




5. Troubleshooting

5-1 Items to be checked first

- 1) The input voltage should be rating voltage $\pm 10\%$ range.
The airconditioner may not operate properly if the voltage is out of this range.
- 2) Is the link cable linking the indoor unit and the outdoor unit linked properly?
The indoor unit and the outdoor unit shall be linked by 6 cables.
Check the terminals if the indoor unit and outdoor unit are properly linked by the same number of cables.
Otherwise the airconditioner may not operate properly.
- 3) When a problem occurs due to the contents illustrated in the table below it is a symptom not related to the malfunction of the airconditioner.

NO	Operation of air conditioner	Explanation
1	The STD operation indication LED blinks when a power plug of the indoor unit is plugged in for the first time.	It indicates power is on. The LED stops blinking if the operation ON/OFF button on the remote control unit is pushed.
2	In a COOL operation mode, the compressor does not operate at a room temperature higher than the setting temperature that the INDOOR FAN should operate.	In happens after a delay of 3 minutes when the compressor is reoperated. The same phenomenon occurs when a power is on. As a phenomenon that the compressor is reoperated after a delay of 3 minutes, the indoor fan is adjusted automatically with reference to a temperature of the air blew
3	Fan speed setting is not allowed in AUTO or DRY mode.  	The speed of the indoor fan is set to LL in DRY mode. Fan speed is 4 steps is selected automatically in AUTO mode.
4	Compressor stops operation intermittently in DRY mode. 	Compressor operation is controlled automatically in DRY mode depending on the room temperature.
5	The compressor stops intermittently in a COOL mode or DRY mode, and fan speed of the indoor unit decreases.	The compressor stops intermittently or the fan speed of the indoor unit decreases to prevent inside/outside air frozen depending on the inside/outside air temperature.

- 4) Indoor unit observes operation condition of the air conditioner, and displays self diagnosis details on the display panel.

NO	Display	Self Diagnosis
1	STD LED blinking (1Hz)	Restore from power failure (input initial power)
2	TIMER LED blinking (1Hz)	Indoor unit Room sensor Error (open or short)
3	STD and TIMER LED blinking (1Hz)	Indoor unit heat exchanger temperature sensor Error (open or short)
4	NATURE LED blinking (1Hz)	Indoor fan malfunctioning (for speed is Below 450rpm)
5	STD, NATURE and TIMER LED blinking(1Hz)	EEPROM Error
6	All LED blinking(1Hz)	Option Error(option wasn't set up or option data error)

