

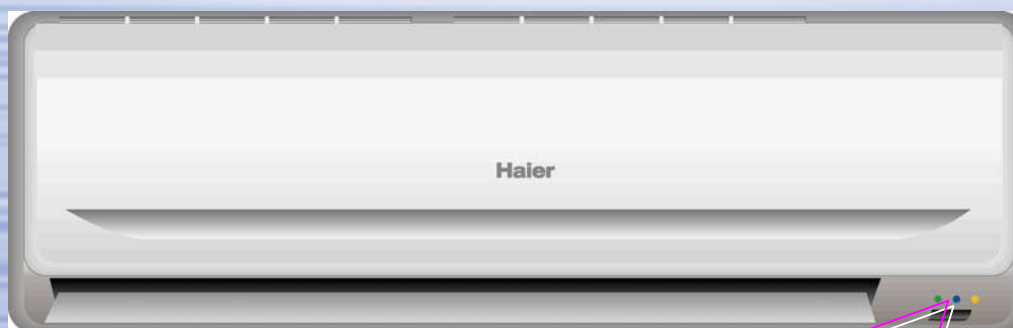
# Haier Air conditioner 2006'

## New DC Invert Products Abnormality Solution

HAND in HAND  
HIGHER and HIGHER

**HSU-12HB03/R2(DB)**

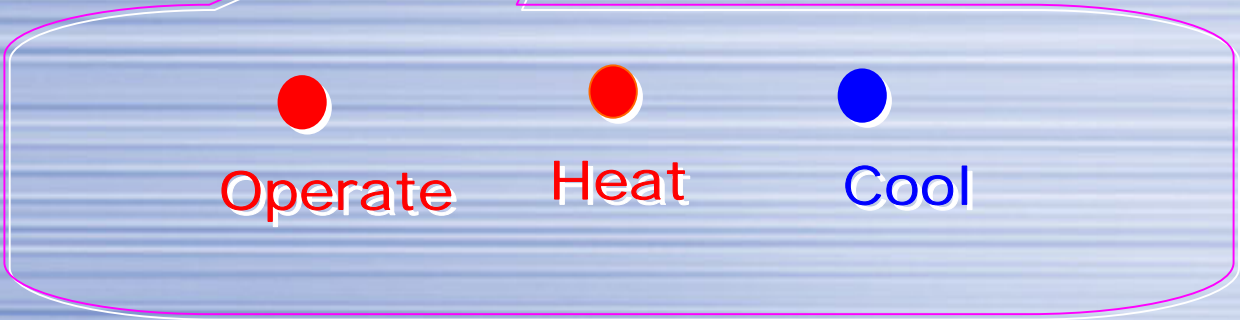
Indoor unit



● **Power/Health**
● **TIMER**
● **Operate**

HSU-12HSB03/R2(DB)

Indoor Unit



| Content                             | Malfunction codes |            |                | Indoor Unit | Outdoor Unit | Auto Recover | Twinkling times of outdoor LED |
|-------------------------------------|-------------------|------------|----------------|-------------|--------------|--------------|--------------------------------|
|                                     | Power Operation   | Timer Heat | Operation Cool |             |              |              |                                |
| Room-temperature sensor malfunction | ★                 | ■          | ■              | *           |              | *            |                                |
| Heat-exchange thermister anomaly    | ★                 | □          | □              | *           |              | *            |                                |
| Defrosting temperature sensor fault | □                 | □          | ★              |             | *            | *            | 10                             |
| Exhaust temperature sensor          | ★                 | □          | ■              |             | *            | *            | 13                             |
| Ambient temp sensor fault           | □                 | ★          | ■              |             | *            | *            | 12                             |



## Malfunction Codes (2)

| Content  | Malfunction codes |               |           | Indoor Unit | Outdoor Unit | Auto Recover | Twinkling times of outdoor LED1 |
|--|-------------------|---------------|-----------|-------------|--------------|--------------|---------------------------------|
|  | Power operate     | Timer operate | Heat Cool |             |              |              |                                 |
| Communication fault between indoor and outdoor | ■                 | ■             | ★         | *           | *            |              | 15                              |
| Overheat protection for exhaust temperature    | ■                 | ★             | ■         |             | *            |              | 13                              |
| current protection                             | ★                 | ★             | ■         |             | *            |              | 3                               |
| IPM mouldle protection                         | ★                 | ★             | □         |             | *            |              | 2                               |
| Power voltage is too high or low               | ■                 | ★             | □         |             | *            |              | 6                               |

## Malfunction Codes （3）

| Content                      | Malfunction codes |               |           | Indoor Unit | Outdoor Unit | Auto Recover | Twinkling times of outdoor LED1 |
|------------------------------|-------------------|---------------|-----------|-------------|--------------|--------------|---------------------------------|
|                              | Power operate     | Timer operate | Heat Cool |             |              |              |                                 |
| High work-intense protection | ★                 | ★             | ★         | *           |              |              | 21                              |
| EEPROM error                 | ★                 | □             | ★         | *           | *            |              | 1 only for outdoor              |
| Indoor fan motor malfunction | ■                 | □             | ★         | *           |              |              |                                 |

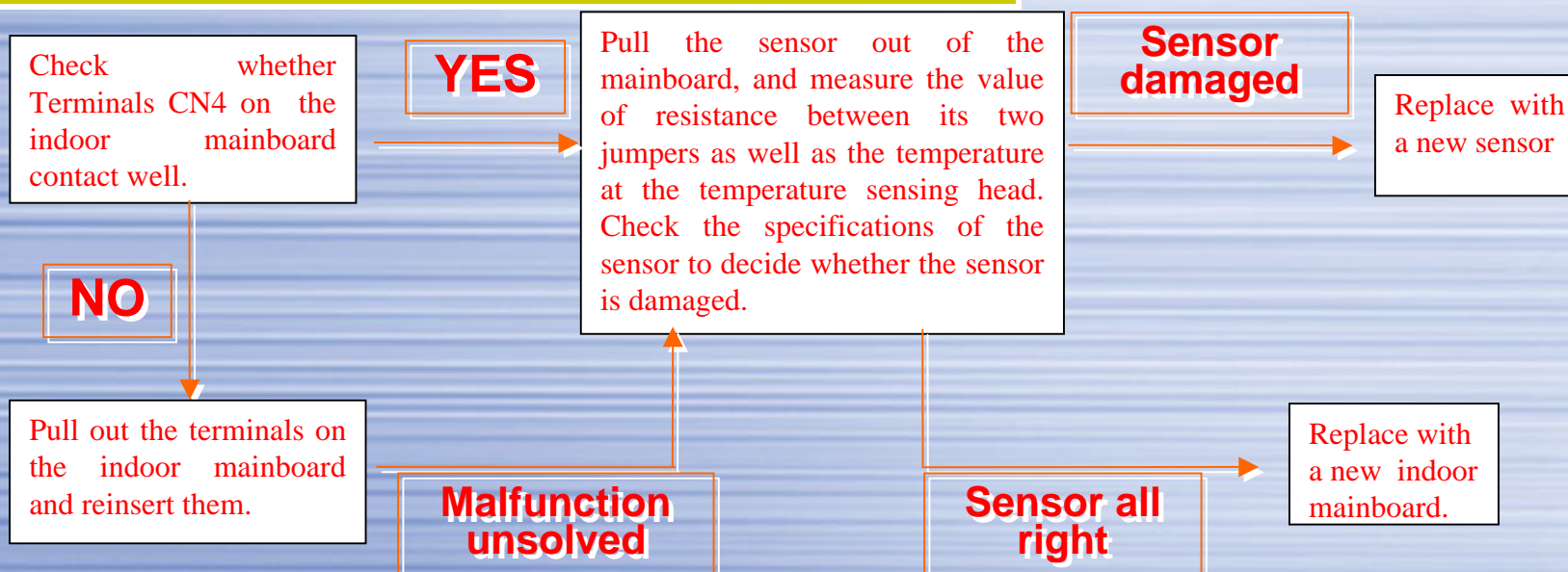
Explanation : □bright ★flashing ■turn-off \* Represents there is this function



## Countermeasures for Frequent Malfunctions (1)

| Content                             | Malfunction codes |               |         | Indoor Unit | Outdoor Unit | Auto Recover |
|-------------------------------------|-------------------|---------------|---------|-------------|--------------|--------------|
|                                     | Power             | Timer operate | operate |             |              |              |
|                                     |                   | Heat          | Cool    |             |              |              |
| Room-temperature sensor malfunction | ★                 | ■             | ■       | *           |              | *            |

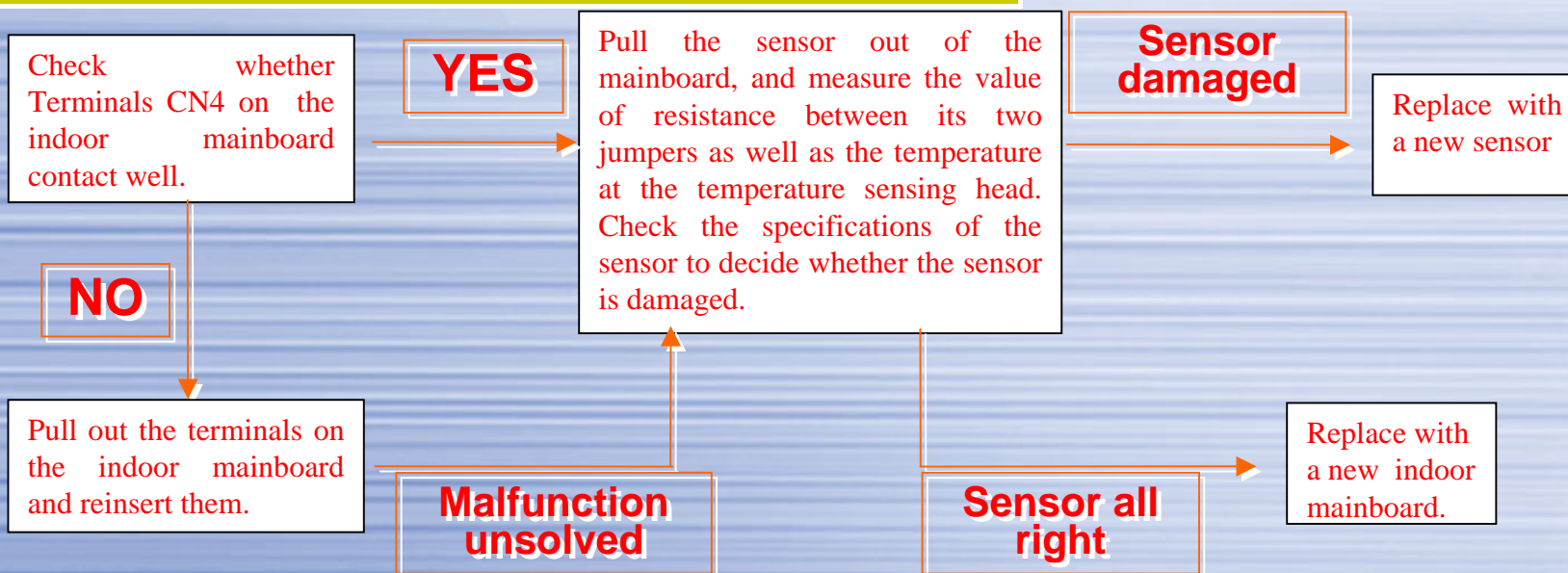
## Countermeasure Flow Chart:



