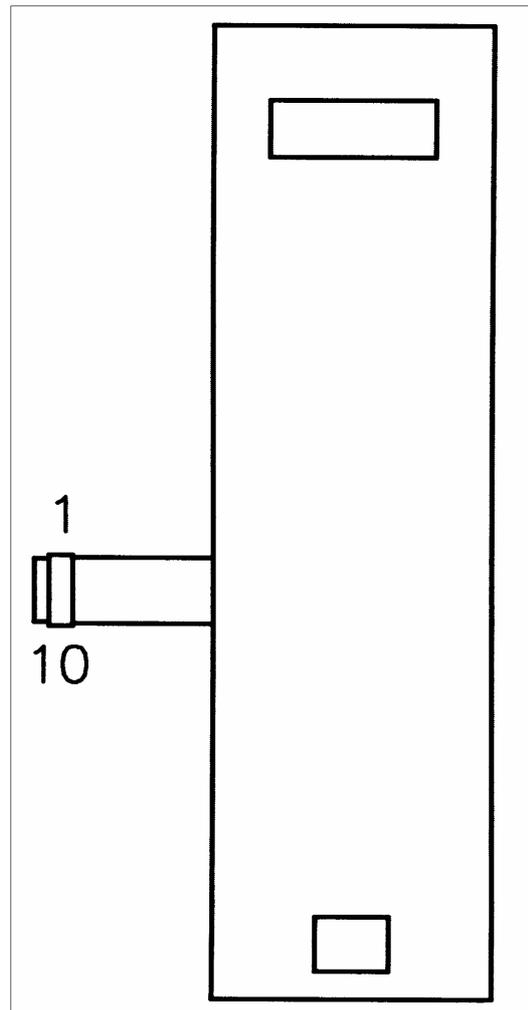
Control Board not shown for clarity

Membrane panel circuit

You will need:

A Digital Multi-meter (D.M.M.)

1. Isolate the oven from the mains supply.
2. Remove the Logic Assembly from the Control Panel Housing.
3. Unplug the membrane "tail" from the Logic PCB Assy.
4. Using a D.M.M., check for continuity between the correct terminals when the pads are pressed.
5. When the panel has been tested, re-assemble and re-test the control housing.



Part number identification chart 1

1	SIDE PANEL (L/H)	MC3134	41	INSULATION PANEL	40H0081
2	FERRITE	RMC6773	42	DOOR REINFORCEMENT	RMC70722
3	UPPER TRIM	MC3120X01	43	DOOR FRAME (B)	MC3055
4	TOP PLATE	RMC6759E	44	INSULATION WRAP	32Z0001
5	EXHAUST GALLERY	RMC73372	46	DOOR BASE SILVER	MC3031KX04
6	REAR PANEL	MC3129	47	DOOR COVER	MC3064
7	GREASE FILTER	MC3155	48	PLATE - DOOR SWITCH	MC3056
8	SIDE PANEL (R/H)	MC3133	52	PACKING (B)	MC3065
9	HANDLE HANGER	RCK6319	53	DOOR REAR PLATE	MC3066X01
10	RUBBER FOOT	RMC6104	54	DOOR SWITCH BRACKET	40H0023
11	FRONT LOWER PANEL	MC3047	55	PRIMARY MICROSWITCH	30Z0240
12	LOWER TRIM	MC3122	56	LOW VOLTAGE MICROSWITCH	
13	DOOR STAY (R/H)	MC3040	57	SECONDARY MICROSWITCH	
14	HINGE BODY	MC30121X02	58	MONITOR MICROSWITCH	
15	HOOK (A)	RMC66171	59	MICROSWITCH INSULATOR	31Z0115
16	HOOK (B)	RMC66172	60	OUTLET DUCT	MC3037
17	DOOR SPRING (B)	MC3068X01	61	FOAM TAPE	31Z0042
18	HINGE BODY (L/H)	MC30122X01	62	INLET DUCT	RMC7193X01
19	DOOR SPRING (A)	MC3067	63	*MAGNETRON	30Z1171
20	DOOR STAY (L/H)	MC3046	64	MAGNETRON CUT-OUT	30Z0088
21	MICROSWITCH GUIDE	40H0076	65	SWITCH BRACKET	RMC7101X01
22	SOLID DOOR ASSY SILVER	MC3230X02	66	BLOWER ASSEMBLY (NOT RMC1003 __XX5, XX52)	MC3141
22	SOLID DOOR ASSY BLACK	11H0071	67	M3 X 25 PAN HEAD POZI	31Z3093
23	TURNTABLE DISC	RMC7340X01	68	M3 X 30 PAN HEAD POZI	31Z3118
24	BAFFLE PLATE BOLT	CP30326	69	CAVITY OVERHEAT SWITCH	30Z1031
25	BAFFLE PLATE	MC3018	70	BRIDGE RECTIFIER (EE ONLY)	341520
26	FAN FIXING CAP	RCK7617	71	N0. 8 SCREW	31Z3107
27	FAN	MC3111	72	M5 SCREW	101825
28	PARTITION PLATE	11H0007	73	240V HEATING ELEMENT	40H0009
29	CAVITY SEALING GLASS	RMC7043	73	220V HEATING ELEMENT	40H0077
30	OVEN BODY	MC3013	74	TEMPERATURE SENSOR	50E123
31	GEARBOX	MC3216	75	HV DIODE ASSEMBLY	11H0010
32	SHAFT	RMC7391X01	76	HT Capacitor 1.0µF	30Z1331
33	COOLING FAN	RMC7310	76	HT Capacitor 0.88µF	30Z1075
34	MOTOR BRACKET	RMC7307X01	76	HT Capacitor 0.6µF	30Z0385
35	CUSHION RUBBER	RCK8273	76	HT Capacitor 0.75µF	30Z1329
36	MOTOR FIXING SCREW	CP30310	76A	Capacitor Clip	30Z1237
37	HOT AIR MOTOR	MC3110			
38	DOOR HANDLE SILVER	RBR1285048			
39	DOOR FRAME (A) BLACK	MC30503			
40	DOOR OUTER BLACK	40H0080			
40	DOOR OUTER SILVER	40H0082			

*If replacing a Sanyo Magnetron with a Panasonic Magnetron the HV capacitors need to be changed:
 XE & EE models 1.1µF to 1.0µF
 (30Z1241)

