TRUST
Air Conditioners

MODULAR SCROLL CHILLER

TRUST AIR CONDITIONING EQUIPMENT CO.
Prepared By: Engineering & R & D Department.

Shiraz- May 2017

Troubleshooting

Air Cooled Scroll Chiller (50Hz)

توجه:

شرکت تراست حق تغییر مشخصات دستگاه ها را در جهت بهبود و ارتقای کیفیت برای خود محفوظ می دارد.

2014-12

1Troubleshooting

1.1 Failure & Protection Codes

30kW module

No	Code	Trouble
1	E0	Water flow detection error (The third time)
2	E1	Power phase sequence error
3	E2	Communication error
4	E3	Total water outlet temperature sensor error
5	E4	Outlet water temperature sensor error in shell and tube exchanger
6	E5	Pipe temperature sensor error in condenser A
7	E6	Pipe temperature sensor error in condenser B
8	E7	Outdoor ambient temperature sensor error
9	E8	Air discharge temperature sensor error in digital compressor in system A
10	E9	Water flow detection error (The first and second times)
11	EA	Main unit detected that auxiliary unit's quantity have decreased
12	EB	Anti-freezing temperature sensor 1 error in shell and tube exchanger
13	EC	Wired controller did not find out any on-line module unit
14	ED	Wired controller and module unit communication error
15	Ed	1-hour consecutive 4-times PE protection
16	EE	Wired controller and computer communication error
17	EF	Inlet water temperature sensor error
18	P0	High pressure or air discharge temperature protection in system A
19	P1	Low pressure protection in system A
20	P2	High pressure or air discharge temperature protection in system B
21	P3	Low pressure protection in system B
22	P4	Current protection in system A
23	P5	Current protection in system B
24	P6	Condenser high pressure protection in system A
25	P7	Condenser high pressure protection in system B
26	P8	Air discharge temperature sensor protection in digital compressor in system A
27	Pb	System anti-freezing protection
28	PE	Low-temperature protection of double-pipe heat exchanger
29	F1	EEPROM failure
30	F2	Failure of reduction of wired controller number at parallel connection of multiple wired controller (reserved)

65kW module (Fixed speed)

No	Code	Trouble
1	E0	Water flow detection error (The third time)
2	E1	Power phase sequence error
3	E2	Communication error
4	E3	Total water outlet temperature sensor error
5	E4	Outlet water temperature sensor error in shell and tube exchanger
6	E5	Pipe temperature sensor error in condenser A
7	E6	Pipe temperature sensor error in condenser B
8	E7	Outdoor ambient temperature sensor error
9	E8	Air discharge temperature sensor error in digital compressor in system A
10	E9	Water flow detection error (The first and second times)
11	EA	Main unit detected that auxiliary unit's quantity have decreased
12	EB	Anti-freezing temperature sensor 1 error in shell and tube exchanger
13	EC	Wired controller did not find out any on-line module unit
14	ED	Wired controller and module unit communication error
15	Ed	1-hour consecutive 4-times PE protection
16	EE	Wired controller and computer communication error
17	EF	Inlet water temperature sensor error
18	P0	High pressure or air discharge temperature protection in system A
19	P1	Low pressure protection in system A
20	P2	High pressure or air discharge temperature protection in system B
21	P3	Low pressure protection in system B
22	P4	Current protection in system A
23	P5	Current protection in system B
24	P6	Condenser high pressure protection in system A
25	P7	Condenser high pressure protection in system B
26	P8	Air discharge temperature sensor protection in digital compressor in system A
27	P9	Outlet and inlet water temperature difference protection
28	PA	Starting protection of low-temperature cooling
29	Pb	System anti-freezing protection
30	PC	(Reserved failure code)
31	PE	Low-temperature protection of shell and tube heat exchanger
32	F1	EEPROM failure
33	F2	Failure of reduction of wired controller number at parallel connection of multiple wired controller (reserved)

65kW digital module (For CC01-TMMM65D3W2)

No	Code	Trouble
1	E0	EEPROM error
2	E1	Power phase sequence error
3	E2	Communication error
4	E3	Total water outlet temperature sensor error
5	E4	Outlet water temperature sensor error in heat exchanger
6	E5	Pipe temperature sensor error in condenser A
7	E6	Pipe temperature sensor error in condenser B
8	E7	Outdoor ambient temperature sensor error or power supply protection
9	E8	Output error of the power protector
10	E9	Water flow detection error
11	EA	(Reserved failure code)
12	Eb	Anti-freezing temperature sensor 1 error in shell and tube exchanger
13	EC	Wired controller detected that the units on-line have decreased.
14	Ed	(Reserved failure code)
15	EF	Inlet water temperature sensor error
16	P0	High pressure or air discharge temperature protection in system A
17	P1	Low pressure protection in system A
18	P2	High pressure or air discharge temperature protection in system B
19	P3	Low pressure protection in system B
20	P4	Current protection in system A
21	P5	Current protection in system B
22	P6	Condenser high pressure protection in system A
23	P7	Condenser high pressure protection in system B
24	P8	(Reserved failure code)
25	P9	Outlet and inlet water temperature difference protection
26	PA	Low ambient temperature drive-up protection
27	Pb	System anti-freezing protection
28	Pc	Anti-freezing pressure protection in system A
29	Pd	Anti-freezing pressure protection in system B
30	PE	Low-temperature protection of shell and tube heat exchanger

130kW module

No	Code	Trouble
1	E0	Water flow detection error (The third time)
2	E1	Power phase sequence error
3	E2	Communication error
4	E3	Total water outlet temperature sensor error
5	E4	Outlet water temperature sensor error in shell and tube exchanger
6	E5	Pipe temperature sensor error in condenser A
7	E6	Pipe temperature sensor error in condenser B
8	E7	Outdoor ambient temperature sensor error
9	E8	Air discharge temperature sensor error in digital compressor in system A
10	E9	Water flow detection error (The first and second times)
11	EA	Main unit detect that auxiliary unit's quantity have decreased
12	EB	Anti-freezing temperature sensor 1 error in shell and tube exchanger
13	EC	Wired controller did not find out any on-line module unit
14	ED	Wired controller and module unit communication error
15	Ed	1-hour consecutive 3-times PE protection
16	EE	Wired controller and computer communication error
17	EF	Inlet water temperature sensor error
18	P0	High pressure or air discharge temperature protection in system A
19	P1	Low pressure protection in system A
20	P2	High pressure or air discharge temperature protection in system B
21	P3	Low pressure protection in system B
22	P4	Current protection in system A
23	P5	Current protection in system B
24	P6	Condenser high pressure protection in system A
25	P7	Condenser high pressure protection in system B
26	P8	Air discharge temperature protection in digital compressor in system A
27	P9	Outlet and inlet water temperature difference protection
28	PA	Starting protection of low-temperature cooling
29	Pb	System anti-freezing protection
30	PC	(Reserved failure code)
31	PE	Low-temperature protection of shell and tube heat exchanger
32	F1	EEPROM failure
33	F2	Failure of reduction of wired controller number at parallel connection of multiple wired controller (reserved)