## Countermeasures for Frequent Malfunctions (2)

| Content                          | Malfunction codes |               |         | Indoor Unit | Outdoor Unit | Auto Recover |
|----------------------------------|-------------------|---------------|---------|-------------|--------------|--------------|
|                                  | Power             | Timer operate | operate |             |              |              |
|                                  |                   | Heat          | Cool    |             |              |              |
| Heat-exchange sensor malfunction | ★                 | □             | □       | *           |              | *            |

## Countermeasure Flow Chart:



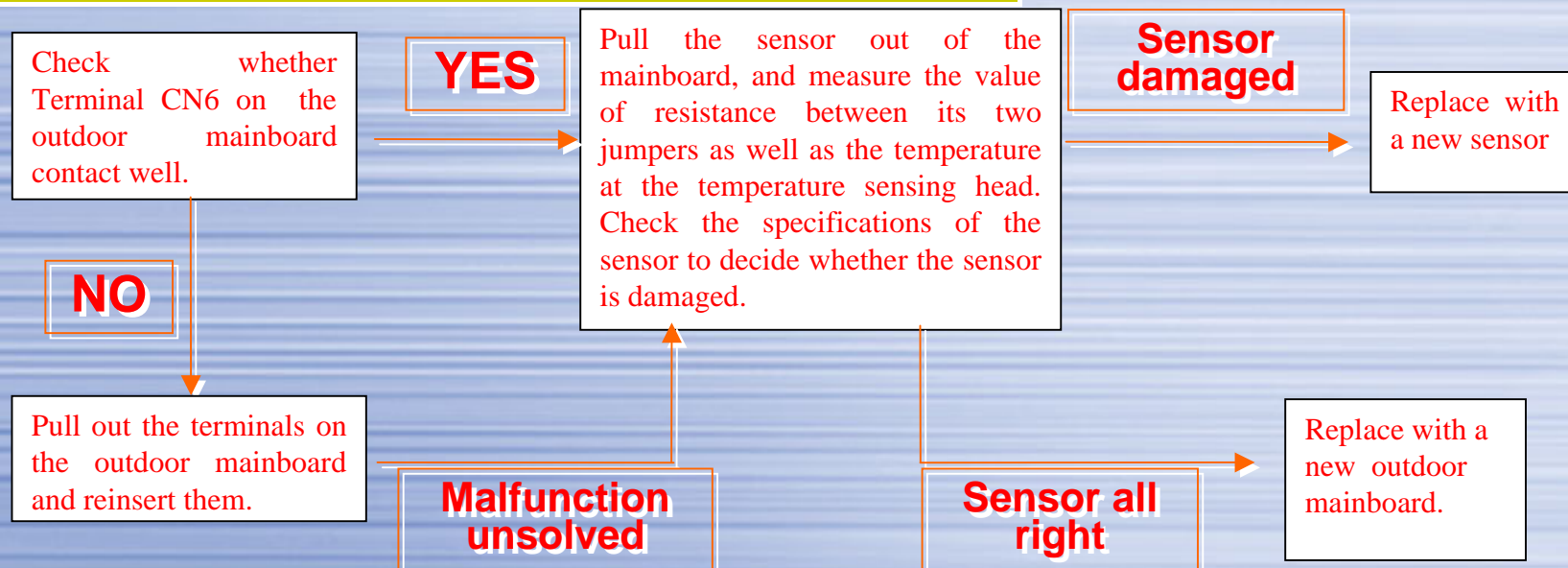


## Countermeasures for Frequent Malfunctions (3)

| Content                                 | Malfunction codes |               |                   | Indoor Unit | Outdoor Unit | Auto Recover |
|---|-------------------|---------------|-------------------|-------------|--------------|--------------|
|   | Power             | Timer operate | operate Heat Cool |             |              |              |
| Frost-removing temperature sensor fault | □                 | □             | ★                 |             | *            | *            |

With the malfunction, LED1 on the outdoor mainboard blinks 10 times at frequency of 1 Hz

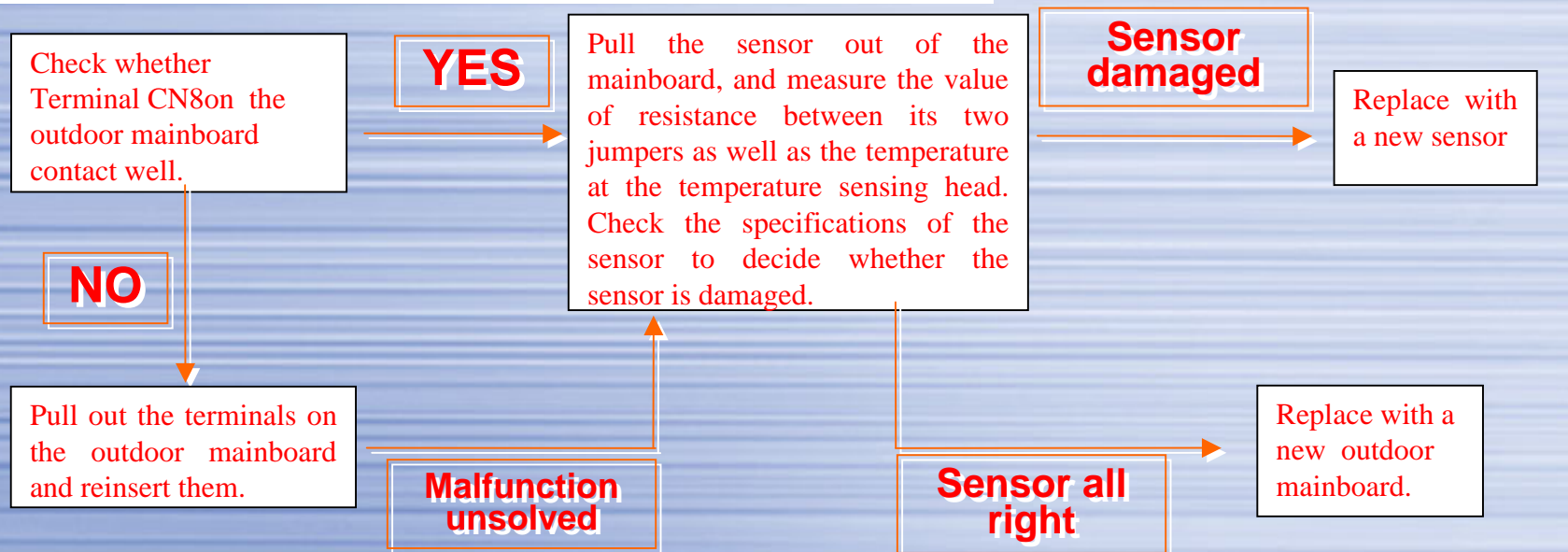
### Countermeasure Flow Chart:



## Countermeasures for Frequent Malfunctions (4)

| Content                    | Malfunction codes |               |         | Indoor Unit | Outdoor Unit | Auto Recover |
|----------------------------|-------------------|---------------|---------|-------------|--------------|--------------|
|                            | Power             | Timer operate | operate |             |              |              |
|                            |                   | Heat          | Cool    |             |              |              |
| Exhaust temperature sensor | ★                 | □             | ■       |             | *            | *            |

## Countermeasure Flow Chart:

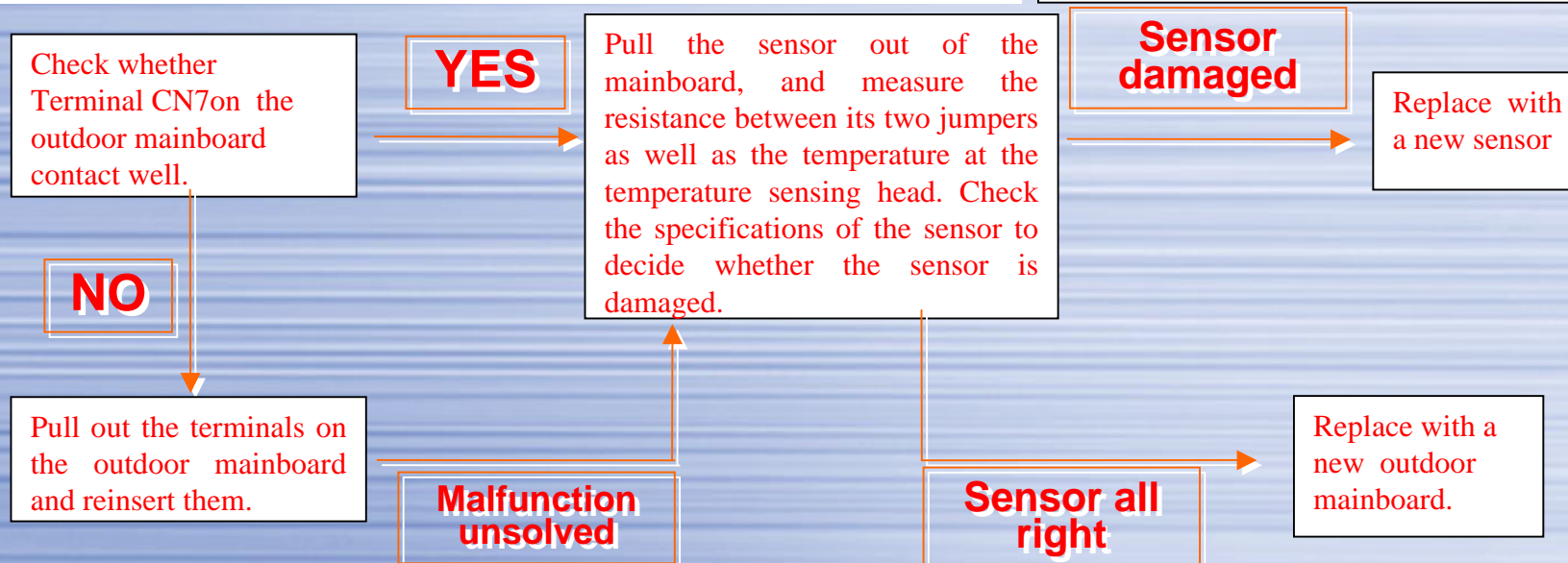


## Countermeasures for Frequent Malfunctions (5)

| Content                   | Malfunction codes |               |         | Indoor Unit | Outdoor Unit | Auto Recover |
|---------------------------|-------------------|---------------|---------|-------------|--------------|--------------|
|                           | Power             | Timer operate | operate |             |              |              |
|                           |                   | Heat          | Cool    |             |              |              |
| Ambient temp sensor fault | □                 | ★             | ■       |             | *            | *            |

