Haier

SYJS-001

Commercial Air Conditioning

Haier and Higher

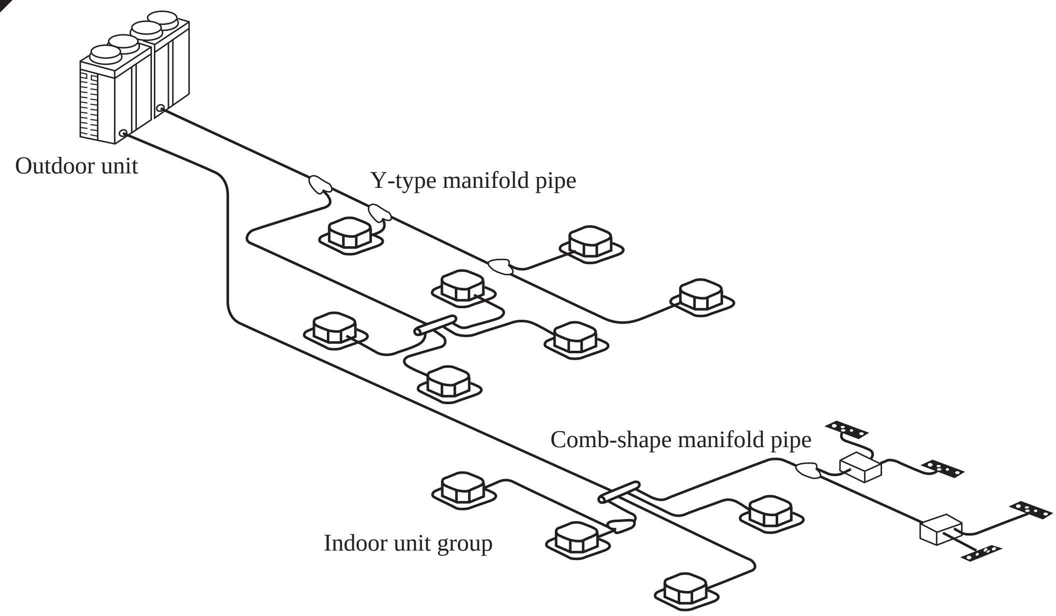
Haier Commercial MRV Service Manual

Haier Group

2002

CONTENTS

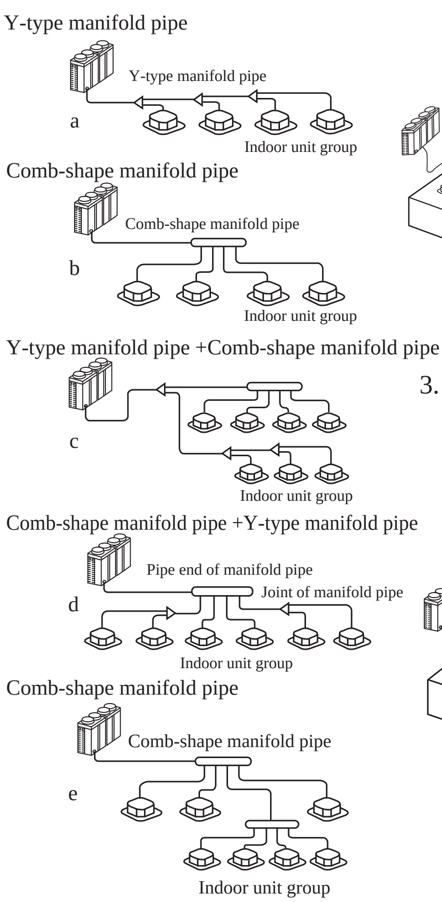
1 Characteristics of MRV

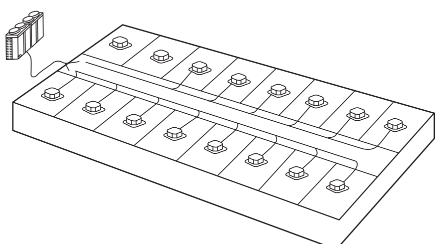


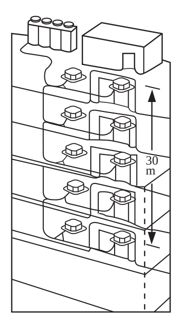
1. The branch mode of refrigerantpipe consists of free combination of Y-type manifold pipe and comb-shape manifold pipe, the refrigerant pipe can be set freely, thus can freely complete thedesign of different configuration and reduce the cost of construction.

2. Indoor unit group can connect 16 combination of different capacity and different indoor units, the connection of indoor unitgroup within 135% (except 6HP) of capacity of outdoor unit. The purpose of saving energy reducing settings has beenrealized.

4. The fall in the system pipe ... corresponding to 30 m fall and difference of height of 8-storey building betweenindoor unit g... long as the system is elevator, etc.

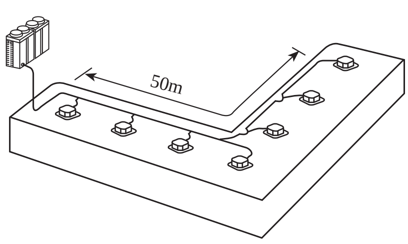


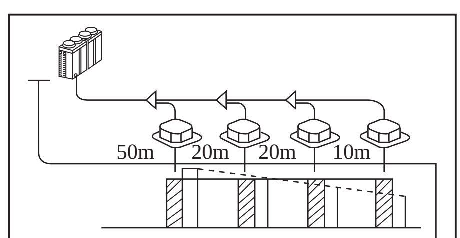




5. Sensory control can realize the capacitycompensatio

3. The length of farthest refrigerantpipe after first branching will beincreases according to

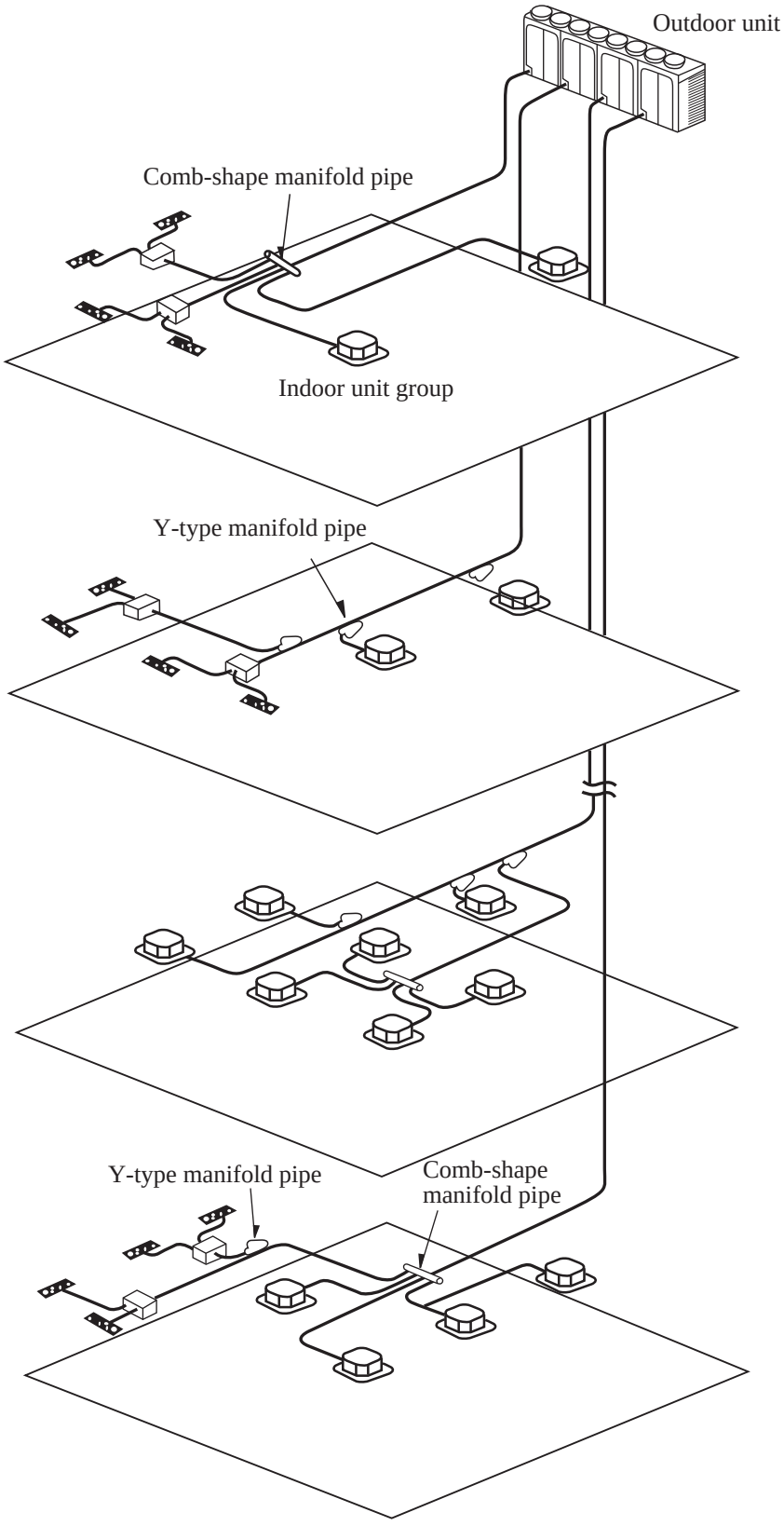




(There is certain loss of capacity when the refrigerant flows in the pipe. The sensory control compensates the capacity of the indoor unit group).

2 General

1. Formation of branch mode for basic manifold pipe (example)

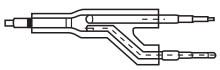
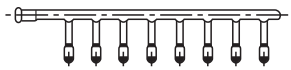


2. Formation of the unit

Outdoor unit

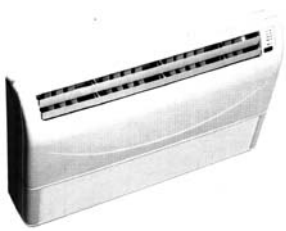
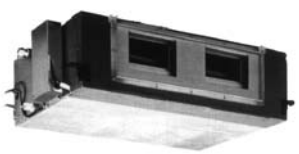
Appearance	Model	Max. capacity (BTU/h)		Capability (HP)		Max. number of indoor unit
		Cooling	Heating	Min	Max.	
	AU55NFUAHA (6HP)	55,000	60,000	2.8	7.56	9
	AU96NFTAHA (10HP)	96,000	107,500	5	13.5	16

Manifold pipe

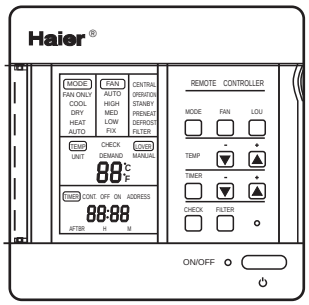
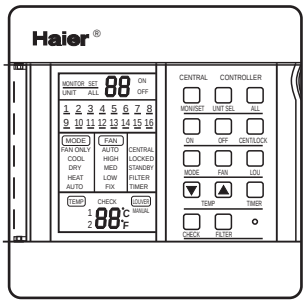
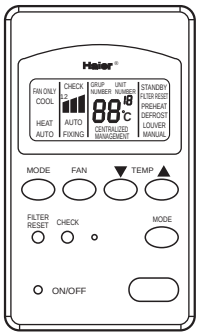
Appearance	Name	Model	Use
	Y-type manifold pipe	FQG-B180	Total capability of indoor unit is less than 6.4 HP
	L-type manifold pipe	FQG-B370	Total capability of indoor unit is 6.4~13.2 HP
	Comb-shape manifold pipe	FQG-H3704	3.4 branches
	Comb-shape manifold pipe	FQG-H3708	5,6,7,8 branches

The first branch after comb-shape manifold pipe can be at most connected to 6.0 HP indoor unit.

Indoor unit

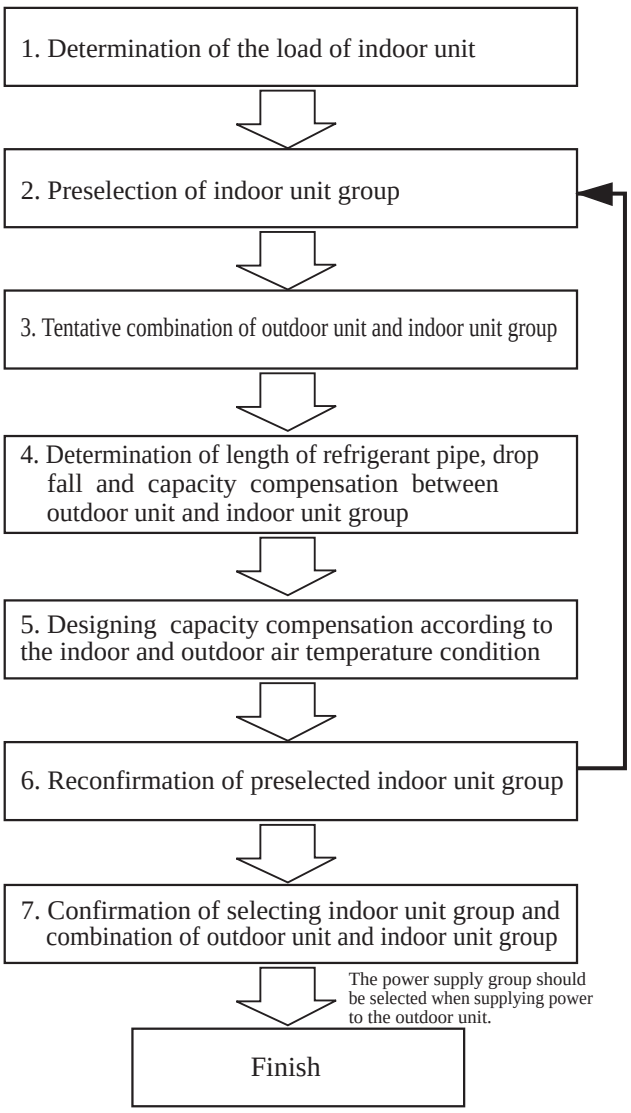
Model	Appearance	Model	HP	Capacity (BTU/h)	
				Cooling	Heating
Cassette type unit with airflow in four directions		AB092FEAIA	1.0	9000	11000
		AB122FEAIA	1.25	12000	14000
		AB142FEAIA	1.5	14000	16000
		AB162FEAIA	1.7	16000	17000
		AB182FEAIA	2.0	18000	21000
		AB242FEAIA	2.5	24000	28000
		AB282FEAIA	3.0	28000	32000
		AB322FEAIA	3.2	32000	34000
		AB362FEAIA	4.0	36000	43000
		AB452FEAIA	5.0	45000	55000
Cassette with airflow in two directions		AB072FDAHA	0.8	7000	9000
		AB092FDAHA	1.0	9000	11000
		AB122FDAHA	1.25	12000	14000
		AB142FDAHA	1.25	14000	16000
Convertible type unit		AC092FEAHA	1.0	9000	11000
		AC122FEAHA	1.25	12000	14000
		AC162FEAHA	1.7	16000	17000
		AC182FEAHA	2.0	18000	21000
		AC242FEAHA	2.5	24000	28000
Air duit type unit of high static pressure		AD182FIAHA	2.0	18000	21000
		AD242FIAHA	2.5	24000	28000
		AD282FIAHA	3.0	28000	32000
		AD322FIAHA	3.2	32000	34000
		AD362FIAHA	4.0	36000	43000
		AD452FIAHA	5.0	45000	55000
Wall-mounted type unit		AS072FAAHA	0.8	7000	9000
		AS092FAAHA	1.0	9000	11000
		AS122FAAHA	1.25	12000	14000
		AS142FAAHA	1.5	14000	16000
		AS162FAAHA	1.7	16000	17000
		AS182FAAHA	2.0	18000	21000

Remote controller

Stanrdard remote controller	Central controller	Simple remote controller
		
YR-E02	**YR-E01**	**YR-F01**

3. Selection of the unit

Sequence of unit selecting



2. Combination condition of indoor unit group and outdoor unit

a) Capability code determined by each indoor unit according to different grade of capacity

Grade of capacity	Capability code (HP)
Type 07	0.8
Type09	1
Type12	1.25
Type14	1.5
Type16	1.7
Type18	2
Type24	2.5
Type28	3
Type32	3.2
Type36	4
Type45	5

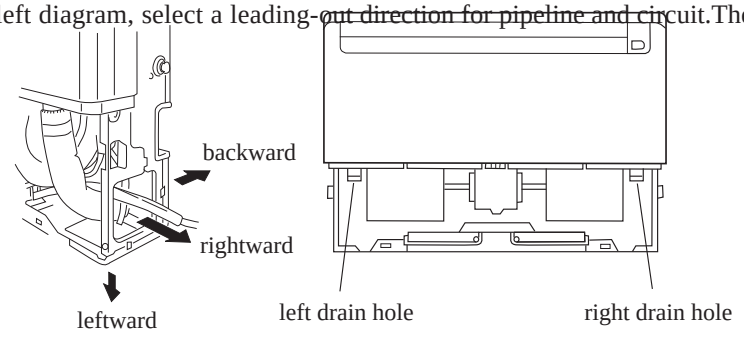
b) The capacity of outdoor unit can be calculated according to the max. number of indoor unit group connected and the combination of indoor unit group (determined by capability code)

Outdoor unit	Max. number of indoor unit group	Capability (HP)	
		Min.	Max.
AU55NFUAHA	9	2.8	7.56
AU96NFTAHA	16	5	13.5

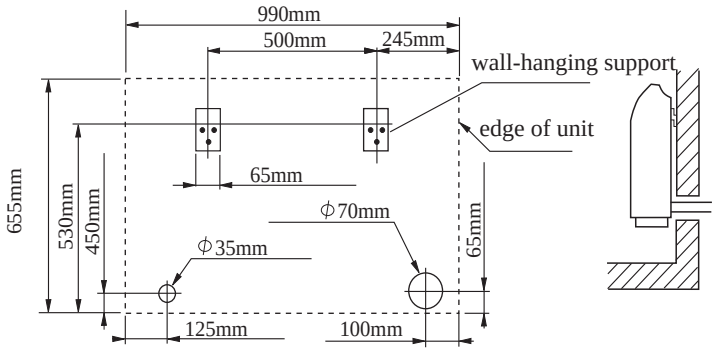
3 Installation of the unit

1. Convertible type unit AC092FEAHA, AC122FEAHA, AC162FEAHA

* According to the position as shownin the left diagram, select a leading-out direction for pipeline and circuit.There are drain holes o

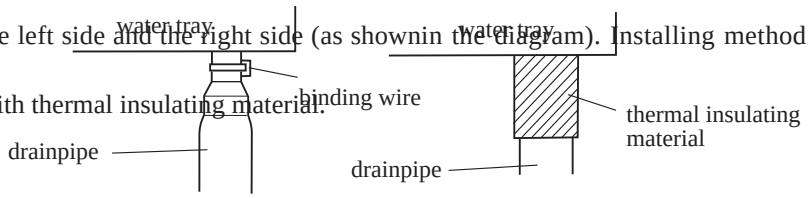


* Installing the wall-hanging support according to the diagram.

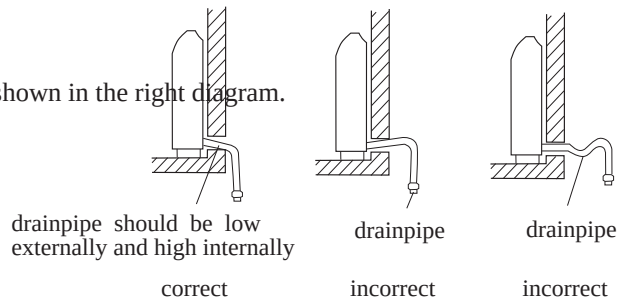


* Installing the drain pipe

Install the drainpipe in the drain hole onthe left side and the right side (as shownin the diagram). Installing method is asfollows: tray, as shown in the diagram, tighten it
with binding wire, then tighten the jointwith thermal insulating material.



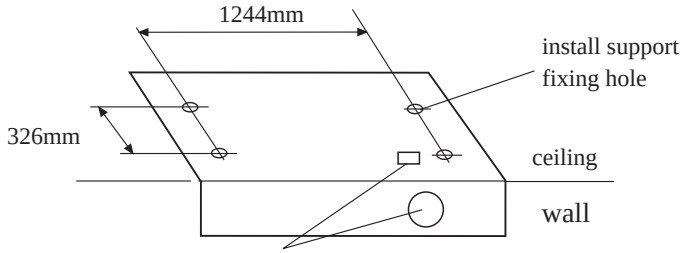
Note: The leading-out direction of drainpipeis shown in the right diagram.



Model	Liquid pipe (mm)	Gas pipe (mm)
AC092FEAHA	*6.35	*12.7
AC122FEAHA	*6.35	*12.7
AC162FEAHA	*6.35	*12.7

Installing method of convertible type unit AC182FEAHA, AC242FEAHA

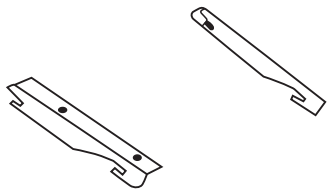
(1). Arrange the wall outlet hole and install the support fixinghole according to the following diagram; drill*10 x 60 holeon the po



(2). Fix the support

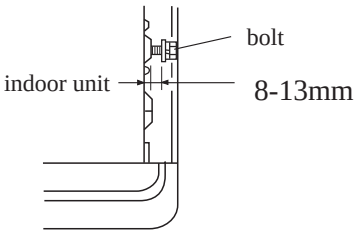
selectable position for wall outlet hole

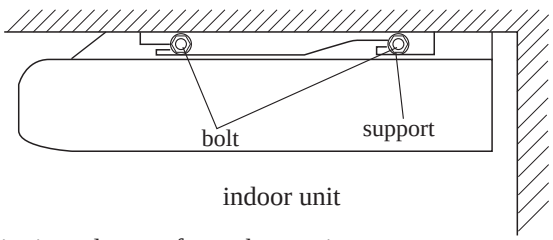
As shown in the diagram, fix the support with expansion bolt.



(3). Install indoor unit

First, install the bolts at both sides of the indoor unit as shown in the diagram, then, install theindoor unit according to the meth

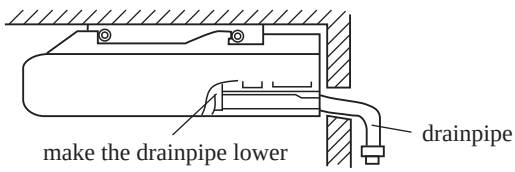




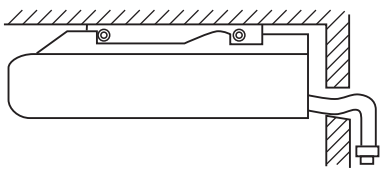
indoor unit

(4). Install drainpipe

For the installing method and leading-out direction of the drainpipe, please refer to the previous pages.
Note: the drainpipe should be lower than the connecting portion where it is connected to the indoor unit as shown in the following diagram:



correct



incorrect

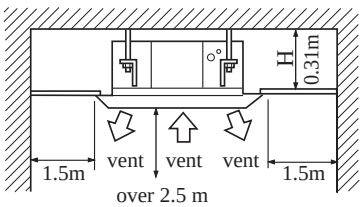
Model	Liquid pipe (mm)	Gas pipe (mm)
AC182FEAHA	*9.52	*15.88
AC242FEAHA	*9.52	*15.88

2. Cassette type unit with airflow in four directions

AB092FEAIA, AB122FEAIA, AB142FEAIA, AB162FEAIA

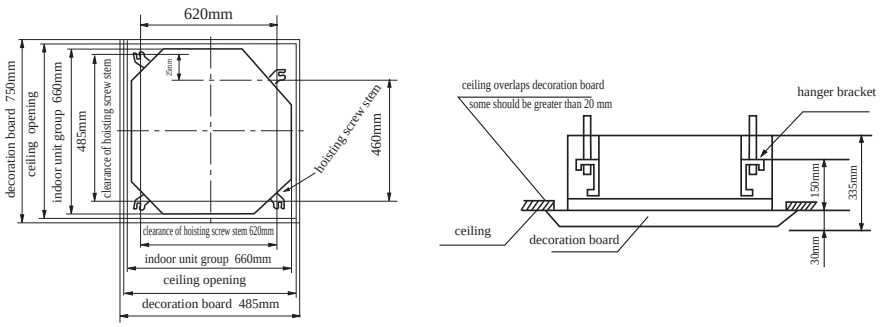
I. Selecting installation position

(1) Select the space above the ceiling and capable of placing the unit.
(2) Place it in the place where the drainpipe can be well arranged.
(3) Select the place where the airflow inlet and outlet of the indoor unit can not be blocked.(4) Do not expose the unit to the place v
gases (such as thinner, gasoline, etc.) are concentrated or retained.
(6) Select the place that can sufficiently bear the weight of the unit group.
(7) Select the place where there are no valuables such as TV set, piano, etc. under the indoor unit.
(8) Select the place facilitating maintenance.(9) Select the place over 1 meter away from the TV set and radio so as not to interfere



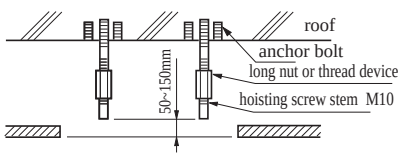
II. Preparation before installation

(1) Ubiety of ceiling opening and unit group and hoisting screw stem (view from the facade of the unit)



(2) If necessary, make hole on the ceiling for installation. (If the ceiling is available).
For the dimension of opening on the ceiling, please refer to the right diagram.
Before installation, prepare all the pipelines (refrigerant, water drain) and wires (connecting wire of remote controller, connecting wire of indoor unit group and outdoor unit group) to be connected with indoor unit group so as to immediately connect with indoor unit after installation.
When make hole on the ceiling, it may be necessary to reinforce the ceiling to maintain the leveling of the ceiling and prevent the ceiling from vibration. For more detail, consult the constructor.

(3) Installing the hoisting screw stem
In order to bear the weight of the unit group, the anchor bolts should be used when there is the ceiling. For new ceiling, the sunk bolts, embedded bolt or other parts provided on the spot should be used. Before continuing to install, adjust the clearance between the ceiling.



Note: All the above parts should be provided on the spot of installation. Diameter of hoisting screw stem: M10

<Installation example>

III. Installation of indoor unit

For new ceiling

(1) Temporarily installing the indoor unit group
Attach the hanger bracket to the hoisting screw stem to hoist the unit. Be sure to use the nut and washer respectively both at the top end and bottom end of hoisting foot, so as to firmly fix the hanger bracket.

