

SHARP

SUPPLEMENTAL SERVICE MANUAL

S9125R370EPZ/

MICROWAVE OVEN

MODEL **R-370EZ**



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 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-370EZ. This model is quite similar to base model R-370EK. Use this supplemental manual together with the Base Model Service Manual (Refer No. is S4112R370EPS/) 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 The 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.

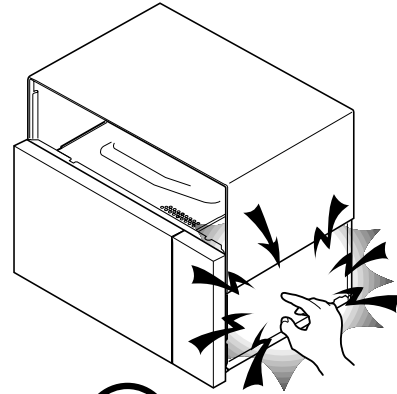
WARNING TO SERVICE PERSONNEL

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 the 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 a 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 mW/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 mW/cm^2 at any point 5cm or more from the external surface of the oven.
- 2) Safety interlock switches:
Primary interlock relay and door sensing switch shall prevent microwave radiation emission in excess of the requirement as above mentioned, secondary interlock switch shall prevent microwave radiation emission in excess of 5 mW/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 $275 \pm 15 \text{ ml}$ (9.8 oz) of tap water initially at $20 \pm 5^\circ \text{C}$ (68°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 mW/cm^2 .

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

SERVICE MANUAL

SHARP

MICROWAVE OVEN

R-370EZ

FOREWORD

This Manual has been prepared to provide Sharp Electronics Corp. Service Personnel with Operation and Service Information for the SHARP MICROWAVE OVEN, R-370EZ.

The model R-370EZ is quite similar to base model R-370EK (Refer No. is S4112R370EPS/).

It is recommended that service personnel carefully study the entire text of this manual and the base model's 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 no 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

SPECIFICATION

ITEM	DESCRIPTION
Power Requirements	120 Volts / 13.5 Amperes 60 Hertz Single phase, 3 wire grounded
Power Output	1000 watts (IEC TEST PROCEDURE) Operating frequency of 2450MHz
Case Dimensions	Width 17-1/4" Height 13-3/8" Depth 18-3/8"
Cooking Cavity Dimensions	Width 13-3/4" Height 7-1/4" Depth 16-1/2"
1.4 Cubic Feet	
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 SENSOR COOKING pads , INSTANT ACTION pads COMPU DEFROST pads, Number selection pads CUSTOM HELP PAD, POWER LEVEL pad, KITCHEN TIMER/CLOCK pad STOP/CLEAR pad, MINUTE PLUS /START pad
Oven Cavity Light	Yes
Safety Standard	UL Listed FCC Authorized DHHS Rules, CFR, Title 21, Chapter 1, Subchapter J

SCHEMATIC
NOTE: CONDITION OF OVEN
1. DOOR CLOSED
2. CLOCK APPEARS ON DISPLAY

NOTE: "★" indicates components with potential above 250V.

