Fast Track Trouble shooting

IMPORTANT SAFETY NOTICE – "For Technicians Only" This service data sheet is intended for use by persons having electrical, electronic, and mechanical experience and knowledge at a level generally considered acceptable in the appliance repair trade. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible, nor assume any liability for injury or damage of any kind arising from the use of this data sheet.

Model: MC17F808KDT

Publication # SMMC17 **Production Date: 12/18/14**

Bulletins:

Support Information:

HELP: 1-888-751-4086 (Tech Sup. – ASC/SSD)
1-866-894-0637 (Tech Sup. - FE/ME)
GSPN: http://gspn3.samsungcsportal.com/main.jsp
PLUS ONE: http://my.plus1solutions.net/clientPortals/samsung

!!!!! It is always recommended to discharge a microwave's capacitor prior to commencing any service

SERVICE TIPS

- If fuse is blown by the Monitor Switch, replace the PRIMARY , DOOR SENSING , MONITOR SWITCH & POWER RELAY
- Checking continuity of switches or transformer, make sure the power is OFF, and one of the lead wires is disconnected
- **High Voltage Warning**! Do not attempt to measure any of the voltages on the high voltage side

Main Relay & Power Control Relay Test

1. The relays are located on the PCB Ass'y. Isolate them from the main circuit by disconnecting the leads.
2. Operate the microwave oven with a water load in the oven. Set the power level to high.
3. Check continuity between terminals of the relays after the start pad is pressed.

To Test TCO's (Thermal Cut Outs)

There are 4 different thermal cutouts in this unit with 4 different purposes. They are :

1. Oven thermal cutout (flame sensor), on cavity top.
2. Hood thermal cutout, inside control area on duct.
3. Bottom thermal cutout, on floor of control area.
4. Magnetron thermal cutout, on magnetron.

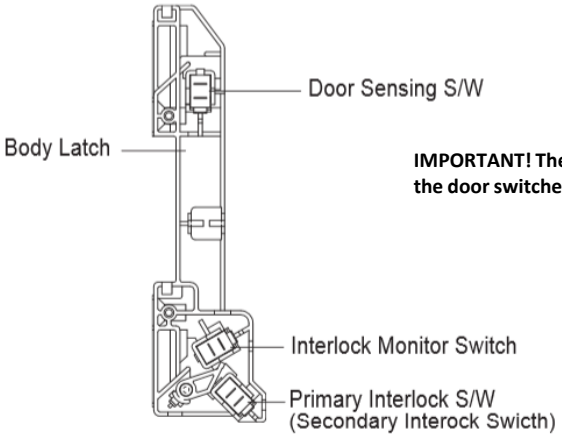
1. Oven Thermal Cut Out Open at 248F/120C non resettable - NORMALLY CLOSED

2. Hood Thermal Cut Out close at 158F/70C. Open at 104F/40C. Resettable - NORMALLY OPEN

3. Bottom Thermal Cut Out open at 248F/120C non resettable – NORMALLY CLOSED

4. Magnetron Thermal Cut out open at 302F/150C & close at 140F/60C. Resettable – NORMALLY CLOSED

Interlock Switch Test

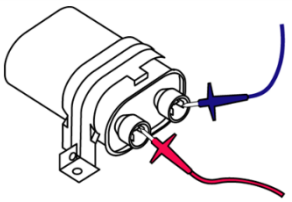


IMPORTANT! There is NO adjustment on the door switches

	Door Open	Door Closed
Primary Interlock switch	∞	0
Monitor switch(COM-NC)	0	∞
Monitor switch(COM-NO)	∞	0
Door Sensing S/W (Secondary Interlock S/W)	∞	0

High Voltage Capacitor Test

1. Check continuity of the capacitor with the meter set at the highest resistance scale.
2. Once the capacitor is charged, a normal capacitor shows continuity for a short time, and then indicates 9MΩ.
3. A shorted capacitor will show continuous continuity.
4. An open capacitor will show constant 9MΩ.
5. Resistance between each terminal and chassis should read infinite.