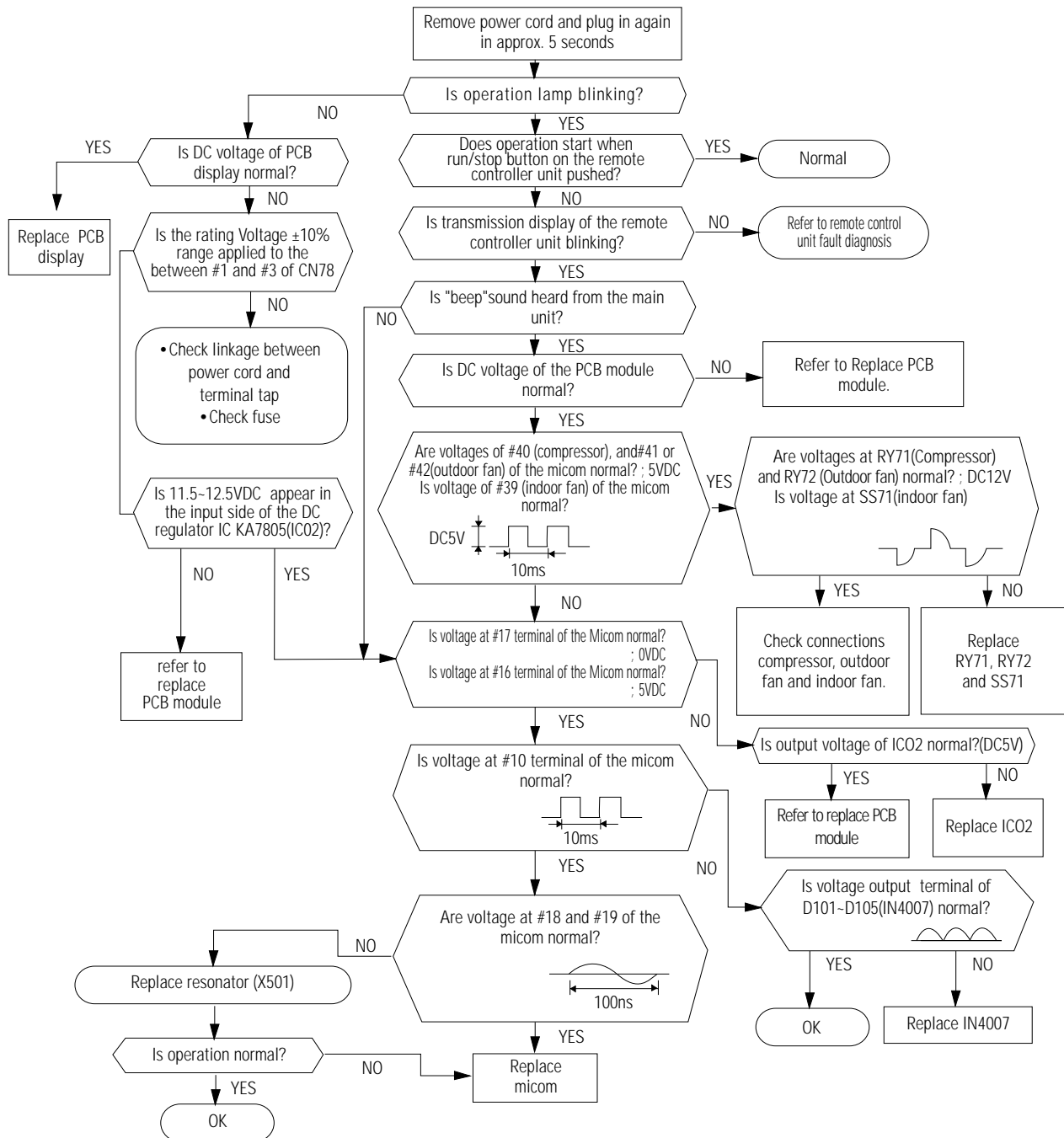
5-2 Fault Diagnosis by Symptom

5-2-1 No Power (completely dead)-Initial diagnosis

1) Checklist :

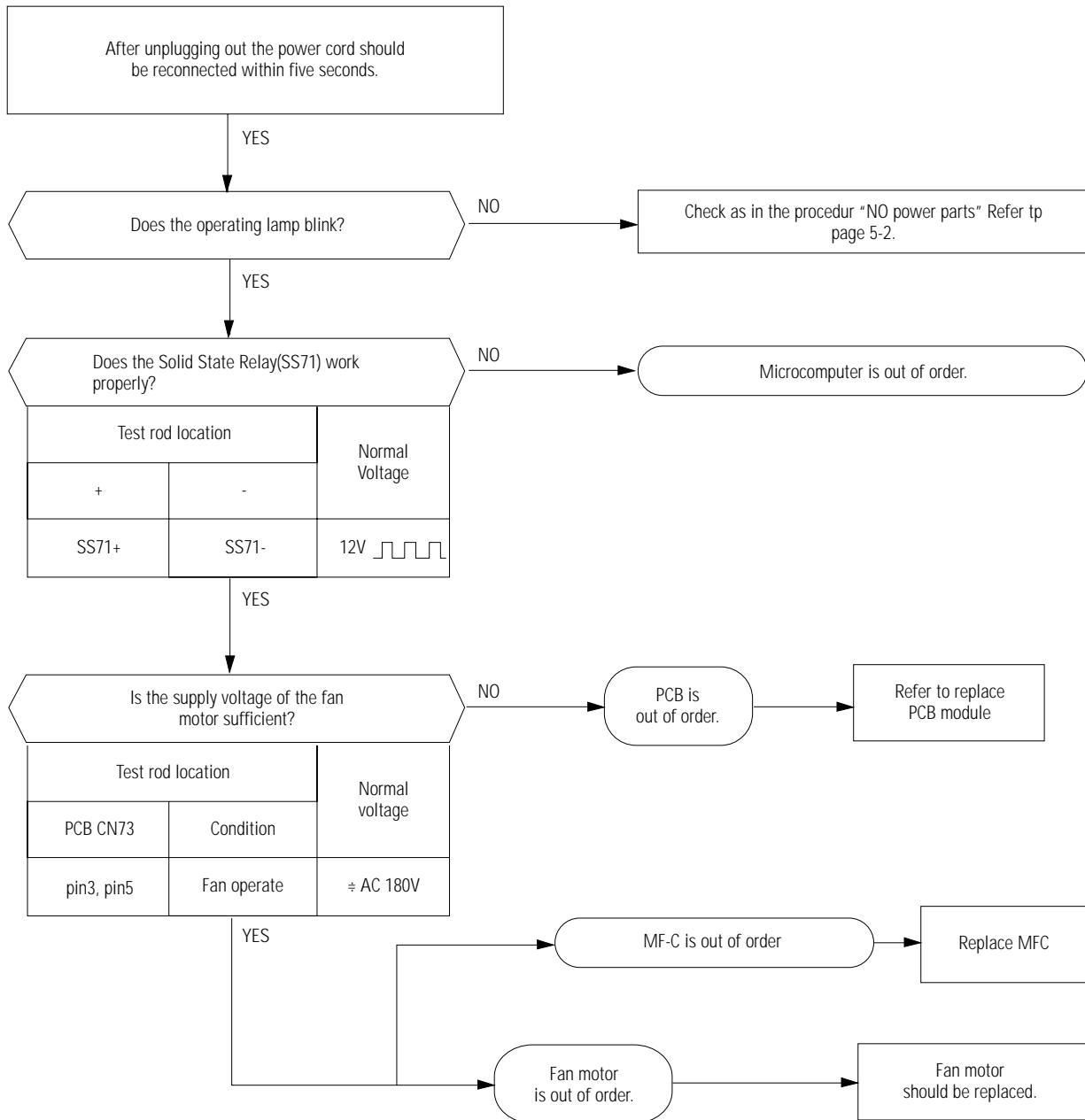
- (1) Is input voltage normal? the rating voltage $\pm 10\%$ range.
- (2) Is AC power linked correctly?
- (3) Is input voltage of DC regulator IC KA7805 (IC02) normal? (11.5VDC-12.5VDC)
- (4) Is output voltage of DC regulator IC KA7805 (IC02) normal? (4.5VDC-5.5VDC)

