



LG Electronics Inc.

P/NO.: 3828FB5051F

FEB. 2004
Printed in Korea



BREADMAKER SERVICE MANUAL

CAUTION

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

MODEL : HB-156JE / 206CE



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PREFACE

1. SAFETY PRECAUTIONS

Follow basic safety precautions before using electrical appliances.

1. **READ ALL INSTRUCTIONS.**
2. To protect against electrical shock, do not immerse cord, plug, or appliance in water or other liquid.
3. Do not touch hot surfaces. Always use oven mitts when handling the hot bread pan of bread.
4. Close supervision is necessary when the appliance is used by or near children.
5. Unplug the unit from the outlet when not in use and before cleaning. Allow the breadmaker to cool before attaching or removing parts.
6. Do not touch moving parts.
7. Do not operate the appliance with a damaged cord or plug or after the appliance malfunctions, or it has been dropped or damaged in any manner. Return the appliance to the nearest authorized service facility for examination, repair, or mechanical adjustment.
8. Attachments that are not recommended or sold by the appliance manufacturer should not be used.
9. Do not use outdoors.
10. Do not let the cord hang over the edge of the table or counter or touch hot surfaces.
11. Do not place on or near a gas or electric burner, or in a heated oven.
12. To disconnect, grip the plug and pull it out from the wall outlet. Never pull the cord.
13. Do not use the appliance for other than the intended use.
14. This product is intended for household use only.

2. SERVICING PRECAUTIONS

The following cautions should be observed when troubleshooting.

- a) As the appliance is made to be serviced only by properly qualified service personnel, it cannot be repaired by the user.
- b) Before servicing, you should keep your hands dry. The power cord must be unplugged to protect electrical hazards.
- c) Wear gloves when assembling or disassembling the appliance to avoid being injured by a sharp edge.

3. INSTALLATION INSTRUCTIONS

- a) Place the breadmaker allowing at least 4-inch air space around sides and top of the breadmaker.
- b) Always place the breadmaker on a heat-proof counter top or table during operation.
- c) This breadmaker must be placed on a firm, flat, and solid surface.
- d) 120/60Hz reted bread Machine has a polarized plug;one blade is wider than the other. 230V/50Hz rated bread Machine has to be earthed.
- e) Extension cords are available and may be used if care is exercised in their use.

EXTENSION CORD IS USED

1. The marked electrical rating of the extension cord should be at least as great as the appliance.
2. The longer cord should be arranged so it will not drape over the counter top or tabletop where it can be pulled by children or tripped over.

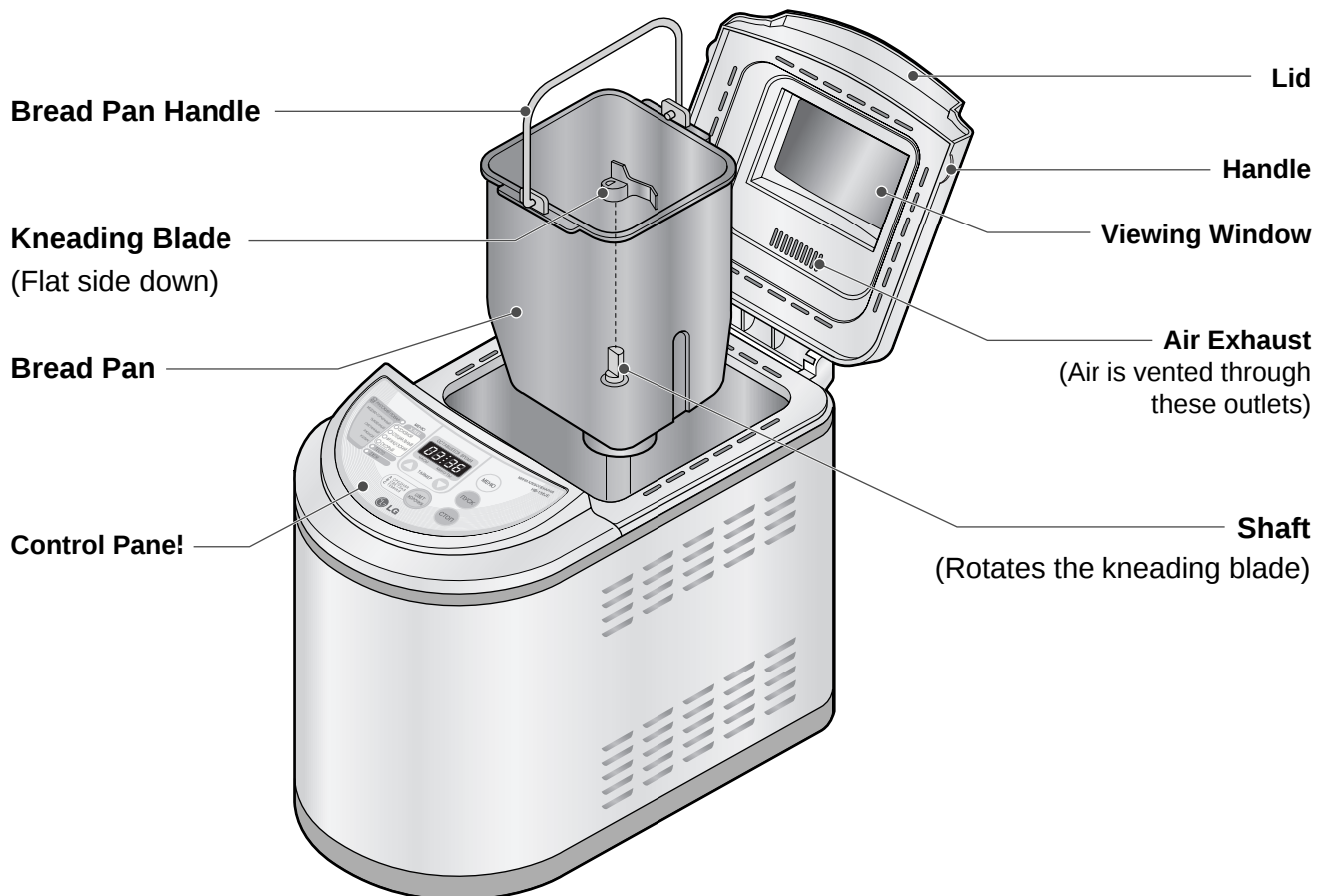
4. SPECIFICATIONS

DESCRIPTION		AUTOMATIC BREADMAKER
MODEL		REFER TO THE COVER PAGE
POWER SUPPLY		INDICATED ON THE RATING LABEL
POWER	MAIN HEATER	550W
CONSUMPTION	KNEADING MOTOR	100W
DIMENSIONS (W×D×H)		APPROX. 13 ³ / ₄ " × 9" × 13 ³ / ₄ " (23.2×39.2×33cm)
WEIGHT		APPROX. 14.4lb.(7.4kg)
TIMER		4:10 TO 13:00 HOURS DIGITAL TIMER
CORD LENGTH		APPROX. 3 FEET, 3.4 INCHES(1.0m)
THERMAL FUSE	MAIN HEATER PROTECTOR	291°F/144°C
	KNEADING MOTOR PROTECTOR	275°F/135°C
ACCESSORIES		MEASURING CUP, MEASURING SPOON(OPTION)
SERIAL NO.		INDICATED ON THE RATING LABEL WITH PERMANENT INK

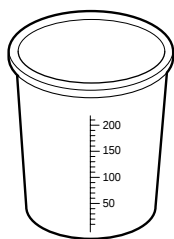
OPERATING INSTRUCTIONS

1. FEATURES AND CONTROL PANEL

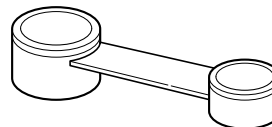
A. FEATURES



ACCESSORIES

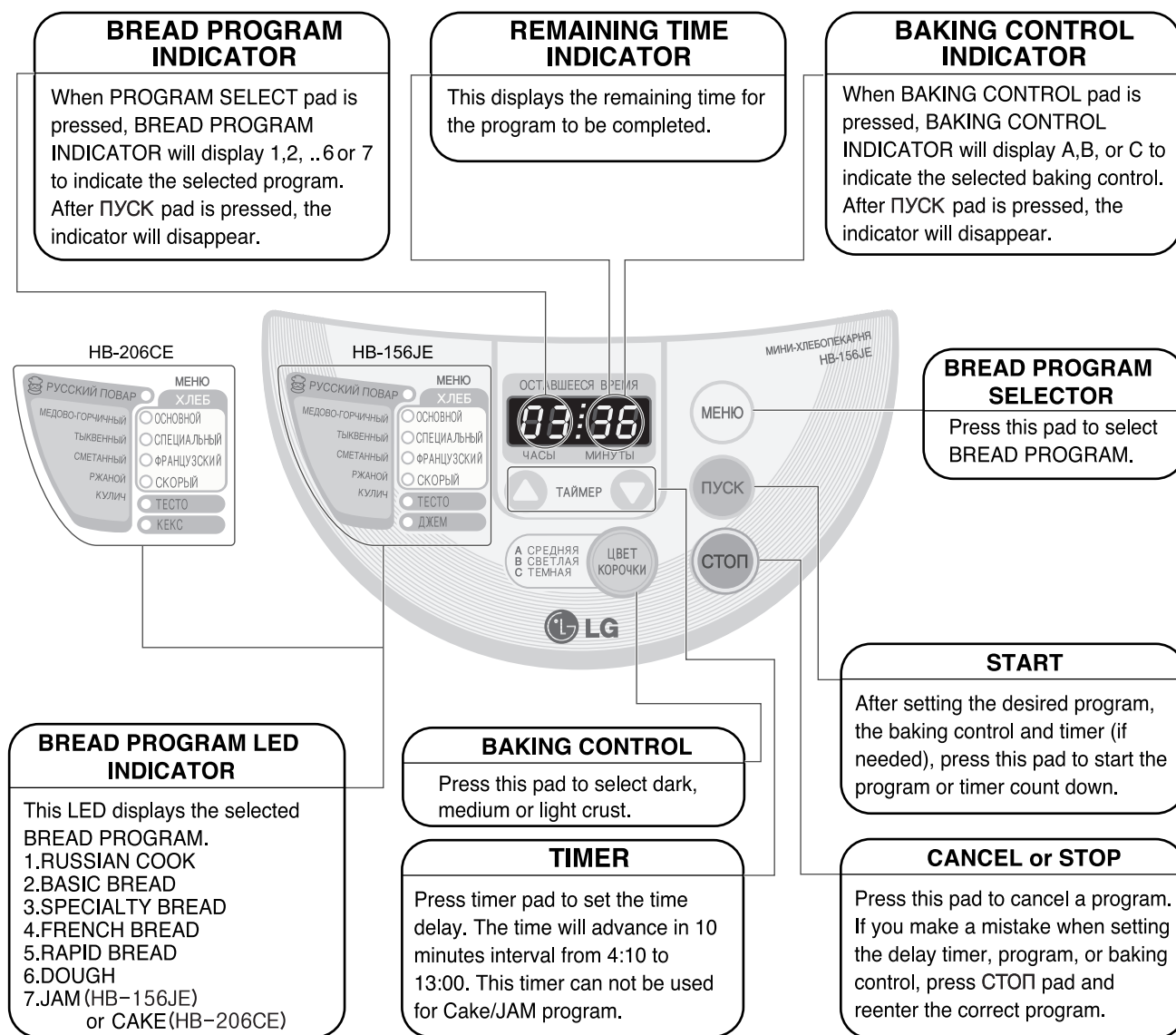


Measuring Cup



Measuring Spoon (OPTION)

B. CONTROL PANEL



NOTE

If you want to cancel the selected program, press the CANCEL pad for more than 1 second at any time during the cycle.