High Voltage Diode Test

1. Isolate the diode from the circuit by disconnecting its leads.
2. With the ohm-meter set at the highest resistance scale, measure across the diode terminals. Reverse the meter leads and read the resistance. A meter with 6V, 9V or higher voltage batteries should be used to check the front-to back resistance of the diode (otherwise an infinite resistance may be read in both directions). The resistance of a normal diode will be infinite in one direction and several hundred KΩ in the other direction.

Magnetron Test

1. Continuity checks can indicate only an open filament or a shorted magnetron
2. Disconnect magnetron from the circuit
3. A continuity check across the magnetron terminals should read 1 ohm or less
4. A continuity check between each terminal and the case/ground should read open

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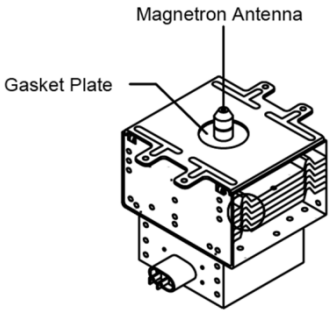
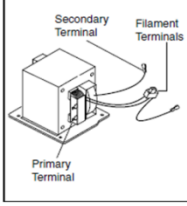


High Voltage Transformer Test

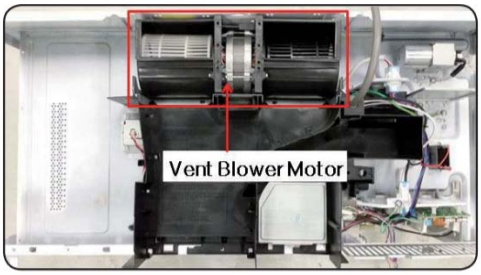
Components	Test	Results
Transformer 	1. Remove wire leads. 2. Measure resistance. (ohm meter scale: Rx1) ■ Primary winding ■ Secondary winding ■ Filament winding 3. Measure resistance. (ohm meter scale: Rx1000) ■ Primary winding to ground ■ Filament winding to ground	 Approx. 0.4Ω+2% ohm. Approx. 125.5Ω+2% ohm. 0 ohm. Normal: Infinite. Normal: Infinite.

Vent Exhaust/Blower Motor Test

The run capacitor is located behind the top grill above the control area. The capacitor is used for more torque and electrical phasing. Without the capacitor the blower might run but would be much slower

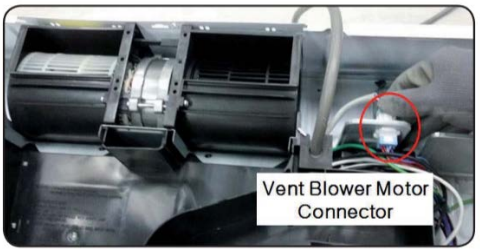
To Test Capacitor

1. Remove grill, discharge capacitor and disconnect one capacitor lead.
2. Make appropriate capacitor check (with analog meter needle should rise then fall, cap is charging then discharging).



To Test Blower Windings

1. Disconnect power and remove grill.
2. Open control panel and discharge capacitor.
3. Disconnent two wires to run capacitor. Continuity test across the two wires should be approximately 50 ohms of resistance. This test allows you to read across all three windings at the same time.