2) Troubleshooting procedure



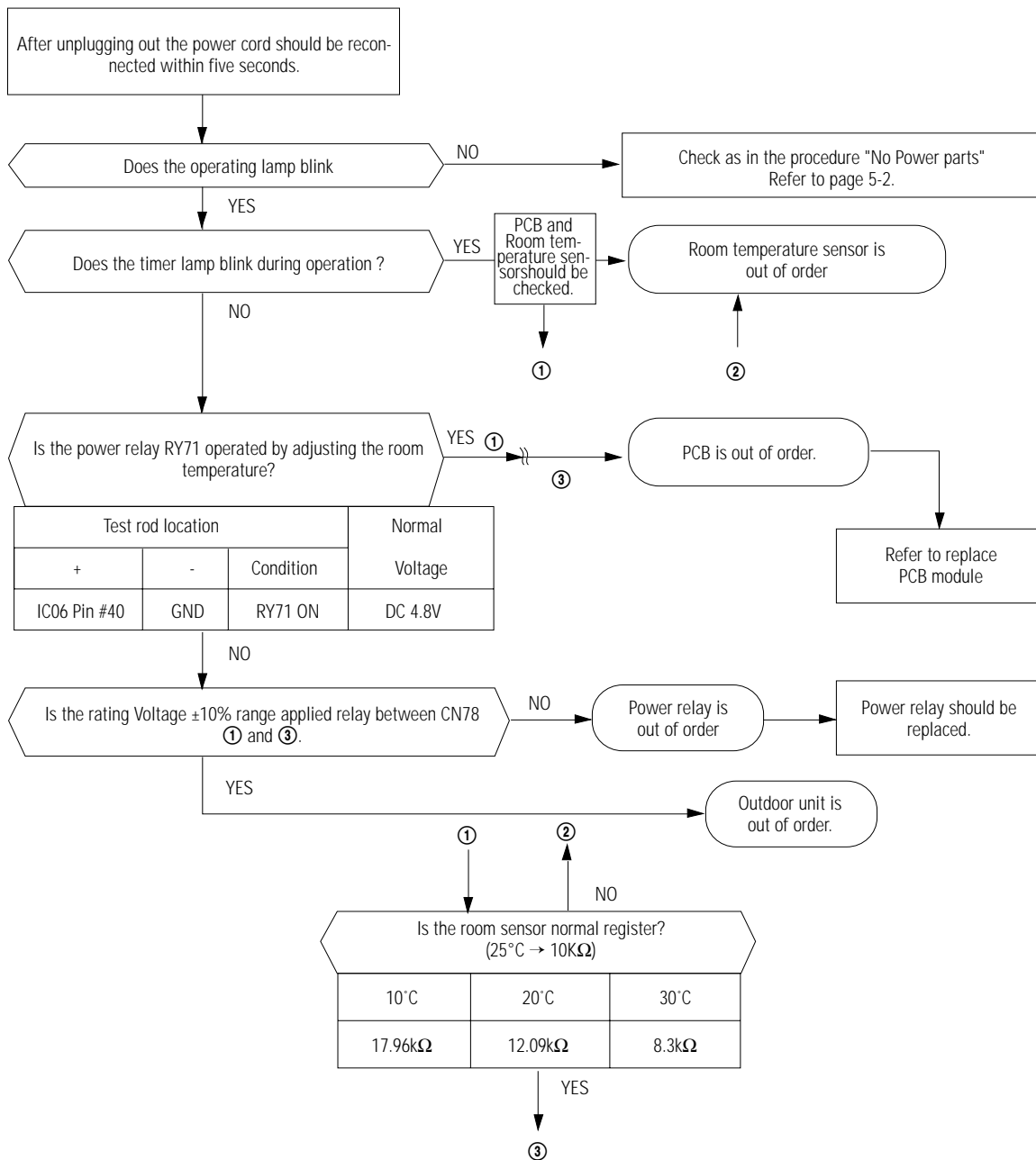
5-2-2 When the Indoor Unit Fan Does Not Operate. (Initial Diagnosis)

