



Fast Track Trouble shooting

Model: ME16H702



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.

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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>

Bulletins:

!!!! 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

Error Code	Gas Sensor Error Case (E-1X)	Solution
E-11	Open	Check Sensor part ,connection of sensor housing and PCB's connector.
E-12	Short	
E-13	T1 Max Time Error	
-SE-	Key Short Error (10 seconds)	Turn off set and restart.

Error Code Numbering Rule

1. ERROR CODE NUMBERING RULE is applied to a microwave oven and an oven.(CMO, OTR, Grill, Convection, Commercial etc.)
2. All sensors and devices have their own number. ex) Gas Sensor = 1, Temp. Sensor = 2, ...
3. Of each device, No.1 and No.2 refer to “Open Error” (not sensed) and “Short Error”, respectively.
4. This numbering rule has been applied to models to have been developed since January, 1, 2005. (But, GE or Customize model are excluded.)

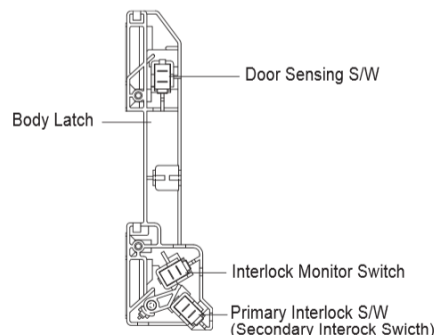
E	-	1	1
		DEVICE	ERROR CASE
		0- Others	1- Open
		1- Gas Sensor	2- Short
		2- Temp. Sensor	•
		3- Weight Sensor	•
		4- Easy/PH Sensor	•
		5- EEPROM	

Interlock Switch Test

	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

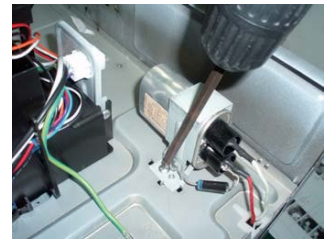
IMPORTANT!

There is NO adjustment on the door switches



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.

Main Relay & Power Control Relay Test

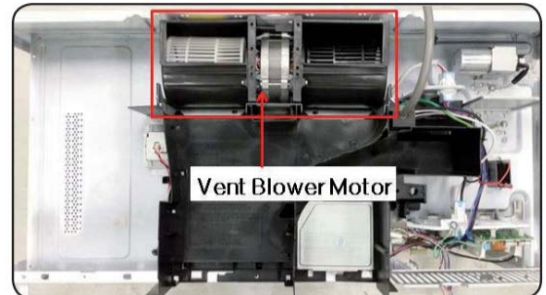
1. The relays are located on the PCB Ass'y. Isolate them from the main circuit by disconnecting the leads.
2. Operate the microwave oven with a water load in the oven. Set the power level to high.
3. Check continuity between terminals of the relays after the start pad is pressed.

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

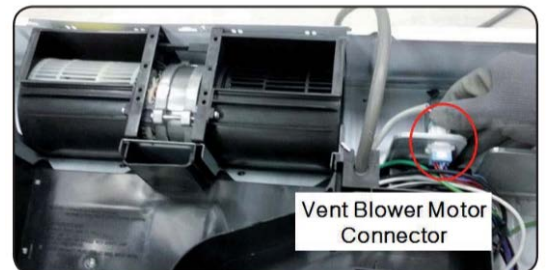
To Test Capacitor

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. Disconnect 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.



To Test TCO's (Thermal Cut Outs)

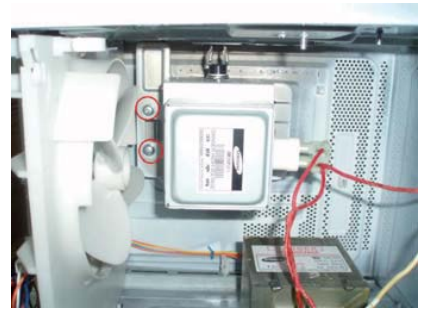
There are 4 different thermal cutouts in this unit with 4 different purposes. They are :

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.