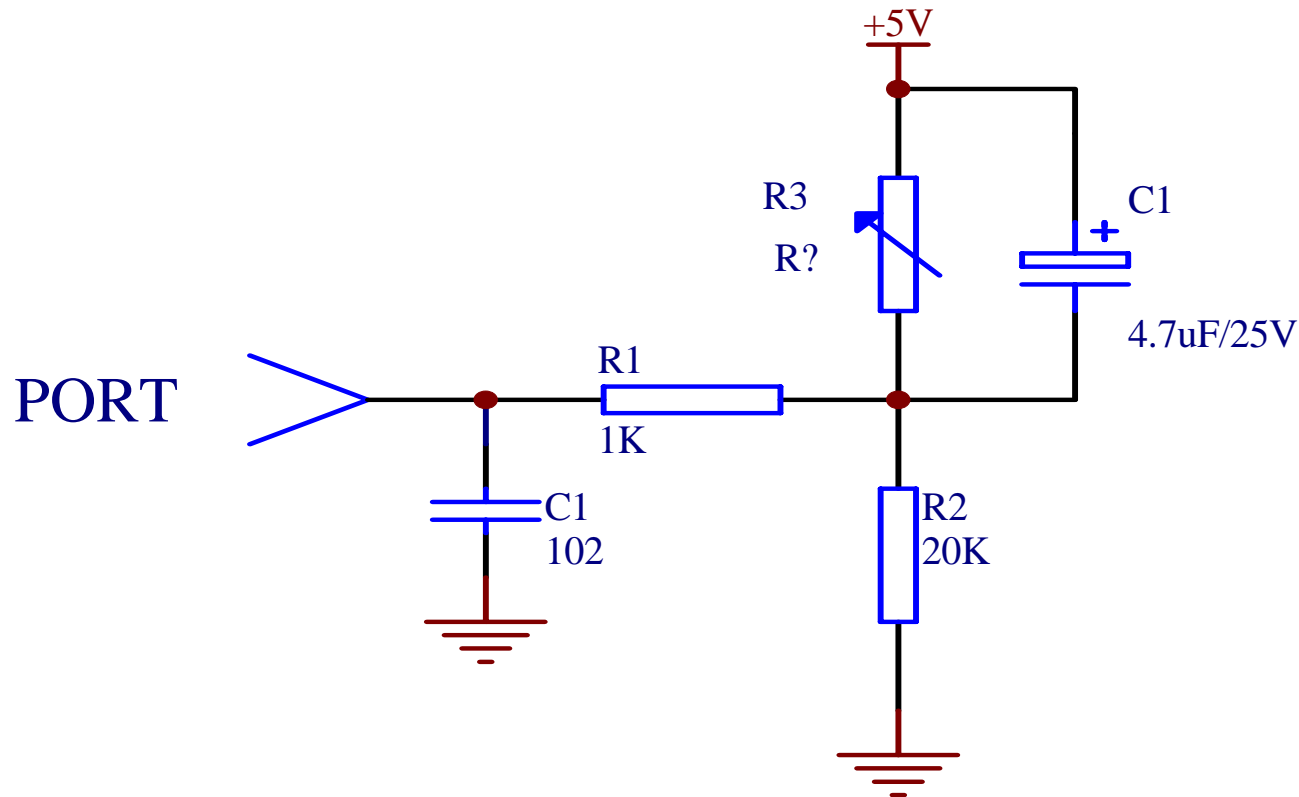
### Countermeasure Flow Chart:

With the malfunction, LED1 on the outdoor mainboard blinks once at 12 times of 1 Hz and interval of 2 seconds or so.



## Mechanism of Sensor Malfunctions

The A/D circuit of sensor is as follows:

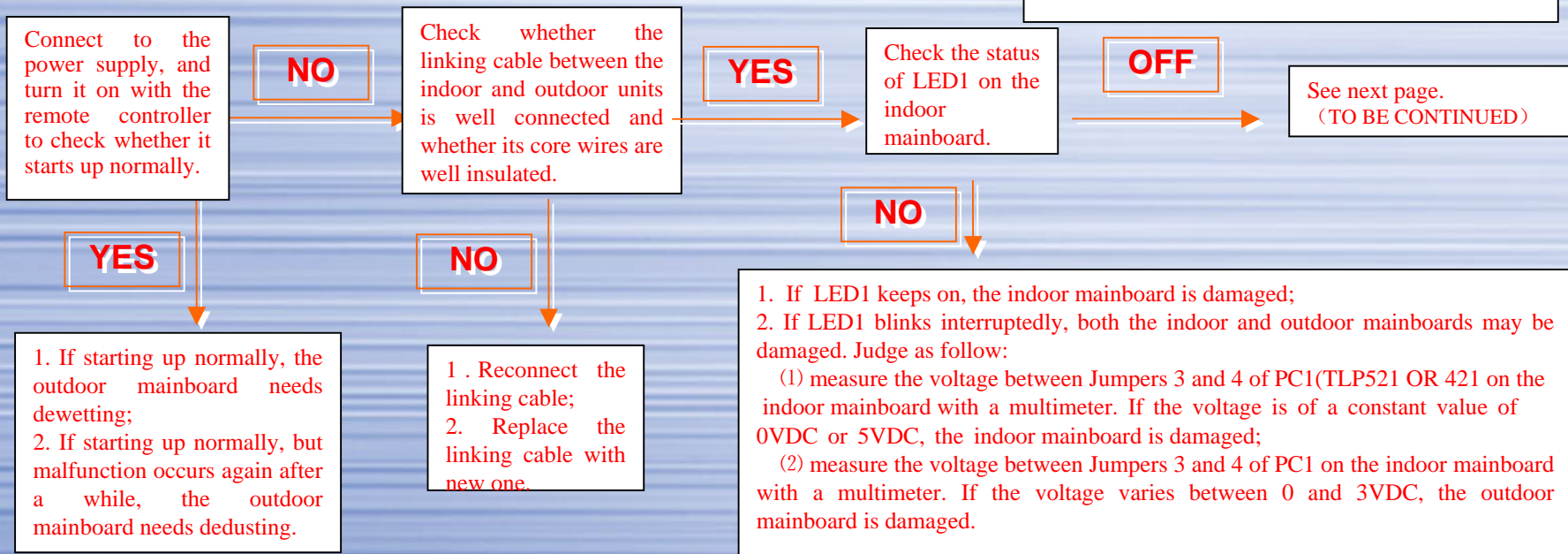


## Countermeasures for Frequent Malfunctions (6-1)

| Content  | Malfunction codes |               |                   | Indoor Unit | Outdoor Unit | Auto Recover |
|--|-------------------|---------------|-------------------|-------------|--------------|--------------|
|  | Power operate     | Timer operate | operate Heat Cool |             |              |              |
| Communication fault between the indoor and outdoor units | ■                 | ■             | ★                 | *           | *            |              |

## Countermeasure Flow Chart:

With the malfunction, LED1 on the outdoor mainboard blinks 15 times



## Countermeasures for Frequent Malfunctions (6-2)

| Content  | Malfunction codes |               |         | Indoor Unit | Outdoor Unit | Auto Recover |
|--|-------------------|---------------|---------|-------------|--------------|--------------|
|  | Power             | Timer operate | operate |             |              |              |
|  |                   | Heat          | Cool    |             |              |              |
| Communication fault between the indoor and outdoor units | ■                 | ■             | ★       | *           | *            |              |

