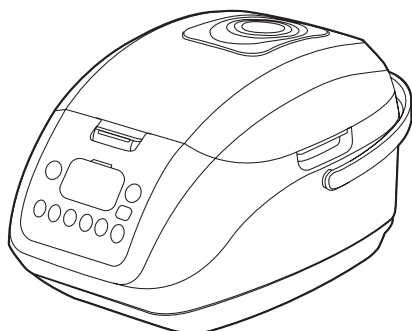


# SHARP SERVICE MANUAL

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## ELECTRONIC JAR RICE COOKER/WARMER

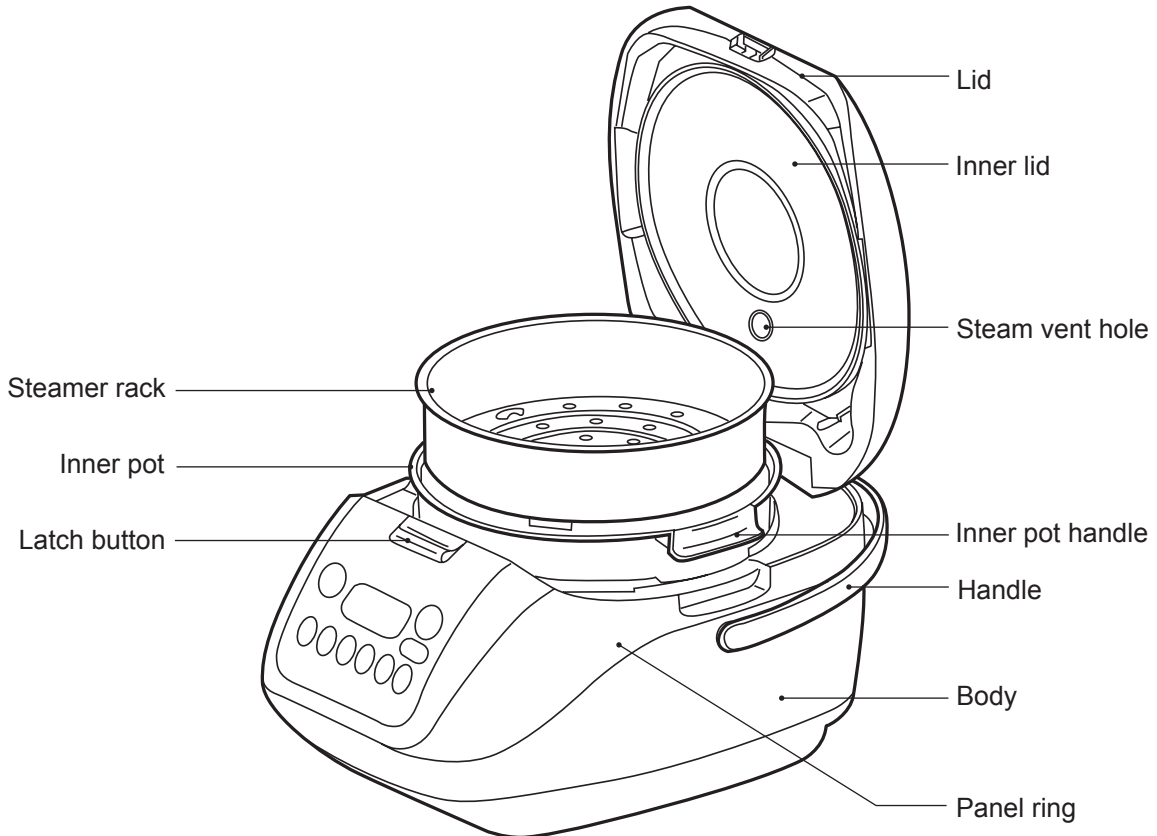
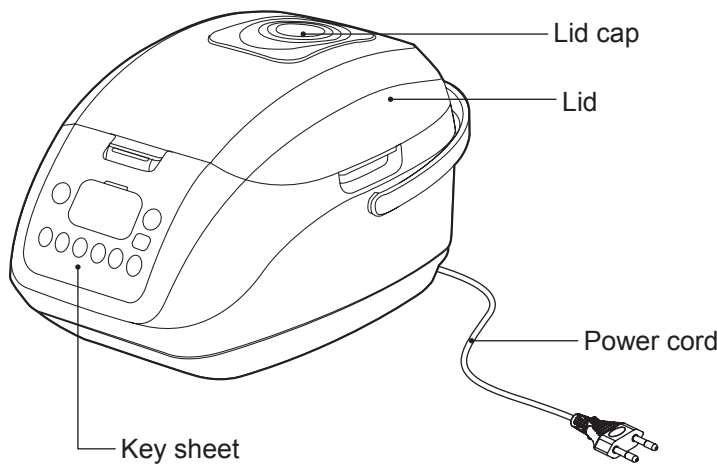
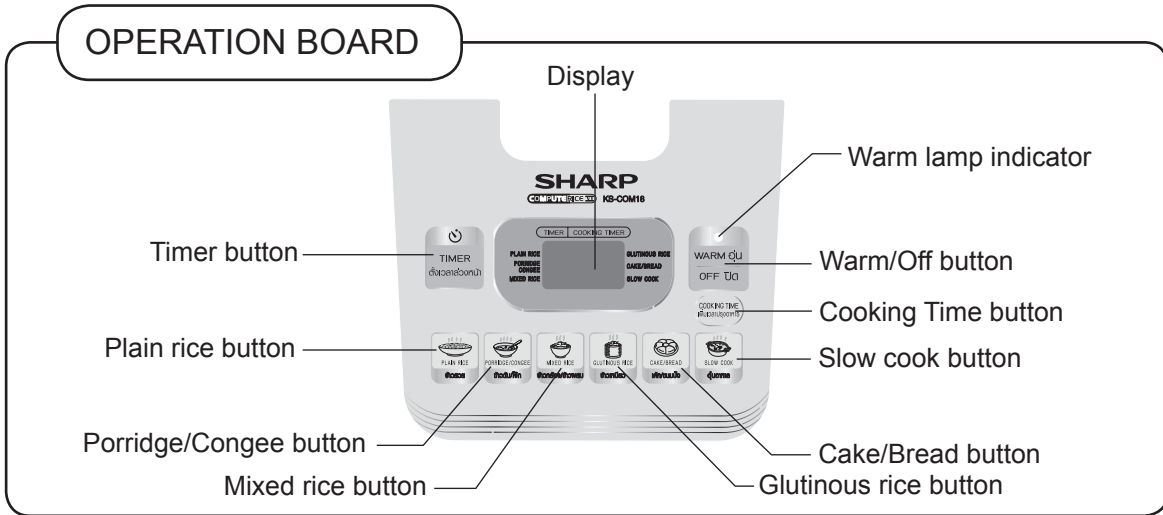
**MODEL   KS-COM18**

In the interests of user-safety (Required by safety regulations in some countries) the set should be restore to its original condition and only parts identical to those specified should be used.

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# PARTS IDENTIFICATION



## SPECIFIC INFORMATION

Model		KS-COM18
A.C. Line Voltage (V/Hz)		220 / 50 A.C. only
Power consumption	Rice cooking (W)	830
	Warming maximum (W)	118
	Warming (average) (W)	40
Timer	Type	Present time to finish
	Setting range	1 to 24 hours
Capacity (ℓ)		0.36 - 1.8
Display		Process display of clock/cooking/warming
Cooking method		Direct heating type
Outside dimensions (mm.)	Width	296
	Depth	408
	Height	242
Weight of product (approx.) kg		4.1
Safety device		Temperature fuse; 169°C

- Approximately one watt of power is consumed even when the rice cooker is in OFF mode as long as it is plugged in. To conserve, unplug when not in use.
- During warming the power in the parentheses is the average power at a room temperature of 20°C.

### Cooking Chart

MODEL \ PROGRAM	KS-COM18	
	Volume of rice (cup)	Time (approx.) (hr : min)
PLAIN RICE	2 - 10	0:28 - 0:41
BROWN RICE	2 - 7	0:57 - 1:57
GLUTINOUS RICE	2 - 6	0:55 - 1:03
CONGEE	0.5 - 2.5	0:49 - 1:04
PORRIDGE	0.5 - 1.5	0:55 - 1:02
SLOW COOK	Depending on the water quantity / seasonings / ingredients for cooking.	
CAKE / BREAD		

- Cooking time may vary, depend on the kind or volume of rice or ingredients.
- Cooking time is set at specified voltage, room temperature 20-25°C, water temperature 20-25°C and under standard water level.
- No need to soak the GLUTINOUS RICE before cooking.
- For cooking Kiaw Ngu Glutinous Rice should be reduced a little water.
- Use the broken for cooking Congee, it will become a better result.

