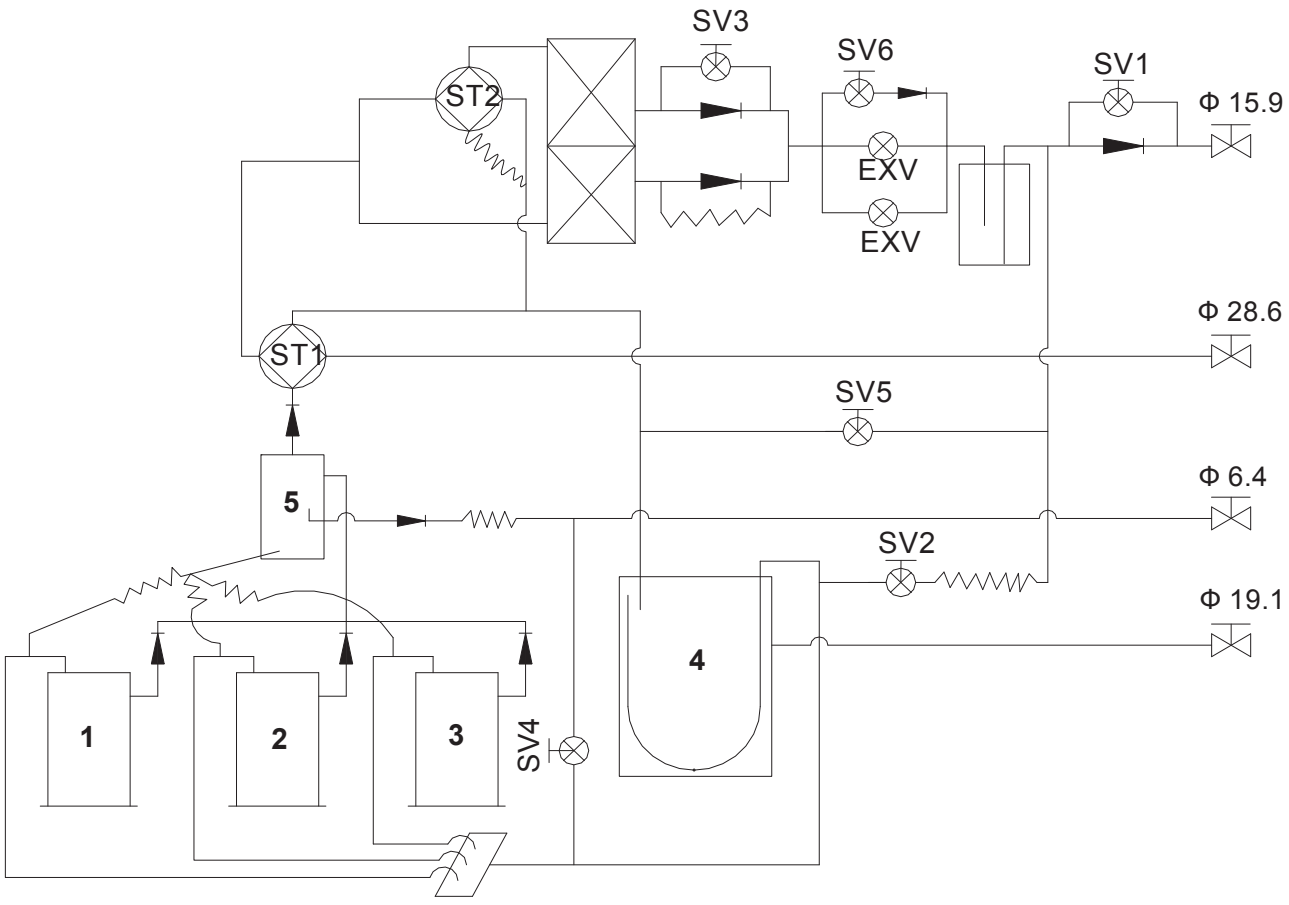
PART 7

TROUBLESHOOTING

1. PIPING DIAGRAM

Take HCSU 4001 XRV for example:



Remark:

1: DC Inverter compressor

2/3: Fixed compressor

4: Gas-liquid separator

5: Oil separator

Note: Model HCSU 2501 XRV、HCSU 3001 XRV、HCSU 3501 XRV has only one fixed compressor, ,model HCSU 4001 XRV、HCSU 4501 XRV have two fixed compressors.