Sensor Testing

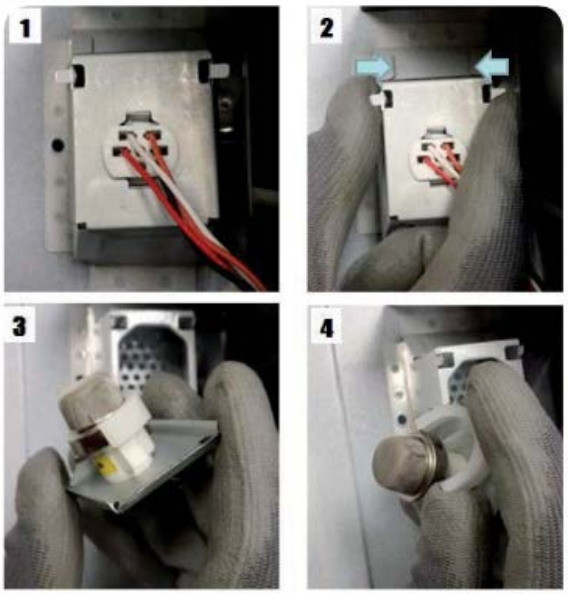
The Sensor Cooking Function uses a special gas sensor which detects both humidity(steam) and hydrocarbons(food odors) during the cooking process. Before conducting either of the sensor tests below, ensure the unit is plugged into a wall outlet for at least 5 minutes. If already plugged in, proceed. The sensor is a plug-in device located in the vent area at the top left hand corner of the cavity behind the grill.

SENSOR TEST (QUICK TEST)

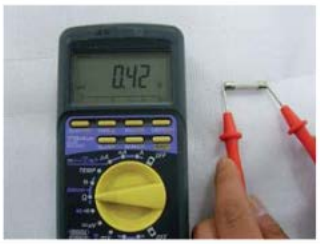
1. With 2 fingers touch and hold the following pads at the same time : Auto Defrost and Popcorn
2. Observe diagnostic number in display (Numbers approximate).
   - 15-185 (Normal-verify with "detection test")
   - 213 or Higher (Sensor failed to open, sensor unplugged, wiring or smart board.)
   - Less then 6 (shorted sensor, or smart board).

NOTE : Only heater terminals (H ; Black and Red leads) can be checked with ohmmeter(30Ω).

CAUTION : DO NOT ATTEMPT TO CHECK SENSOR TERMINALS (White and Orange leads).
♣ CAN DAMAGE SENSOR.



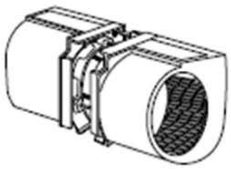
Trouble Shooting – Checking Parts

Parts	Photo	Good	No Good
Fuse		0.1 ~ 1 Ω	100 MΩ exceed
T.C.O		0.1 ~ 1 Ω	100 MΩ exceed
H.V Trans		1 ~ 9 Ω	100 MΩ exceed
Fan Motor		10 ~ 99 Ω	100 MΩ exceed

Error Code	Others (E-0X, Letter)	Solution
E-03	If the WARM, CONVECTION, PREHEAT and BROIL do not reach over 217 of HEX value within 3 minutes, it causes 'E3'error and converts to cancel mode.	CONVECTION MOTOR OPEN CONVECTION HEATER OPEN
E-11	'OPEN ERROR' of gas sensor.	-
E-12	'SHORT ERROR' of gas sensor.	-
E-21	'OPEN ERROR' of thermal sensor	-
E-22	'SHORT ERROR' of thermal sensor	-
E-23	If the PREHEAT does not reach the preset temperature within 30 minutes, it causes 'E4' error and converts to cancel mode.	ASSY CASING poor
E-24	If overheat during cooking causes to reach 500F, it stops all modes of cooking, causes 'E-24' error, and converts to cancel mode.	SENSOR poor
E-83	Display error.	Replace Control Circuit Board
E-A1	Damper Positioning Error (40 seconds)	Replace Damper Motor or Damper SW
-SE-	Key Short Error (60 seconds)	Turn off set and restart.
TE	Touch Communication Error (10 seconds)	Replace Control Circuit Board

Symptom	Checkpoints
Brightness of a lamp and operation sound are irregular.	●Check if a metal or aluminum foil touch the inside wall of the oven. ●Check if containers with gold or silver lines have been used.
Sparks while in operation.	●Use the oven with relief because it sparks due to output changes. It does not mean a trouble. ●Output is converted to defrost properly.
Smokes and bad smells are inside the oven.	●Check if food remnants, oils are stuck to the inside or the inside of the door. ●Steam may come out through the vent openings at the rear of the oven during cooking, however, it does not mean a trouble.
Winds come out through the front of the oven while in operation.	● To cool the heat produced in the oven, winds come out through the front while a fan motor is operating. Use the oven with relief because coming microwave does not mean a trouble.