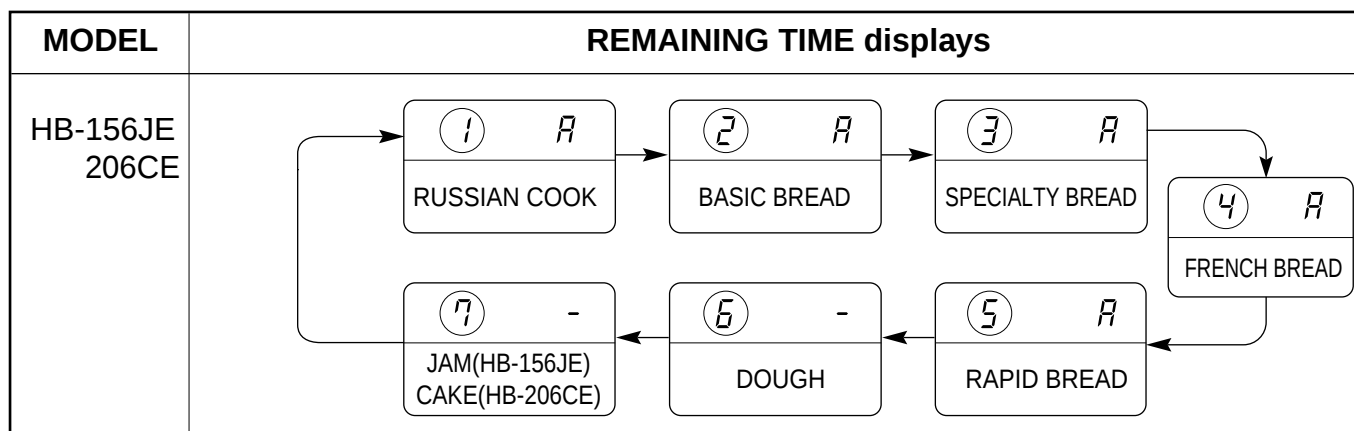
2. OPERATION CHECK

After installation or repair, the following sequence and results should be checked.

1. GENERAL OPERATION CHECK

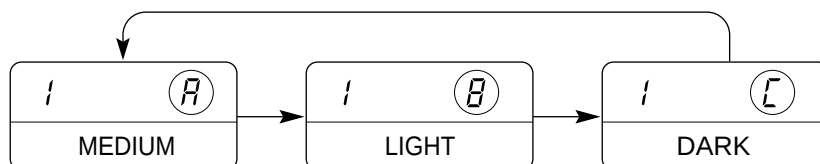
- Plug the power cord into a prolonged electrical outlet.
- The REMAINING TIME display 19 and Russian cook is set already.
- Check the PROGRAM SELECT.**

Press the MENU pad, then REMAINING TIME will advance as follows:



- Check the BAKING CONTROL** (except for CAKE or JAM and DOUGH program).

Press the BAKING CONTROL pad, then the REMAINING TIME will advance as follows:



- Check the TIMER**

Set the timer for how long you want to wait before the bread is done (from 4:10 to 13:00 in 10 minutes interval).

- Press TIMER UP PAD (▲) once, the REMAINING TIME DISPLAY 4:10.
 - When constant pressure is applied to the pad, the time will advance quickly from 4:10 to 13:00.
 - After 13:00 is set, press once more, then the REMAINING TIME displays 4:10.
 - If you pass the time that you wanted, press TIMER DOWN PAD (▼) to go back.
- After selecting PROGRAM SELECT and BAKING CONTROL, press the START pad. Then the colon on the REMAINING TIME blinks to indicate that the breadmaker starts to operate.
 - Press the CANCEL(STOP) pad to cancel all baking processes. If the START pad is already pressed, just press the CAN-CEL(STOP) pad and hold for MORE THAN 1 SECOND.

CAUTION

- The TIMER can not be used in CAKE AND JAM.
- After setting the time, press the START pad to operate the breadmaker. Check to see if the colon blinks.

1. TEST KEY PROGRAM CHECK

You can check the operating of each load by using the self-diagnosis program.

(a) OPERATION CHECK

- 1) When power is supplied while pressing the TIMER UP PAD (▲) and TIMER DOWN PAD (▼) at the same time, the self-diagnosis program will start.
- 2) After checking 1), press the START pad, then the process will advance as follows.

REMAINING TIME display	18:00	P:1	P:2	18:00 → P:1 →
OPERATION	LED CHECK	Kneading motor	Heater	

- 3) After 60 seconds from the starting points of processing, or if the CANCEL(STOP) pad is pressed, the self-diagnosis program will be canceled.

(b) BAKING PROCESS CHECK (for the only Russian Cook)

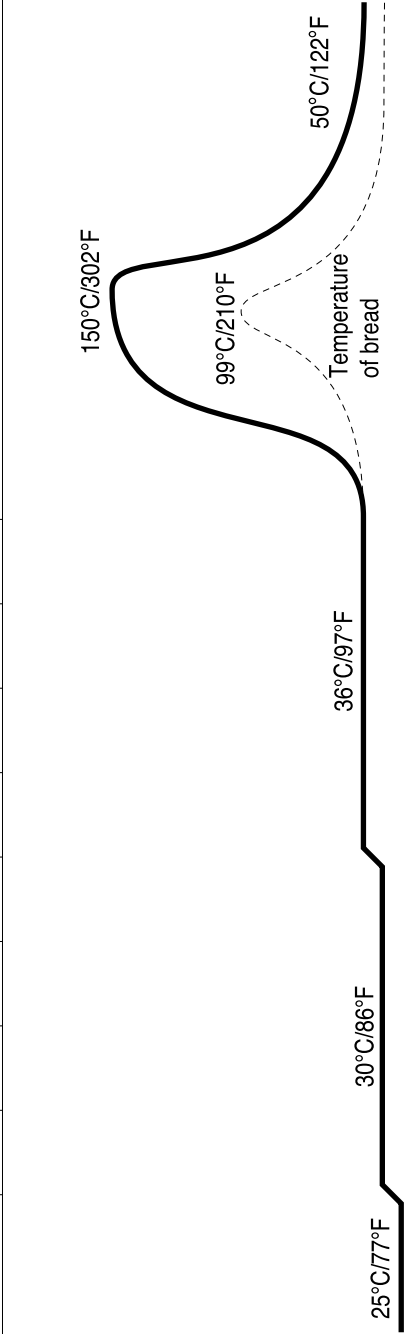
- 1) When power is supplied while pressing the START pad and CANCEL(STOP) pad at the same time, the self-diagnosis program will start.
- 2) After checking the REMAINING TIME (18 displayed with beeps), press the START pad.
- 3) The breadmaker starts to operate and the baking process will advance as follows.

Baking Process	Time set	Mix	1st Knead	Rest	2nd Knead	1st Rise	Gas Squeeze	2nd Rise	Gas Squeeze	3rd Rise	Bake	Cool	Warm	End
REMAIN-ING Time	156 or 206	3:40	3:38	3:33	3:28	3:16	2:37	2:36	2:11	2:10	1:10	0:20	[H]	END
Baking Process indicator (OPTION)	-	KNEAD				RISE					BAKE	COOL	-	-

- 4) During checking 3), if the START pad was not pressed, the process will advance will advance to the next process according as time pass.
- 5) After checking 4), press the CANCEL(STOP) pad to cancel the self-diagnosis program.

3. BREADMAKING PROGRAM

3-1) EXPLANATION OF BASIC PROGRAM (Russian Cook)

Process	Time Delay	1st Knead		Rest	2nd Knead	1st Rise	Gas Squeeze	2nd Rise	Gas Squeeze	3rd Rise	Bake	Cool	Warm	End	
Time	Max 8:50	2min.	5min.	5min.	12min.	40min.	4sec.	26min.	4sec.	60min.	Approx. 50min.	Approx. 20min.	3hours	-	
Remaining Time	Max 13:00	3:40	3:38	3:33	3:28	3:16	2:37	2:36	2:11	2:10	1:10	0:20	[:H]	End	
Process Indicator (OPTION)	Time Set	Knead			Rise						Bake	Cool	-	-	
Heater		On/Off													-
Kneading Motor	Off	On/Off	On	Off	On	Off	On	Off	On	Off	Off			-	
Temperature of oven case															
	Micro-Computer Control	Time Delay	Knead			Rise			Bake	Cool	Warm	End			
The temperature is controlled at 25°C (77°F).		Breadmaker starts to operate intermittently to proof flour splashed for 2 minutes. After mixing flour with water, kneading blade rotates with 250rpm for 5 minutes. After resting for 23 minutes, rotation again for 12 minutes. During knead and rest courses, the temperature is maintained at 30°C (86°F) by using the sensor and heater.			Accurate temperature control is essential during rising, (Dough temperature: Approx. 36°C (97°F). Microcomputer controls the power supply accurately to keep suitable dough temperature.			Bread is baked with high power. Bread is baked with a crisp golden crust and a fluffy inside.		Immediately after baking, bread can not be eaten because it's too hot.		Breadmaker maintains the bread at a suitable temperature (60°C/140°F) for 3 hours.		-	

3-2) PROGRAM SPECIFICATIONS

(1) Russian Cook (3:40)

▼ Beep sounds 9 minutes before the end of 2nd kneading

Remark	Timer	Knead				Rise					Bake	Cool	Warm
		Mix	1' Knead	Rest	2' Knead	1' Rise	G/Squeeze	2' Rise	G/Squeeze	3' Rise			
Time	13hr	2min.	5min.	5min.	12min.	40min.	4sec.	26min.	4sec.	60min.	50min.	20min.	3hr

(2) Basic Bread (3:40)

Remark	Timer	Knead				Rise					Bake	Cool	Warm
		Mix	1' Knead	Rest	2' Knead	1' Rise	G/Squeeze	2' Rise	G/Squeeze	3' Rise			
Time	13hr	2min.	5min.	5min.	12min.	40min.	4sec.	26min.	4sec.	60min.	50min.	20min.	3hr

(3) Specialty Bread (3:40)

▼ Beep sounds 9 minutes before the end of 2nd kneading

Remark	Timer	Knead				Rise					Bake	Cool	Warm
		Mix	1' Knead	Rest	2' Knead	1' Rise	G/Squeeze	2' Rise	G/Squeeze	3' Rise			
Time	13hr	2min.	5min.	5min.	12min.	40min.	4sec.	26min.	4sec.	60min.	50min.	20min.	3hr

(4) French Bread (4:00)

▼ Beep sounds 9 minutes before the end of 2nd kneading

Remark	Timer	Pre Heat	Knead				Rise				Bake	Cool	Warm	
			Mix	1' Knead	Rest	2' Knead	1' Rise	G/Squeeze	2' Rise	G/Squeeze				3' Rise
Time	13hr	20min.	2min.	11min.	50min.	12min.	20min.	4sec.	15min.	4sec.	40min.	50min.	20min.	3hr

(5) Rapid Bread (1:59)

▼ Beep sounds 5 minutes before the end of 2nd kneading

Remark	Timer	Knead				Rise					Bake	Cool	Warm
		Mix	1' Knead	Rest	2' Knead	1' Rise	G/Squeeze	2' Rise	G/Squeeze	3' Rise			
Time	13hr	2min.	5min.	5min.	7min.	13min.	4sec.			52min.	35min.		3hr

(6) Dough (1:03)

Remark	Remaining	Knead				Rise	
		Mix	1' Knead	Rest	2' Knead	1' Rise	G/Squeeze
Time	13hr	2min.	4min.	5min.	12min.	40min.	4sec.