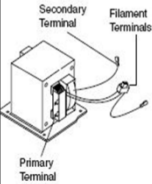
1. Oven Thermal Cut Out Open at 248F/120C non resettable - NORMALLY CLOSED
2. Hood Thermal Cut Out close at 158F/70C. Open at 104F/40C. Resettable - NORMALLY OPEN
3. Bottom Thermal Cut Out open at 248F/120C non resettable – NORMALLY CLOSED
4. Magnetron Term Cut out open at 302F/150C & close at 140F/60C. Resettable – NORMALLY CLOSED

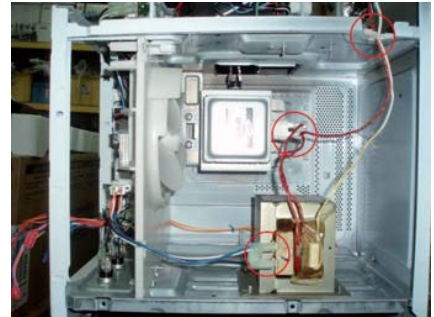
Magnetron Test

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



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. 0.55 + 2% ohm. Approx. 159.5 + 2% ohm. 0 ohm. Normal: Infinite. Normal: Infinite.



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)

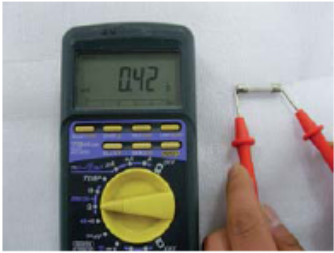
1. With 2 fingers touch and hold the following pads at the same time : **Auto Defrost** and **Popcorn**
2. Observe diagnostic number in display (Numbers approximate).
 - 15-185 (Normal-verify with "detection test")
 - 213 or Higher (Sensor failed to open, sensor unplugged, wiring or smart board.)
 -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

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

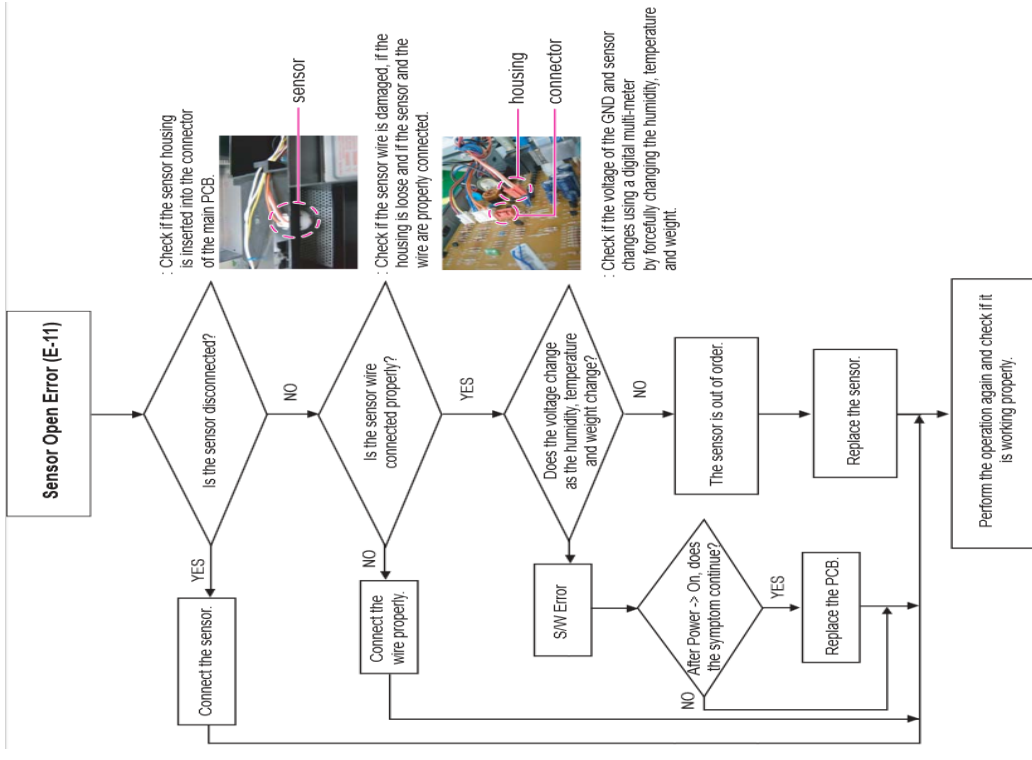
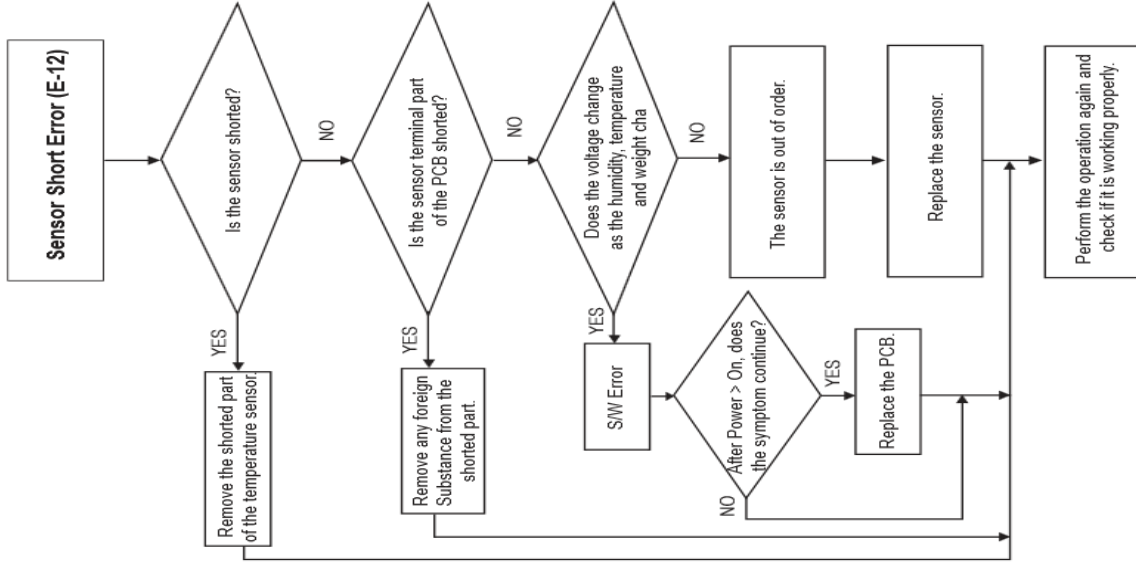
CAUTION : DO NOT ATTEMPT TO CHECK SENSOR TERMINALS (White and Orange leads).
 ♣ CAN DAMAGE SENSOR.



