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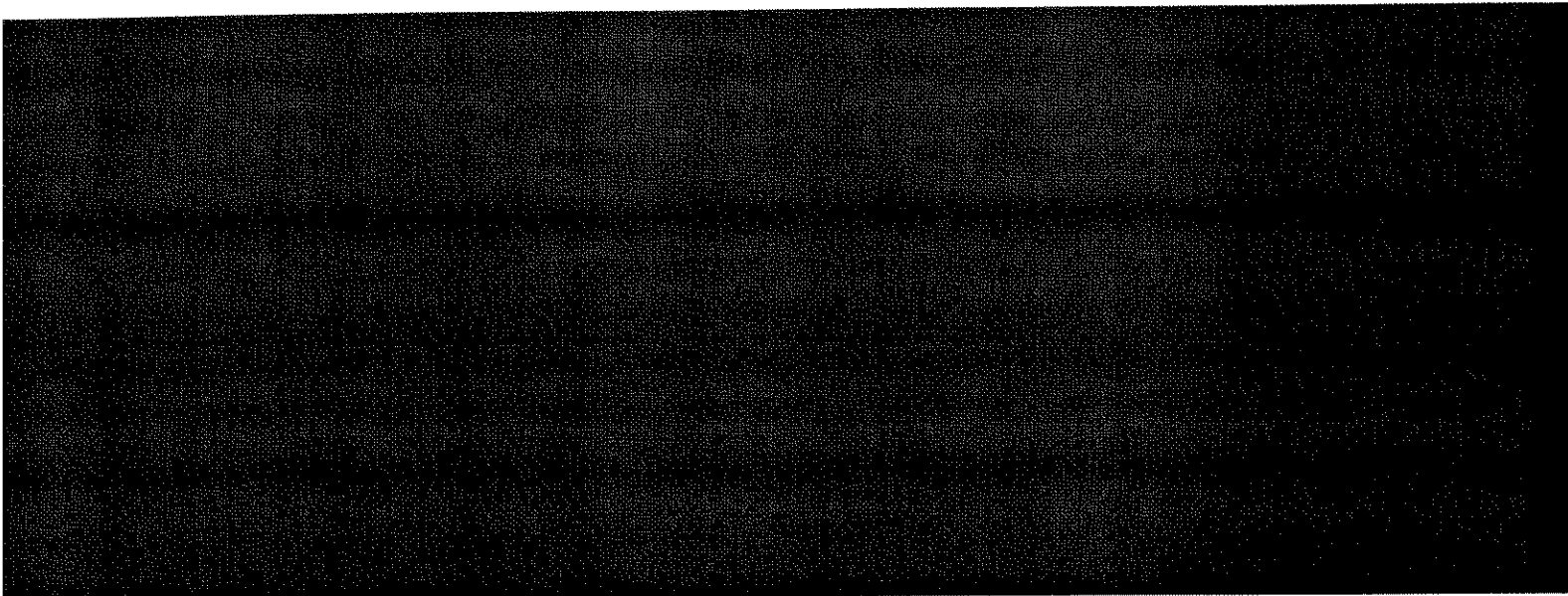
# MICROWAVE OVEN SERVICE MANUAL

**MODEL: MV-154SJ**

*MV-1511M = mv153XD = ABIEGSC*

**CAUTION**

BEFORE SERVICING THE UNIT, READ THE  
SAFETY PRECAUTIONS IN THIS MANUAL.



# **CAUTION**

## **SAFETY PRECAUTIONS**

### **PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY**

- a. Do not operate or allow the 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; (1) Interlock operation, (2) proper door closing, (3) seal and sealing surfaces (arcing, wear, and other damage), (4) damage to or loosening of hinges and latches, (5) 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 the oven is released to the owner.
  - e. A Microwave leakage check to verify compliance with the CSA Standard should be performed on each oven prior to release to the owner.
- Proper operation of the microwave ovens requires that the magnetron be assembled to the wave guide and cavity. Never operate the magnetron unless it is properly installed.
  - Be sure that the magnetron gasket is properly installed around the dome of the tube whenever installing the magnetron.
  - Routine service safety procedures should be exercised at all times.
  - Untrained personnel should not attempt service without a thorough review of the test procedures and safety information contained in this manual.

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## FOREWORD

Read this Manual carefully. Failure to adhere to or observe the information in this Manual may result in exposing yourself to the Microwave Energy normally contained within the oven cavity.

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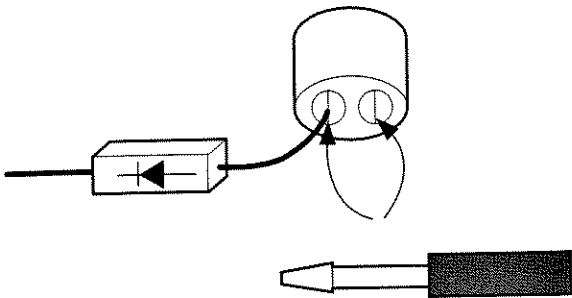
# SPECIFICATIONS

Rated Power Consumption .....	1,400W maximum (Microwave oven only) 1,500W maximum (Microwave oven+Cook top lamps+Ventilation fan)
Microwave Output .....	1000W (IEC 705 TEST PROCEDURE) Adjustable 100W through 1000W, 10 steps
Frequency .....	2,450 MHz $\pm$ 50 MHz
Power Supply .....	120 VAC, 60 Hz
Rated Current .....	13 Amp. (Microwave oven only) 14 Amp. (Microwave oven+Cook top lamps+Ventilation fan)
Magnetron Cooling .....	Forced Air Cooling
Rectification .....	Rectification Voltage Double Half-Wave
Door Sealing .....	Choke System
Safety Devices .....	Magnetron Thermostat: Open at 150°C $\pm$ 7°C (302°F $\pm$ 44°F), short at 60°C $\pm$ 15°C (140°F $\pm$ 59°F) Oven Cavity Thermostat: Open at 110°C $\pm$ 5°C (230°F $\pm$ 41°F), short at 0°C (32°F)
	Fuse(20A)
	Primary Interlock Switch
	Secondary Interlock Switch
	Interlock Monitor
Magnetron .....	2M246-310GF or 2M248E
High Voltage Capacitor .....	Capacitor: 1.0 $\mu$ F, 2.1 KV AC
High Voltage Diode .....	Diode; 350mA, 9.0 KV
Cook top Lamp .....	125 V, 30 W
Cavity Lamp .....	125 V, 30 W or 40 W
Timer .....	Digital, up to 99 mim. 99 sec. (in each cooking stage)
Tray .....	Tempered Safety Glass
Overall Dimensions .....	29 <sup>15</sup> / <sub>16</sub> "(W)x16 <sup>7</sup> / <sub>16</sub> "(D)x15 <sup>3</sup> / <sub>8</sub> "(H)
Oven Cavity Size .....	19 <sup>7</sup> / <sub>8</sub> "(W)x14 <sup>5</sup> / <sub>32</sub> "(D)x8 <sup>15</sup> / <sub>16</sub> "(H)
Effective Capacity of Oven Cavity .....	1.5 Cu.ft.
Accessories .....	Owner's Manual & Cooking Guide, Installation Manual, Exhaust Adapter, Exhaust Damper, Mounting Kit and Two Filters, Rotating Ring Assembly.

# CAUTIONS

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

- DO NOT operate on a 2-wire extension cord during repair and use.
- NEVER TOUCH any oven components or wiring during operation.
- BEFORE TOUCHING any parts of the oven, always remove the power plug from the outlet.
- For about 30 seconds after the oven stops, an electric charge remains in the high voltage capacitor. When replacing or checking, you must discharge the high voltage capacitor by shorting across the two terminals with an insulated screwdriver.

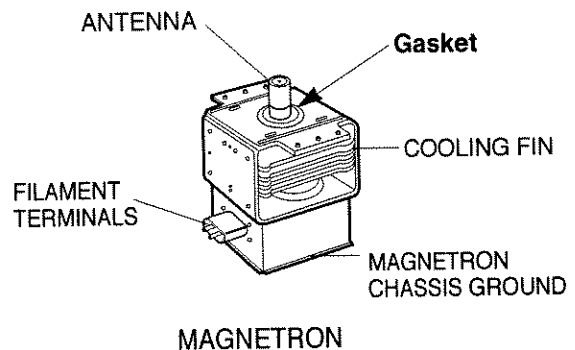


- Remove your watches whenever working close to or replacing the Magnetron.
- DO NOT touch any parts of the control panel circuit. A resulting static electric discharge may damage this P.C.B.
- NEVER operate the oven with no load.
- NEVER injure the door seal and front plate of the oven cavity.
- NEVER put iron tools on the magnetron.
- NEVER put anything into the latch hole and the interlock switches area.

## MICROWAVE RADIATION

Personnel should not be exposed to the microwave energy which may radiate from the magnetron or other microwave generating device if it is improperly used or connection. All input and output microwave connections, waveguide, flange, and gasket must be secure never operate the device without a microwave energy absorbing load attached. Never look into an open waveguide or antenna while the device is energized.

- Proper operation of the microwave oven requires that the magnetron be assembled to the waveguide and cavity. Never operate the magnetron unless it is properly installed.
- **Be sure that the magnetron gasket is properly installed around the dome of the tube whenever installing the magnetron.**



**THE OVEN IS TO BE SERVICED ONLY BY PROPERLY QUALIFIED SERVICE PERSONNEL.**

# INSTALLATIONS

**BEFORE YOU BEGIN, READ THE FOLLOWING INSTRUCTIONS COMPLETELY AND CAREFULLY.**

## PRECAUTIONS ON INSTALLATION

- A. Plug the power supply cord into a 120V AC, 60Hz, single-phase power source with a capacity of 15A or 20A.
- B. Avoid placing the unit in a location where there is direct heat or splashing water.
- C. Install the unit on the mounting plate firmly.
- D. Place the unit as far away as possible from TV, radio, etc. to prevent interference.

## GROUNDING INSTRUCTIONS

For personal safety, this appliance must be fully grounded at all times.

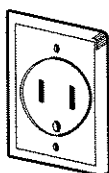
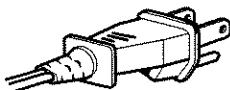
In the event of an electrical short circuit, grounding reduces the risk of electrical shock.

The plug must be plugged into an outlet that is properly installed and grounded.

### CAUTION

This unit is equipped with a 3-prong plug for your safety. If the wall outlet is a grounded 3-hole type, the unit will be grounded automatically.