## PART SPECIFICATION

Name of part	Part specification	Part No.
Cord reel ass'y	Cord length 1.03 m.	22N405ASY
Heater plate ass'y	220V 830W (rating wattage)	22N402
Thermistor plate ass'y	Thermistor type (with connector) Temperature fuse (169°C 10A)	22N403ASY
Side heater ass'y	Power 77W Resistance 484 $\Omega$ $\pm$ 5% Resistance wire spec. 547.2 $\Omega$ /m	22J3031ASY
PCB ass'y	220V	22N401
Lid heater ass'y	Power 30W Resistance 1613.3 $\Omega$ $\pm$ 5 % Resistance wire spec. 1210 $\Omega$ /m	22J33112
Inner lid frame ass'y	Power 30W Resistance 1613.3 $\Omega$ $\pm$ 5 % Resistance wire spec. 1210 $\Omega$ /m	22A109TASY

## IMPORTANT SAFEGUARDS

When using electrical appliances, basic safety precautions should always be followed, including the following.

1. Read all instructions.
2. Do not touch hot surfaces. Use handles or knobs.
3. Keep the rice cooker out of the children's reach, especially when cooking rice.
4. Unplug from wall outlet when not in use and before cleaning. Allow to cool before putting on or taking off parts.
5. Do not operate the appliance with a damaged cord or plug or after the appliance malfunctions or has been damaged in any manner.
6. Use of accessory attachments not recommended by SHARP may cause injuries.
7. Do not use outdoors.
8. Extreme caution must be used when moving an appliance containing hot food, water or other hot liquids.
9. Do not use the appliance for other than intended use.
10. Always unplug and let the rice cooker cool down before cleaning.
11. Do not let cord hang over edge of table or counter or touch hot surfaces.

## PRECAUTIONS

1. Be sure to remove the sheet of protective paper located between the inner pot and heater plate before using the rice cooking.
2. Avoid using the rice cooker, if the power supply cord becomes hot. Should this happen, have a qualified electrician check the rice cooker.
3. Use on a flat, stable surface.
4. Use the inner pot only in the rice cooker; never on the range top or in the microwave oven.
5. Do not turn the rice cooker on without both rice and water in the inner pot. Avoid using the rice cooker to heat just water.

## CAUTIONS FOR USE

### 1. Place of use

- Do not use the cooker on a wet floor, under direct sunlight or near the gas table.
- Do not use the rice cooker within 1 m of TV or radio to prevent the interference.
- While cooking, do not put the rice cooker on or near combustible materials such as curtains or vinyl carpets.

### 2. How to handle before use

- Do not disassemble or repair the cooker by yourself. It may cause trouble such as a fire or electric shock. Consult your nearest dealer.
- The electrical requirements are a 220V 50Hz, a.c. only protected electrical supply. It is recommended that a separate circuit serving only this appliance be provided.
- To protect against electrical shock, do not immerse the set in water or sprinkling water on the heater plate.
- Do not allow children to operate.
- Move the rice cooker by handle only.  
Never carry it by using of the inner pot holders projecting on both sides of the closed cooker.
- Use the plastic spoon provided as accessory.
- For porridge use a plastic or wooden deep plastic spoon available on the market.
- Never share an electric wall outlet with other appliances.
- Never connect the plug with your wet hand as it may be dangerous from electric leakage.  
Disconnect the plug from the wall outlet when you do not use the rice cooker.
- In case the power cord is broken, it must be replaced by manufacturer or appointed service providers or equivalent professionals to avoid any damages.
- In case the power cord is broken, it must be replaced by manufacture or appointed service providers or equivalent professionals to avoid any damages.

### 3. How to use it

#### (1) Before cooking

- Do not use the inner pot for washing rice.
- Wash rice quickly and thoroughly.  
Insufficient washing will cause scorching and odor.
- Use clean, clear water.
- Do not use any other inner pot except the provided one.
- Insert the plug into wall outlet firmly and when disconnecting, hold the plug and pull it out without touching the power cord.
- Do not use the inner pot with other heating appliances such as a gas table. The pot may be transformed and it may cause poor cooking result.
- Do not use the damaged inner pot. It may cause in malfunction.
- The water level marking is a standard guide and may be adjusted slightly depending on the kind of rice or your liking. Remember that adding too much water may cause boiling over.
- Carefully align marks when replacing the lid cap on the lid.
- Foreign matter adhered to the outside of the inner pot, heater plate and thermistor plate must be washed off before use. If not, it may cause inadequate cooking or a damage of the rice cooker.
- Rice with ingredients containing seasonings should not be cooked by using delay start setting. Because the settling or decay of the seasoning is likely to cause inadequate cooking.
- Hints for determining the amounts of ingredients and seasonings :
  - The amounts of rice and seasonings that can be cooked vary depending on the menu.  
A standard for the amount of ingredients is 30-50 % of the mass of rice to be cooked, but follow the amounts given in the recipe pages of the operation manual.
  - After measuring the amounts of rice, seasonings and ingredients adjust the water level and stir well with a plastic spoon. If the seasonings are settled, it is possible to result inadequate cooking.
  - Cut the ingredients rather fine, put them on the rice and not mix with rice.  
Stirring may result in unsatisfactory cooking.

#### (2) Cooking rice

- During cooking rice clicking sound is heard but this is due to ON-OFF action of the relay and quite normal.
- During the cooking of the rice, a fizzing sound may be heard, This is due to the remaining water on the outside of the inner pot and is not a problem.
- Do not opening the lid when during boiling because touched hot steam.
- During or immediately after cooking, the areas near the steam vent hole are kept at high temperature. Do not touch those areas to avoid burns.
- Do not place a wiping cloth or the like on the lid or the handle during use.  
It may cause the damage to the operation board and the deformation and/or discoloration of the lid.
- Stir rice well using the plastic spoon provided within 30 minutes after cooking.  
It will allow escape of the excessive steam and fluffy appearance of the cooked rice will result.
- Immediately after cooking some sticky film may be formed in the surface of the cooked rice with the central portion sunken but this means no problem. This is phenomenon called spherical cooking.
- In the following cases heavy scorch may occur.
  - When rice washing is insufficient.
  - When the rice is soaked in water for a long time.
  - When rice other than plain rice is cooked with seasoning (especially sake, sugar, ketchup, tomato-puree and etc.).

### **(3) Warming**

- Because to keep the lid closed even at meals.
- Use for 12 hours or less for best results.
- Avoid using for a small amount of rice.
- Use for keeping warm rice warm, the setting is not intended to be used for refrigerated or room temperature rice.

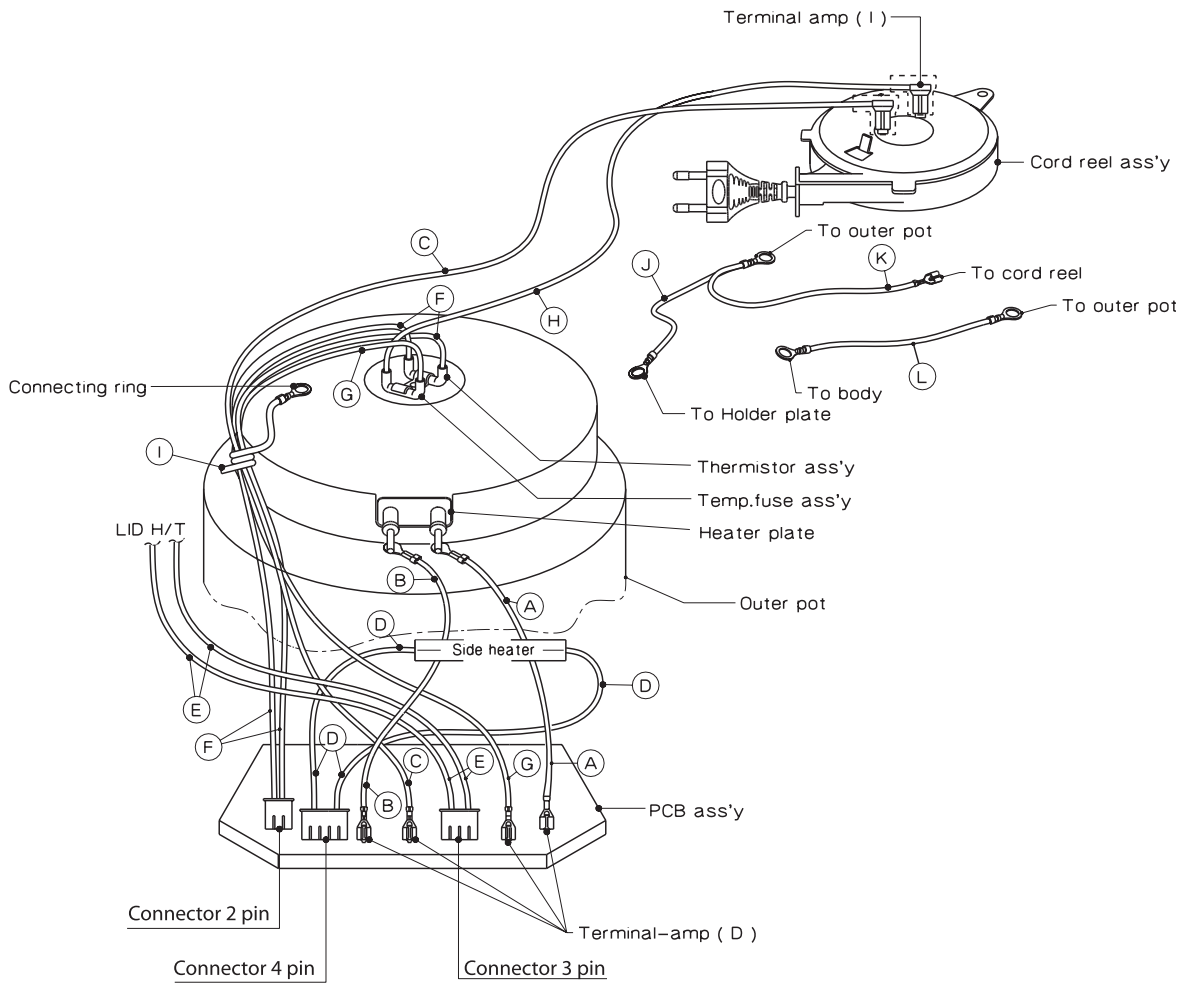
Use for keeping plain rice warm.