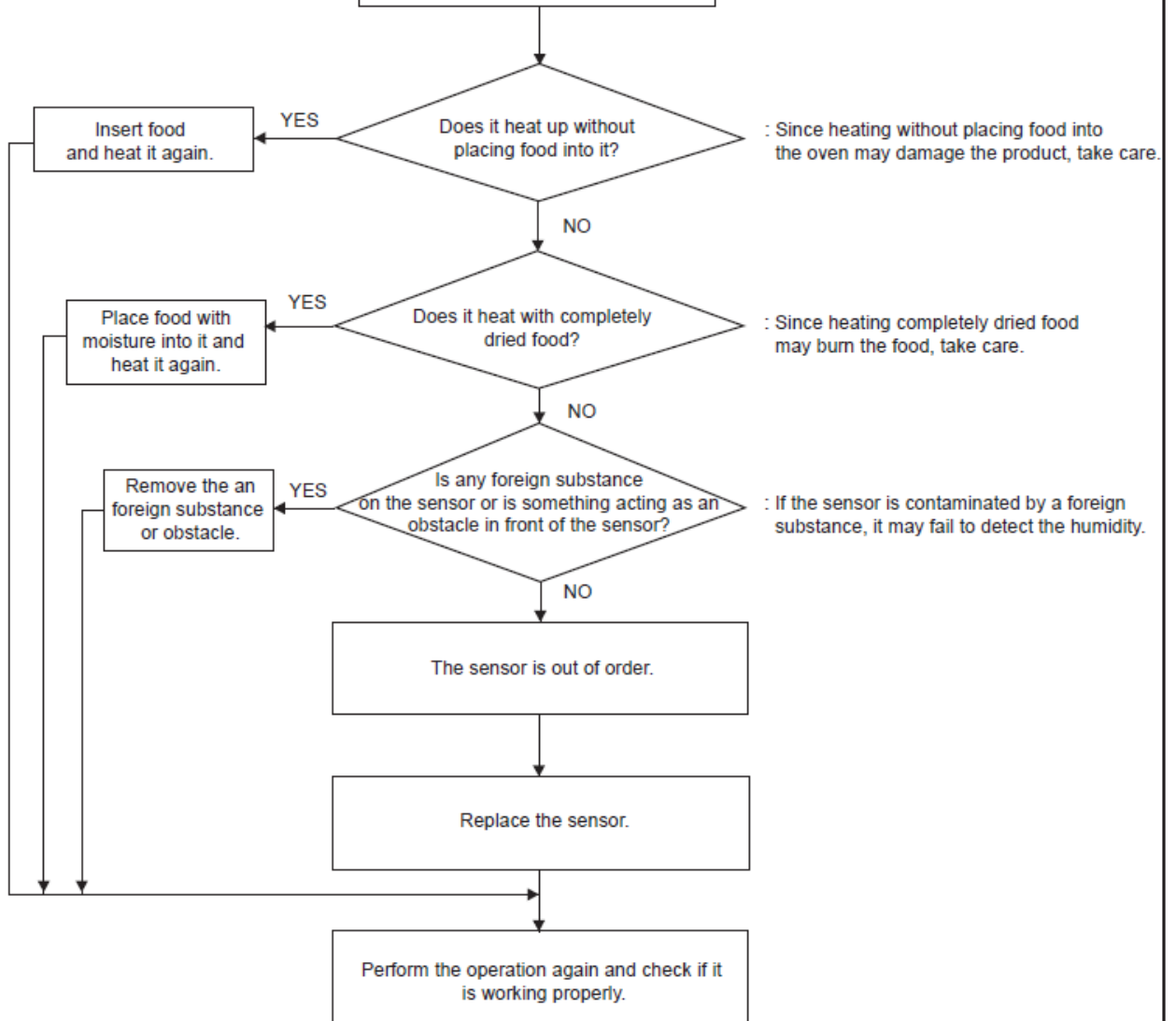
Trouble Shooting – Checking Parts

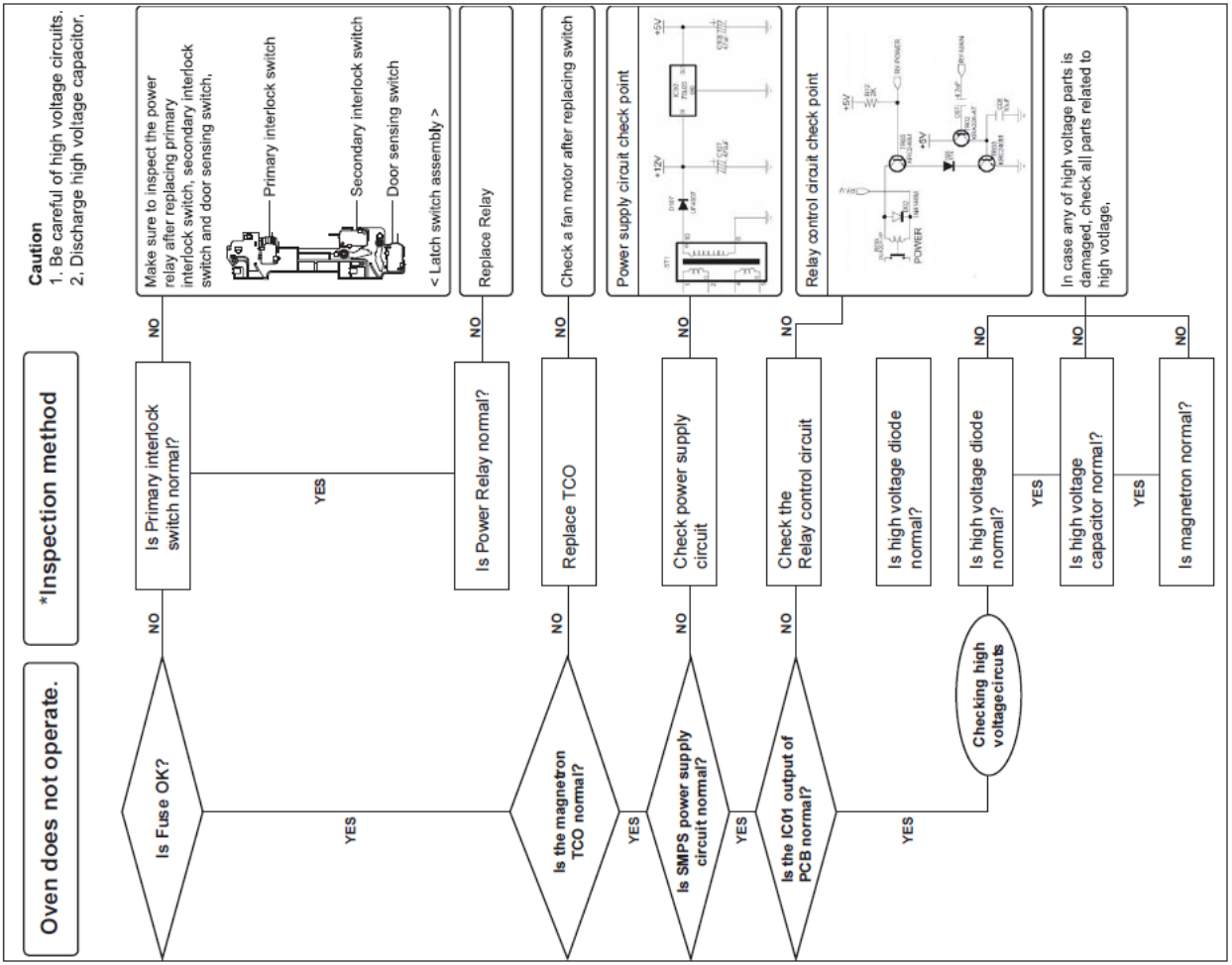