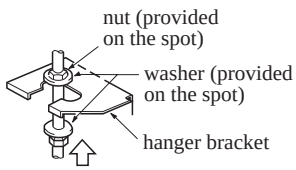
(2) Install the ceiling. For the dimension of the ceiling opening, refer to the previous page. For more detail, consult the constructor or the carpenter.
The center of the ceiling opening has the mark on the installing paperboard.
The center of the unit group has the marks on the label and the paperboard attached to the unit group.
Install the installing paperboard to the unit with screws (3 pieces) and fix the corner of the water tray on the outlet of the pipeline with screws.

After installation of the ceiling

(3) Adjust the unit group to the correct installing position. (Refer to Installing Position (1))(4) Check whether the unit group leve

• The indoor unit has built-in drainage pump and floating switch. Check whether the 4 corners of the unit group level with surveyor's level and polyethylene pipe one by one. (If the unit group has inclination toward reverse direction of the coagulative water flow, the floating switch may have fault causing drip).

(5) Removing installation paperboard



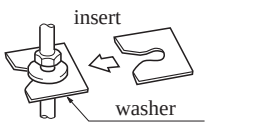
tighten (double nut)
[firmly fix the hoisting foot]

For the ceiling available

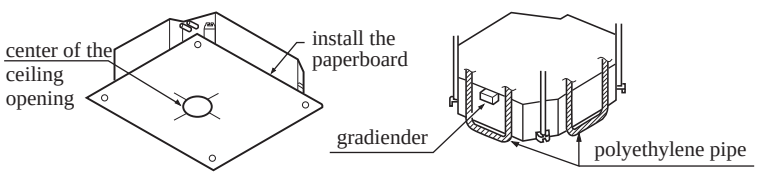
(1) Temporarily installing the indoor unit group
• Attach the hanger bracket to the hoisting screw stem to hoist the unit.
Be sure to use the nut and washer respectively both at the top end and bottom end of hoisting foot so as to firmly fix the hanger bracket.

(2) Adjust the height and position of the unit group.

(3) Conduct the two steps of (4), (5) in "For new ceiling".



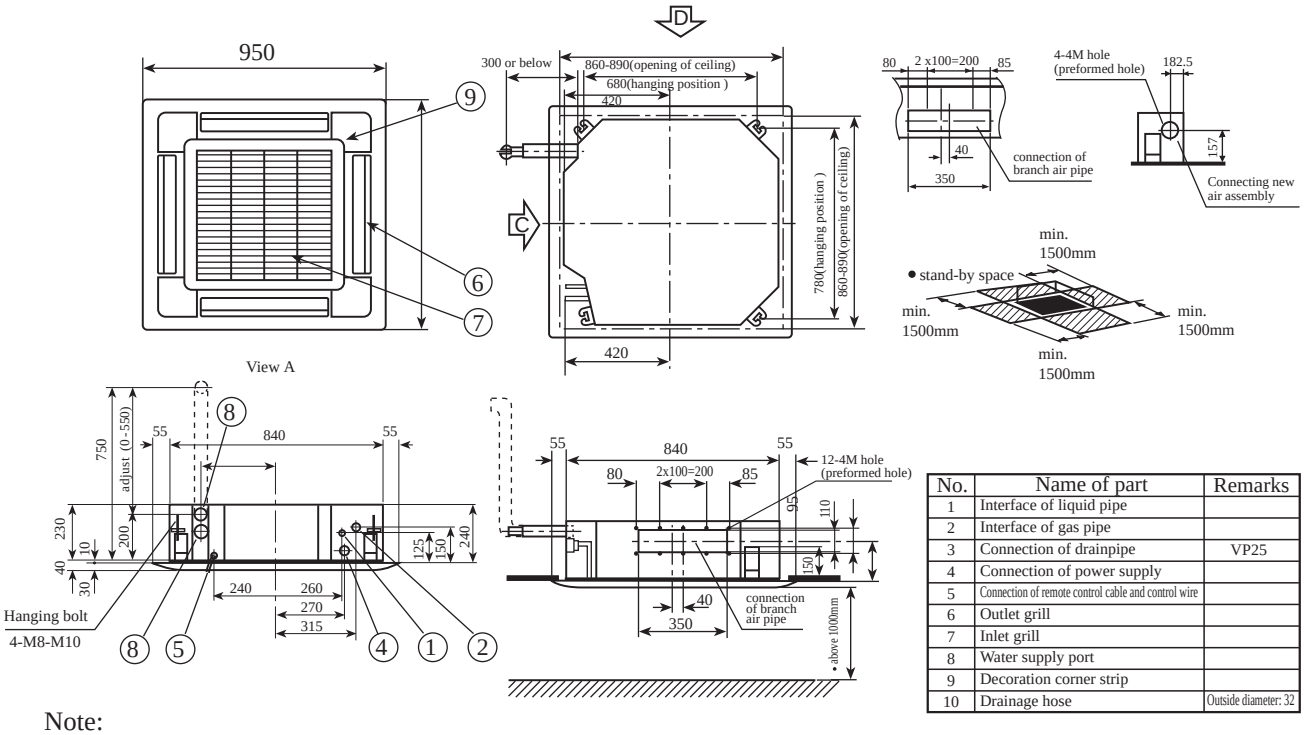
(provided on the spot)
[firmly fix the hoisting fort]



[Fix the paperboard]

Model	Liquid pipe (mm)	Gas pipe (mm)
AB092FEAIA	*6.35	*12.7
AB122FEAIA	*6.35	*12.7
AB142FEAIA	*6.35	*12.7
AB162FEAIA	*6.35	*12.7

Cassette type unit with airflow in four directions AB182FEAIA, AB242FEAIA, AB282FEAIA



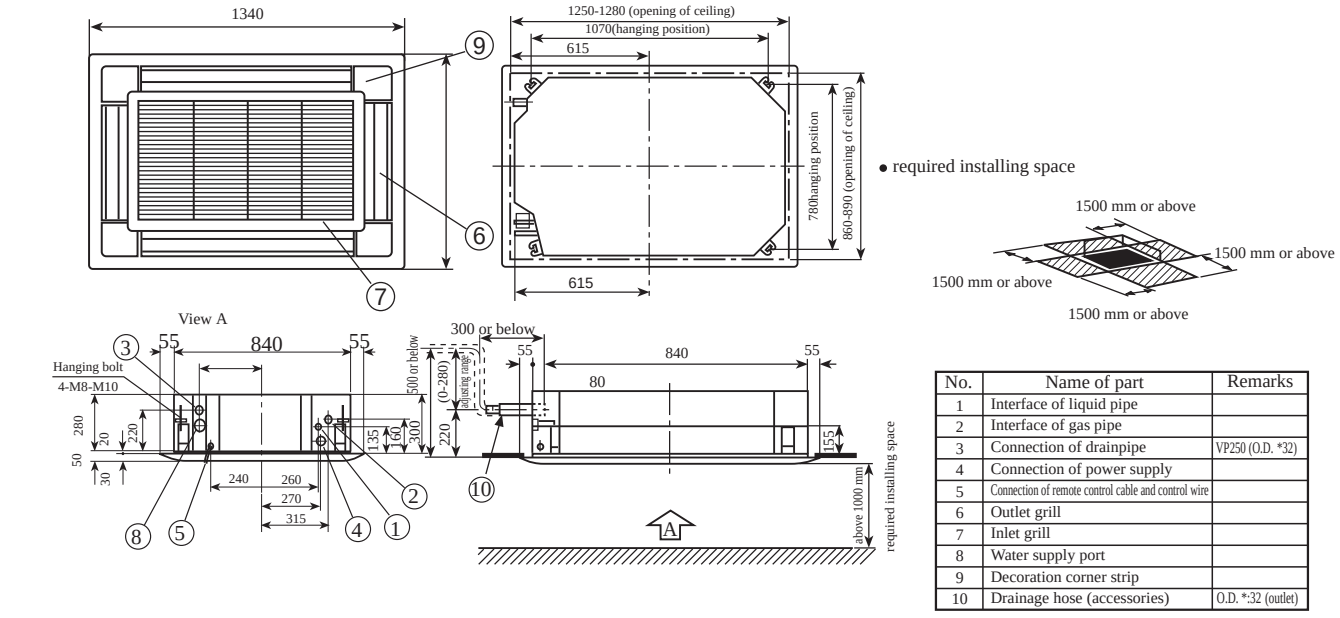
No.	Name of part	Remarks
1	Interface of liquid pipe	
2	Interface of gas pipe	
3	Connection of drainpipe	VP25
4	Connection of power supply	
5	Connection of remote control cable and control wire	
6	Outlet grill	
7	Inlet grill	
8	Water supply port	
9	Decoration corner strip	
10	Drainage hose	Outside diameter: 32

Note:

1. Nameplate position of indoor unit.
Unit body: inside the switch box of inlet grill.
Panel: inside of decoration board of inlet grill.
2. Assembly the accessories according to the assembly drawing of the accessories.

● For new air assembly---an access opening is required.

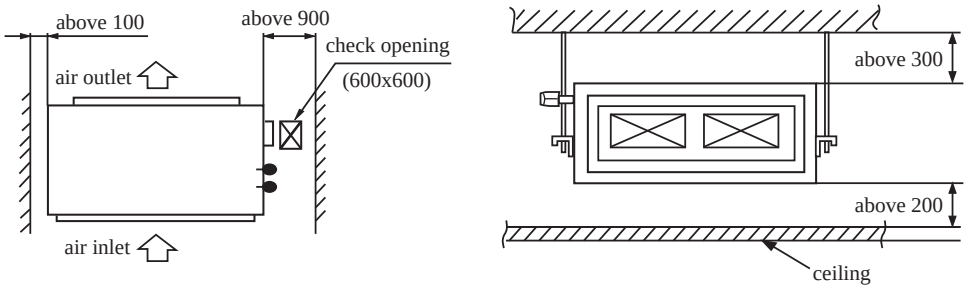
Model	Liquid pipe (mm)	Gas pipe (mm)
AB182FEAIA	Φ9.52	Φ15.88
AB242FEAIA	Φ9.52	Φ15.88
AB282FEAIA	Φ9.52	Φ15.88



No.	Name of part	Remarks
1	Interface of liquid pipe	
2	Interface of gas pipe	
3	Connection of drainpipe	VP250 (O.D. *32)
4	Connection of power supply	
5	Connection of remote control cable and control wire	
6	Outlet grill	
7	Inlet grill	
8	Water supply port	
9	Decoration corner strip	
10	Drainage hose (accessories)	O.D. *:32 (outlet)

Model	Liquid pipe (mm)	Gas pipe (mm)
AB322FEAIA	Φ9.52	Φ15.88
AB362FEAIA	Φ9.52	Φ19.05
AB452FEAIA	Φ9.52	Φ19.05

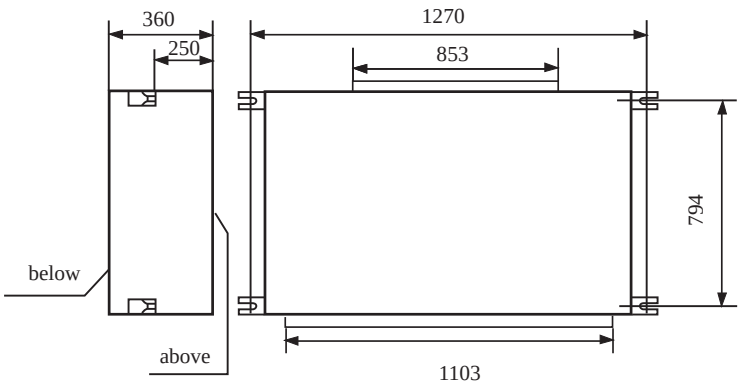
3. Duct type unit of high static pressure AD322FIAHA, AD362FIAHA, AD452FIAHA



Requited installing space (unit: mm)

Preparation before installation

(1) Ubiety before hosting screw stem (unit: mm)



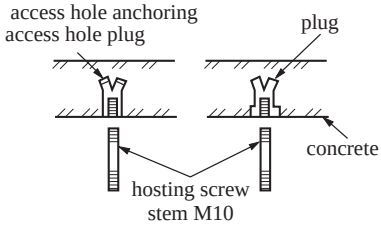
(2) If necessary, make hole on the ceiling for installation. (If the ceiling is available).

- For the dimension of opening on the ceiling, please refer to the right diagram. Before installation, prepare all the pipelines (re immediately connect with indoor unit after installation.
  When make hole on the ceiling, it may be necessary to reinforce the ceiling to maintain the leveling of the ceiling and prevent the ceiling from vibration. For more detail, consult the constructor.
-

(3) Installing the hoisting screw stem

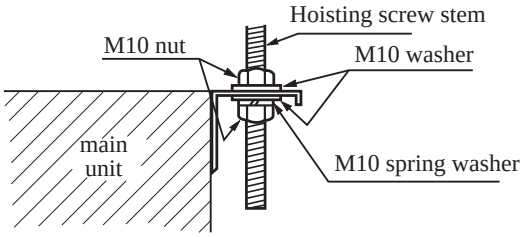
(Use M10 bolt)

In order to bear the weight of the unit group, the anchor bolts should be used when there is the ceiling. For new ceiling, the sunk bolts, embedded bolts or other parts provided on the spot should be used. Before continuing to install, adjust the clearance between the ceiling.



4. Installation of indoor unit group

- Fix the indoor unit to the hoisting screw stem.
  If necessary, the unit may be hung to the crossbeam.
  If there is no hoisting screw stem, directly use the bolt.

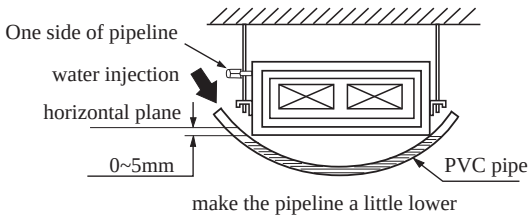


Note: When the dimension of the master part does not match with the hole of the ceiling, adjust the slot of the hanging bracket.

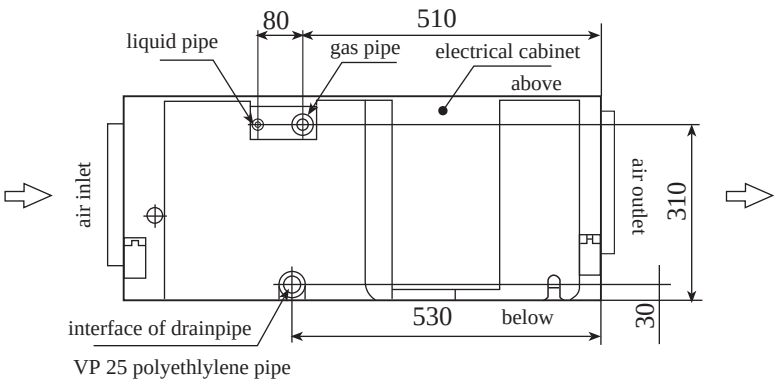
Adjusting to level

a. Conduct leveling adjustment by using gradienter or the following methods.

- Conduct adjustment so as to make the relationship between the bottom surface of the unit and the unleveled surface in the hose show as the following diagram.



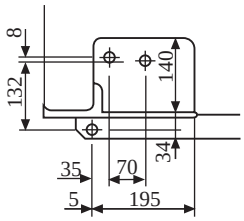
b. Unless adjusted to the horizontal position, otherwise the floating switch may have fault or misplay.



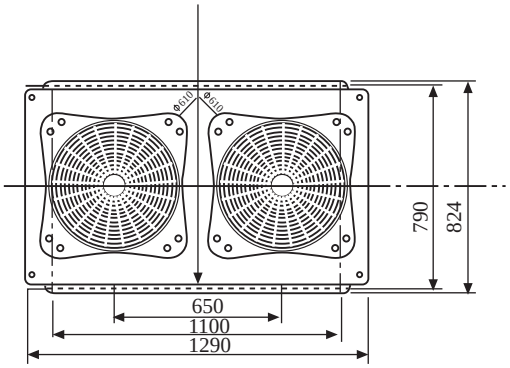
Model	Liquid pipe (mm)	Gas pipe (mm)
AD322FIAHA	*9.52	*15.88
AD362FIAHA	*9.52	*19.05
AD452FIAHA	*9.52	*19.05

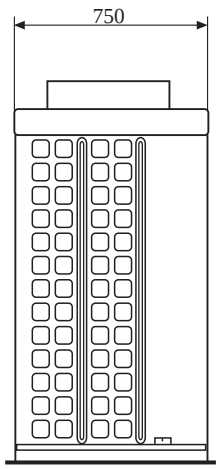
4. Outdoor unit

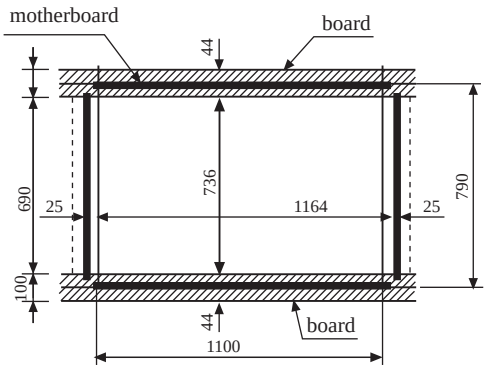
AU96NFTAHA

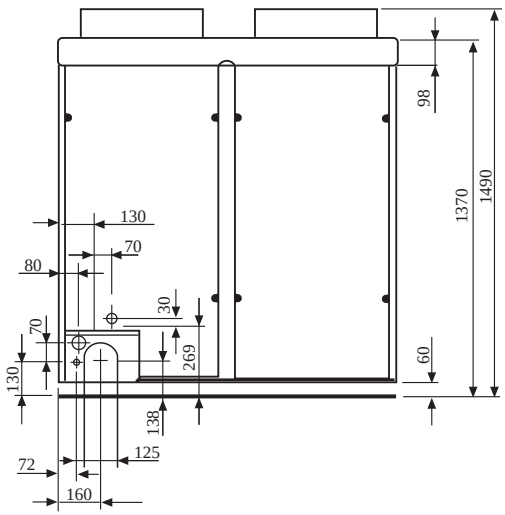


Detailed plane of the hole for bottom pipe installation.





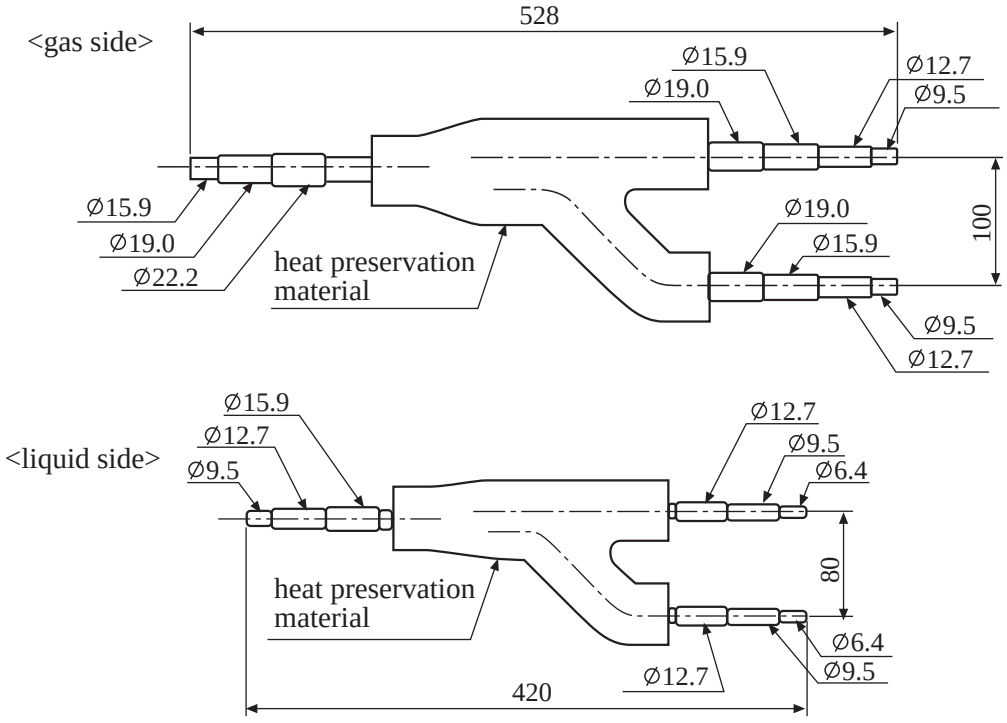




5. Dimension of manifold pipe

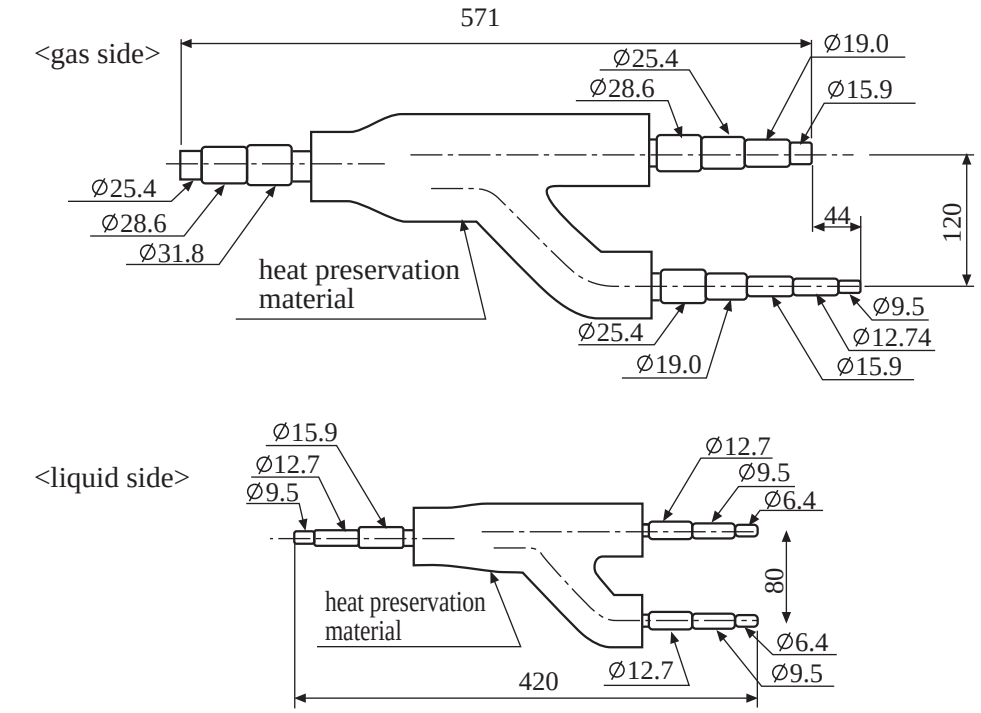
Y-type manifold pipe

FQG-B180



Dimension is the out diameter connecting to the tubing.

FQG-B370

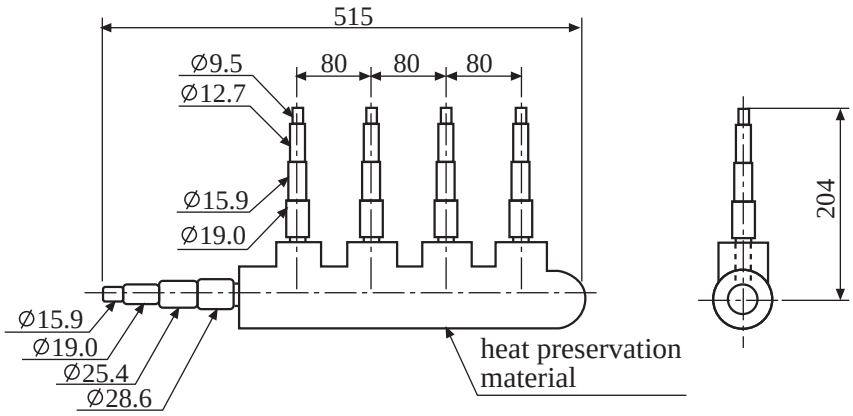


Dimension is the out diameter connecting to the tubing.

