

# SHARP SERVICE MANUAL

S83M215R1214E

## OVER THE COUNTER MICROWAVE OVEN

### MODELS **R-1214**



In the interest of user-safety the oven should be restored to its original condition and only parts identical to those specified should be used.

**WARNING TO SERVICE PERSONNEL:** Microwave ovens contain circuitry capable of producing very high voltage and current. Contact with the following parts may result in a severe, possibly fatal, electrical shock. (High Voltage Capacitor, High Voltage Power Transformer, Magnetron, High Voltage Rectifier Assembly, High Voltage Harness etc..)

This is a supplemental Service Manual for Model R-1214. This model is quite similar to base model R-1200 and R-1201. Use this supplemental manual together with the Base Models Service Manual (Reference No. is SY130R1200X//) for complete operation, service information, etc..

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## SHARP CORPORATION

This document has been published to be used for after sales service only.

The contents are subject to change without notice.

## **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 Federal Performance Standard should be performed on each oven prior to release to the owner.

## **BEFORE SERVICING**

Before servicing an operative unit, perform a microwave emission check as per the Microwave Measurement Procedure outlined in this service manual.

If microwave emissions level is in excess of the specified limit, contact SHARP ELECTRONICS CORPORATION immediately @1-800-237-4277.

If the unit operates with the door open, service person should 1) tell the user not to operate the oven and 2) contact SHARP ELECTRONICS CORPORATION and Food and Drug Administration's Center for Devices and Radiological Health immediately.

Service personnel should inform SHARP ELECTRONICS CORPORATION of any certified unit found with emissions in excess of  $4\text{mW}/\text{cm}^2$ . The owner of the unit should be instructed not to use the unit until the oven has been brought into compliance.

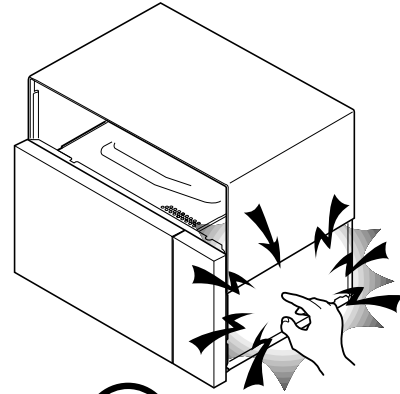
## WARNING TO SERVICE PERSONNEL

Microwave ovens contain circuitry capable of producing very high voltage and current, contact with following parts may result in a severe, possibly fatal, electrical shock.

(Example)


High Voltage Capacitor, High Voltage Power Transformer, Magnetron, High Voltage Rectifier Assembly, High Voltage Harness etc..

Read the Service Manual carefully and follow all instructions.



**Don't Touch !  
Danger High Voltage**

### Before Servicing

1. Disconnect the power supply cord , and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.

**WARNING: RISK OF ELECTRIC SHOCK.  
DISCHARGE THE HIGH-VOLTAGE  
CAPACITOR BEFORE SERVICING.**

The high-voltage capacitor remains charged about 60 seconds after the oven has been switched off. Wait for 60 seconds and then short-circuit the connection of the high-voltage capacitor (that is the connecting lead of the high-voltage rectifier) against the chassis with the use of an insulated screwdriver.

Whenever troubleshooting is performed the power supply must be disconnected. It may, in some cases, be necessary to connect the power supply after the outer case has been removed, in this event,

1. Disconnect the power supply cord, and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.
4. Disconnect the leads to the primary of the power transformer.
5. Ensure that these leads remain isolated from other components and oven chassis by using insulation tape.
6. After that procedure, reconnect the power supply cord.

### When the testing is completed,

1. Disconnect the power supply cord, and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.
4. Reconnect the leads to the primary of the power transformer.
5. Reinstall the outer case (cabinet).
6. Reconnect the power supply cord after the outer case is installed.
7. Run the oven and check all functions.

### After repairing

1. Reconnect all leads removed from components during testing.
2. Reinstall the outer case (cabinet).
3. Reconnect the power supply cord after the outer case is installed.
4. Run the oven and check all functions.

Microwave ovens should not be run empty. To test for the presence of microwave energy within a cavity, place a cup of cold water on the oven turntable, close the door and set the power to HIGH and set the microwave timer for two (2) minutes. When the two minutes has elapsed (timer at zero) carefully check that the water is now hot. If the water remains cold carry out **Before Servicing** procedure and re-examine the connections to the component being tested.