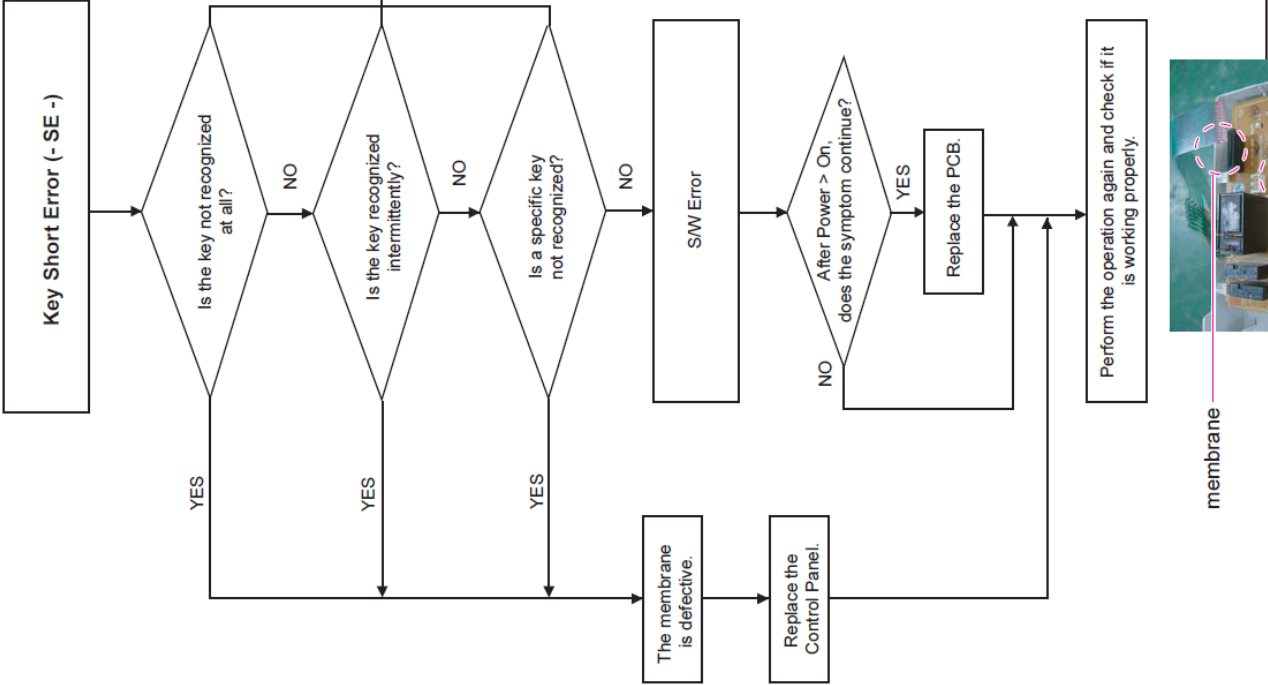
Parts	Photo	Good	No Good
Fuse		0.1 ~ 1 Ω	100 MΩ exceed
T.C.O		0.1 ~ 1 Ω	100 MΩ exceed
H.V Trans		1 ~ 9 Ω	100 MΩ exceed
Convection		100 ~ 990 Ω	100 MΩ exceed
Fan Motor		10 ~ 99 Ω	100 MΩ exceed
Grill Heater		10 ~ 99 Ω	100 MΩ exceed