200kW module

No	Code	Trouble
1	E0	Water flow detection error (The third time)
2	E1	Power phase sequence error
3	E2	Communication error
4	E3	Total water outlet temperature sensor error
5	E4	Outlet water temperature sensor error in shell and tube exchanger
6	E5	Pipe temperature sensor error in condenser A
7	E6	Pipe temperature sensor error in condenser B
8	E7	Outdoor ambient temperature sensor error
9	E8	Air discharge temperature sensor error in digital compressor in system A
10	E9	Water flow detection error (The first and second times)
11	EA	Main unit detected that auxiliary unit's quantity have decreased
12	Eb	Anti-freezing temperature sensor 1 error in heat exchanger
13	EC	Wired controller did not find out any on-line module unit
14	Ed	1-hour consecutive 3-times PE protection
15	EF	Inlet water temperature sensor error
16	P0	High pressure or air discharge temperature protection in system A
17	P1	Low pressure protection in system A
18	P2	High pressure or air discharge temperature protection in system B
19	P3	Low pressure protection in system B
20	P4	Current protection in system A
21	P5	Current protection in system B
22	P6	Condenser high pressure protection in system A
23	P7	Condenser high pressure protection in system B
24	P8	(Reserved failure code)
25	P9	Outlet and inlet water temperature difference protection
26	PA	Low ambient temperature drive-up protection
27	Pb	System anti-freezing protection
28	PC	(Reserved failure code)
29	PE	Low-temperature protection of shell and tube heat exchanger
30	F1	Wired controller failure
31	F2	(Reserved failure code)

250kW module

No	Code	Trouble
1	E0	Error of outdoor EEPROM
2	E1	Power phase sequence error
3	E2	Communication error
4	E3	Error of total outlet water temperature sensor(Be valid for main unit)
5	E4	Outlet water temperature sensor error in shell and tube exchanger
6	E5	Pipe temperature sensor error in condenser A
7	E6	Pipe temperature sensor error in condenser B
8	E7	Outdoor ambient temperature sensor error
9	E8	Output of the power protector error
10	E9	Water flow detection error(manual recovery)
11	EA	(Reserved failure code)
12	Eb	Anti-freezing temperature sensor error in shell and tube exchanger
13	EC	Wired controller detected that the units on-line have decreased.
14	Ed	(Reserved failure code)
15	EF	Inlet water temperature sensor error
16	P0	High pressure or air discharge temperature protection error in system A
17	P1	Low pressure protection in system A (manual recovery)
18	P2	High pressure or air discharge temperature protection in system B (manual recovery)
19	P3	Low pressure protection in system B (manual recovery)
20	P4	Current protection in system A (manual recovery)
21	P5	Current protection in system B (manual recovery)
22	P6	Condenser high temperature protection in system A
23	P7	Condenser high temperature protection in system B
24	P8	(Reserved failure code)
25	P9	Outlet and inlet water temperature difference protection
26	PA	Low ambient temperature drive-up protection
27	Pb	System anti-freezing protection
28	PC	Anti-freezing pressure protection in system A (manual recovery)
29	Pd	Anti-freezing pressure protection in system B (manual recovery)
30	PE	Low-temperature protection of evaporator (manual recovery)