Ventilation Motor

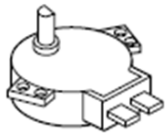


1. Remove wire leads.
2. Measure resistance.
   (ohm meter scale: Rx1)

High speed : White and Blue wire
Mid speed : White and Violet wire
Low speed : White and Yellow wire

Normal:
High : Approx. 27 ohms
Mid : Approx. 48 ohms
Low : Approx. 63 ohms

Synchronous Motor



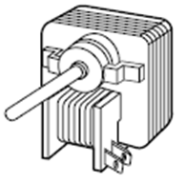
1. Remove wire leads.
2. Measure resistance.
   (ohm meter scale: Rx1000)

Normal:
Approximately

Stirrer	T/T	Louver	Damper
120Ω ±10%	120Ω ±5%	3,510Ω ±10%	3.8kΩ ±10%

Abnormal:
Infinite or several.

Fan Motor



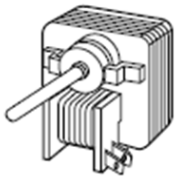
1. Remove wire leads.
2. Measure resistance.
   (ohm meter scale: Rx1)

Normal:
Approximately

Fan
32Ω ± 7%

ohm
Abnormal:
Infinite or several.

Convection Motor

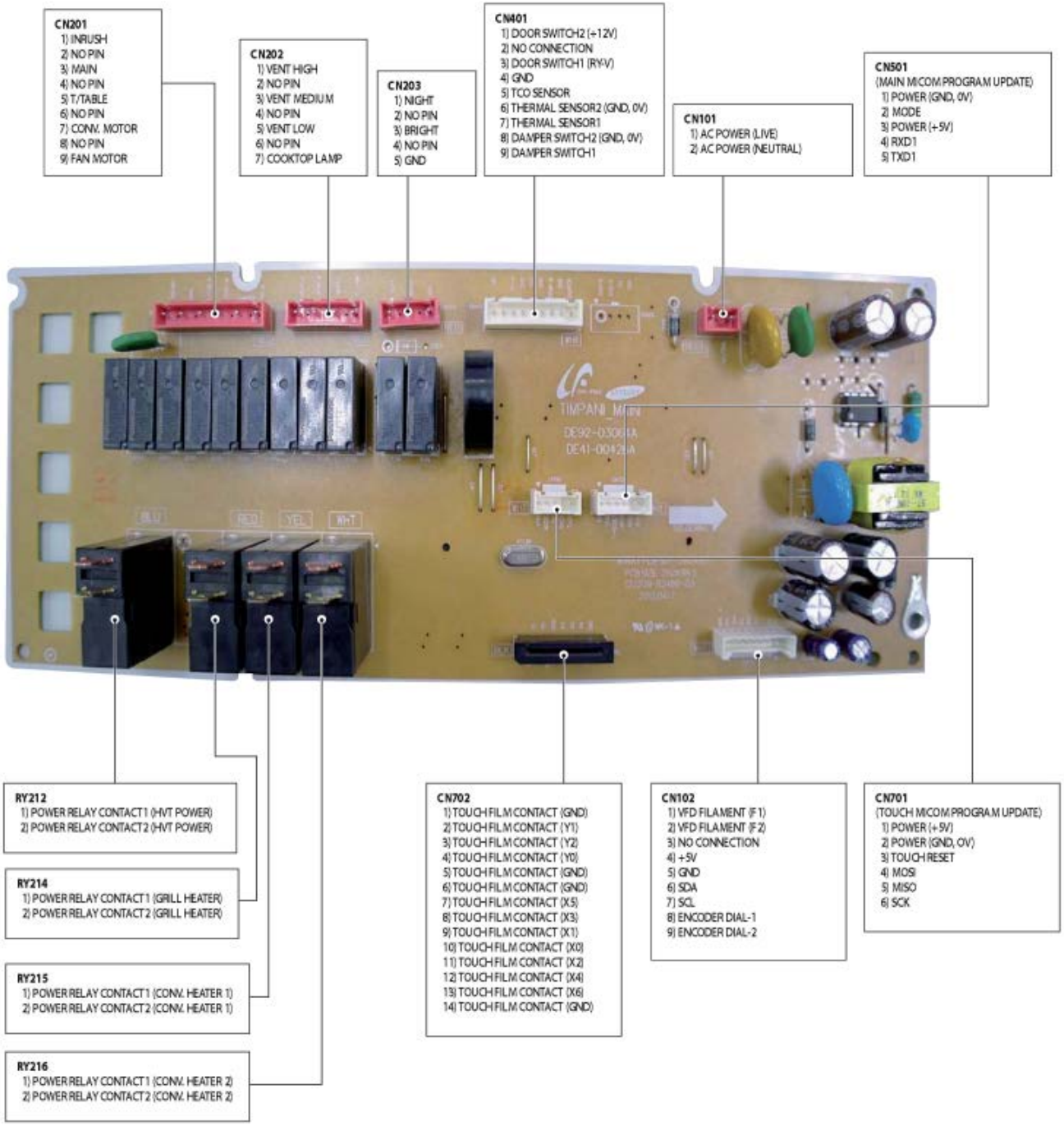


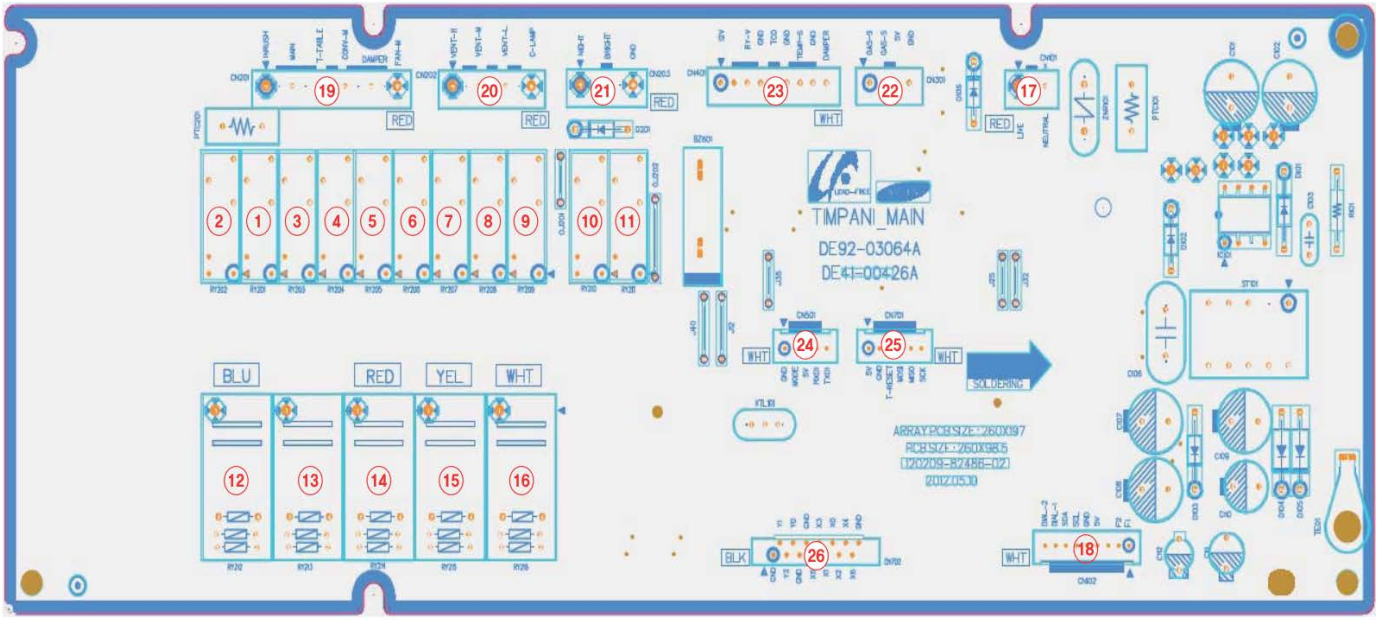
1. Remove wire leads.
2. Measure resistance.
   (ohm meter scale: Rx1)

