



## Fast Track Troubleshooting

**Model:**  
**SMH9187B/XAA**  
**SMH9187ST/XAA**  
**SMH9187W/XAA**

**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.

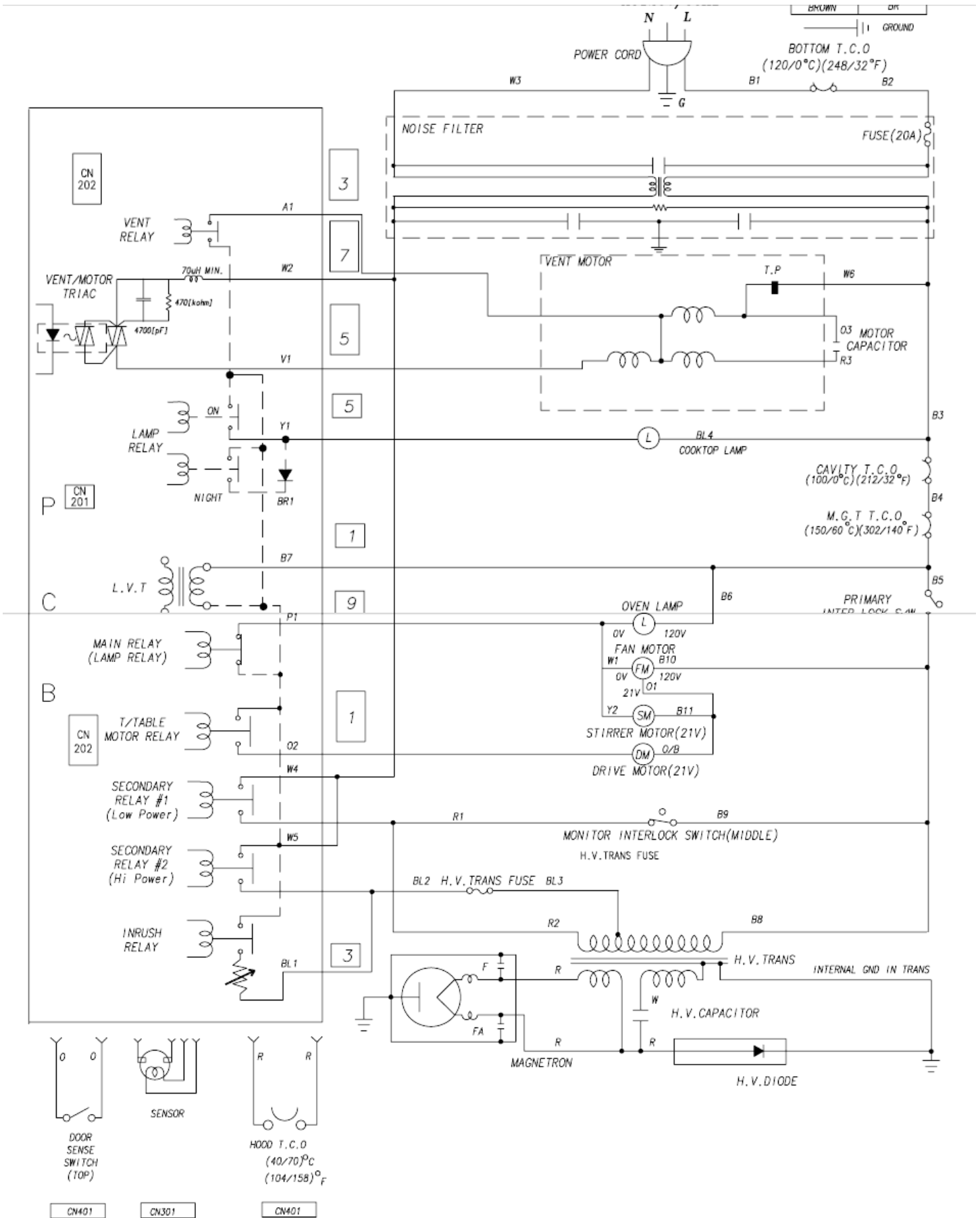
Publication # tsSMH9187 Revision Date 03/21/2011

### SUPPORT INFORMATION

Training — Plus One <http://my.plus1solutions.net/clientPortals/samsung/>  
 Help — GSPN <http://service.samsungportal.com/>  
 Samsung Product Support TV <http://support-us.samsung.com/spstv/howto.jsp>  
 Customer information videos and chat programs. Programs for Fridges, Laundry, Ranges & D/W