Part number identification chart 2

77	M'WAVE MAINS FILTER 16A	30Z0997
78	MAINS FILTER 16A	
79	FUSE COVER	20Z1080
80	FUSE 10A HRC	30Z0217
81	FUSE HOLDER 1 INCH	30Z0231
82	FUSE 13A	30Z0456
88	HT TRANSFORMER TOP BRACKET	MC3127
89	HV LEAD ASSEMBLY	11H0025
90	*Transformer 208-240V 50Hz	30Z1233
90	*Transformer 208-240V 60Hz	30Z1230
91	HT TRANSFORMER BOTTOM BRACKET	40H0070
92	CAPACITOR BAND	RMC7215
93	FILTER BRACKET	40H0065
94	HT TRANSFORMER SUPPORT BRACKET	MC3024
95	MEMBRANE ASSEMBLY	SEE TABLE
96	PCB RETAINER LH	40H0083
97	ON/OFF SWITCH	30Z0503
98	LOGIC ASSY.	SEE TABLE
99	SUPPORT SHIELD	40H0075
100	M3 X 5 SCREW	31Z3106
101	NO. 4 X 3/8" SCREW	31Z3112
102	470R 50W GOLD RESISTOR	30Z0283
103	RELAY PCB ASSY (_EE)	11C0286
103	RELAY PCB ASSY(_XE, _XX5)	11H0077
103	RELAY PCB ASSY (Starbucks)	11H0201
104	PCB RETAINER RH	40H0084
105	SIDE TRIM LH	MC31211
105A	SIDE TRIM RH	MC31212
106	M4 FLAT WASHER	31Z5004
107	PCB STAND-OFF	31Z7010
108	15 WAY RIBBON CONNECTOR	11Z0298
109	SINGLE 0.25" CONNECTOR	309610
110	M3 NYLON SUPPORT	31Z0206
111	MAINS INPUT BLOCK	31Z0328
112	CABLE GLAND	31Z1070
112A	CABLE GLAND NUT	31Z1082
113	INPUT CABLE ASSEMBLY	31Z0220
115	XE5 INPUT CABLE ASSEMBLY	302030
116	STRAIN RELIEF GROMMET	31Z1036

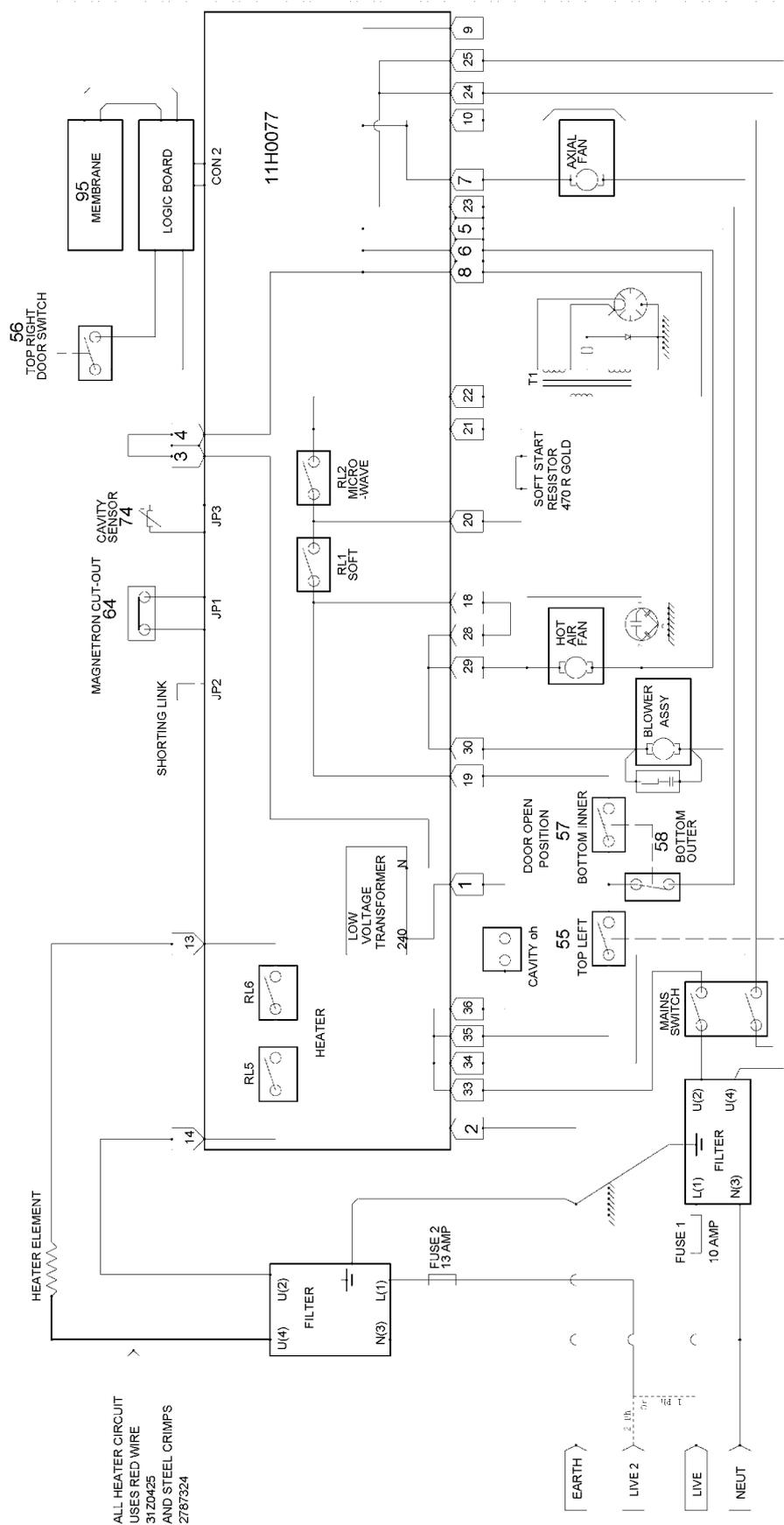
*Transformer Replacement see Appendix 3

117	80MM AXIAL FAN	310010
121	PCB ASSEMBLY	11H0027
122	TIMER	30Z0991
123	NEON AMBER	316031
124A	CONTROL KNOB BLACK	313020
124B	CONTROL KNOB SKIRT RED	313160
124B	CONTROL KNOB SKIRT BLUE	31Z1216
124C	CONTROL KNOB CAP RED	313220
124C	CONTROL KNOB CAP BLUE	31Z1217
124D	CONTROL KNOB SHAFT ADAPTER	313030
124E	CONTROL KNOB ASSY BLACK/ RED	11C0173
124E	CONTROL KNOB ASSY BLUE	11C0406
125	PUSHBUTTON (START)	31Z0349
126	NEON RED	316030
127	POTENTIOMETER	40C0892
128	COOLING FAN 220/240V 50Hz	30Z1128
128	COOLING FAN 220V 60Hz	30Z1190
129	TURNTABLE MOTOR	RMC5055EX
130	DIODE BOARD	11H0058
131	MENUKEY ASSEMBLY	10C0148
132	HEATER RELAY	30Z0986
133	INLET DUCT	40H0176
135	CATALYTIC CONVERTER	31Z1245
136	CAT. COVER	40H0221
136A	VENT PLATE	40H0236
137	THUMB NUT	31Z4031