**Plug with Ground Prong**



**Properly Polarized and Grounded Outlet**

### WARNING

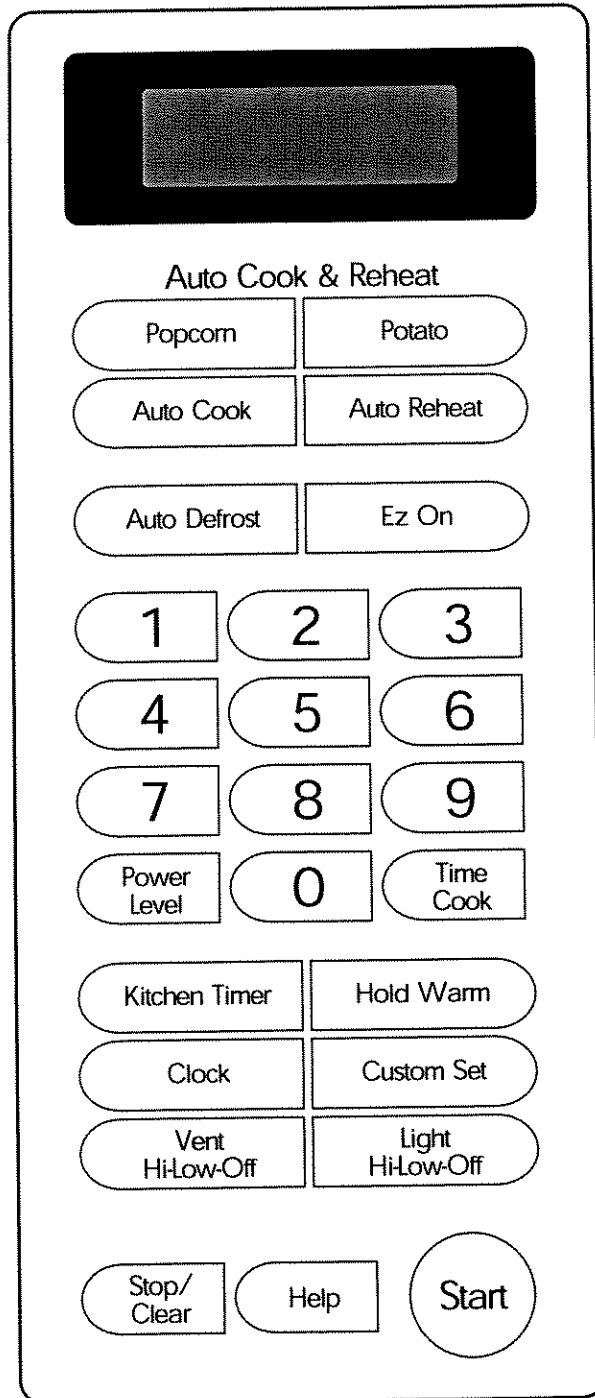
Improper use of the grounding plug can result in a risk of electric shock.

Do not, under any circumstances, cut or remove the third ground prong from the power cord plug.

# OPERATING INSTRUCTIONS

## CONTROL PANEL

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## CONTROL PANEL INSTRUCTIONS

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The entire operation is done by simple touch control pads.

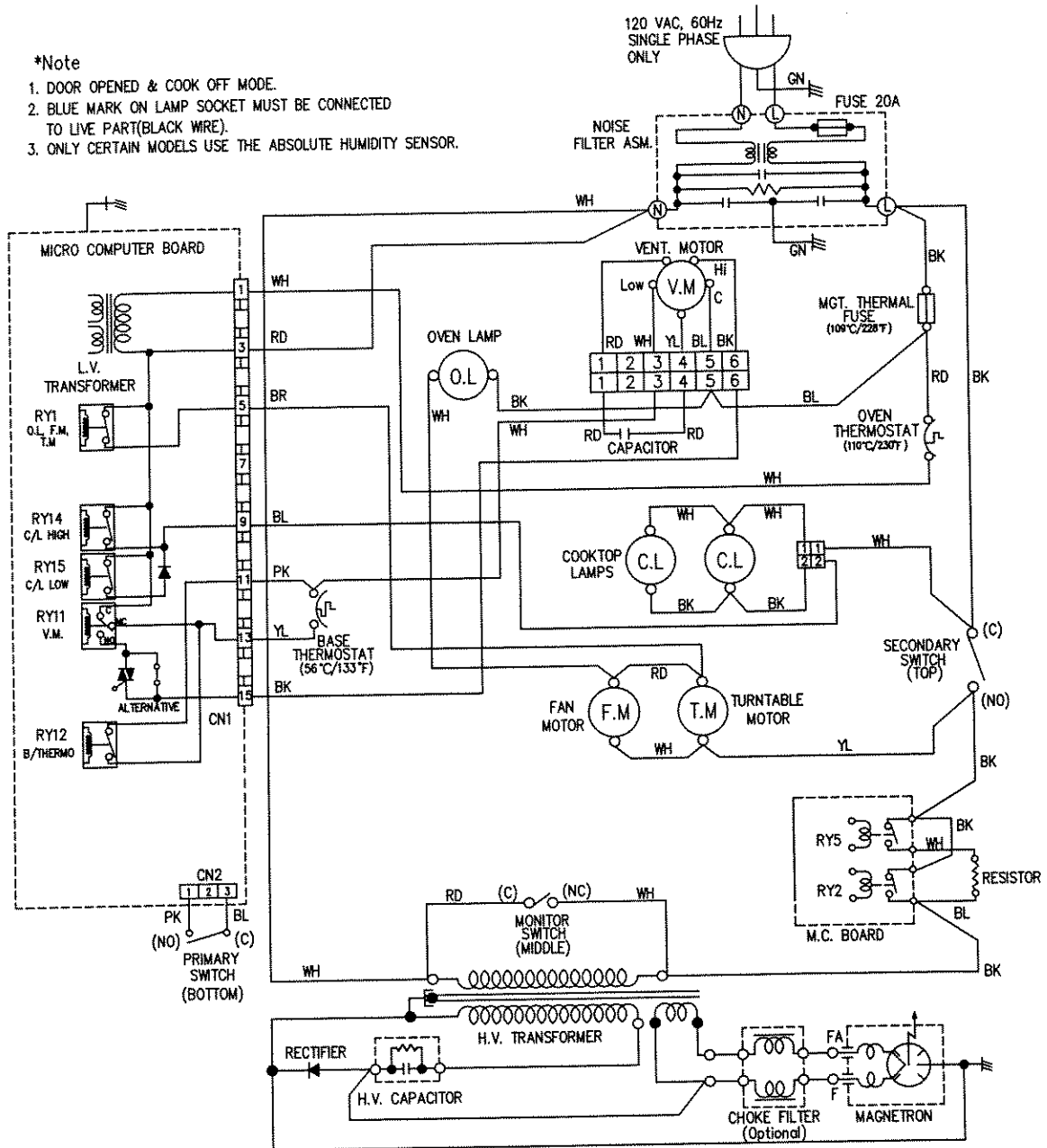
- (1) **Display Window**  
Numbers and letters are shown in the display window (Vacuum Fluorescent Tube).  
Each Indicator Light shows which function is set and involved in the course of cooking by turning itself on. Indicator Lights automatically go out upon completion of cooking.
- (2) **POWER LEVEL Key**  
Used to select cooking power level.
- (3) **EZ ON Key**  
Used to cook for one minute at 100% power level. It can be used to extend cooking time in multiples of one minute up to 99 minutes.
- (4) **CLOCK(TIME OF DAY) Key**  
Used in setting Time of Day.
- (5) **STOP/CLEAR Key**  
Used to stop the oven or clear all entries except Time of Day.
- (6) **START Key**  
Touch the START key after setting the desired cooking times etc. Also touch the START key to resume cooking after the cooking is temporarily stopped by opening the door. The key will not function unless the door is closed.
- (7) **AUTO DEFROST Key**  
Used to defrost for frozen foods by weight.
- (8) **AUTO COOK & REHEAT Key**  
Used to cook the preprogrammed food automatically.
- (9) **KITCHEN TIMER Key**  
Used to set the timer.
- (10) **CUSTOM SET Key**  
Touch this pad to change the oven's default setting for sound, clock, display speed, defrost weight, and demo mode operations.
- (11) **VENT HI-LOW-OFF Key**  
Touch FAN once for HIGH fan speed, twice for low fan speed, or threetimes to turn the fan off.
- (12) **LIGHT HI-LOW-OFF Key**  
Touch LIGHT once for bright light, twice for the night light, or three times to turn the light off.

# OVERALL CIRCUIT DIAGRAM

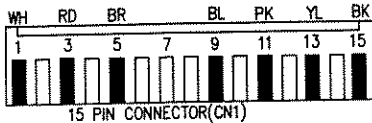
## SCHEMATIC DIAGRAM

**\*Note**

1. DOOR OPENED & COOK OFF MODE.
2. BLUE MARK ON LAMP SOCKET MUST BE CONNECTED TO LIVE PART (BLACK WIRE).
3. ONLY CERTAIN MODELS USE THE ABSOLUTE HUMIDITY SENSOR.



**CONTROL MODULE**



**WIRE COLORS**

SYMBOL	COLOR
WH	WHITE
BK	BLACK
RD	RED
YL	YELLOW
PK	PINK
BL	BLUE
BR	BROWN
GN	GREEN
GY	GREY

# MATRIX CIRCUIT FOR TOUCH KEY BOARD

	1	2	3	4	5	6	7
8	FAN HI/LO/OFF	HELP	COOK	POPCORN	TIME COOK	5	0
9	LIGHT HI/LO/OFF	CUSTOM SET	REHEAT	POTATO	AUTO DEFROST	6	1
10	N.C	CLOCK	EZ ON	N.C	KITCHEN TIMER	7	2
11	N.C	N.C	N.C	N.C	POWER	8	3
12	N.C	STOP/ CLEAR	START	N.C	HOLD WARM	9	4
13	N.C	N.C	N.C	N.C	N.C	N.C	N.C

# GENERAL INFORMATION FOR SERVICE

## GENERAL PRECAUTIONS IN USE

### A. Never operate the unit when it is empty.

Operating the oven with no load may shorten the life of the magnetron. Whenever cooking dry foods (dried fish, bread, etc.) or a small amount of food, be sure to put a glass of water into the cooking compartment. The glass turntable may become hot after operating, be careful when touching it.