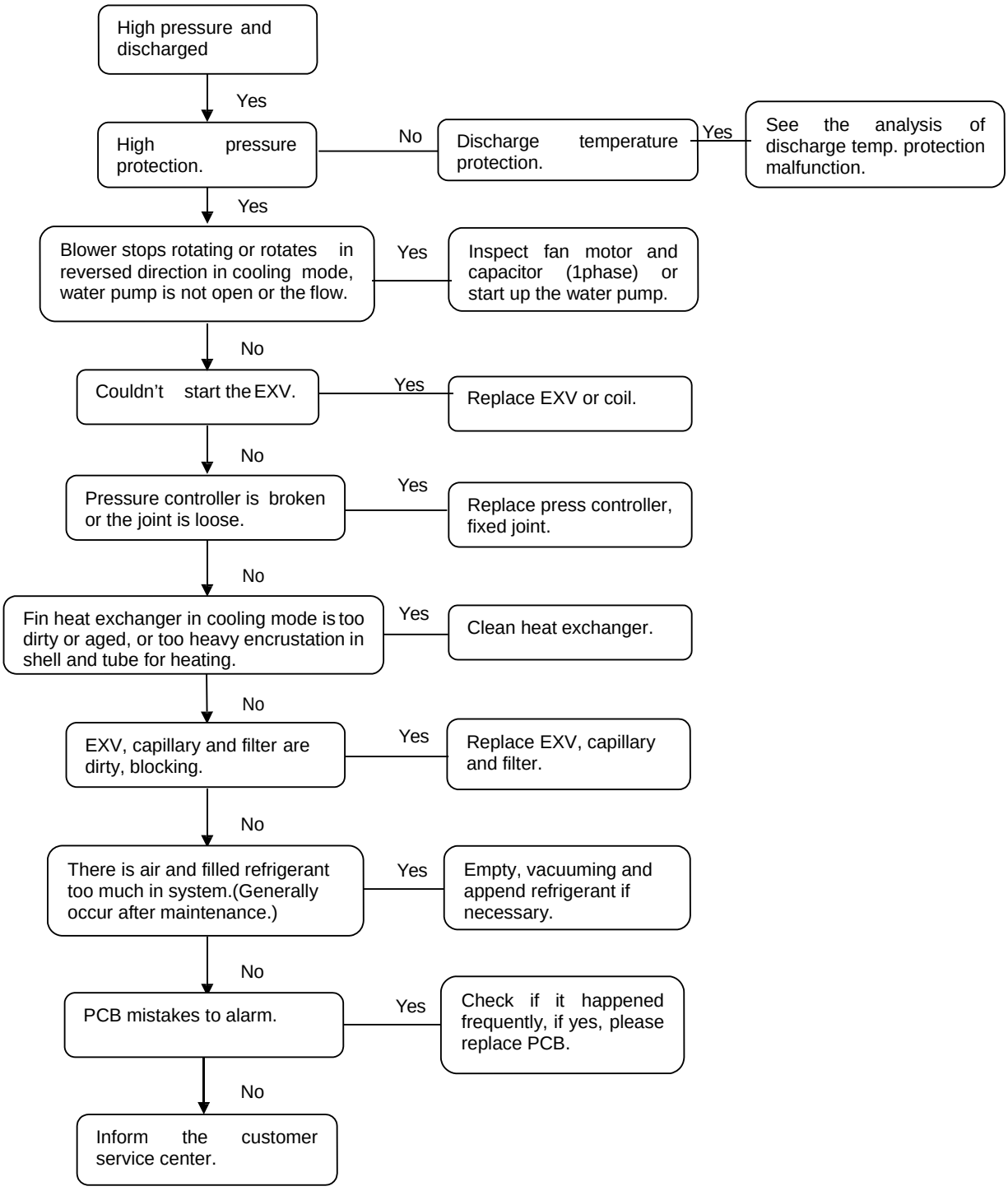
1.2 Troubles and Solutions

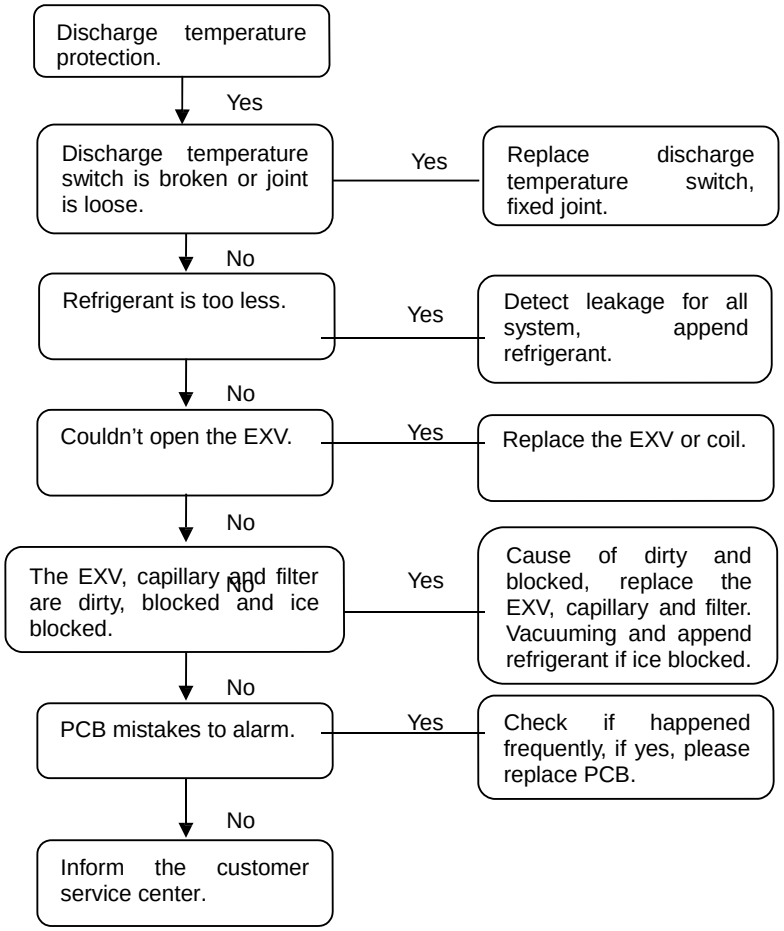
Troubles	Possible reasons	Solutions
Over high air discharge pressure(Cooling operation).	Air or other non-condensing gas still in the system.	Discharge gas from refrigerant charging inlet. Re-vacuum the system if necessary.
	Fins in the condenser are dirty or foreign substance blocking fins.	Clean condenser fins.
	Insufficient chilling air volume or condenser fan error.	Check and repair the condenser fan, recover the normal operation.
	Excessive high air suction pressure.	See “Excessive high air suction pressure”.
	Excessive refrigerant charging volume.	Discharge the excessive refrigerant.
	Over high ambient temperature.	Check ambient temperature.
Over low air discharge pressure (Cooling operation).	Surrounding temperature is lower.	Measure the surrounding temp.
	Refrigerant leak or insufficient.	Leak-hunting or recharging.
	Low suction pressure.	Refer to the “low suction pressure”.
Over high air suction pressure (Cooling operation).	Refrigerant over-charged.	Discharge the additional refrigerant.
	High temperature of the inlet chilled-water.	Check the heat insulation of water pipeline.
Over low air suction pressure (Cooling operation).	Insufficient water flow.	Measure the Temp difference between inlet and outlet water, adjust the water flow.
	Low temperature of inlet chilled-water.	Check installation.
	Refrigerant leak or insufficient.	Leak-hunting or recharging.
	Scaling in the evaporator.	Descaling.
Over high air discharge pressure (Heating operation).	Insufficient water flow.	Check temperature difference at water inlet and outlet, and adjust the water flow volume.
	Air or other non-condensing gas still in the system.	Discharge gas from refrigerant charging inlet. Re-vacuum the system if necessary.
	Scaling in water side of heat exchanger.	Descaling.
	Over high temperature in chilling water inlet.	Check water temperature.
	Excessive high air suction pressure.	See “Excessive high air suction pressure”.
Over low air discharge pressure (Heating operation).	Over low temperature of chilling water.	Check chilling water temperature.
	Refrigerant leakage or insufficient refrigerant volume.	Test leakage or charge sufficient refrigerant to the system.
	Excessive low air suction pressure.	See “Excessive low air suction pressure”.
Over high air suction pressure (Heating operation).	Over heat air in the side of air heat exchanger.	Check ambient temperature around it.
	Excessive refrigerant charging volume.	Discharge the excessive refrigerant.
Over low air suction pressure (Heating operation).	Insufficient refrigerant charging volume.	Charge sufficient refrigerant to the system.
	Insufficient air flow volume.	Check fan rotating direction.
	Air loop short-circuit.	Reason about remove air short-circuit.
	Insufficient frost-removal operation.	Error comes out from 4-way valve or thermal resistor. Replace a new one if necessary.
Compressor stops because of freeze-proof protection (Cooling operation).	Insufficient chilling water flow volume.	Error comes from pump or flow-type water volume control. Check and repaired or replace a new one.
	Gas still in water loop.	Discharge air.
	Thermal resistor error.	Upon error have been confirmed, please replace a new one.
Compressor stops because of high pressure protection.	Over high air expelling pressure.	See “Over high air expelling pressure”.
	High pressure switch error.	Upon error have been confirmed, please replace a new one.
Compressor stops because of motor overload.	Over high air expelling pressure and air suction pressure.	See “Over high air expelling pressure” and “Over high air suction pressure”.
	High voltage or low voltage, signal phase or phase unbalance.	Confirm voltage not higher or lower than the rated voltage 10%.
	Short circuit comes out from motor or connecting interface.	Confirm resistors at motor are connected corresponding to terminals.
	Overload assembly error.	Replace a new one.