	Model	Membrane Assembly
95	RMC1003__EE5, XE5, XX5_, Haari	11H0060
95	RMC1003__XX5 Starbucks	11H0024
95	RMC1003__EE5, XE5, XX5_ Menukey	11H0067
95	RMC1003__XX5 Locare	11H0073

	Model	Logic PCB
98	RMC1003__EE5, XE5, XX5_, Haari	11C0285
98	RMC1003__XX5 Starbucks	11C0285
98	RMC1003__EE5, XE5, XX5_ Menukey	11C0066
98	RMC1003__XX5 Locare	11C0066

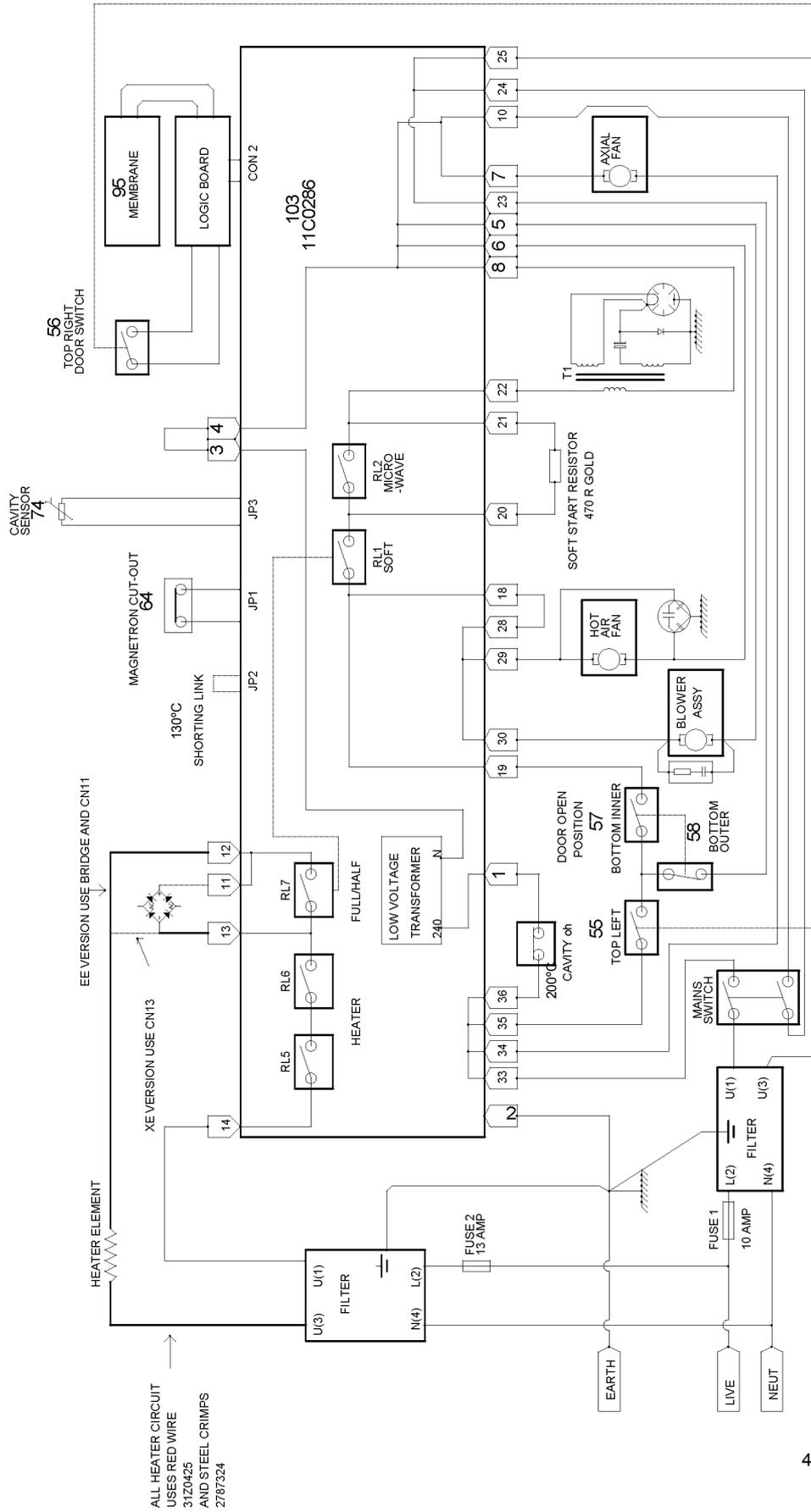
Circuit diagram: RMC 1003_XE (30A)



WIRING DIAGRAM - MEALSTREAM 401 SERIES 5 XE (30A) Single & Dual Phase - Solid State Switching

40H0233 Issue 9
Date: 05.2007

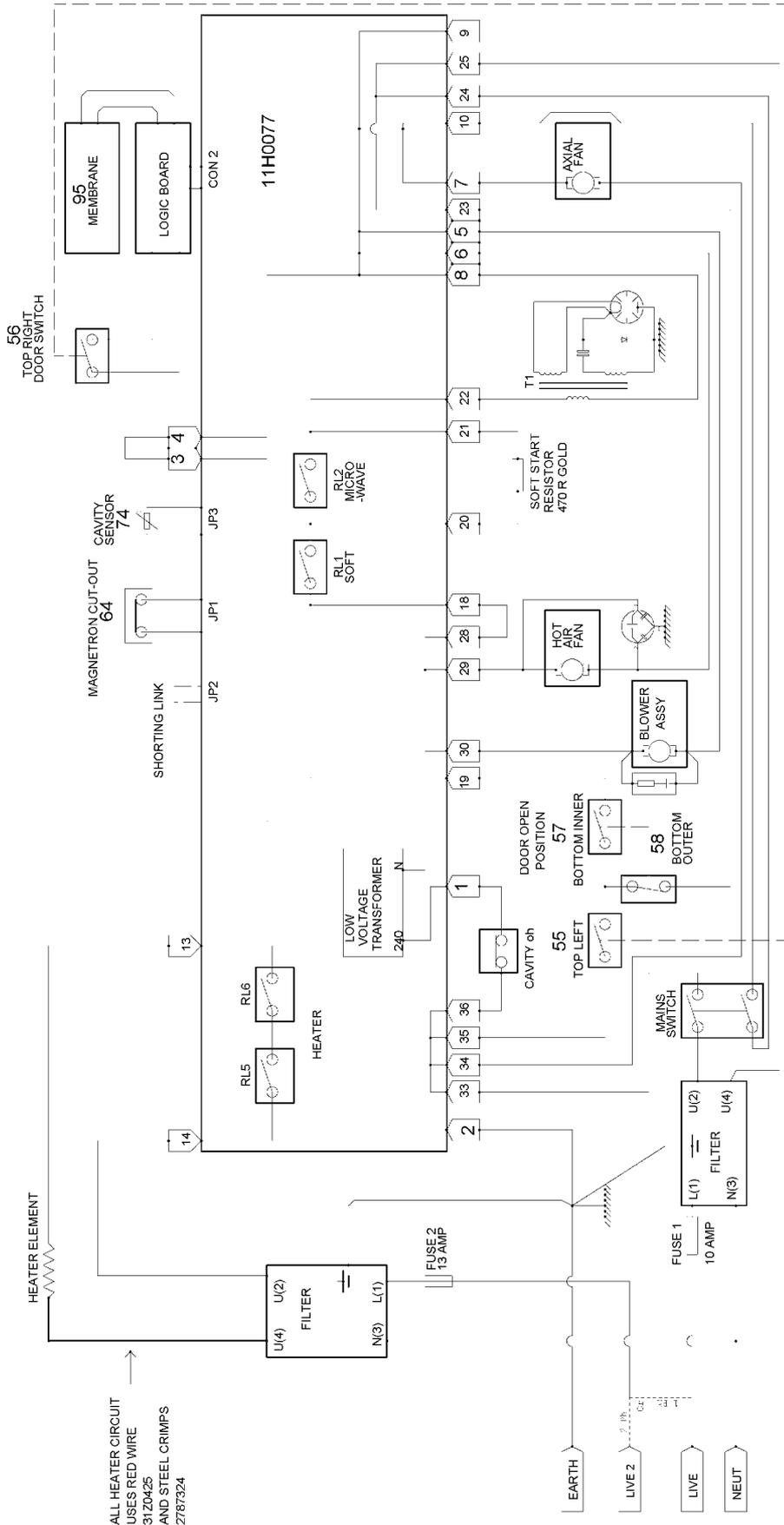
Circuit diagram: RMC 1003_5 EE & RMC 1003_XE