### B. Aluminum foil should be avoided because it will disrupt cooking and may cause arcing. However, small pieces may be used to cover some parts of food to slow the cooking. Any aluminum foil used should never be closer than 2.5 cm to any side wall of the oven.

- (1) Primary interlock switch
- (2) Secondary interlock switch
- (3) Interlock monitor switch
- (4) Choke system
- (5) Magnetron thermostat
- (6) Oven cavity thermostat

**(Note:** This thermostat located on the oven cavity will open and stop the unit from operation only if a high temperature is reached, such as, a fire created by overcooking food.)

### B. Any one of 10 power output levels ranging 100W to 1000W can be selected by the touch control and electronic computer system.

## TRIAL OPERATION

After installation, the following sequences and results should be checked carefully.

- A. Put a container filled with water (about 1 liter) into the oven, and close the door tightly.
- B. Set cooking time for 10 minutes by touching "1" and then "0" three times. "1, 0, 0, 0" appears in the display window.
- C. Touch the START key.  
Make sure the cavity light comes on. The unit will begin cooking and the display window will show the time counting down by seconds.
- D. After about 5 minutes, make sure the primary interlock switch, the secondary interlock switch and the interlock monitor switch operate properly by opening and closing the door several times. Touch the START key each time the door is closed.
- E. Continue operating the unit. Two short and a long beep sound signal is heard when the time is up.  
The unit will shut off automatically.
- F. Confirm the water is hot.
- G. Finally, measure the output power according to "POWER OUTPUT MEASUREMENT" on page 7-3.

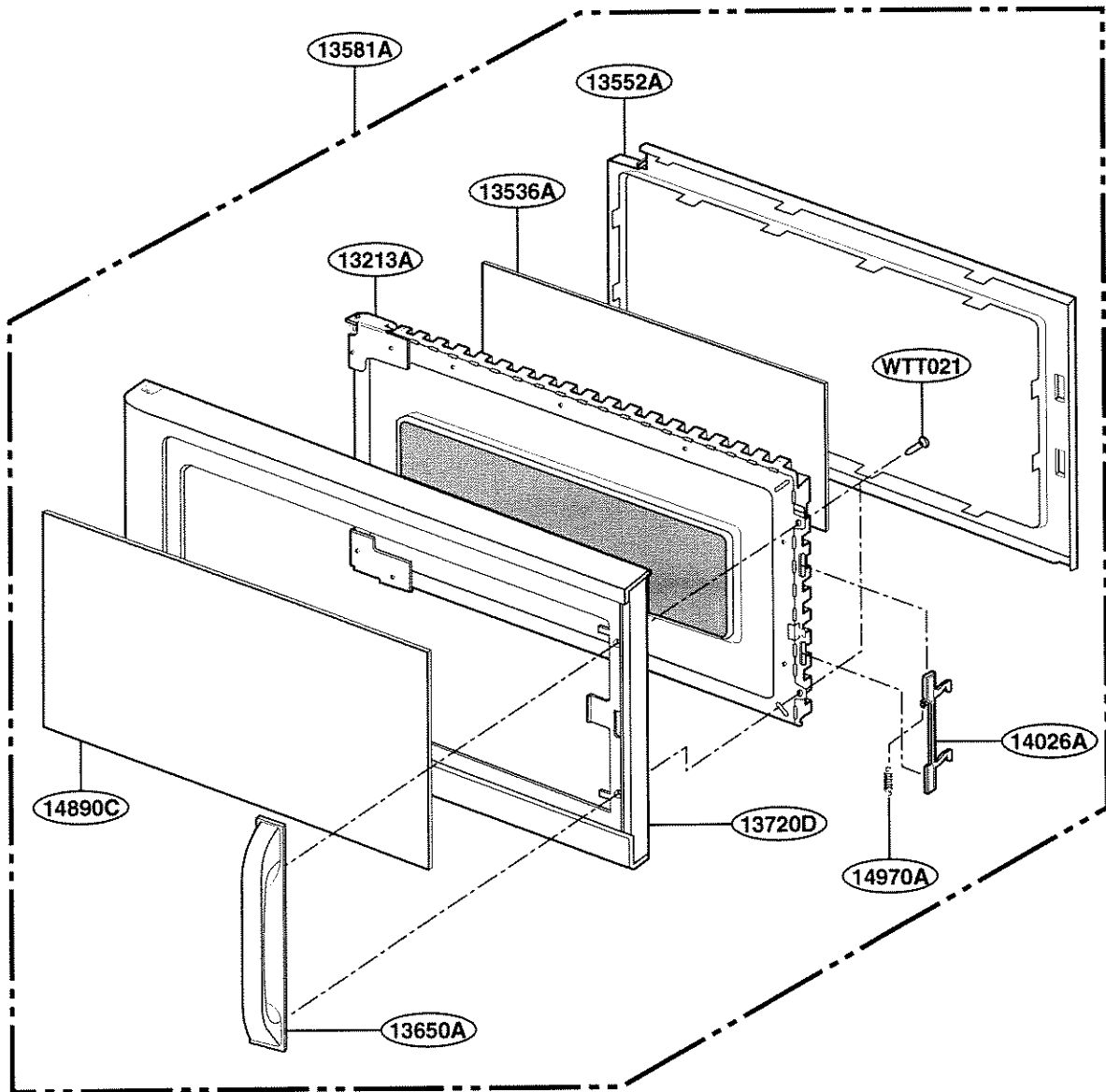
## FEATURES AND SPECIFICATIONS

### FEATURES

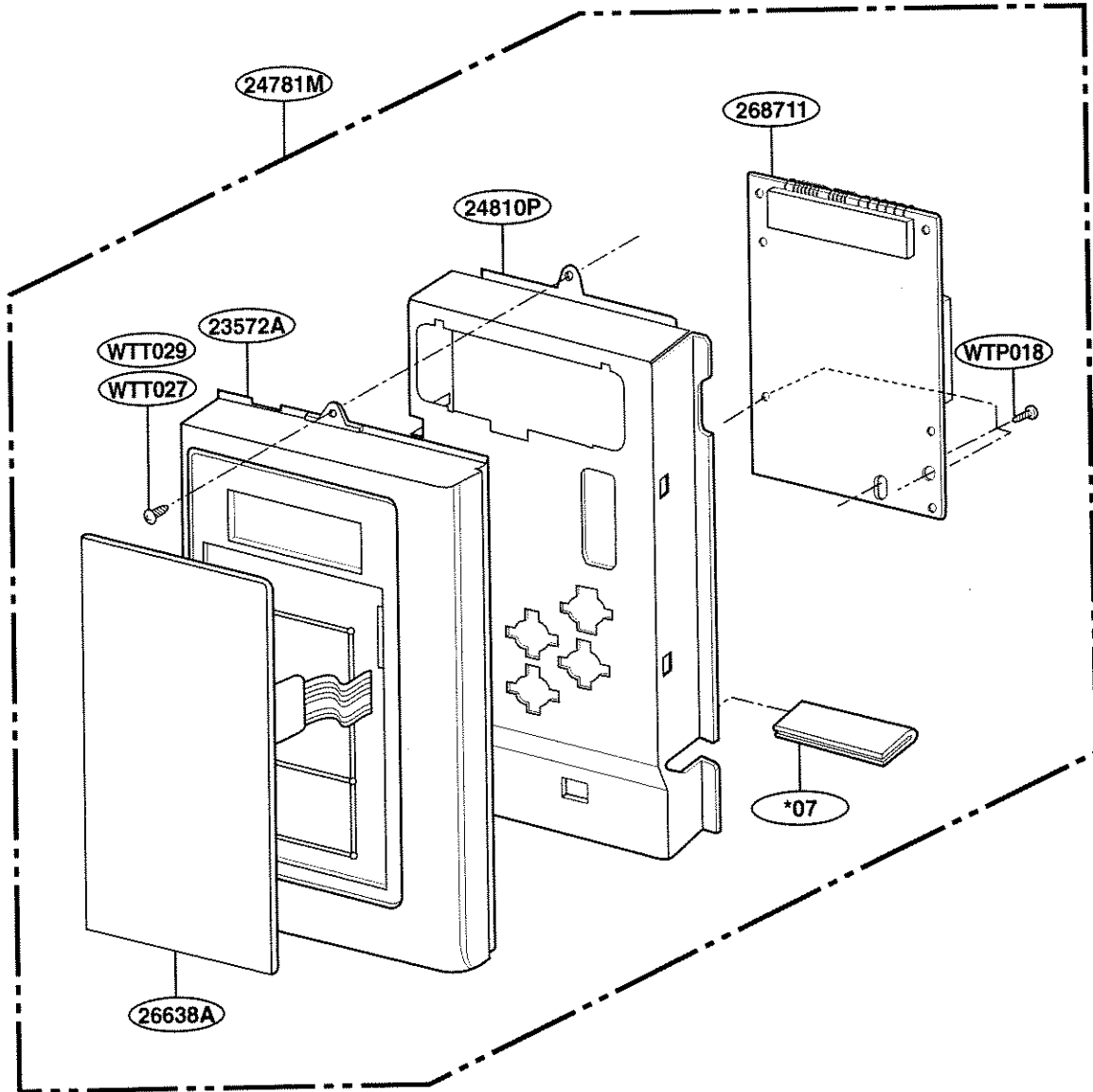
- A. The safety systems incorporated in this model are:

# EXPLODED VIEW

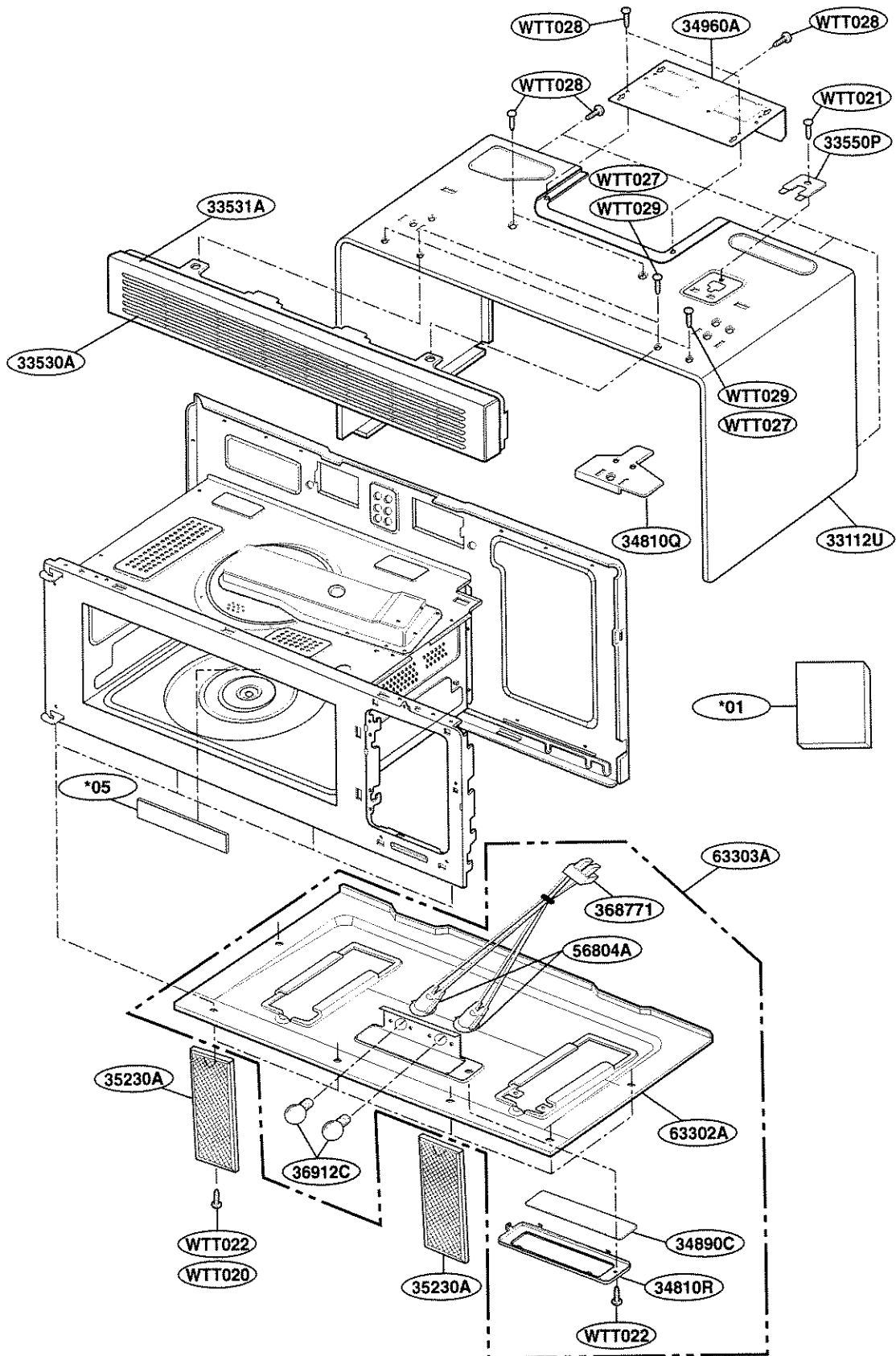
## DOOR PARTS



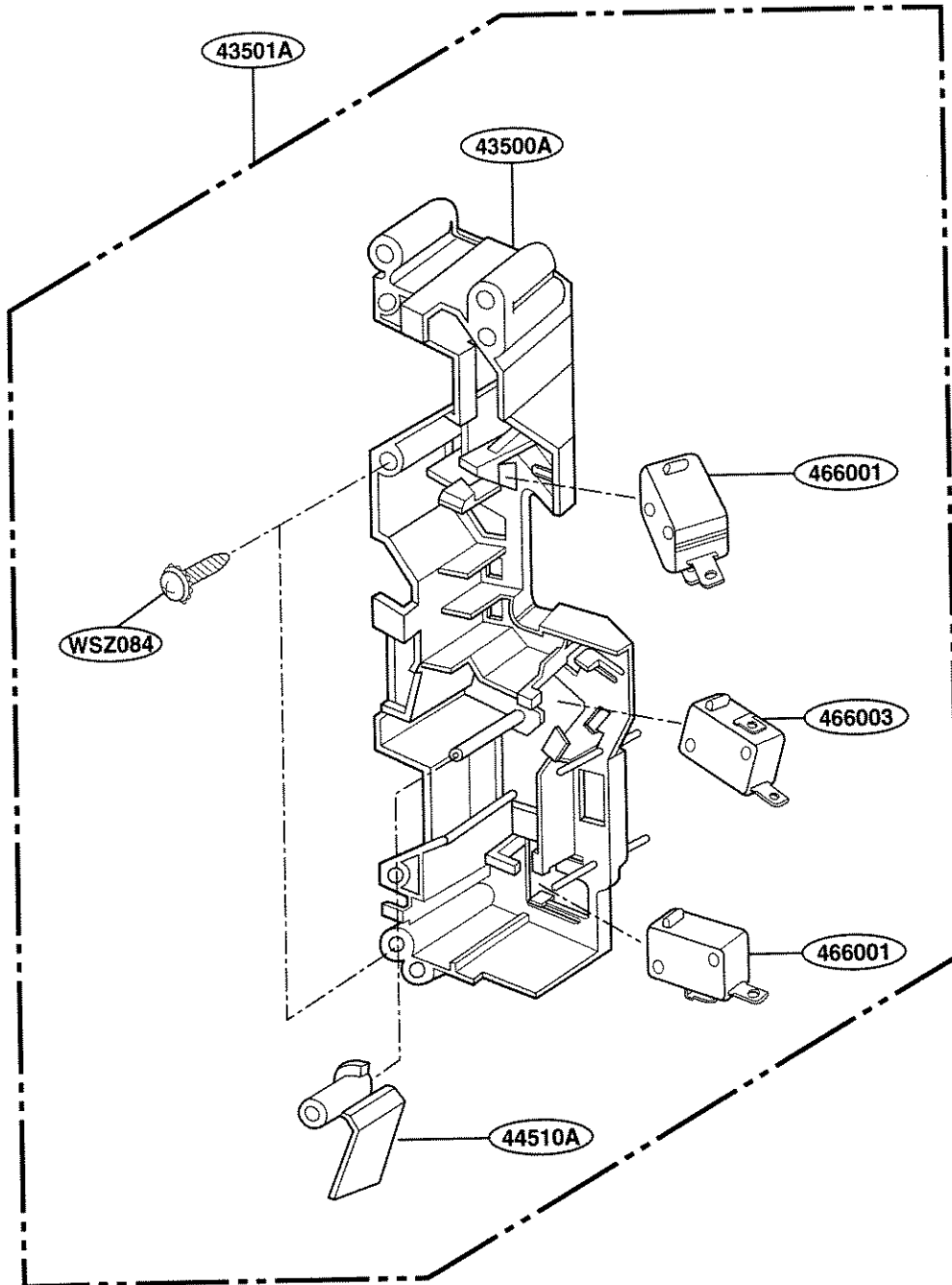
# CONTROLLER PARTS



# OVEN CAVITY PARTS

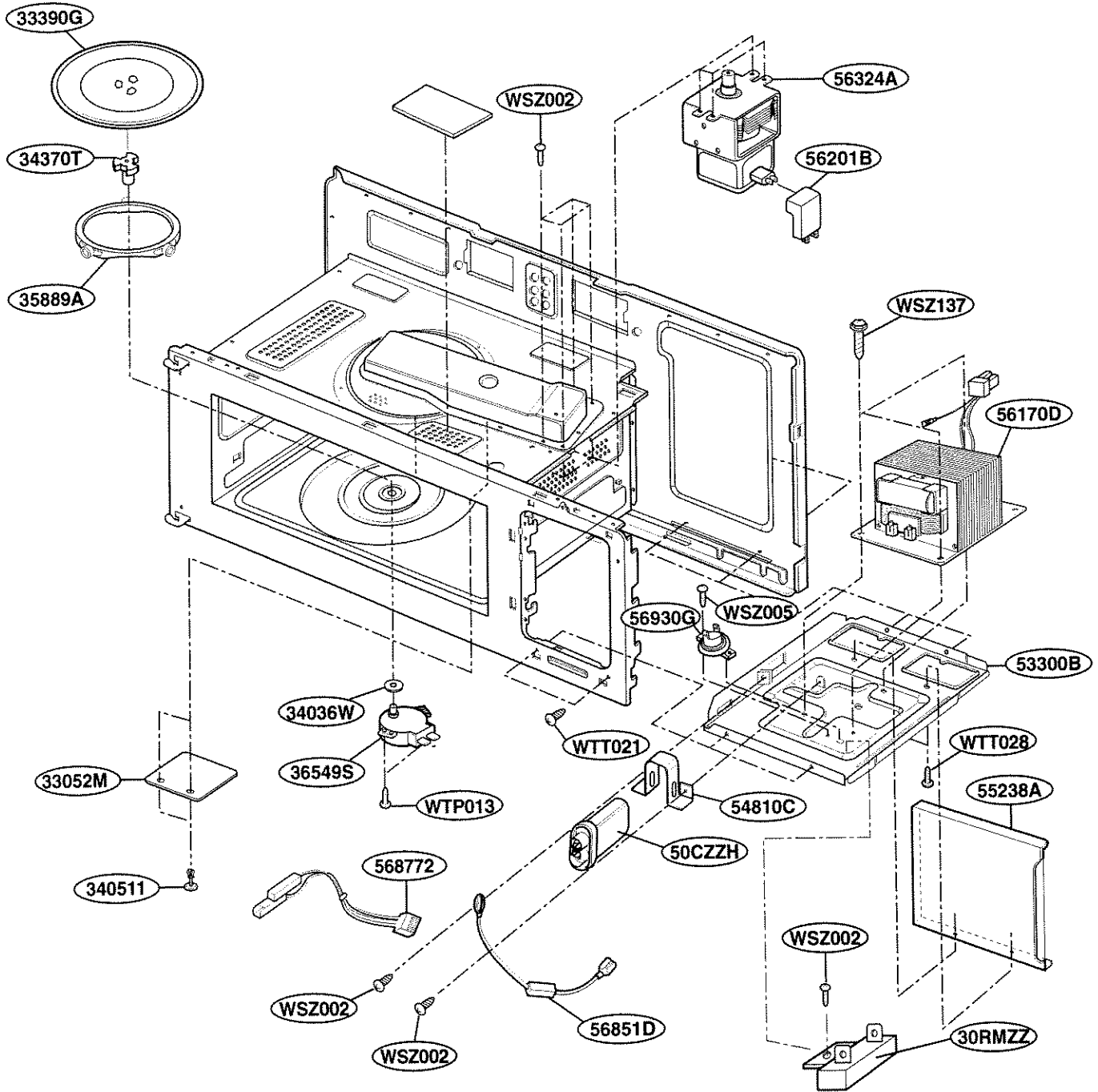