EXV (electromagnetic expand valve) control:

1) Every outdoor unit has two same EXV.

2) Max. Open degree is 480 pulses.

3) Generally when system is electrified the EXV closes 700pulse first, then opens to 350 pulse and stand by. Then the unit is started, it opens to the right pulse.

4) When the running outdoor unit receives OFF signal, the EXV of auxiliary unit will stop while main unit is running and auxiliary unit is stopped at the same time. If all outdoor units are stopped, the EXV will close first, then open to the pulse of stand-by.

5) **SV1:** Opens when outdoor unit starts. Closes when unit stops.

6) **SV2:** for spraying a little refrigerant to cool compressor down.

Opens if any compressor discharge temp. is higher than 100℃.

7) **SV3:** for changing the heat-exchanged areas on heating mode.

Opens when the average temp. of all indoor evaporators is less than 46℃.

Closes while the average temp. of all indoor evaporators more than 52℃

OFF on cooling mode

8) **SV4:** oil returning valve.

Opens when the unit is running for every 20 minutes and last 3 minutes

9) **SV5:** for defrost.

In defrosting mode, the opening of SV5 can cut the refrigerant flowing circle, so the defrosting process will takes less time.

10) **SV6:** for by-pass.

Closes when the unit stands by and system in heating mode.

Opens when the discharge temperature is too high in cooling mode.

Four-way valve control:

1) **ST1:** Main 4-way valve

Closes in cooling mode and opens in heating mode

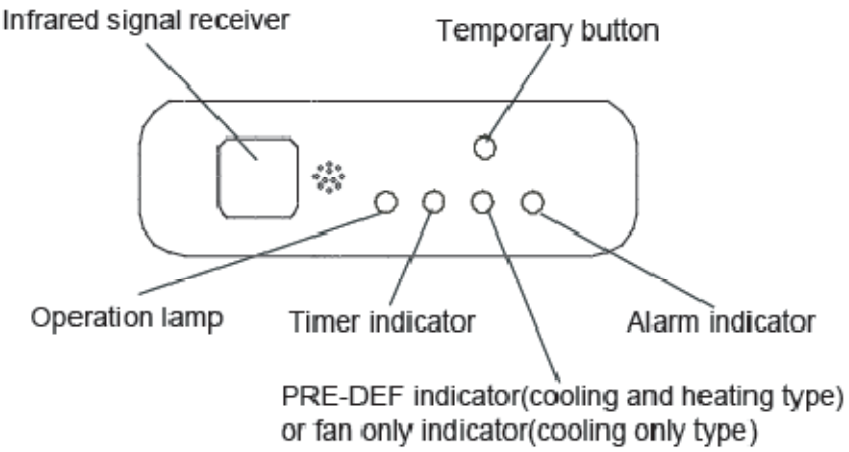
2) **ST2:** Auxiliary 4-way valve, for changing the heat-exchanger areas in cooling mode.

Opens when in part load mode and closes while in full load mode.

Closes in heating mode.