Normal:
Approximately

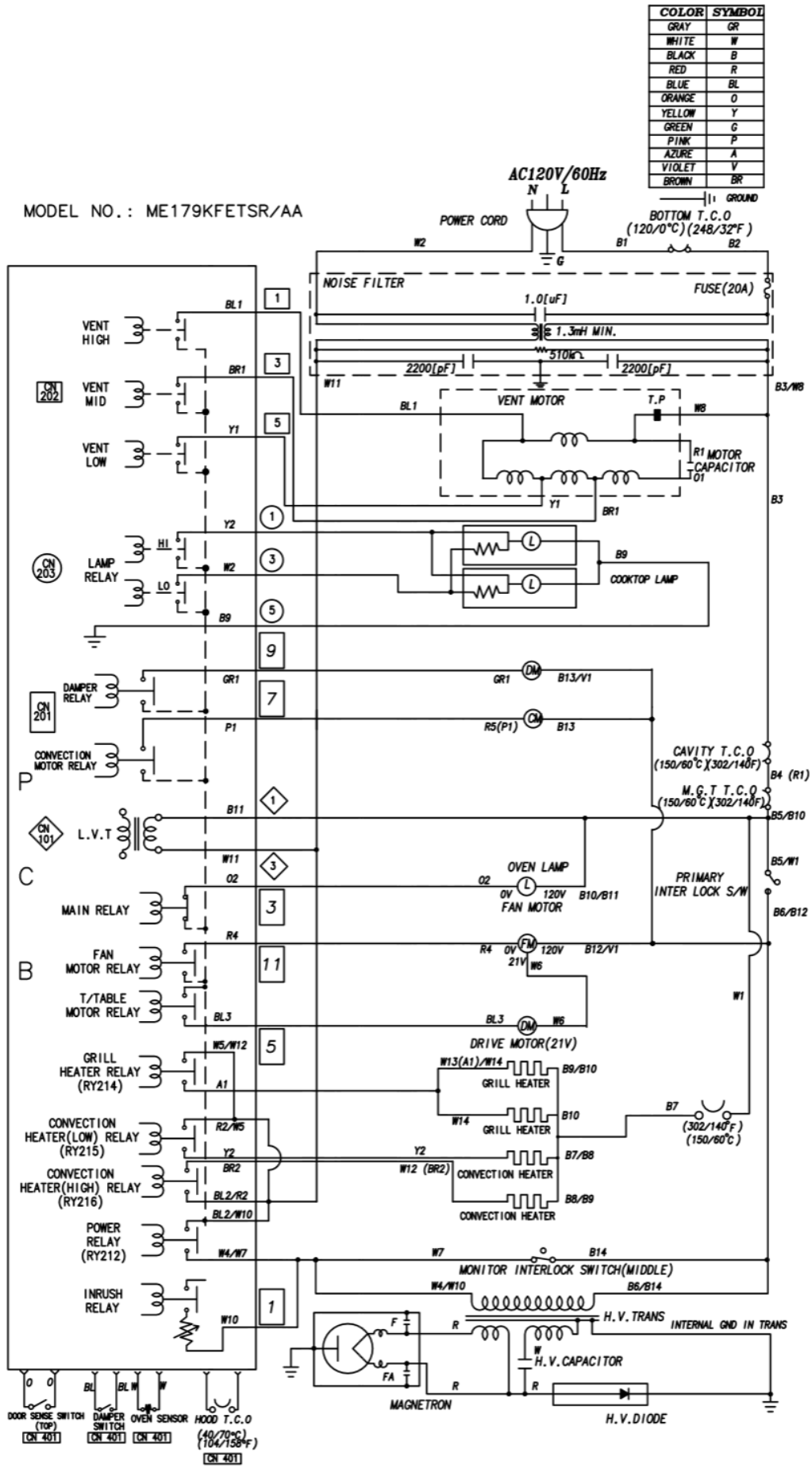
Convection
20Ω ± 7%

ohm
Abnormal:
Infinite or several.


CN201
1) INRUSH
2) NO PIN
3) MAIN
4) NO PIN
5) T/TABLE
6) NO PIN
7) CONV. MOTOR
8) NO PIN
9) FAN MOTOR
CN202
1) VENT HIGH
2) NO PIN
3) VENT MEDIUM
4) NO PIN
5) VENT LOW
6) NO PIN
7) COOKTOP LAMP
CN203
1) NIGHT
2) NO PIN
3) BRIGHT
4) NO PIN
5) GND
CN401
1) DOOR SWITCH2 (+12V)
2) NO CONNECTION
3) DOOR SWITCH1 (RY-V)
4) GND
5) TCO SENSOR
6) THERMAL SENSOR2 (GND, 0V)
7) THERMAL SENSOR1
8) DAMPER SWITCH2 (GND, 0V)
9) DAMPER SWITCH1
CN101
1) AC POWER (LIVE)
2) AC POWER (NEUTRAL)
CN501
(MAIN MICOM PROGRAM UPDATE)
1) POWER (GND, 0V)
2) MODE
3) POWER (+5V)
4) RXD1
5) TXD1
TIMPANI_MAIN
RY212
1) POWER RELAY CONTACT1 (HVT POWER)
2) POWER RELAY CONTACT2 (HVT POWER)
RY214
1) POWER RELAY CONTACT1 (GRILL HEATER)