# LATCH BOARD PARTS

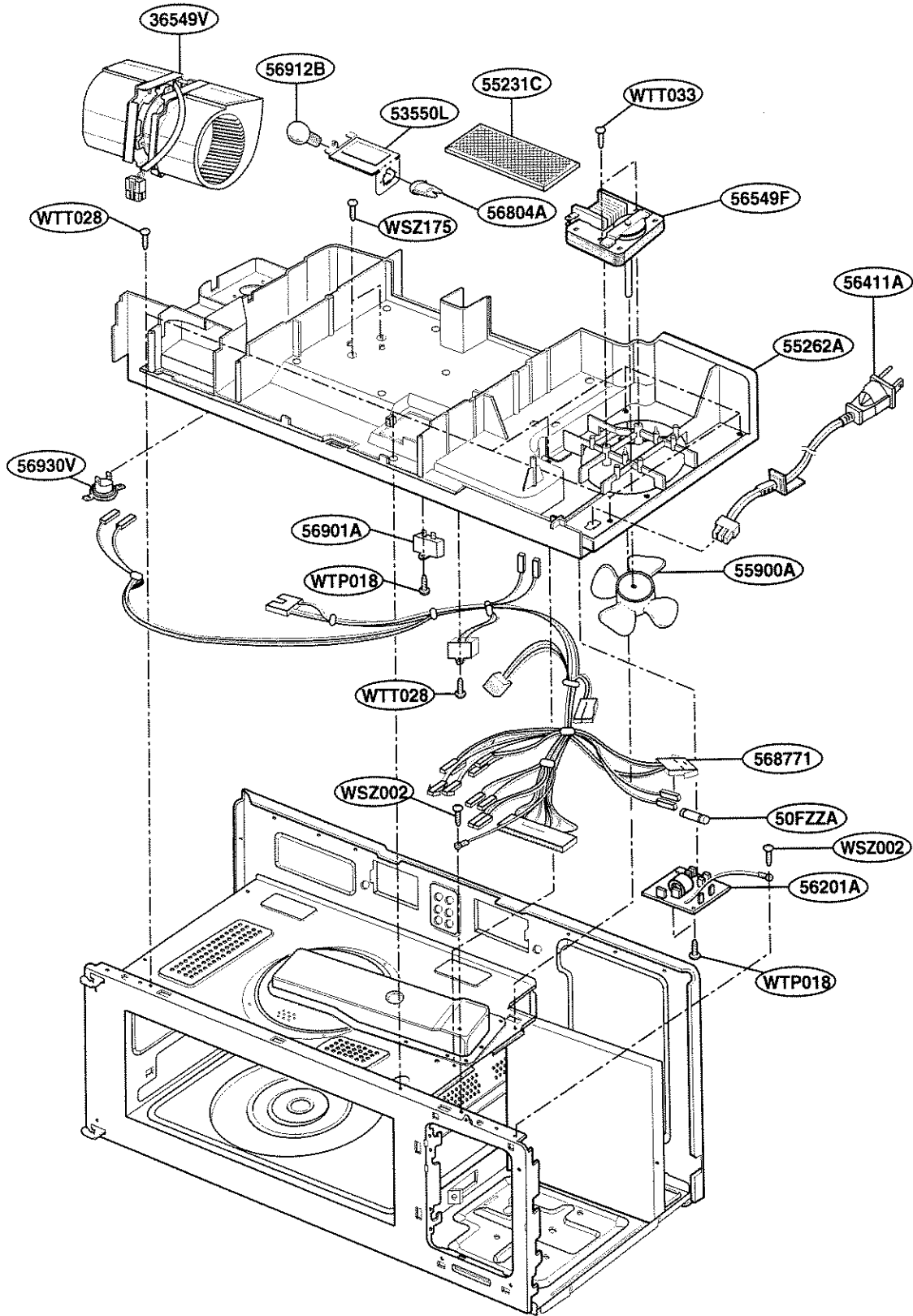




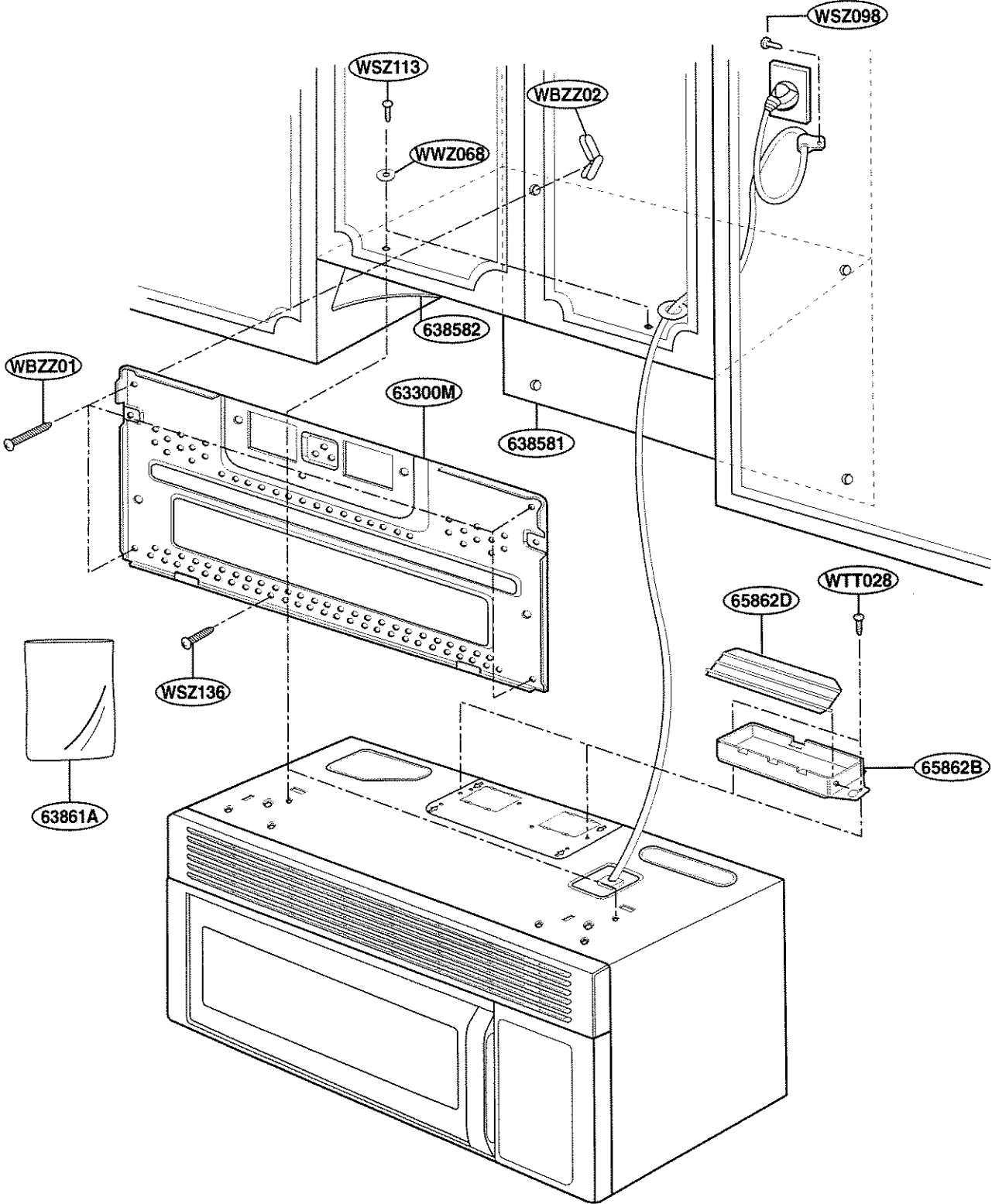
# INTERIOR PARTS (I)



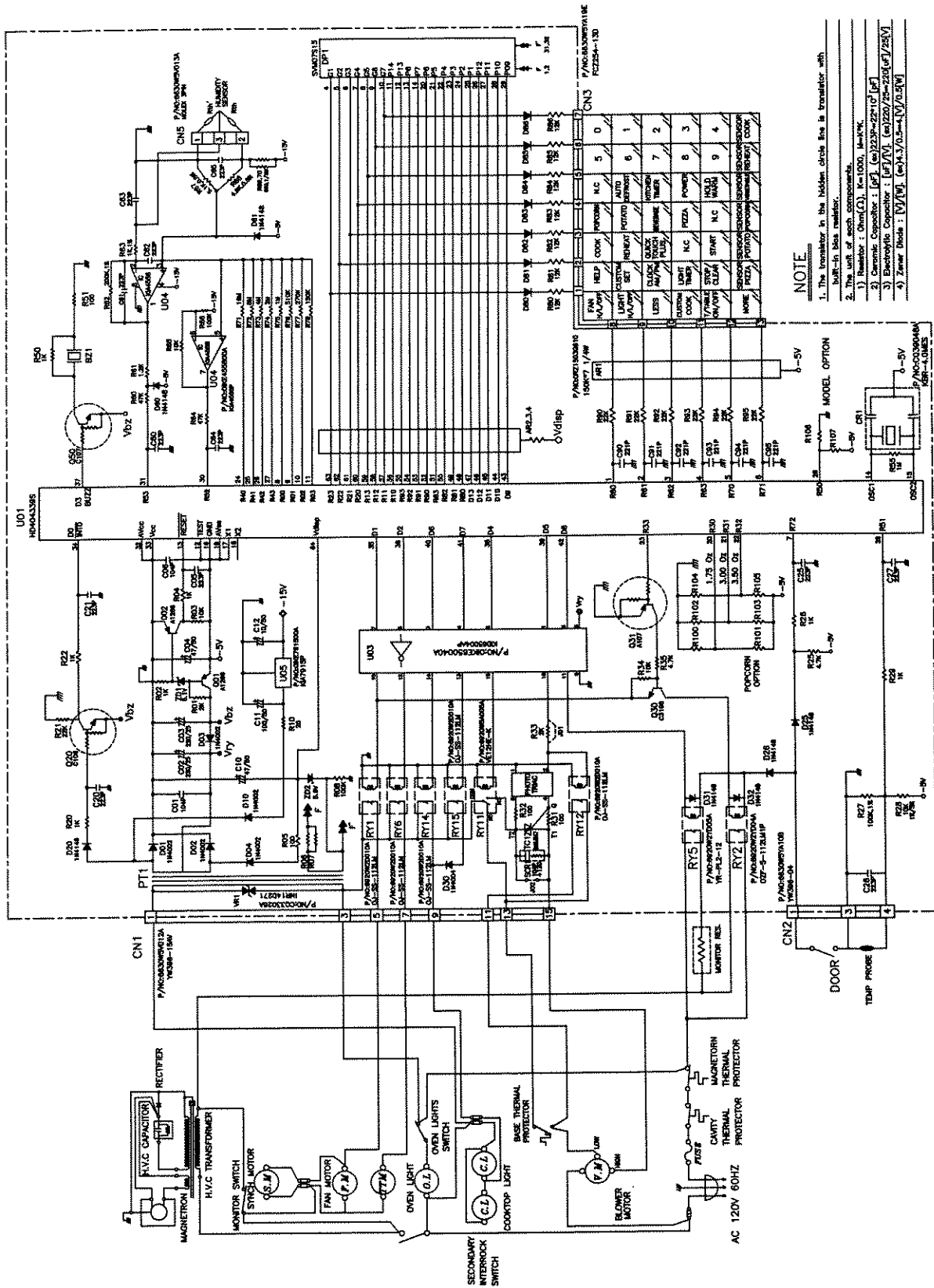
# INTERIOR PARTS (II)