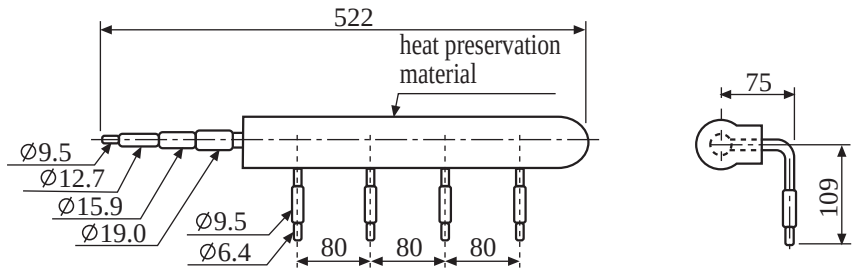
Comb-shape manifold pipe

FQG-H3704

<gas side>

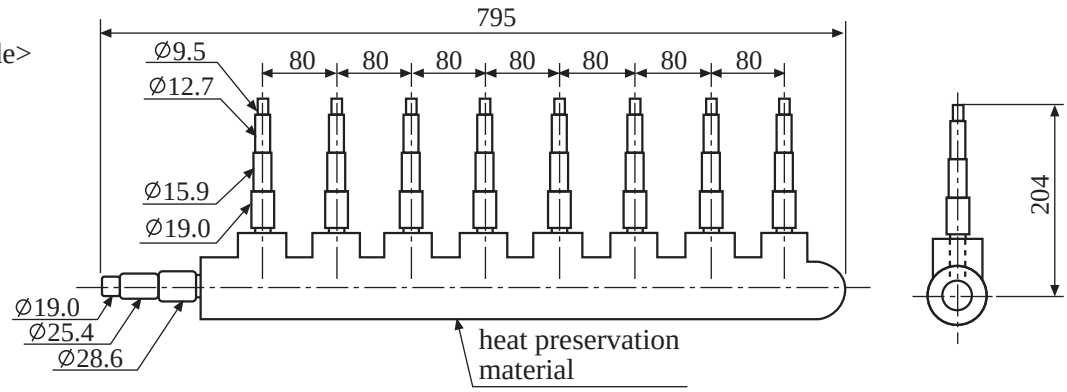


<liquid side>

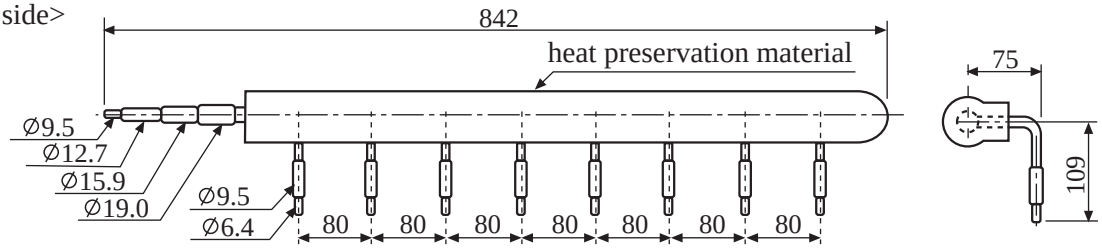


FQG-H3708

<gas side>



<liquid side>



4 Wiring diagram

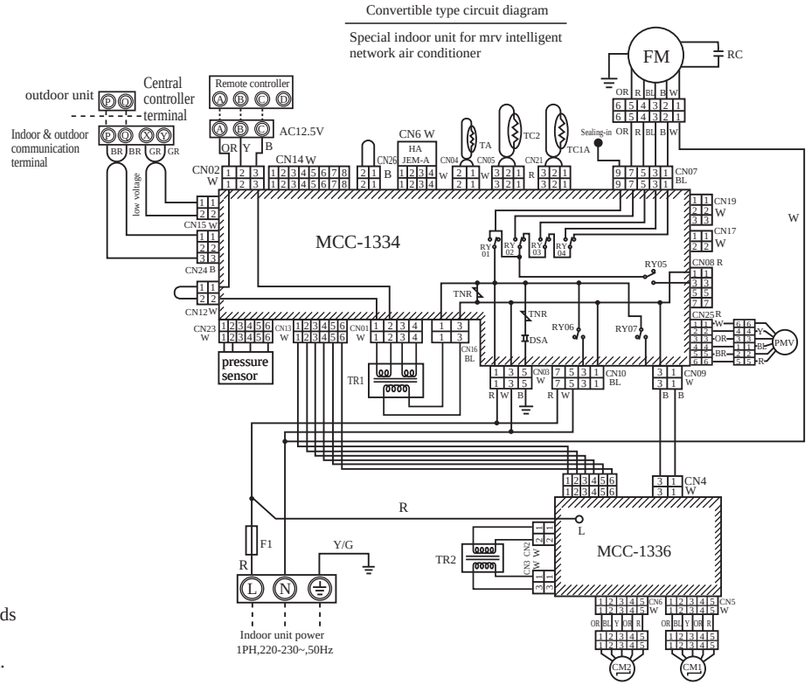
1. Wiring diagram of indoor unit

Symbol	Name
FM	Motor for airflow (built-in thermal protector)
RC	Running capacitor
TR1,2	Supply transformer
TA	Ambient temperature sensor
TC1A	Indoor heat exchange sensor
TC2	Indoor heat exchange sensor
RY01,02,03,04	Fan control relay
RY05	Fan control relay
RY06	Control relay for drainage pump
RY07	Control relay for air deflector
HA	JEMA standard HA terminal-A
GM1,2	Motor for air deflector
F1	Fuse 5A 250VAC
PMV	Electronic expanding valve
TNR	Piezoresistance
DSA	Discharge tube

LED indicates

LED		
D08	Orange	Serial signal input of linear controller
D10	Green	Serial signal output of linear controller
D16	Red	Indoor abnormality
D17	Yellow	LAN signal output of outdoor unit

1.▣indicates terminal block; internal words express code of terminal block.
2. Dotted line indicates wiring on the spot.
3. ▭ indicates PCB
4.For the method of connecting with outdoor unit, please refer to the wiring diagram attached to each model.



Switch function

SW01	Rotary switch	For setting unit code of indoor unit
SW02	Dial switch (7P)	For setting centralized control address
SW03	Dial switch (3P)	For TA temperature modification when heating
SW04	Dial switch (1P)	For emergency running
SW05	Dial switch (4P)	For setting HP of indoor unit
SW07	Dial switch (2P)	For testing rated capacity

Setting content of dial switch

		Settingstate whendelivering	
SW03 (TA setting)	ON 1 2 3		Setting of TA temperature when heating; Modification
	ON 1 2 3	4deg	
	ON 1 2 3	6deg	
SW07	ON	OFF	When it is in ON state,the max. power will be transferred into ratedpower after 29 minutes
	ON	ON	

Inspection code	Inspection part (Inspection place:indoor unit)
OC	Ambient temperature sensor (TA) circuit
12	Ambient temperature sensor (TA) circuit
93	Indoor base plate circuit
94	Indoor heat exchange sensor (TC1A) circuit
97	Indoor heat exchange sensor (TC2) circuit
98	Centralized control communication circuit
99	Centralized control address setting
9A	Linear controller mismatch wiring
9F	Mismatch wiring of indoor unit
b5	Judgement for insufficient circulation of refrigerant
b6	Expression of external output
b9	Expression of external interlocking
Ed	Circuit of indoor pressure sensor
Ed	Expression of insufficient refrigerant

Symbol	Name
FM	Motor for airflow (built-in thermal protector)
RC	Running capacitor
TR	Supply transformer
TA	Ambient temperature sensor
TC1A	Indoor heat exchange sensor
TC2	Indoor heat exchange sensor
RY01,02,03,04	Fan control relay
RY05	Control relay for electrical heater
RY06	Control relay for drainage pump
RY07	Control relay for air deflector
HA	JEMA standard HA terminal-A
GM	Motor for air deflector
F1	Fuse 5A 250VAC
PMV	Electronic expanding valve
TNR	Piezoresistor
DSA	Discharge tube

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LED		
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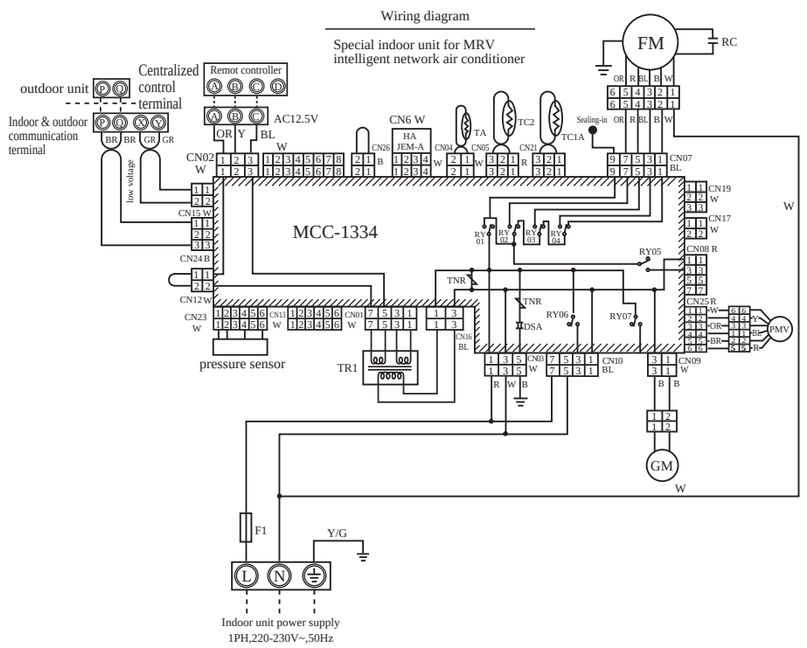

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Setting content of dial switch

		Setting state when delivering	
SW03 (TA setting)	ON 1 2 3		Setting of TA temperature when heating; Modification
	ON 1 2 3	4deg	
	ON 1 2 3	6deg	
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	ON	ON	

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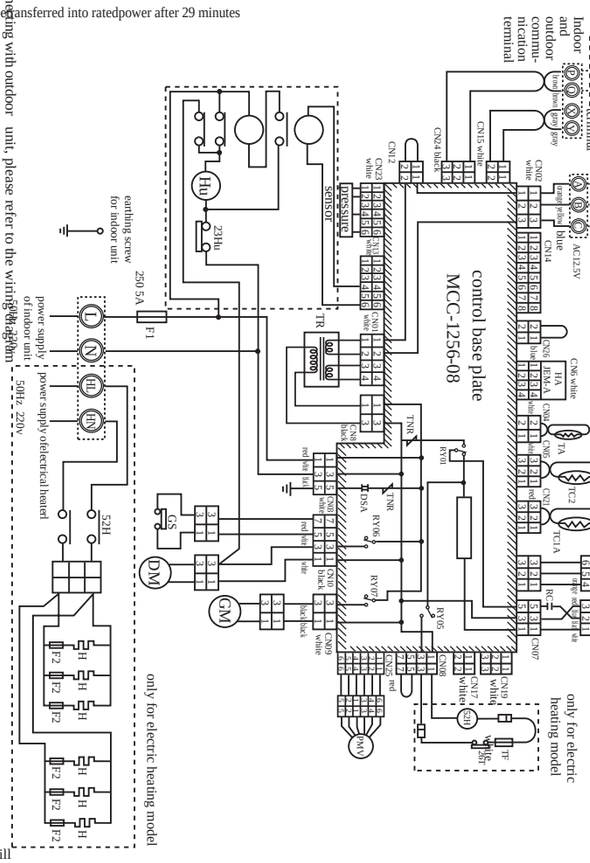
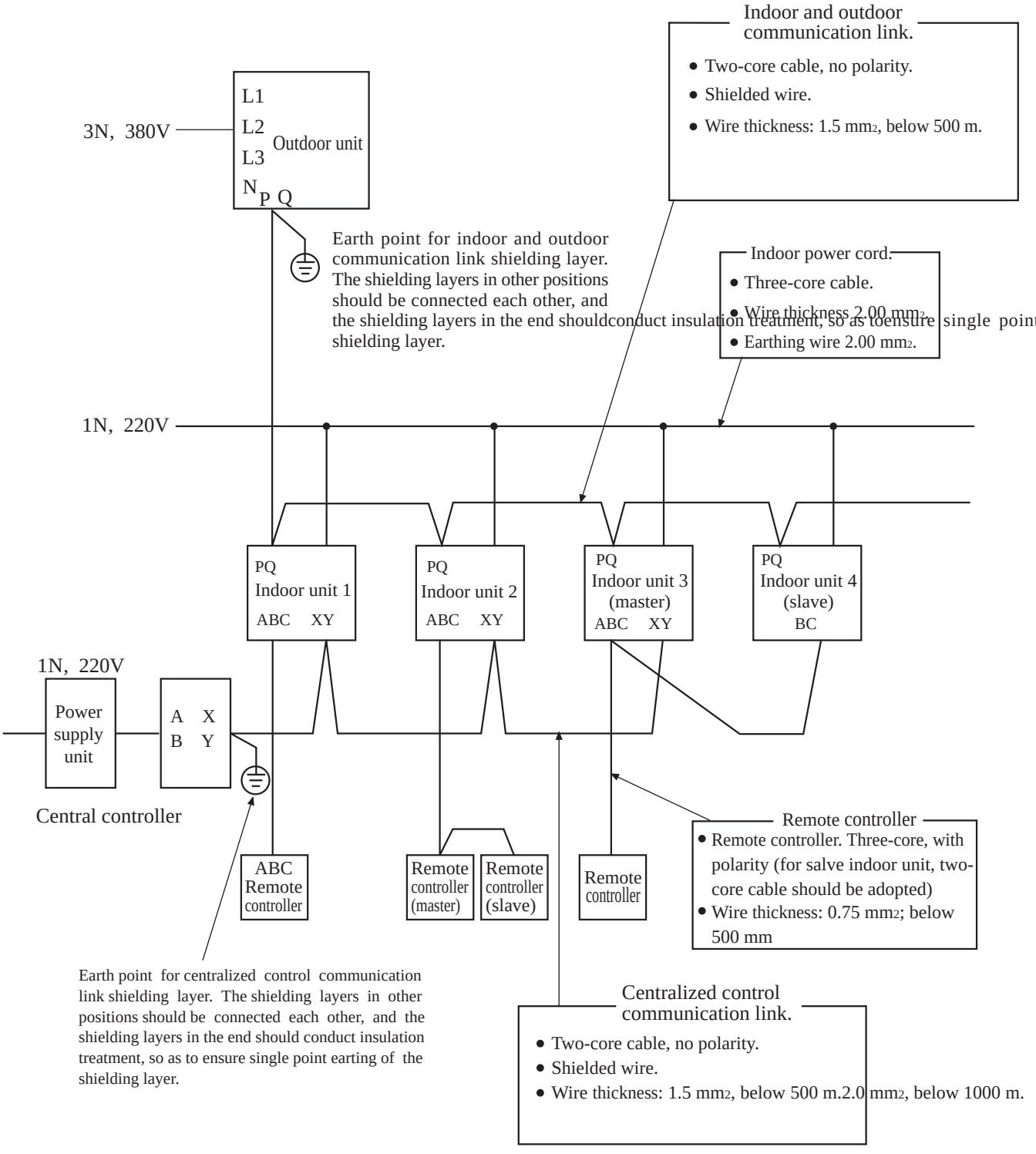
99	Centralized control address setting
9A	Linear controller mismatch wiring
9F	Mismatch wiring of indoor unit
b5	Judgement for insufficient circulation of refrigerant
b6	Expression of external output
b9	Expression of external interlocking
Ed	Circuit of indoor pressure sensor
Ed	Expression of insufficient refrigerant

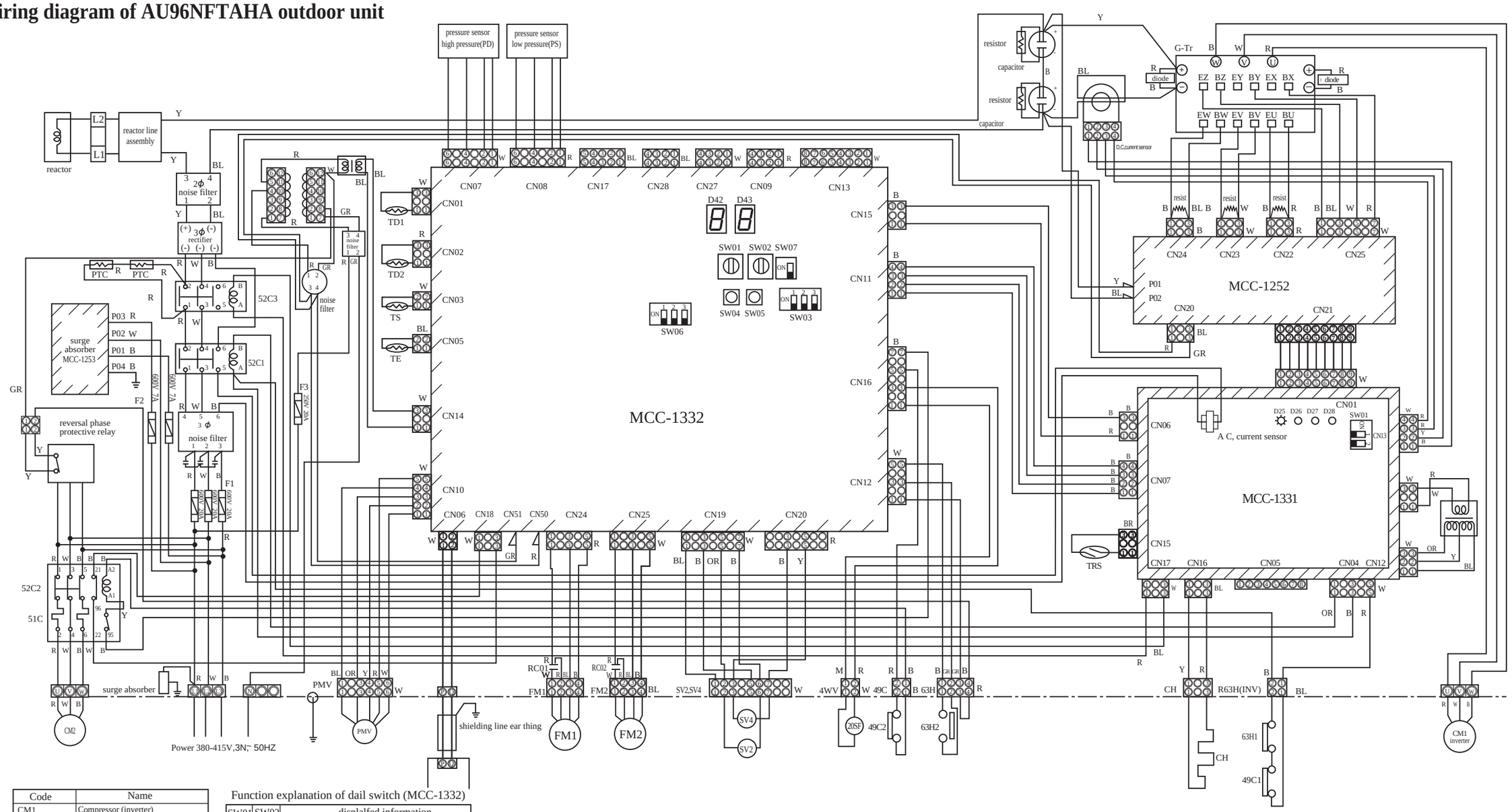


2. Wiring diagram of outdoor unit

a. Wiring connection diagram



b. Wiring diagram of AU96NFTAHA outdoor unit



Code	Name
CM1	Compressor (inverter)
CM2	Compressor (commercial)
52C1	magnetic contactor (CM1)
52C2	magnetic contactor (CM2)
52C3	magnetic contactor (CM1)
PMV	electronic expanding valve
63H1,63H2	high pressure switch
RC01,RC02	capacitor(for FM01,FM02)
SV2,SV4	2way-valve solenoid valve
20SF	4way-valve solenoid valve
CH	crankcase heater for compressor
F1,F2,F3	fuse(20A 600V)
49C1,49C2	inside overload protector(IOL)
51C	overload protector (OL)
TD1,TD2,TS,TE	temp sensor
TRS	thermostat 100*

Notes:please connect the outdoor unit to the power, then connect the indoor unit to the power otherwise,the failure code[95]may appear At this time press the "self-check"button on the wired controller for at least 10 senconds to delete the failure code.(The machine's operation will not be influenced by such phenomenon)

Function explanation of dail switch (MCC-1332)

SW01	SW02	displalfed information
0	0	failure code for outdoor unit
	1	operational mode,cooling:C,heating:H,defrosting:J
	4	INV target frequency
	5	INV real frequency
	6	number of the indoor units connected
	7	outdoor unit is in the sensor back-up operational state
	9	confirm mis -wired(cooling operation),press sw04 for at least 2 seconds
	10	confirm mis-wired(heating operation),press SW04 for at least 2 seconds
	11	cooling test run,pressSW04 at least2 seconds
	12	heating test run, pressSW04 at least 2 secondsintegrated operation start and stop start: SW04,stop: SW05 control operation: the indoor remote controller start: SW04,stop: SW05
	14	data of TD1
	15	data of TD2
1	0	data of TS
	1	data of TE
	2	data of Pd
	3	data of Ps
	4	PMV open degree of outdoor unit
	5	operation state of rated press operation:1
	6	
	7	

SW01	SW02	Displayed information
2	0	external instruction operation state,external instructionoperation: 1
	1	operation mode of external option, cooling: C; heating : H
	2	intergrated operation start and stop : start: 1 stop: 0
	3	control state of the fan speed prevent snowing
	4	control state of low -noise operation at night in control: 1

SW01	SW02	Displayed information
3	0-15	room units communication state information receiving l: 1
4	0-15	room units failure code
5	0-15	room units capacity code
9	0-15	room units PMV open degree
11	0-15	room units TA sensor data
12	0-15	room units TC2 sensor data
13	0-15	room units TCIA sensor data
15	0-15	room units separate test run start:SW04,stop:SW05, (The"0-15"under SW02 is the addresses of indoor unit)

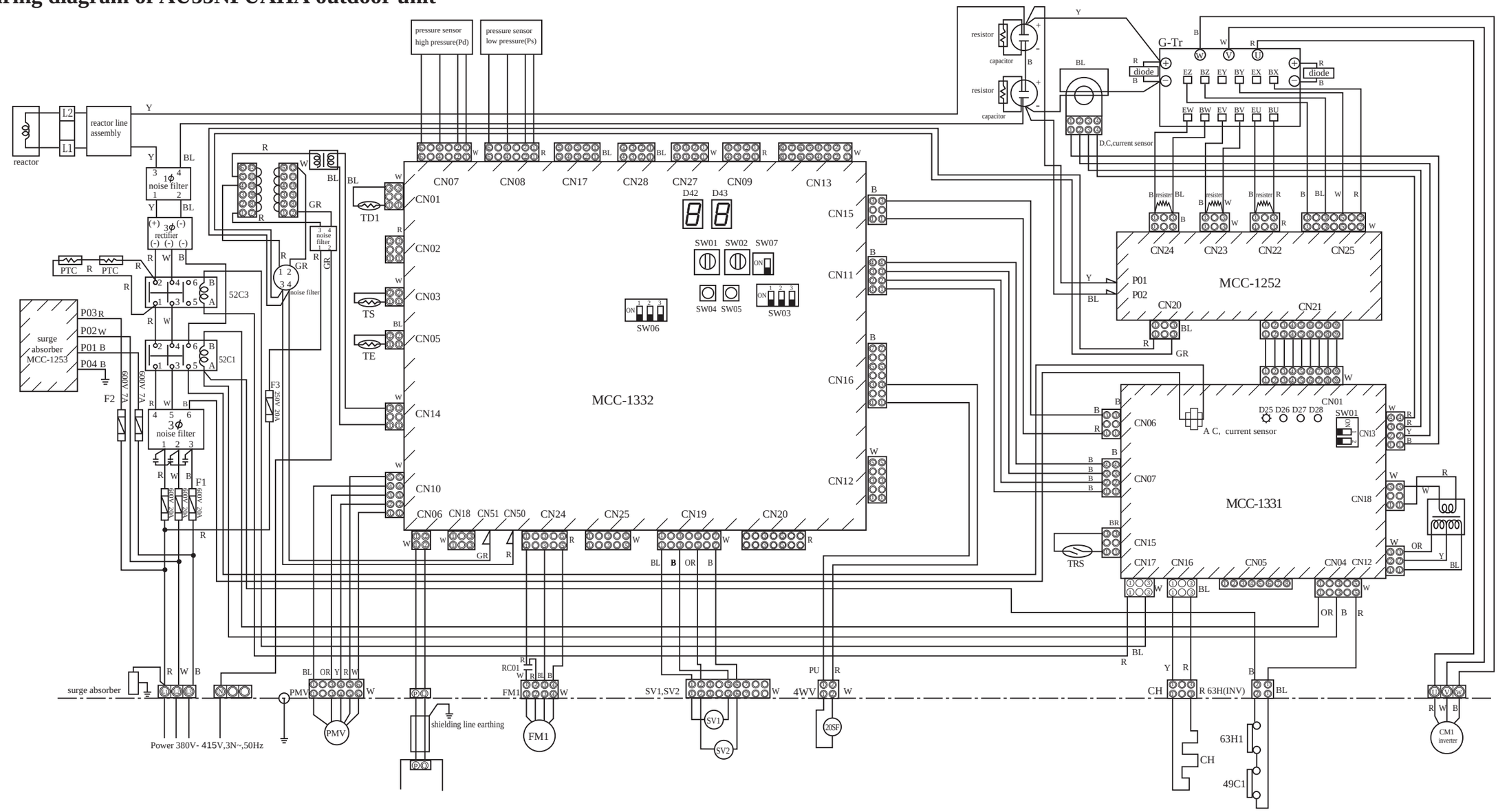
SW	Unit	function	ON	OFF
03	1	back-up operation upon compressor(inverter)failure fault	back- up operation	normal
	2	back-up operation upon compressorcv compressor(commercial)failure	back- up operation	normal
	3	external contrd switch	external control	snowing fan control
06	1	back -up operation upon pd sensor failure	back- up operation	normal
	2	back -up operation upon ps sensor failure	back- up operation	normal
	3	not used	——	normal
07	1	not used	——	normal

Switch SW01&ED Displayed Information(MCC-1331)

Switch	LED			
	1 red (D25)	2 yellow (D26)	3 yellow (d27)	4 yellow (D28)
ON 1 2	Overload protective circuit of GTR	compressor system circuit	current detect protection	high- pressure switch system circuit
ON 1 2	——	current detect circuit	times of protecting action	
ON 1 2	Frequency data of serial signal(receiving from MCC-1332)			
1 2	Frequency data of serial signal(sending to MCC-1332)			

1. Dotted line for field wiring.2. for terminal block,the numbers inside for the termina

c. Wiring diagram of AU55NFUAHA outdoor unit



Code	Name
CM1	Compressor (inverter)
52C1	Magnetic contactor(CM1)
52C3	Magnetic contactor(CM1)
PMV	electronic expansion valve
63H1	high-tension switch
RC01	capacitor (for FM 01)
SV1,SV2	2way-valve solenoid valve
20SF	4way-valve solenoid valve
CH	crankcase heater for compressor
F1,F2,F3	fuse(20A 600V)
49C1	inside overload protector(IOL)
TD1,TS,TE	temp sensor
TRS	thermostat (100*)

Notes:please connect the outdoor unit to the power, then connect the indoor unit to the power, otherwise,the failure code[95]may appear. At this time,press the "self-check"button on the wired controller for at least 10 senconds to delete the failure code.(The machine's operation will not be influenced by such a phenomenon)

Function explanation of dial switch(MCC-1332)

SW01	SW02	Displayed Information
0	0	failure code for outdoor unitng
	1	operational mode,cooling:C,heating:H,defrost
	4	INV target frequency
	5	INV real frequency
	6	number of the indoor units conncted
	7	out door unit is in the sensor back-up operational state
	9	confirm mis-wired (cooling operation),press sw04 for at least 2 seconds
	10	confirm mis-wired (heating operation),press sw04 for at least 2 seconds
	11	cooling test run,press SW04 at least 2 seconds
	12	heating test run,press SW04 at least 2 seconds
	14	integrated operation start and stop start:11 stop:00 normal:--
	15	confirm operation of indoor remote controller:start:11 normal:-
1	0	data of TD1
	2	data of TS
	3	data of TE
	4	data of Pd
	5	data of Ps
	6	PMV open degree of outdoor unit

SW01	SW02	displayed information
3	1	external instruction operation state,external instruction operation: 1
	2	operation mode of external option,cooling:c heating:h
	3	intergrated operation start and stop: start:1, stop: 0
	4	control state of fan speed prevent snowing in control: 1
	5	control state of low noise operation at night control: 1