When all service work is completed and the oven is fully assembled, the microwave power output should be checked and microwave leakage test should be carried out.

## MICROWAVE MEASUREMENT PROCEDURE

### A. Requirements:

- 1) Microwave leakage limit (Power density limit): The power density of microwave radiation emitted by a microwave oven should not exceed  $1\text{mW}/\text{cm}^2$  at any point 5cm or more from the external surface of the oven, measured prior to acquisition by a purchaser, and thereafter (through the useful life of the oven),  $5\text{mW}/\text{cm}^2$  at any point 5cm or more from the external surface of the oven.
- 2) Safety interlock switches: Primary interlock switch shall prevent microwave radiation emission in excess of the requirement as above mentioned, secondary interlock relay and door sensing switch shall prevent microwave radiation emission in excess of  $5\text{mW}/\text{cm}^2$  at any point 5cm or more from the external surface of the oven.

### B. Preparation for testing:

#### Before beginning the actual measurement of leakage, proceed as follows:

- 1) Make sure that the actual instrument is operating normally as specified in its instruction booklet.

#### Important:

Survey instruments that comply with the requirement for instrumentation as prescribed by the performance standard for microwave ovens, 21 CFR 1030.10(c)(3)(i), must be used for testing.

- 2) Place the oven tray in the oven cavity.
- 3) Place the load of  $275\pm 15$  ml (9.8 oz) of tap water initially at  $20\pm 5^\circ\text{C}$  ( $68^\circ\text{F}$ ) in the center of the oven cavity. The water container shall be a low form of 600 ml (20 oz) beaker with an inside diameter of approx. 8.5 cm (3-1/2 in.) and made of an electrically nonconductive material such as glass or plastic. The placing of this standard load in the oven is important not only to protect the oven, but also to insure that any leakage is measured accurately.
- 4) Set the cooking control on Full Power Cooking Mode
- 5) Close the door and select a cook cycle of several minutes. If the water begins to boil before the survey is completed, replace it with 275 ml of cool water.

### C. Leakage test:

#### Closed-door leakage test (microwave measurement)

- 1) Grasp the probe of the survey instrument and hold it perpendicular to the gap between the door and the body of the oven.
- 2) Move the probe slowly, not faster than 1 in./sec. (2.5 cm/sec.) along the gap, watching for the maximum indication on the meter.
- 3) Check for leakage at the door screen, sheet metal seams and other accessible positions where the continuity of the metal has been breached (eg., around the switches, indicator, and vents).  
While testing for leakage around the door pull the door away from the front of the oven as far as is permitted by the closed latch assembly.
- 4) Measure carefully at the point of highest leakage and make sure that the highest leakage is no greater than  $4\text{mW}/\text{cm}^2$ , and that the primary interlock switch and the secondary interlock relay do turn the oven OFF before any door movement.

NOTE: After servicing, record data on service invoice and microwave leakage report.

# SERVICE MANUAL

## SHARP

OVER THE COUNTER  
MICROWAVE OVEN

R-1214

### FOREWORD

This Manual has been prepared to provide Sharp Electronics Corp. Service Personnel with Operation and Service Information for the SHARP OVER THE COUNTER MICROWAVE OVEN, R-1214.

Model R-1214 is quite similar to base models R-1200 and R-1201 (Reference No. is SY130R1200X//).

It is recommended that service personnel carefully study the entire text of this manual and base model service manual so that they will be qualified to render satisfactory customer service.

Check the interlock switches and the door seal carefully. Special attention should be given to avoid electrical shock and microwave radiation hazard.

#### WARNING

Never operate the oven until the following points are ensured.

- (A) The door is tightly closed.
- (B) The door brackets and hinges are not defective.
- (C) The door packing is not damaged.
- (D) The door is not deformed or warped.
- (E) There is not any other visible damage with the oven.

Servicing and repair work must be carried out only by trained service personnel.

#### DANGER

**Certain initial parts are intentionally not grounded and present a risk of electrical shock only during servicing. Service personnel - Do not contact the following parts while the appliance is energized; High Voltage Capacitor, Power Transformer, Magnetron, High Voltage Rectifier Assembly, High Voltage Harness; If provided, Vent Hood, Fan assembly, Cooling Fan Motor.**

All the parts marked "\*" on parts list are used at voltages more than 250V.

Removal of the outer wrap gives access to voltage above 250V.

All the parts marked "Δ" on parts list may cause undue microwave exposure, by themselves, or when they are damaged, loosened or removed.