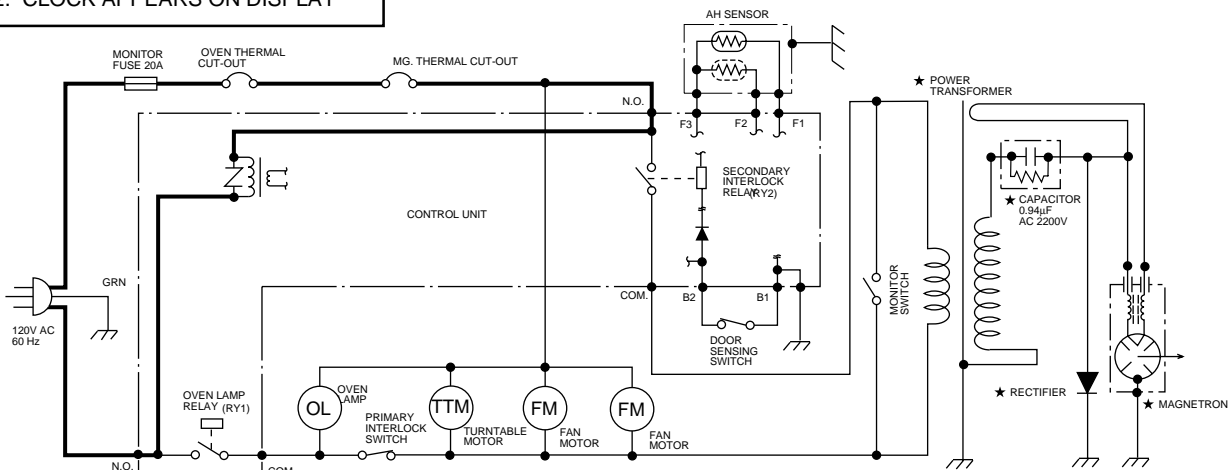


Figure O-1. Oven Schematic-Off Condition

PARTS LIST

**Note: The parts marked "Δ" may cause undue microwave exposure.
The parts marked "*" are used in voltage more than 250V.**

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
ELECTRIC PARTS				
1- 1	FACDA085WREZ	Power supply cord	1	AQ
1- 2	QFSHDA024WRZZ	Fuse holder	1	AG
1- 3	QSW-MA137WRE0	Primary interlock switch / door sensing switch	2	AH
1- 4	FFS-BA023WRK0	Monitor fuse 20A and monitor switch (AM51620C53Y1) assembly	1	AS
1- 5	RTHM-A116WRE0	Thermal cut-out 125 deg. C (MG)	1	AK
* 1- 6	FH-DZA100WRKZ	High voltage rectifier assembly	1	AQ
* 1- 7	RC-QZA211WRE0	High voltage capacitor	1	AV
* 1- 7	RC-QZA286WRZZ	High voltage capacitor (Interchangeable)	1	AV
1- 8	RMOTEA400WRZZ	Fan motor	2	AX
* 1- 9	RTRN-A638WRZZ	Power transformer	1	BP
*Δ 1-10	RV-MZA288WRE0	Magnetron	1	BK
*Δ 1-10	RV-MZA308WRZZ	Magnetron (Interchangeable)	1	BL
1-11	RLMPTA082WRZZ	Oven lamp	1	AL
1-12	RMOTDA186WRE0	Turntable motor	1	AQ
1-12	RMOTDA211WRE0	Turntable motor (Interchangeable)	1	AS
1-13	RTHM-A123WRZZ	Thermal cut-out 125 deg. C (OVEN)	1	AK
1-14	FDTCTA212WRKZ	AH sensor	1	AX

CABINET PARTS

2- 1	GDAI-A335WRWZ	Base plate	1	AW
2- 2	GLEGPA087WRFZ	Front leg	1	AK
2- 3	GLEGPA081WRFZ	Leg	1	AC
2- 4	GCABUA807WRPZ	Outer case cabinet	1	BD
2- 5	GCOVAA291WRFZ	Harness cover	1	AH

POWER UNIT PARTS

3- 1	DPWBFC179WRUZ	Power unit	1	BC
3- 1A	QCNCMA431DRE0	2-pin connector (CN-B)	1	AC
3- 1B	QCNCMA470DRZZ	9-pin connector (CN-C)	1	AF
3- 1C	QCNCMA237DRE0	3-pin connector (CN-F)	1	AD
C1	RC-KZA087DRE0	Capacitor 0.1 uF 50V	1	AA
C2	VCEAB31VW108M	Capacitor 1000 uF 35V	1	AF
C3	VCEAB31VW106M	Capacitor 10 uF 35V	1	AA
C21	VCEAB31VW106M	Capacitor 10 uF 35V	1	AA
C50-51	RC-KZA087DRE0	Capacitor 0.1 uF 50V	2	AA
D1-4	RH-DZA006PRE0	Diode (1N4002)	4	AD
D20-22	VHD1SS270A/-1	Diode (1SS270A)	3	AA
D40	VHD1SS270A/-1	Diode (1SS270A)	1	AA
IC2	VHIBA4558//-6	IC (BA4558)	1	AK
Q1	VS2SB1238//-3	Transistor (2SB1238)	1	AA
Q21	VSDTD143ES/-3	Transistor (DTD143ES)	1	AC
Q22	VSDTA143ES/1B	Transistor (DTA143ES)	1	AA
R1	VRD-B12EF242J	Resistor 2.4k ohm 1/4W	1	AA
R2	VRS-B13AA331J	Resistor 330 ohm 1W	1	AA
R4	VRD-B12EF332J	Resistor 3.3k ohm 1/4W	1	AA
R50	VRS-B13AA331J	Resistor 330 ohm 1W	1	AA
R51	RR-DZA285DRZZ	Resistor 3.32k ohm ±0.5% 1/4W	1	AC
R52	RR-DZA286DRZZ	Resistor 3.57k ohm ±0.5% 1/4W	1	AC
R53	VRN-B12EK182F	Resistor 1.8k ohm ±1.0% 1/4W	1	AA
R54	VRN-B12EK364F	Resistor 360k ohm ±1.0% 1/4W	1	AA
RY1	RRLY-A076DRE0	Relay (OMIF-S-124LM)	1	AK
RY2	RRLY-A113DRE0	Relay (DU24D1-1P(M)-R)	1	AM
SP1	RALM-A014DRE0	Buzzer (PKM22EPT)	1	AG
T1	RTRNPA111DRE0	Transformer	1	AP
VRS1	RH-VZA032DRE0	Varistor (10G471K)	1	AE
ZD1	VHEHZ161///-1	Zener diode (HZ16-1)	1	AA