- Do not keep rice warm with any utensil, such as the plastic spoon, in the rice.

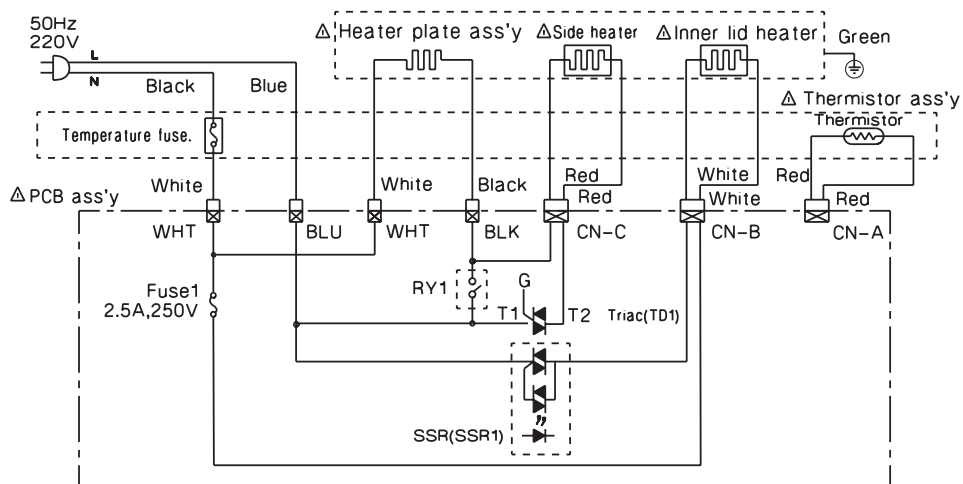
### **(4) After use**

- Press the "WARM/OFF" button, then remove plug from wall outlet.
- After use wash the inner pot and the lid cap as soon as possible.  
Otherwise, corrosion and bad smelling may possibly be caused.
- If the customer used the correct method for cooking the rice and there is a bad odor, the problem may be caused from bacteria. If this is the case the unit should be sterilized and disinfected by performing the following.
  - The inner pot and the lid cap is thoroughly washed and immerse in hot water for 30-60 min.  
And then wipe off water thoroughly with dry cloth and disinfect by sunlight sufficiently.  
Be careful to plastic parts because they are easy to deform by heat.  
Wipe the inside lid, inside body heater plate and thermistor plate using a slightly damp detergent cloth.  
And then disinfect; by sunlight for a couple of hours. Never wash the cooker or the lid with water.