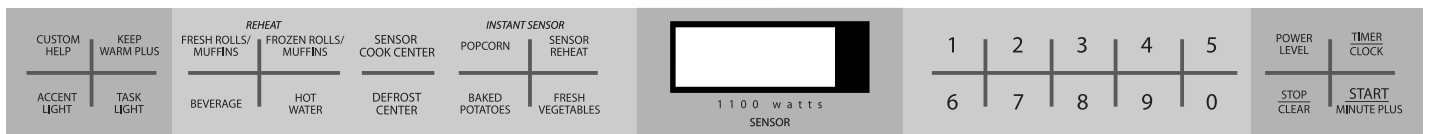
SHARP ELECTRONICS CORPORATION

SHARP PLAZA, MAHWAH,  
NEW JERSEY 07430-2135

## PRODUCT SPECIFICATION

ITEM	DESCRIPTION
Power Requirements	120 Volts / 13.0 Amperes 60 Hertz Single phase, 3 wire grounded
Power Output	1100 watts (IEC TEST PROCEDURE) Operating frequency of 2450MHz
Case Dimensions	Width 23-7/8" Height 15-9/16" Depth 14-1/16"
Cooking Cavity Dimensions	Width 17-1/2" Height 14-15/16" Depth 9-7/8"
1.5 Cubic Feet	
Hood lamp	2 bulbs, 20W x 2, Incandescent light bulbs
Control Complement	Touch Control System Clock ( 1:00 - 12:59 ) Timer (0 - 99 min. 99 seconds) Microwave Power for Variable Cooking Repetition Rate; HIGH ..... Full power throughout the cooking time P-90 ..... approx. 90% of Full Power P-80 ..... approx. 80% of Full Power P-70 ..... approx. 70% of Full Power P-60 ..... approx. 60% of Full Power P-50 ..... approx. 50% of Full Power P-40 ..... approx. 40% of Full Power P-30 ..... approx. 30% of Full Power P-20 ..... approx. 20% of Full Power P-10 ..... approx. 10% of Full Power P-0 ..... No power throughout the cooking time  CUSTOM HELP pad, KEEP WARM PLUS pad ACCENT LIGHT pad, TASK LIGHT pad, REHEAT pads SENSOR COOK CENTER pad DEFROST CENTER pad INSTANT SENSOR pads, Number selection pads POWER LEVEL pad, TIMER / CLOCK pad STOP/CLEAR pad, START/MINUTE PLUS pad
Oven Cavity Light	20W x 1 Incandescent light bulb
Safety Standard	UL Listed                      FCC Authorized DHHS Rules, CFR, Title 21, Chapter 1, Subchapter J
Weight	Approx. 50 lbs.

### CONTROL PANEL



NOTE: Some one-touch cooking features such as "MINUTE PLUS" are disabled after three minutes when the oven is not used. These features are automatically enabled when the door is opened and closed or STOP/CLEAR button is pressed.

## PARTS LIST

Note: The parts marked "Δ" may cause undue microwave exposure.

The parts marked "\*" are used in voltage more than 250V.

"§" MARK: PARTS DELIVERY SECTION

REF. NO.	PART NO.	§	DESCRIPTION	Q'TY	CODE
<b>ELECTRIC PARTS</b>					
* 1- 1	FH-DZB016MRY0	M	High voltage rectifier assembly	1	AT
* 1- 2	RC-QZB018MRE0	M	High voltage capacitor	1	AG
1- 3	QFS-TA013WRE0	M	Temperature fuse 150°C (Magnetron)	1	AE
1- 4	RMOTDA252WRZZ	M	Turntable motor	1	AL
1- 5	QFS-TA014WRE0	M	Temperature fuse 150°C (Cavity)	1	AF
1- 6	RMOTEB031MRE0	M	Fan motor	1	AR
* 1- 7	RTRN-B068MRE0	M	Power transformer	1	BC
* 1- 8	RV-MZA318WRZZ	M	Magnetron	1	BK
1- 9	QFSHDB003MRE0	M	Fuse holder	1	AD
1-10	QSW-MA085WRE0	M	Primary interlock and door sensing switches	2	AE
1-11	FFS-BA016/KIT	M	Monitor switch (V-16G-2C25) with fuse (20A) assembly	1	AF
1-12	FACCDB011MRE0	M	Power supply cord	1	AQ
1-13	QSOCLB006MRE0	M	Oven lamp socket and hood lamp sockets	3	AE
1-14	RLMPTA086WRZZ	M	Oven lamp and hood lamps	3	AE
1-15	FDTCTA225WRKZ	M	AH sensor	1	AR