(7) Jam (1:20); HB-156JE

Remark	Timer	Pre Bake	Bake	Cool
Time		10min.	60min.	10min.

or

(7) Cake (1:10); HB-206CE

Remark	Timer	Bake	Cool	Warm
Time		60min.		3hr 10min

NOTE

1. The Russian Cook Specialty Bread, and French Bread Programs contain an audible signal (8 beeps) Which sounds 9 minutes before the end of the 2nd knead (5 minutes before the end of the 2nd knead for Rapid program).
For specialty bread, add additional ingredients at this time (i.e. raisins, nut, vegetables, etc.).
2. The Russian Cook Basic Bread, Specialty Bread, and French Bread Programs contain an audible signal (4 beeps) at the end of the baking cycle (20 minutes of cooling time remain).
3. The beeper beeps 8 times at the end of each program to indicate the program is finished.

DISASSEMBLY INSTRUCTION

• PAY ATTENTION TO THE FOLLOWING IN SERVICE AND INSPECTION.

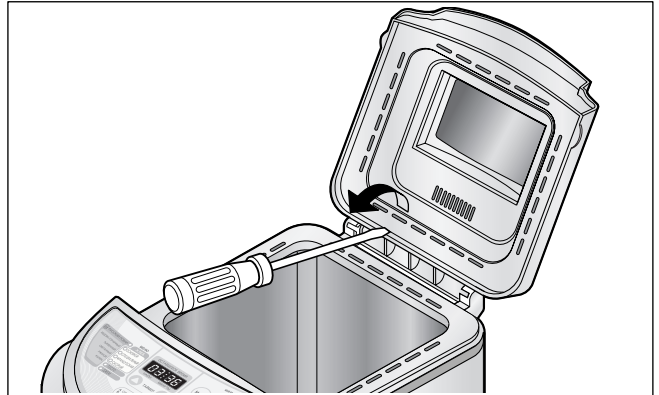
(a) Protect against electric shock:

Pull out the plug for service and inspection. Don't touch live components when service and inspection are made.

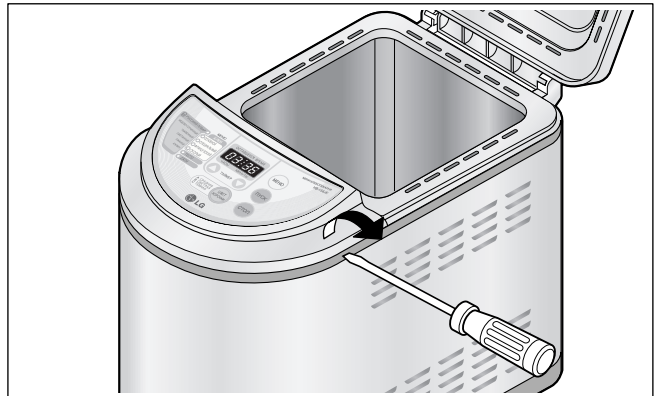
(b) Restore the original conditions of components and wire layout; Safety provisions are made by using tube and the other insulation material and by preventing wire from contact with heat generating or movable components by means of layout and binding. They should be restored to the original conditions.

(c) Safety inspection after service is required as follows: confirm that screws, nuts, components, and wires removed for service are restored. Check the deterioration around service components, and check for insulation.

1. Turn the Top Cover assembly upside down and pull out the inner cover and the viewing window.

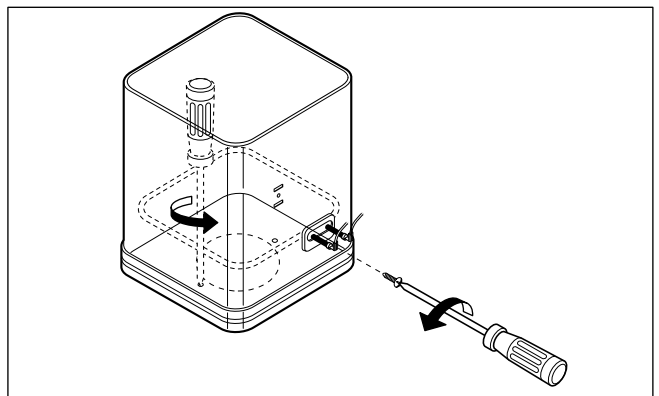


2. Pull out the control panel.

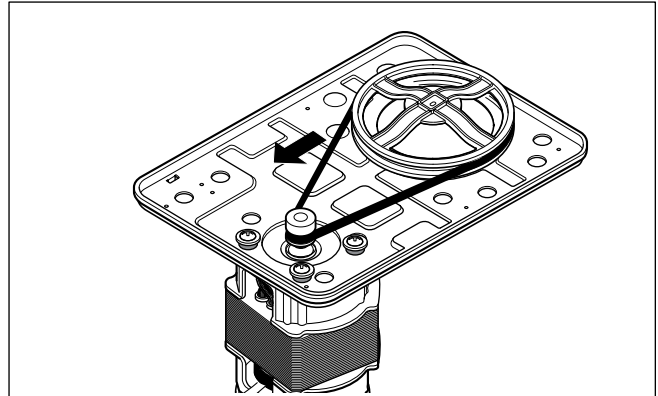


3. After disconnecting leads, remove the oven case main assembly from the chassis by unscrewing two machine screws fixing oven case main assembly.

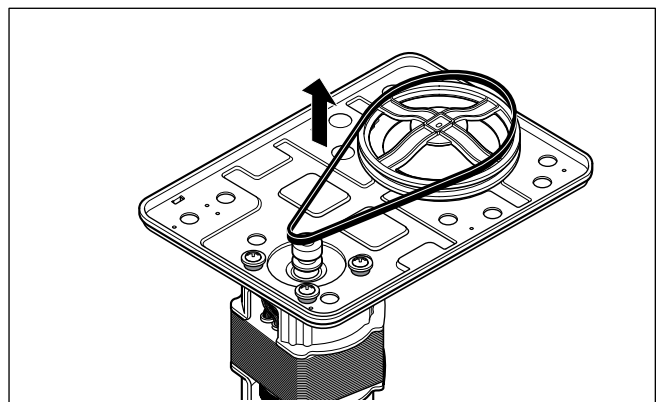
4. Remove the leadwire assembly and sheath heater assembly from the oven case main assembly.



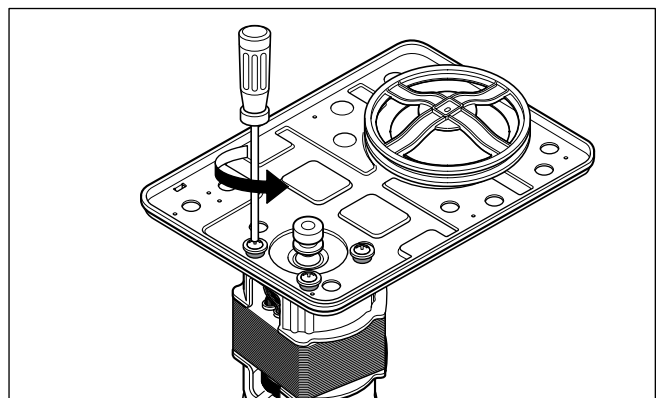
-
- 5.** Turn the breadmaker upside down. Remove four legs and base cover by unscrewing. Pull out the power cord assembly on the bottom of the unit. Remove the chassis assembly from the outer case.



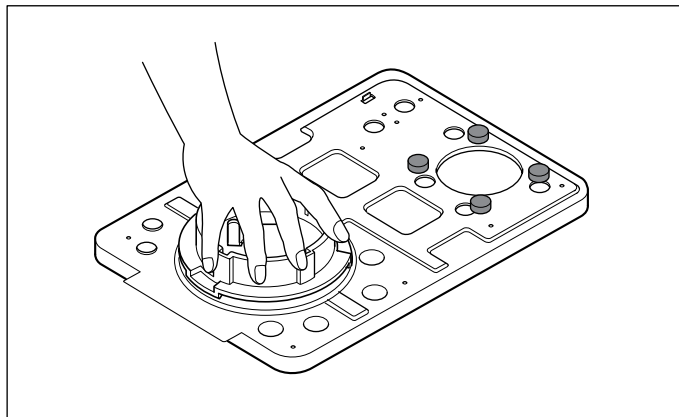
- 6.** Remove the poly V-belt. Remove nut and pulley washer, then the kneading pulley can be disconnected. Remove the E-ring, washer, and pulley shaft assembly.



- 7.** Remove the motor pulley from the motor shaft by removing one machine screw. Remove three fixing screws, then the kneading motor and motor cushion can be disassembled.

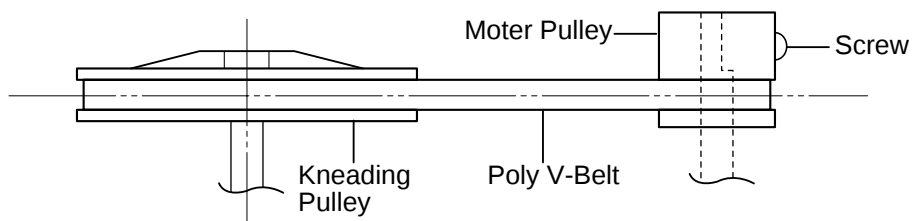


- 8.** Turn the chassis upside down and remove the oven base and the capacitor.



CAUTION

When you reassemble the kneading pulley, poly V-belt, and motor pulley after service or repair; adjust the center of the kneading pulley, poly V-belt, and motor pulley as follows.