Trouble Shooting

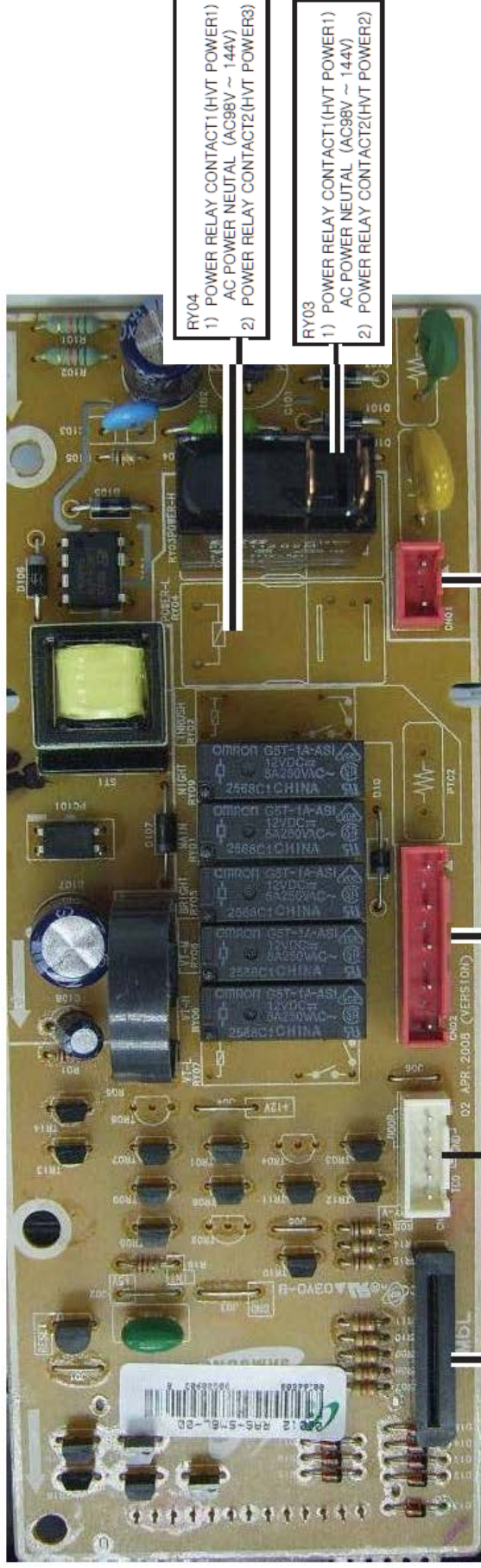


Sensor Max Time Error (E-13)





PCB Diagram



RY04
1) POWER RELAY CONTACT1 (HVT POWER1)
AC POWER NEUTAL (AC98V ~ 144V)
2) POWER RELAY CONTACT2 (HVT POWER3)

RY03
1) POWER RELAY CONTACT1 (HVT POWER1)
AC POWER NEUTAL (AC98V ~ 144V)
2) POWER RELAY CONTACT2 (HVT POWER2)

CN01
1) POWER (LIVE)
2) NO PIN
3) INRUSH CIRCUIT (MODEL OPTION)

CN02
1) MAIN RELAY
2) NO PIN
3) BRIGHT / NIGHT RELAY
4) NO PIN
5) VENT LOW RELAY
6) NO PIN
7) VENT HIGH RELAY
8) NO PIN
9) VENT MID RELAY

CN03
1) DOOR SWITCH1 (RY_12V)
2) GND
3) DOOR SWITCH1 (12V)
4) GND

CN04
1) KEY OUTPUT1
2) KEY OUTPUT2
3) KEY OUTPUT3
4) KEY OUTPUT4
5) KEY OUTPUT5
6) KEY OUTPUT6
7) KEY OUTPUT7
8) KEY OUTPUT8
9) KEY INPUT1
10) KEY INPUT2
11) KEY INPUT3
12) KEY INPUT4
13) KEY INPUT5
14) ENCODER COMMON (ENCODER S/W MODEL)

SCHEMATIC DIAGRAM

WARNING
POWER MUST BE DISCONNECTED
BEFORE SERVICING THIS APPLIANCE

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