### CABINET PARTS

2- 1	FDECAB044MRK0	M	Bottom sash	1	AH
2- 2	GDAI-B066MRP0	M	Base plate R	1	AF
2- 3	GCABUB108MRP0	M	Outer case cabinet	1	AZ
2- 4	TMAPCB068MRR0	M	Schematic diagram	1	AB
2- 5	FANGKB009MRY0	M	Hood lamp glass assembly	1	AN
2-5-1	LANGQB016MRP0	M	Hood lamp glass angle	1	AG
2-5-2	PGLSPB004MRE0	M	Hood lamp glass	1	AH
2- 6	PCOVBP099MRT0	M	Base cover	1	AR

### RIGHT PANEL PARTS

3- 1	DPWBFB104MRU0	M	Power unit	1	AZ
3- 1A	QCNCMA017JDZZ	M	3-pin connector CN-A	1	AG
3- 1B	QCNCMA275DRE0	J	2-pin connector CN-B	1	AB
3- 1C	QCNCMA335DRE0	J	11-pin connector CN-C	1	AC
3- 1D	QCNCMA237DRE0	J	3-pin connector CN-F	1	AD
C1	RC-KZA087DRE0	J	Capacitor 0.1 uF 50V	1	AB
C2	VCEAB31VW108M	J	Capacitor 1000 uF 35V	1	AF
C3	VCEAB31VW106M	J	Capacitor 10 uF 35V	1	AB
C21	VCEAB31VW106M	J	Capacitor 10 uF 35V	1	AB
C50-51	RC-KZA087DRE0	J	Capacitor 0.1 uF 50V	2	AB
D1-4	RH-DZA006PRE0	J	Diode (1N4002)	4	AD
D20-24	VHD1SS270A/-1	J	Diode (1SS270A)	5	AA
D40	VHD1SS270A/-1	J	Diode (1SS270A)	1	AA
IC2	VHIBA4558//-6	J	IC (BA4558)	1	AK
Q1	VS2SB1238//-3	J	Transistor (2SB1238)	1	AA
Q21	VSKRC243M//-3	J	Transistor (KRC243M)	1	AB
Q22	VSKRA101M//-3	J	Transistor (KRA101M)	1	AB
R1	VRS-B13AA681J	J	Resistor 680 ohm 1W	1	AA
R3	VRD-B12EF242J	J	Resistor 2.4k ohm 1/4W	1	AA
R4	VRD-B12EF332J	J	Resistor 3.3k ohm 1/4W	1	AA
R5	VRS-B13AA681J	J	Resistor 680 ohm 1W	1	AA
R50	VRS-B13AA331J	J	Resistor 330 ohm 1W	1	AA
R51	RR-DZA285DRZZ	J	Resistor 3.32k ohm ± 0.5% 1/4W	1	AC
R52	RR-DZA286DRZZ	J	Resistor 3.57k ohm ± 0.5% 1/4W	1	AC
R53	VRN-B12EK182F	J	Resistor 1.8k ohm ± 1.0% 1/4W	1	AA
R54	VRN-B12EK364F	J	Resistor 360k ohm ± 1.0% 1/4W	1	AA
RY1-2	RRLY-A113DRE0	M	Relay (DU24D1-1PR(M))	2	AG
RY3-4	RRLY-B004MRE0	M	Relay (FTR-F3AA024E)	2	AG
SP1	RALM-A014DRE0	J	Buzzer (PKM22EPT)	1	AG
T1	RTRNBP017MRE0	M	Transformer	1	AS
VR51	RH-VZA032DRE0	J	Varistor (10G471K)	1	AE
ZD1	VHEHZ161///-1	J	Zener diode (HZ16-1)	1	AA
3- 2	HPNLCB187MRF0	M	Right panel	1	AR

REF. NO.	PART NO.	§	DESCRIPTION	Q'TY	CODE
3- 3	JBTN-B161MRF0	M	Open button	1	AE
3- 4	MSPRCA045WRE0	M	Button spring	1	AA
3- 5	PSHEPB078MRR0	M	Menu label	1	AF
3- 6	XEPSD30P10XS0	M	Screw; 3mm x 10mm	2	AB