OVEN PARTS

Δ 4- 1	PHOK-A118WRFZ	Latch hook	1	AH
4- 2	LBNDKA099WRW0	Capacitor holder	1	AD
4- 3	PDUC-A772WRWZ	Fan duct	1	AN
4- 4	NFANJA047WREZ	Fan blade	2	AL
4- 5	PPACGA084WRF0	TTM packing	1	AE
Δ 4- 6	*****	Oven cavity (Not a replaceable part)	1	--
4- 7	GCOVHA423WRFZ	Choke cover	1	AL
4- 8	LANGQA531WRWZ	Lamp angle	1	AP
4- 9	PCOVPA361WREZ	Waveguide cover	1	AD
4-10	LANG-A084WRFZ	Separate angle A	1	AG

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
4-11	LANG-A085WRFZ	Separate angle B	1	AG
4-12	LANG-A086WRFZ	Separate angle C	1	AG
4-13	PCLI-A002WREZ	PC support clip	2	AD
4-14	FANG-A013WRYZ	Magnetron duct assembly	1	AP
4-15	LANGFA200WRPZ	Support angle	1	AD
4-16	NCPL-A053WRFZ	Coupling	1	AE
4-17	PCUSUA571WRPZ	Cushion	1	AH
4-18	PDUC-A775WRTZ	Exhaust duct	1	AP
4-19	PPACGA181WREZ	Cushion	1	AH
4-20	PPACGA182WREZ	Cushion	1	AC
4-21	PCUSUA573WRPZ	Cushion	1	AC
4-22	PCUSUA313WRP0	Cushion	1	AF
4-23	PCUSUA578WRPZ	Cushion	1	AG
4-24	PCUSUA577WRPZ	Cushion	1	AC
4-25	PCUSGA561WREZ	Cushion	1	AC
4-26	PCUSUA583WRPZ	Cushion	1	AG
4-27	PCUSUA375WRP0	Cushion	1	AH
4-28	PCUSGA560WREZ	Cushion	2	AB
4-29	PCUSGA564WREZ	Cushion	1	AH
4-30	PCUSGA563WREZ	Cushion	1	AH

DOOR PARTS

Δ	5- 1	FDORFA347WRTZ	Door panel	1	AX
	5- 2	PSHEPA775WREZ	Sealer film	1	AH
Δ	5- 3	FWAKPA352WRKZ	Door frame assembly	1	BE
	5-3-1	FUNTKB060WREZ	Key unit	1	AV
	5-3-2	HPNL-A762WRRZ	Door screen	1	AU
Δ	5- 4	LSTPPA193WRFZ	Latch head	1	AE
	5- 5	MSPRTA202WREZ	Latch spring	1	AD
	5- 6	DPWBFC176WRKZ	CPU unit	1	BD
	5- 7	LHLD-A236WRFZ	LCD holder	1	AC
	5- 8	PSHEPA786WREZ	LED sheet	1	BB
	5- 9	FW-VZA272DREZ	9-pin wire harness	1	AL
	5-10	PCOVPA372WRWZ	PWB cover	1	AF
	5-11	PCUSUA567WRPZ	Cushion	1	AE
	5-12	XEBSD38P08000	Screw : 3.8mm x 8mm	4	AA
	5-13	XEPSD30P08XS0	Screw : 3mm x 8mm	3	AA
	5-14	LHLD-A237WRFZ	Light guide	1	AL
	5-15	PCUSUA461WRP0	Cushion	1	AB