# WIRING DIAGRAM

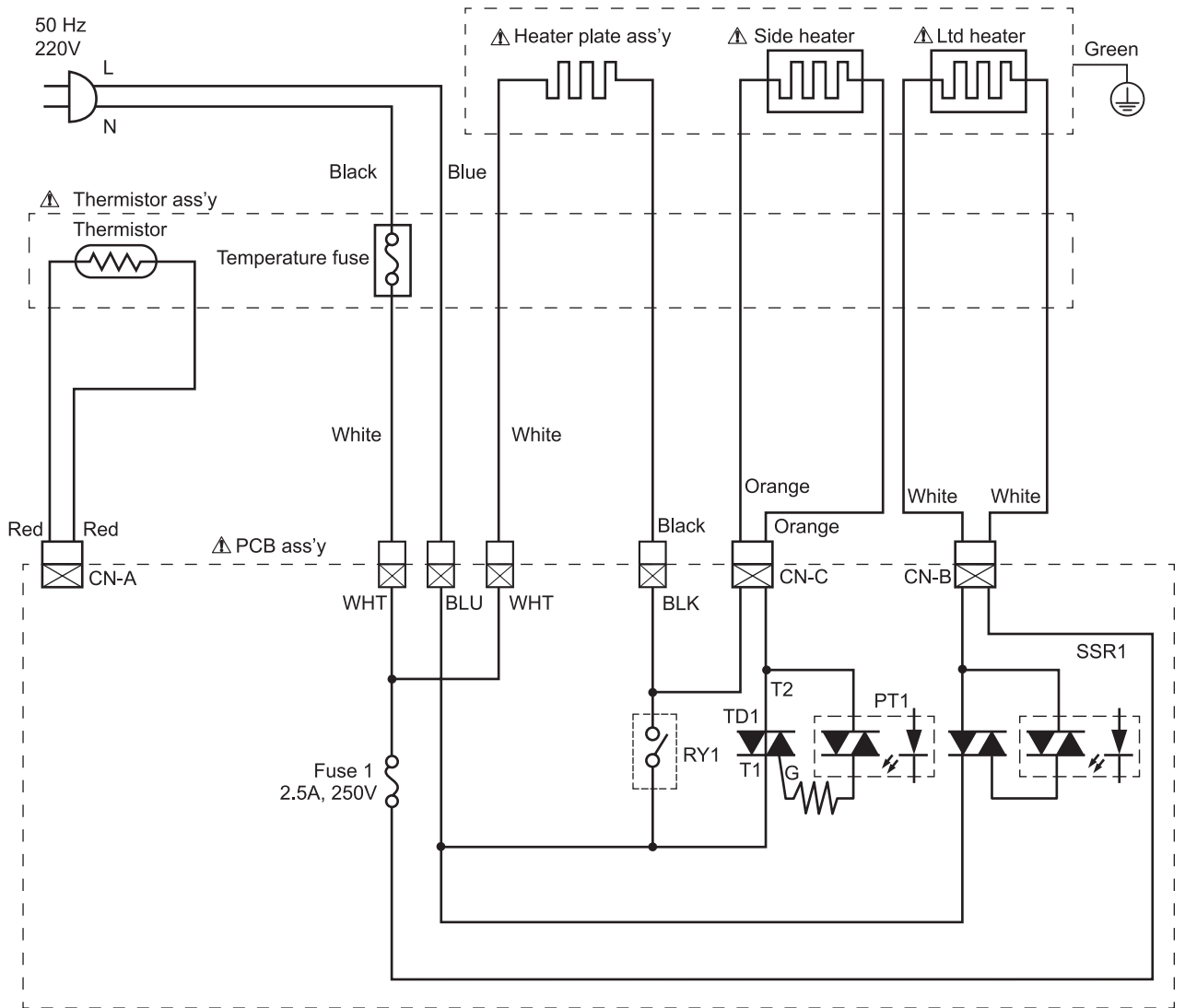






# CIRCUIT DIAGRAM

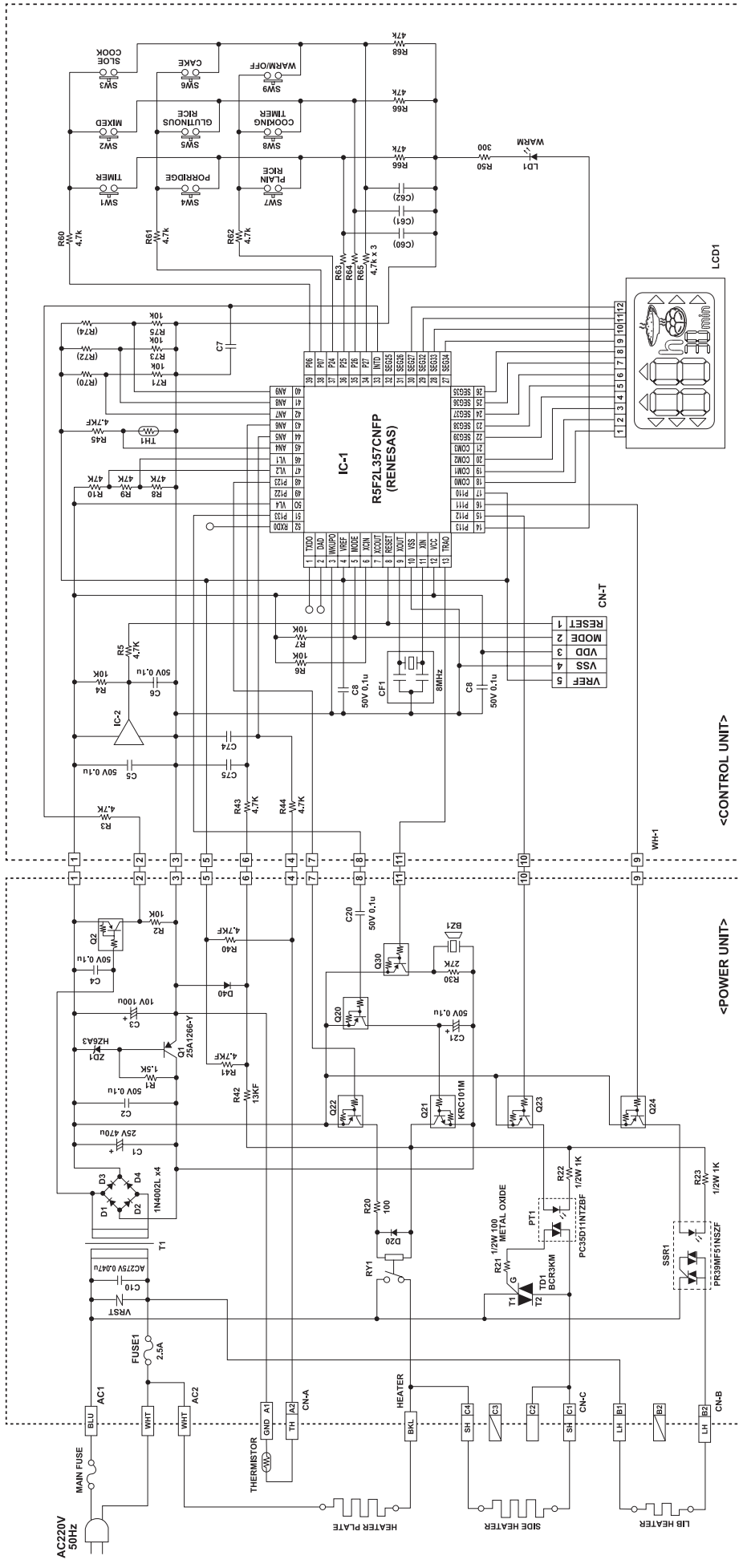




# SCHEMATIC DIAGRAM

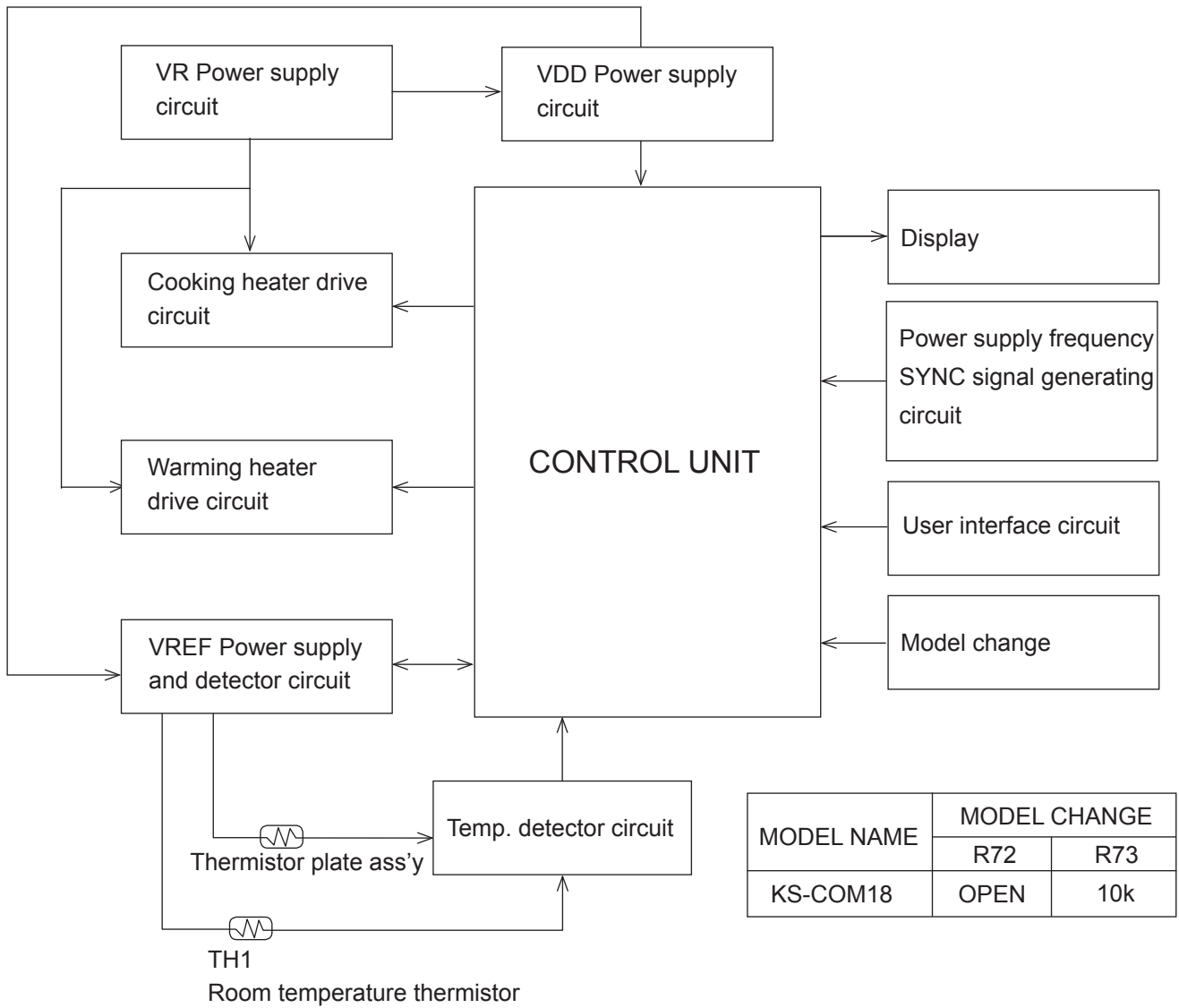


-  Faston tab terminal
-  Faston receptacle terminal
-  Connector (Housing side)
-  Connector (Post side)



# EXPLANATION OF CIRCUIT

## BLOCK DIAGRAM



Thermistor temperature (°C)	Thermistor resistance (kΩ)	
	TH1	TH Plate
-5.0	45.74	205.6
0.0	34.70	159.2
20.0	12.61	61.48
30.0	8.00	39.72
50.0	3.51	17.72
60.0	2.42	12.20
66.0	—	9.83
68.0	—	9.16
70.0	1.71	8.55
75.0	1.45	7.20
100.0	0.680	3.23
125.0	—	1.58

## REPLACING METHOD FOR MAIN PARTS

### REMOVE OF BODY

1. Upside down the rice cooker and remove 4 screws fixing the body.
2. Remove body from the panel ring.
3. Remove cord reel from the body.
4. Remove the nut holding lead wire earth with body.
5. Now the body is free.

### REMOVE OF CORD REEL ASS'Y

1. Upside down the rice cooker and remove 4 screws fixing the body.
  2. Remove body from the panel ring.
  3. Remove cord reel from the body.
  4. Remove the screw holding the contact plate cover.
  5. Remove 3 terminals from the cord reel ass'y.
  6. Now the cord reel ass'y is free.
- The method of removing these wires is shown. (Terminal of earth lead wire)