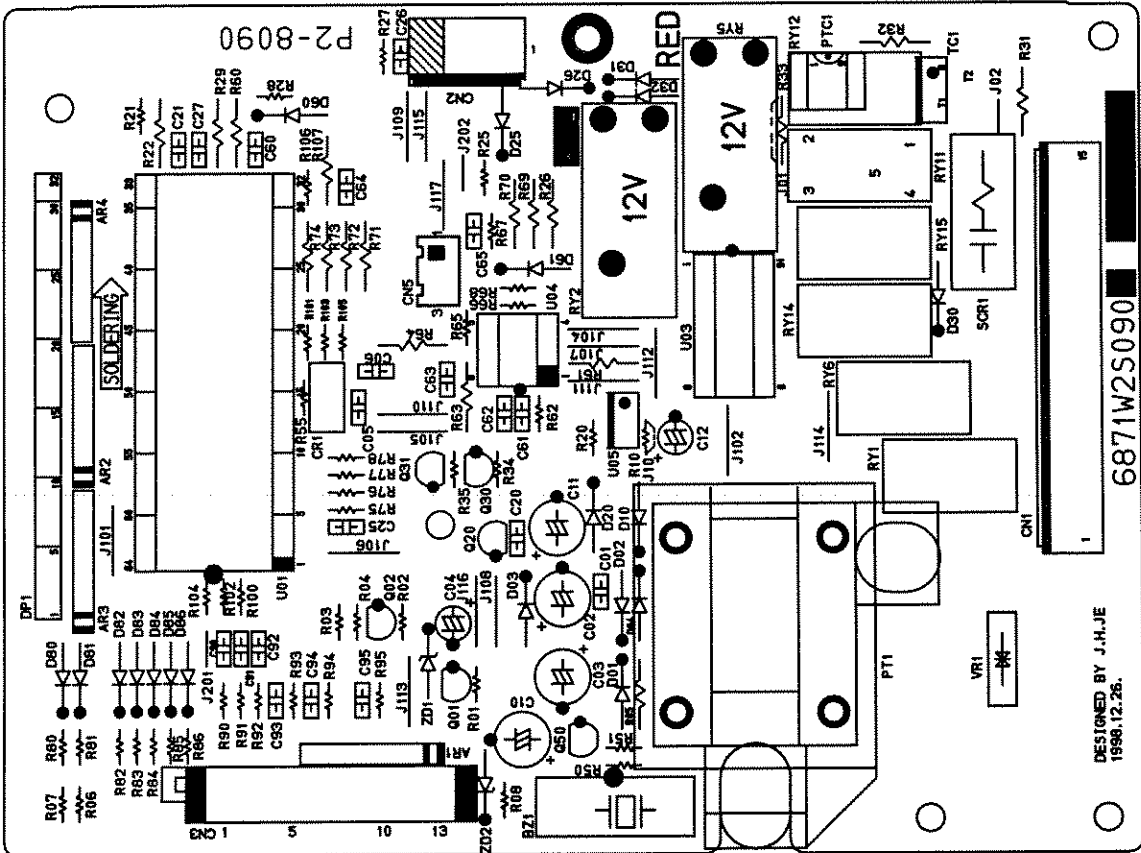
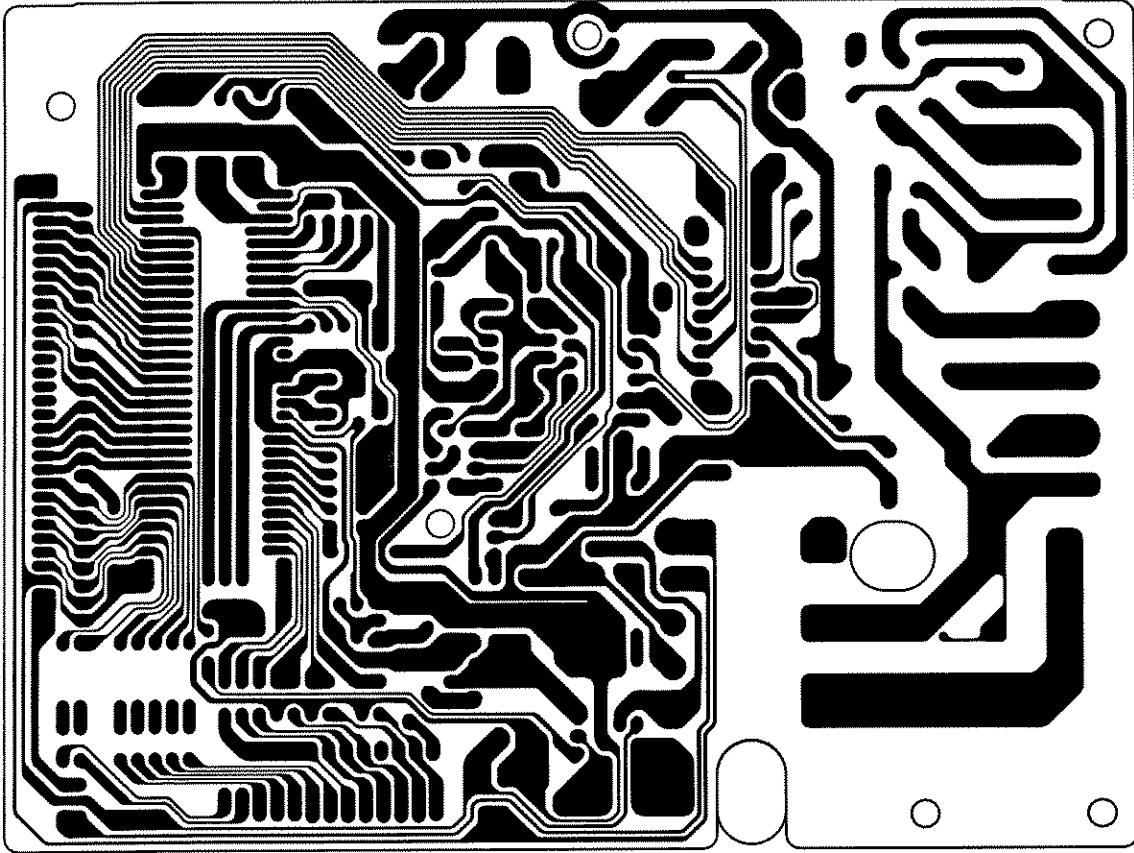
# INSTALLATION PARTS



# SCHEMATIC DIAGRAM OF P.C.B



# PRINTED CIRCUIT BOARD



Model No.	Loc No.	C/Part No	Description	Spec	Alternate
MV-1511M	*01	3828W5A1558	MANUAL,[OWNERS]MWO		MV-153XD LGECI EN
MV-1511M	*02	3828W5S1502	MANUAL,[SERVICE]		MV-153XD LGECI EN
MV-1511M	*03	3878W5B0004	COOK BOOK		A4 MV-1340 LGECI EI
MV-1511M	*10	3890W3Y096B	BOX,[YELLOW]		MV-153XD MV-1511M
MV-1511M	13213A	3213W1A035H	DOOR FRAME ASSY		MV-1560_BLACK(P.C
MV-1511M	13536A	3536WRA001R	SEAL TAPE		- 443* 186MM R2 MV-
MV-1511M	13552A	3552W1A032B	CHOKE COVER		MV-1520,BK
MV-1511M	13581A	3581W1A160Q	DOOR ASSY		MV-153XD LGECI BL/
MV-1511M	13650A	3650W1A026B	HANDLE		MV-1520,BK
MV-1511M	13720D	3720W0D107B	PANEL,[DOOR]		MV-1520,LGEUS,BK
MV-1511M	14026A	4026W2A015A	LATCH		POM,BLACK,MB-359C
MV-1511M	14890C	4890W1D042V	GLASS		523.1* 278.2MM T3.2 I
MV-1511M	14970A	4970WRA001E	SPRING		1.4CU.FT PULL-OUT
MV-1511M	23572A	3572W1A141B	CONTROL PANEL		MV-1520,LGEUS,BK
MV-1511M	24781M	4781W1M250K	CONTROLLER ASSY,[MICOM]		MV-153XD LGECI BL/
MV-1511M	24810P	4810W1G061A	BRACKET,[CONTROL PANEL]		MV-1520
MV-1511M	26638A	6638W2A360B	KEY MEMBRANE		MV-153XD LGECI BL/
MV-1511M	268711	6871W2S090N	PWB(PCB) ASSY,[MAIN		P2-8090 MV-153XD T/
MV-1511M	33052M	3052W3M016A	CANOPY,[MICA]		MICA T0.5 92MM 110F
MV-1511M	33112U	3112W1U016F	OUT CASE,[U-BENDING]		VCM BLACK 1.5CU.F
MV-1511M	33390G	1B71961E	TRAY,[GLASS]		DIA. 324MM 1150G 6.
MV-1511M	33530A	3530W0A003B	GRILLE,[VENT GRILL]		MV-1520,BK
MV-1511M	33531A	3531W1A005B	GRILLE ASSY		MV-1560T,LGEUS,BK
MV-1511M	33550P	3550W3A084A	COVER,[POWER CORD COVER		SECC MATERIAL MV-
MV-1511M	340511	4051W3A001A	RIVET ASSY		MV-1320,PP
MV-1511M	34370T	3B72373D	SHAFT,[TURN TABLE SHAFT]		TEFLON WHITE T7.5
MV-1511M	34810Q	4810W3G062A	BRACKET,[MOUNT]		MV-1120
MV-1511M	34810R	4810W3G100A	BRACKET,[COOKTOP]		MV-1320,C/TOP LAMP
MV-1511M	34890C	4890W4A001B	GLASS		MV-1320M
MV-1511M	34960A	4960W2G022B	MOUNT		MV-1560T
MV-1511M	35230A	2B72705B	FILTER(MECH),[GREASE]		7.638*5.1*0.085
MV-1511M	35889A	5889W2A012A	ROTATING RING ASSY		D 254 H14 PPS(R-7) E
MV-1511M	36549S	2B72754K	MOTOR(CIRC),SYNCHRONOUS		120V 60HZ SHINIL FR
MV-1511M	36549V	6549W1V001J	MOTOR(CIRC),VENTILATION		MV-1350,120V/60HZ,C
MV-1511M	368771	6877W3S001A	CONNECTOR ASSEMBLY		LGECW MV-1320 L/W
MV-1511M	36912C	6912W3Q001A	LAMP[OVEN/BASELESS]		12530W-25 DUKWOO
MV-1511M	43500A	3500W1A005A	BOARD,[LATCH BOARD]		POM FULL OUT LGEC
MV-1511M	43501A	3501W1A016F	BOARD ASSY,LATCH		MR-M274
MV-1511M	44510A	4510W4A005A	LEVER		MV-1120
MV-1511M	466001	3B73362F	SWITCH,MICRO		SZM-V16-FA-63 LG UI
MV-1511M	466003	3B73361E	SWITCH,MICRO		SZM-V16-FA-62 LG UI
MV-1511M	50CZZH	0CZZW1H002H	CAPACITOR,DRAWING[HIGH V		2100VAC 1.00UF VDE
MV-1511M	50FZZA	3B74133K	FUSE,DRAWING		20A 250V CERAMIC 6
MV-1511M	50FZZA	3B74133K	FUSE,DRAWING		20A 250V CERAMIC 6
MV-1511M	53300B	3300W1G081A	PLATE,[BOTTOM PLATE]		MV-1520
MV-1511M	53550L	3550W3A082A	COVER,[LAMP COVER]		SECC MATERIAL MV-
MV-1511M	54810C	4810W3C002A	BRACKET,[CAPACITOR]		T0.5 SECC MV-1320 L