### Samsung 'Microwave' Diagnostic Code Quick Guide

Failure Code	Cause
E-11 Open E-12 Short E-13 T1 Max Time Error E-14 Dry Up / No Load	Error Code Gas Sensor Error Case (E-1X)
E-21 Open E-22 Short E-23 T1 Max Time Error (Preheating not completed) E-24 Over temperature error E-25 Abnormal temperature is sensed at Micro Cook E-26 Temp is not over the fixed AD in first 3 minutes after heater starts.	Error Code Temp Sensor Error Case (E-2X)
E-31 Open (When value of HEX is above “FF” for 5 seconds) E-32 Short E-33 The initial value of HEX is under “14” for 30 seconds while a weight sensor in operation. E-34 The initial value of K calculated by a weight sensor is above and under “±28” as value of HEX. E-35 The value of A is “-” as a weight sensor calculates. E-36 In case the door opens during sensor cooking.	Error Code Gas Sensor Error Case (E-1X)
E-41 Open E-42 Short E-43 T1 Max Time Error E-44 Dry Up E-45 Cooling Error (3minutes) E-46 Primary Open Error(3minutes) E-47 The door opens during cooking	Error Code Easy/PH Sensor Error Case (E4)
E-51 Open (Sense Failure) E-53 Read/Write Error E-54 Zero not to be set	Error Code EEPROM Error Case (E-5X)
E-61 Open E-62 Short E-63 T1 Max Time Error	Error Code Humidity Sensor Case (E-6X)
-SE- Key Short Error (10 seconds) E-01 Door opens when the door should not be opened. E-02 Cooking Time Setting Over Error (MWO) E-03 Cooking Time Setting Over Error (Grill) E-04 Cooking Time Setting Over Error (Convection) E-05 Cooking Time Setting Over Error (Combination) E-06 It fails to sense that the swing heater has stopped for 20 seconds during cooking. E-08 In case function of MWO starts with spit inserted into cavity inside. E-09 The damper is not set to be positioned for 2 minutes.	Error Code Others (E-0X, Letter)



# Main PCB

**CN301 Gas Sensor**  
3-4 5vdc

**CN401 Door Connector**  
1 RY202,203,204 12vdc common  
3-5 12vdc  
4-5 5vdc

**RY206 Bright Relay**

**RY202 In Rush Relay**

**RY201 Main Relay**

**RY203 Power High Relay**

**RY209 Vent Low Relay**

**RY208 TT Relay**

**RY204 Power Low Relay**

**RY205 Night Relay**

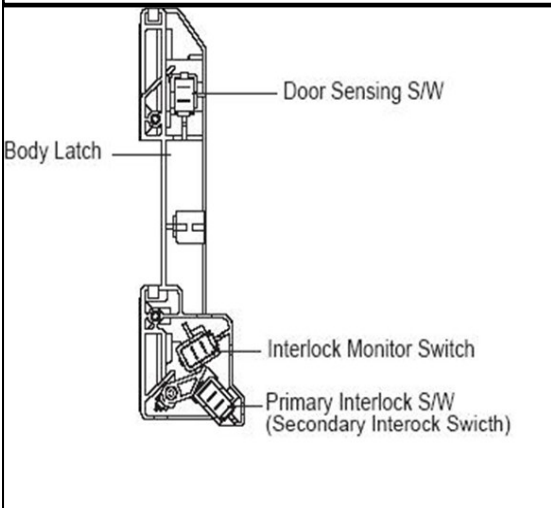
**CN202 TT & Vent Low**  
1 RY208 TT Relay Neutral Contact  
3 RY209 Vent Low Relay Neutral Contact

**CN201 Relay, Lamp, SMPS**  
1 Line 1  
3-1 RY202 In Rush Relay Neutral Contact  
5-1 RY206 Bright Lamp Relay Neutral Contact  
5-1 RY205 Night Lamp Relay Neutral Contact  
9-1 RY201 Main Relay Neutral Contact