Troubles	Possible reasons	Solutions
Compressor stops because of integrate temperature sensor or air discharge temperature protection.	Over high or over low voltage.	Confirm voltage not higher or lower than the rated voltage 10%.
	Over high air expelling pressure or excessive low air suction pressure.	See “Over high air expelling pressure” and “excessive low air suction pressure ”.
	Component error.	Check the integrated temperature sensor after motor is cool down.
Compressor stops because of low pressure protection.	Filter in front (or rear) of expanding valve is blocked.	Replace a new filter.
	Low voltage switch error.	If the switch is defective, please replace a new one.
	Excessive low air suction pressure.	See “Excessive low air suction pressure”.
Abnormal noise comes from compressor.	Liquid refrigerant flows into compressor from evaporator result in liquid slugging.	Adjust refrigerant charge volume.
	Aging of compressor.	Replace a new compressor.
Compressor can’t start.	Over current relay trip up, fuse burnt out.	Replace damaged assembly.
	Control circuit without power though.	Check the wring of control system.
	High voltage or low voltage protection.	Reference to mention in above the parts of air suction and discharge pressure error.
	Coils in contactor are burnt out.	Replace damaged assembly.
	Wrong connection of phase sequence.	Re-connect and adjust the any 2 wires among 3 phases.
	Water system error and flow type volume controller short connection.	Check water system.
	Error signal delivered from wired controller.	Find out the error type and carry out the corresponding measure to settle.
Air side heat exchanger excessive frost.	4-way valve or thermal resistor error.	Check the running state. Replace a new one if necessary.
	Air loop short-circuit.	Settle the short-circuit of air discharge.
With noise.	Fixing screws at panel are loosen.	Fix up all assemblies.