MV-1511M	55231C	2B72706C	FILTER(MECH),[CHARCOAL]	10.0*4.843*0.345
MV-1511M	55238A	4974W1G038A	GUIDE,[AIR GUIDE]	MV-1520,AIR
MV-1511M	55262A	5262W0A008A	DUCT	MV-1520
MV-1511M	55900A	2B72125A	FAN	DIA.110 CCW 4 WING
MV-1511M	56170D	6170W1D003C	TRANSFORMER,HIGH VOLTAGE	120V 60HZ 1000W 21
MV-1511M	56201A	2B72130F	FILTER ASSY,NOISE	250V 66* 52MM D 6.3
MV-1511M	56201A	2B72130F	FILTER ASSY,NOISE	250V 66* 52MM D 6.3
MV-1511M	56201B	6201W2A019A	FILTER ASSY,CHOKE	MS-100/120/150,CAN/
MV-1511M	56324A	6324W1A001D	MAGNETRON	1000W 2M246-310GF
MV-1511M	56411A	6411W2A002N	POWER CORD ASSY	A-2 SJT 14AWG 3 D/C
MV-1511M	56549F	6549W2F016D	MOTOR(CIRC),FAN	120V 60HZ 8.0MM 23
MV-1511M	56804A	6804W3A001A	SOCKET(CIRC),LAMP	250V2A E-17 #187 BJI
MV-1511M	56804A	6804W3A001A	SOCKET(CIRC),LAMP	250V2A E-17 #187 BJI
MV-1511M	56851D	6021W3B001M	CABLE ASSEMBLY	HVR-1X-06B 0MM NO
MV-1511M	568771	6877W1A148C	CONNECTOR ASSEMBLY	LGECW MV-153XD LC
MV-1511M	568772	6877W2S002C	CONNECTOR ASSEMBLY	LGECW MV-1320 L/W
MV-1511M	56912B	3B70067A	LAMP[OVEN/BASELESS]	12530W-25 DUKWOO
MV-1511M	56930G	3B70068V	THERMOSTAT	40 /56 PW-2R VERTIC
MV-1511M	56930V	6930WRT003C	THERMOSTAT	110 /0 PW-2N VERTIC
MV-1511M	63300M	3300W0G039A	PLATE,[MOUNTING PLATE]	MV-1120
MV-1511M	63302A	3302W0A013A	BASE PLATE	MV-1520
MV-1511M	63303A	3303W1A041C	BASE PLATE ASSY	MV-1580,AMANA,WH
MV-1511M	63861A	2B72771A	KIT ASSY	MV-1560M WHEGSE
MV-1511M	64360A	4360W4A001A	ROD	MV-1120
MV-1511M	65862B	3B72144A	EXHAUST,[ADAPTER]	ER-830 CUSHION
MV-1511M	65862D	3B71432A	EXHAUST,[DAMPER]	ER-810MV T0.5 1
MV-1511M	95001A	5001W2A006S	ACCESSORY ASSY	MV-153XD LGECI OW
MV-1511M	AR1	0RZ1503G610	RESISTOR,DRAWING	150K OHM 1 / 4 W 32'
MV-1511M	BZ1	6908W3YA01A	BUZZER,PIEZO CERAMIC	GPB-B-26B2.1ES(EXT
MV-1511M	C01	0CK1040K518	CAPACITOR,FIXED CERAMIC(H 0.1UF D 50V 10% B(Y	
MV-1511M	C02	0CE2272H638	CAPACITOR,FIXED ELECTROLY 220UF SME,SQ 25V 2	
MV-1511M	C02	0CE2272H638	CAPACITOR,FIXED ELECTROLY 220UF SME,SQ 25V 2	
MV-1511M	C03	0CE2272H638	CAPACITOR,FIXED ELECTROLY 220UF SME,SQ 25V 2	
MV-1511M	C03	0CE2272H638	CAPACITOR,FIXED ELECTROLY 220UF SME,SQ 25V 2	
MV-1511M	C04	0CE4761K638	CAPACITOR,FIXED ELECTROLY 47UF SM,SA 50V 20%	
MV-1511M	C04	0CE4761K638	CAPACITOR,FIXED ELECTROLY 47UF SM,SA 50V 20%	
MV-1511M	C05	0CK2230H518	CAPACITOR,FIXED CERAMIC(H 0.022UF D 25V 10% B	
MV-1511M	C06	0CK1040K518	CAPACITOR,FIXED CERAMIC(H 0.1UF D 50V 10% B(Y	
MV-1511M	C10	0CE4761K638	CAPACITOR,FIXED ELECTROLY 47UF SM,SA 50V 20%	
MV-1511M	C10	0CE4761K638	CAPACITOR,FIXED ELECTROLY 47UF SM,SA 50V 20%	
MV-1511M	C20	0CK2230H518	CAPACITOR,FIXED CERAMIC(H 0.022UF D 25V 10% B	
MV-1511M	C21	0CK2230H518	CAPACITOR,FIXED CERAMIC(H 0.022UF D 25V 10% B	
MV-1511M	C25	0CK2230H518	CAPACITOR,FIXED CERAMIC(H 0.022UF D 25V 10% B	
MV-1511M	CN1	6630W5V012A	CONNECTOR (CIRC),WAFER	YW396-15AV(2,4,....,14
MV-1511M	CN2	CQ52212A	CONNECTOR (CIRC),WAFER	YW396-03,#2 VOID
MV-1511M	CN3	6630W5YA19E	CONNECTOR (CIRC),WAFER	FCZ254-13D
MV-1511M	CR1	6212W5M002A	RESONATOR,CERAMIC	CSTS0400MG06-T2 N
MV-1511M	CU1	4850W4C001A	CUSHION	3.5MM
MV-1511M	D01	0DD400209AA	DIODE,RECTIFIERS	1N4002 TP KEC - - - -