- 1) Checklist :
 - (1) Is the indoor unit fan motor properly connected with the connector (CN73)?
 - (2) Is the AC voltage correct?
 - (3) Is HALL IC in indoor fan motor properly connected with the connector (CN43)?
 - (4) Is the running capacitor(CR71) properly connected with the solder part of the PCB?
- 2) Troubleshooting procedure



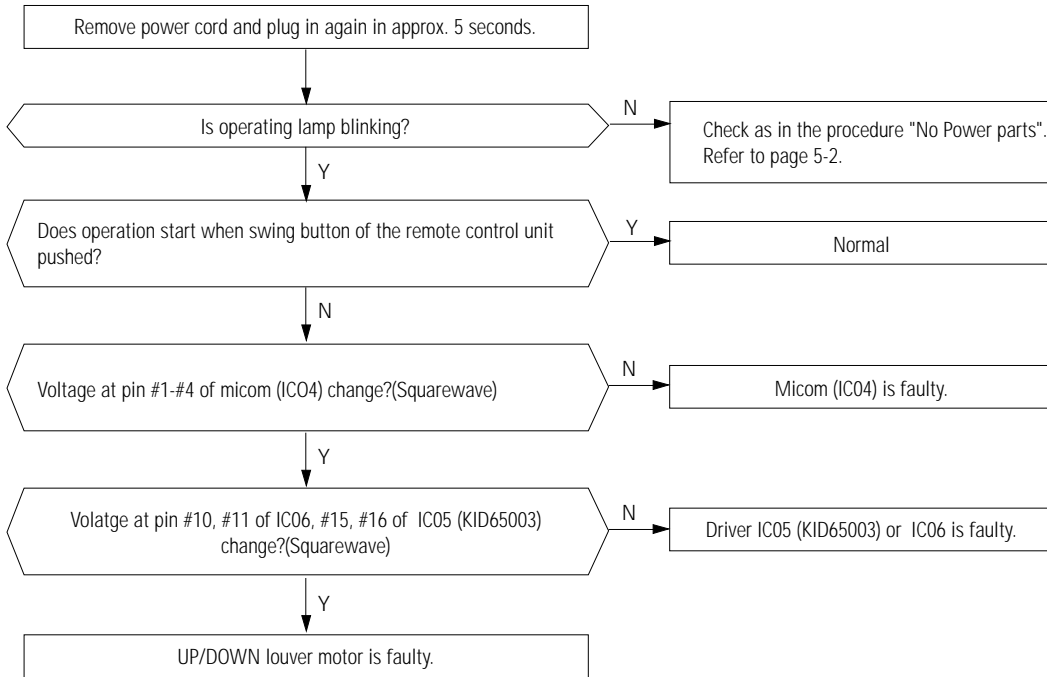
5-2-3 When the Outdoor Unit Does Not Operate. (Initial Diagnosis)

- 1) Checklist :
 - (1) Is input voltage normal? (rating voltage $\pm 10\%$ range)
 - (2) Is the set temperature of the remote control higher than room temperature in COOL mode?
 - (3) Is the POWER IN connector (CN78) linked correctly?
 - (4) Is the outdoor unit properly connected with the TERMINAL BLOCK connector(8P)?
- 2) Troubleshooting procedure