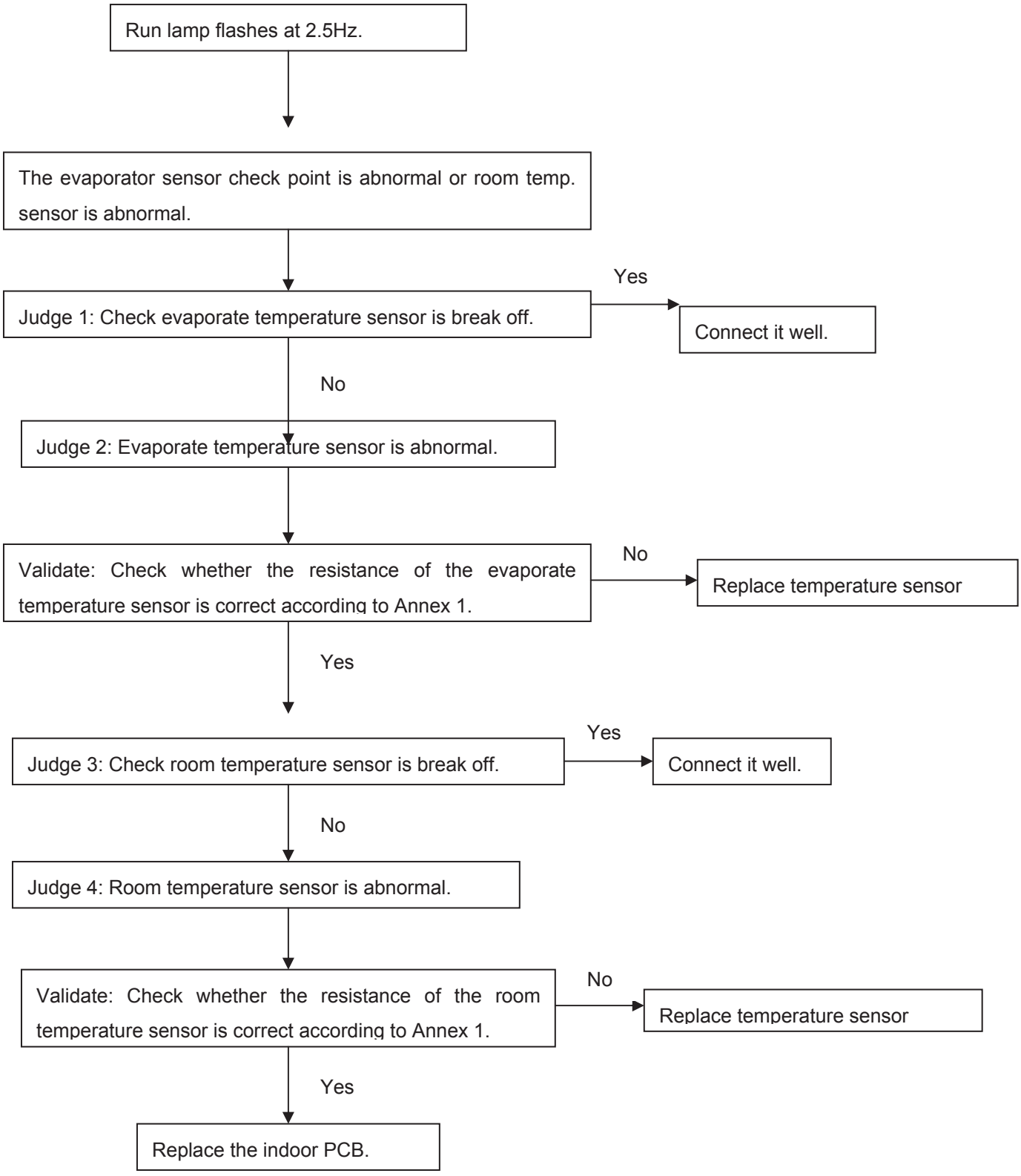
2. TROUBLESHOOTING

2.1 Indoor Units lamp flashes:

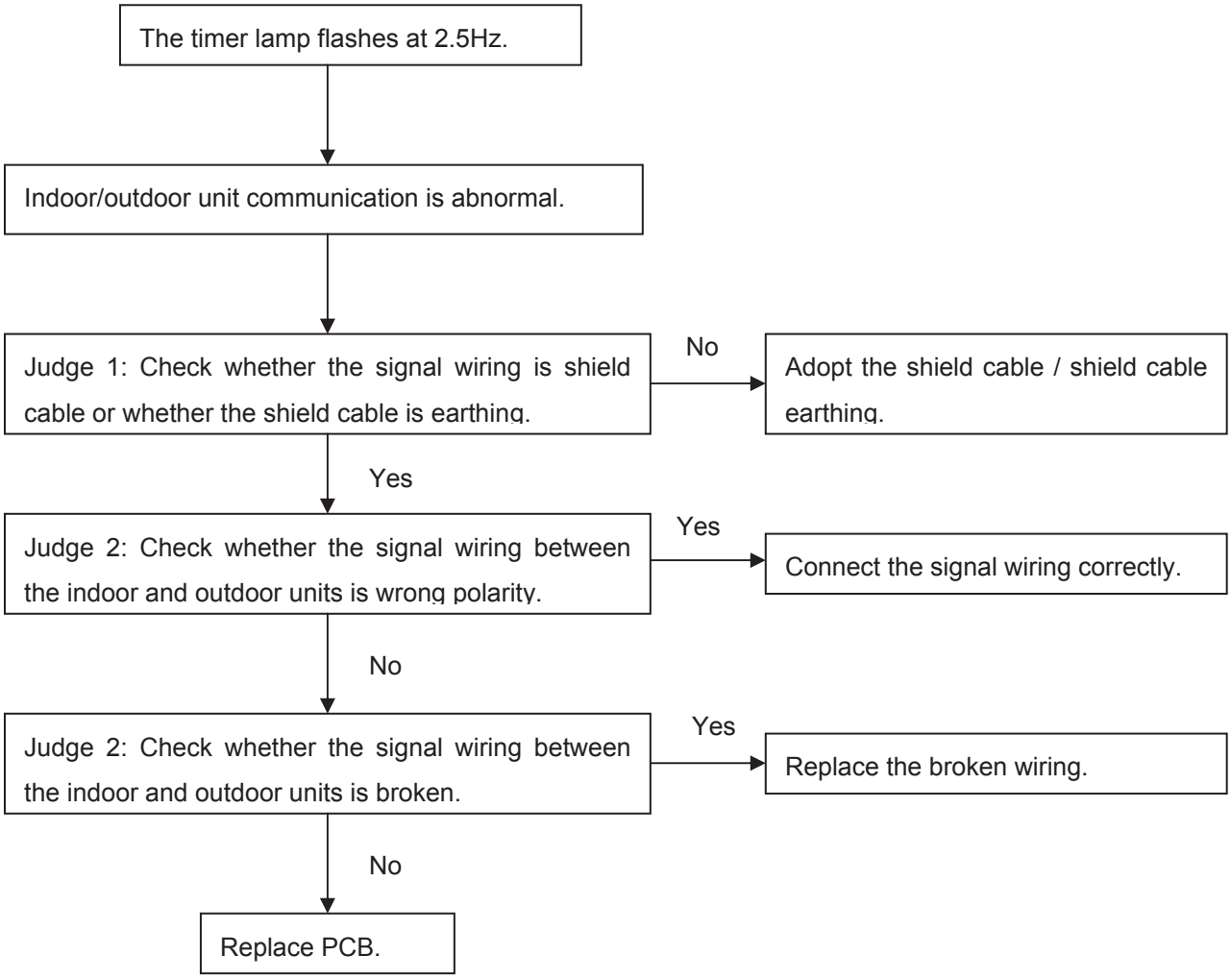


No	Type	Contents	LED Lamp flash	Remarks
1	Malfunction	The evaporator sensor check point is abnormal or room temp. sensor is abnormal.	Run lamp flashes at 2.5Hz.	After the malfunctions disappear, it restores automatically.
2	Malfunction	Indoor/outdoor unit communication is abnormal.	The timer lamp flashes at 2.5Hz.	After the malfunctions disappear, it restores automatically.
3	Malfunction	Condenser sensor check point is abnormal or outdoor temp. sensor is abnormal.	All the indoor alarm lamps flash at 0.5Hz.	After the malfunctions disappear, it restores automatically.
4	Alarm	Mode conflict	Defrost lamp flashes at 2.5Hz.	When the indoor unit turns to heating mode or is turned off, the alarm will disappear.