MISCELLANEOUS

6- 1	FROLPA079WRK0	Turntable support	1	AP
6- 2	NTNT-A079WRF0	Turntable tray	1	AR
6- 2	NTNT-A084WRE0	Turntable tray (Interchangeable)	1	AQ
6- 3	FW-VZB827WREZ	Main wire harness	1	AW
6- 4	QW-QZA242WRZZ	High voltage wire B	1	AF
6- 5	TCAUAA265WRRZ	DHHS caution label	1	AC
6- 6	TCAUAA254WRR0	Monitor caution label	1	AC
6- 7	TINSEA914WRRZ	Instruction book	1	AM
6- 8	FW-VZB828WREZ	Switch harness	1	AK
6- 9	FW-VZB802WREZ	T.T. motor harness	1	AF

SCREWS,NUTS AND WASHERS

7- 1	XHPSD40P08K00	Screw : 4mm x 8mm	8	AA
7- 2	XHPSD40P08000	Screw : 4mm x 8mm	1	AA
7- 3	XOTSD40P08000	Screw : 4mm x 8mm	9	AA
7- 4	LX-CZA073WRE0	Special screw	1	AC
7- 5	XOTSD40P12000	Screw : 4mm x 12mm	2	AA
7- 6	XHPSD30P08XS0	Screw : 3mm x 8mm	2	AB
7- 7	XHTSD40P08RV0	Screw : 4mm x 8mm	9	AA
7- 8	LX-CZA070WRE0	Special screw (Torx tamper proof screw)	2	AC
7- 9	LX-CZ0052WRE0	Special screw	2	AA
7-10	XHPSD30P06000	Screw : 3mm x 6mm	1	AA
7-11	XHTSD40P08000	Screw : 4mm x 8mm	4	AA
7-12	XHTSD40P12RV0	Screw : 4mm x 12mm	1	AA
7-13	XOTSD40P12RV0	Screw : 4mm x 12mm	4	AA
7-14	XOTSF40P08000	Screw : 4mm x 8mm	2	AA
7-15	LX-EZA060WREZ	Special screw	4	AA
7-16	XOTSD40P12000	Screw : 4mm x 12mm	1	AA
7-17	XHBWW30P08000	Screw : 3mm x 8mm	2	AB

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

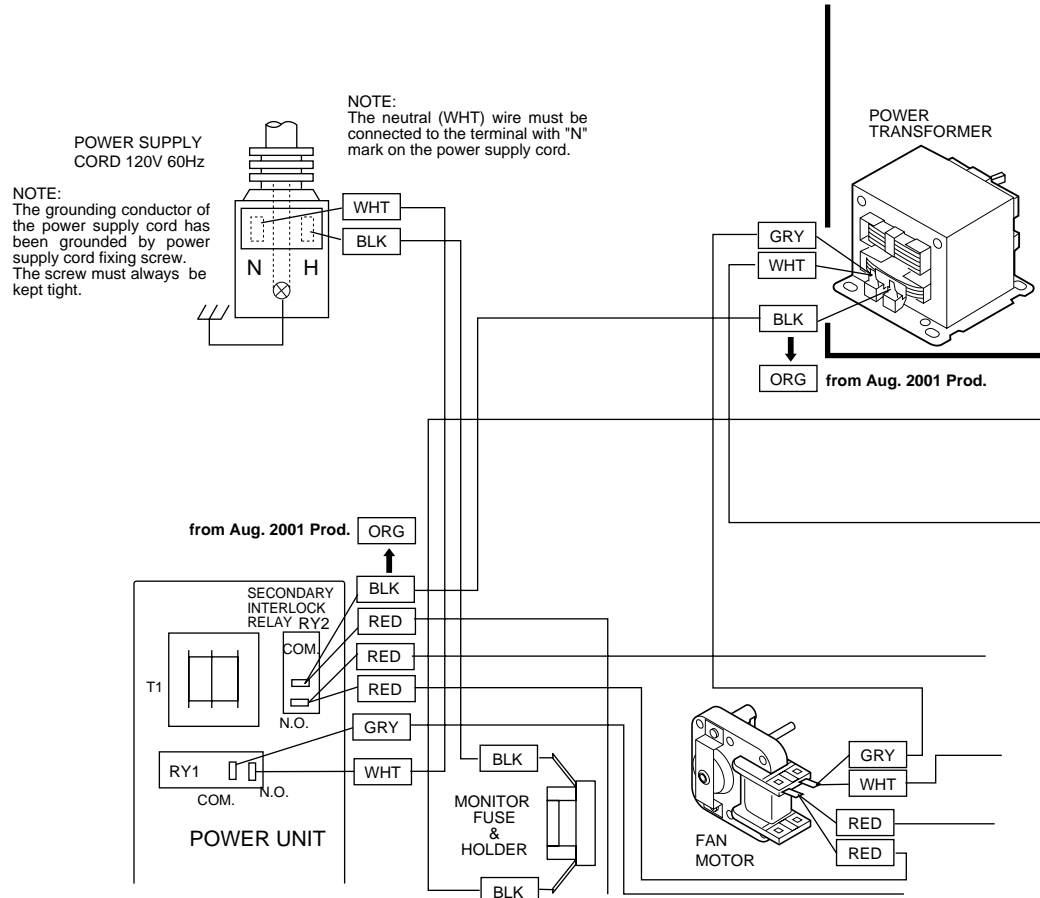
Order Parts from the authorized SHARP parts Distributor for your area.