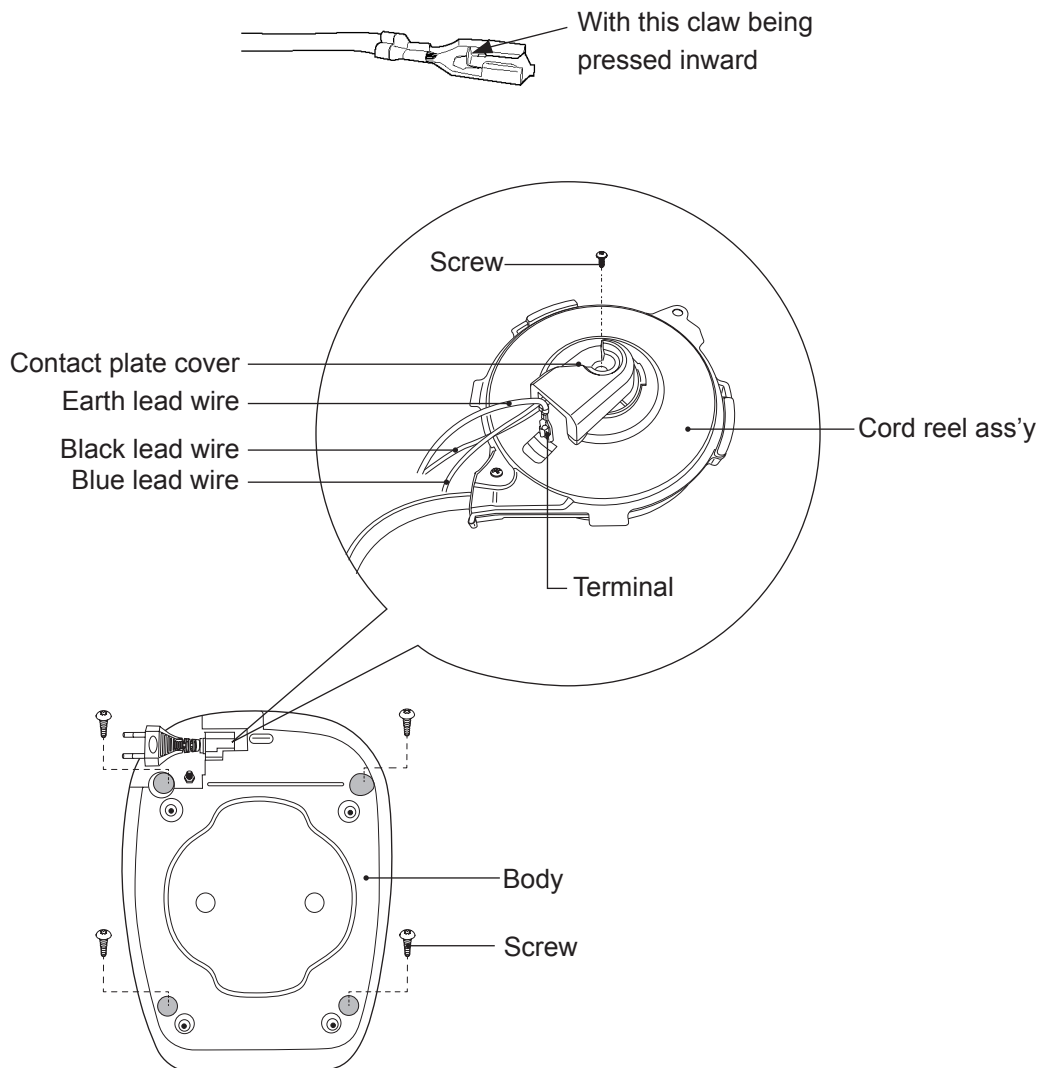


Fig. 1.

## REMOVE OF LID ASS'Y

1. Remove the lid cap from the unit.
2. Remove the body in accordance with "REMOVE OF BODY".
3. Remove the screw holding the hinge cover.
4. Disconnect lead wire (Lid heater) from PCB ass'y and remove the screw holding lead wire earth from outer pot.
5. First release the latch button and open it to a normal degree.
6. Remove the lid ass'y from the panel ring.
7. Now the lid ass'y is free.

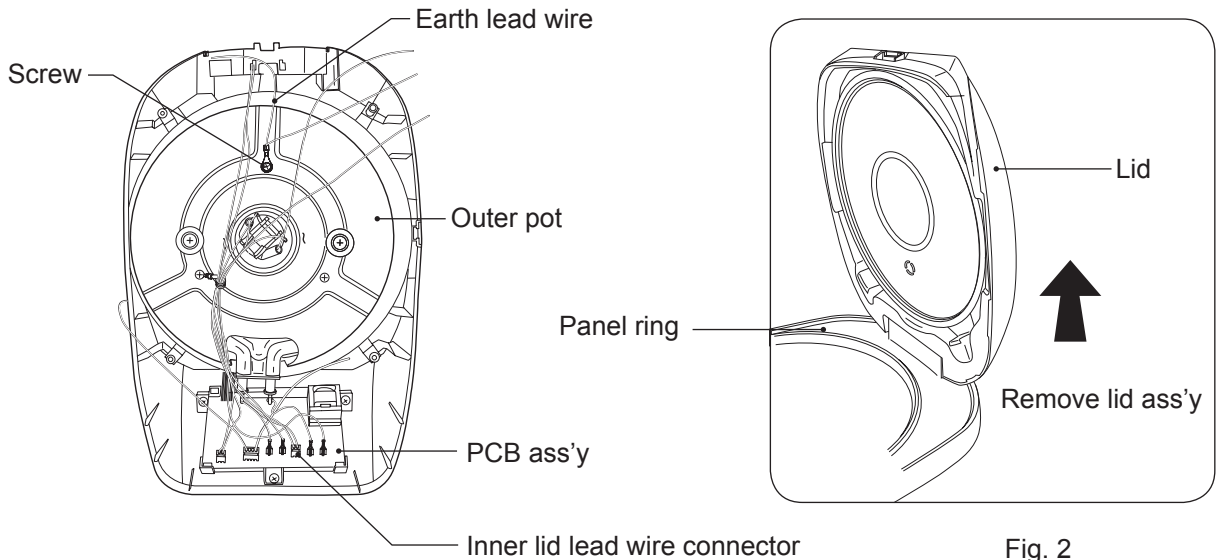


Fig. 2

## REMOVE OF LID COVER

1. Remove the lid ass'y in accordance with "REMOVE OF LID ASS'Y".
2. Push the both sides of the lid assembly outward at the claws (A), (B), (C). Unlock the lid from claw (D) by pull the lid up.
3. Pry 6 claws of the holder plate ass'y from the lid cover.
4. Turning the holder plate ass'y counterclockwise.
5. Now the lid cover is free.

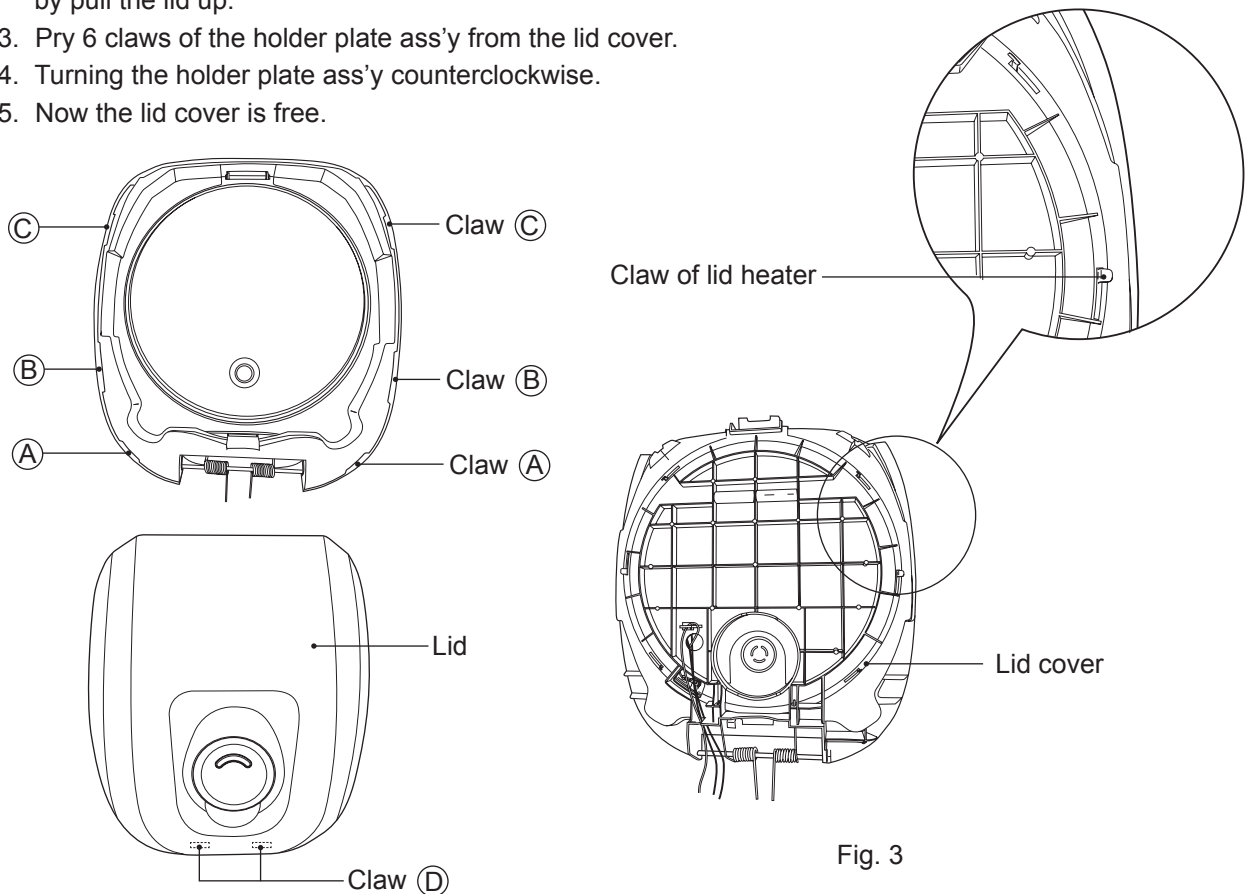


Fig. 3

**CAUTION**

- When assembling, be sure not to catch the lead wires for the inner lid heater. As shown in Fig. 4, the lead wires of the lid heater are to be passed under the rib of the lid cover and passed above the hinge pin.
- After assembly, make sure not to have deformation of inner lid packing. Otherwise, it may cause steam leakage.