TROUBLESHOOTING GUIDE

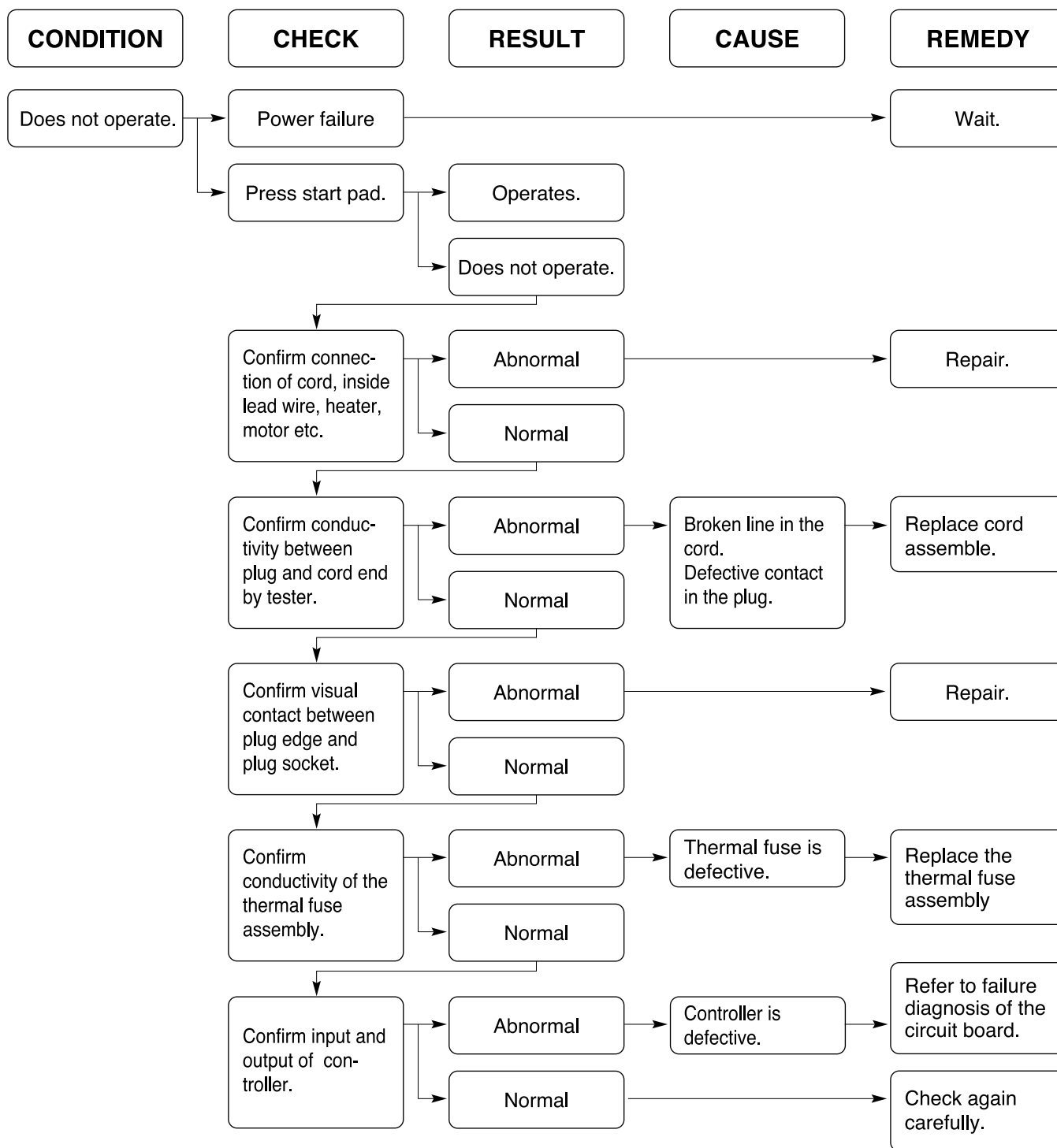
When you get a complaint from your customer, evaluate the complaint carefully before going to the customer's home. If there are the following symptoms, please instruct the customer for the proper use of the breadmaker. This can save an unnecessary service call.

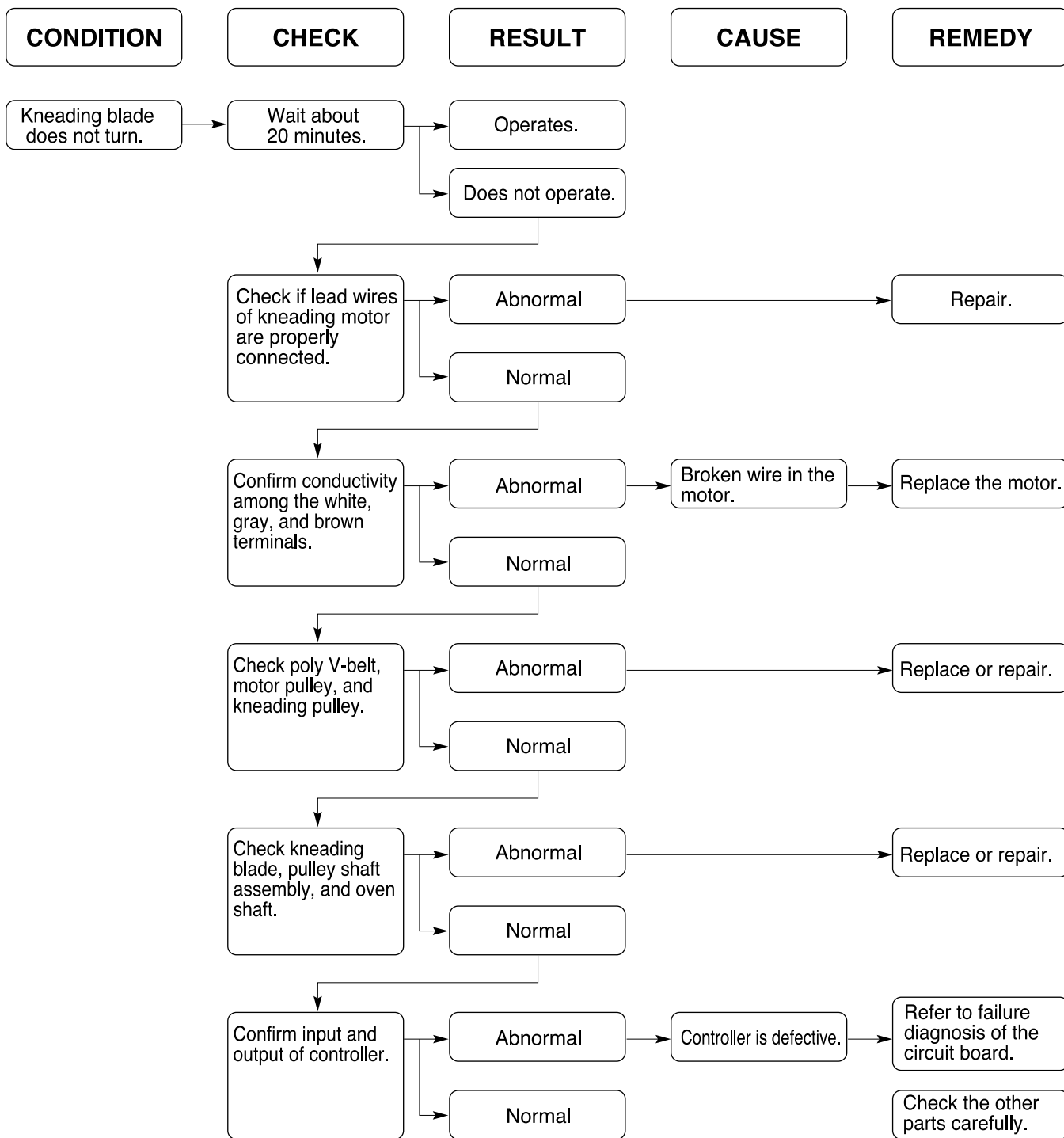
A. CHECKING POINTS BEFORE SERVICE

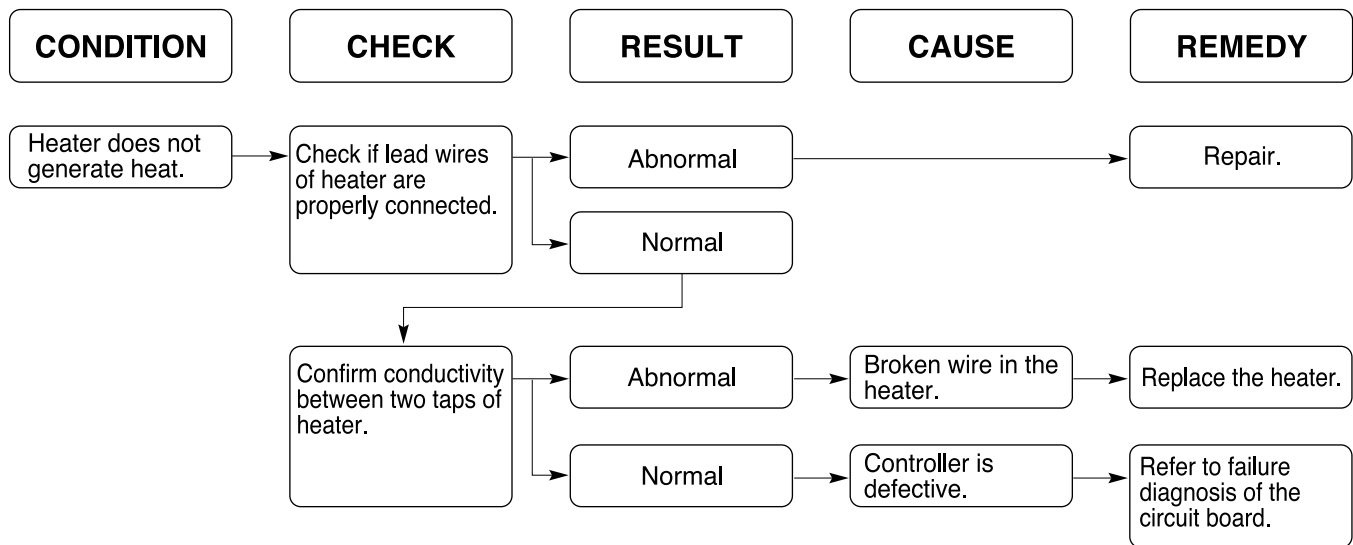
CONDITION	CAUSE	REMEDY
Breadmaker does not work.	Electric power is interrupted.	Wait.
	Remaining time display shows [HI] and does not work. (Inside of breadmaker is too hot.)	Wait until cool.
	Breadmaker plug is not Inserted tightly.	Insert breadmaker plug securely.
Breadmaker operates but does not knead.	Kneading blade is extracted.	Fix the kneading blade securely.
Breadmaker does not operate and display  on remaining time display window after start.	Electric power has been interrupted during operation.	Empty bread pan and operate again.
A little smoke is emitted from the breadmaker.	Some material is spilled in the breadmaker when measuring ingredients.	Clean the inside of breadmaker and operate again.
Bread is not made well.	Water used is too hot or too cold.	Regulate the ingredients used. Referring the owner's manual.
	Ingredients are spoiled by being open for long time.	
	Used ingredients are not measured accurately.	

B. TROUBLESHOOTING GUIDE EXCEPT CIRCUIT BOARD

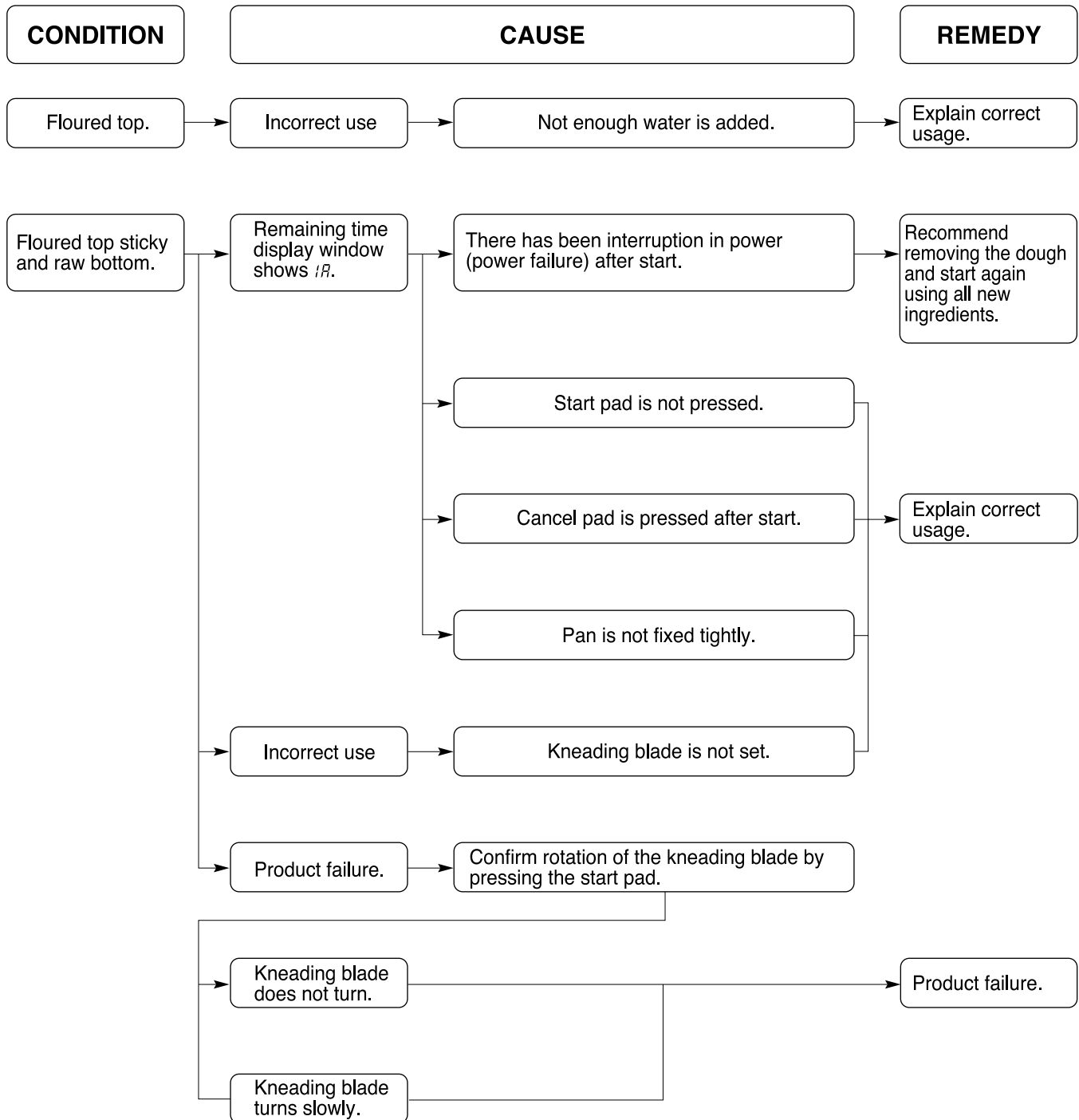
(TROUBLE 1) Breadmaker does not operate.