2) POWER RELAY CONTACT2 (GRILL HEATER)
RY215
1) POWER RELAY CONTACT1 (CONV. HEATER 1)
2) POWER RELAY CONTACT2 (CONV. HEATER 1)
RY216
1) POWER RELAY CONTACT1 (CONV. HEATER 2)
2) POWER RELAY CONTACT2 (CONV. HEATER 2)
CN702
1) TOUCH FILM CONTACT (GND)
2) TOUCH FILM CONTACT (Y1)
3) TOUCH FILM CONTACT (Y2)
4) TOUCH FILM CONTACT (Y0)
5) TOUCH FILM CONTACT (GND)
6) TOUCH FILM CONTACT (GND)
7) TOUCH FILM CONTACT (X5)
8) TOUCH FILM CONTACT (X3)
9) TOUCH FILM CONTACT (X1)
10) TOUCH FILM CONTACT (X0)
11) TOUCH FILM CONTACT (X2)
12) TOUCH FILM CONTACT (X4)
13) TOUCH FILM CONTACT (X6)
14) TOUCH FILM CONTACT (GND)
CN102
1) VFD FILAMENT (F1)
2) VFD FILAMENT (F2)
3) NO CONNECTION
4) +5V
5) GND
6) SDA
7) SCL
8) ENCODER DIAL-1
9) ENCODER DIAL-2
CN701
(TOUCH MICOM PROGRAM UPDATE)
1) POWER (+5V)
2) POWER (GND, 0V)
3) TOUCH RESET
4) MOSI
5) MISO
6) SCK