WIRING DIAGRAM - MEALSTREAM 401 SERIES 5 EE (13A) AND XE (30A)

40H0072 Issue 6
Date: 08.2004

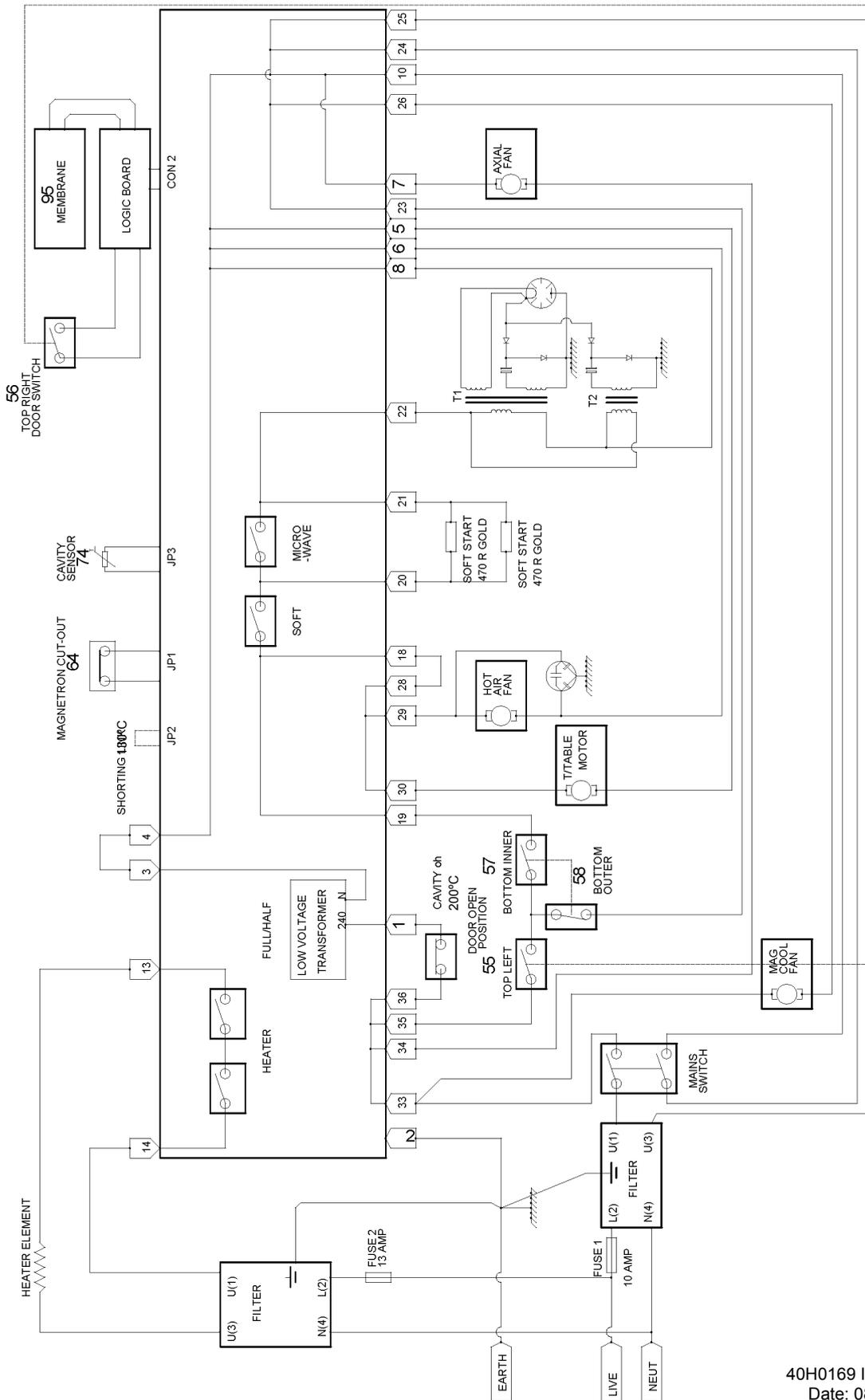
Circuit diagram: RMC 1003_5 EE & RMC 1003_XE (30A)



WIRING DIAGRAM - MEALSTREAM 401 SERIES 5 XE (30A) Single & Dual Phase - Solid State Switching