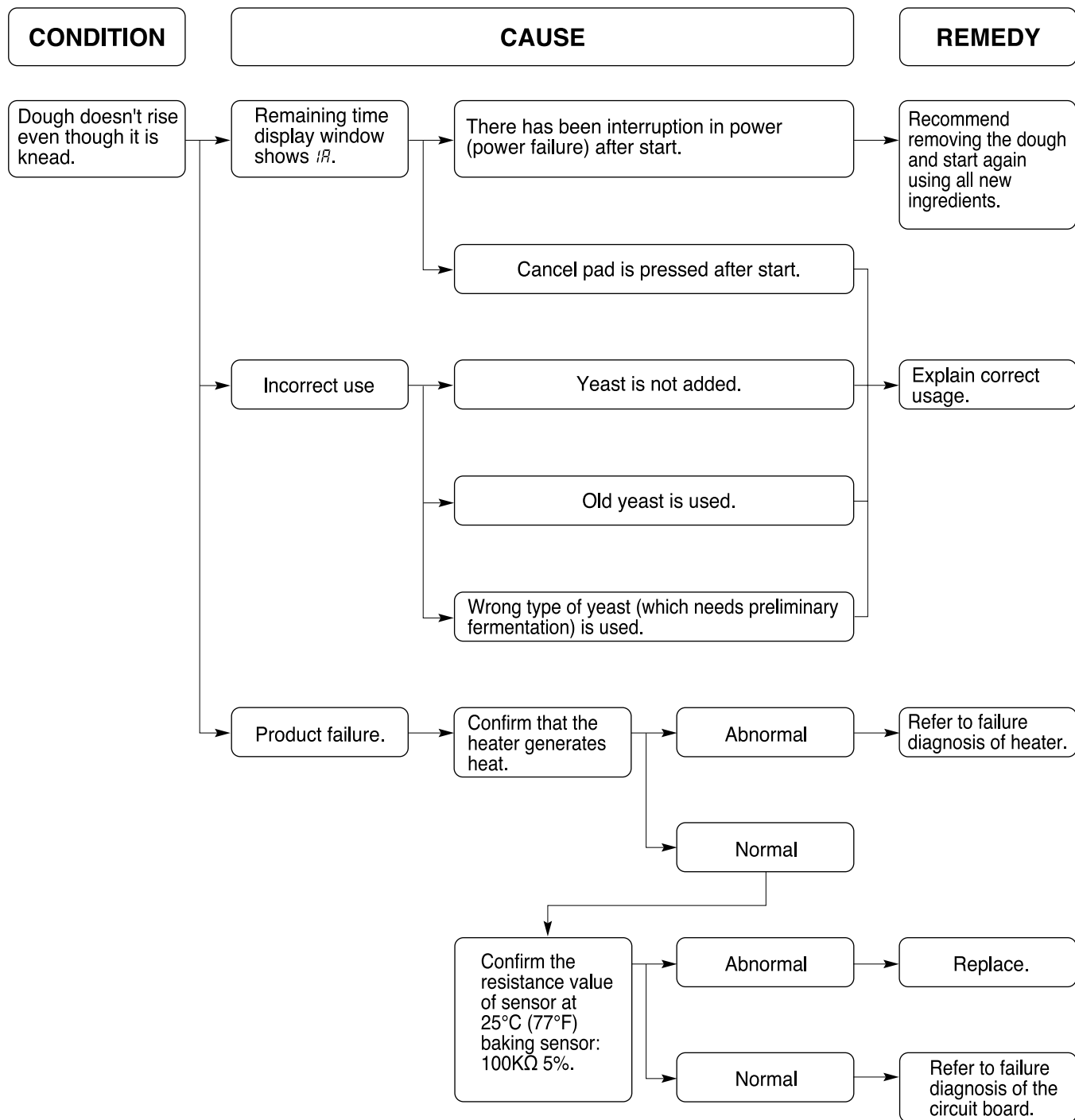


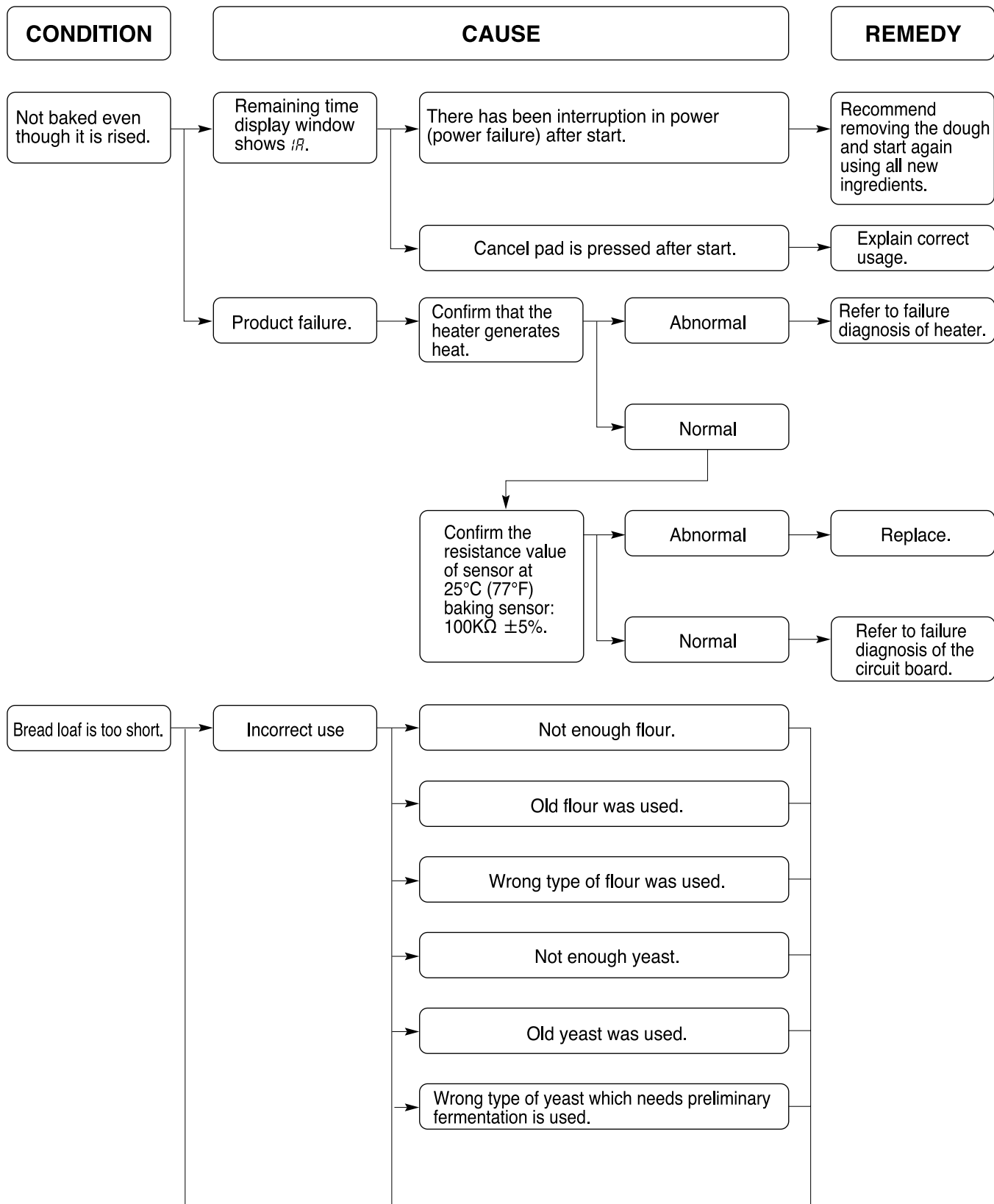


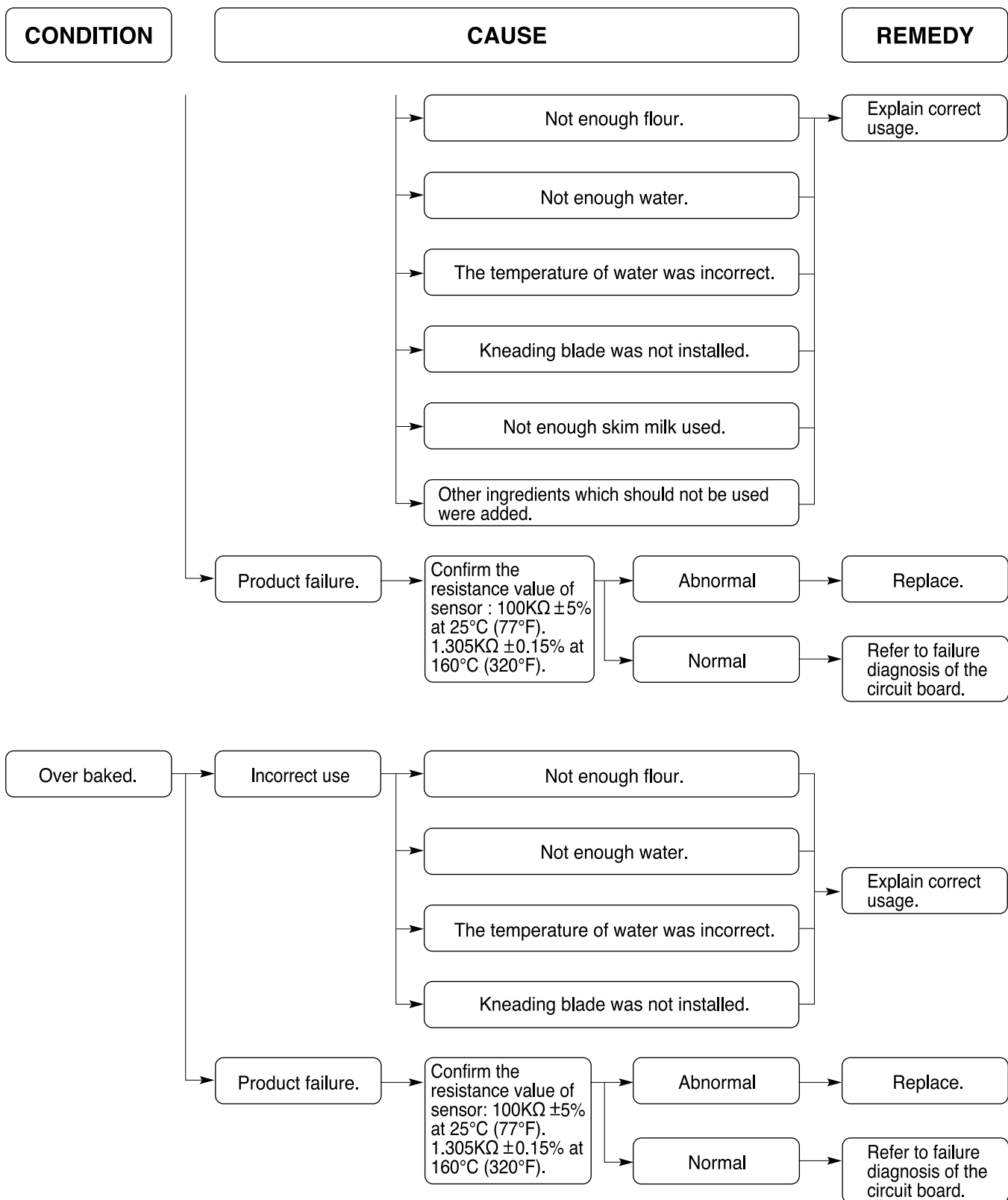


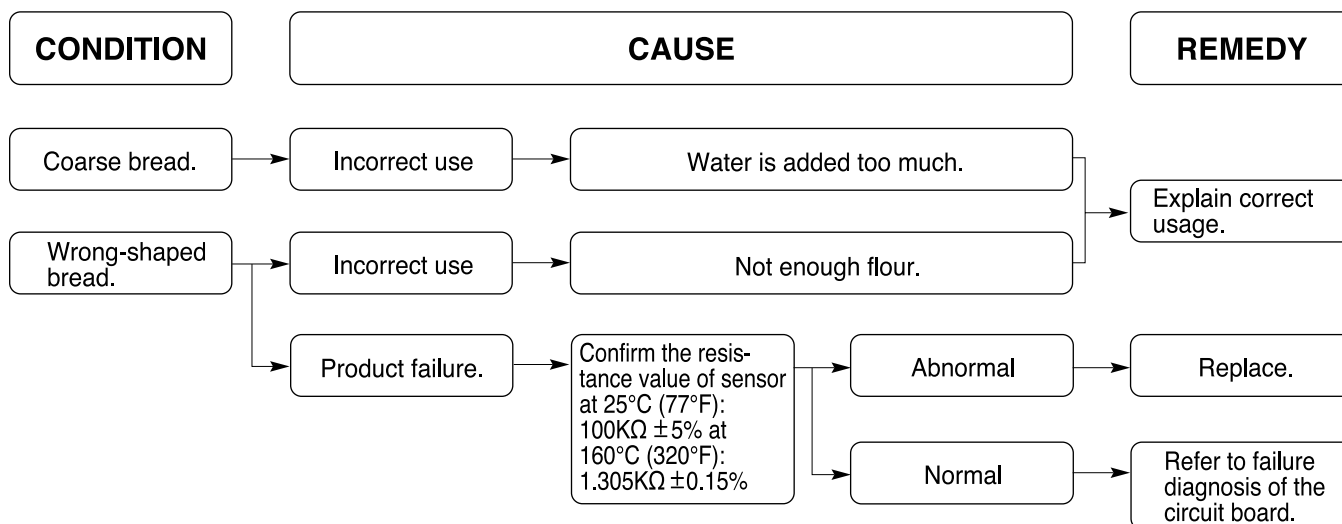
(TROUBLE 2) Poor bread is made.