SW01	SW02	displayed information
4	0-15	room units communication state information receiving: 1
5	0-15	room units failure code
6	0-15	room units capacity code
10	0-15	room units PMV open degree
12	0-15	room units TA sensor data
13	0-15	room units TC2 sensor data
14	0-15	room units TCIA sensor data
16	0-15	room units separate test run start:11,stop:00

(The"0~16"under SW02 is the addresses of indoor unit)

SW	Unit	Function	ON	OFF
03	1	Not used	——	normal
	2	Not used	——	normal
	3	external control function switch	external control	snowing fan control
06	1	Back-up operation on Pd sensor in failure	back-up operation	normal
	2	Back-up operation on PS sensor in failure	back-up operation	normal
	3	Not used	——	normal
07	1	Not used	——	normal

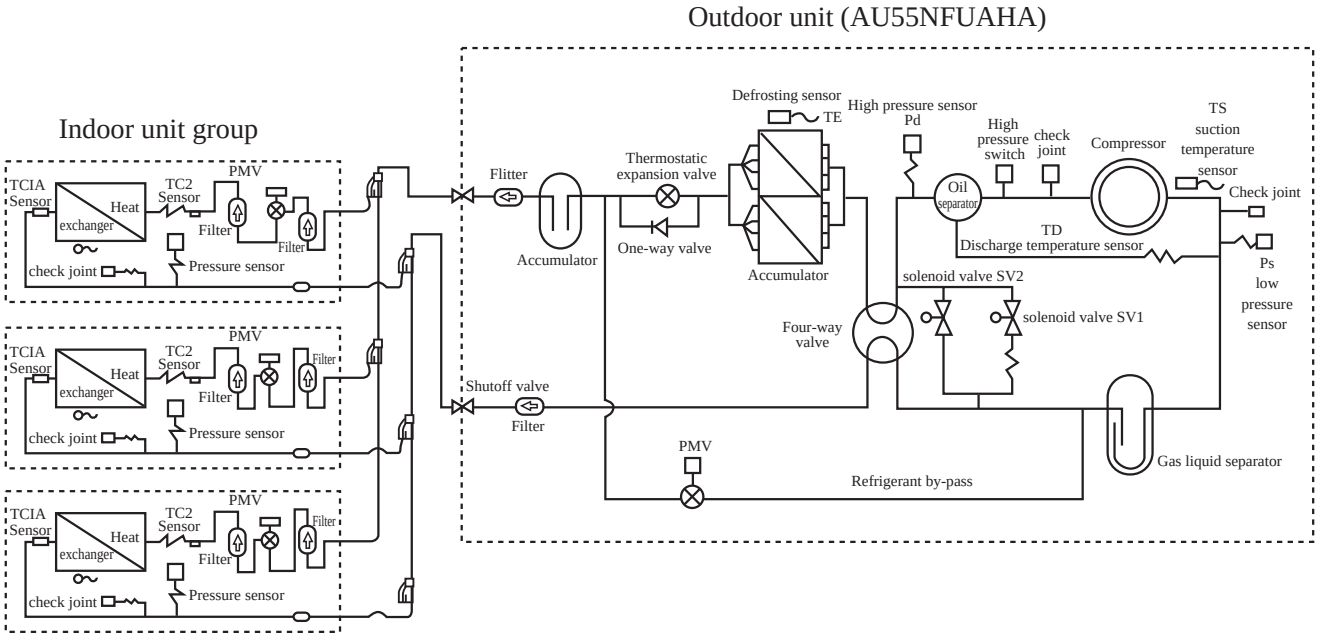
Switch SW01 & LED Displayed Information(MCC-1331)

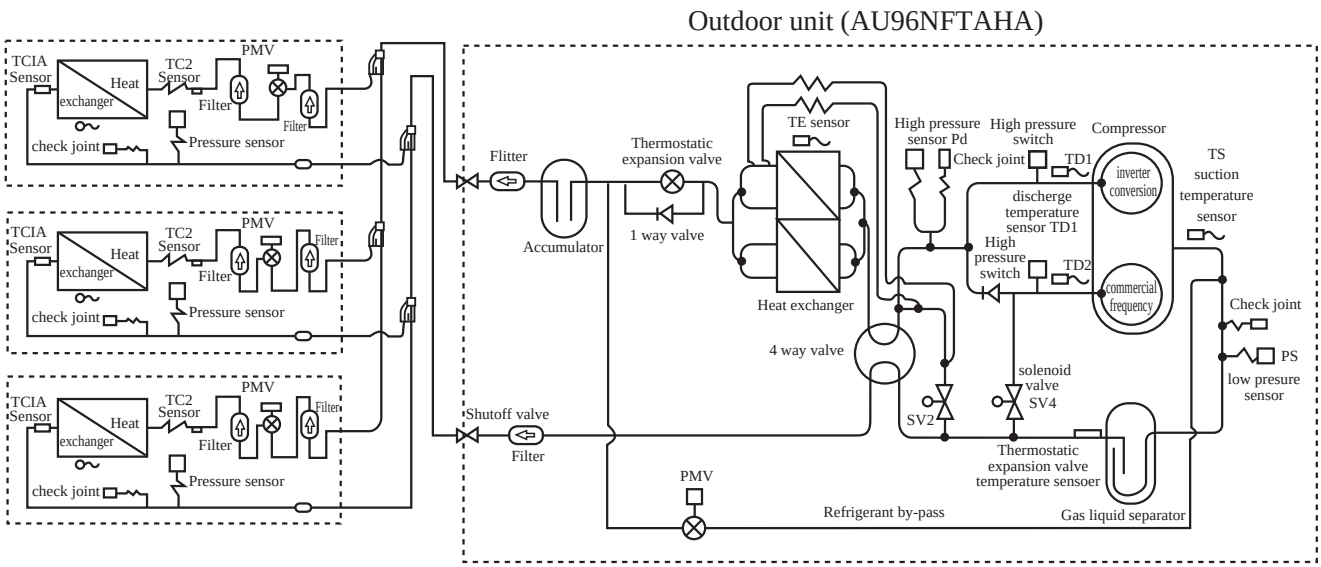
Switch	LED			
	1 red (D25)	2 yellow (D26)	3 yellow (d27)	4 yellow (D28)
ON 1 2	Overcurrent protective circuit of GTR	compressor system circuit	current detect protection	high-pressure switch system circuit
ON 1 2	——	current detect circuit	times of protective action	
ON 1 2	Frequency data of serial signal(receiving from MCC-1332)			
ON 1 2	Frequency data of serial signal(sending to MCC-1332)			

1. Dotted line for fiels wiring.2. for terminal black the numbers inside for the terminal numbers.3.

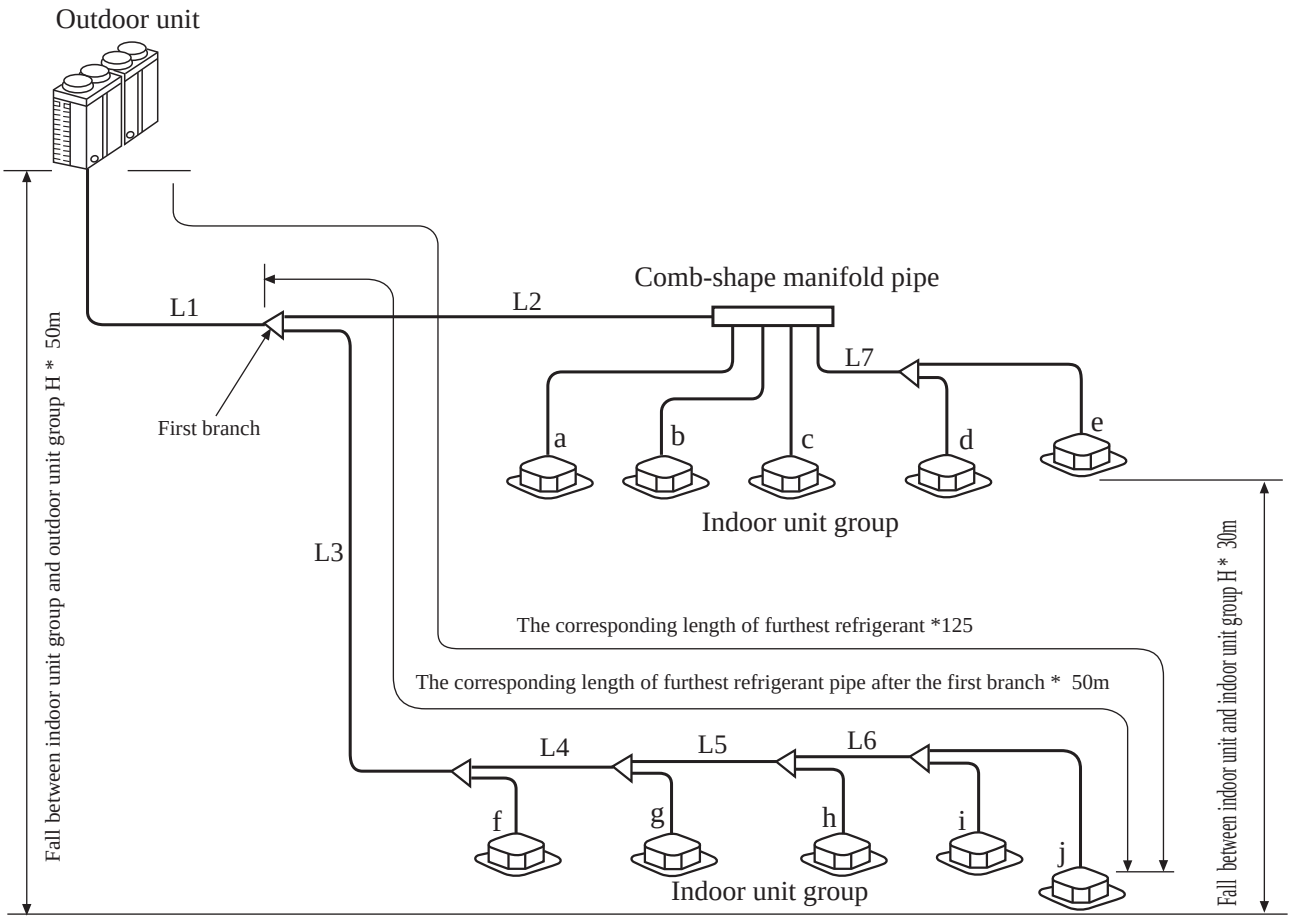
5 Refrigerant pipe

1. Indoor unit group





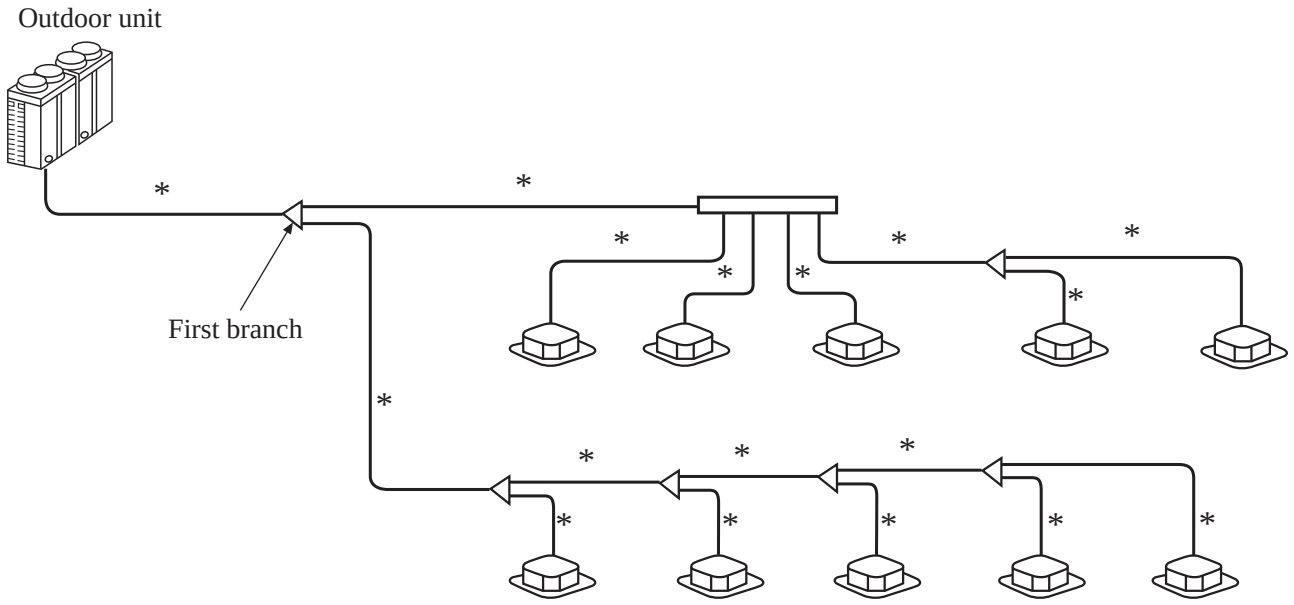
2. Max. Length and difference of height of refrigerant pipe



			Max. value	Refrigerant pipe
Length of refrigerant pipe	Total length of refrigerant pipe	6Hp	220 m	L1+L2+L3+L4+L5+L6+L7 +a+b+c+d+e+f+g+h+I+j
		10Hp	250 m	
	Length of furthest refrigerant pipe L (※)	Real length	100 m	L1+L3+L4+L5+L6+j
		Corresponding length	125 m	
	The corresponding length of furthest refrigerant pipe after the first branch Q (※)		50 m	L3+L4+L5+L6+j
Fall	Drop height between indoor and outdoor H	Outdoor top	50 m	———
		Outdoor bottom	50 m	———
	Drop height between indoor and outdoor h		30 m	———

※ Furthest length between indoor unit group after first branch

3. Selection of refrigerant pipe



Selection of dimension of refrigerant pipe
Outdoor unit →Refrigerant pipe (main pipe) between first branches
Same as the dimension of refrigerant pipe of outdoor unit (Table 1)

(1). Table 1 Dimension of refrigerant pipe of outdoor unit

Model	Gas side	Liquid side
AU55NFUAHA	*22.2	*9.52
AU96NFTAHA	*28.6	*12.7

When the corresponding length of the gas pipe before the first branch exceeds 35 m, the length of the refrigerant pipe should be above grade 1. (*19.0 →*22).

Manifold pipe →Refrigerant pipe between manifold pipes (branch)
Selected as per the total capacity of the indoor unit group connected to the lower reaches (Table 2)

(2). Table 2 Refrigerant pipes between manifold pipes

Total refrigerating amount of indoor unit group	Gas side	Liquid side
Less than 38220Btu/h	*15.9	*9.52
38220~61157Btu/h	*19.05	*9.52
61157~126137Btu/h	*25.4	*12.7

Manifold pipe →Refrigerant pipe between indoor unit groups (indoor refrigerant pipe)
Same as the dimension of refrigerant pipe of indoor unit (Table 3). But when exceeding 25 m of first branch, the dimension of the gas pipe should be increased 1 #.

(3). Table 3 Dimension of refrigerant pipe of indoor unit group

Capability	Gas side	Liquid side
Type 07~16	*12.7	*6.35
Type 18~32	*15.88	*9.52
Type 36~45	*19.05	*9.52

Selection of manifold pipe
Selected as per the total capacity of the indoor unit group connected to the lower reaches (Table 4)
Selected as per the number of the unit connected to the indoor unit group (Table 4)

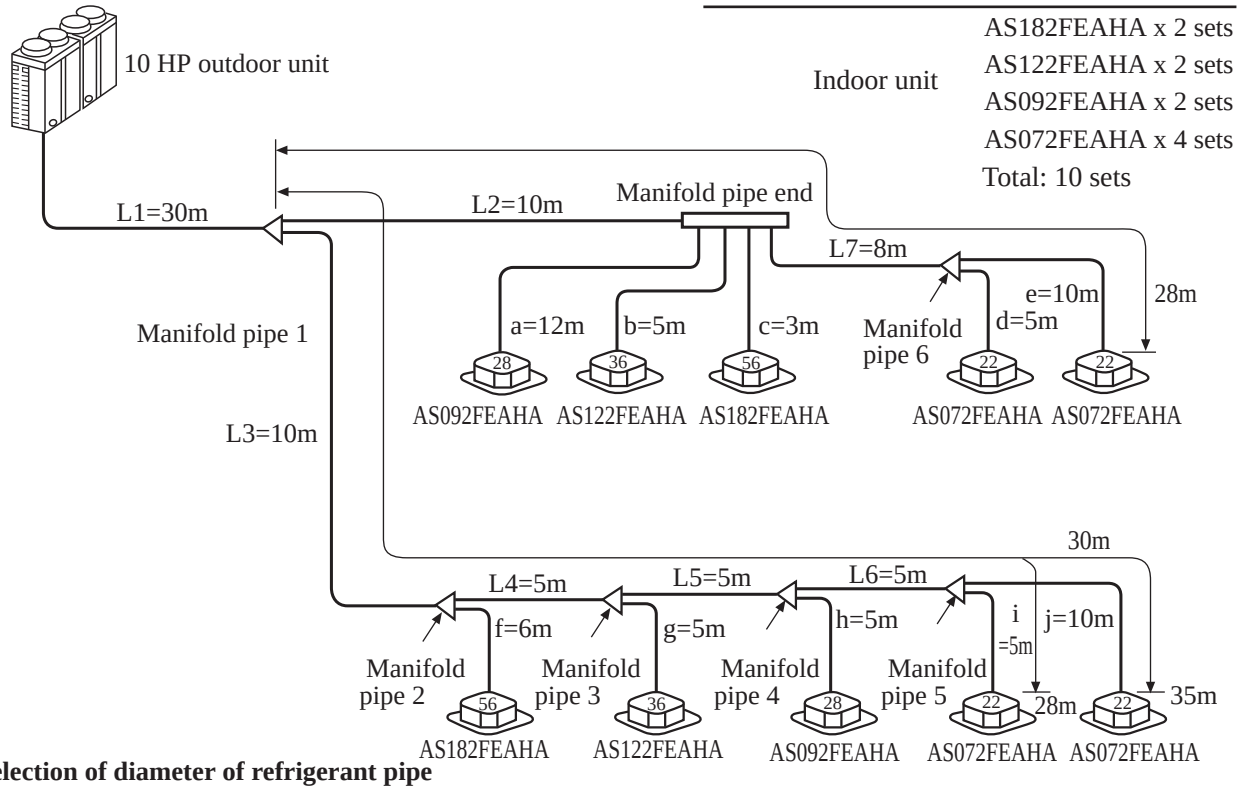
(4). Table 4 Selection of manifold pipe

Item / Name	Total of capacity code of indoor unit group	Model
Y-type manifold pipe	61KBtu/h not full	FQG-B180
	Above 61KBtu/h,126KBtu/h not full	FQG-B370
comb-shaped pipe	For branch 4	FQG-H3704
	For branch 8	FQG-H3708

※ Max. total of capacity code of one system after manifold pipe is 6.0.

Selection of refrigerant pipe

Unit used Outdoor unit	AU96NFTAHA x 1 set
Indoor unit	AS182FEAHA x 2 sets
	AS122FEAHA x 2 sets
	AS092FEAHA x 2 sets
	AS072FEAHA x 4 sets
	Total: 10 sets



a) Selection of diameter of refrigerant pipe

Refrigerant pipe portion	Corresponding length of refrigerant pipe	Selection method of refrigerant pipe	Gas side	Liquid side
L1	30	Refrigerant pipe of outdoor unit is same as (Table 1)	*28.6	*12.7
L2	10	1+1.25+2+0.8+0.8=5.08 (Table 2)	*19.0	*9.5
L3	10	2+1.25+1+0.8+0.8=5.85 (Table 2)	*19.0	*9.5
L4	5	1.25+1+0.8+0.8=3.85 (Table 2)	*15.9	*9.5
L5	5	1+0.8+0.8=2.6 (Table 2)	*15.9	*9.5
L6	5	0.8+0.8=1.6 (Table 2)	*15.9	*9.5
L7	8	0.8+0.8=1.6 (Table 2)	*15.9	*9.5
a	12	Refrigerant pipe of indoor unit is same as (Table 3)	*12.7	*6.4
b	9	Refrigerant pipe of indoor unit is same as (Table 3)	*12.7	*6.4
c	3	Refrigerant pipe of indoor unit is same as (Table 3)	*15.9	*9.5
d	5	Refrigerant pipe of indoor unit is same as (Table 3)	*12.7	*6.4
e	10	Refrigerant pipe of indoor unit is same as (Table 3)	*12.7	*6.4
f	6	Refrigerant pipe of indoor unit is same as (Table 3)	*15.9	*9.5
g	5	Refrigerant pipe of indoor unit is same as (Table 3)	*12.7	*6.4
h	5	Refrigerant pipe of indoor unit is same as (Table 3)	*12.7	*6.4
i	3	Refrigerant pipe of indoor unit is same as (Table 3)	*12.7	*6.4
j	10	If it exceeds 30 m after first branch, the diameter of pipe of gas side should be increased 1 #.	*12.7 →*15.9	*6.4

b) Selection of manifold pipe

Manifold portion	Selection method of manifold portion	Model of manifold portion
Manifold pie 1	L2(5.85)+L3(5.85)=11.7(Table 4)	FQG-B370
Manifold pie 2	L3=5.85(Table 4)	
Manifold pie 3	L4=3.85(Table 4)	
Manifold pie 4	L5=2.6(Table 4)	FQG-B180
Manifold pie 5	L6=1.6(Table 4)	
Manifold pie 6	L7=1.6(Table 4)	
Manifold pie	For 4 manifold (Table 4)	FQG-H3704

4. Length of refrigerant pipe and injection rate

The refrigerant in the lengthened part of the refrigerant pipe was not fed before delivery and needs to feed on the spot.
Calculation method: the supplementary injection rate is calculated according to the specification of liquid pipe and real length of the refrigerant pipe installed.

Supplementary injection rate on the spot = real length of liquid pipe x injection rate of liquid pipe
Injection rate (kg) = (L1 x 0.115 kg/m) + (L2 x 0.065 kg/m) + (L3 x 0.030 kg/m)

L1: Real total length of liquid pipe *12.7

L2: Real total length of liquid pipe *9.5

L3: Real total length of liquid pipe *6.4

Outside diameter of liquid pipe	Injection rate per meter
*6.4	0.030
*9.5	0.065
*12.7	0.115

Injection rate of refrigerant before delivery

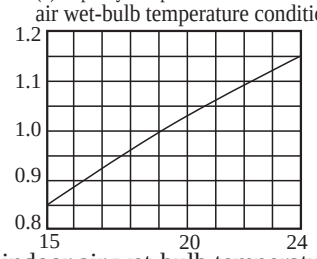
Name of outdoor unit	AU55NFUAHA	AU96NFTAHA
Feeding amount	10 kg	18 kg

6 Characteristics of refrigerating and heating capacity

1) Calculation method

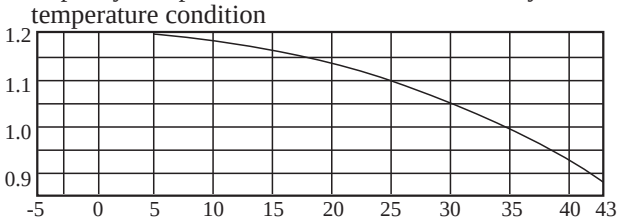
Calculation method of refrigerating capacity-Refrigerating capacity to be known = Refrigerating capacity x (1) x (2) x (3) x (4) x (5) W

(1) Capacity compensation value of indoor air wet-bulb temperature condition



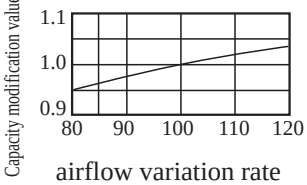
indoor air wet-bulb temperature(*)

Capacity compensation value of outdoor air dry-bulb temperature condition



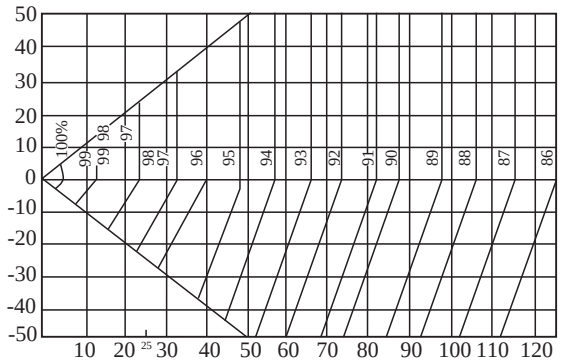
outdoor air dry-bulb temperature(*)

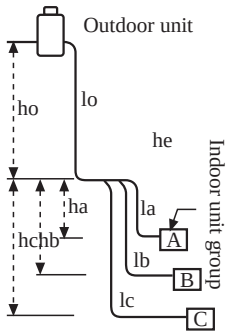
(3) Capacity modification value under airflow variation rate of indoor unit group (only for airflow type unit)



airflow variation rate

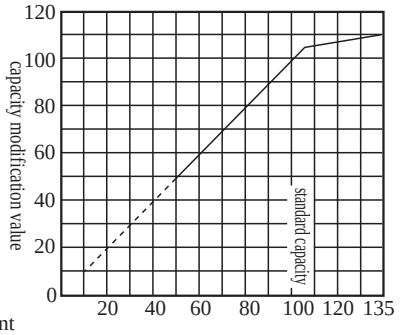
(4) Fall of refrigerant pipe of indoor and outdoorunit, capacity compensation value of pipe length





L(m) Length of refrigerant pipe (corresponding length) L (m)

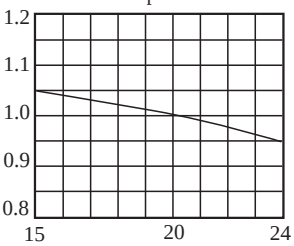
(5) Capacity compensation suitable for totaP capability of indoor unit group (cooling)



Total capacity of indoor unit group

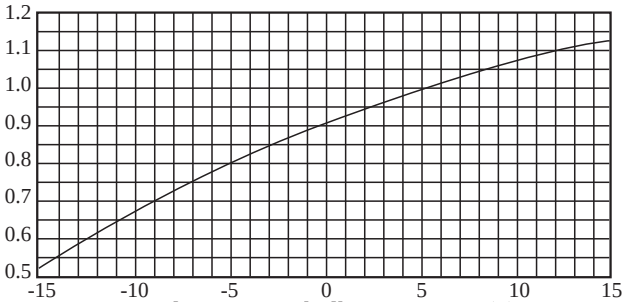
2) Calculation method of heating capacity—Heating capacity to be known = Heating capacity ((1) x (2) x (3) x (4) x (5) x (6)) W