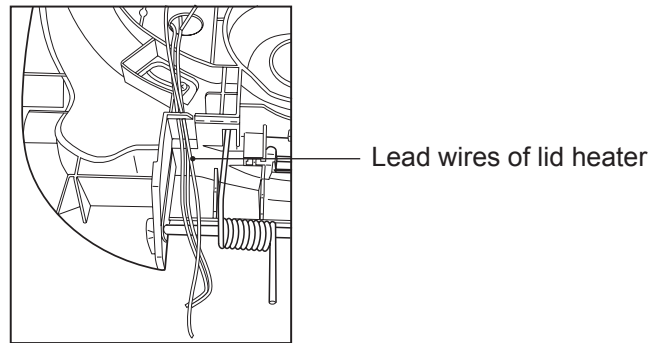


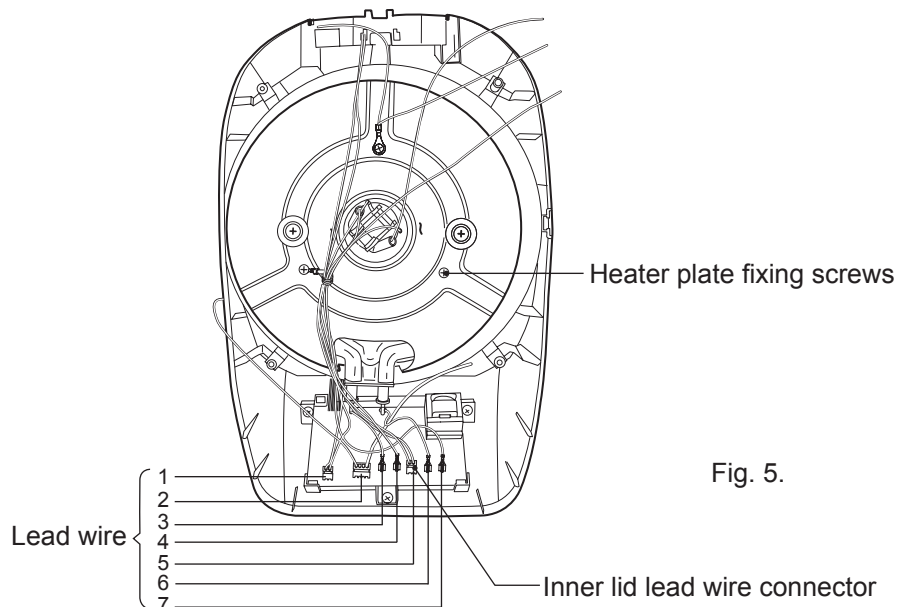
Fig. 4

**REMOVE OF HEATER PLATE ASS'Y**

1. Remove the body in accordance with "REMOVE OF BODY".
2. Disconnect all lead wires of heater plate from the PCB ass'y. (Fig. 5.)
3. The heater plate ass'y comes off by removing 3 screws. (Fig. 5.)
4. Now the heater plate ass'y is free.

**CAUTION**

The inner pot should be in the position to prevent the heater plate from falling when removing 3 screws.



## REMOVE OF THERMISTOR PLATE ASS'Y

1. Remove the body in accordance with "REMOVE OF BODY".
2. Disconnect all lead wire of the thermistor plate ass'y from PCB ASS'Y.
3. Unbend the lead wire band bounding all the lead wire.
4. Remove the heater plate ass'y in accordance with "REMOVE OF HEATER PLATE ASS'Y".
5. Twist 2 claws of thermistor plate ass'y.
6. Now the thermistor plate ass'y is free.

## DISENGAGE PCB ASS'Y

1. Remove body in accordance with "REMOVE BODY".
2. Disconnect all the lead wires of PCB ass'y.
3. Remove the 3 screws fixing the PCB ass'y to the panel ring. (Fig. 6.)
4. Now the PCB ass'y is free.

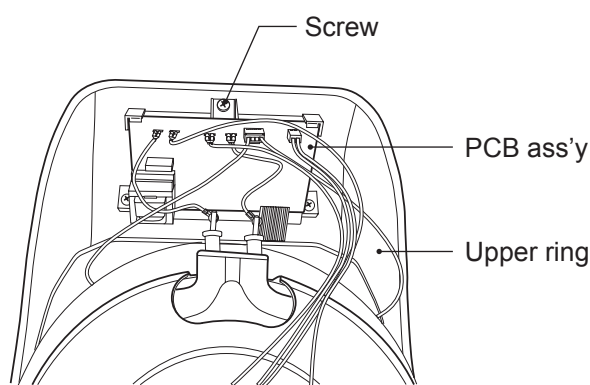


Fig. 6.

### CAUTION

Always replace the display cushion because it may be damaged.

## REMOVE OF OUTER POT

1. Remove body in accordance with "REMOVE OF BODY".
2. Remove thermistor plate ass'y in accordance with "REMOVE OF THERMISTOR PLATE ASS'Y".
3. Turning the outer pot counterclockwise.
4. Now the outer pot is free.

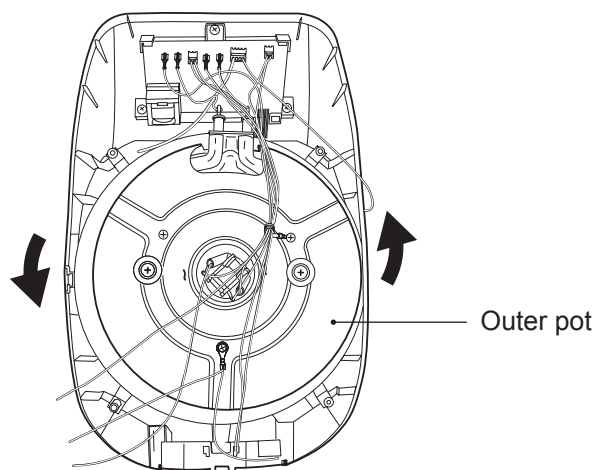


Fig. 7.

## REMOVE OF LATCH BUTTON

1. Insert flat type screwdriver into the gap between a latch button and panel ring.
2. Pry the latch button from the panel ring.
3. Now the latch button and the latch spring are free.

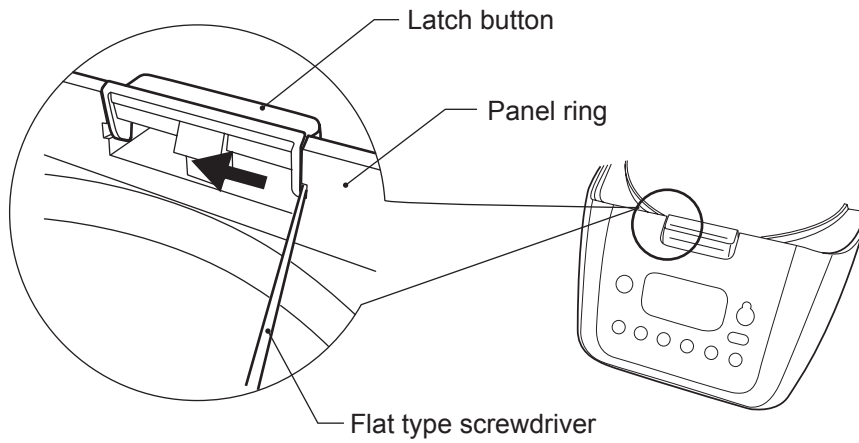


Fig. 10.

## CAUTIONS IN ASSEMBLY

### 1. Setting cord reel ass'y.

Be sure to set the cord reel lead wires through type holes provided in the recess of the body.

### 2. Affixing the display cushion.

Peel the backing from the display cushion and affix the display cushion inside the border of the key top.

### 3. Installing the body.

When installing the body, make sure internal lead wires are not routed over the spacer before tightening screws (4).



## COOKING/WARMING TEST METHOD

When rice cannot be cooked well (resulting in marked scorching or under cooking), a temperature test may be done in the following way.

### 1. Simple test method (Simulated rice cooking)

#### (1) Test conditions

1. Power voltage 220V.
2. 90 ml (1/2 of the measuring cup provided as accessory) of water is poured into the inner pot. (Water temperature may be close to the ambient temperature.)
3. The ambient temperature may be 20-30 °C.
4. The rice cooker is required to be sufficiently cool. (The temperature of the cooker and the bottom temperature sensor reading shall be close to the ambient temperature.)
5. The rice cooker shall be put on a level place.
6. The steam vent cap shall be fixed properly.

#### (2) Test method

1. Pour the designated amount of water into the inner pot, close the lid, press the cooking key and measure the time required for completion of cooking.
2. Open the lid when steam come out through the vent and confirm the bubbling condition on the bottom of the inner pot. (Confirm that the inner pot is stabilized in close contact with the heater plate. This confirmation shall be done quickly lest it should influence the “operating time”.)

#### Note

If confirmation of bubbling is difficult, it is easy that a separate test may be done with 180 ml of water.

3. If the bubbling condition is good, close the lid again and energize.
4. Immediately after completion of the simulated cooking measure the time (the warming lamp ON) and simultaneously open the lid and confirm against presence or not of water in the inner pot.

#### (3) Judging criteria

The rice cooker may be judged to be roughly good when the display is normal and the following conditions are satisfied.

1. Contact with the heater plate is close enough, if the bubbling condition is uniform along the periphery of the inner pot as shown in Fig. (A).