4- 1	PDUC-B119MRF0	M	Exhaust duct	1	AH
4- 2	FROLPB025MRK0	M	Turntable support assembly	1	AN
4- 3	NTNT-A108WREZ	M	Turntable tray	1	AN
4- 4	LBNDKB009MRP0	M	Capacitor holder	1	AB
4- 5	PDUC-B111MRF0	M	Magnetron duct	1	AF
4- 6	MLEVPB016MRF0	M	Open lever	1	AD
4- 7	*****	M	Oven cavity (Not replaceable part)	1	--
4- 8	PPACGB014MRF0	M	Turntable motor packing	1	AA
4- 9	PHOK-B018MRF0	M	Latch hook	1	AF
4-10	FANGTB006MRY0	M	Unit mounting plate assembly	1	AS
4-11	NFANPB006MRE0	M	Fan blade	1	AC
4-12	LBSHC0037WRE0	M	Cord bushing	1	AB
4-13	MLEVFB008MRP0	M	Mounting lever	2	AC
4-14	PSKR-B014MRP0	M	Bottom air guide	1	AD
4-15	PCOVPB085MRP0	M	Waveguide cover	1	AH
4-16	MSPRTA046WRE0	M	Latch spring	2	AB
4-17	LANGTB055MRP0	M	Chassis support	2	AD
4-18	LSTPPB039MRF0	M	Upper door stopper	1	AB
4-19	LSTPPB040MRF0	M	Lower door stopper	1	AB
4-20	PDUC-B113MRP0	M	Fan duct	1	AH
4-21	PDUC-B117MRF0	M	Orifice	1	AC
4-22	PCUSGB043MRP0	M	Transformer cushion	1	AC
4-23	PCOVPB101MRP0	M	Light cover	1	AE
4-24	PCUSUB065MRP0	M	Cushion	1	AA

## DOOR PARTS

Δ	5	CDORFB343MRK0	M	Door assembly	1	BK
Δ	5- 1	FDORFB072MRT0	M	Door panel assembly	1	AW
Δ	5- 2	FCOV-B249MRK0	M	Door frame assembly	1	BF
	5-2-1	LSTPPB023MRF0	M	Latch head	1	AC
	5-2-2	MSPRTA046WRE0	M	Latch spring	1	AB
	5-2-3	FUNTKB391MRE0	M	Key unit	1	AQ
	5-2-4	FW-VZB193MRE0	M	11-pin wire harness	1	-
	5-2-5	PCOVPB098MRP0	M	PWB cover	1	AD
	5-2-6	PCUSGB045MRP0	M	Cushion	1	AB
	5-2-7	DUNT-B048MRK0	M	LSI unit	1	BA
	5-2-8	LHLD-A237WRFZ	M	Light guide	1	AC
	5-2-9	LHLD-B020MRF0	M	LCD holder	1	AC
	5-2-10	PSHEPA786WREZ	M	LED sheet	1	AD
	5-2-11	XEPSD30P10XS0	M	Screw : 3mm x 10mm	2	AB
	5-2-12	PCUSUB067MRP0	M	Cushion	1	AB
	5-2-13	PCUSUB069MRP0	M	Cushion	1	AB
Δ	5- 3	GCOVHB045MRF0	M	Choke cover	1	AG
	5- 4	PSHEPB016MRE0	M	Sealer film	1	AE
	5- 5	XCPSD40P08000	M	Screw : 4mm x 8mm	2	AA

## MISCELLANEOUS

	6- 1	CFZK-B460MRK0	M	Installation material assembly	1	AH
	6-1-1	LBSHC0040MRE0	M	Grommet	1	AC
	6-1-2	LX-BZ0195WRE0	M	Toggle screw	4	AC
	6-1-3	LX-MZB001MRE0	M	Cord holder	1	AB
	6-1-4	XBRSD50P60000	M	Screw : 5mm x 60mm	2	AA
	6-1-5	XOTSD40P12000	M	Screw : 4mm x 12mm	3	AA
	6-1-6	XTSSD50P35000	M	Screw : 5mm x 35mm	6	AA
	6-1-7	XWHSD50-16300	M	Washer	2	AA
	6- 2	LANG-B003MRP0	M	Scale plate	2	AE
	6- 3	TINSEB358MRK0	M	Operation manual	1	AE
	6- 4	TINSKB082MRR0	M	Top and Wall template	1	AE
	6- 5	FW-VZB188MRE0	M	Low voltage harness	1	AT
*	6- 6	QW-QZB025MRE0	M	High voltage wire A	1	AT
	6- 7	FW-VZB280MRE0	M	Main harness	1	AU
	6- 8	TCAUAB049MRR0	M	DHHS service caution label	2	AA