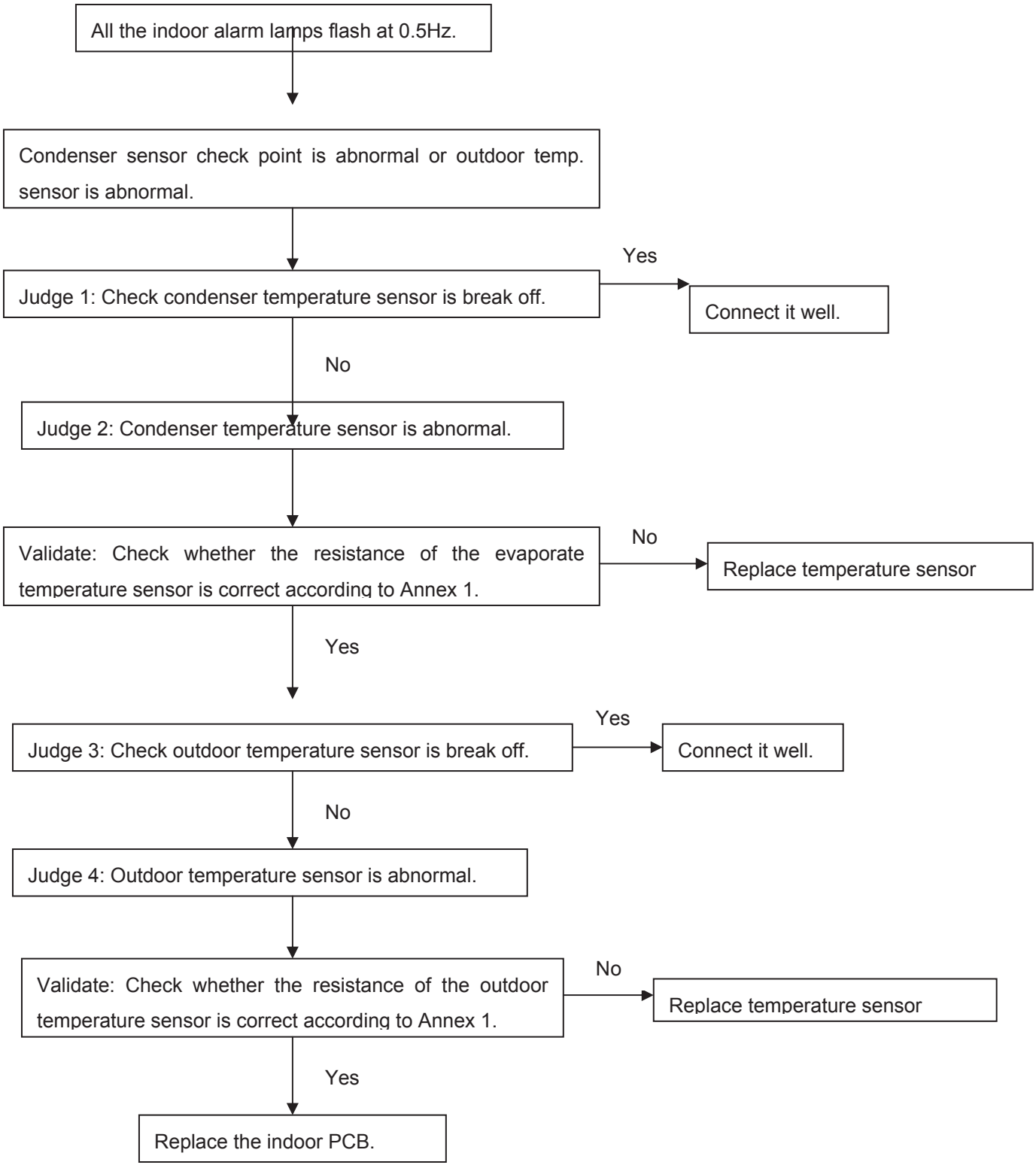
Operation lamp flashes:



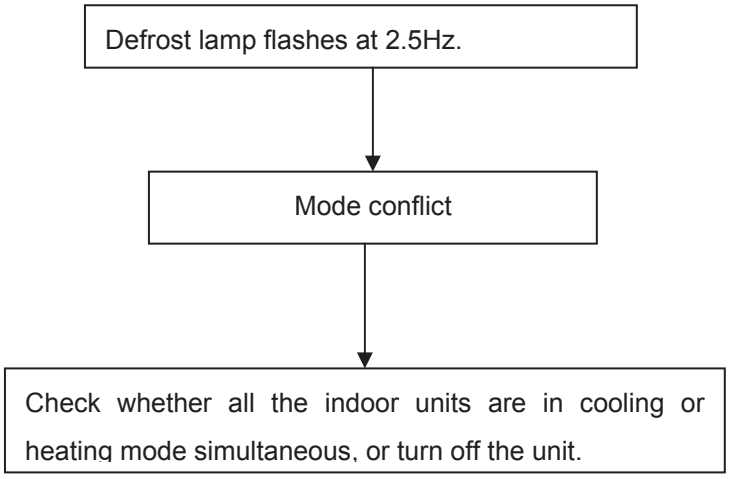
Operation lamp flashes:



Operation lamp flashes:



Operation lamp flashes:



2.2 Outdoor unit's LED indication:

No	Display	Malfunction or Protection	Remark
1	**E0**	Communication error between outdoor units	Only slave unit display
2	**E1**	Phase protection	All the outdoor units display
3	**E2**	Communication error between indoor unit and master unit	All the outdoor units display
4	**E4**	Outdoor temperature sensor error	All the outdoor units display
5	**E8**	Outdoor unit address error	All the outdoor units display
6	**E9**	Power volt. Error	All the outdoor units display
7	**H0**	Communication malfunction between DSP and 780034	All the outdoor units display
8	**H1**	Communication malfunction between 9177 and 780034	All the outdoor units display
9	**H2**	Quantity of outdoor unit decreases	Only master unit display
10	**H3**	Quantity of outdoor unit increases	Only master unit display
11	**P0**	Inverter compressor top temperature protection	All the outdoor units display
12	**P1**	Hi-pressure protection	All the outdoor units display
13	**P2**	Low-pressure protection	All the outdoor units display
14	**P3**	Compressor current Protection	All the outdoor units display
15	**P4**	Compressor discharge temperature protection	All the outdoor units display
16	**P5**	Outdoor condenser high temperature protection	All the outdoor units display
17	**P6**	Inverter module protection	All the outdoor units display
18	**P7**	Current protection, No.1 fixed compressor	All the outdoor units display

19	**P8**	Current protection, No.2 fixed compressor	14/16HP outdoor units display

2.2.1 THE AIR-CONDITIONER DOES NOT RUN AFTER PRESSING ON/OFF BUTTON.

2.2.1.1 Communication malfunction between outdoor units

Display: The outdoor unit digital diode is displaying “E0”

Solutions: ① Check if communication cable is broken off

② Exchange H1, H2 line if there is no broken circuit

2.2.1.2 Phase sequence error

Display: The outdoor unit digital diode is displaying “E1”

Solutions: ① Check if the voltage between the power line terminals A,B,C of outdoor units and N is normally 220v. If not please check whether the power lines are well connected.

② After checking the voltage without finding any error, please transpose any two of the outdoor units power lines (A,B.C.)

2.2.1.3 Communication trouble between indoor unit and outdoor unit

Display: Outdoor unit digital diode is displaying “E2” and the timer lamp on the display board of the indoor unit, which has the communication trouble blinks.

Solutions: ① Check if communication cable is broken off

② Exchange P, Q line if there is no broken circuit

2.2.1.4 Outdoor unit ambient temperature sensor abnormal

Display: Outdoor unit digital diode is displaying E4

Solutions: ① Measure T4 electric resistance respectively and replace the broken one if the electric resistance is not correct.

② If the electric resistance is normal, please test the outdoor PCB and change a new one if it does not work well.

2.2.1.5 The address of outdoor unit malfunction

Display: Outdoor unit digital diode display “E8”

Method: Check the address code of outdoor unit PCB and make sure the address code in the right position.

2.2.1.6 Voltage malfunction

Display: Outdoor unit digital diode is displaying “E9”

Method: Check the voltage of outdoor if it is between 352V and 418V, if not , please use a manostat.

2.2.2 AFTER RUNNING A WHILE THE SYSTEM STOPS TO PERFORM PROTECTION.

2.2.2.1 Water level alarming trouble

Display: Indoor unit alarm lamp blinks

Solutions: ① Check if water pump runs well

② Check if the drainpipe is broken

③ Check if the water level switch is blocked

④ If the above situations do not occur please change a new indoor PCB

2.2.2.2 High-pressure protection

Display: The outdoor unit digital diode is displaying:”P1”

Solutions: ① Check if the high-pressure protection switch is broken or loosen

② Test if the discharge temperature of the compressor is too high. If the discharge temperature is too high and the current is lower than the rated current, the system is probably lack of refrigerant and replenishes it.

③ Test if the pressure(high pressure) is too high or the current is overloaded. If so the possible causes are: the overcharge of refrigerant, the system air leakage, or bad ventilation conditions.

a. Let the surplus refrigerant out if refrigerant is too much

b. Let the entire refrigerant out, re-vacuumize the system and then replenish the refrigerant if air is penetrating into the system.

c. Improve the ventilation and heat-emission environment for the outdoor unit

2.2.2.3 Low-pressure protection

Display: The outdoor unit digital diode is displaying:”P2”

Solutions: ① Check if the low pressure protection switch is broken or loosen

② Test if the pressure(low pressure) is too low. The probable reasons are: the overcharge of refrigerant or system blockade.