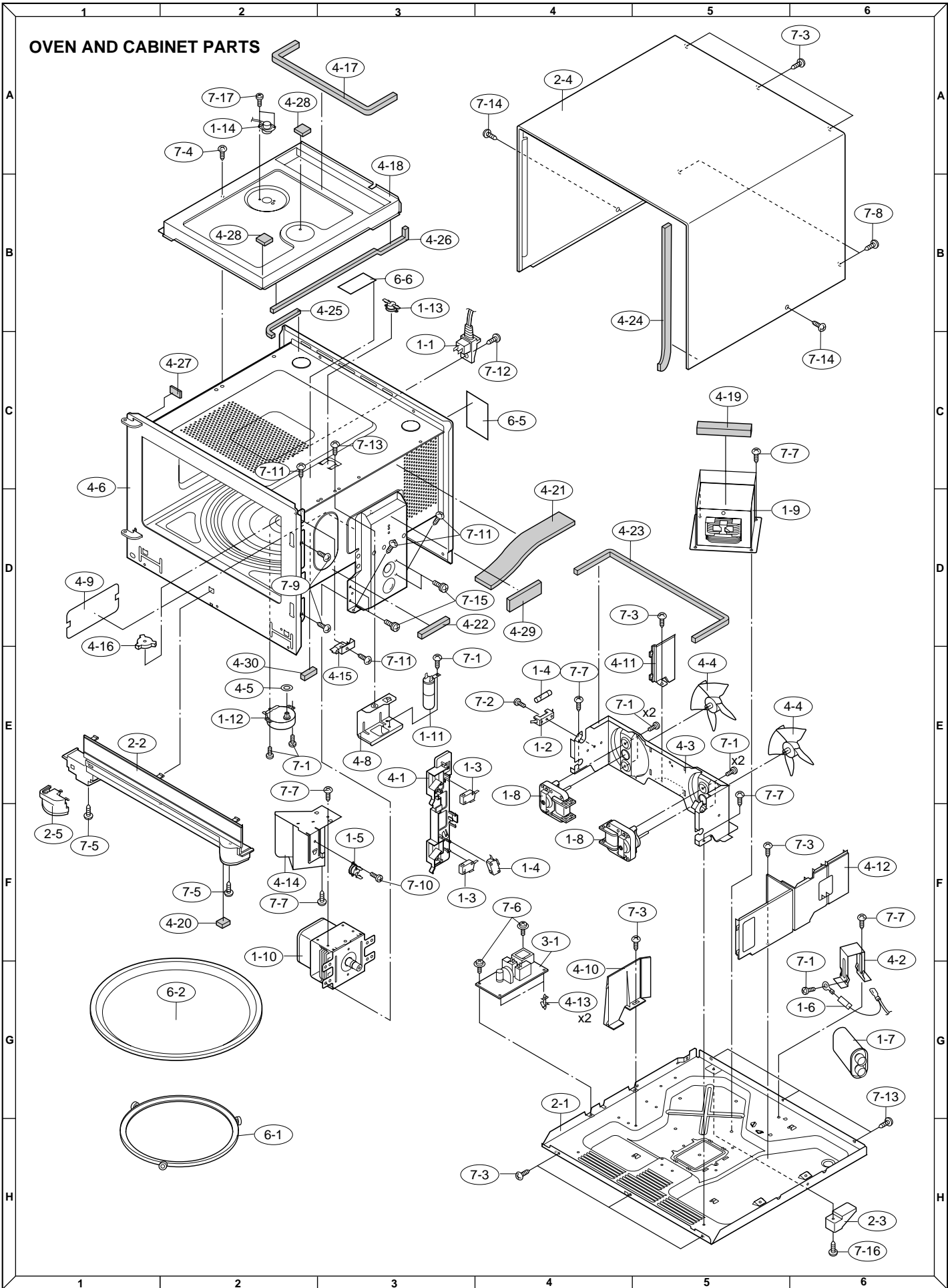
Defective parts requiring return should be returned as indicated in the Service Policy.