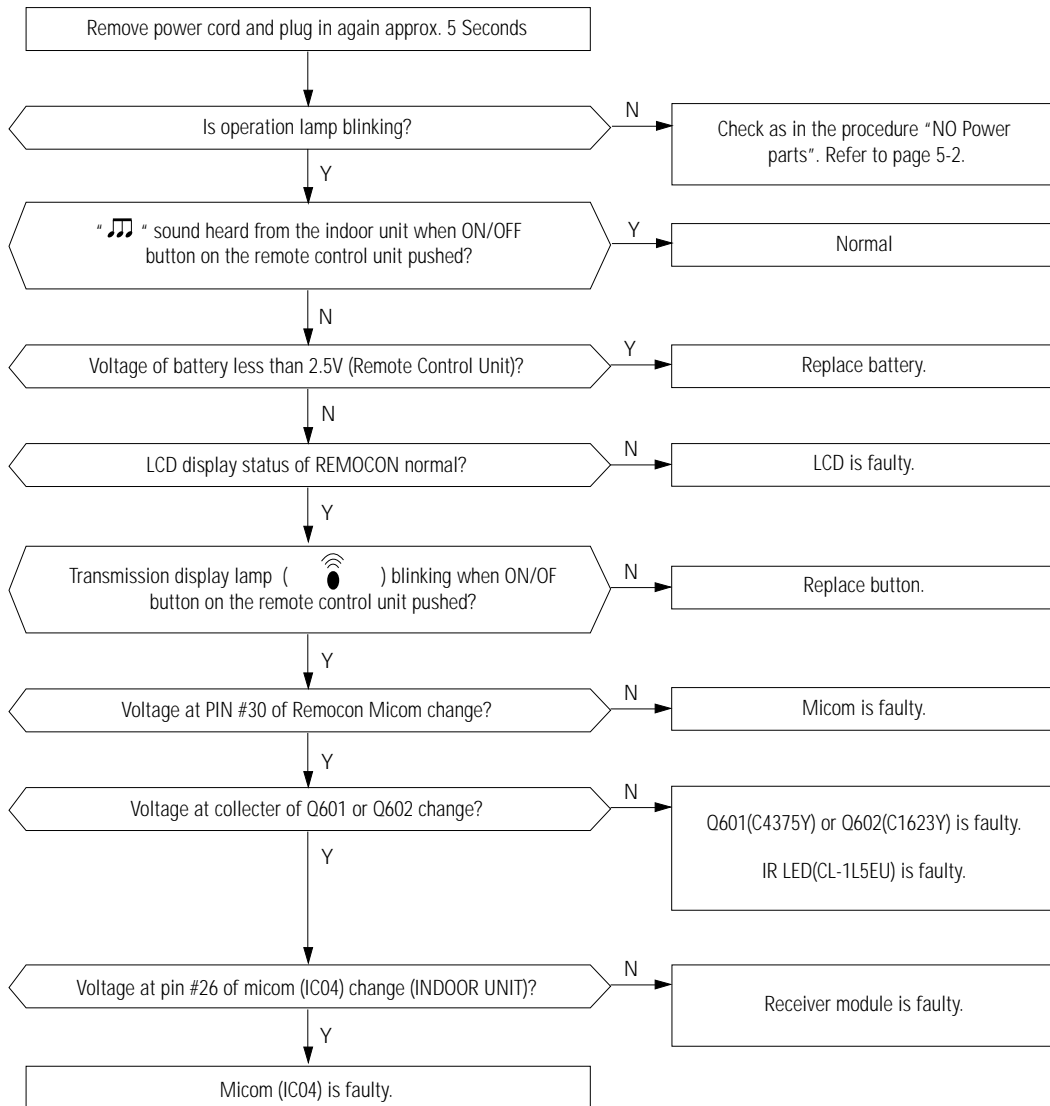
5-2-4 When the UP/DOWN Louver Moter Does Not Operate. (Initial Diagnosis)

- 1) Checklist :
 - (1) Is input voltage normal? (input voltage $\pm 10\%$ range)
 - (2) Is the UP/DOWN louver motor properly connected with the connector (CN61)?
- 2) Troubleshooting procedure



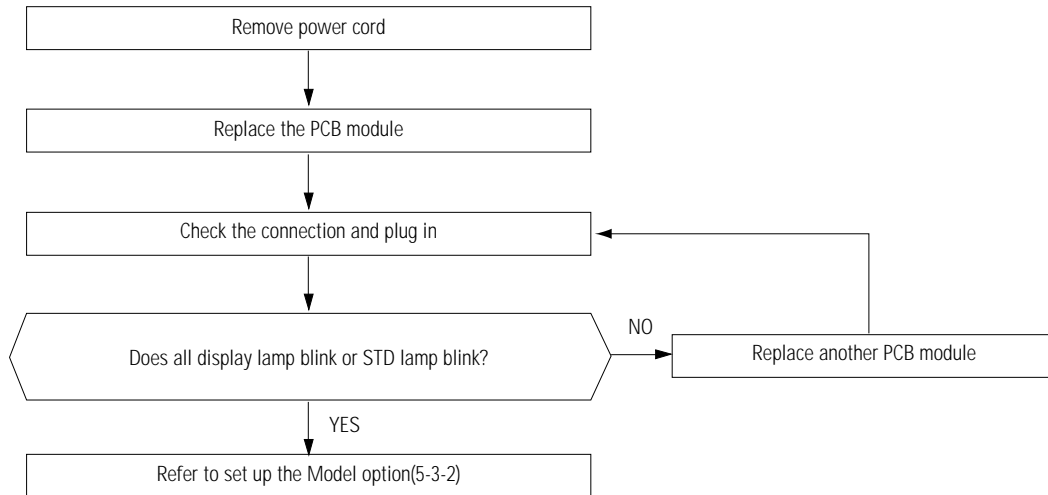
5-2-5 If Operation By Remote Control Unit Is Impossible. (Initial Diagnosis)

1) Troubleshooting procedure



5-3 Replace PCB Model option

5-3-1 Replace PCB model option



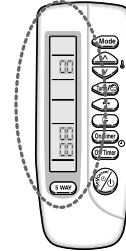
5-3-2 Set up the Model option

The Method for Setting up the model option with remocon

- **It is necessary to set up option code after replacing the main-PCB as a service parts.**
 Make sure that you can set up the option of code the remote controller after you replace the main PBA otherwise, the unit won't be working properly and all LED lamps on display will be flickering.