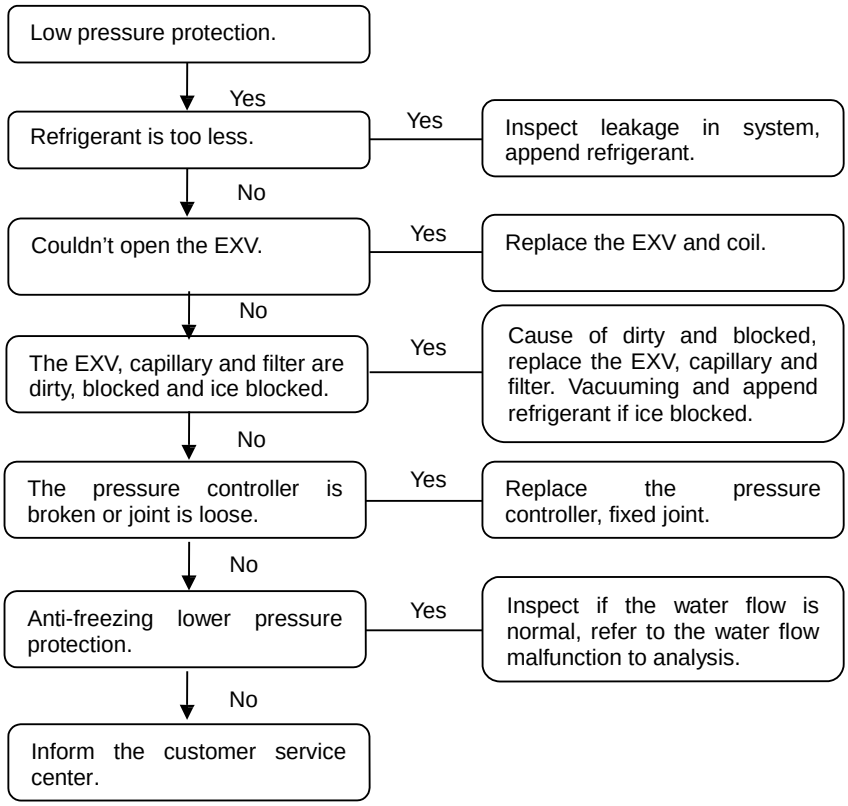
1.3 Typical malfunction solutions

1) High pressure and discharged temperature protection

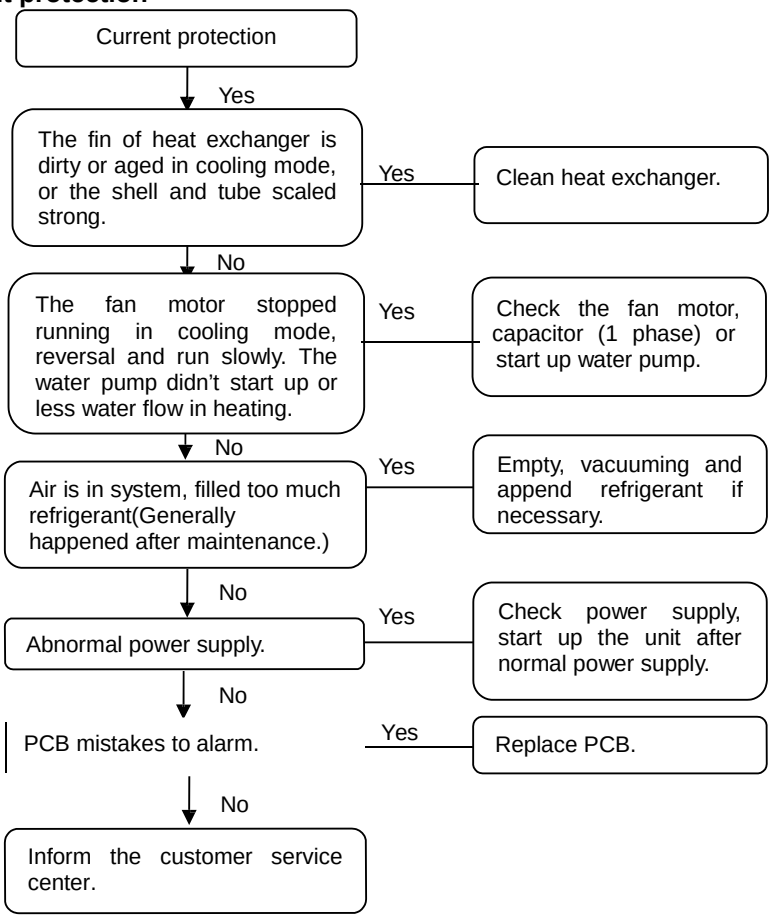




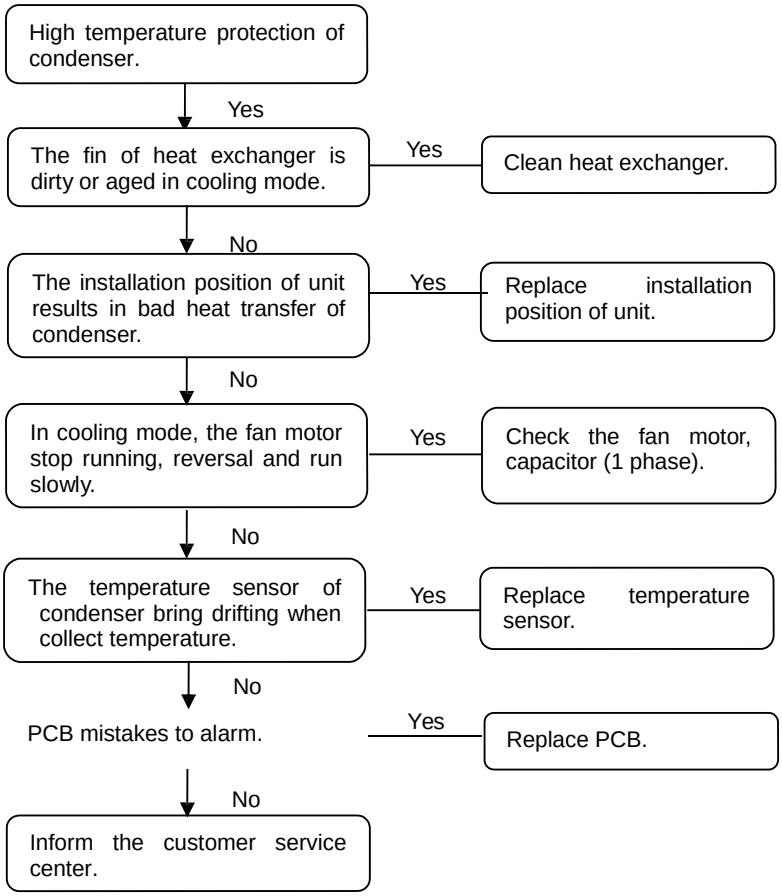
2) Low pressure protection