No.	Parts Number	Part Name	Function and Rule
1	RY201	Main Relay	Fan, Lamp, T/T Control
2	RY202	Inrush Relay	Inrush Electric Current Decrease
3	RY203	Turn Table Relay	T/Table Motor Control
4	RY204	Convection Motor Relay	Conv. Motor Control
5	RY205	Damper Relay	Damper Motor Control
6	RY206	Fan Motor Relay	Fan Motor Control
7	RY207	Vent High Relay	Turn on High Ventilation
8	RY208	Vent Medium Relay	Turn on Medium Ventilation
9	RY209	Vent Low Relay	Turn on Low Ventilation
10	RY210	Night Relay	Turn on Low Light
11	RY211	Bright Relay	Turn on High Light
12	RY212	Power High Relay	MW Power Control (High Power)
13	RY213	Power Low Relay	MW Power Control (Low Power)
14	RY214	Grill Heater Relay	Grill Heater Control
15	RY215	Convertion Heater 1 Relay	Conv. Heater Control
16	RY216	Convection Heater 2 Relay	Conv. Heater Control
17	CN101	Power Connector	Conncet Power supply
18	CN102	Display PBA Connector	Conncet Display PBA
19	CN201	Relay Connector	A Terminal for Connecting with Relay Contact (Inrush, Main, T/Table, Conv. Motor, Damper, Fan Motor)
20	CN202	Relay Connector	A Terminal for Connecting with Relay Contact (Vent-High, Vent-Medium, Vent-Low, Cooktop Lamp)
21	CN203	Relay Connector	A Terminal for Connecting with Relay Contact (Night, Bright)
22	CN301	Gas Sensor Connector	A Terminal for Connecting with Gas Sensor
23	CN401	Sensing Connector	A Terminal for Connecting Sensor (Door switch, Damper, Temp. Sensor)
24	CN501	On Board Writing Connector	When do Main MICOM revision, connect to MICOM writer. (No connection at normal times)
25	CN701	On Board Writing Connector	When do Touch MICOM revision, connect to MICOM writer. (No connection at normal times)
26	CN702	Touch Film Connector	A Terminal for Connecting with Touch Film


COLOR | SYMBOL
GRAY | GR
WHITE | W
BLACK | B
RED | R
BLUE | BL
ORANGE | O
YELLOW | Y
GREEN | G
PINK | P
AZURE | A
VIOLET | V
BROWN | BR
GROUND
MODEL NO.: ME179KFETSR/AA
AC120V/60Hz
N L
POWER CORD
BOTTOM T.C.O (120/0°C)(248/32°F)
NOISE FILTER
FUSE(20A)
1.0[uF]
1.3mH MIN.
510kΩ
2200[pF]
2200[pF]
VENT MOTOR
T.P
R1 MOTOR CAPACITOR
01
VENT HIGH
VENT MID
VENT LOW
CN 202
LAMP RELAY
CN 203
COOKTOP LAMP
DAMPER RELAY
CN 201
CONVECTION MOTOR RELAY
CAVITY T.C.O (150/60°C)(302/140F)
M.G.T T.C.O (150/60°C)(302/140F)
L.V.T
CN 101
OVEN LAMP
FAN MOTOR
PRIMARY INTER LOCK S/W
MAIN RELAY
FAN MOTOR RELAY
T/TABLE MOTOR RELAY
DRIVE MOTOR(21V)
GRILL HEATER RELAY (RY214)
GRILL HEATER
CONVECTION HEATER(LOW) RELAY (RY215)
CONVECTION HEATER(HIGH) RELAY (RY216)
CONVECTION HEATER
POWER RELAY (RY212)
INRUSH RELAY
MONITOR INTERLOCK SWITCH(MIDDLE)
H.V.TRANS
INTERNAL GND IN TRANS
H.V.CAPACITOR
MAGNETRON
H.V.DIODE
DOOR SENSE SWITCH (TOP)
DAMPER SWITCH
OVEN SENSOR
HOOD T.C.O (40/70°C) (104/158°F)
CN 401