Step 1 : Preparing the remocon to main PCB option set

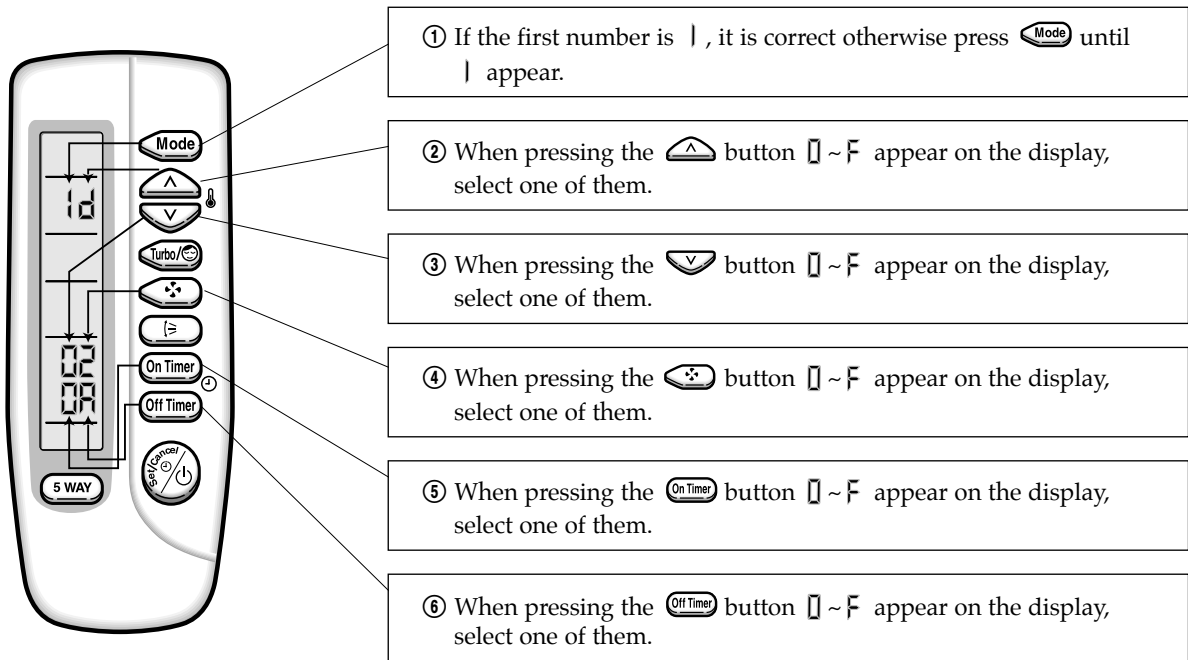
- 1st Remove the battery from the remocon.
- 2nd Press the temperature raise / down button simultaneously and insert the battery again.
- 3rd Make sure the remocon display shown as □ □ □ □ □ □.



Step 2 : Second stage preparation of the remocon option set.

- * **Note** ; In case the wrong letter has been selected, continue to press the button until the correct letter appears.
- 1st If the first stage number “□” appears on the display, proceed to the second stage.
 - 2nd Every time the ① and ⑦ button, “□” and “|” each continue to appear.
 - 3rd Whenever pressing the ②, ③, ④, ⑤, ⑥, ⑧, ⑨, ⑩, ⑪, ⑫ button, the number increase from 0~9(0123456789) and A, b, C, d, E, F each time.

- ① If the first number is □, it is correct otherwise press **Mode** until □ appear.
- ② When pressing the **Up/Down** button □ ~ F appear on the display, select one of them.
- ③ When pressing the **Turbo** button □ ~ F appear on the display, select one of them.
- ④ When pressing the **On Timer** button □ ~ F appear on the display, select one of them.
- ⑤ When pressing the **On Timer** button □ ~ F appear on the display, select one of them.
- ⑥ When pressing the **Off Timer** button □ ~ F appear on the display, select one of them.



Step 3 : Reconfirming option set after completion

(in case of ex. 0E0000-ld020A)

After pressing **Mode** selector for the 0 mode, the display shown as 0E 00 00 .

After pressing **Mode** selector for the 1 mode, the display shown as 1d 02 0A .

Step 4 : Pressing the ON/OFF button (⏻)

When pressing the operation ON/OFF key with the direction of remote controller for unit, the sound “Ding” or “Diriring” is heard and the first LED lamp on the left side is flickering at the same time, then the input of option is completed. (If the diriring sound isn’t heard, try again pressing the ON/OFF button.)