## Countermeasure Flow Chart (CONTINUE) :

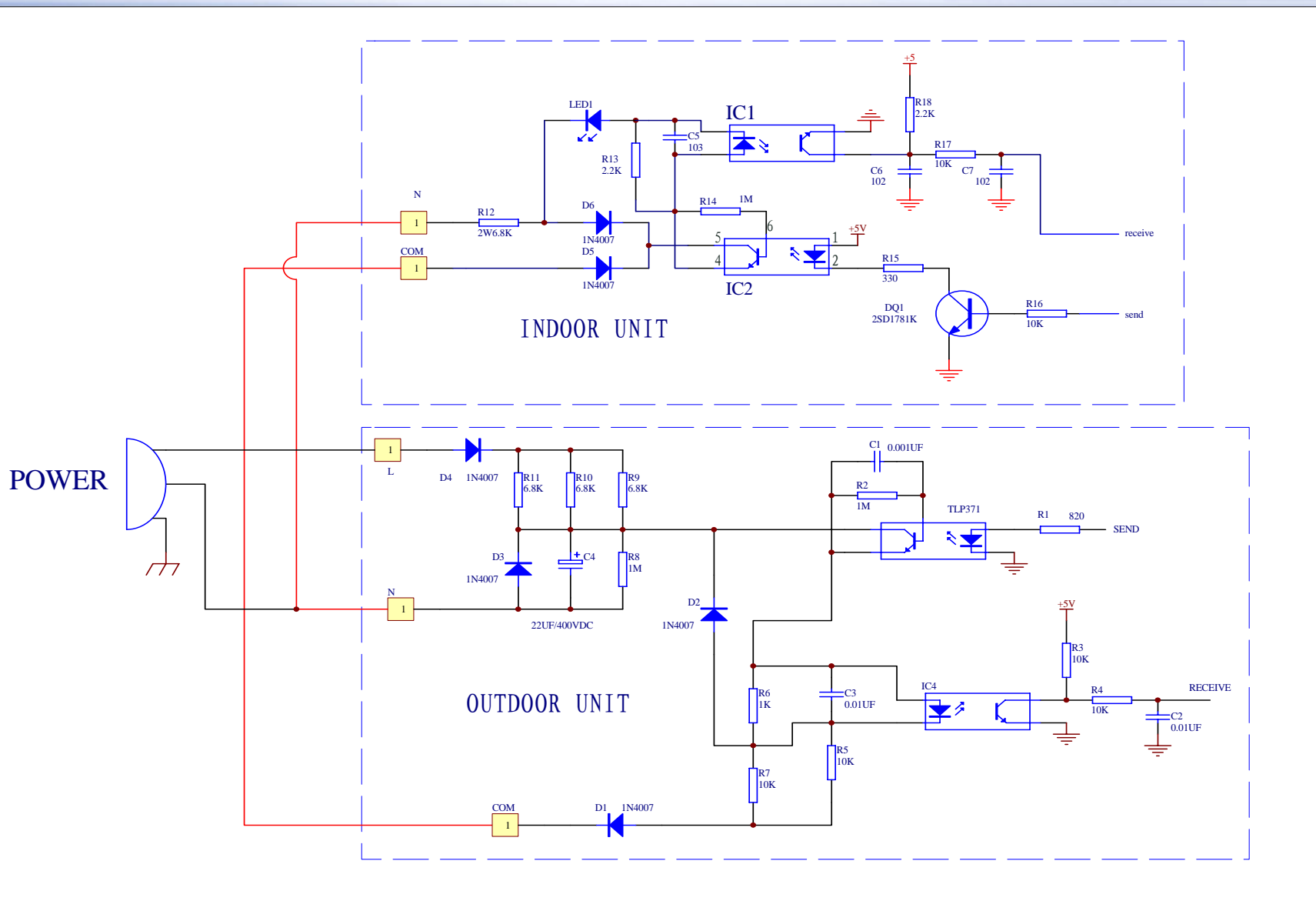
LED1 of indoor mainboard is OFF.



## Trouble shooting process:

1. Test the outdoor power supply (230VAC and +310VDC) with a multimeter. If 230VAC is available but 310VDC not, rectifying bridge is damaged, replace it with a new one. If both 230VAC and 310VDC are available, go forward to step 2.
2. Measure the voltage across Jumpers 1 and 2 of IC4(7805) on the outdoor mainboard with a multimeter. If +12VDC is not available, the outdoor pcb is damaged, replace it with a new one. If +12VDC is available, go forward to step 3.
3. Within two minutes after the machine is supplied with power and turn on, measure the AC voltage between positions 1 and 3 on the terminal of outdoor unit with a multimeter. If the value varies between 0 and 80 VAC, the outdoor mainboard is damaged, replace it with a new one. If the value is constant at about 30V, the indoor mainboard is damaged, replace it with a new one.

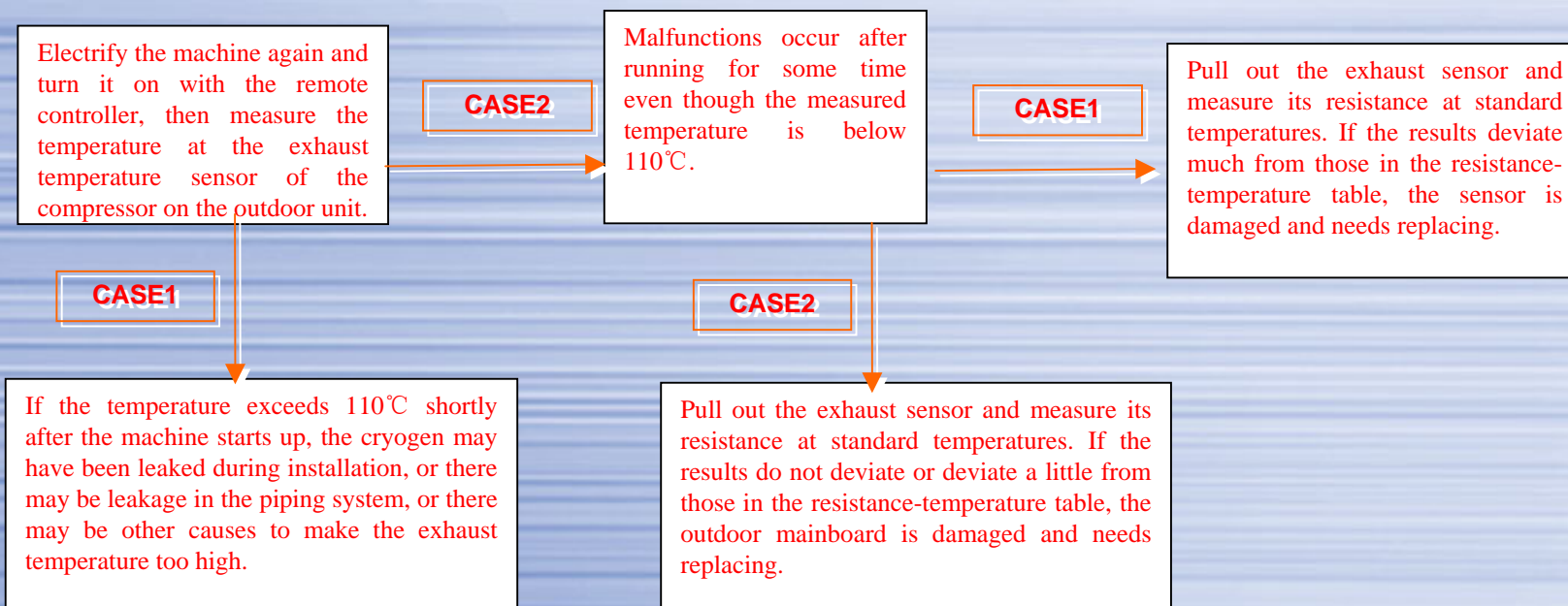




## Countermeasures for Frequent Malfunctions (8)

| Content                                     | Malfunction codes |               |           | Indoor Unit | Outdoor Unit | Auto Recover |
|---|-------------------|---------------|-----------|-------------|--------------|--------------|
|   | Power operate     | Timer operate | Heat Cool |             |              |              |
| Overheat protection for exhaust temperature | ■                 | ★             | ■         |             | *            |              |

## Countermeasure Flow Chart:

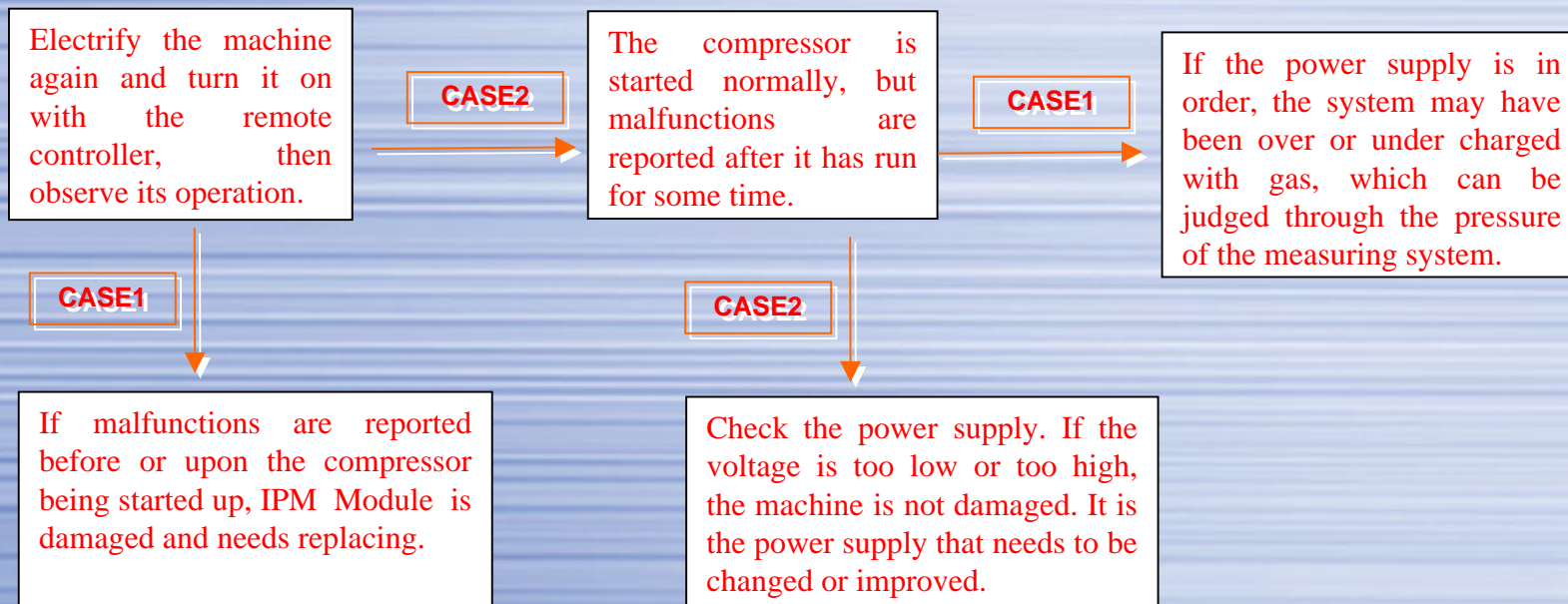


## Countermeasures for Frequent Malfunctions (9)

| Content            | Malfunction codes |               |           | Indoor Unit | Outdoor Unit | Auto Recover |
|--------------------|-------------------|---------------|-----------|-------------|--------------|--------------|
|                    | Power operate     | Timer operate | Heat Cool |             |              |              |
| current protection | ★                 | ★             | ■         |             | *            |              |