REF. NO.	PART NO.	§	DESCRIPTION	Q'TY	CODE
6- 9	TCAUAB050MRRO	M	Monitor caution label	1	AA
6-10	TCAUAB048MRRO	M	Revised DHHS/GRD C/label	1	AB
6-11	QW-VZB011MRE0	M	Sensor ground wire	1	AB

#### SCREWS, NUTS AND WASHERS

7- 1	XOTSF40P12000	M	Screw : 4mm x 12mm	10	AA
7- 2	XOTSD40P12000	M	Screw : 4mm x 12mm	12	AA
7- 3	XHTSD40P08RV0	M	Screw : 4mm x 8mm	3	AA
7- 4	LX-CZA038WRE0	M	Special screw	5	AA
7- 5	LX-CZ0052WRE0	M	Special screw	2	AA
7- 6	LX-BZA041WRE0	M	Special screw	4	AA
7- 7	XCBSD30P08000	M	Screw : 3mm x 8mm	5	AA

### HOW TO ORDER REPLACEMENT PARTS

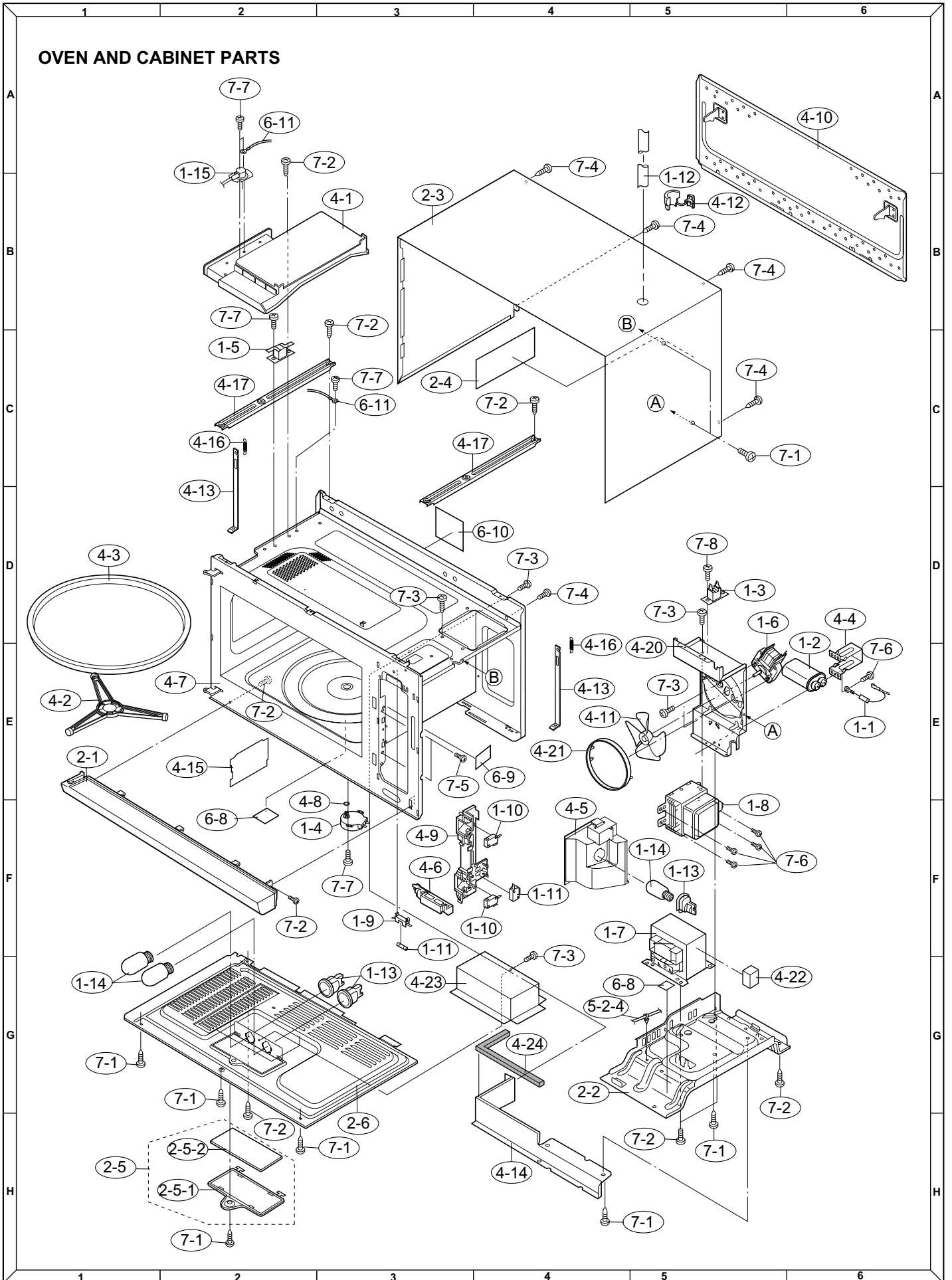
To have your order filled promptly and correctly, please furnish the following information.