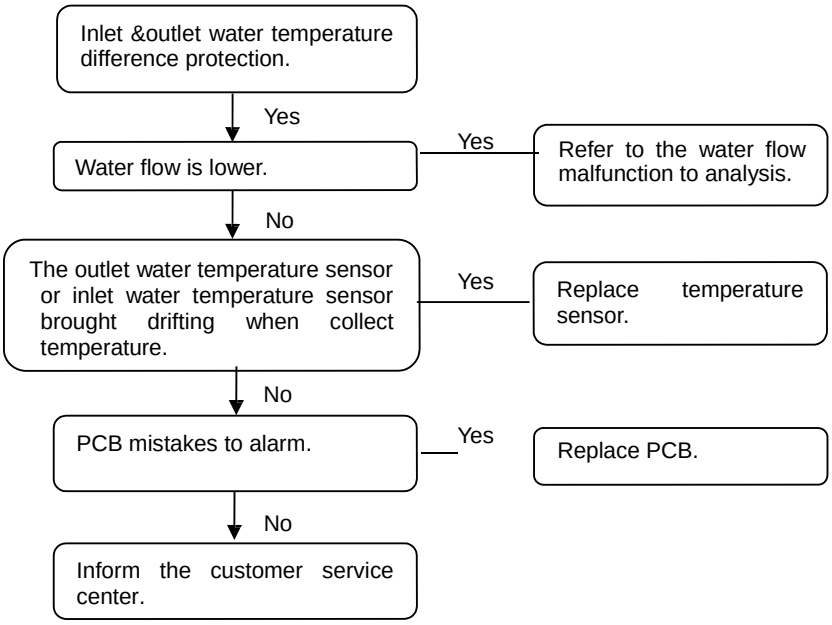
2) Current protection



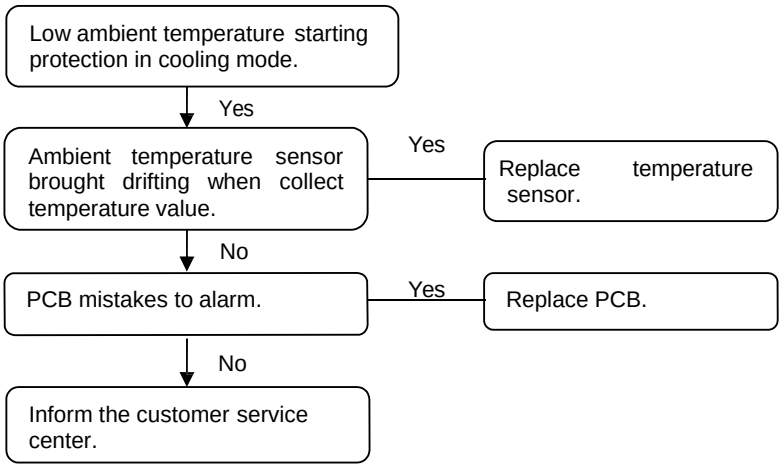
3) High temperature protection of condenser



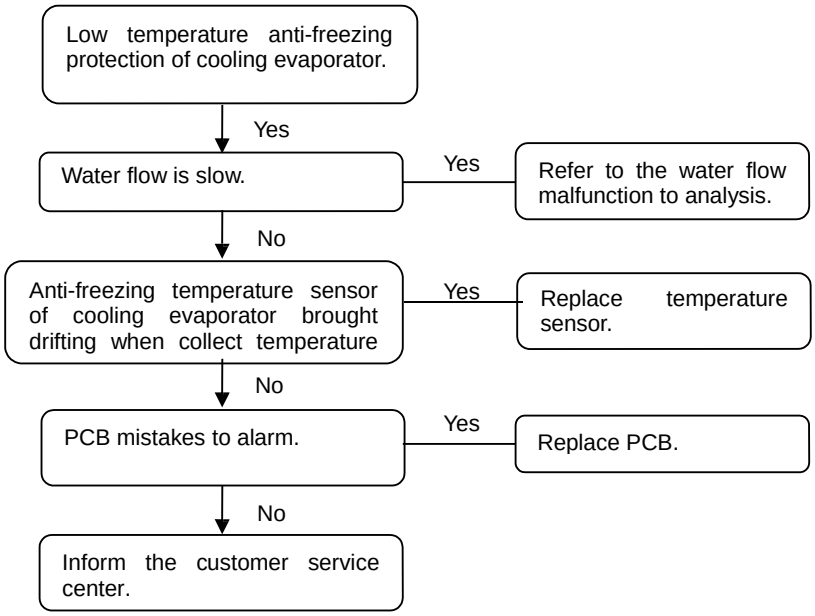
4) Inlet &outlet water temperature difference protection