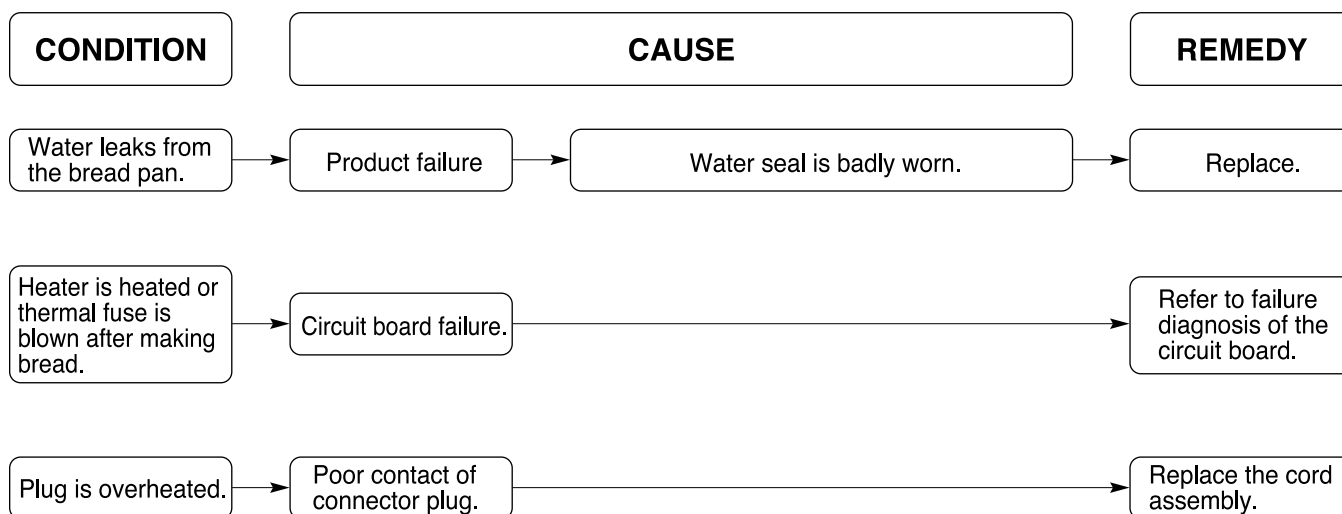


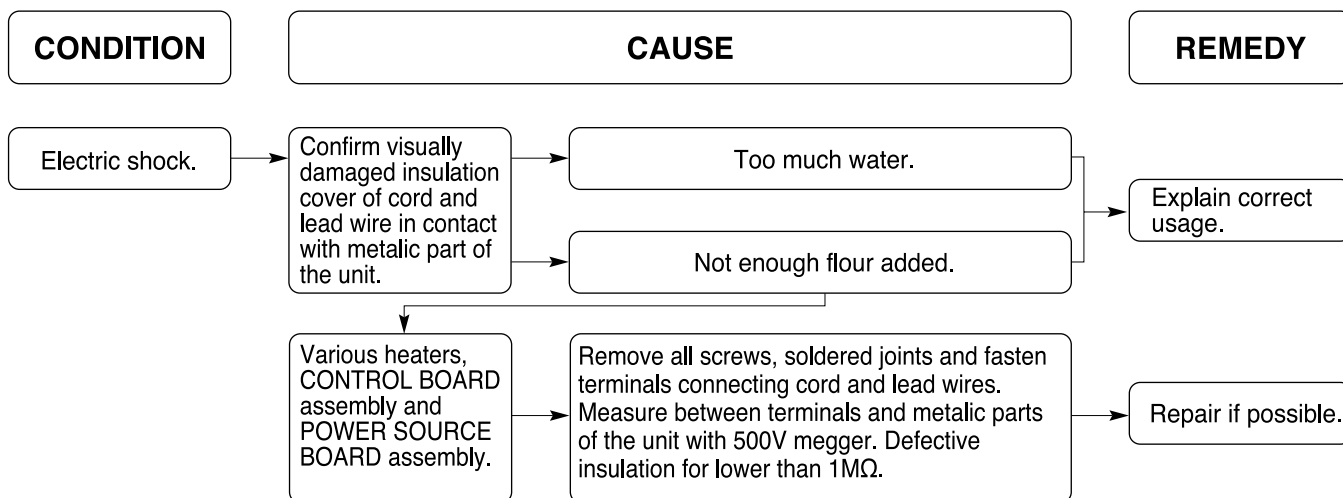






(TROUBLE 3) Other problems.

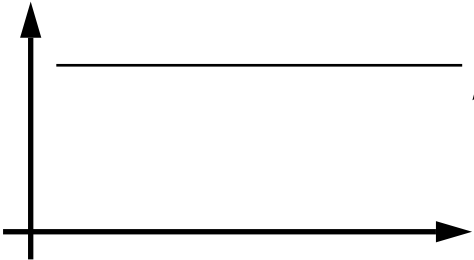
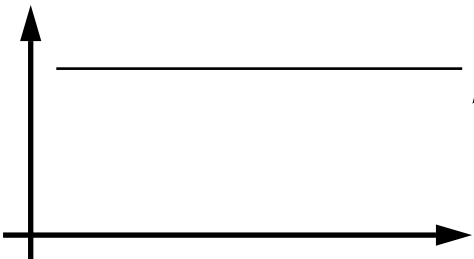