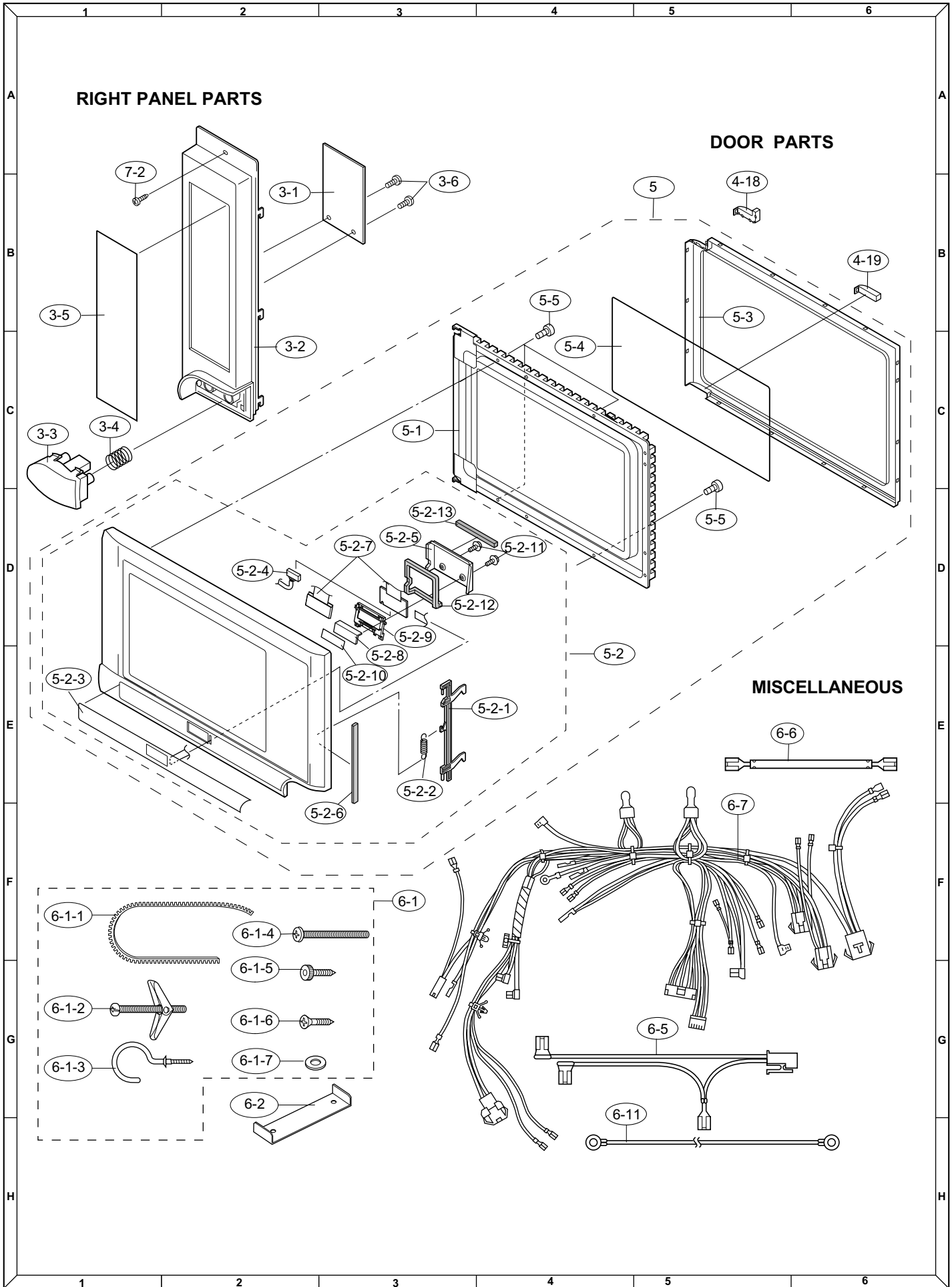
1. MODEL NUMBER      2. REF. NO.      3. PART NO.      4. DESCRIPTION

Order Parts from the authorized SHARP parts Distributor for your area.