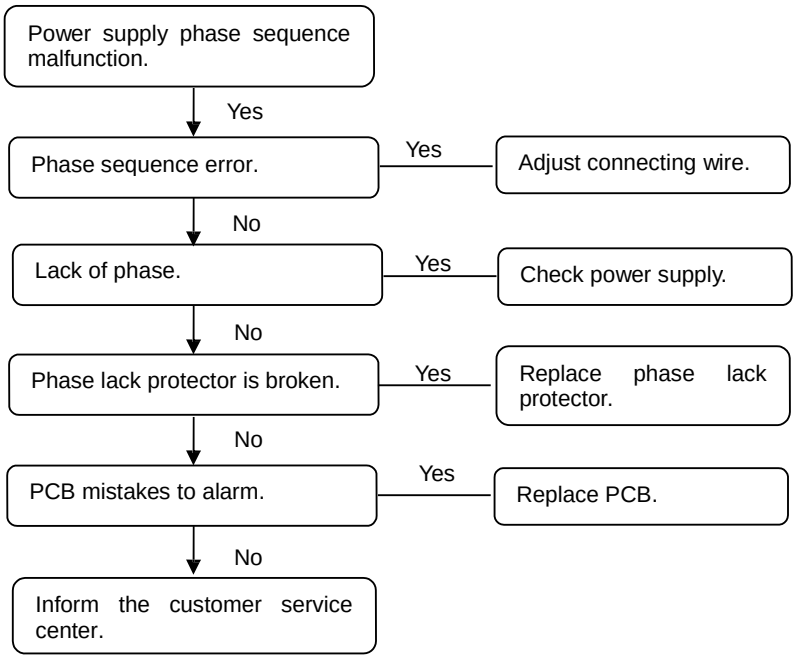
5) Low ambient temperature starting up protection



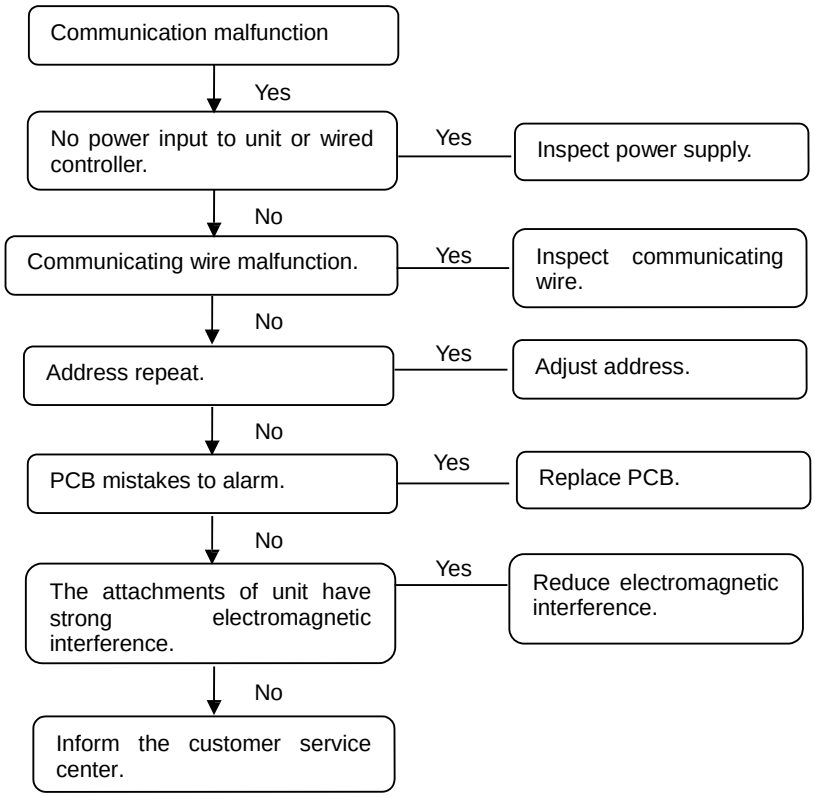
6) Low temperature anti-freezing protection of cooling evaporator



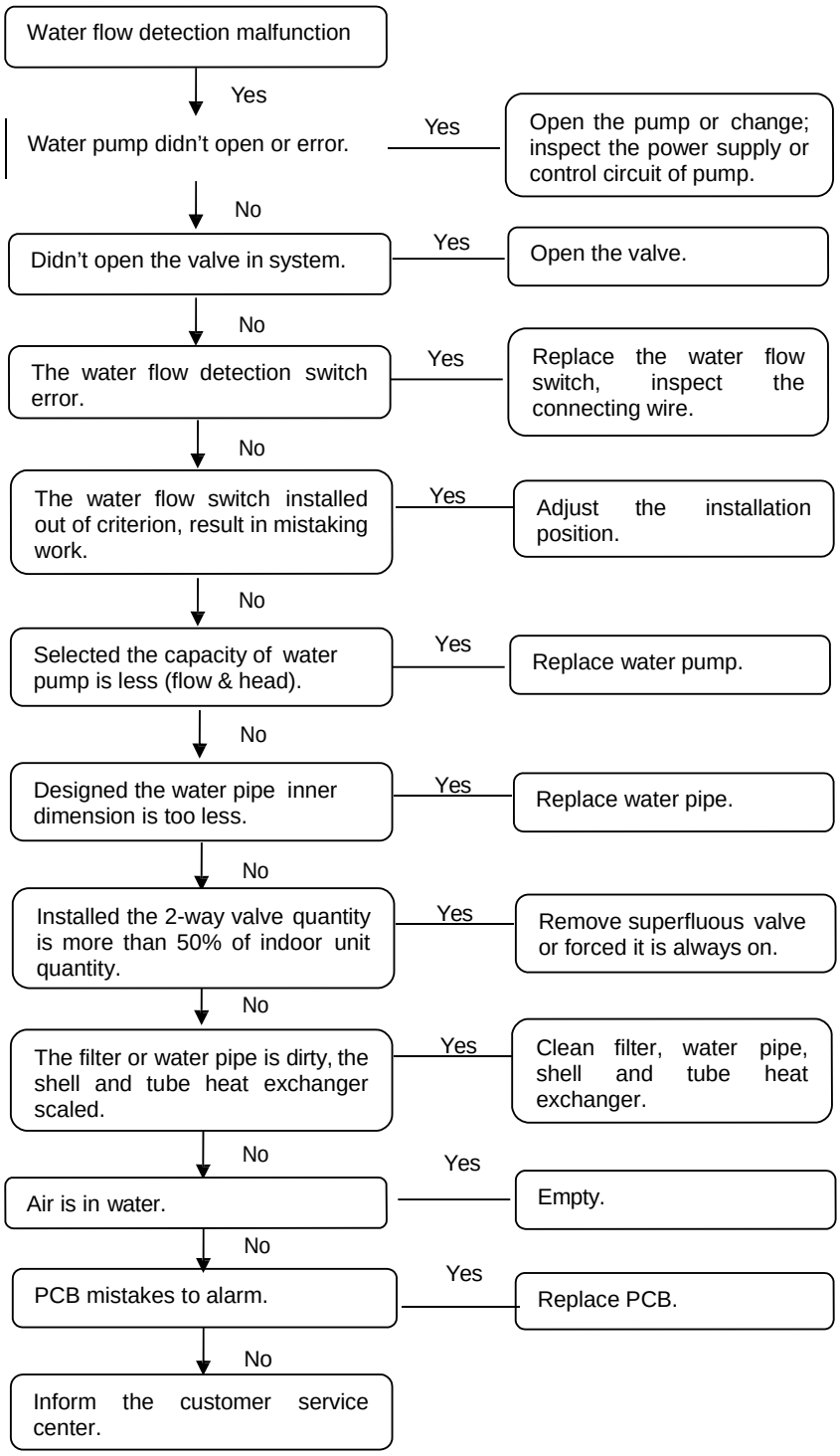
7) Power supply phase sequence malfunction