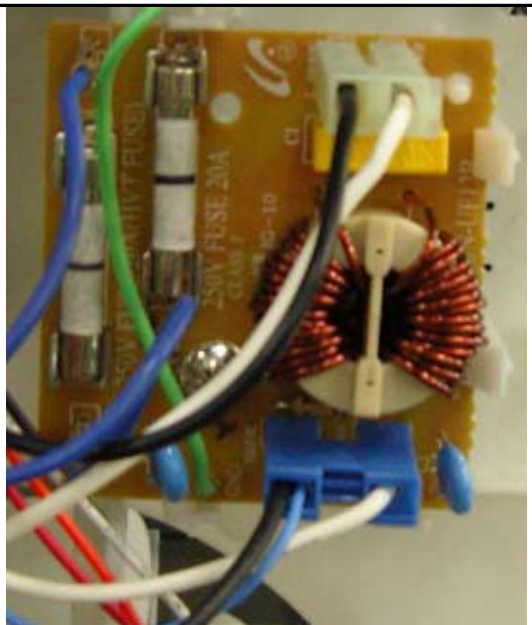
The fuse is located on the noise filter.

1. Disconnect power and remove grille and Assembly Control Box.
2. Replace the fuse.
3. When 20A fuse blows out by the operation of interlock monitor switch failure, replace the primary interlock switch, secondary interlock switch, door sensing switch, interlock monitor switch and power relay.
4. When the above four switches operate properly, check if any other part such as the control circuit board, blower motor or high voltage transformer is defective.

## Door Interlock Ass'y



	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



## Microwave Cooking Wattage Test

Fill a 1000ml plastic room temperature container with cool tap water, temperature of the water should be 55-65 degrees

Stir water with a thermometer and record the water temperature, remove thermometer.

Place the container in the center of the lowest shelf or center of the bottom of the microwave.

For units less than 1550 watts, operate the oven on high for exactly 63 seconds.

Using the thermometer, stir the water to check the temperature of the water.

Subtract the starting temperature from the final temperature; this will be the temperature rise.

Temp Rise	Output	Temp Rise	Out-
5	194	23	891
6	232	24	930
7	271	25	969
8	310	26	1007
9	349	27	1046
10	387	28	1085
11	426	29	1124
12	464	30	1162
13	504	31	1201
14	542	32	1240
15	581	33	1279
16	620	34	1317
17	659	35	1356
18	697	36	1395
19	736	37	1434
20	775	38	1472
21	814	39	1511
22	852	40	1550

**NOTE: Check line voltage under load, lower line voltage will lower the power output.**

### Procedure for measurement of microwave energy leakage

1. Pour 275±15cc of 20±5°C(68±9°F) water in a beaker which is graduated to 600cc, and place the beaker in the center of the oven
2. Start to operate the oven and measure the leakage by using a microwave energy survey meter.
3. Set survey meter with dual ranges to 2,450MHz.
4. When measuring the leakage, always use the 2 inch spacer cone with the probe. Hold the probe perpendicular to the cabinet door. Place the spacer cone of the probe on the door and/or cabinet door seam and move along the seam. The door viewing window and the exhaust openings moving the probe in a clockwise direction at a rate of 1 inch/sec. If the leakage testing of the cabinet door seam is taken near a corner of the door, keep the probe perpendicular to the areas making sure that the probe end at the base of the cone does not get closer than 5 cm to any metal. If it gets closer than 5 cm, erroneous readings may result.
5. Measured leakage must be less than 4mW/cm<sup>2</sup> after repair and adjustment.

*Maximum allowable leakage is 5mW/cm<sup>2</sup>. 4mW/cm<sup>2</sup> is used to allow for measurement and meter accuracy.*

### Safety precautions

Some semiconductor ("solid state") devices are easily damaged by static electricity. Such components are called **Electrostatically Sensitive Devices (ESDs)**. Examples include integrated circuits and field-effect transistors. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground.

**High Voltage Warning** Do not attempt to measure any of the high voltages --this includes the filament voltage of the magnetron. High voltage is present during any cook cycle. Before touching any components or wiring, always unplug the oven and discharge the high voltage capacitor

**WARNING:** It is critical to route wires and wire harness identical to the way they were, to prevent electromagnetic interference causing possible fault codes.

M/W Information		
Specifications	M/W Power	1100 Watts
	M/W Weight	62.7 Lbs
High Voltage Transformer	Primary	0.43Ω
	Secondary	125Ω
	Filament	0.0Ω
Motors	Vent Turbo	30Ω
	Vent High	81Ω
	TT & Stirrer Motors	120Ω
	Fan Motor	40Ω