## Countermeasure Flow Chart:

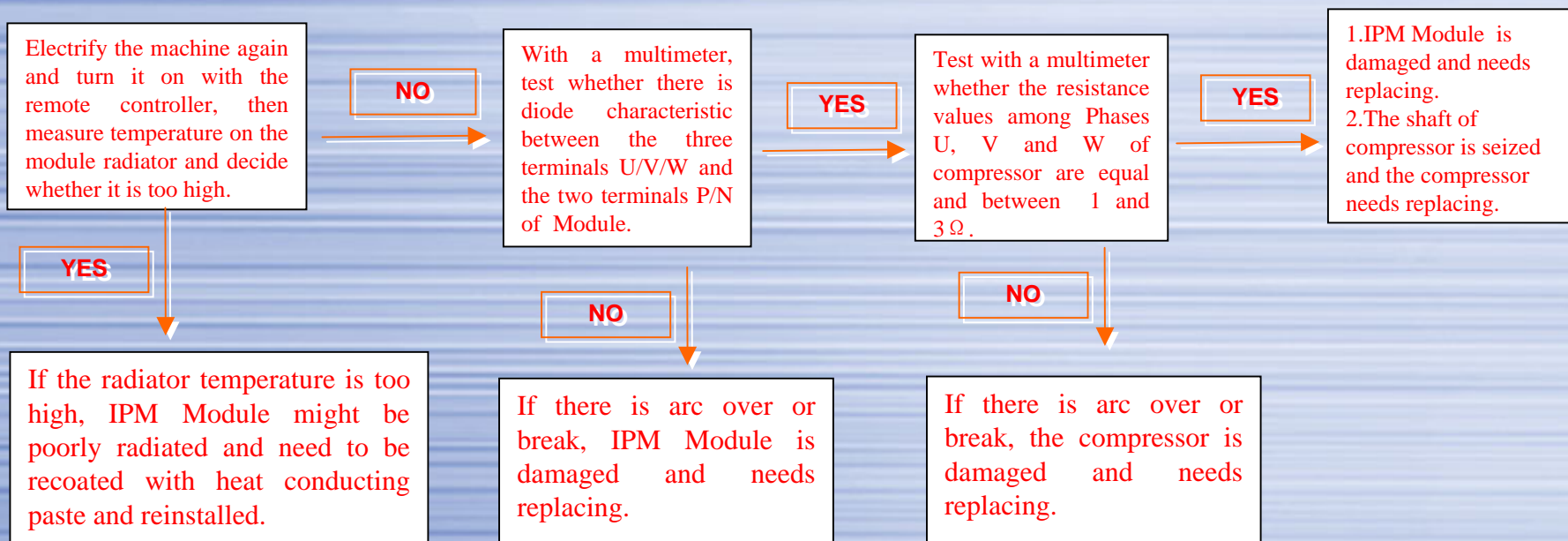
With this malfunction, LED1 on the outdoor mainboard blinks 3 times.



## Countermeasures for Frequent Malfunctions (10)

| Content               | Malfunction codes |               |           | Indoor Unit | Outdoor Unit | Auto Recover |
|-----------------------|-------------------|---------------|-----------|-------------|--------------|--------------|
|                       | Power operate     | Timer operate | Heat Cool |             |              |              |
| The protection of IPM | ★                 | ★             | □         |             | *            |              |

## Countermeasure Flow Chart:



## Countermeasures for Frequent Malfunctions (11)

| Content                      | Malfunction codes |               |           | Indoor Unit | Outdoor Unit | Auto Recover |
|------------------------------|-------------------|---------------|-----------|-------------|--------------|--------------|
|                              | Power operate     | Timer operate | Heat Cool |             |              |              |
| High work-intense protection | ★                 | ★             | ★         | *           |              |              |

### Countermeasure Flow Chart:

Electrify the machine again and turn it on with the remote controller, then observe its operation.

**CASE2**

**CASE1**

If the wind temperature is below 65°C and the malfunction is reported after the machine has run for some time, check whether the sensor or the temperature monitoring circuit of the indoor mainboard is in order. See countermeasures for sensor troubles.

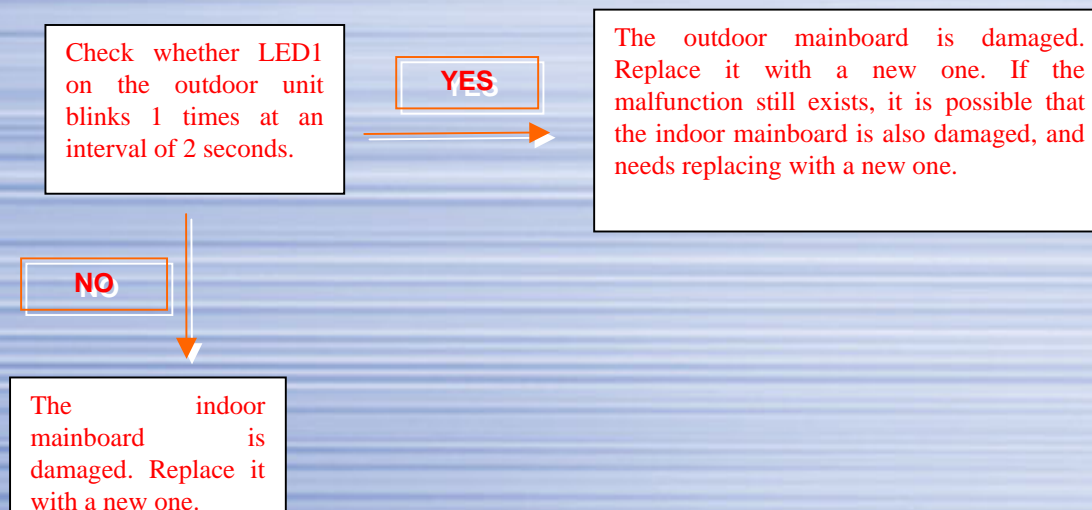
If both the sensor and the temperature monitoring circuit of the indoor mainboard are in order, shoot the trouble as follows:

1. Check whether the indoor unit blows poorly due to blocked filters or poor condition of the fan. If yes, clean the filters or reinstall the fan. If not, go forward to Case 2.
2. Measure the pressure of the system. If the pressure is too high, the system is over charged with gas, otherwise go forward to Case 3.
3. Find other causes to make the temperature of coil pipes on the indoor unit too high and take according measures.

## Countermeasures for Frequent Malfunctions (12)

| Content      | Malfunction codes |               |           | Indoor Unit | Outdoor Unit | Auto Recover |
|--------------|-------------------|---------------|-----------|-------------|--------------|--------------|
|              | Power operate     | Timer operate | Heat Cool |             |              |              |
| EEPROM error | ★                 | □             | ★         | *           | *            |              |

### Countermeasure Flow Chart:

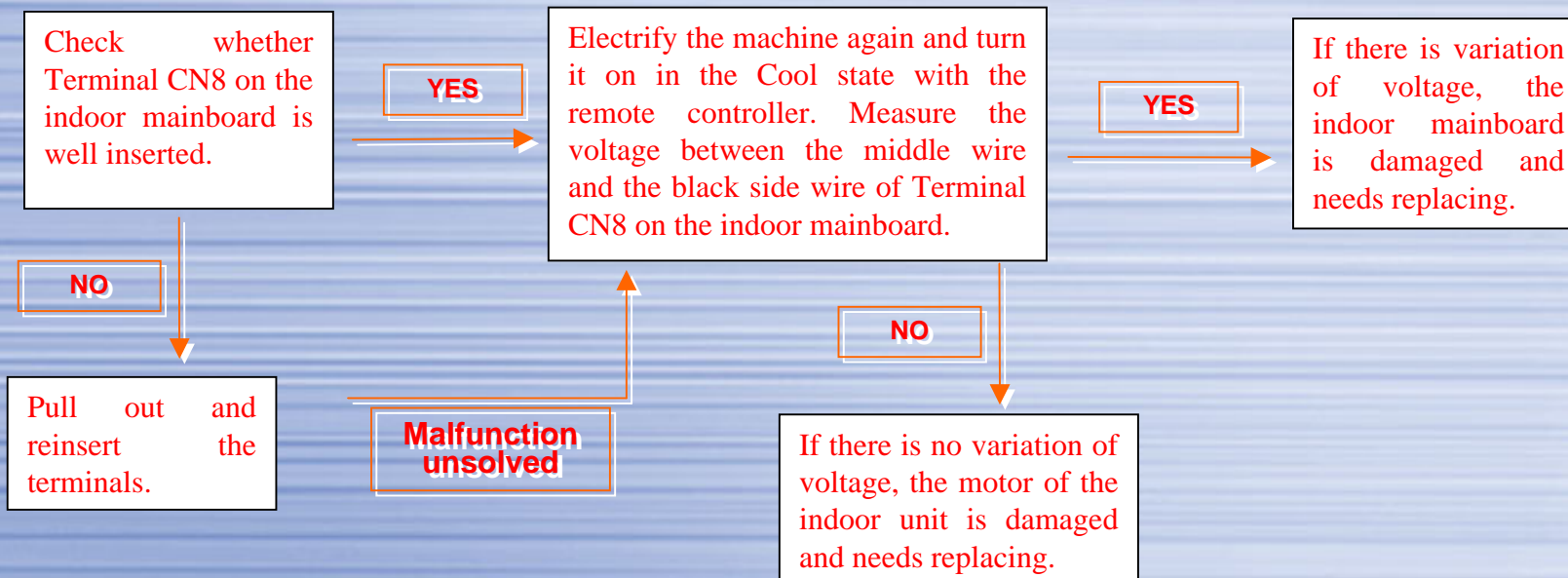




## Countermeasures for Frequent Malfunctions (13)

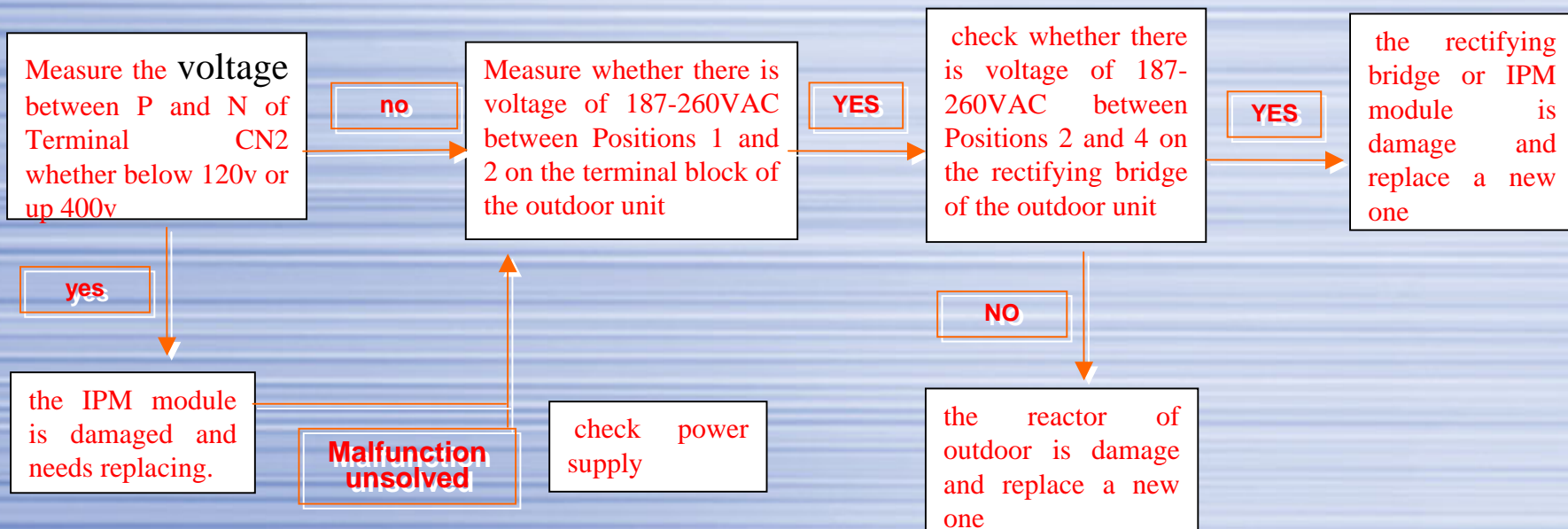
| Content                      | Malfunction codes |               |         | Indoor Unit | Outdoor Unit | Auto Recover |
|------------------------------|-------------------|---------------|---------|-------------|--------------|--------------|
|                              | Power             | Timer operate | operate |             |              |              |
|                              |                   | Heat          | Cool    |             |              |              |
| Indoor fan motor malfunction | ■                 | □             | ★       | *           |              |              |