(1) Capacity modification under indoor air wet-bulb temperature condition



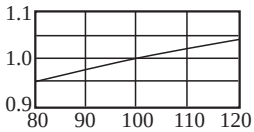
indoor air dry-bulb temperature(*)

(2) Capacity modification under outdoor air wet-bulb temperature condition

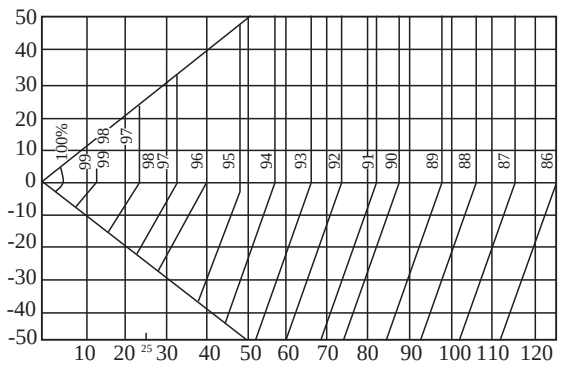


outdoor air wet-bulb temperature(*)

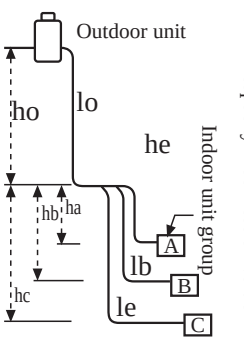
(3) Capacity modificationvalue under



(4) Fall of refrigerant pipe of indoor and outdoor unit, capacity compensation value of pipe length

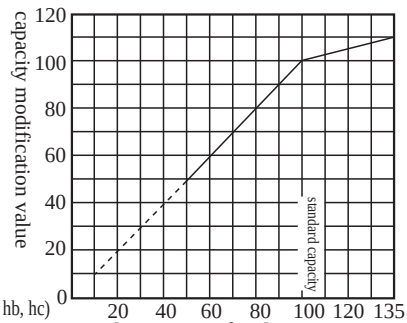


Length of refrigerant pipe (corresponding length) L (m)



H=ho+(the max. value of ha, hb, hc)
L=lo+(the max. value of la, lb, lc)

(5) Capacity compensation suitable for total capability of indoor unit group (heating)

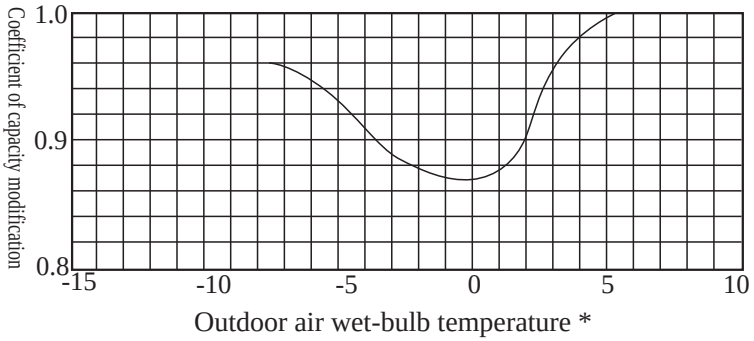


Total capacity of indoor unit group

3) Capacity modification when indoor unit and outdoor unit and heat exchanger frost when heating

Heating capacity = Capacity of outdoor unit after modification x frosting capacity modification (Capacity of outdoor

(6) Frosting capacity modification value of outdoor heat exchanger

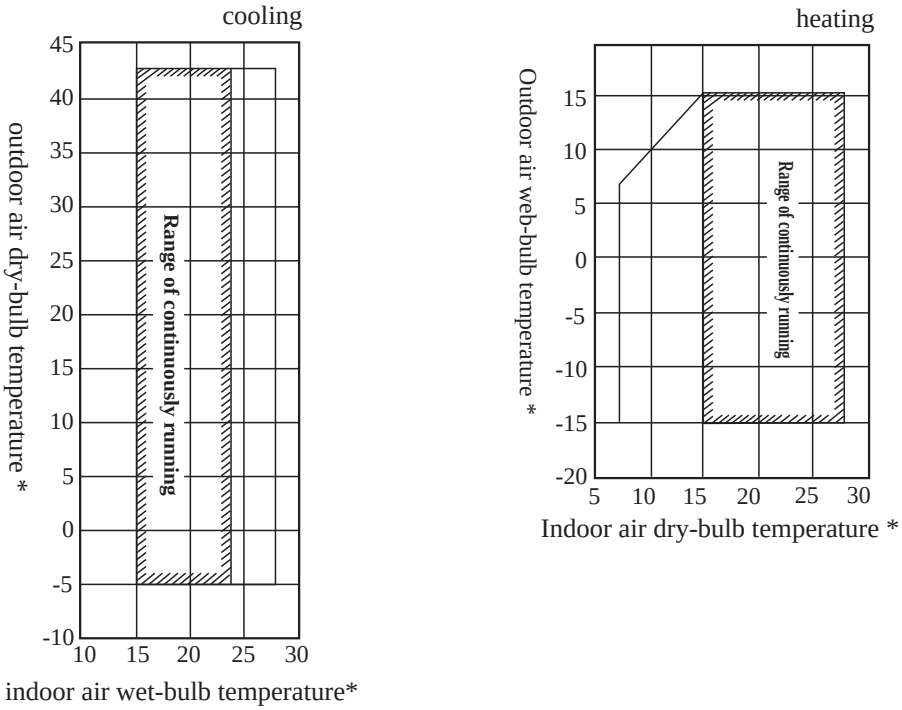


4) Calculation method of operation capacity of one set indoor unit

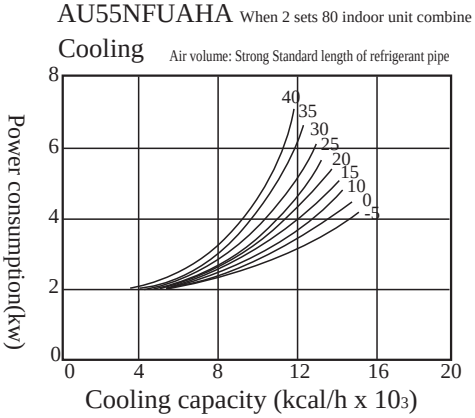
$$\text{Operation capacity of one set indoor unit} = \text{capacity of outdoor unit after modification} \times \frac{\text{standard operation capacity of indoor unit to be known}}{\text{Total value of standard capacity of indoor unit group}}$$

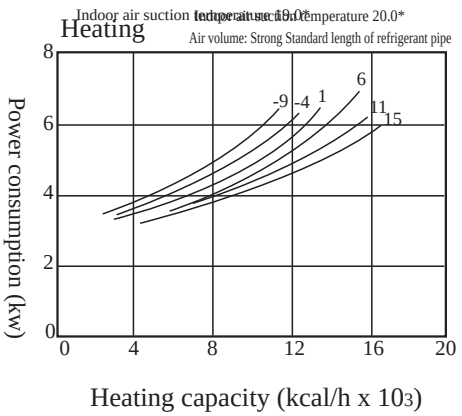
(Capacity of outdoor unit after modification: Calculated cooling capacity or heating capacity after modification in Item 1,2).

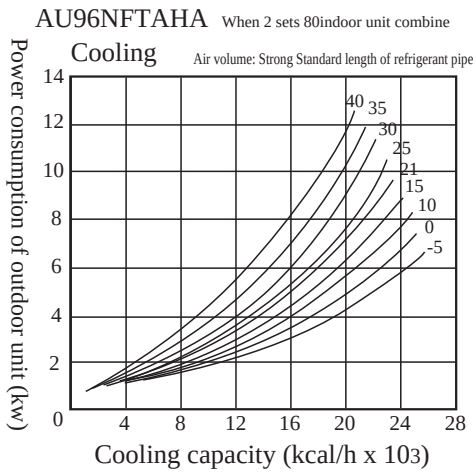
Running temperature range

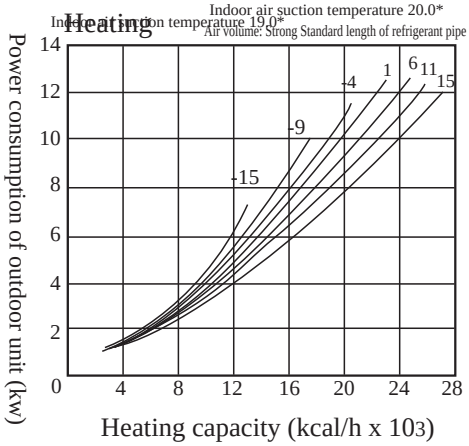


5) Calculation method of operation capacity of one set indoor unit





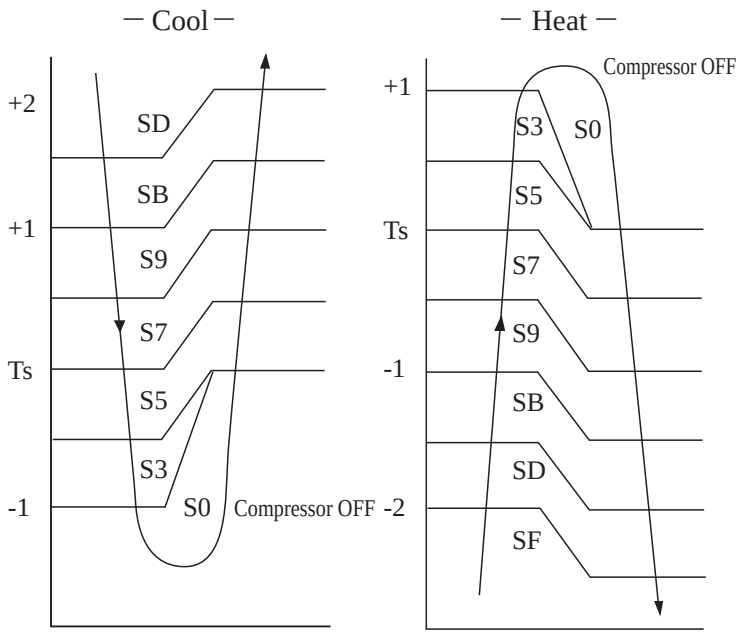


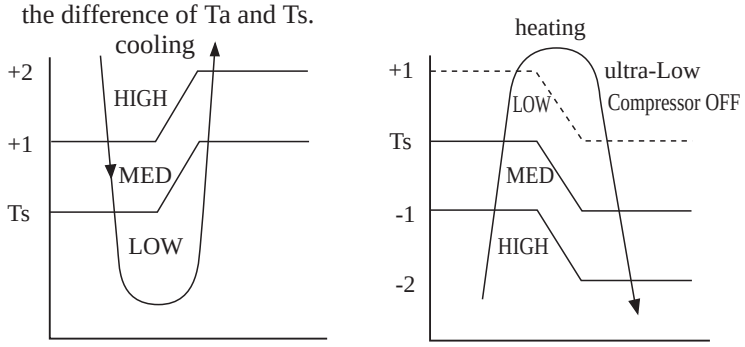
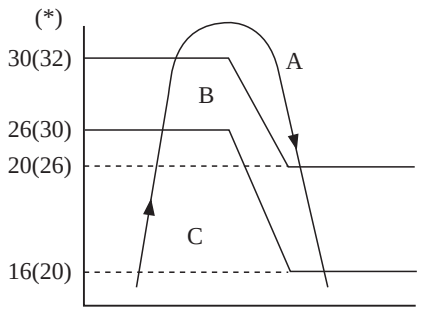


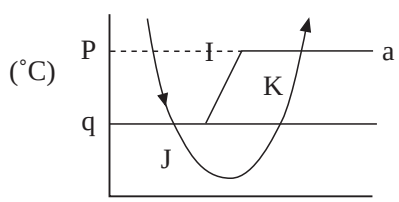
6 Control

1. Control of indoor unit group

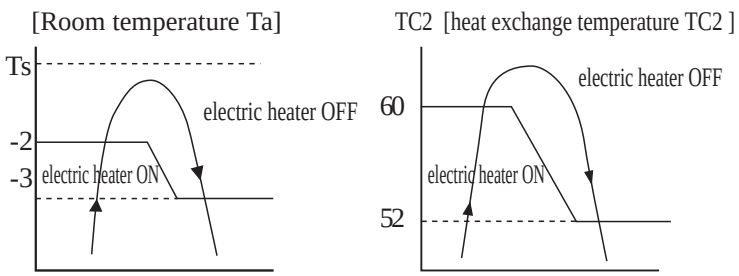
<table>
<tr><th>No.</th><th>Item</th><th>Specification</th><th>Remarks</th></tr>
<tr><td>1</td><td>When indoor unit is electrified</td><td>(1) Automatic setting of remote control function
Switch the setting of remote controller and display the range according to the changing result of indoor unit model.</td><td>Running mode, range, fan speed switching, whether there is swing airflow function</td></tr>
<tr><td>2</td><td>Running mode</td><td>(1) Shift running mode according to the command from remote controller or central controller
<table><tr><th>Remote command</th><th>Control</th></tr><tr><td>Stop</td><td>Air conditioner stops</td></tr><tr><td>Fan only</td><td>fan</td></tr><tr><td>Cool</td><td>Cooling running</td></tr><tr><td>Heat</td><td>Heating running</td></tr></table></td><td></td></tr>
<tr><td>3</td><td>Room temperature control, temperature compensation</td><td>(1) Adjusting range
<table><tr><th></th><th>Cool (*)</th><th>Heat (*)</th></tr><tr><td>Setting temperature of remote controller</td><td>18-29</td><td>18-29</td></tr><tr><td>Action Temperature</td><td>18-29</td><td>18-29</td></tr></table>(2) When arrive action point indoor unit thermo off
(3) Action temperature accuracy *1*
(4) Indoor PCB switch (SW03) can conduct compensation of setting temperature of heating running
<table><tr><td rowspan="2">SW03</td><td>1</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td></tr><tr><td>2</td><td>ON</td><td>OFF</td><td>On</td><td>OFF</td></tr><tr><td colspan="2">Heating compensation temperature</td><td>+0*</td><td>+2*</td><td>+4*</td><td>+6*</td></tr></table></td><td>Setting temperature
Ts (max) = 35*</td></tr>
</table>

No.	Item	Specification	Remarks
4	Capacity automatic control	(1) Send running frequency command to outdoor unit according to the difference of Ta and Ts.  Note: The running frequency in the above diagram may change due to protection control of outdoor unit.	Ts: setting temperature Ta: room temperature
5	Capacity modification	(1) Control of frequency modification Modify the frequency of outdoor unit to make the current capacity maintain a certain level of capacity. (2) Modification control of PMV opening Modify PMV opening to make the refrigerant of indoor unit under optimum state.	

<table>
<tr><th>No.</th><th>Item</th><th>Specification</th><th>Remarks</th></tr>
<tr><td>6</td><td>Fan speed control</td><td>(1) Change "HIGH", "MED", "LOW" and "AU" AUTO fan speed according to the command given by remote controller or central controller.
(2) When heat, when the required temperature is reached, it will enter into the state of "ultra-low airflow" or "stop".
(3) When the airflow is automatic, it can be controlled according to the difference of Ta and Ts.
 
</td><td>Duct type:Airflow is "Fix";pre
due to this
control.</td></tr>
<tr><td>7</td><td>Cold air preventing control</td><td>(1) When heat, conduct control of indoor fan according to the temperature detected by TC2 (temperature sensor of indoor heat exchanger)
 

A area: airflow set by remote controller
B area: Low airflow
C area: OFF
Note: The temperature control point can be adjusted through adjusting J03. The data in bracket is the temperature control point without J03.</td><td>The display of"preheating" a</td></tr>
<tr><td>8</td><td>Frost-proof control (Low temperature shutdown)</td><td>(1) When cool, the following running are conducted according to the temperature detected by TC1 sensor and TC2 sensor:
• Conduct sampling in J area for 5 minutes, the command frequencygiven to outdoor unit will be cha
In K area, the time integrator will interrupt, maintain;Conduct sampling in I area, the tome integra
• of low airflow, and reset under the following conditions:
•
•
(1) TC1 and TC2 enter into "I" area;
(2) Last for 30 minutes after stop.
 

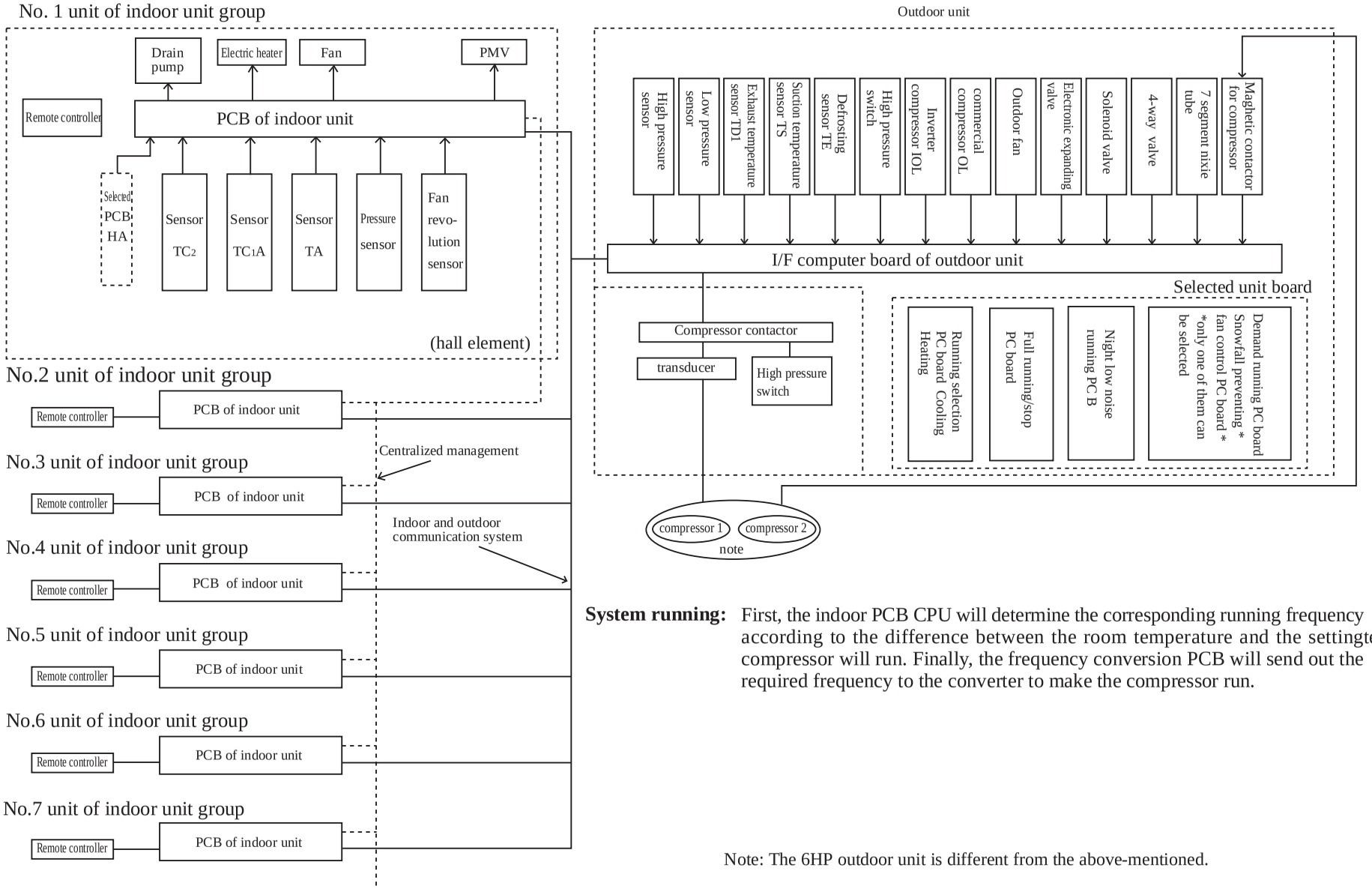
<table>
<tr><td></td><td>TC1</td><td>TC2</td></tr>
<tr><td>p</td><td>5</td><td>-12</td></tr>
<tr><td>q</td><td>4</td><td>-15</td></tr>
</table></td><td></td></tr>
</table>

No.	Item	Specification	Remarks
9	When cool: recovery control of refrigerant and oil	When the indoor unit group that is in the state of stop or reaches certain temperature or conducts " fan only " receives the signal of recovery of refrigerant and oil from outdoor unit, the PMV of indoor unit group will open some opening.	
10	When heat: recovery control of refrigerant and oil	When the indoor unit group that is in the state of stop or reaches certain temperature or conducts " fan only " receives the signal of recovery of refrigerant and oil from outdoor uni (1) the PMV of indoor unit group will open some opening; (2) The fan stops (3) Detect the temperature of TC2, close PMV.	
11	Compensation control of short and interrupted running	(1) After running for 5 minutes, force it to run even if it has reached the setting temperature; (2) But, when changing the setting temperature to make it reach setting temperature will enter into the state of stop. In addition, the protect-ion control will be prior.	Fault code is "Ob"
12	Control of drain pump	(1) When "cooling", the drainage pump will run; (2) When the floating switch acts, the compressor will stop and the drainage pump will run; (3) When the floating switch act continuously for 2 minutes, the fault code will be given.	
13	Control of compensation electric heater	(1) When heating, it will run as per the modes in the following diagrams: 	
14	Excess heat eliminating	(1) When closing the unit under "heat" state, let the indoor fan run for 30 seconds under the state of "LOW airflow"	
15	Automatic airflow swing	(1) When receiving the signal of airflow swing from the remote controller of the central controller, if the indoor fan is in the running state, the automatic airflow swing will be conducted.	

No.	Item	Specification	Remarks
16	HA control	(1) When connected with telephone remote controller or remote start/stop device, the receiving of remote HA signal input, control start/stop can be realized; (2) Output running/stop state through HA output terminal; (3) For the output specification of HA, carry out the specification of JEMA.	For remote start/stop control
17	Frequency fixed running (trial run)	(1) Continuously press down the switch of "Run/Stop" of remote controller for 5 seconds entering into "trial run" state, the indoor fan will run in "HIGH airflow" mode as per fixed frequency; (2) During running, it does not accept the operations other than "run/stop".	Command frequency Cooling: "SD" Heating: "SF" Cooling: "L" Heating: "H"
18	Cleaning time and display of filter	(1) Detect and remember the running time of indoor fan, and when it reaches the specified time (120h/2500h), the LCD of the remote controller will display "filter", • The selection of 120h/2500h has been set before delivery. (2) When receiving the reset signal of the remote controller, if the specified time has passed, the accumulated time will be reset, and the LCD will disappear.	The lamp of "Filter" is on. Whether this function can pass J11 change
19	Standby display	(1) • When the combined capability of indoor unit group exceeds 135% of the outdoor unit. • When it can not conduct "cool" running due to other unit group is in the state of "heat"; • Conduct the reserve running when the running mode is fixed in the "cool" or "heat"; (2) The above unit group that can not run is in the state of stand-by.	The lamp of "Standly" is on
20	Centralized control	(1)• Set the central controller to switch the control mode of indoor unit group remote controller: • "Prior to entering afterward": indoor unit group remote controller and central controller can be both operated, run as per the operation content entered afterward; • "Centralized control": indoor unit group remote controller can only conduct running stop and timing operation; • "Forbid to start the unit": indoor unit group remote controller can not operate, (indoor unit is in the state of stop).	(No display) The display of "central" is on and flashes

2. Control of outdoor unit

Block diagram of control



System running: First, the indoor PCB CPU will determine the corresponding running frequency according to the difference between the room temperature and the settingtemperature of r compressor will run. Finally, the frequency conversion PCB will send out the required frequency to the converter to make the compressor run.

Note: The 6HP outdoor unit is different from the above-mentioned.

a. Control of outdoor unit

No.	Item	Specification
1	Capacity control	(1) Conduct comprehensive calculation for running demand from indoor unit group to determine the running capacity; (2) Make running capacity change according to the demand of excess or insufficient capacity given by indoor unit group; (3) Make running capacity change according to pressure, temperature.
2	Fan control	(1) When cool, make fan speed of outdoor unit have corresponding change according to the change of high pressure (10HP: 2 combinations, Grade 6; 6HP: Grade 3)
3	Cooling by-pass control	(1) Judge the overheating of cooling cycle, make proper amount of liquid enter into the by-pass loop.
4	Defrosting control	(1) Detect the temperature of heat exchanger and conduct defrosting running.
5	Refrigerant and oil recovery control	(1) Regularly conduct control of refrigerant and oil recovery for some indoor unit groups not running; during recovery control, the refrigerant will flow in all indoor unit groups and the running frequency will also change.

b. Function of each part

No.	Item	Specification
1	Exhaust temperature sensor Td Suction temperature sensor Ts	Check the overheating of cooling cycle, use PMV to control cooling by-pass.
2	Pressure sensor High pressure Pd Low pressure Ps	Control running capacity Control revolution of outdoor fan Conduct protection control according to the pressure Control the by-pas of two-way solenoid
3	Heat exchanger Temperature sensor TE	Detect the temperature of heat exchanger, conduct defrosting control
4	Solenoid valve (SV1)	When running, act when high pressure is too high (6HP)
5	Solenoid valve (SV2)	When cool, act when high pressure is too low When heat, act when the fixed frequency compressor is started When stop, act when the difference between high pressure and low pressure is too large (6HP and 10HP)
6	Solenoid valve (SV4)	Act before commercial compressor is started (10HP)
7	High pressure switch	Act when high pressure reaches 2.94 MPa to stop running
8	PMV	Detect the temperature according to the exhaust temperature sensor and suction temperature sensor to make the refrigerant enter into the by-pass.

8 Matters needing confirmation before trial run

1. Automatic address

When the air conditioner is installed for the first time, the address will be automatically set.
The time for automatic setting address usually takes 3~5 minutes after switching on the power (but sometimes it will take about 20 minutes). In addition, the wire controller does not display"automatically displaying address"; the display of remote controller is same as the usual state.
Points for attention for automatically setting address:

(1) The air conditioner does not run

When automatically setting address, press the ON/OFF button, the following actions will appear:

a. The running lamp of the remote controller will be on;b. The indoor unit fan will change into fan only or stop according to the run

So the cold air or the hot air can not be sent out.

After the automatic address is finished, the above state will be solved and it will automatically begin to run.