40H0233 Issue 9
Date: 05.2007

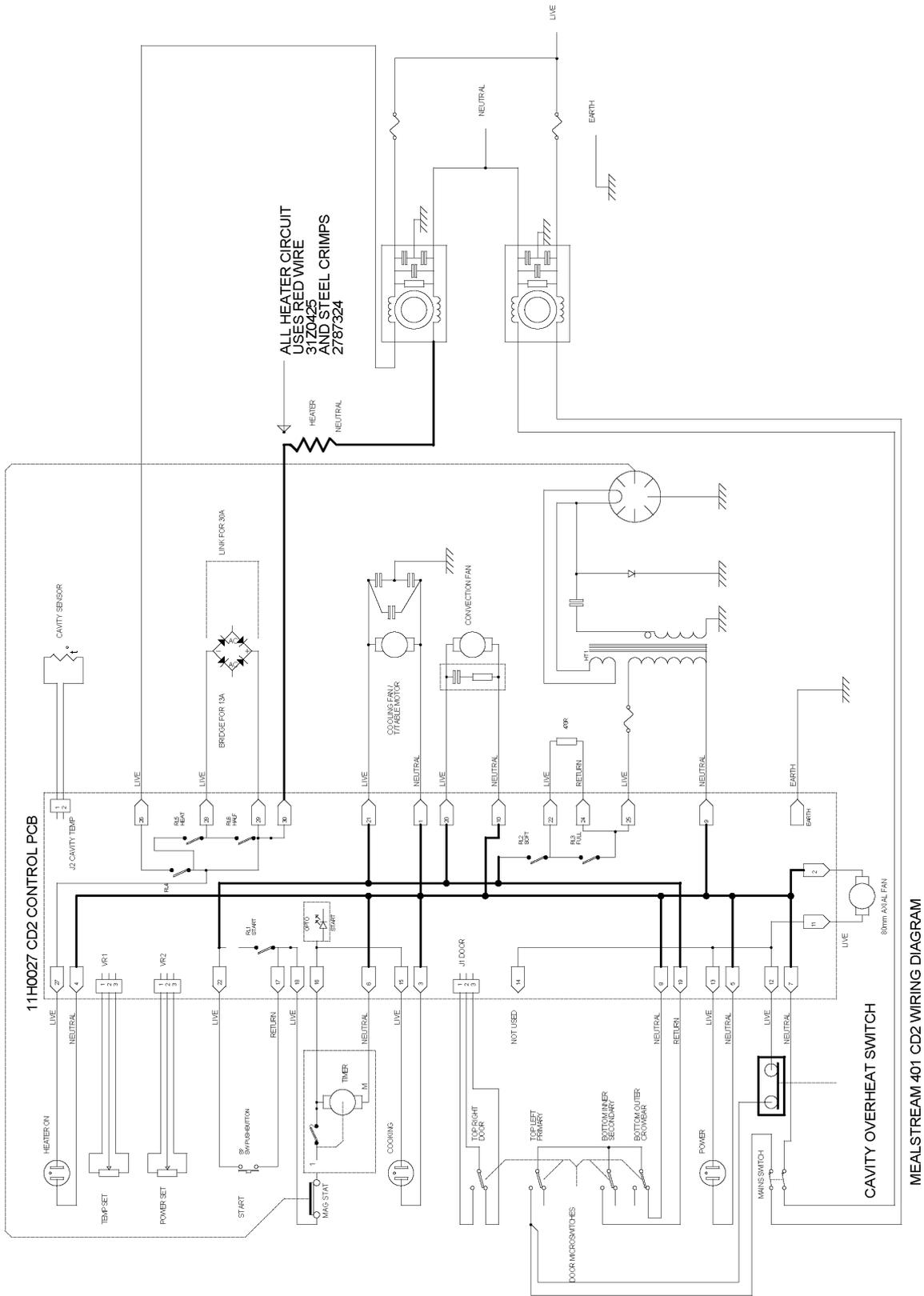
Circuit diagram: RMC 1003_XX5 (Single Phase)