MV-1511M	D02	0DD400209AA	DIODE,RECTIFIERS	1N4002 TP KEC - - - -
MV-1511M	D03	0DD400209AA	DIODE,RECTIFIERS	1N4002 TP KEC - - - -
MV-1511M	D04	0DD400209AA	DIODE,RECTIFIERS	1N4002 TP KEC - - - -
MV-1511M	D20	0DD414809AA	DIODE,SWITCHING	1N4148 TP GRANDE .
MV-1511M	D25	0DD414809AA	DIODE,SWITCHING	1N4148 TP GRANDE .
MV-1511M	D26	0DD414809AA	DIODE,SWITCHING	1N4148 TP GRANDE .
MV-1511M	D30	0DD400409AA	DIODE,RECTIFIERS	1N4004 TP PYUNGCH
MV-1511M	D32	0DD414809AA	DIODE,SWITCHING	1N4148 TP GRANDE .
MV-1511M	D80	0DD414809AA	DIODE,SWITCHING	1N4148 TP GRANDE .
MV-1511M	D81	0DD414809AA	DIODE,SWITCHING	1N4148 TP GRANDE .
MV-1511M	D82	0DD414809AA	DIODE,SWITCHING	1N4148 TP GRANDE .
MV-1511M	D83	0DD414809AA	DIODE,SWITCHING	1N4148 TP GRANDE .
MV-1511M	D84	0DD414809AA	DIODE,SWITCHING	1N4148 TP GRANDE .
MV-1511M	D85	0DD414809AA	DIODE,SWITCHING	1N4148 TP GRANDE .
MV-1511M	D86	0DD414809AA	DIODE,SWITCHING	1N4148 TP GRANDE .
MV-1511M	DP1	6302W5A002A	DIGITRON	SVM-07SS15, 7-MT-2'
MV-1511M	PT1	6010W2P043A	TRANSFORMER,POWER	120V/60HZ,144MA/12'
MV-1511M	Q01	0TR101509AB	TRANSISTOR,BIPOLARS	KTA1015-O TP KEC -
MV-1511M	Q02	0TR101509AB	TRANSISTOR,BIPOLARS	KTA1015-O TP KEC -
MV-1511M	Q20	0TR106009AF	TRANSISTOR,BIPOLARS	KRC 106M TP KEC - -
MV-1511M	Q30	0TR181509AB	TRANSISTOR,BIPOLARS	KTC1815-Y TP KEC -
MV-1511M	Q31	0TR107009AE	TRANSISTOR,BIPOLARS	KRA107M TO-92M KE
MV-1511M	Q50	0TR107009AD	TRANSISTOR,BIPOLARS	KRC 107M TP KEC - -
MV-1511M	R01	0RD2001F608	RESISTOR,FIXED CARBON FILM 2K OHM 1/6 W 5.00%	
MV-1511M	R01	0RD2001F608	RESISTOR,FIXED CARBON FILM 2K OHM 1/6 W 5.00%	
MV-1511M	R02	0RD1001F608	RESISTOR,FIXED CARBON FILM 1K OHM 1/6 W 5.00%	
MV-1511M	R02	0RD1001F608	RESISTOR,FIXED CARBON FILM 1K OHM 1/6 W 5.00%	
MV-1511M	R03	0RD1002F608	RESISTOR,FIXED CARBON FILM 10K OHM 1/6 W 5.00%	
MV-1511M	R03	0RD1002F608	RESISTOR,FIXED CARBON FILM 10K OHM 1/6 W 5.00%	
MV-1511M	R04	0RD1001F608	RESISTOR,FIXED CARBON FILM 1K OHM 1/6 W 5.00%	
MV-1511M	R04	0RD1001F608	RESISTOR,FIXED CARBON FILM 1K OHM 1/6 W 5.00%	
MV-1511M	R05	0RD1000G608	RESISTOR,FIXED CARBON FILM 100 OHM 1/4 W 5.00%	
MV-1511M	R05	0RD1000G608	RESISTOR,FIXED CARBON FILM 100 OHM 1/4 W 5.00%	
MV-1511M	R06	0RD0202F608	RESISTOR,FIXED CARBON FILM 20 OHM 1/6 W 5.00%	
MV-1511M	R07	0RD0202F608	RESISTOR,FIXED CARBON FILM 20 OHM 1/6 W 5.00%	
MV-1511M	R08	0RD1003F608	RESISTOR,FIXED CARBON FILM 100K OHM 1/6 W 5.00	
MV-1511M	R08	0RD1003F608	RESISTOR,FIXED CARBON FILM 100K OHM 1/6 W 5.00	
MV-1511M	R101	0RD4702F608	RESISTOR,FIXED CARBON FILM 47K OHM 1/6 W 5.00%	
MV-1511M	R101	0RD4702F608	RESISTOR,FIXED CARBON FILM 47K OHM 1/6 W 5.00%	
MV-1511M	R103	0RD4702F608	RESISTOR,FIXED CARBON FILM 47K OHM 1/6 W 5.00%	
MV-1511M	R103	0RD4702F608	RESISTOR,FIXED CARBON FILM 47K OHM 1/6 W 5.00%	
MV-1511M	R105	0RD4702F608	RESISTOR,FIXED CARBON FILM 47K OHM 1/6 W 5.00%	
MV-1511M	R105	0RD4702F608	RESISTOR,FIXED CARBON FILM 47K OHM 1/6 W 5.00%	
MV-1511M	R106	0RD3302F608	RESISTOR,FIXED CARBON FILM 33K OHM 1/6 W 5.00%	
MV-1511M	R106	0RD3302F608	RESISTOR,FIXED CARBON FILM 33K OHM 1/6 W 5.00%	
MV-1511M	R107	0RD1202G608	RESISTOR,FIXED CARBON FILM 12K OHM 1/4 W 5.00%	
MV-1511M	R107	0RD1202G608	RESISTOR,FIXED CARBON FILM 12K OHM 1/4 W 5.00%	
MV-1511M	R20	0RD1001F608	RESISTOR,FIXED CARBON FILM 1K OHM 1/6 W 5.00%	
MV-1511M	R20	0RD1001F608	RESISTOR,FIXED CARBON FILM 1K OHM 1/6 W 5.00%	





MV-1511M	RY1	6920W2D010A	RELAY	OJ-SS-112LM
MV-1511M	RY11	6920W5A005A	RELAY	VE-12HE-K TAKAMIS/
MV-1511M	RY12	6920W2D010A	RELAY	OJ-SS-112LM
MV-1511M	RY12	6920W2D010A	RELAY	OJ-SS-112LM
MV-1511M	RY14	6920W2D010A	RELAY	OJ-SS-112LM
MV-1511M	RY14	6920W2D010A	RELAY	OJ-SS-112LM
MV-1511M	RY15	6920W2D010A	RELAY	OJ-SS-112LM
MV-1511M	RY15	6920W2D010A	RELAY	OJ-SS-112LM
MV-1511M	RY2	6920W2YD04A	RELAY	OZF-S-112LM1P,DC1:
MV-1511M	RY2	6920W2YD04A	RELAY	OZF-S-112LM1P,DC1:
MV-1511M	U01	0IZZW5A078A	IC	GMS87C2020 64PIN E
MV-1511M	U03	0ITO200400A	IC,TOSHIBA	ULN2004A 16DIP BK I
MV-1511M	VR1	CQ33026A	VARISTOR	INR14D271
MV-1511M	WBZZ01	4B72059B	BOLT[TOGGLE]	1/4/20
MV-1511M	WBZZ02	4B72059C	BOLT[TOGGLE]	1
MV-1511M	WSZ002	1SBF0402418	SCREW TAP TITE(S),BINDING F	#NAME?
MV-1511M	WSZ002	1SBF0402418	SCREW TAP TITE(S),BINDING F	#NAME?
MV-1511M	WSZ002	1SBF0402418	SCREW TAP TITE(S),BINDING F	#NAME?
MV-1511M	WSZ002	1SBF0402418	SCREW TAP TITE(S),BINDING F	#NAME?
MV-1511M	WSZ002	1SBF0402418	SCREW TAP TITE(S),BINDING F	#NAME?
MV-1511M	WSZ002	1SBF0402418	SCREW TAP TITE(S),BINDING F	#NAME?
MV-1511M	WSZ005	1SPF0302018	SCREW TAP TITE(S),PAN HEAD	#NAME?
MV-1511M	WSZ084	4B70188B	SCREW,DRAWING	#NAME?
MV-1511M	WSZ098	4B70637B	SCREW,DRAWING	TEST
MV-1511M	WSZ133	4B73234A	SCREW,DRAWING	TEST
MV-1511M	WSZ136	4B73243A	SCREW,DRAWING	ER-840TV
MV-1511M	WSZ137	4B73763A	SCREW,DRAWING	S-TYPE M5*10
MV-1511M	WSZ175	4E55432A	SCREW,DRAWING	SCREW-C M4*8
MV-1511M	WTP004	1TPL0302418	SCREW TAPPING,PAN HEAD	+ 2 CUT D3.0 L8.0 MS
MV-1511M	WTP004	1TPL0302418	SCREW TAPPING,PAN HEAD	+ 2 CUT D3.0 L8.0 MS
MV-1511M	WTP013	1TPL0402418	SCREW TAPPING,PAN HEAD	+ 2 CUT D4.0 L8.0 MS
MV-1511M	WTP013	1TPL0402418	SCREW TAPPING,PAN HEAD	+ 2 CUT D4.0 L8.0 MS
MV-1511M	WTP018	1TPL0402818	SCREW TAPPING,PAN HEAD	+ 2 CUT D4.0 L12.0 M
MV-1511M	WTP018	1TPL0402818	SCREW TAPPING,PAN HEAD	+ 2 CUT D4.0 L12.0 M
MV-1511M	WTP018	1TPL0402818	SCREW TAPPING,PAN HEAD	+ 2 CUT D4.0 L12.0 M
MV-1511M	WTP018	1TPL0402818	SCREW TAPPING,PAN HEAD	+ 2 CUT D4.0 L12.0 M
MV-1511M	WTP018	1TPL0402818	SCREW TAPPING,PAN HEAD	+ 2 CUT D4.0 L12.0 M
MV-1511M	WTP018	1TPL0402818	SCREW TAPPING,PAN HEAD	+ 2 CUT D4.0 L12.0 M
MV-1511M	WTT020	1TTL0402416	SCREW TAPPING,TRUSS HEAD	+ 2 CUT D4.0 L8.0 MS
MV-1511M	WTT020	1TTL0402416	SCREW TAPPING,TRUSS HEAD	+ 2 CUT D4.0 L8.0 MS
MV-1511M	WTT021	1TTL0402418	SCREW TAPPING,TRUSS HEAD	+ 2 CUT D4.0 L8.0 MS
MV-1511M	WTT021	1TTL0402418	SCREW TAPPING,TRUSS HEAD	+ 2 CUT D4.0 L8.0 MS
MV-1511M	WTT021	1TTL0402418	SCREW TAPPING,TRUSS HEAD	+ 2 CUT D4.0 L8.0 MS
MV-1511M	WTT021	1TTL0402418	SCREW TAPPING,TRUSS HEAD	+ 2 CUT D4.0 L8.0 MS
MV-1511M	WTT022	1TTL0402422	SCREW TAPPING,TRUSS HEAD	+ 2 CUT D4.0 L8.0 MS
MV-1511M	WTT027	1TTL0402816	SCREW TAPPING,TRUSS HEAD	+ 2 CUT D4.0 L12.0 M
MV-1511M	WTT028	1TTL0402818	SCREW TAPPING,TRUSS HEAD	+ 2 CUT D4.0 L12.0 M
MV-1511M	WTT028	1TTL0402818	SCREW TAPPING,TRUSS HEAD	+ 2 CUT D4.0 L12.0 M
MV-1511M	WTT028	1TTL0402818	SCREW TAPPING,TRUSS HEAD	+ 2 CUT D4.0 L12.0 M

MV-1511M	WTT028	1TTL0402818	SCREW TAPPING,TRUSS HEAD + 2 CUT D4.0 L12.0 M
MV-1511M	WTT033	1TTL0403318	SCREW TAPPING,TRUSS HEAD + 2 CUT D4.0 L20.0 M
MV-1511M	WWZ068	4B73055A	WASHER,DRAWING ### (08*2)
MV-1511M	ZD1	0DZ510009AB	DIODE,ZENERS MTZ5.1B TP ROHM-K
MV-1511M	ZD2	0DZ560009AB	DIODE,ZENERS UZ-5.6BS 0.5W TP PY