(2) Misjudgment cause when confirming mismatch line

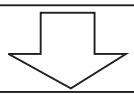
Once the control address of indoor unit group is confirmed, the automatic setting of address will not be conducted again in the future. But the following cases will enter into the automatically resetting of the address:

a. when changing the PCB of indoor unit and begin to switch on the power;b. When newly providing indoor unit and begin to switch

2. Inspection code "95" of switching-on power supply (Indoor and outdoor communication loop)

When the outdoor unit and indoor unit group use different power supply, even they are normal under the following states, the inspection code "95" will also appear (it will also display when the indoor and outdoor communication loop has fault).

After the power of the indoor unit group is switched on, when switching on the power of outdoor unit after a certain time, (about 1 minutes)



Sometimes the inspection code "95" will appear, even if it is normal.

At that time, eliminate the inspection code according to the following method:

Eliminating method of inspection code:

Continuously press down the "check" button on the remote controller of inspection code for more than 10 seconds.

Press down the "check" button again to confirm the inspection code is eliminated.
When the inspection code "95" appears again, this indicates that the indoor and outdoor unit communication loop has fault.
Please check the indoor and outdoor unit communication loop.
In addition, in order to avoid misjudgment, please switch on the power as per the following sequence:

First switch on the power of outdoor unit, then switch on the power of indoor unit.

3.Confirming function of connection of refrigerator pipe and signal line for control

This air conditioner system has the function of checking and confirming the wrong connection of refrigerant pipe and signal line for control between indoor unit group and outdoor unit (bridging of outdoor unit).

Before carrying out checking and confirming function, be sure to confirm the following matters:

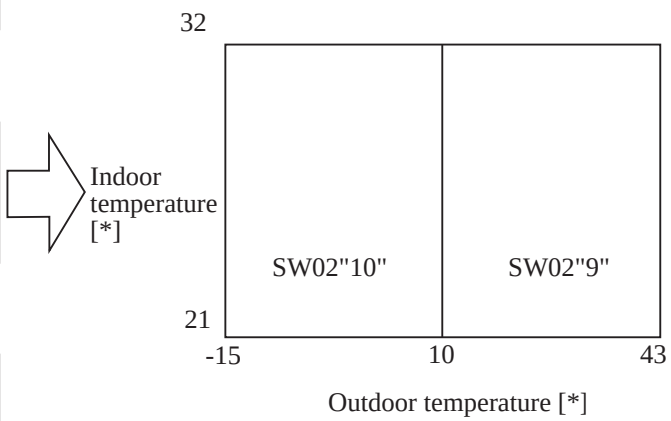
1.When bridging the central controller with outdoor unit, it can not check and conform;
2. When conducting this check to confirm the system, the outdoor unit must be checked and confirmed one by one, and meanwhile, when checking and confirming several outdoor units, the misjudgment may occur;
3. For the indoor unit group, outdoor unit and indoor unit group that may have wrong connection needing to check, the power should be switched on from the outdoor unit.

Checking and conforming sequence:

Switching on the power

For outdoor unit, adjust SW01 on the I/F PCB to "0" and SW02 to "6" to confirm the number of indoor unit group through the display on the 7-segment nixie tube, thus confirming whether its number is completely in accordance with the preset number connected.

For outdoor unit, the switch on the interface I/F PCB should be set as follows:
SW01 is "0", SW02 is "9": cooling
SW01 is "0", SW02 is "10": heating



Press the micro switch SW04 on the I/F PCB for over 2 seconds to confirm the display content on the nixie tube is "CC" when cool and "HH" when heat.

After 15 minutes, the display on the 7-segment nixie tube will be the number of indoor unit group of inspection code.
Set SW01 "4", SW02 according to the sequence of the address to confirm the inspection code of the indoor unit.

1. The time of 15 minutes will be needed no matter it is under the normal state or the mismatching line state.
2. The number of indoor unit group other than the inspection signal of sending out the code of mismatching line will also be counted. So please confirm the inspection code.

After checking and confirming, resume the display switching switch SW01 and SW02 on the interface base plate to "0". *

4. Function of outdoor unit for commanding ON/OFF of indoor unit group

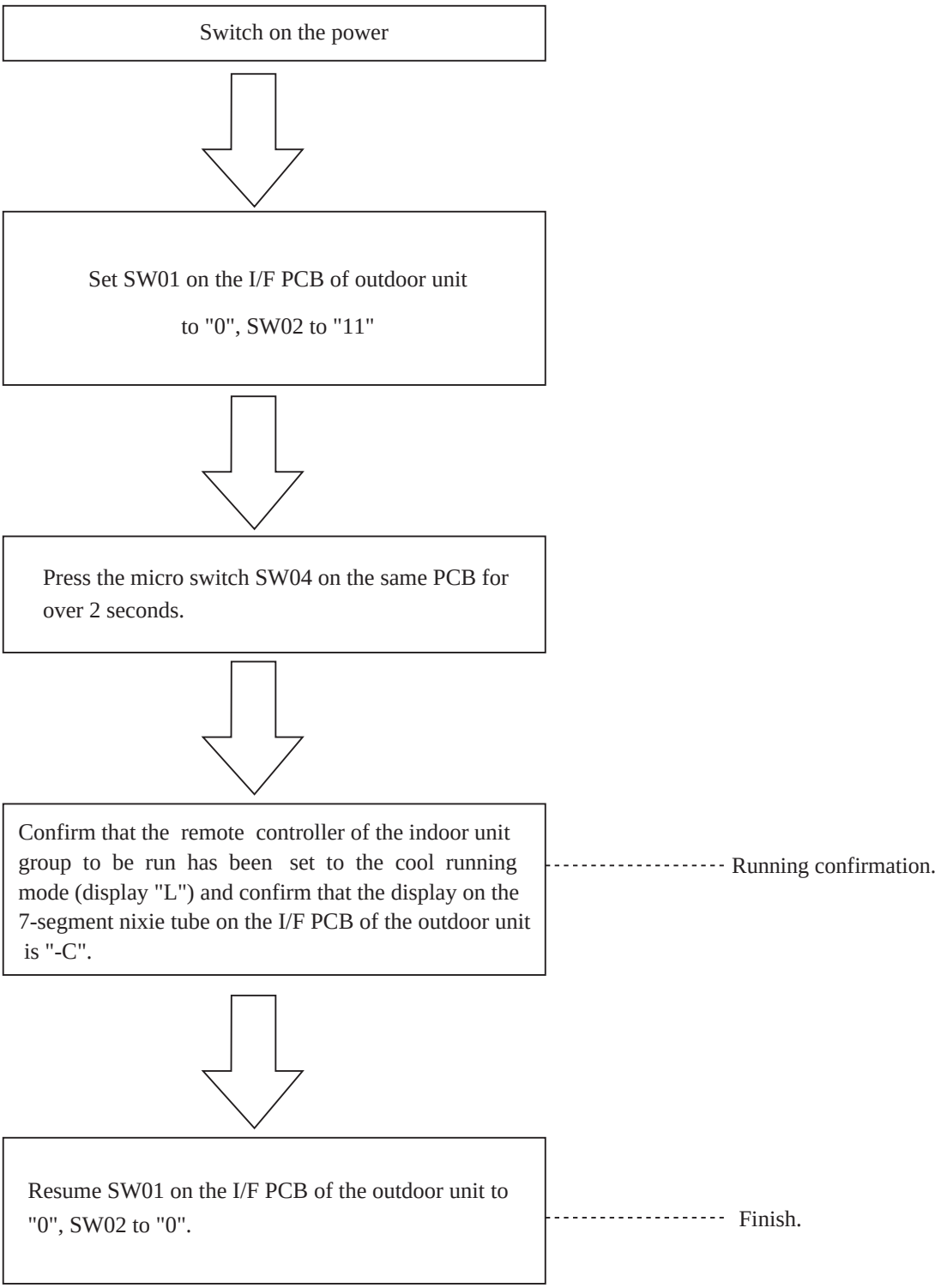
No.	Function	Outline	Setting troubleshooting method
4-1	Cool trial run	All the indoor unit groups connected are simultaneously set to the trial run mode. Note: Conducting control action, same as the command usually sent out by the remote controller.	[setting] Use SW01 "0", SW02 "11", press SW04 for over 2 seconds; [eliminating] When changing SW01, Sw02 into other positions, use remote controller to eliminate.
4-2	Heat trial run	All the indoor unit groups connected are simultaneously set to the trial run mode Note: Conducting control action, same as the command usually sent out by the remote controller.	[setting] Use SW01 "0", SW02 "12", press SW04 for over 2 seconds; [eliminating] When changing SW01, Sw02 into other positions, use remote controller to eliminate.
4-3	Simultaneously running	Make all the indoor unit groups connected run simultaneously. Note: Running content should be as per the setting of remote controller.	[setting] Use SW01"0", SW02 "14", press SW04 for over 4 seconds; [eliminating] Use remote controller to eliminate.
	Simultaneously stopping	Make the entire indoor unit groups connected stop simultaneously.	[setting] Use SW01 "0", SW02 "14", press SW05 for over 4 seconds; [eliminating] Use remote controller to eliminate.
	Individually running	Make individual unit group specified run. Note: Running content should be as per the setting of remote controller. Other indoor unit groups should maintain their original state.	[setting] For SW01 "15", set SW02 to the address number (0~15) of indoor unit to be run, press SW04 for over 2 seconds [eliminating] Use remote controller to eliminate.
	Individually stopping	Make individual unit group specified stop. Note: Other indoor unit groups should maintain their original state.	[setting] For SW01 "15", set SW02 to the address number (1~16) of indoor unit to be run, press SW05 for over 2 seconds [eliminating] Use remote/controller to-eliminate.

Note: This function of "Run/Stop" only indicates the function of signal of run/stop sending out from outdoor unit to indoor unit group other than the function that the signal is sent out again due to the reason that the indoor unit group does not submit to the signal first sent out.

a. Cooling trial run function of outdoor unit

Function of setting all the indoor unit groups connected to the cooling trial run mode, with outdoor unit as unit.

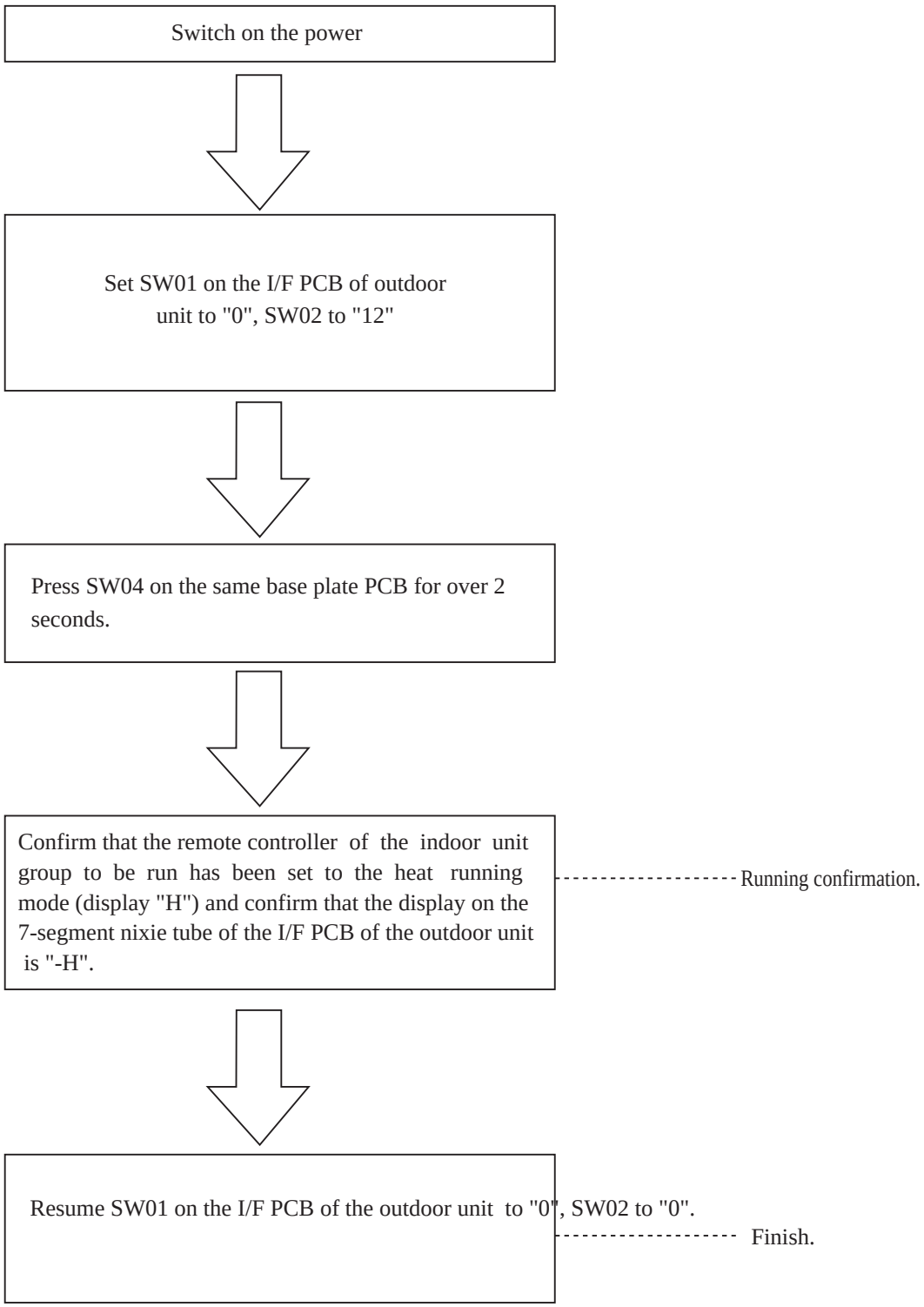
(Running sequence)



b. Heating running function of outdoor unit

Function of setting all the indoor unit groups connected to the heat trial run mode, with outdoor unit as unit.

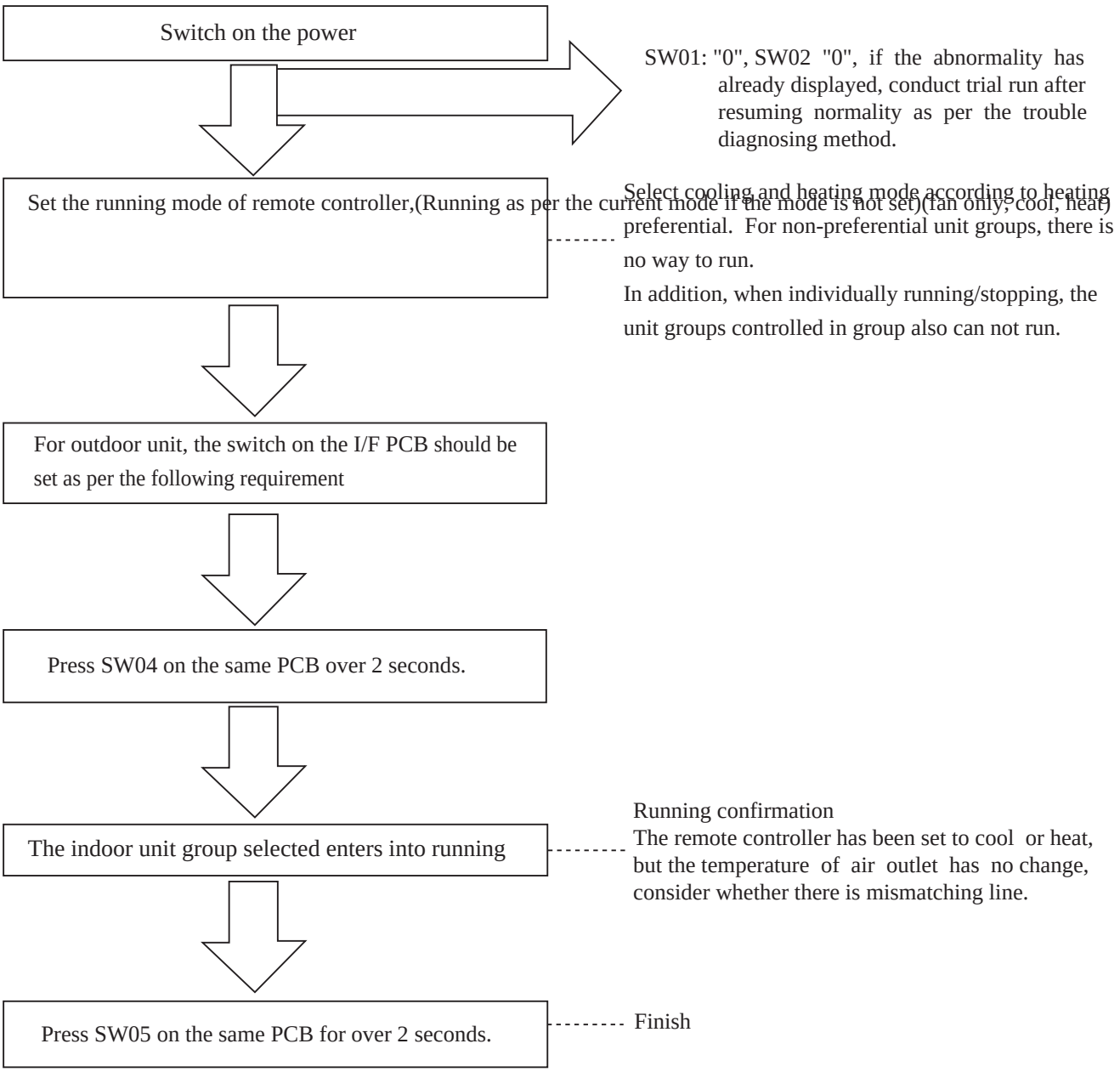
(Running sequence)



c. Simultaneously running, stopping, individual running and stopping function while operating outdoor unit

This is a function of operating connected indoor unit group by outdoor unit, with outdoor unit as unit.
All simultaneously running/stopping: SW01 "0", SW02 "14" –all indoor unit groups connected run.
Individually running/stopping: SW01 "15", SW02 –only limited to set indoor unit group run.
But, when controlling in group, there is no way to conduct individual running/stopping setting for 2~16 sets of indoor unit group (secondary unit). The display on the 7-segment nixie tube of the I/F PCB is "--".

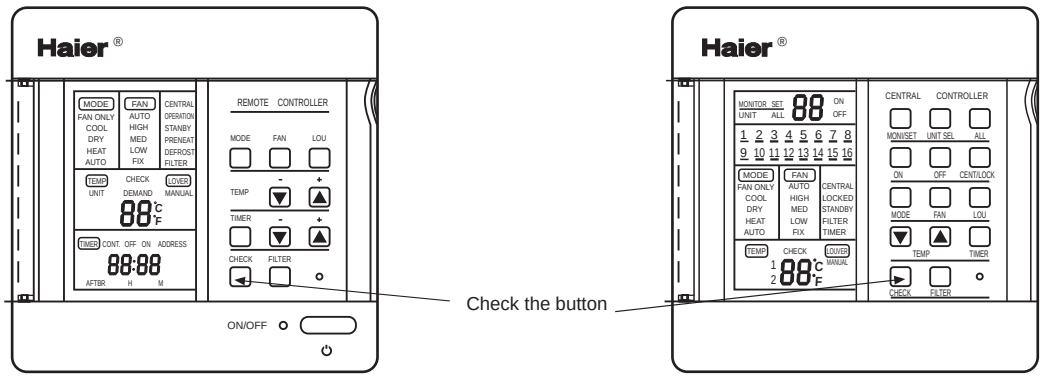
Running sequence



SW01	SW02	Running object
0	14	All connected indoor unit groups
15	0~15	Individual 1~16 addresses

5. Function of eliminating abnormality

1. Using "abnormality eliminating" function of remote controller or central controller
   The remote controller of some indoor unit group can eliminate the abnormal state of all stopping of outdoor unit (whole system) connected to make them run again (→ begin again after abnormality is checked out).
   At that time, the operation of remote controller in some indoor unit group can automatically begin to run, but other indoor unit groups will stop (running lamp is not on).



Press the "check" button on the remote controller for over 5 seconds.
When pressing the button for over 10 seconds, the inspection code will also be eliminated (only for this remote controller).

2. Using "abnormality eliminating" function of I/F PCB plate on the outdoor unit
   It can eliminate all stopping and locking state of whole system of outdoor unit to make it run again.
   At that time, the whole indoor unit group is in the state of stopping (running lamp is not on)
   But, the inspection code on the remote controller can be eliminated as per the method specified in Item 1 or by pressing the reset hole to make the remote controller reset for eliminating.

Set the rotary switch on the I/F PCB of outdoor unit to the following value:SW01: "0", SW02: "15"

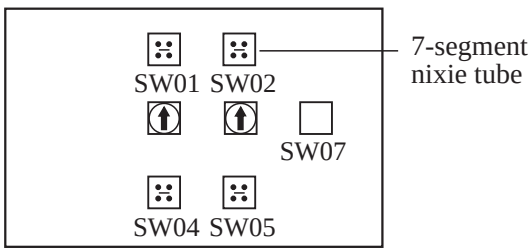
↓

Press SW05 on the same PCB for over 5 seconds.

↓

The display on the 7-segment nixie tube of the same PCB is "CL" (within 5 seconds).

Layout of outdoor unit interface



SW01, 02 rotary switch
SW04, 05 micro switch
SW07 dial switch

3. Using "abnormality eliminating" function of power supply resetting (Solution when -Mg-SW sticking inspection code "BD")

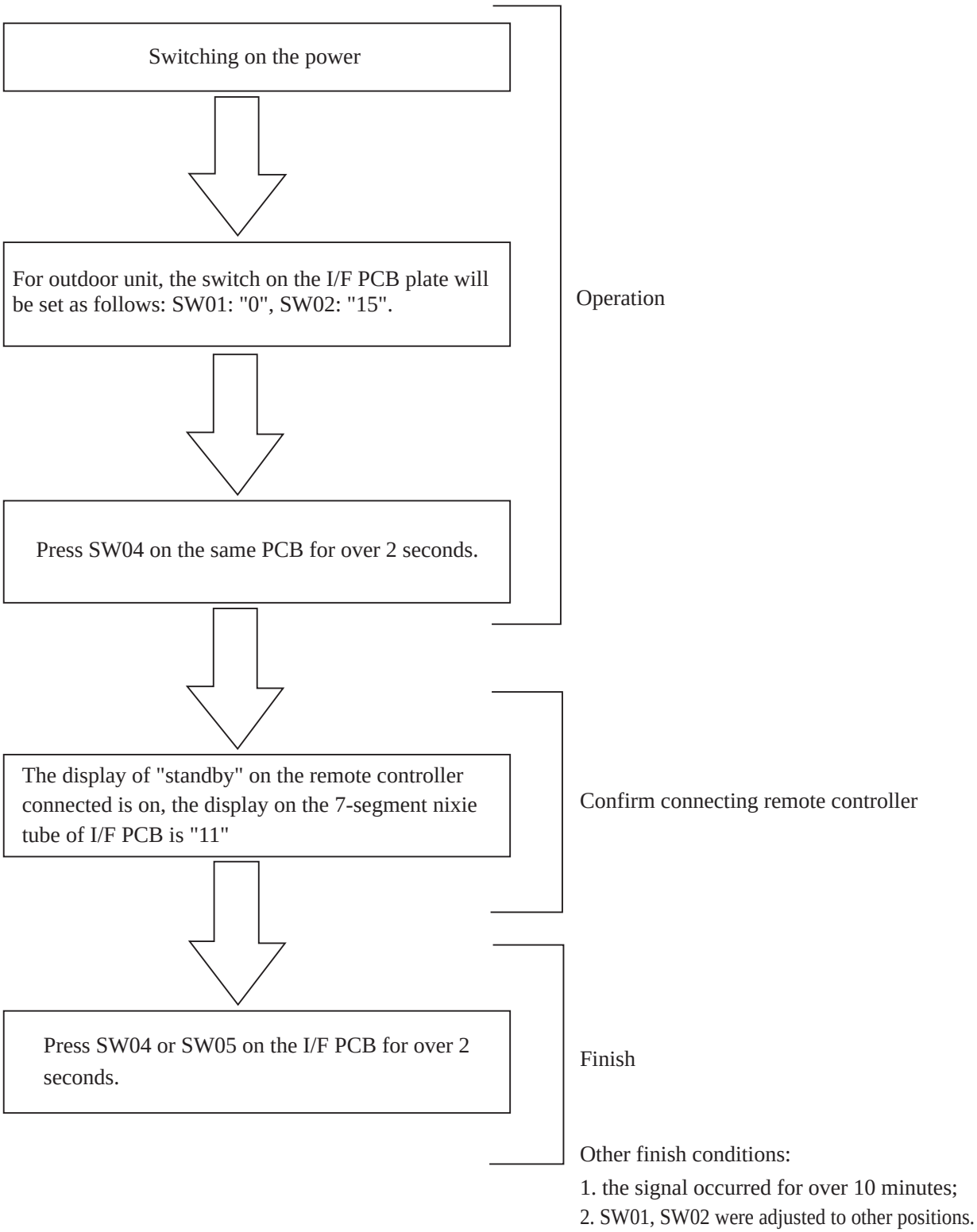
Note: The power supply resetting only from indoor unit or outdoor unit can not eliminate the whole stopping and locking state of the system.

All the power supply of indoor unit and outdoor unit must be reset.All power supply OFF power supply in put means that t
→

6. Judging function of remote controller

(1) Confirm the function of remote controller through outdoor unit

(Judgment sequence)



7. Confirming function of outdoor unit

(1) Confirm the function of connected outdoor unit through remote controller

(Judgment sequence)

Switching on the power

↓

Opening the cover of remote controller

↓

Setting is "fan only", conduct set time shortening function.
(For setting of time shortening function, use short circuit pin: D1) *

Operation

↓

For connected by-pass of outdoor unit, the two-way valve will give out the sound of click every 2 seconds, repeat ON/OFF (5 minutes)

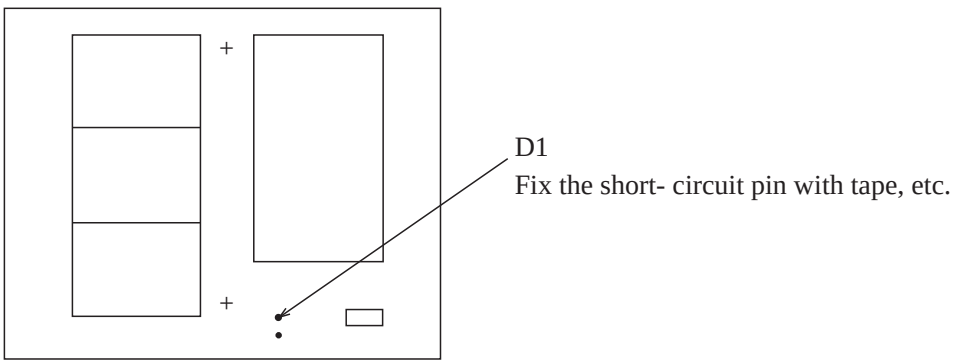
Confirmation of outdoor unit

↓

Use short circuit pin to set the time shortening function of remote controller: finish (pull out the short circuit pin).