If as in Fig. (B), bubbling is absence more than 1/3 of the pot periphery, foreign matter adhesion to the heater plate or deformation or flow of the inner pot are supposed.

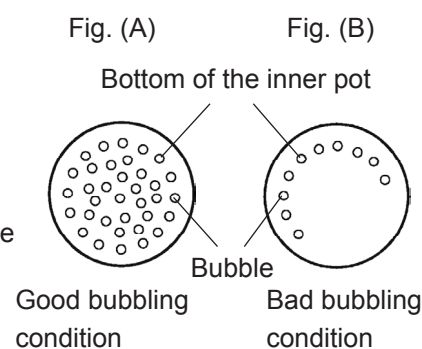
(If adherence of foreign matter is the case, things may be the inner pot is deformed, replacement with a new inner pot is recommended, the same being the case when the heater plate is deformed.)

2. There is no residual water in the inner pot or a very small amount of water (approx. 20 ml) is remaining in the recessed part of the inner pot bottom when the lid is opened immediately after completion of cooking.
3. When the time from start of cooking to completion thereof is:

1.8L ⇒ 0:28-0:41 min.

※ This is nothing more than a simple test and the time of cooking completion may vary depending on test condition such as difference between the water temperature and ambient temperature or the amount of water.

If the test result is marginal such as when only slightly longer than above mentioned completion time, actual rice cooking test is recommended.



## 2. Actual rice cooking test method

### (1) Test conditions

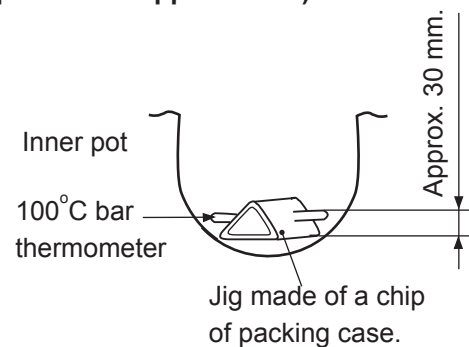
1. Power supply voltage ..... 220V.
2. 2-cup of "PLAIN RICE" cooking.
3. Ambient temperature 20 - 30°C.
4. Standard water level according to water level scale.

### (2) Judging criteria

1. Each indicator shall be switched over as follows.
  - Display show select menu "PLAIN RICE".
  - "WARM" indicator lights.
  - "Warming" is continued.
2. Check the degree of rice scorching on the bottom of the inner pot.
  - Slight scorching.....Normal.
  - Excessive scorching .....Thermistor plate ass'y or PCB ass'y is faulty.

## 3. Warming temperature measuring method (when room temperature is approx. 20°C)

- (1) With the inner pot empty, put a bar thermometer 100°C in full scale in the inner pot and close the lid. Press select "PLAIN RICE" program and after energizing about 2 minutes the "WARM/OFF" button is pressed to [cancel]. Then press the "WARM/OFF" button to select "warming" and continue warming for about 1 hour.



- (2) It is OK, if the reading of the bar thermometer is within the following range.

Warming temperature 70-76°C

### CAUTION

Check the temperature quickly because the reading of the thermometer falls rapidly with the lid open. The bar thermometer is to be elevated from the inner pot bottom using a chip of packing case lest it should come into direct contact with the inner pot.

- (3) When the above temperature specification is not satisfied, replace the thermistor ass'y in the [Replacing method for main parts (How to remove heater plate ass'y and thermistor ass'y)]. Remember that with a bar thermometer available on the market there is a permissible error of 1 degree or so.

# TEST MODE SPECIFICATION

[ To enter TEST MODE]

A plug is inserted with key "Timer" & "Warm/OFF" Pushed at the same time.

STATE	State Shift Element		LED	LCD mark										LCD	OUT PUT	REMARK			
				Menu					pict		time						7SEG		
				Mixed	Por	Plain	Timer	CookT	Glut	Cake	Slow	rice	cake					h	min
T-0 DISPLAY Test	<b>Shift Element to "T-1" state</b> a) Key "Cooking Timer" is pushed. or b) 10 seconds pass.																(0 W)		
T-1 COOK Test	<b>Shift Element to "T-2" state</b> a) Key "Cooking Time" is pushed. or b) 20 minutes pass. or c) Thermistor temperature rises more than Cook test temperature.(120°C)  <b>Shift Element to "T-0" state</b> Key "Timer" is pushed.  <i>Display shift element</i> One of menu keys is pressed. (Plain, Porridge, Mixed, Glutinous, Cake, Slow Cook)	[Display shift] → Disp. 0 Disp. 1 Disp. 2 Disp. 3 Disp. 4 Disp. 5 -Disp. 6																770~850 W	Check this state within 7 minutes for stabilize out put.
T-2 WARM Test	<b>Shift Element to "T-3" state</b> Key "Cooking Time" is pushed.  <i>Display shift element</i> Key "Timer" is pushed.	[Display shift] → Disp. 0 Disp. 1 Disp. 2 Disp. 3 Disp. 4 Disp. 5																110~137 W	
T-3 OFF	<b>Shift Element to "T-0" state</b> Key "Cooking Time" is pushed.  <b>Shift Element to "T-1" state</b> Key "Timer" is pushed.																	(0 W)	

## BEFORE CALLING FOR SERVICE

<b>Check</b>	<b>Problem</b>	Did you use the measuring cup provided with the rice cooker (not a standard measuring cup) ?	Did you wash the rice cleanly ?	Did you check the water level ?	Was the lid closed tightly ? Was the lid cap install correctly ?	Was there any foreign matter on the lid cap, outside of the inner pot or heater plate ?	Was the rice kept warm in the rice cooker for more than 12 hours ?
During cooking operation	Boiling water overflows.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	Steam appear from other than the steam vent.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Immediately after cooking	Rice is too hard and uncooked at the core. Rice is too soft.	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	Rice is scorched.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
When rice is kept warm	Rice becomes dry.				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Rice becomes sticky.	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	A large amount of water is on inner lid.				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Rice become yellowish.		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Rice has a strange smell.		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Power interruption occurred.		Rice may not be cooked properly. Because power interruption make programmed time clear.					

## SERVICING

Remember the following points.

### 1. Precautions for handling electronic parts

- (1) Stock/transportation
  - PCB ass'y must be wrapped with aluminium foil or put in electroconductive bag at the condition of full discharge.
- (2) Taking out/fitting
  - Do not place anything loaded by electrostaticity nearby.

### 2. Tools for servicing

- (1) Soldering iron
  - Use one 30 W or less (with temperature controllable).
  - Use one fitted with a ceramic heater.
- (2) Tester
  - Use one with its inside resistance more than 20 ohm/V.  
Digital tester is preferred.

### 3. Precautions for servicing

- In replacing parts, be sure to use the designated parts.
- After repair be sure to confirm the place each part is attached to and see the soldered conditions (ensure against "whisker", under-soldering, over-soldering, tunnel etc.).  
As to tab terminals, be sure to solder after lead clinching.

## POST-REPAIR INSPECTION

### 1. Reconfirmation of work done and inspection

- (1) Is anything left carelessly (such as screw, spacer) ?
- (2) Is there no mis-wiring ?
- (3) For final inspection and operation check (Refer to page 19) Are key operation and display corrected ?

### 2. Insulation performance

- (1) Insulation resistance test ;  
Required to be more than 1 megaohm when measured by an insulation resistance 500V d.c. megger  
(This test to be done before and immediately after the temperature test).
- (2) Withstand voltage test ;  
No beak down at 1500 V a.c. for 1 min. (To be done after the insulation resistance measurement which is to be done immediately after the temperature test.) Points to be measured: Between one end of combined plug blades and lid cover assembly or heater plate.

### 3. Temperature test

Confirm performance by the [Cooking / Warming test method.]

## TROUBLESHOOTING GUIDE

### 1. Body circuit side

No.	Problem	Cause of problem and location of malfunction	Remedy
1	Rice cooker does not operate. (Keys are inoperable.)	When WHT and BLU on PCB ass'y are not supplied with 220V a.c. check the following.	
		• Power cord is not plugged in the a.c. outlet.	Plug the power cord into the a.c. outlet.
		• Faulty wiring of cooking heater ass'y or thermistor ass'y.	Repair the wire.
		• Faulty harness of cooking heater ass'y or thermistor ass'y.	Replace the faulty part.
		• Open circuit in power cord or faulty cord reel.	Replace the cord reel ass'y.
		• Blown temperature fuse.	Replace the thermistor ass'y and faulty parts.
2	Some keys are inoperable.	When WHT and BLU on PCB ass'y are supplied with 220V a.c. check the following.	
		• Faulty outer frame and PCB ass'y or defective key top causing one or more keys to remain depressed.	Repair the assembly or replace faulty parts.
		• Faulty PCB ass'y.	Replace the PCB ass'y.
3	Faulty timer operation (Rice cooker does not operate as programmed.)	• Faulty wiring.	Repair the wire.
		• Faulty PCB ass'y.	Replace the PCB ass'y.
4-1	Rice cooker does not cook.	• Faulty cooking heater.	Replace the cooking heater ass'y.
		• Faulty wiring of cooking heater ass'y.	Repair the wire.
		• Faulty harness of cooking heater ass'y.	Replace the cooking heater ass'y.
		• Faulty thermistor ass'y.	Replace the thermistor ass'y.
4-2	Rice is not properly cooked. • Uneven cooking. • Rice uncooked at the core due to premature shutoff.	• Inappropriate quantity of rice or water.	Use correct amounts of rice and water.
		• Lid is not closed tightly.	Repair the lid or close the lid tightly.
		• Lid cap is not installed properly.	Install the lid cap securely.
		• Foreign matter on top surface of cooking heater ass'y and/or bottom surface of inner pot causing inadequate contact.	Remove foreign matter or replace faulty parts.