2.2.2.4 Over current protection

Display: The outdoor unit diode. Is displaying:”P3”

Solutions: ① Check if the current is overloaded.

② The possible reasons for the over current are: the overcharge of refrigerant, air leakage, bad ventilation and heat-emission conditions.

2.2.2.5 Compressor discharge temperature protection, Condenser high temperature protection

Display: P4/ P5 is displayed on the outdoor unit diode

Solutions: ① Test digital discharge temperature, outdoor condenser T3 temperature

② Test system pressure

③ High digital discharge temperature is likely owing to the lack of refrigerant, air leakage or system blockade. Check the above items respectively to solve the problem.

④ Condenser high temperature protection owes to the overcharge of refrigerant, air leakage or bad ventilation and heat-emission conditions.

2.2.2.6 Module protection

Display: P6 is displayed on the outdoor unit diode

Solutions: guarantee the compressor and system is normal, otherwise the module must be changed.

2.2.2.7 Current protection of Fix1 compressor

Display: P7 is displayed on the outdoor unit diode

Solutions: Check if constant compressor 1 is damaged or blocked

2.2.2.8 Current protection of Fix2 compressor

Display: P8 is displayed on the outdoor unit diode

Solutions: Check if constant compressor2 is damaged or blocked

2.2.3 COOLING OR HEATING CAPACITY IS NOT ENOUGH.

2.2.3.1 Address setting for the indoor units is wrong

Solutions: Do spot check of the indoor unit address and reset for those repeated ones.

2.2.3.2 Capacity code setting for the indoor units is wrong

Solutions: Do spot check of the indoor unit capacity code and reset for those repeated ones.

2.2.3.3 Overcharge or lack of refrigerant

2.2.3.4 The system air leakage or alcidine leakage

2.2.3.5 4-way valve leakage / blockade

Solutions: Replace with a new 4-way valve

2.2.3.6 Compressor leakage/ wear and tear

Solutions: Replace with a new compressor

2.2.3.7 Outdoor units are overload because there are many indoor units in the combination. If all the indoor units are in operation, cooling/heating effect will be lowered.

Solutions: ① Avoid all the indoor units running simultaneously.

② Reduce the indoor units that connected in the system

2.2.4 THE WHOLE SYSTEM MAY RUN WELL WHILE A SPECIFIC INDOOR UNIT DOES NOT OPERATE QUITE WELL

2.2.4.1 Mode conflict: Indoor Defrost lamp link

If within one system some indoor units are in cooling mode, while some others are in heating mode, mode conflict will be displayed on those cooling units LED and as a result those units will be power off.

2.2.4.2 Indoor sensor electric resistance changing

When the indoor sensor electric resistance changes to a certain extent, under the control of the PCB, the indoor unit will stop running at the set temperature. Consequently the cooling effect is weakened

2.2.4.3 Electric throttle kit blockade

Solutions: Use new electric throttle kits

2.2.4.4 EXV trouble of the power off units

If the refrigerant is leaked owing to EXV trouble of the power off units, the refrigerant will run through that power-- off units. As a result the cooling/heating capacity of the operating units is lowered.

Solutions: Replace all the bad electric throttle kits

2.2.5 COMMUNICATION MALFUNCTION

2.5.1 Communication malfunction of DSP and 780034

Display: H0 is displayed on the outdoor unit diode

Solutions: change outdoor main control board

2.2.5.2 Communication malfunction of 9177 and 780034

Display: H1 is displayed on the outdoor unit diode

Solutions: change outdoor main control board

2.2.5.3 Malfunction that the quantity of outdoor unit is less than actual quantity

Display: H2 is displayed on the outdoor unit diode

Check the power supply of outdoor unit and communication wire between outdoor units

2.2.5.4 Malfunction that the quantity of outdoor unit is more than actual quantity

Display: H3 is displayed on the outdoor unit diode

Check the power supply of outdoor unit and communication wire between outdoor units.