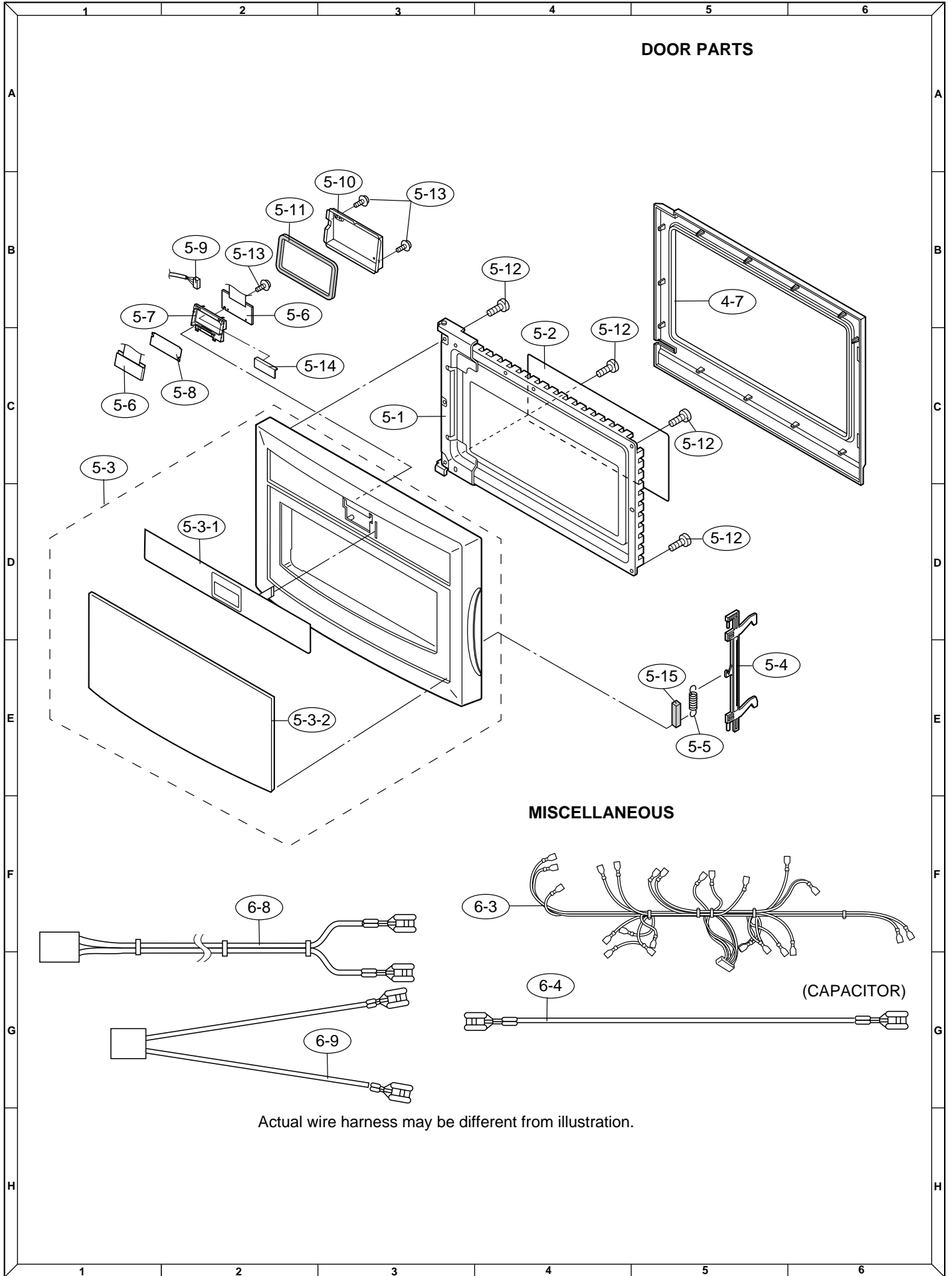
SERVICE INFORMATION

The color of lead wire has been changed as follow.