WIRING DIAGRAM - MEALSTREAM 401 XX5

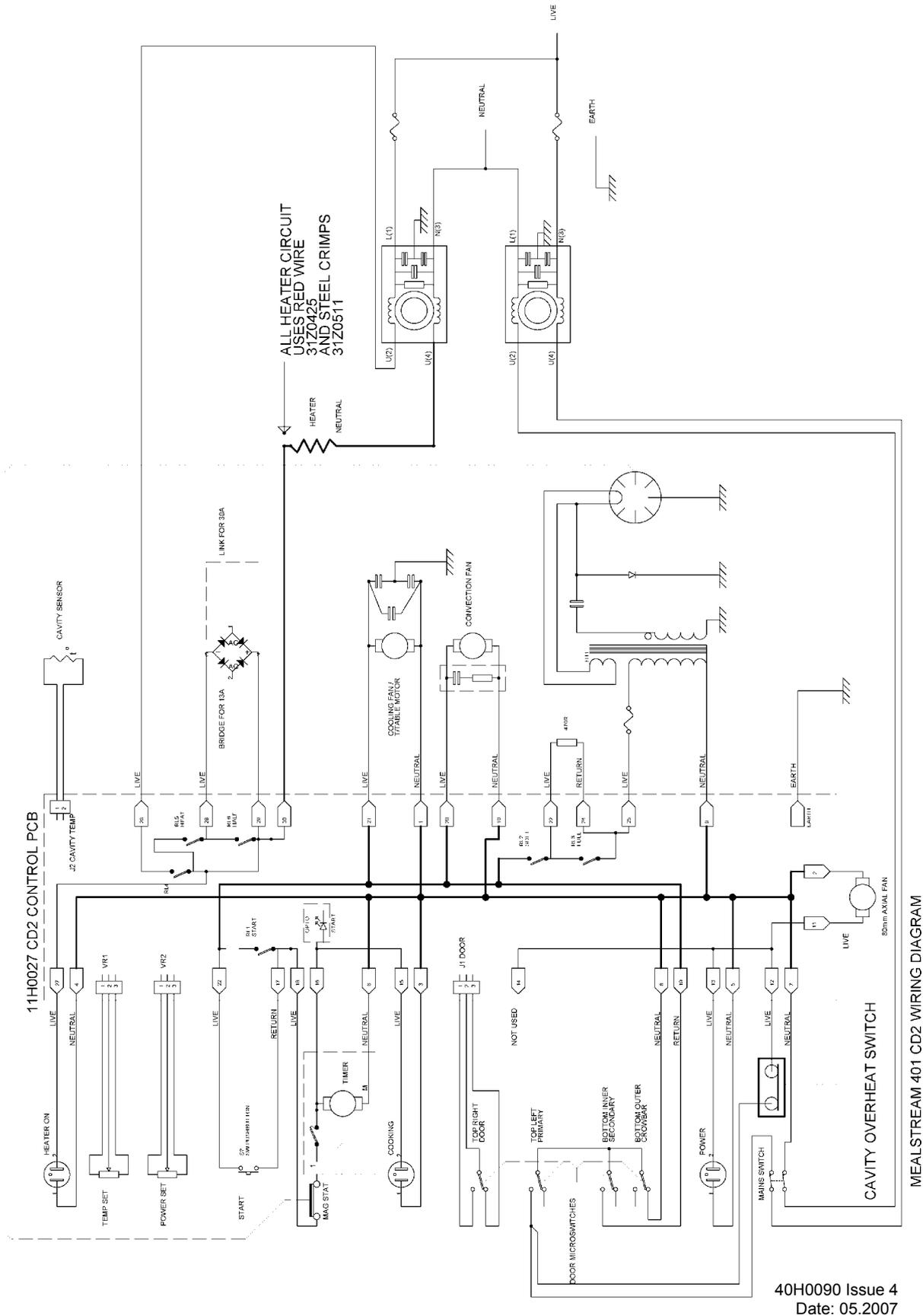
40H0169 Issue 3
Date: 08.2004

Circuit diagram: RMC 1003_CD2

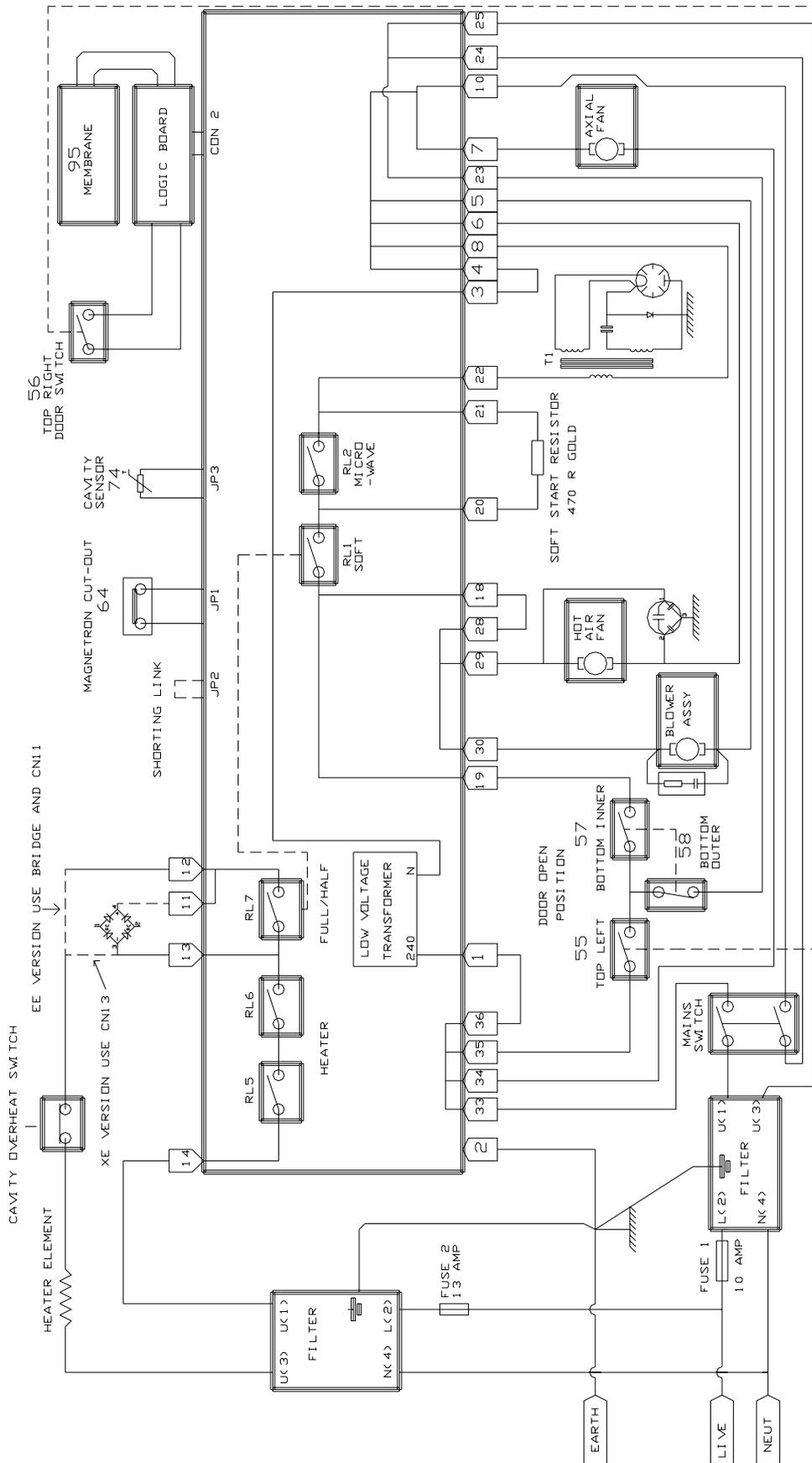


40H0090 Issue 3
Date: 08.2004

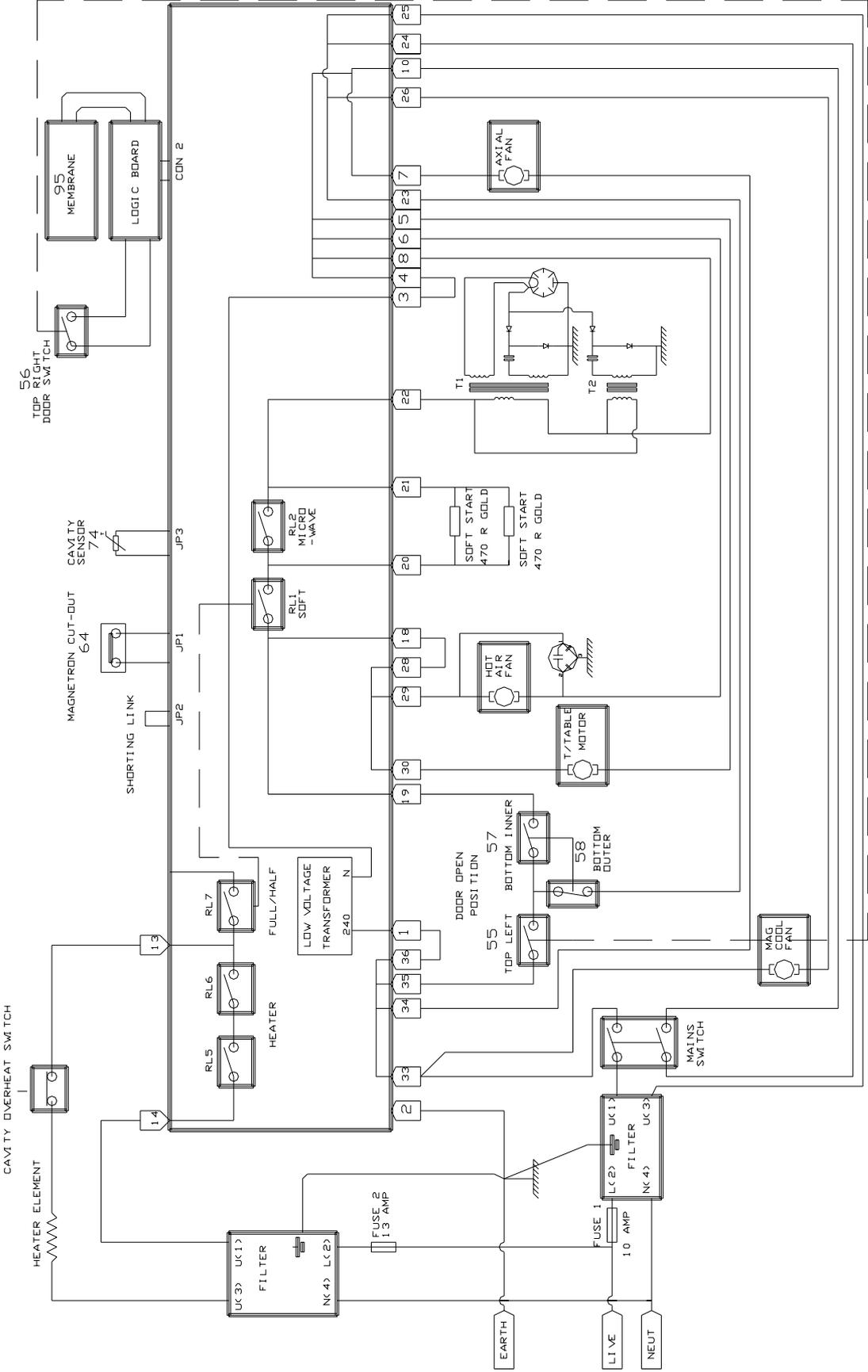
Circuit diagram: RMC 1003_CD2



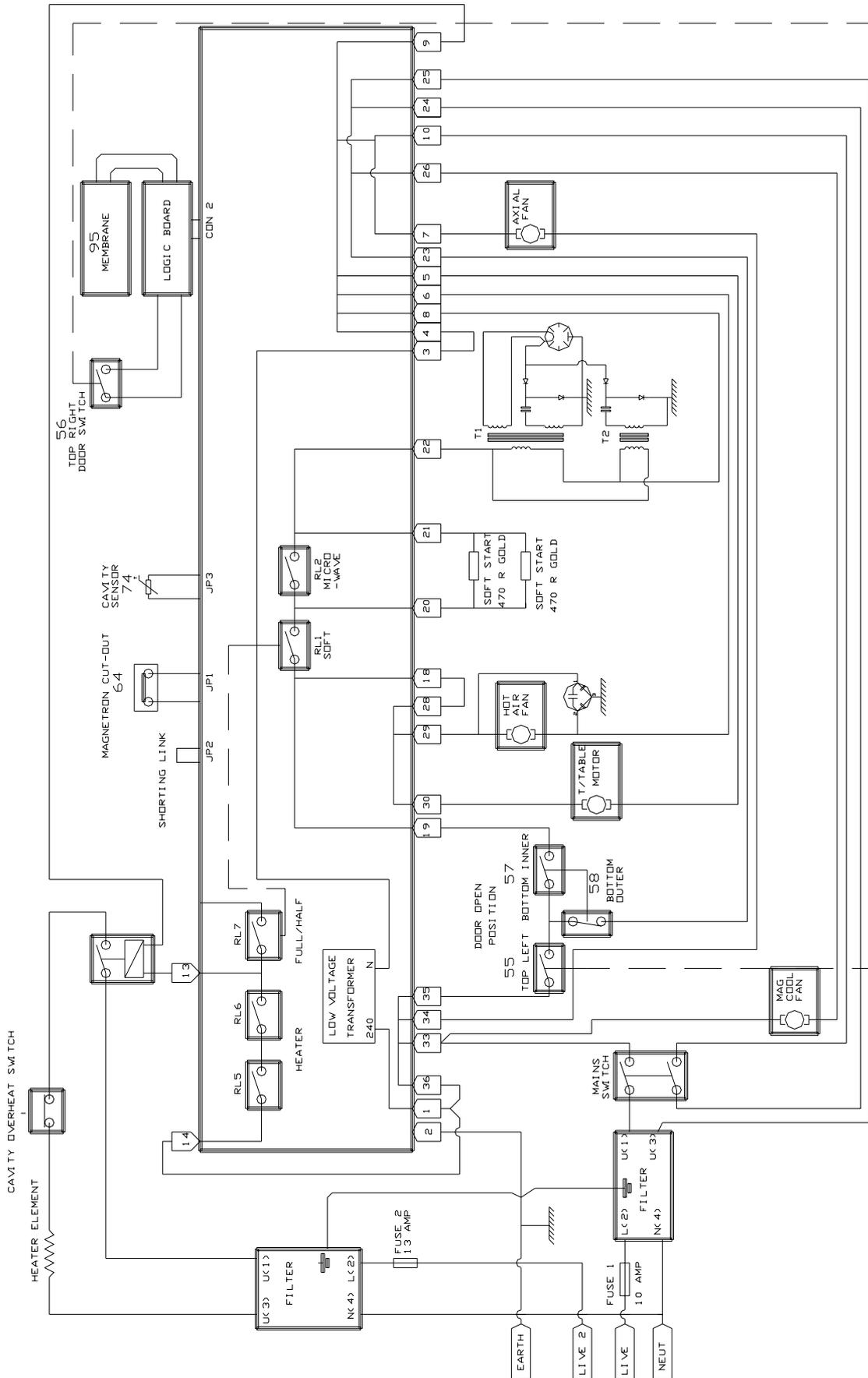
Circuit diagram: RMC 1003_5 EE & RMC 1003_XE (Before August 2004)



Circuit diagram: RMC 1003_XX5 (Single Phase) (Before August 2004)

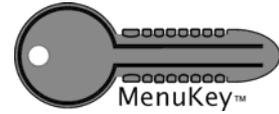


Circuit diagram: RMC 1003_XX52 (Twin Phase) (Before August 2004)



APPENDIX 1: MenuKey™ Download Procedure

The MenuKey System automatically changes all the cooking programs on the numbered icon pads with the turn of a key.

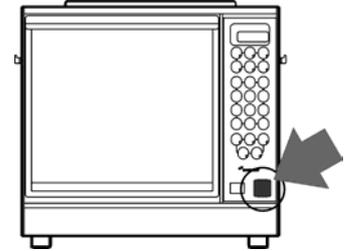
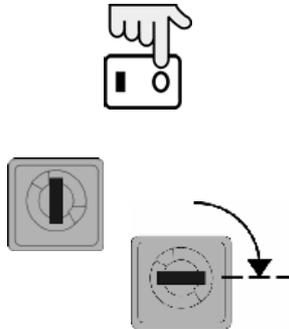


To change the menus on the oven:

1 Ensure the power switch is **off**.

2 Lift the MenuKey cover in the front panel of the oven and put the key in the keyhole. Turn the key clockwise to the stop (¼ turn).

Do not remove the key at this stage.



3 Switch the power switch **on**. The oven will now go through the program download sequence by displaying the following:



The Key Code

example: Key C02



The number of programs and each program number on the key.

example: 27 Programs



When the display shows 00:00 remove the key and close the cover. The oven is now ready to use with the new programs.



EPS - FAIL - REDO External Program System ERROR.

If the key is removed before the download is complete or the process is interrupted the display shows "EPS" then "FAIL" then "REDO". Switch the oven off and begin the MenuKey download again.

To confirm the download is successful

Switch off the oven.