No.	Problem	Cause of problem and location of malfunction	Remedy
		<ul style="list-style-type: none"> <li>● Faulty thermistor ass'y.</li> </ul>	Replace the thermistor ass'y.
		<ul style="list-style-type: none"> <li>● Faulty operation of thermistor ass'y. (Thermistor movement not smooth)</li> </ul>	Repair the assembly or replace the thermistor ass'y.
		<ul style="list-style-type: none"> <li>● Faulty PCB ass'y.</li> </ul>	Replace the PCB ass'y
4-3	Cooked rice has burned parts.	<ul style="list-style-type: none"> <li>● Cooking heater ass'y and/or inner pot not cleaned thoroughly.</li> </ul>	Clean properly.
		<ul style="list-style-type: none"> <li>● Rice was not washed thoroughly.</li> </ul>	Wash rice thoroughly.
		<ul style="list-style-type: none"> <li>● Faulty thermistor ass'y.</li> </ul>	Replace the thermistor ass'y.
		<ul style="list-style-type: none"> <li>● Faulty PCB ass'y.</li> </ul>	Replace the PCB ass'y.
5	Water condensation on inner lid after cooking or when rice is kept warm.	<ul style="list-style-type: none"> <li>● Lid is not closed tightly.</li> </ul>	Repair the lid or close the lid tightly.
		<ul style="list-style-type: none"> <li>● Faulty lid heater faulty installation.</li> </ul>	Replace the lid heater.
		<ul style="list-style-type: none"> <li>● Faulty wiring of lid heater.</li> </ul>	Repair the wire.
		<ul style="list-style-type: none"> <li>● Faulty harness of lid heater.</li> </ul>	Replace the lid heater.
		<ul style="list-style-type: none"> <li>● Faulty PCB ass'y.</li> </ul>	Replace the PCB ass'y.
6-1	Warm function does not operate.	<ul style="list-style-type: none"> <li>● Faulty side heater or faulty installation.</li> </ul>	Repair the side heater.
		<ul style="list-style-type: none"> <li>● Faulty wiring of side heater.</li> </ul>	Repair the wire.
		<ul style="list-style-type: none"> <li>● Faulty harness of side heater.</li> </ul>	Replace the side heater.
		<ul style="list-style-type: none"> <li>● Faulty thermistor ass'y.</li> </ul>	Replace the thermistor ass'y.
		<ul style="list-style-type: none"> <li>● Faulty PCB ass'y.</li> </ul>	Replace the PCB ass'y.
6-2	Warm function operates, but rice becomes dry. ("Warm" temperature too high) <ul style="list-style-type: none"> <li>● Rice is too dry.</li> <li>● Rice turns yellowish.</li> <li>● Rice has a strange smell.</li> </ul>	<ul style="list-style-type: none"> <li>● Lid is not closed tightly.</li> </ul>	Repair the lid or close the lid tightly.
		<ul style="list-style-type: none"> <li>● Lid cap is not installed securely.</li> </ul>	Install the lid cap securely.
		<ul style="list-style-type: none"> <li>● Rice is kept warm for more than 12 hours.</li> </ul>	Do not keep rice warm for an extended period of time.
		<ul style="list-style-type: none"> <li>● Faulty side heater.</li> </ul>	Replace the side heater.
		<ul style="list-style-type: none"> <li>● Faulty thermistor ass'y.</li> </ul>	Replace the thermistor ass'y.
		<ul style="list-style-type: none"> <li>● Faulty PCB ass'y.</li> </ul>	Replace the PCB ass'y.

No.	Problem	Cause of problem and location of malfunction	Remedy
6-3	Warm function operates, but rice becomes watery. (Warming temperature too low) <ul style="list-style-type: none"> <li>● Rice becomes sticky.</li> <li>● Too much condensation.</li> <li>● Rice becomes yellowish.</li> <li>● Rice has a strange smell. (Sour or old smell)</li> </ul>	● Lid is not closed tightly.	Repair the lid or close the lid tightly.
		● Lid cap is not installed securely.	Do not keep rice warm for an extended period of time. Stir rice.
		● Rice was not stirred after cooking.	Stir rice.
		● Faulty side heater or faulty installation.	Replace the side heater.
		● Faulty harness of side heater.	Replace the side heater.
		● Faulty thermistor ass'y.	Replace the thermistor ass'y.
		● Faulty PCB ass'y.	Replace the PCB ass'y.

**CAUTION**

1. When the cooker does not warm rice properly, check "caution items at warming". (page 7)
2. When thermistors open or short, "TIMER display" on the PCB are flashing mutually.  
The thermistor ass'y opens (TH1) ..... "C" and "1" appear alternately on display.  
The room temperature thermistor.  
(TH plate at the PCB ass'y) opens ..... "C" and "2" appear alternately on display.



## SERVICE PARTS LIST

REF. NO	PARTS CODE	DESCRIPTION	Q'TY	PRICE
	(FEC)			
<b>PRINTING &amp; PACKAGING MATERIAL</b>				
1-1	22N102	INSTRUCTION BOOK	1	
1-2	22N101	CARTON BOX	1	
1-3	22N104	KEY SHEET	1	
1-4	22N103	NAME PLATE	1	
1-5	22N108	LID CAUTION LABEL	1	
1-6	22N106B	UPPER PAD - B	1	
1-7	22N106F	UPPER PAD - F	1	
1-8	22N107B	BOTTOM PAD - B	1	
1-9	22N107F	BOTTOM PAD - F	1	
1-10	22J608	PROTECTION SHEET	1	
1-11	21A2071T	INNER POT PROTECTION SHEET	1	
1-12	2C505R	PLASTIC SPOON	1	
1-13	21A5062	MEASURING CUP	1	
<b>MECHANICAL PARTS</b>				
2-1	22N209LGASY	LID CAP ASS'Y	LIGHT GREY	1
	22N209WHASY	LID CAP ASS'Y	WHITE	1
2-2	22N204LG	LID	LIGHT GREY	1
	22N204W	LID	WHITE	1
2-3	22N205LG	LID COVER	LIGHT GREY	1
	22N205W	LID COVER	WHITE	1
2-4	22N303	INNER LID SPRING		1
2-5	22N501	UPPER STEAM PACKING		1
2-6	22N302ASY	HOLDER PLATE ASS'Y		1
2-7	22N214LGASY	INNER LID FRAME ASS'Y	LIGHT GREY	1
	22N214WHASY	INNER LID FRAME ASS'Y	WHITE	1
2-8	22N213W	STEAMER RACK		1
2-9	22N306ASY	INNER POT ASS'Y		1
2-9-1	22N208ASY	INNER POT HANDLE ASS'Y		1
2-10	22N207DGASY	PANEL RING ASS'Y	DARK GREY	1
	22N207LGASY	PANEL RING ASS'Y	LIGHT GREY	1
2-11	22N203LG	LATCH BUTTON	LIGHT GREY	1
	22N203W	LATCH BUTTON	WHITE	1
2-12	21A106	LATCH SPRING		1
2-13	22N305	HINGE SPRING - R		1
2-14	22N304	HINGE SPRING - L		1
2-15	21J117	HINGE PIN		1
2-16	22N212DG	HINGE COVER	DARK GREY	1
	22N212LG	HINGE COVER	LIGHT GREY	1
2-17	22N206	PCB HOLDER		1
2-18	22J301ASY	OUTER POT ASS'Y		1
2-19	22J315	THERMISTOR SPRING		1
2-20	2C217	CONTACT PLATE COVER		1
2-21	21J202	SPACER		2
2-22	22N201LG	BODY	LIGHT GREY	1
	22N201W	BODY	WHITE	1
2-23	22N202LG	HANDLE	LIGHT GREY	1
	22N202W	HANDLE	WHITE	1

REF. NO	PARTS CODE	DESCRIPTION	Q'TY	PRICE
	(FEC)			
<b>ELECTRIC PARTS</b>				
3-1	22N405ASY	CORD REEL ASS'Y	1	
3-2	22N403ASY	THERMISTOR PLATE ASS'Y	1	
3-3	22N402	HEATER PLATE ASS'Y	1	
3-4	22N401SET	PCB SET	1	
3-5	W07A105XC	LEAD WIRE BAND	1	
3-6	22N404	EARTH WIRE ASS'Y {สาย Ground} for Holder Plate+Outer Pot+Cord Reel	1	
3-7	E03A300GG	Main Lead Wire {สาย Earth} For Body + Outer Pot	1	