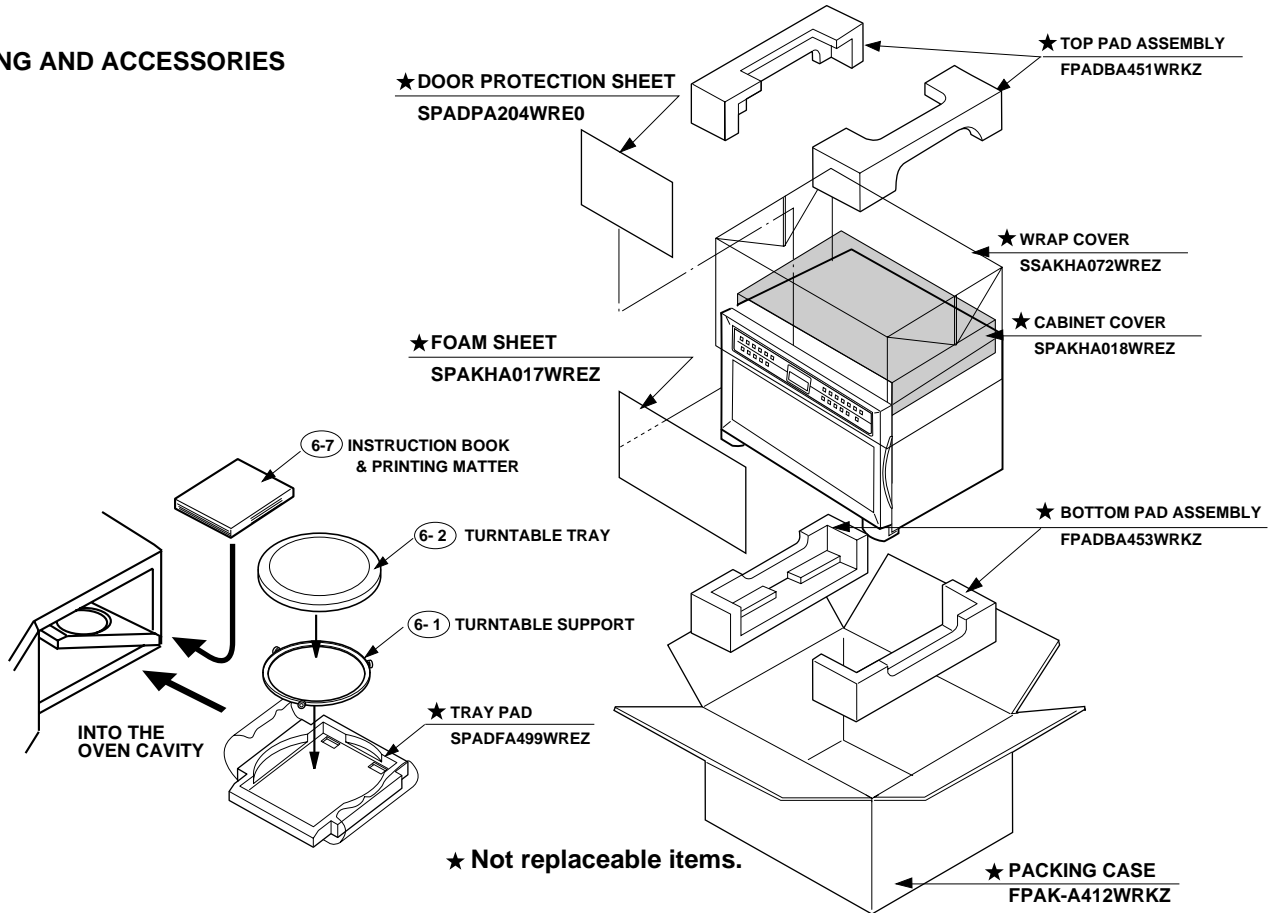
MODEL	EFFECTIVE FROM
R-370EK	Serial No. from 26937
R-370ES	Serial No. from 04928
R-370EZ	1 st. lot production







PACKING AND ACCESSORIES



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