## Countermeasure Flow Chart:



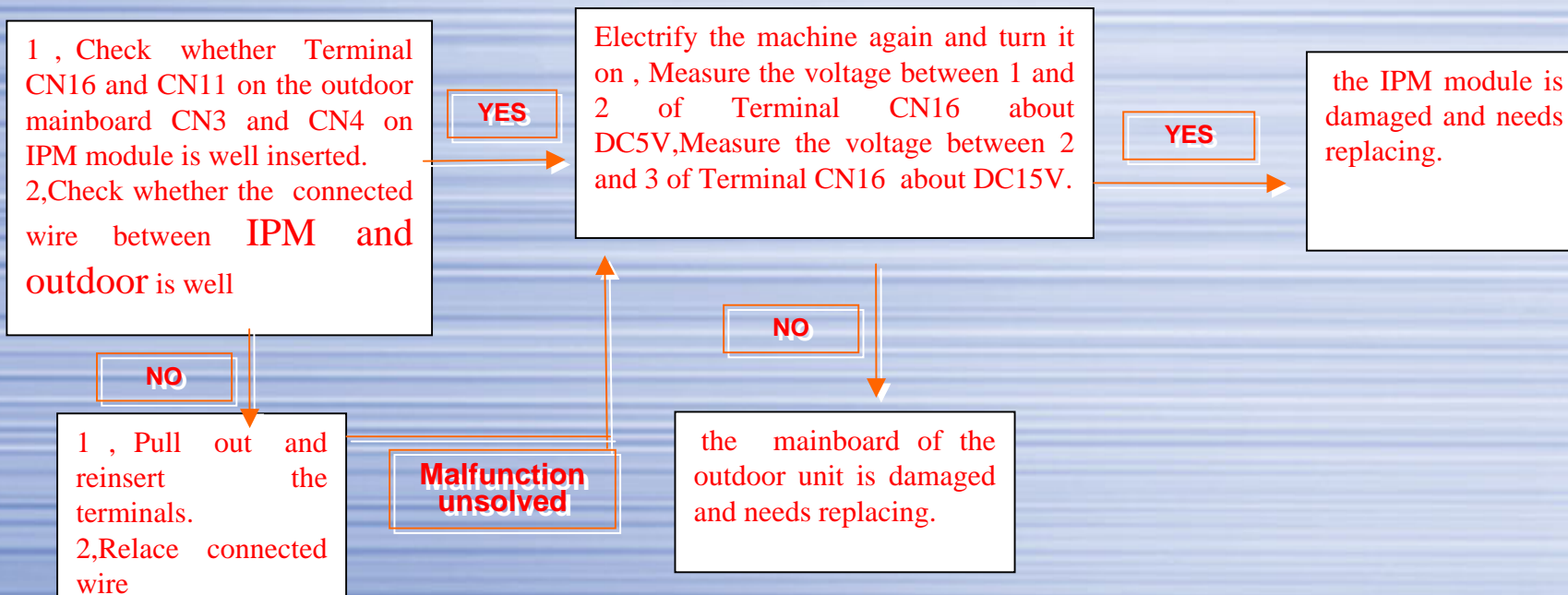
| Content                          | Malfunction codes |               |           | Indoor Unit | Outdoor Unit | Auto Recover |
|----------------------------------|-------------------|---------------|-----------|-------------|--------------|--------------|
|                                  | Power operate     | Timer operate | Heat Cool |             |              |              |
| Power voltage is too high or low | ■                 | ★             | □         |             | *            |              |

## Countermeasure Flow Chart:



| Content   | Malfunction codes                            | Indoor Unit | Outdoor Unit | Auto Restart |
|---|--|-------------|--------------|--------------|
| Communication fault between the IPM and outdoor PCB | LED1 on the outdoor mainboard blinks 4 times |             | *            |              |

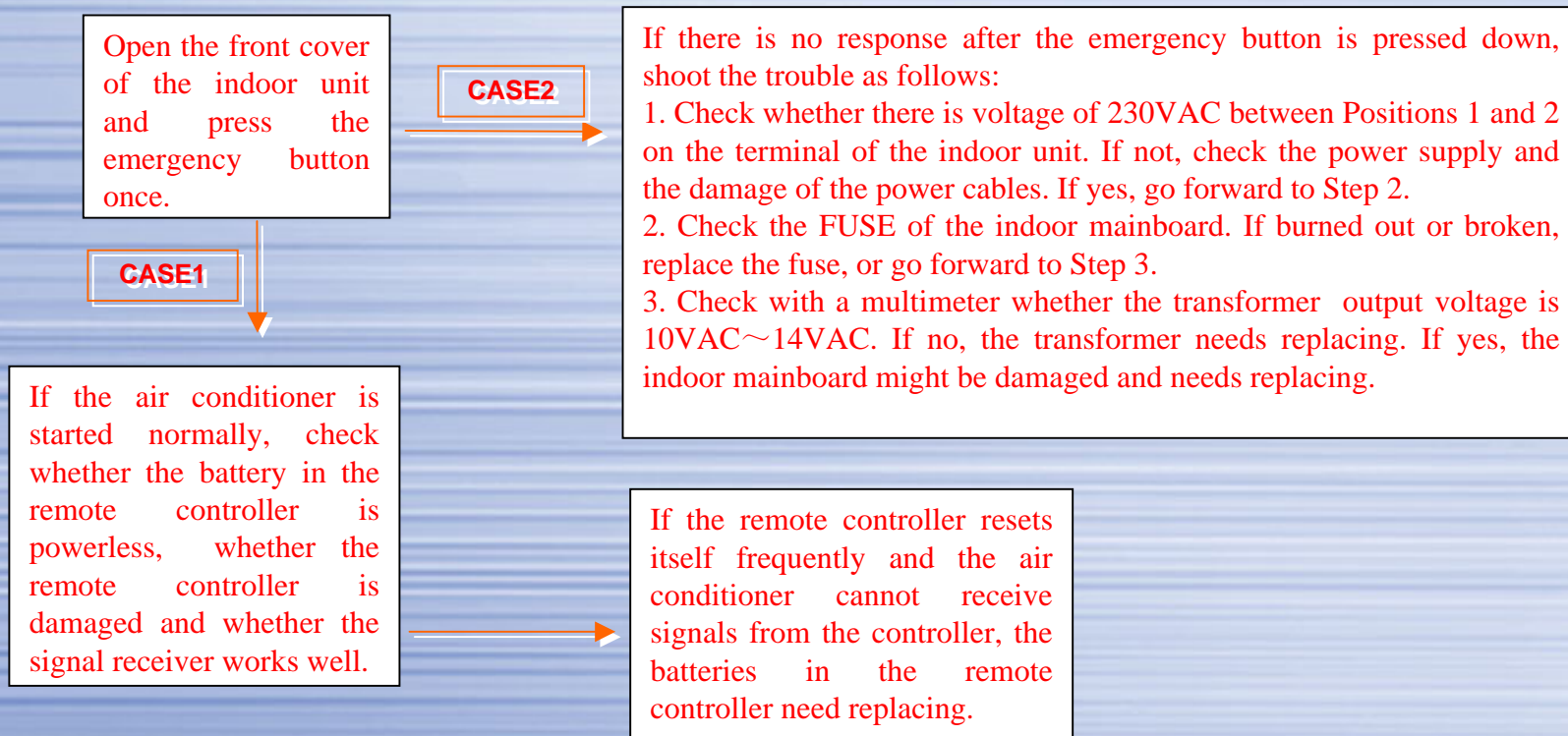
## Countermeasure Flow Chart:



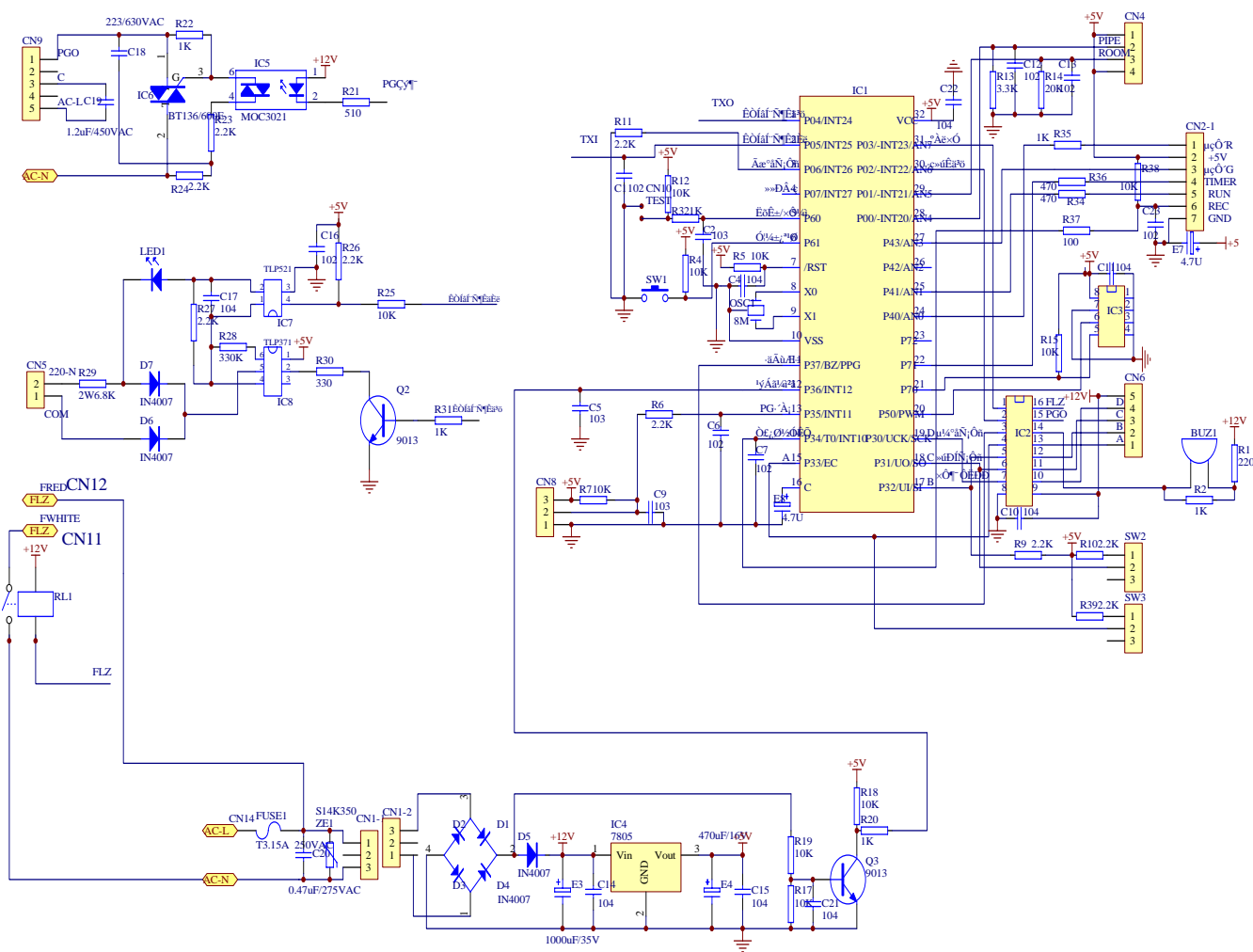
## Countermeasures for Other Frequent Malfunctions (14)

With the machine electrified, the remote controller cannot start it

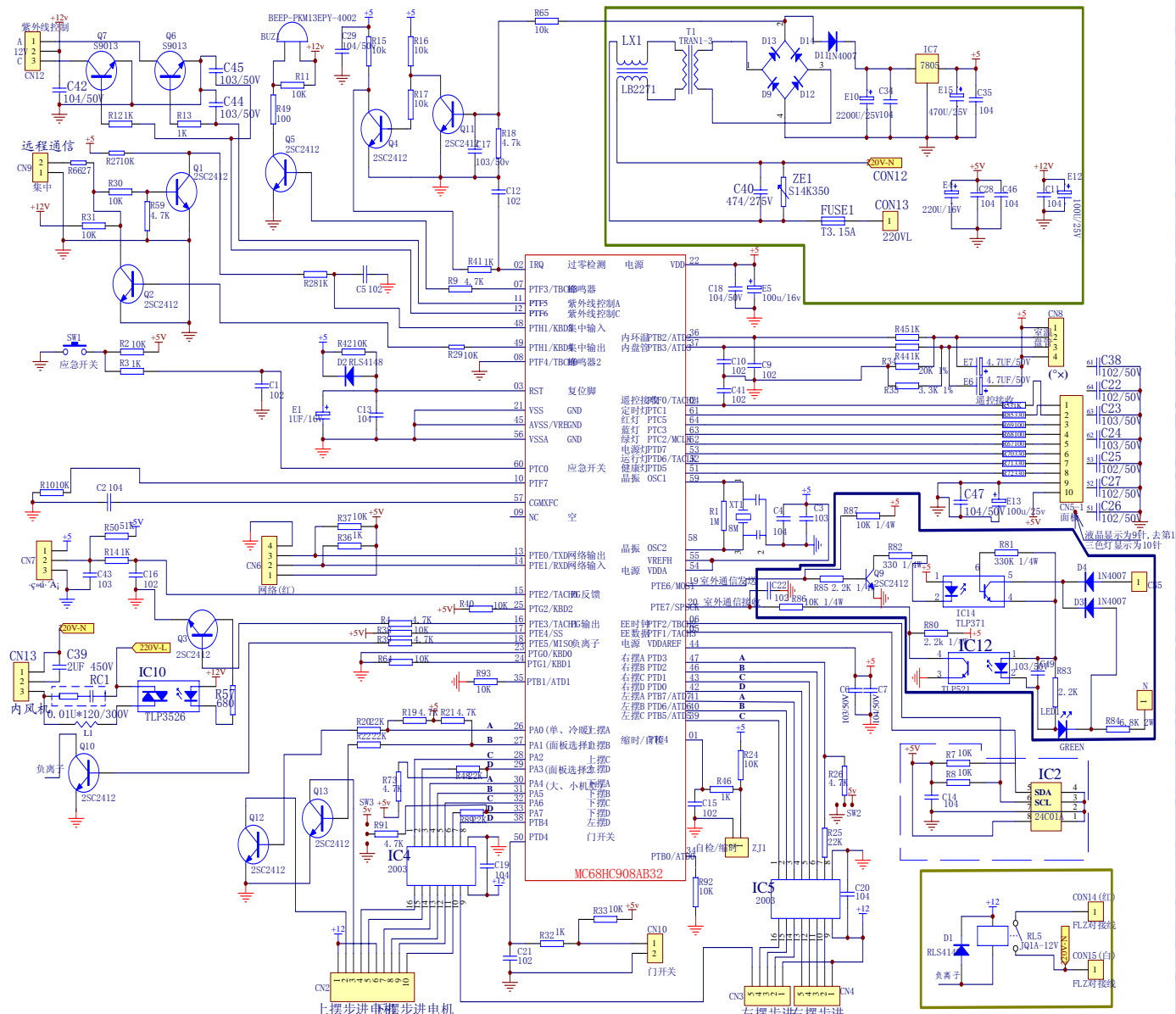
### Countermeasure Flow Chart:



The figure on the right shows the electric diagram for the indoor unit of DC products with Model HB Economical Series.

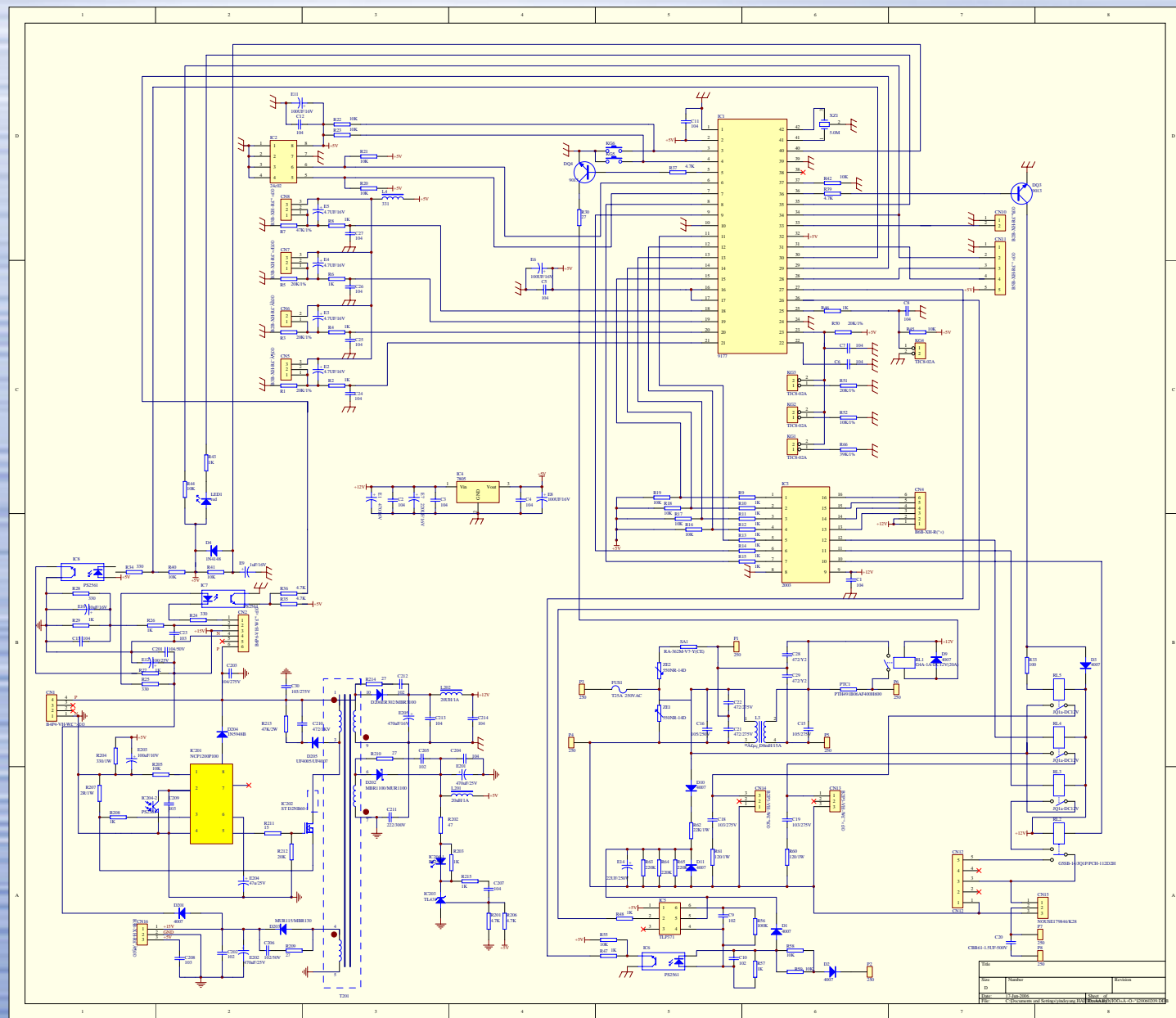


The figure on the right shows the electric diagram for the indoor unit. of DC products with Model HSB Economical Series.