Step 5 : Unit operation test-run

- First,** Remove the battery from the remote controller.
- Second,** Re-insert the battery into the remote controller.
- Third,** Press ON/OFF key with the direction of remote controller for set.

• Error Mode

1st If all lamps of indoor unit are flickering, Plug out and plug in again and pressing ON/OFF key to retry.

2nd If the unit is not working properly or all lamps are continuously flickering after setting the option code, see if the correct option code is set up for it's model.

■ OPTION ITEMS

REMOCON MODEL	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6	SEG7	SEG8	SEG9	SEG10	SEG11	SEG12
SC30ZC1	0	F	0	0	0	0	1	d	0	2	0	A
SC30ZC2	0	E	0	0	0	0	1	d	0	2	0	A

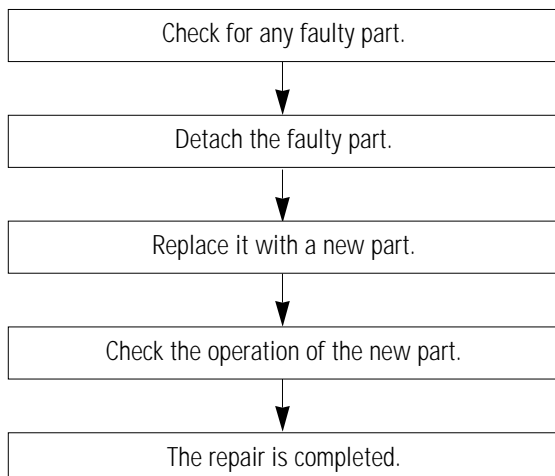
5-4 PCB Inspection

5-4-1 Cautions for Part Replacement

1. The human body carries much static electricity. Before touching a part for repair, replacement or the similar purpose, be sure to touch a grounded metallic portion by hand to let the static electricity go through the metallic portion to the earth. Especially when handling any micro computer or IC, carefully remove such static electricity before touching them.
2. When repairing any part on a work bench, be sure to place an insulated sheet on the bench and always keep the sheet surface neat without any metal fragments. If any such fragment touches a part, a secondary trouble will possibly be caused in the part.
3. Before replacing any parts, be sure to turn off the power supply. If such replacement is done with the power supply kept on, an electric shock, short circuit or destruction of a part may result.
4. During replacement or repair of a part, carefully handle it : The printed circuit board has fine lead wires (jumper wires) and glass-made parts (diode) on its substrate. So if a circuit board is roughly handled, such lead wires and parts will be easily broken or damaged by bending or shock.
5. When soldering the lead wires of any new part, be sure to polish them using an emery paper or the like before soldering them. Since the lead wires of any new part are covered with an oxide film, solder cannot adhere to the lead wires if not polished.
6. When soldering any part, care should be exercised not to apply any high-wattage soldering iron to the part for a long time. Some parts are of so low a heat resistance that they may be broken or have the properties changed if a soldering iron is so applied (Otherwise, the pattern may possibly be separated and raised).
7. The heat of the soldering iron should be transferred to the entire object to be soldered. If the solder pieces are not well fused due to insufficient transfer of the heat from the soldering iron, no satisfactory electrical continuity can be assured even if the soldered objects appear well connected to each other.
8. The solder used should be limited to a minimum. If excessive solder is used, it will cause inter-pattern contact, which may cause malfunction of the circuit.

5-4-2 Procedure

The parts should be replaced in the following procedure.



5-4-3 Detailed Procedure

No.	Malfunction	Checking point (symptoms)	Causes
1	Pull out the power plug from the AC terminal and confirm the fuse on the PCB assembly	1. Is the broken?	<ul style="list-style-type: none"> • Voltage over • Indoor unit fan motor short-circuit
2	Turn the power on.	Voltage check	SMPS circuit is faulty
		1. AC voltage at both C702? : rating voltage $\pm 10\%$ range	• SMPS circuit is faulty
		2. DC voltage at both C101? : about DC 325[V] $\pm 10\%$	
		3. DC voltage at IC02 : IN-GND \rightarrow DC12[V] : OUT-GND \rightarrow DC5[V]	
		4. Voltage waveform at Q201 : collector-GND \rightarrow squarewave	• PC02, R202-R205
3	Set the power on.	Voltage check	
		1. Voltage of IC06 COOL : PIN#40, PIN#41 or PIN#42 HEAT : PIN#40, PIN#41 or PIN#42, PIN#43 : relay on \rightarrow 0.7[V] : relay off \rightarrow 12[V]	• IC06 is faulty
		2. Voltage at terminal block ((N1)-1) \rightarrow rating voltage ((N1)-2 or 4) \rightarrow rating voltage ((N1)-3) \rightarrow rating voltage	<ul style="list-style-type: none"> • RY71 is faulty • RY72 or RY74 is faulty • RY73 is faulty