Finish

The state of removing the cover of remote controller:



About time shortening running

When conducting service and maintenance other than installation, set the time shortening running on purpose; if the running is continuous, the protection action will work. Sometimes the inspection code may occur, please pay full attention to it when operating.

8. Other supporting controls

(1) Forcing full opening function of indoor PMV

This function can make the PMV of indoor unit group force fully opening for 2 minutes through operation the switch on the I/F PCB of outdoor unit.

[Operating method]

SW01 setting is "0", SW02 setting is "8"; press SW04 for over 2 seconds.(Afterward within 2 minutes, the display of nixie t

[Eliminating]

The PMV of indoor unit will automatically resume usual opening after 2 minutes. If the PMV is required to maintain full opening, cut off the power supply of indoor unit within the time when the PMV is in full opening (2 minutes).

(The indoor PMV full opening signal sent out by PCB of indoor unit to the outdoor unit is only allowed to carry out for 2 minutes.)

(2) Function of outdoor PMV full opening and full closing

This function can make the PMV of outdoor unit force full opening or full closing for 2 minutes through operating the switch on the I/F PCB of outdoor unit.

[Full opening]

Conduct short circuit for CN30 on the I/F PCB of outdoor unit

[Full closing]

Conduct short circuit for CN31 on the I/F PCB of outdoor unit

* Full opening, full closing will all resume usual opening after 2 minutes. The short circuit must be removed after confirmation.

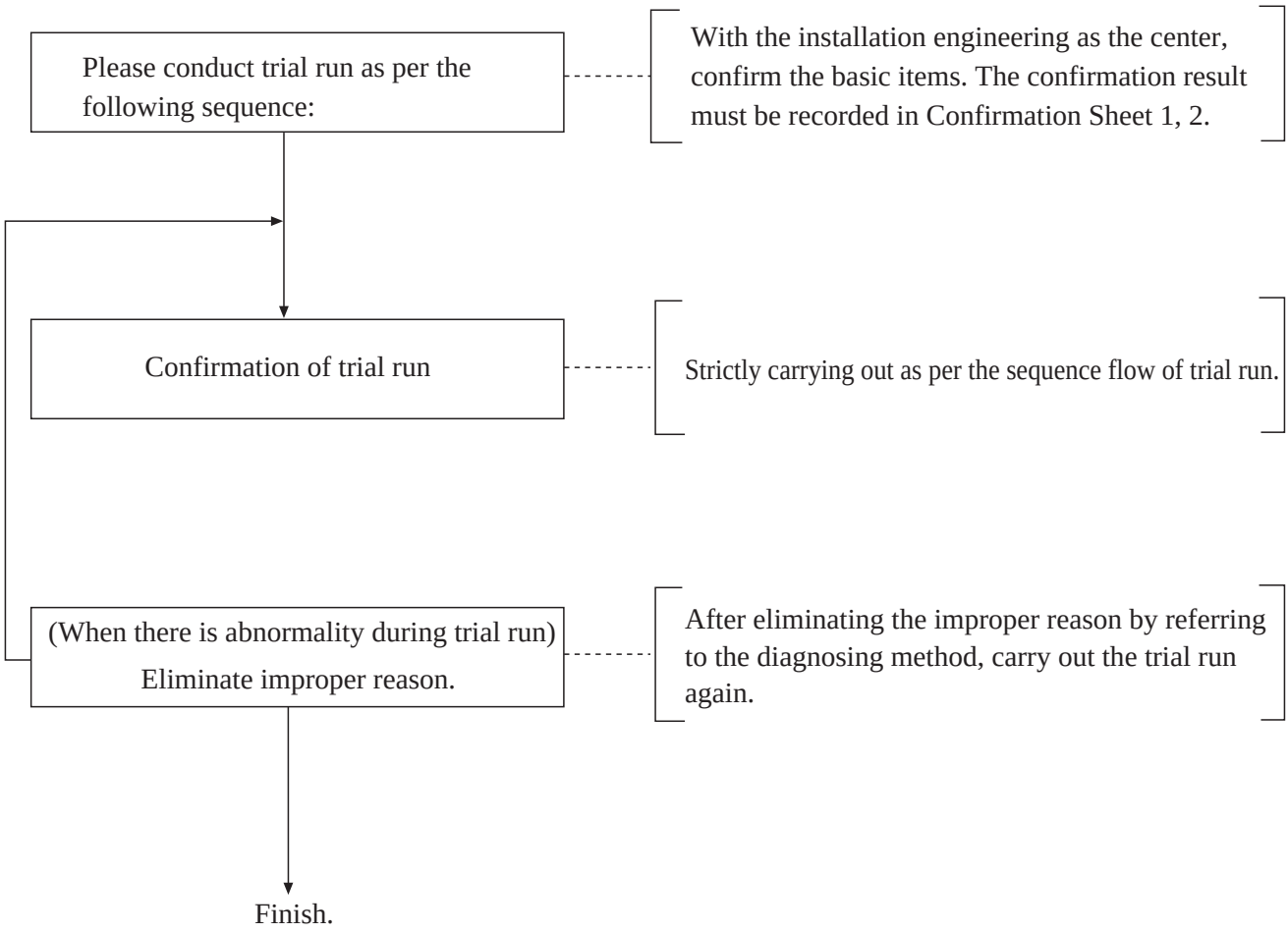
(3) The display of remote controller when the running HP of indoor unit is less than 0.8 HP.

When the total HP of the running indoor unit is below 0.8 HP, the outdoor unit will be in the state of not running. In order to let you know the means of not running, the remote controller will display "standby".

* When the total HP of the running indoor unit is above 0.8 HP, this control will be eliminated and the normal running will be resumed.

9 Essentials of trial run

1. Sequence of trial run



* Be sure to record the confirmation result before trial run on the Confirmation Sheet 1, 2. This will be the important n

2. Confirmation before trial run

Before trial run, please confirm whether the installation engineering has abnormality and record it on the "Confirmation Sheet 1".

Confirmation Sheet 1

Whether the capacity of the electrical leakage protector is proper	Outdoor unit ☐ A; Indoor unit group ☐ A.
Whether the wire diameter of power cord is correct	Outdoor unit ☐ mm^2 Indoor unit group ☐ mm^2
Whether the connecting wire for control is correct (Indoor and outdoor communication connecting terminal: PQ , Type: shielded wire)	Wire ☐ mm^2
Whether the power cords of indoor unit group use the same power supply	☐ Yes ☐ No
Whether the earthing is well	
Whether the insulation is proper (above 10M*)	☐ above M*
Whether the voltage is normal (within 380V *10%)	☐ V
Whether the diameter of refrigerant pipe is correct	☐ Yes ☐ No
Whether all manifold pipes are correct	☐ Yes ☐ No
Whether the discharge of condensed water is smooth (indoor unit)	☐ Yes ☐ No
Whether the insulating layer of refrigerant pie is good (Connecting portion of refrigerant pipe, all portions of manifold pipe)	☐ Yes ☐ No
Whether there are short circuit and loop of the air blown out by the indoor unit group and outdoor unit	☐ Yes ☐ No
Whether the refrigerant pipe conducts vacuuming and compensates refrigerant	☐ Yes ☐ No
Whether the valves are all open	☐ Yes ☐ No

Please confirm the injection rate of refrigerant

Confirmation sheet 2

Confirm the injection rate of refrigerant according to the diameter and length of connected refrigerant pipe. Record the length of different diameter of each refrigerant pipe in the following Table and calculate the additional amount of refrigerant. (The refrigerant in the outdoor unit is only used for outdoor unit and will not enter into the refrigerant pipe).Diameter of r

Liquid diameter	Standard additional amount (kg/m)	Total length of each refrigerant pipe (mm)	Additional amount of refrigerant in each refrigerant pipe (kg)
*6.4	0.03 X	=	
*9.5	0.065 X	=	
*12.7	0.115 X	=	
		the total additional amount of refrigerant	

Points for attention when trial run

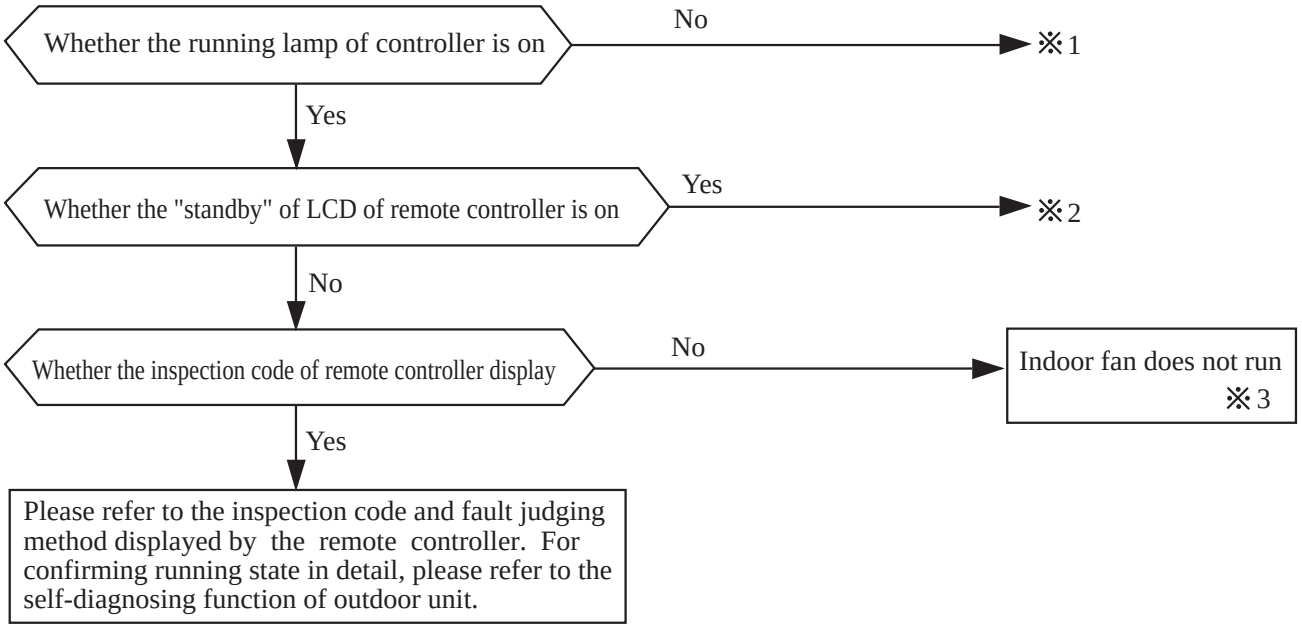
- In the following cases, the indoor unit and outdoor unit will automatically set address:
  When automatically setting address (after switching on the power, it usually takes 3~5 minutes, max. 20 minutes), the air conditioner can not operate (only limited to fan only). The check of mismatching line must be conducted after switching on the power for 20 minutes. Once the address of indoor unit is determined, the address setting can not be set automatically. But, in the following cases, the address can be set automatically:
  - When first switching on the power after the new air conditioner is installed;When first switching on the power after the PCB of
  - Resume switching on the power after correcting the mismatching line.
  -

- When switching on the power, first switch on the power of outdoor unit.
  If the power of indoor unit is switched on first, the remote controller may display the fault code "95" (abnormal indoor and outdoor communication). To eliminate the fault, press "check" key for over 10 seconds, then it will be reset.

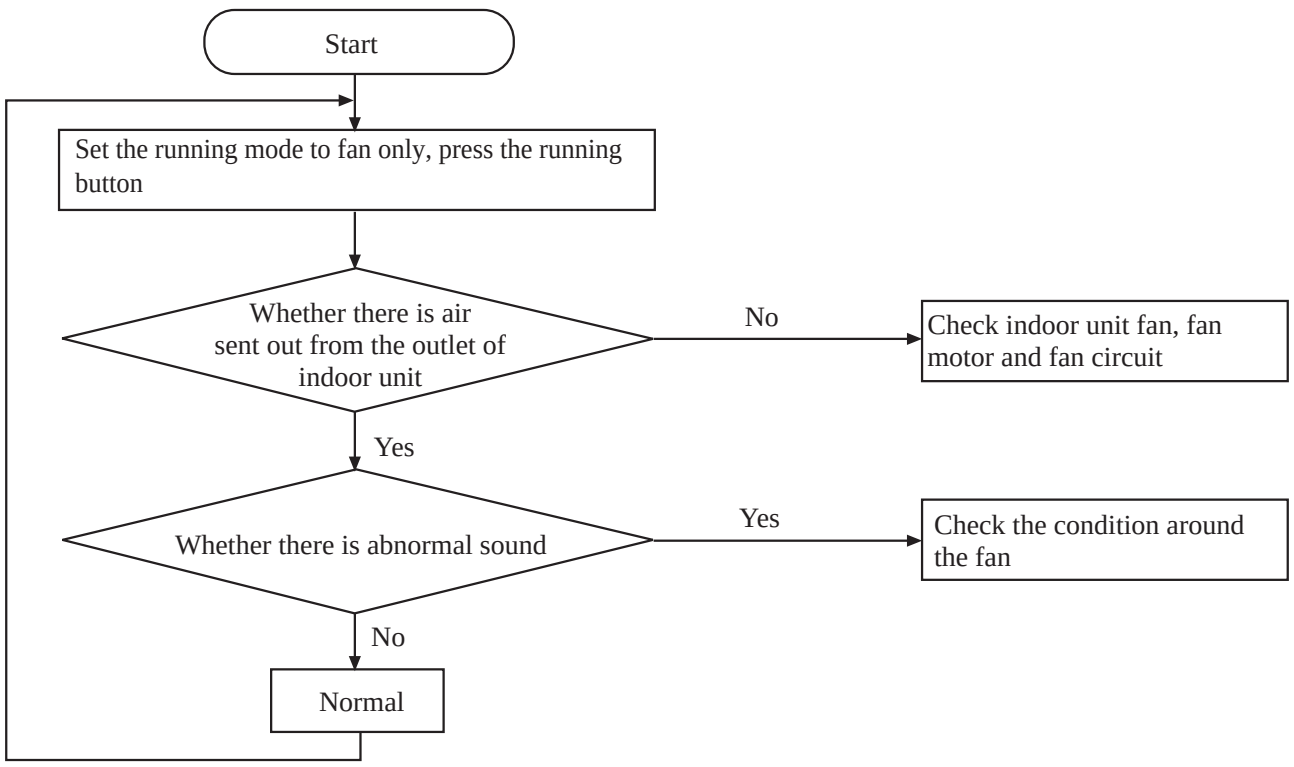
3. Confirmation of trial run

After "confirmation before trial run", trial run as per the following sequence. (Switch on the power of outdoor unit to electrify the electric heater of crankcase 12 hours before trial run).
For confirmation of trial run, it should be conducted for indoor unit group one by one in principle. When all indoor unit group run simultaneously for confirmation, there is no way to conduct confirmation of wrong connection of refrigerant pipe and control wire. Therefore, other indoor unit should be set to "Stop State".

(1) Main power supply and primary confirmation

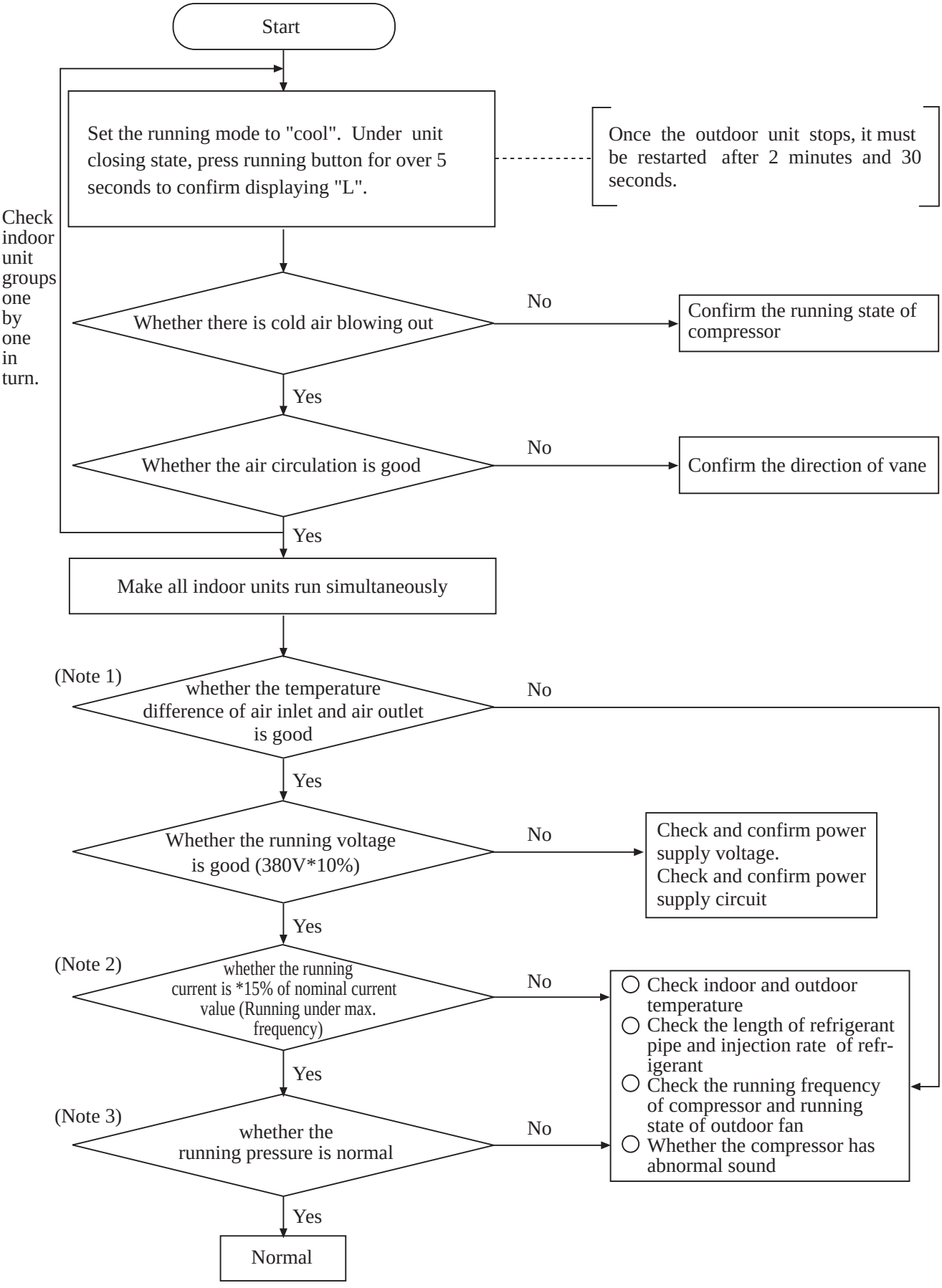


(2) Confirmation of fan running

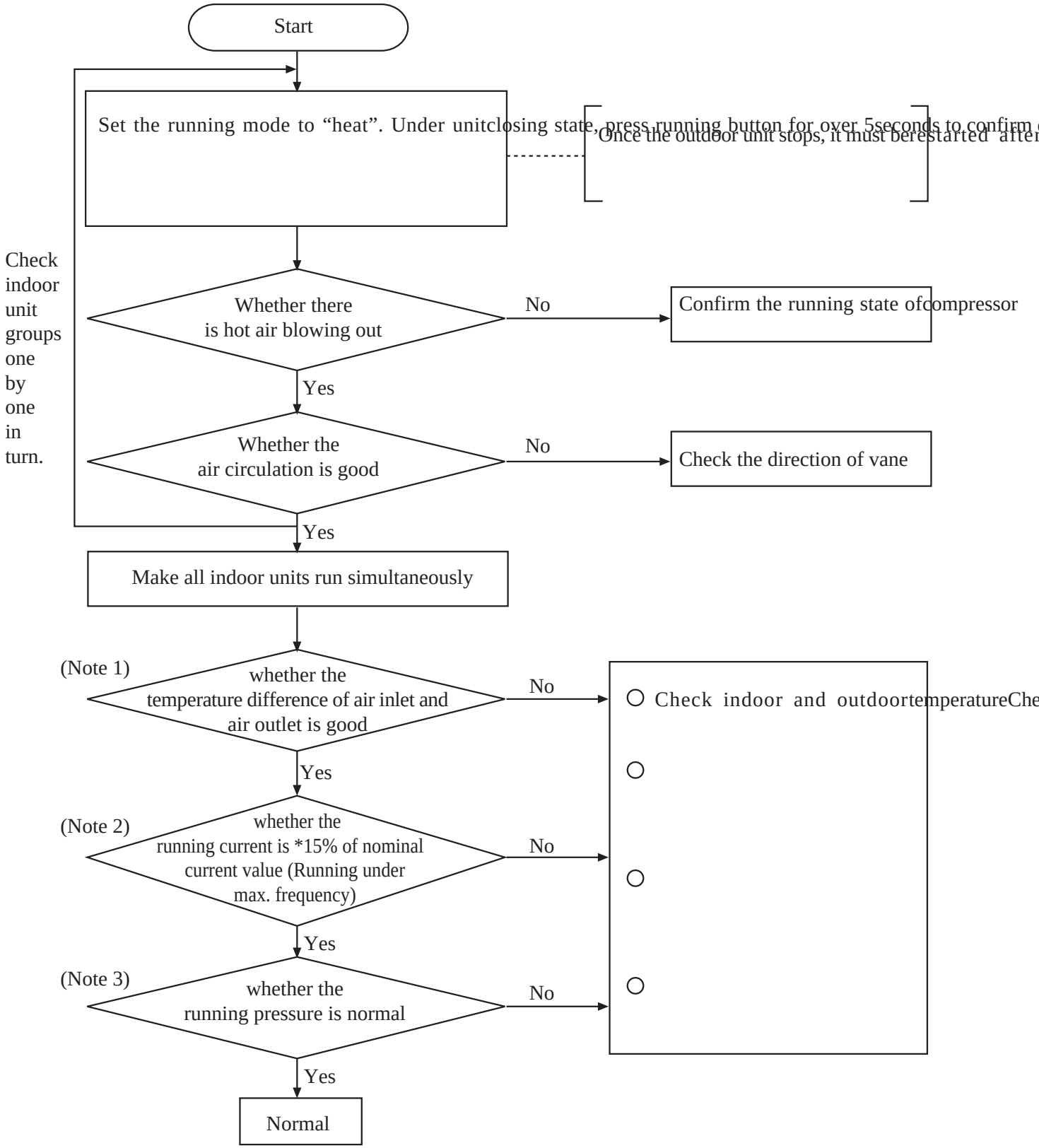


Check indoor unit groups one by one in turn.

(3) Confirmation of cool running



(4) Confirmation of heat running



(Note 1) Approximate standard of temperature difference of air inlet and air outlet

(1) When setting in "cool" mode, after running at least 30 minutes, it is normal when the dry-bulb temperature difference of air inlet and air outlet is over 10*. (When running at max. frequency).
(2) When setting in 'heat" mode, after running at least 30 minutes, it is normal when the dry-bulb temperature difference of air inlet and air outlet is over 18*. (When running at max. frequency).

(Note 2) Approximate standard of running current value

It is normal when heat/cool is within *15% of nominal current value.
(When running at max. frequency).