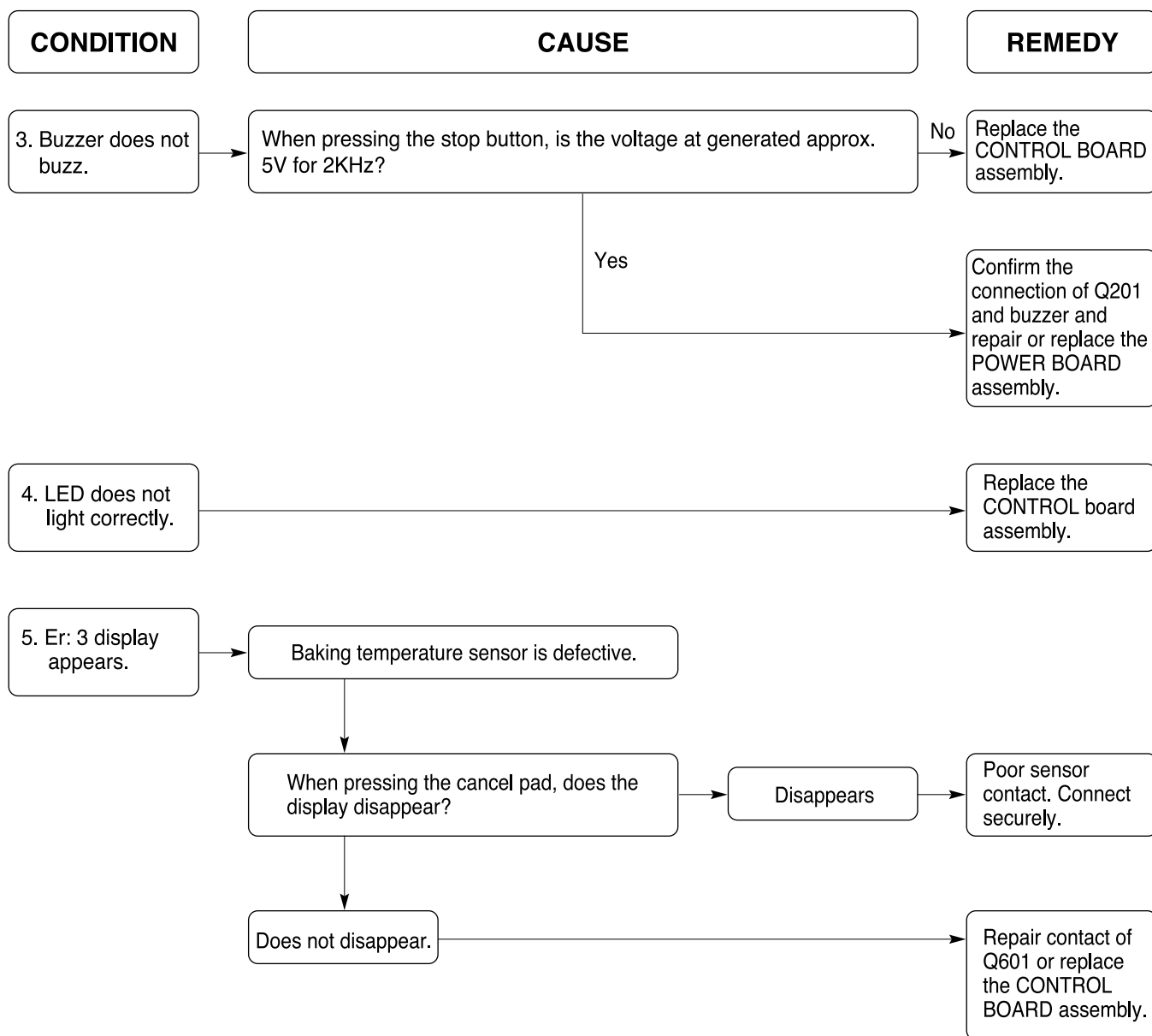


(TROUBLE 4) Some letter is displayed on remaining time display

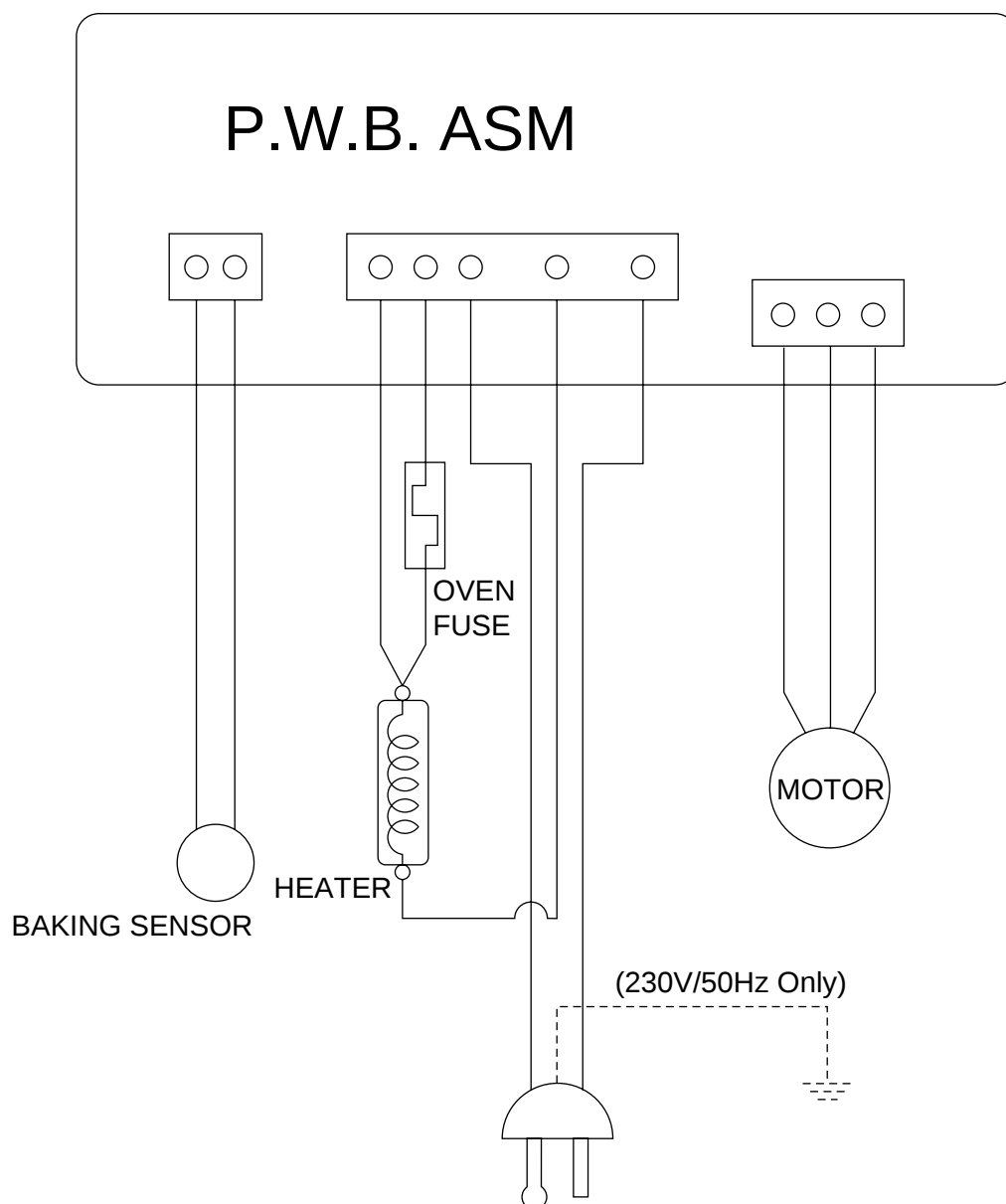
Letter	Cause	Remedy
<i>H 1</i>	The temperature of oven area is too hot. (higher than 40°C/104°F)	Press CANCEL pad for cooling and start again.
<i>E r 3</i>	Baking sensor is defective (Resistance value is not 100KΩ ±5% at 25°C (77°F); and 1.305KΩ±0.15% at 160°C (320°F):	Repair or replace.

C. FAILURE DIAGNOSIS OF THE CIRCUIT BOARD

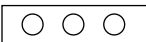
CONDITION	CAUSE	REMEDY
1. Kneading motor does not turn.	See page 9 (OPERATION CHECK)	
Is the signal generated at pin No. 15 of IC1 as follows?  approx. 5V		
		Yes Confirm the connection of Q501 R601 and repair or replace the POWER SOURCE BOARD assembly.
		No Replace the CONTROL board assembly.
2. Main heater does not generate.	See page 9 (OPERATION CHECK)	
Is the signal generated at pin No. 16 of IC1 as follows?  approx. 5V		
		Yes Confirm connection of Q401 repair or replace the POWER SOURCE BOARD assembly.
		No Replace the CONTROL board assembly.