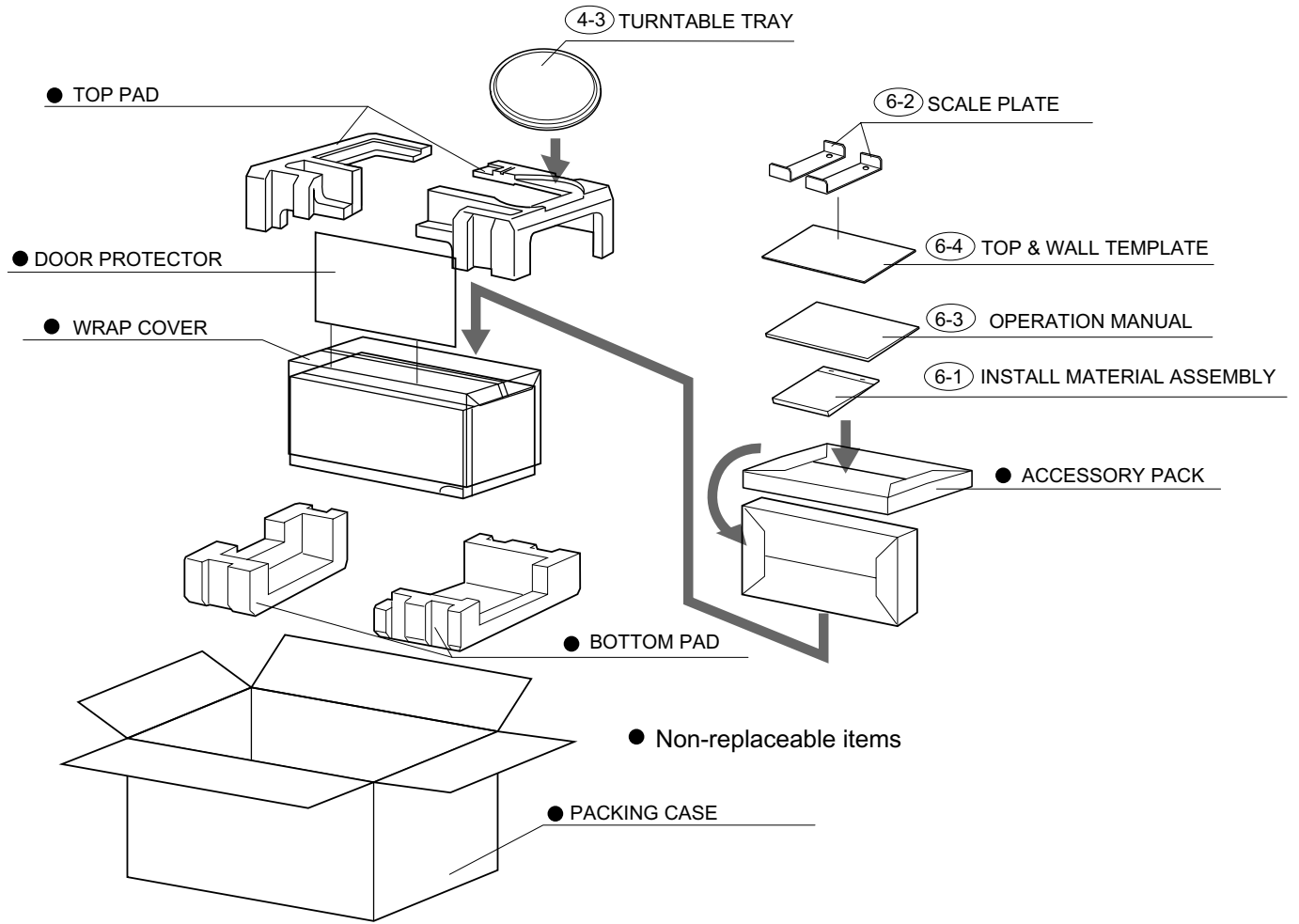
Defective parts requiring return should be returned as indicated in the Service Policy.

# OVEN AND CABINET PARTS





### PACKING AND ACCESSORIES



# SHARP

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