5-4-4 Fault Diagnosis of Major Parts

Parts	Diagnosis																					
Temp. Sensor Heat ex. Sensor	Measure resistance with a tester.																					
	Normal	<table border="1" data-bbox="678 436 1422 568"> <thead> <tr> <th data-bbox="678 436 894 487">Ambient temperature</th> <th data-bbox="894 436 984 487">15°C</th> <th data-bbox="984 436 1068 487">20°C</th> <th data-bbox="1068 436 1154 487">25°C</th> <th data-bbox="1154 436 1240 487">30°C</th> <th data-bbox="1240 436 1326 487">35°C</th> <th data-bbox="1326 436 1422 487">40°C</th> </tr> </thead> <tbody> <tr> <td data-bbox="678 487 894 568">Resistance of thermistor[KΩ]</td> <td data-bbox="894 487 984 568">14.68</td> <td data-bbox="984 487 1068 568">12.09</td> <td data-bbox="1068 487 1154 568">10</td> <td data-bbox="1154 487 1240 568">8.31</td> <td data-bbox="1240 487 1326 568">6.94</td> <td data-bbox="1326 487 1422 568">5.83</td> </tr> </tbody> </table>							Ambient temperature	15°C	20°C	25°C	30°C	35°C	40°C	Resistance of thermistor[KΩ]	14.68	12.09	10	8.31	6.94	5.83
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Abnormal	∞, 0Ω ... open or short																					
Indoor Fan Motor	Measure resistance between terminals (CN73) with a tester																					
	Normal	At ambient temperature (10°C ~ 30°C) <table border="1" data-bbox="678 789 1308 959"> <thead> <tr> <th data-bbox="678 789 894 840">between</th> <th data-bbox="894 789 1101 840">Voltage</th> <th data-bbox="1101 789 1308 840">Remark</th> </tr> </thead> <tbody> <tr> <td data-bbox="678 840 894 900">Red, Blue</td> <td data-bbox="894 840 1101 900">94.5 ± 10%</td> <td data-bbox="1101 840 1308 900">Main</td> </tr> <tr> <td data-bbox="678 900 894 959">Red, Yellow</td> <td data-bbox="894 900 1101 959">84.5 ± 10%</td> <td data-bbox="1101 900 1308 959">Sub</td> </tr> </tbody> </table>							between	Voltage	Remark	Red, Blue	94.5 ± 10%	Main	Red, Yellow	84.5 ± 10%	Sub					
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Abnormal	∞, 0Ω ... open or short																					
Measure the voltage between ground and signal wire of the fan motor.																						
Normal	<table border="1" data-bbox="678 1119 1308 1289"> <thead> <tr> <th data-bbox="678 1119 894 1170">between</th> <th data-bbox="894 1119 1308 1170">Voltage</th> </tr> </thead> <tbody> <tr> <td data-bbox="678 1170 894 1229">Gray, Orange</td> <td data-bbox="894 1170 1308 1229">0.5V~4.5V</td> </tr> <tr> <td data-bbox="678 1229 894 1289">Yellow, Orange</td> <td data-bbox="894 1229 1308 1289">5V</td> </tr> </tbody> </table>							between	Voltage	Gray, Orange	0.5V~4.5V	Yellow, Orange	5V									
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Yellow, Orange	5V																					
Abnormal	Abnormal if voltage does not change from 0V to 5V.																					
Outdoor Fan Motor	Normal	At ambient temperature (10°C ~ 30°C) <table border="1" data-bbox="678 1419 1308 1589"> <thead> <tr> <th data-bbox="678 1419 894 1470">between</th> <th data-bbox="894 1419 1101 1470">Resistance</th> <th data-bbox="1101 1419 1308 1470">Remark</th> </tr> </thead> <tbody> <tr> <td data-bbox="678 1470 894 1530">Blue, Red</td> <td data-bbox="894 1470 1101 1530">103.8 ± 10%</td> <td data-bbox="1101 1470 1308 1530">Main</td> </tr> <tr> <td data-bbox="678 1530 894 1589">Blue, White</td> <td data-bbox="894 1530 1101 1589">133.6 ± 10%</td> <td data-bbox="1101 1530 1308 1589">Sub</td> </tr> </tbody> </table>							between	Resistance	Remark	Blue, Red	103.8 ± 10%	Main	Blue, White	133.6 ± 10%	Sub					
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Blue, White	133.6 ± 10%	Sub																				
Abnormal	∞, 0Ω ... open or short																					
Stepping Motor (UP/DOWN swing motor)	Measure resistance between red wire and each terminal.																					
	Normal	Approx. 150Ω at ambient temperature (20°C ~ 30°C)																				
	Abnormal	∞, 0Ω ... open or short																				