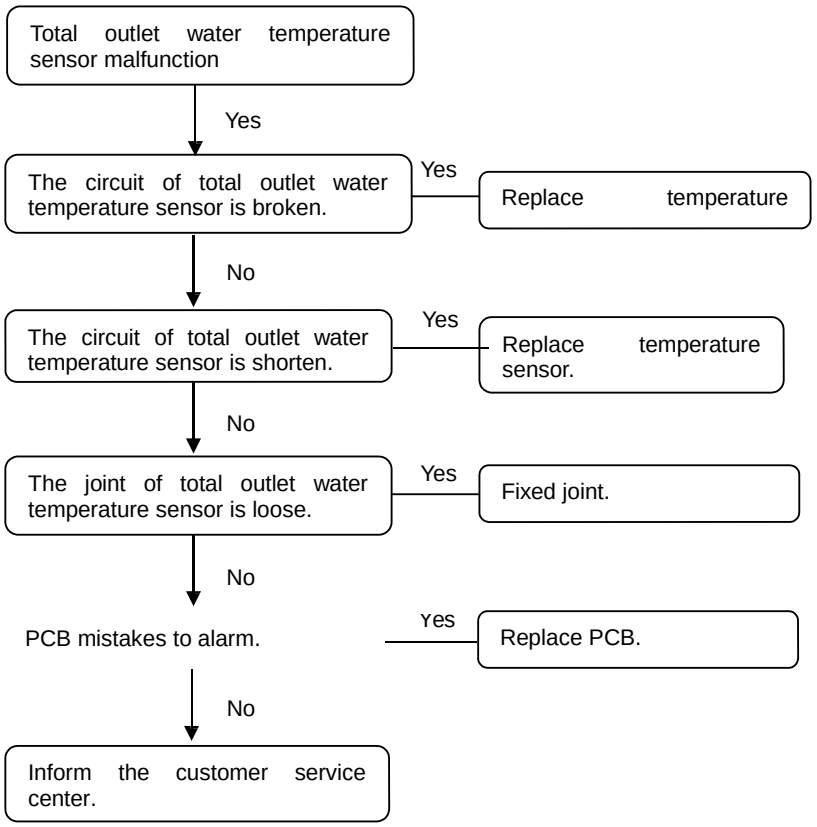
8) Communication malfunction



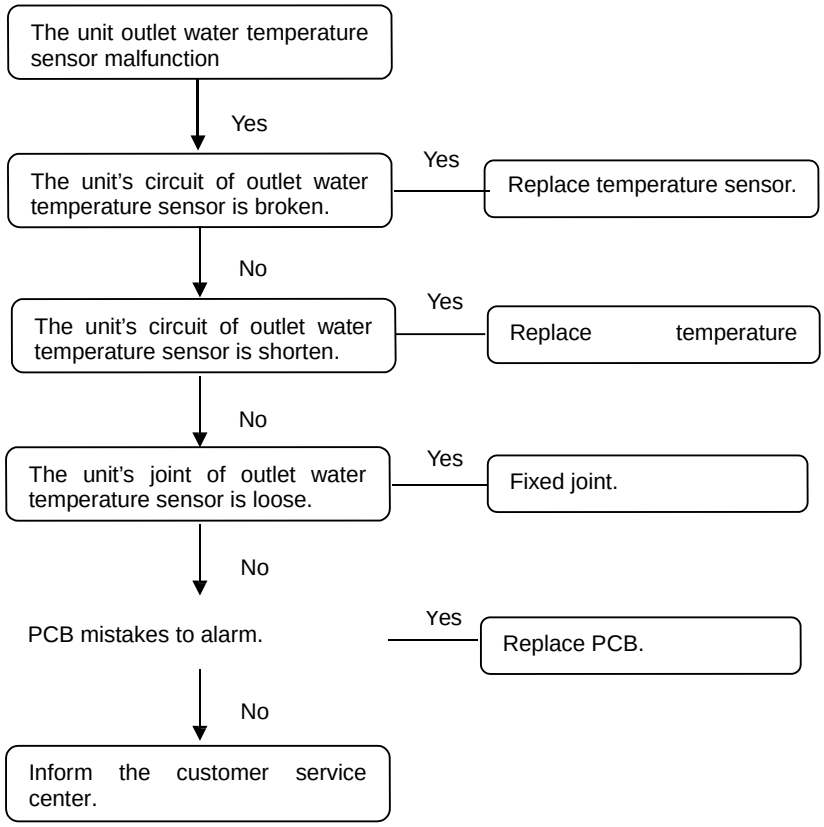
9) Water flow detection malfunction



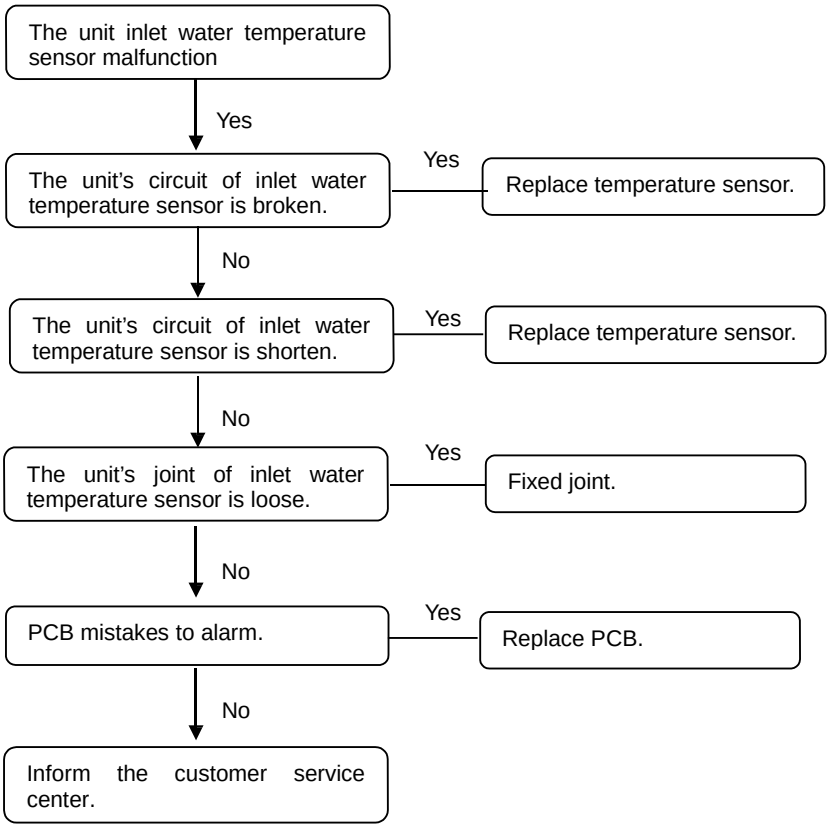
10) Total outlet water temperature sensor malfunction



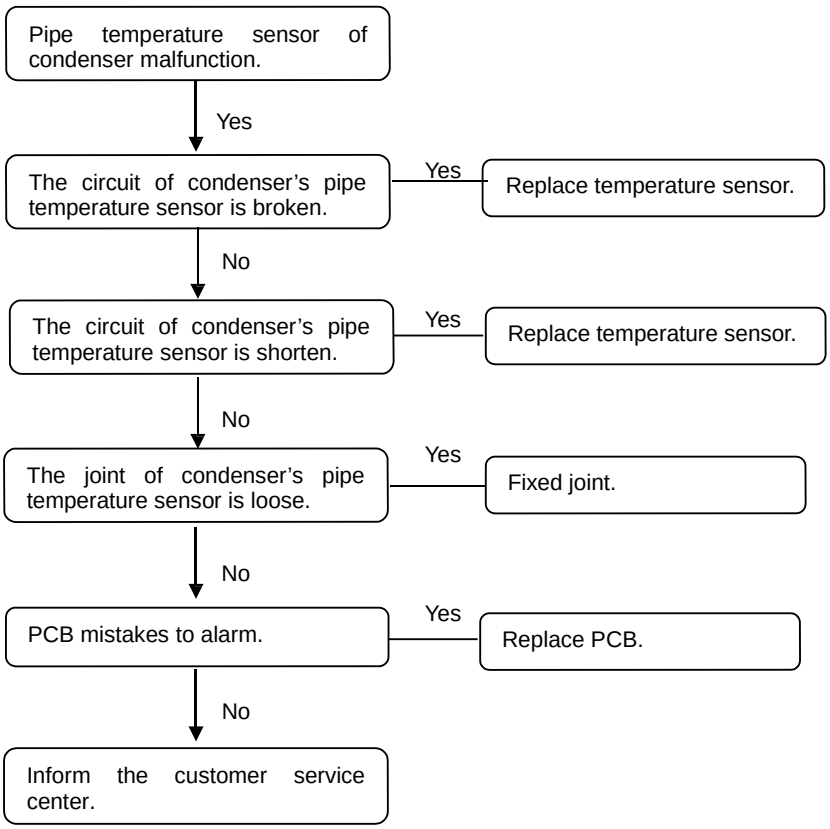
11) The unit outlet water temp. sensor malfunction



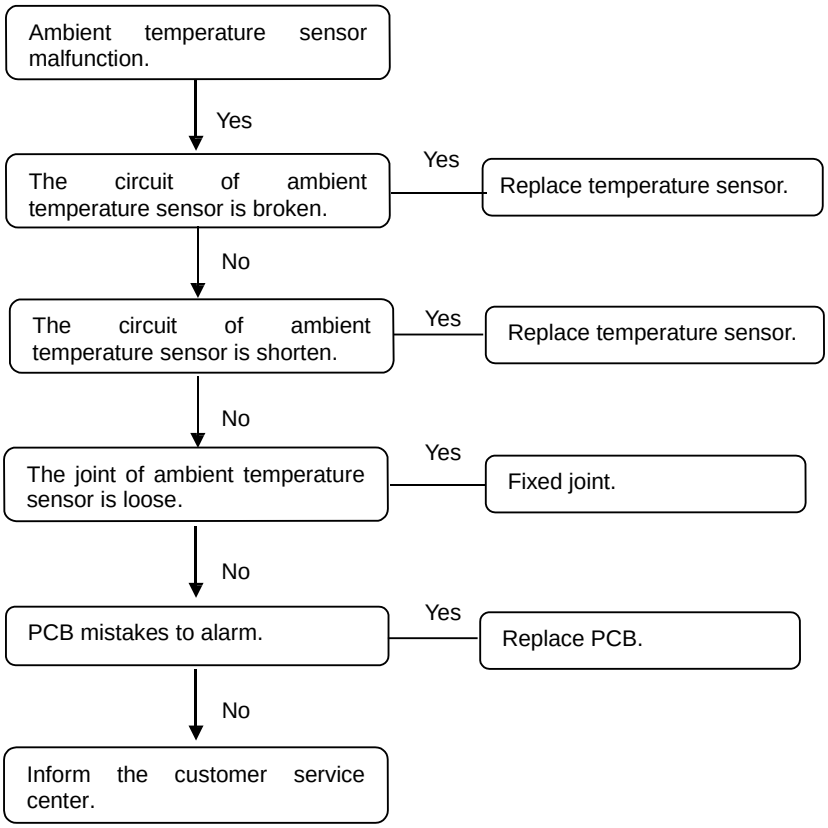
12) The unit inlet water temperature sensor malfunction



13) Pipe temp. sensor of condenser malfunction



14) Ambient temperature sensor malfunction



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