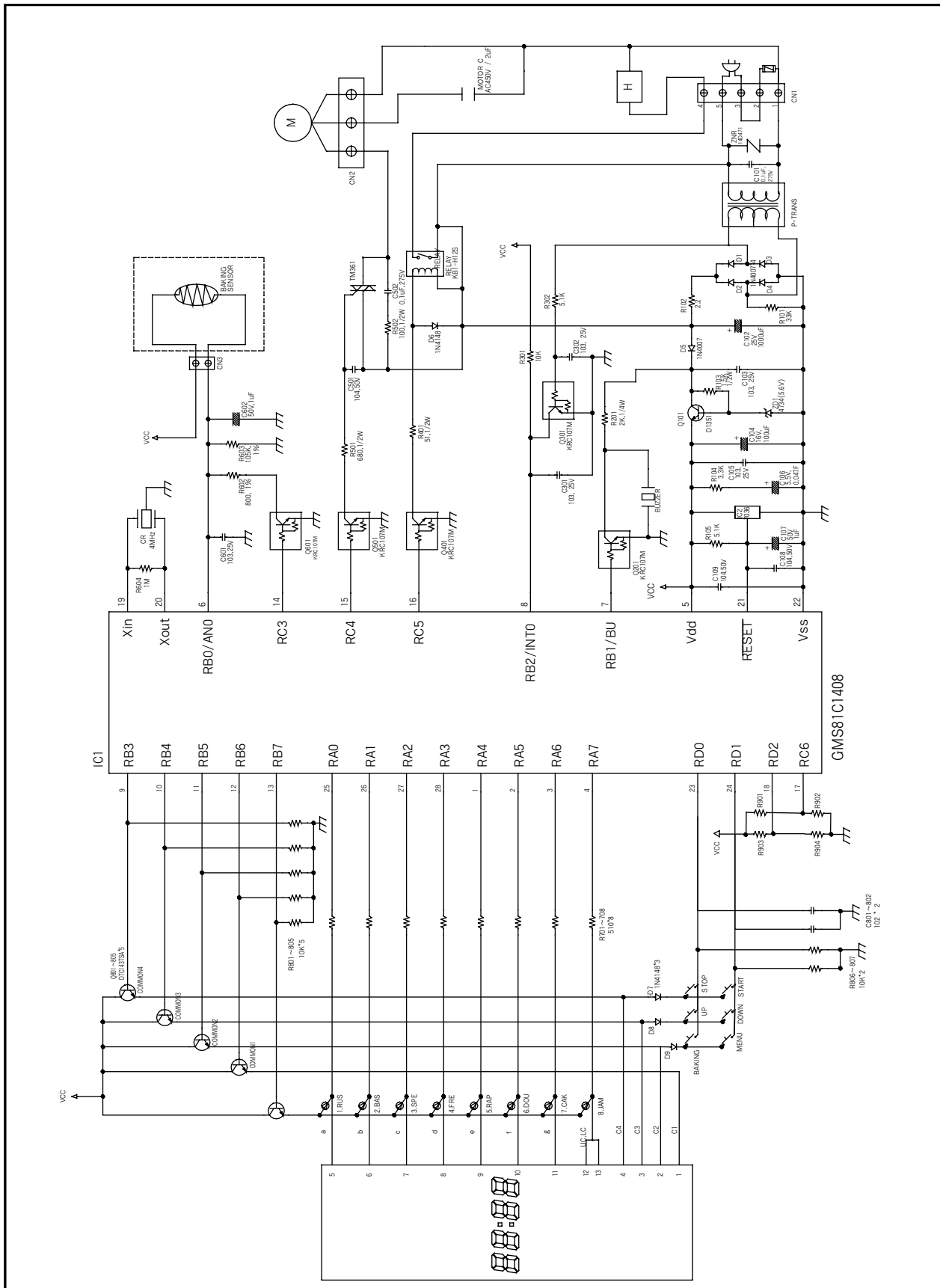
BLOCK DIAGRAM



REMARKS

1.  :HOUSING
2.  :TERMINAL BLOCK

SCHEMATIC DIAGRAM

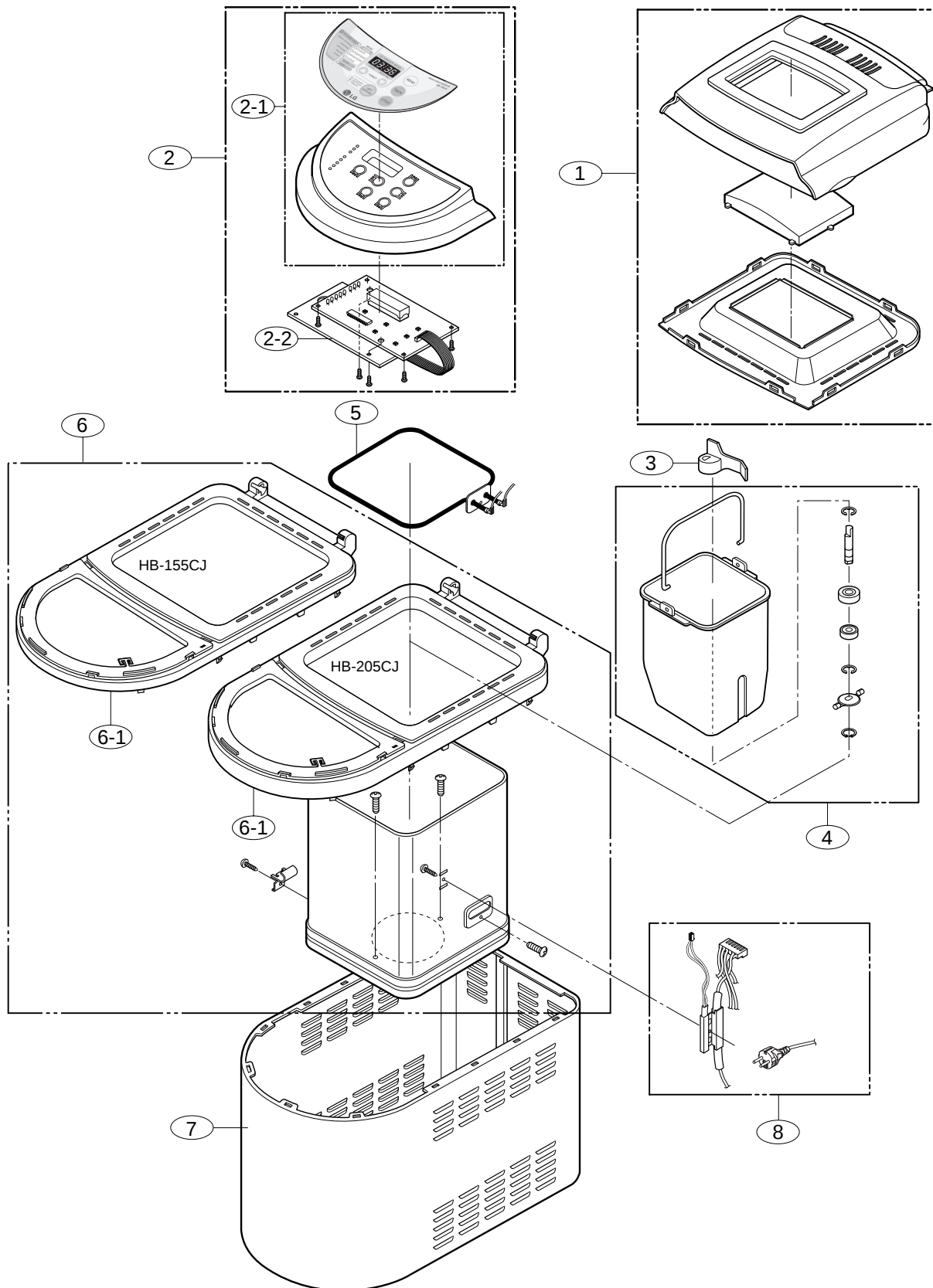


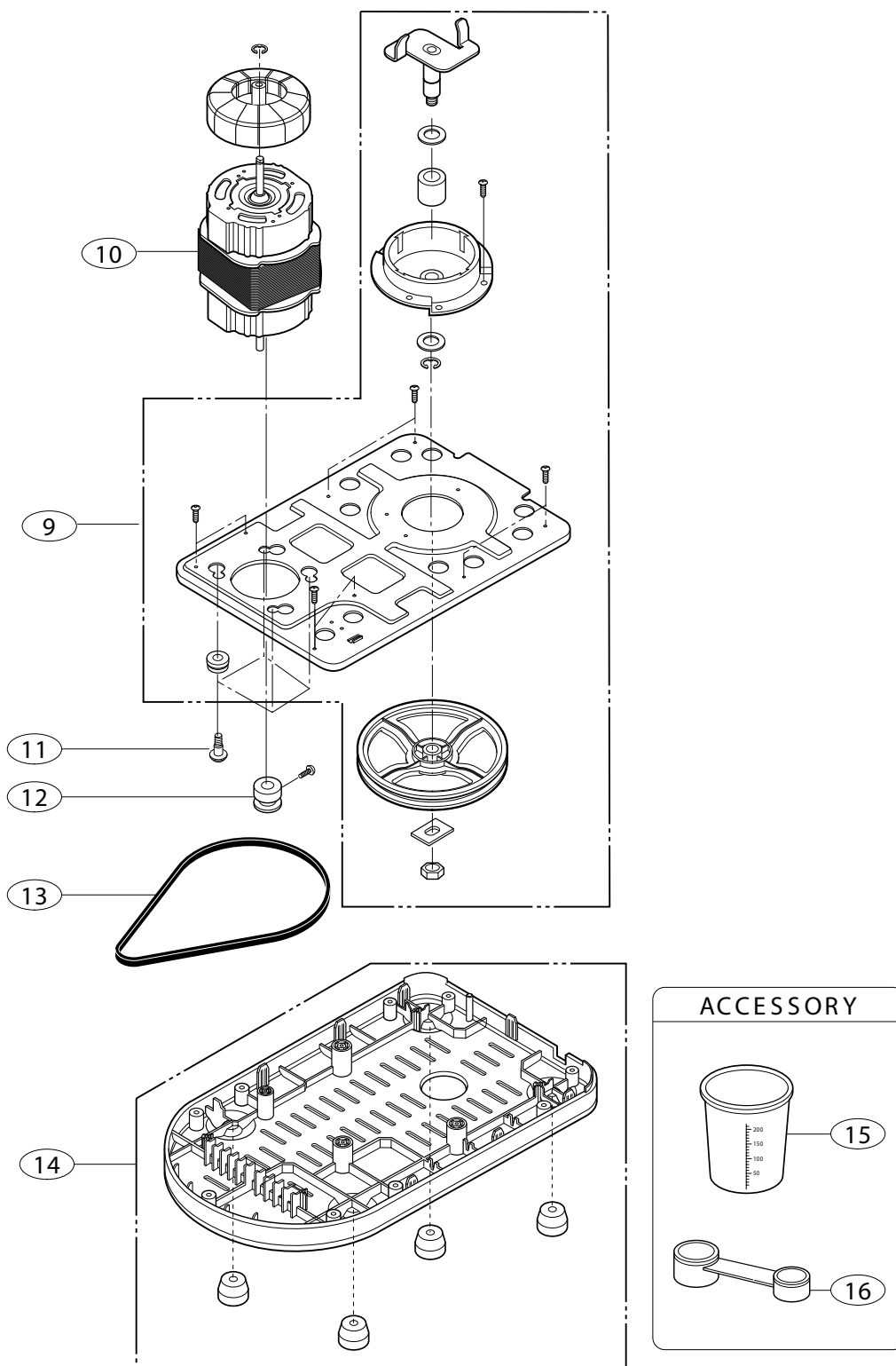
CONTROLLER PARTS LIST

LOCA. NO.	DESCRIPTION	PART NO		REMARK
		HB-156JE	HB-206CE	
1	P.C.B	6046FB3169B		1
2	MAIN I.C	0IHY811408B		1 IC1
3	OTP I.C	0IHD871408Y		1 IC1
4	RESET IC	0IKE703600A		1 IC1
5	VARISTOR	CQ39071A		1 ZNR
6	RESONATOR	CS12126B		1 CR
7	TRANS	6170FX2002H		1 POWER TRANS
8	TRIAC	CS12177A		1 TRIAC
9	RELAY	CS12144A		1 RELAY
10	BUZZER	6908FX4003A		1 BU
11	DISPLAY	0CDP403910A		1 DISPLAY
12	LED	0LD124009AA		8 LED1~7
13	TACT SWITCH	CS12158A		6 S/W1~6
14	C' R.F.I	0CY1040R530		2 C101,502
15	C' STAR	CS13002B		1 C106
16	C' BOX	0CY2000V530		1 BC1
17	C' ELECTROLYTIC	CE102D1M		1 C102
18	C' ELECTROLYTIC	CE101C1M		1 C104
19	C' ELECTROLYTIC	0CE1053KM28		2 C107,602
20	C' CERAMIC	0CC1020H949		3 C801~803
21	C' CERAMIC	0CC1030H949		5 C103, 105, 301, 302, 601
22	C' CERAMIC	0CC1040H949		4 C108, 109, 110, 501
23	TRANSISTOR	0TR107009AA		5 Q201, 301, 401, 501, 601
24	TRANSISTOR	0TR143009AA		5 Q801~805
25	TRANSISTO	0TR135100AA0 , 0TR205800AA		1 Q101
26	D' RECTIFIER	0DD400709AA		5 D1~5
27	D' SWITCHING	0DD414809AA		3 D6~8
28	D' ZENER	0DZ473400AA		1 ZD1
29	R' METAL OXIDE	0RS0512H609		1 R401
30	R' METAL OXIDE	0RS1000H609		1 R502
31	R' METAL OXIDE	0RS6800H609		1 R501
32	R' METAL OXIDE	0RS1501H609		1 R103
33	R' CARBON	0RD2001G608		1 R201
34	R' CARBON	0RD0221F608		1 R102
35	R' CARBON	0RD5100F608		8 R701~708
36	R' CARBON	0RD3301F608		1 R104
37	R' CARBON	0RD4701F608		2 R105,302
38	R' CARBON	0RD1002F608		10 R301,801~807,901,904
39	R' CARBON	0RD3302F608		1 R101
40	R' CARBON	0RD1004F608		1 R604
41	R' METAL	0RN8000F408		1 R602
42	R' METAL	0RN1003F408		1 R603
43	JUMP WIRE	43607015		22 J1~22
44	WAFER	6630FX4001A		1 CN1
45	WAFER	0CCN39605SA		1 CN2
46	WAFER	4H90045A		1 CN3
47	CABLE HOLDER	CS15007E		2
48	FLAT CABLE	6850FB3170A		1
49	P.E FOAM	0CPF1030071		1

EXPLODED VIEW & PARTS LIST

A. EXPLODED VIEW





B. PARTS LIST

LOCA NO.	DESCRIPTION	PART NO.		Q TY	REMARKS
		HB-156JE	HB-206CE		
1	TOP COVER ASS'Y	3551FB2236B	3551FB2236B	1	HB-156SER`
2	CONTROLLER ASS'Y	4781FB2237C	4781FB2237D	1	HB-156JE, 206CE
2-1	CONTROL PANEL ASS'Y	3572FB9105A	3572FB9106A	1	HB-156JE, 206CE
2-2	P.W.B ASM	6871FB2238B	6871FB2238C	1	230V/50Hz
3	KNEADING BLADE	5832FB3300B	5832FB3300B		PLASTIC
4	OVEN, ASS'Y	5306FB2074A	-	1	AL 1.5LB
		-	5306FB2100A		AL 2.0LB
5	HEATER ASS'Y, SHEATH	5301FB2059F,B	5301FB2059F,B	1	230V/50Hz 550W
6	OVEN CASE ASS'Y	311FB2239C	3111FB2239D	1	
6-1	RIM	3062FB1110B	3062FB1115B	1	
7	OUT CASE	3112FB1108B	3112FB1108B	1	PCM t0.5
8	LEAD WIRE ASS'Y	6877FB3166A	6877FB3166A	1	230V 50Hz
9	CHASSIS ASS'Y	3141FB2240A	3141FB2240A	1	
10	MOTOR ASM	4681FB3167A	4681FB3167A	1	230V 50Hz Oh-Sung
11	SCREW	4000FB4022B	4000FB4022B	4	
12	MOTOR PULEY	4080018B	4080018B	1	
13	V-BELT	3080020B	3080020B	1	
14	BASE ASS'Y	3040FB3172B	3040FB3172B	1	
15	MEASURE CUP	4080031A	4080031A	1	OPTIONAL
16	MEASURE SPOON	4080080A	4080080A	1	OPTIONAL