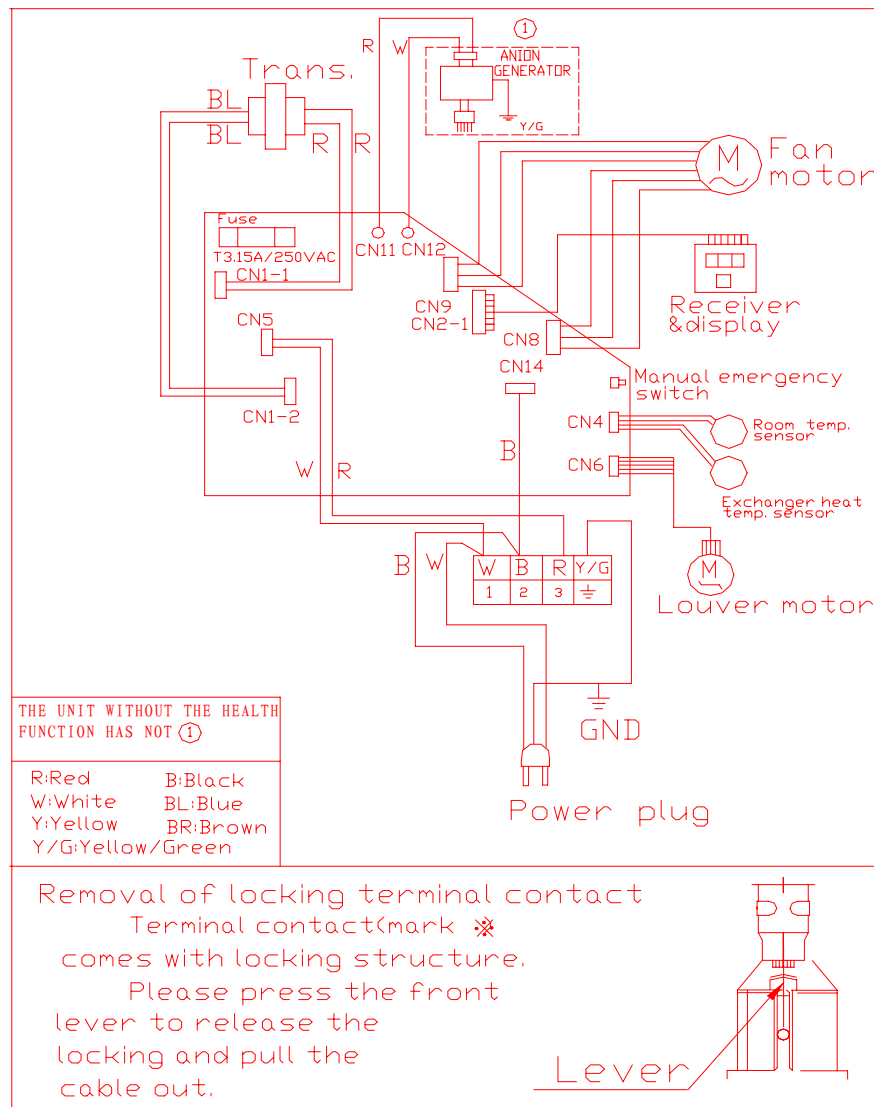




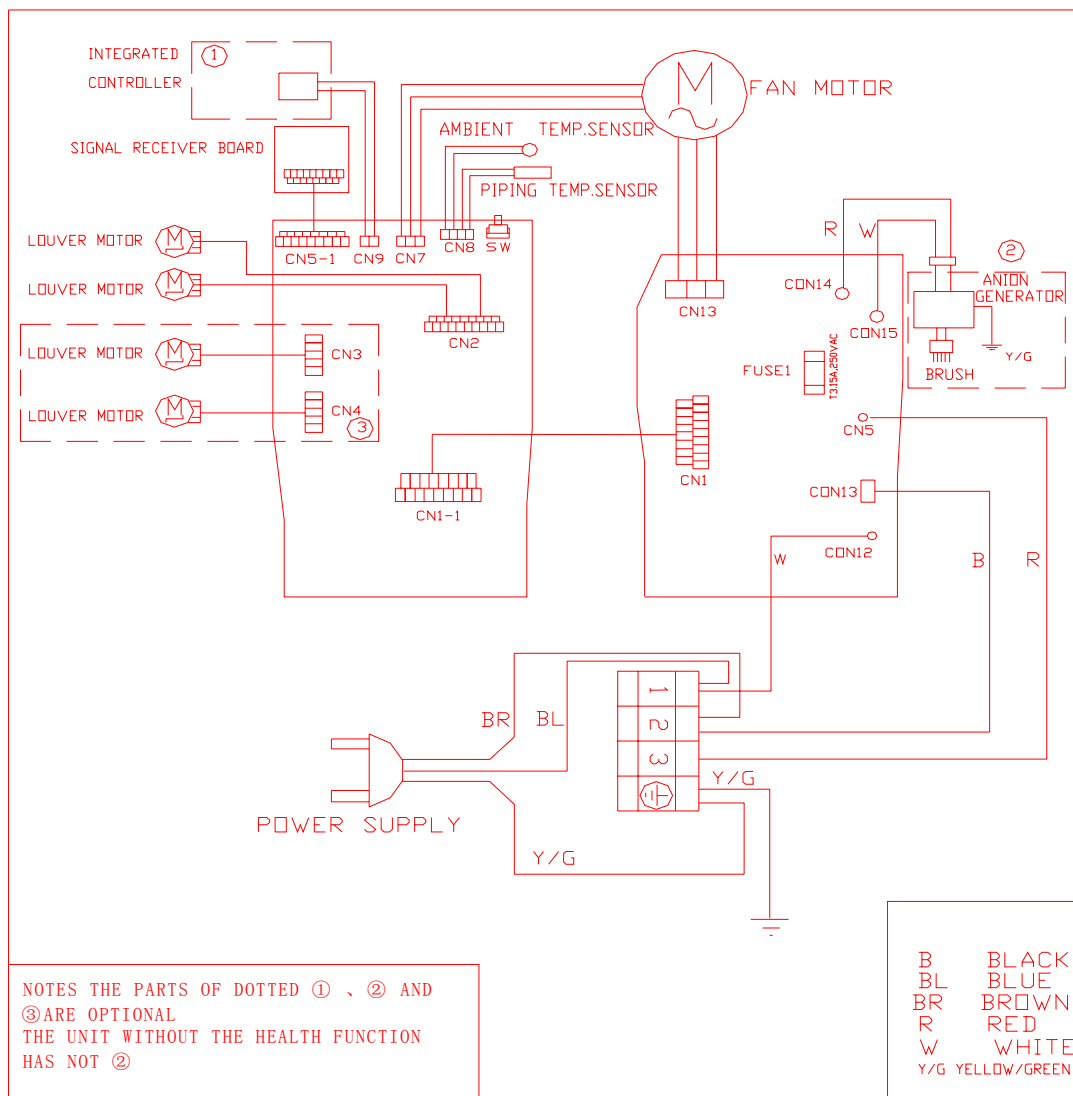
the  
electric  
diagram  
for the  
outdoor  
unit.



The figure on the right shows the wiring diagram for the indoor unit of DC products with Model HB Economical Series.

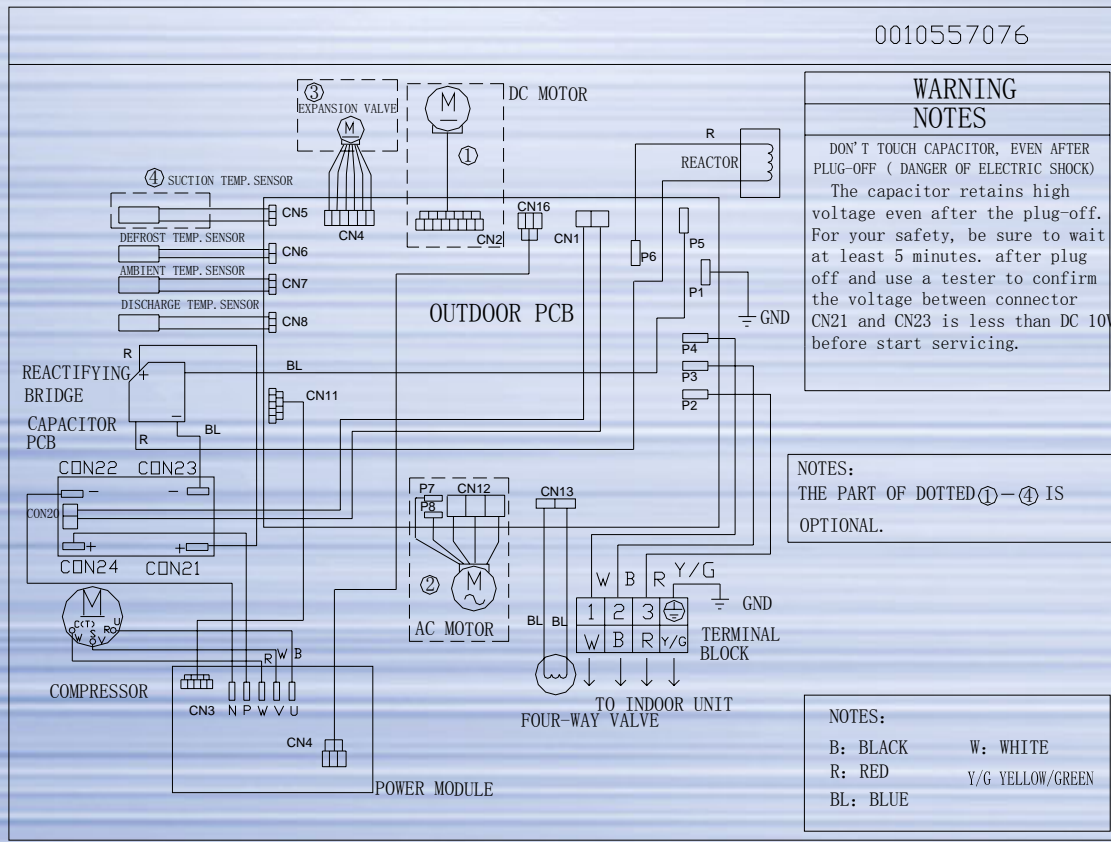


The figure on the right shows the wiring diagram for the indoor unit of DC products with Model HSB



The figure on the right shows the wiring diagram for the outdoor unit

WIRING DIAGRAM OF OUTDOOR UNIT





THANKS!