Switch on and the display briefly will show the following:

1. The new key code
2. 00:00 (oven ready to use)

If the download is not successful the key number will not be displayed and if the program pads are pressed an E3 error will display.

APPENDIX 2: Cleaning Procedure

Follow the SAFETY INSTRUCTIONS at the beginning of this manual.

- **ALWAYS switch off at the electrical supply and allow oven to cool for at least 20 minutes before cleaning**
- **As required, remove carousel and wipe out spillages with disposable paper wipes**
- **NEVER use steel wool, knives or harsh abrasives on any part of the oven**

As with all electrical appliances, it is wise to have the electrical connections inspected periodically.

Cleaning the air filter oven cavity, and door

DO NOT SPRAY ANY CLEANING FLUID DIRECTLY INTO THE CATALYTIC CONVERTER VENT HOLES AT THE REAR OF THE OVEN CAVITY, THIS WOULD CAUSE PERMANENT DAMAGE TO THE CATALYTIC CONVERTER (Mealstream 403)

1. Remove trays, racks, turntable and turntable disc from the oven cavity and air filter (on the rear panel) . Clean using non-caustic oven cleaner. Wash off using a clean cloth and plenty of clean, warm water. Dry using a fresh, clean cloth.

Mealstream 403 Model only:

To remove the catalytic converter at the rear of the cavity undo the three thumb nuts to release the cover plate and carefully lift out. Wash the catalytic converter in **CLEAN HOT WATER only**, do not use cleaning products which could cause permanent damage to the filter. Leave to dry. Clean the cover plate in non-caustic oven cleaner and dry using a fresh clean cloth.

2. Remove food particles from between the inside edge of the door and the front of the oven floor using a clean, dry brush (Location A). Apply non-caustic oven cleaner to interior surfaces except door seals and leave for the recommended time. Wash off using a clean cloth and plenty of clean, warm water. Dry using a fresh, clean cloth.
3. Wipe hinges with a clean, damp cloth.
DO NOT apply lubricating oil to hinges.
4. Wipe door seals carefully with a clean damp cloth. Examine for signs of wear or damage.
5. Mealstream 403 Model only:
Replace the Catalytic Converter and cover plate ensuring the face of the converter with the spacing edge is facing outwards to allow air to pass efficiently through the filter. Tighten up the three thumb nuts.

If the door seals are damaged ,the oven must be repaired by an approved Service Engineer

Faults arising from neglect or misuse, including use without clean filters in place, are not covered by the guarantee. Service visits as a result of such faults will be chargeable.

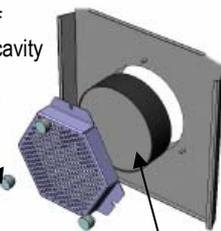
Merrychef recommends the use of approved Merrychef Oven Cleaner and Merrychef Oven Protector.

DO NOT USE THE OVEN WITHOUT A CLEAN AIR FILTER IN POSITION



rear of oven cavity

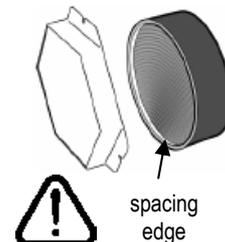
Thumb Nut x3



Catalytic converter



A



spacing edge

Cleaning the control panel and exterior surfaces

Wipe down regularly with a damp cloth.

Hints and Tips for stubborn stains in the oven cavity

1. Switch on oven with microwave power only (without heat).
2. Place a container of water (1.5 litres) into the centre of the oven cavity.
3. Set microwave power to 100%.
4. Set timer to 30 minutes and press start button.
At end of steam cycle, wipe out cavity with a clean cloth.

APPENDIX 3: Transformer Replacement Procedure

Should you need to change a transformer to any Mealstream 401 EE or XE product, you should use the new 30Z1233 or 30Z1230 (multi-tap) transformers. (see matrix below)

Note: The capacitor values remain the same when using the new 30Z1233 or 30Z1230 transformer.

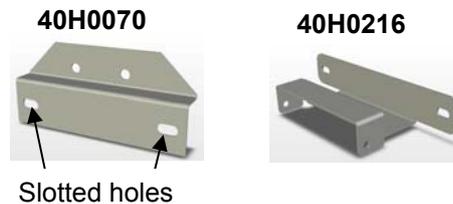
Parts required:

1. Pt. No. 30Z1233 Transformer 50Hz Multi-tap 220V - 240V
2. Pt. No. 30Z1230 Transformer 60Hz Multi-tap 208V - 240V
3. Pt. No. 40H0216 50Hz multi-tap transformer bracket
4. Pt. No. 40H0070 Standard bracket with slotted holes

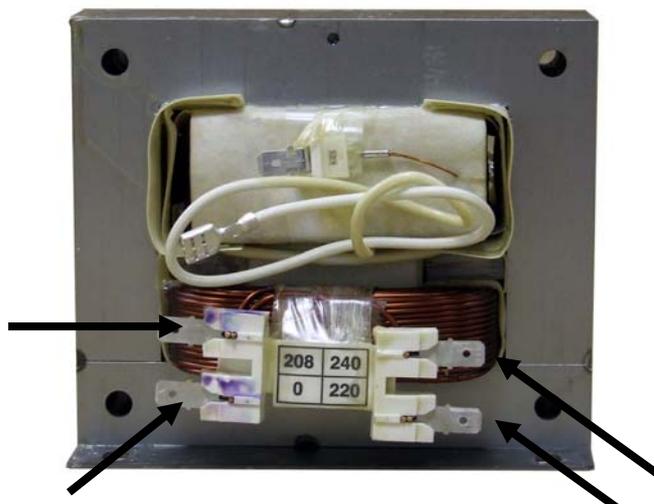
Note: When replacing a transformer in a 50Hz oven, you will need a new wider bracket 40H0216 for both EE & XE products. This bracket will fit the existing holes. See diagram to right.

Note: You will need to fit a new 40H0070 bracket to EE & XE products where the original may not have slotted holes. See diagram to right.

Replacement Transformer Matrix			
Voltage	Frequency	Part No.	Bracket
220V	50Hz	30Z1233	40H0216
240V			
208V	60Hz	30Z1230	n/a
220V			
240V			



Transformer 30Z1230 shown for clarification



Manual corrections and modifications

Whilst every effort has been made to ensure that the information contained in this manual is accurate and complete, if you believe that an error has been made, or if you have any suggestions for how the manual could be improved, please fill in and return this form. A review of any forms returned will be made on a regular basis, and the manual will be updated if required.

Name
Address
Page on which error occurs (if applicable) - Mealstream 400 Series
Description of error
Suggestion for improvement to manual
Please return this form to: Service Dept. Merrychef Limited, Station Road West, Ash Vale, Aldershot Hampshire GU12 5XA United Kingdom Tel: +44 (0)1252 371000 Fax: +44 (0)1252 371007 Internet address: http://www.merrychef.com E-mail: technical.support@merrychef.com