Current value may have the following differences due to the different conditions:

When it is greater than standard current	when it is less than standard current
(1) High indoor and outdoor temperature	(1) Low indoor and outdoor temperature
(2) Improper radiating of outdoor unit (When cooling)	(2) Gas leaking of refrigerant (Insufficient refrigerant)

(Note 3) Approximate standard of running pressure

General standard is as follows:

Cool	High pressure 1.6~2.0 kgf/cm2	Indoor 18~32*	Cool at max frequency
	Low pressure 0.35~0.55 kgf/cm2	Outdoor 25~35*	
Heat	High pressure 1.5~2.1 kgf/cm2	Indoor 15~25*	Heat at max. frequency
	Low pressure 0.3~0.45 kgf/cm2	Outdoor 5~10*	

The value after 15 minutes running (temperature is drybulb temperature*)

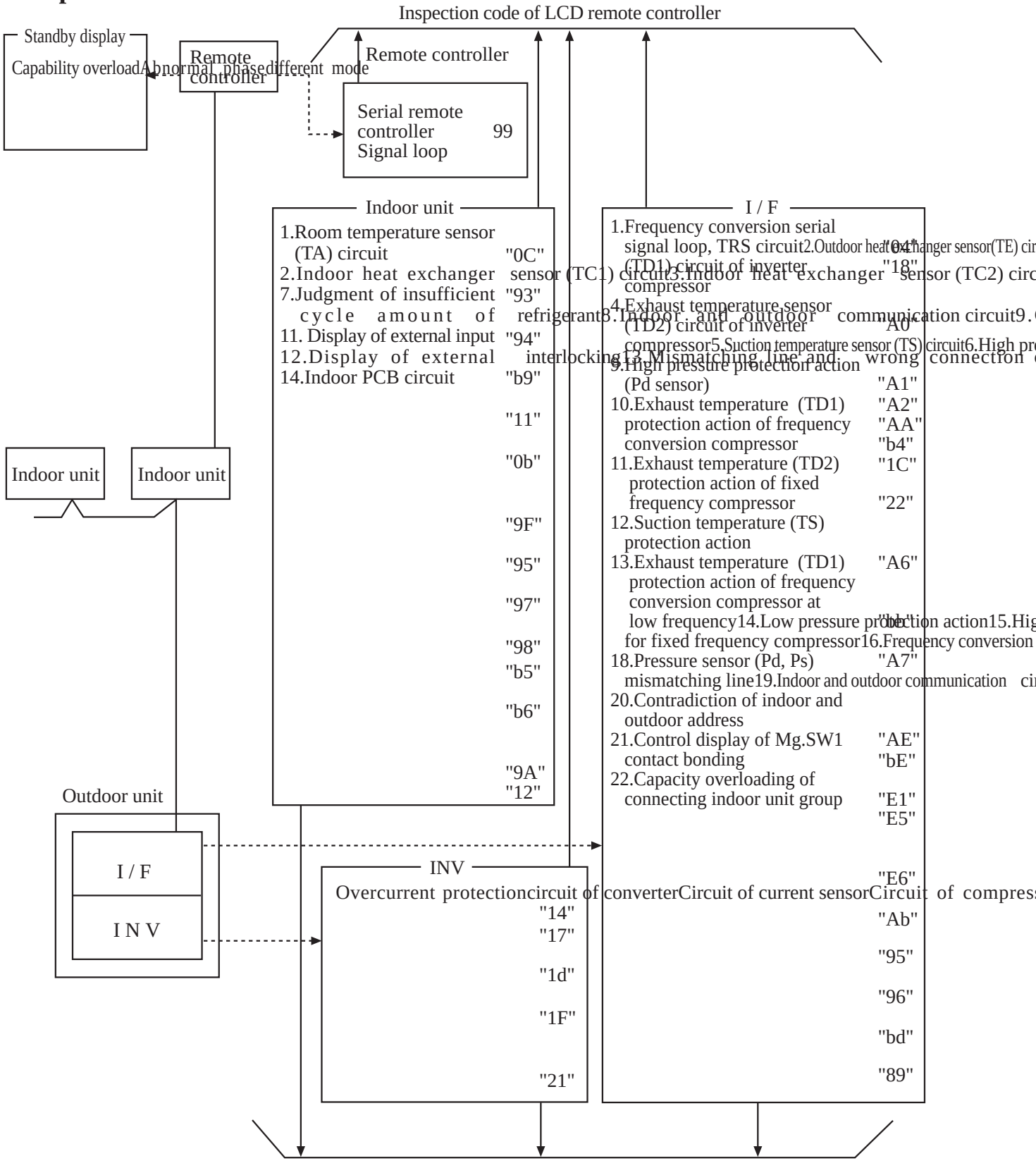
The trend of change of high pressure and low pressure cause due to condition change

Cool
- Indoor temperature up —— high pressure, low pressure upIndoor temperature down
- ——
- ——
- ——

Heat
- Indoor temperature up —— pressure, low high pressure, low pressure upIndoor temperature down Outdoor temperature up high pressure, high
- ——
- ——
- ——

10 Fault diagnosing

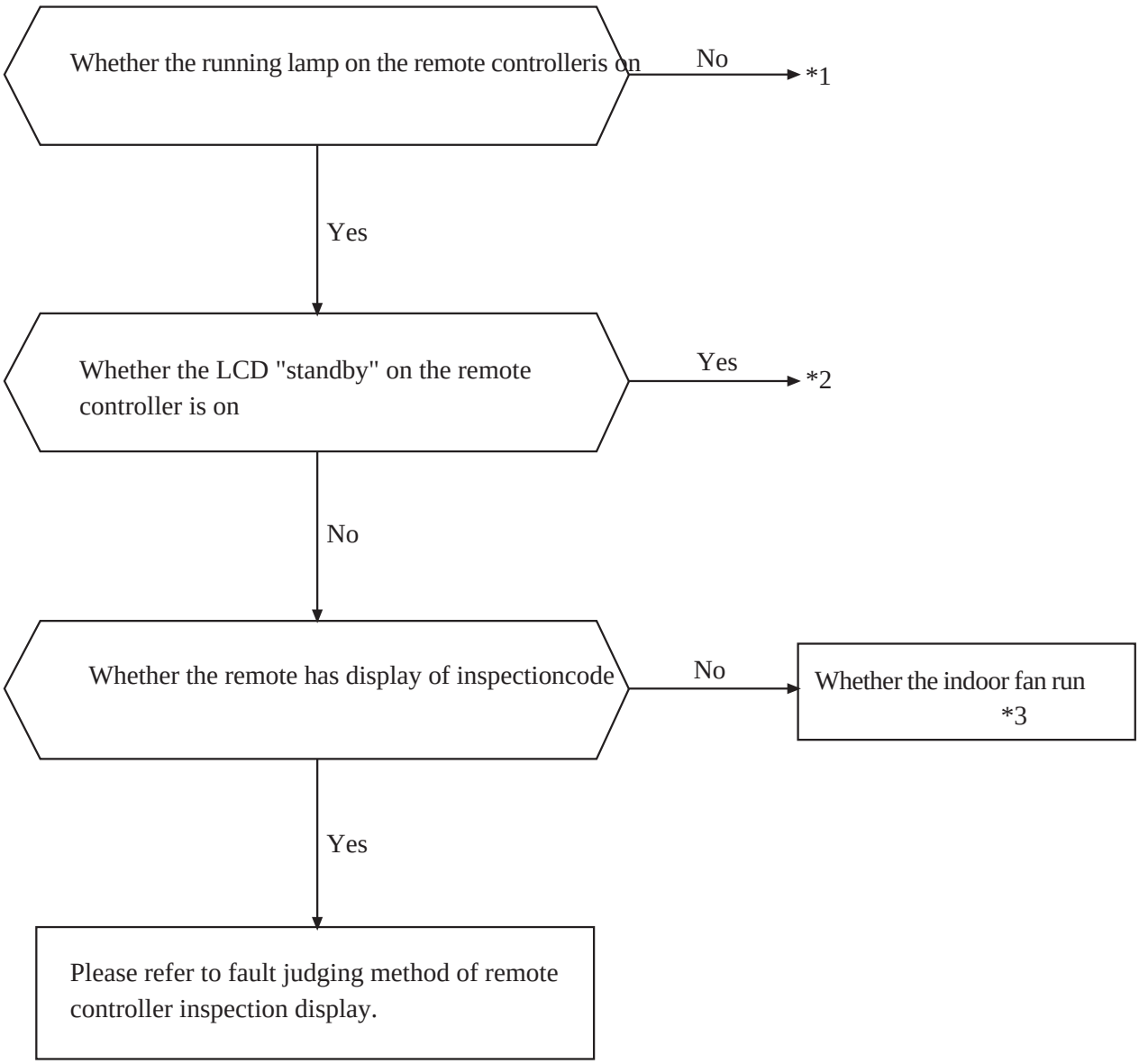
1.Inspection method

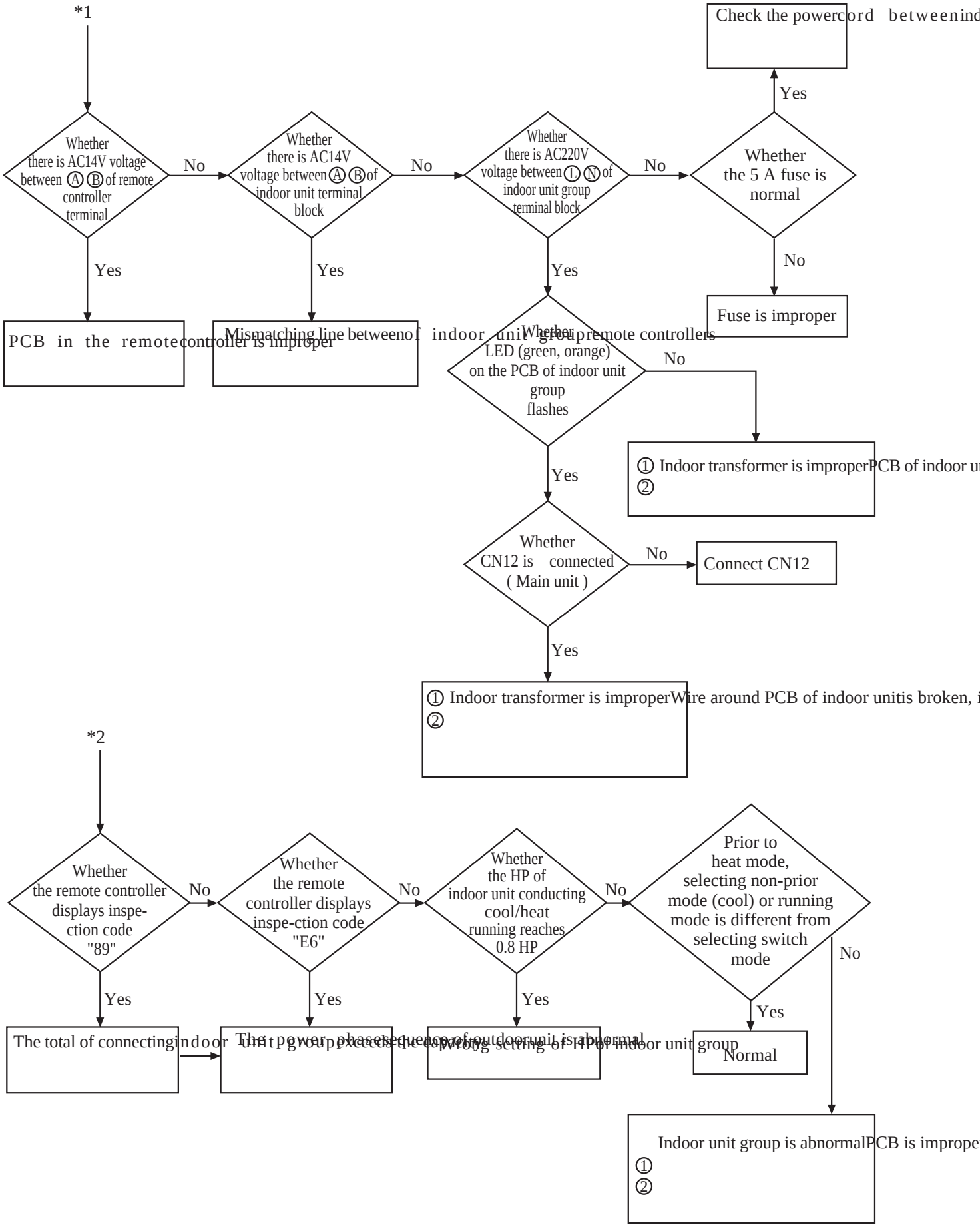


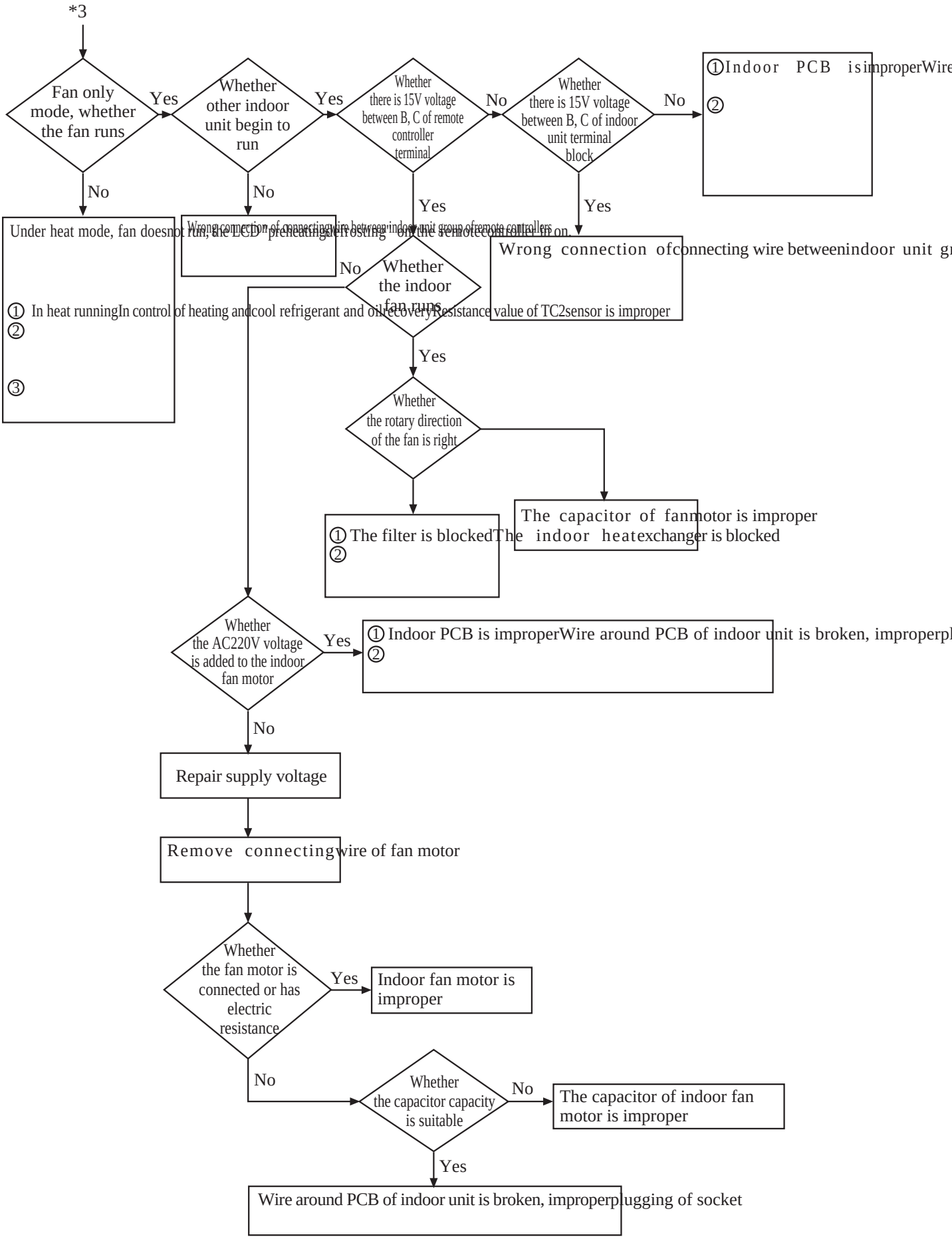
Display inspection code on the 7-degment nixie tube of I/F PCB of outdoor unit

2. Sequence of judgement

(1)Press "check" button on the remote controller to confirm inspection code.



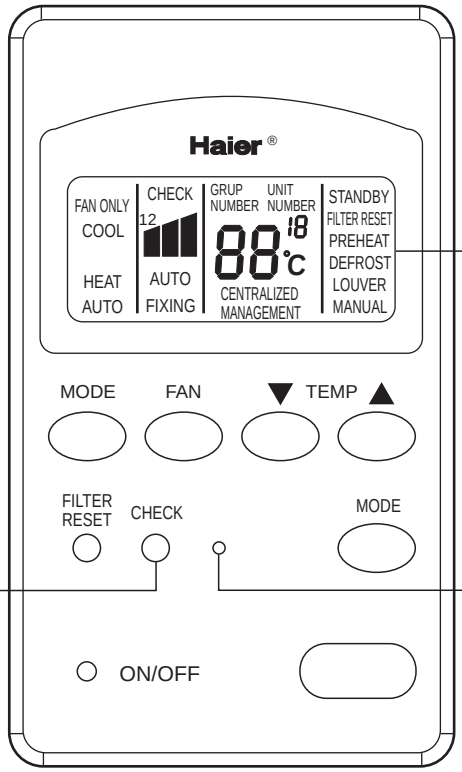




3. Judging method for fault of display of remote controller

A.Simple remote controller

(1) Check display operationFor fault display operation, pressing "check" button can confirm inspection code. Refer to the de



LCD displays the reason of "standby" Indoor unit group w

-
-
-
-

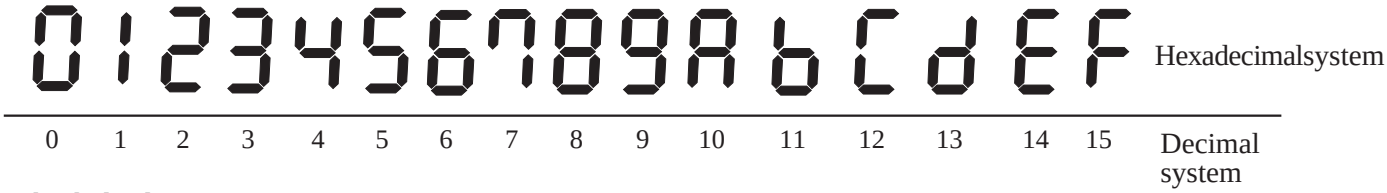
Check buttonPress it for 0.5 second to display inspection code

Reset buttonWhen using it, press the button in the hole, thepower o

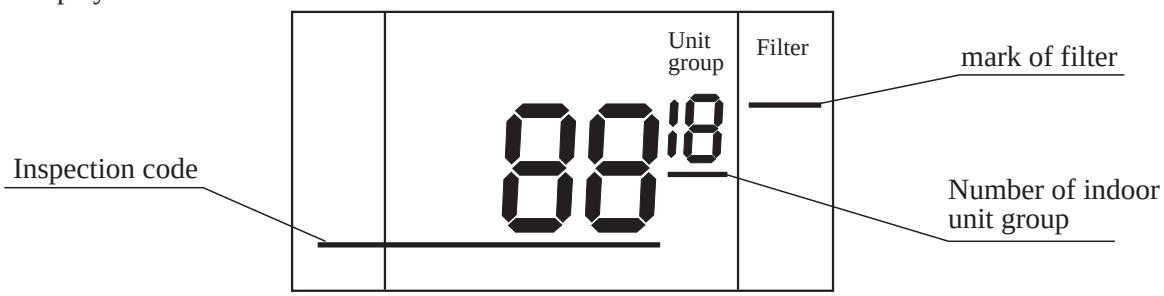
(2) Reading method of inspection code

Press the check button, the number (when controlling in group, it will be address in the group) of indoorunit group

<7-segment display>

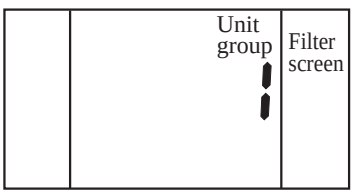


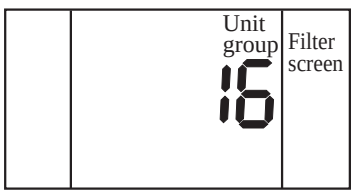
<check display>



<Filter information>

(For example) When the filter information of No. 1 and No. 16 unit controlled in group is sent out

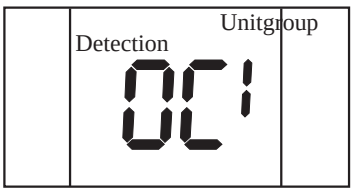


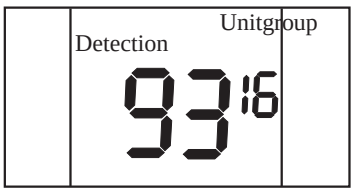


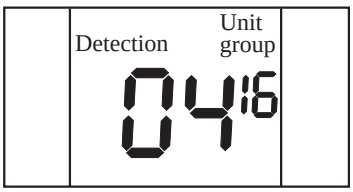
<Check information>

(For example) When the room temperature sensor of No. 1 unit has fault

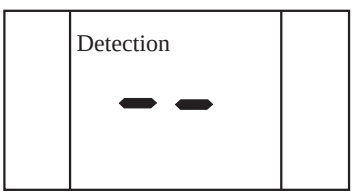
When No. 16 unit starts, indoor hea







(For example) When there is not any detection information



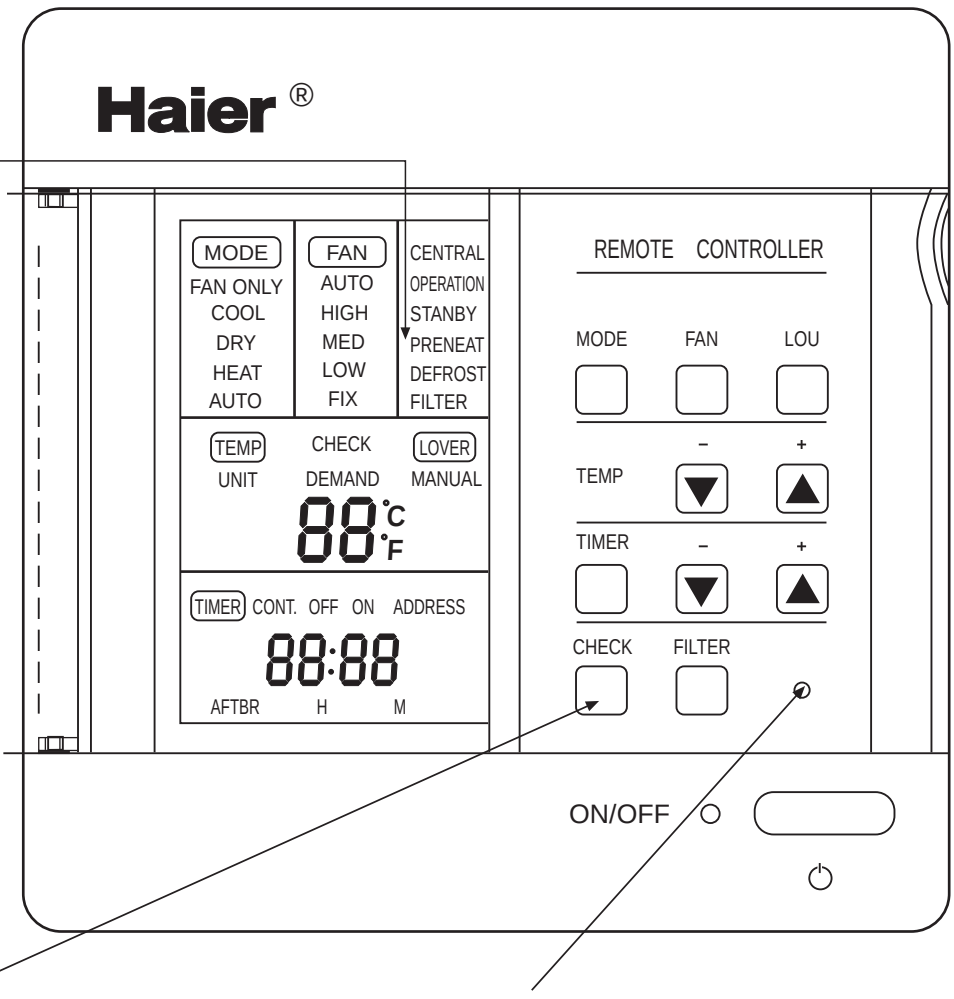
B. Standard remote controller (with time-meter)

(1) Check display operation

Pressing check button can confirm inspection code. Refer to item 2 for reading method of inspection code:

LCD displays the reason of "standby"

- Indoor unit group with cool mode being set due to prior to heat control
- When the capability of indoor unit group is overloaded
- Selection of indoor unit group whose running mode is opposite to the running mode (cold/heat) and switch setting content of outdoor unit
- When the phase sequence of power wiring of outdoor unit is wrong



Check button

- Press it for 0.5 second to display inspection code
- Press it for 3 seconds to reset the indoor unit (when the indoor unit is in the state of stopping running due to its abnormality)
- Press it for 10 seconds to clear inspection information in addition to resetting the indoor unit.

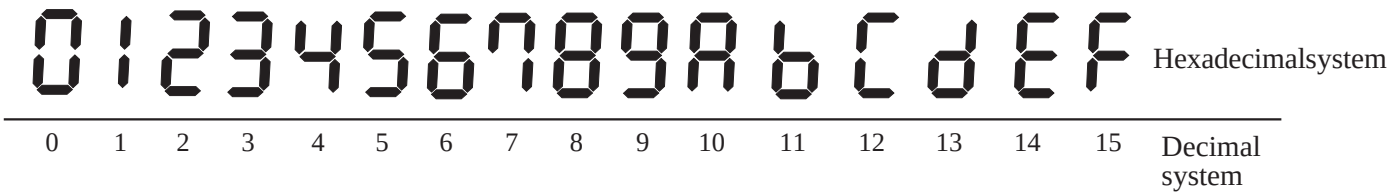
Reset button

- When using it, press the button in the hole, the power of remote controller will be reset (clear all information)

(2) Reading method of inspection code

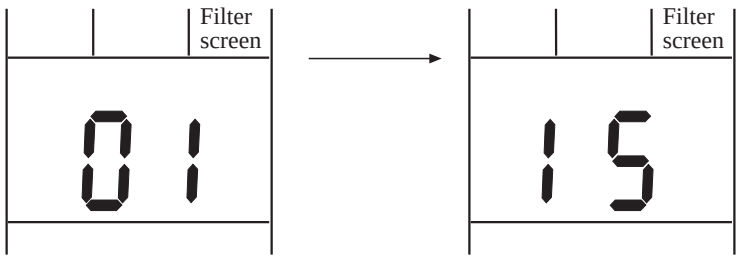
Press the check button, the number (when controlling in group, it will be address in the group) of indoor unitgroup with

<7-segment display>



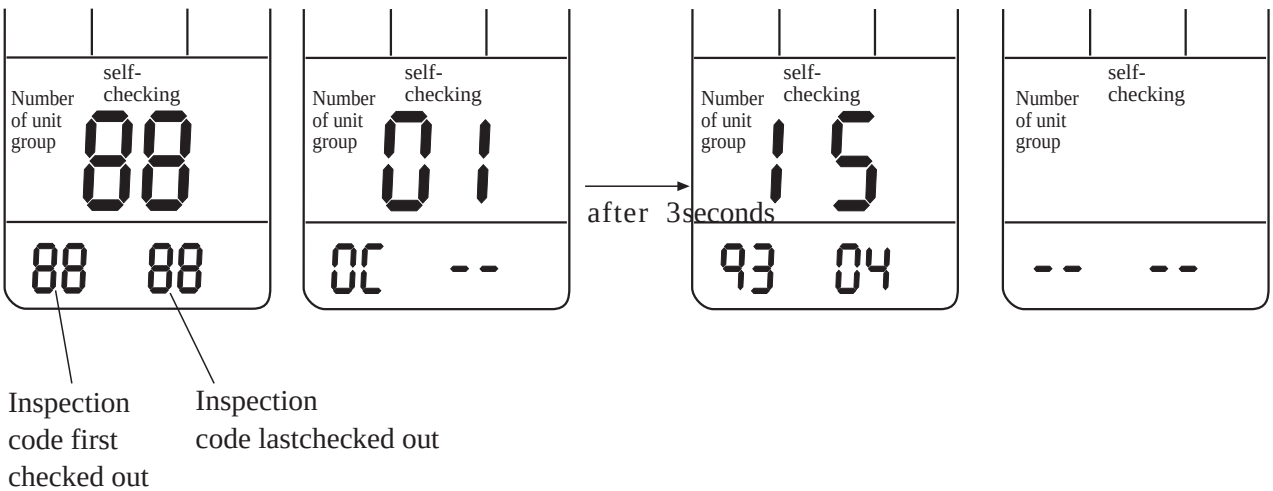
<Filter information>

(For example) When the filter information of No. 1 and No. 15 unit controlled in group is sent out



<Check information> (For example) When the room temperaturesensor of No. 1 unit has faultWhen No. 15 unit sta

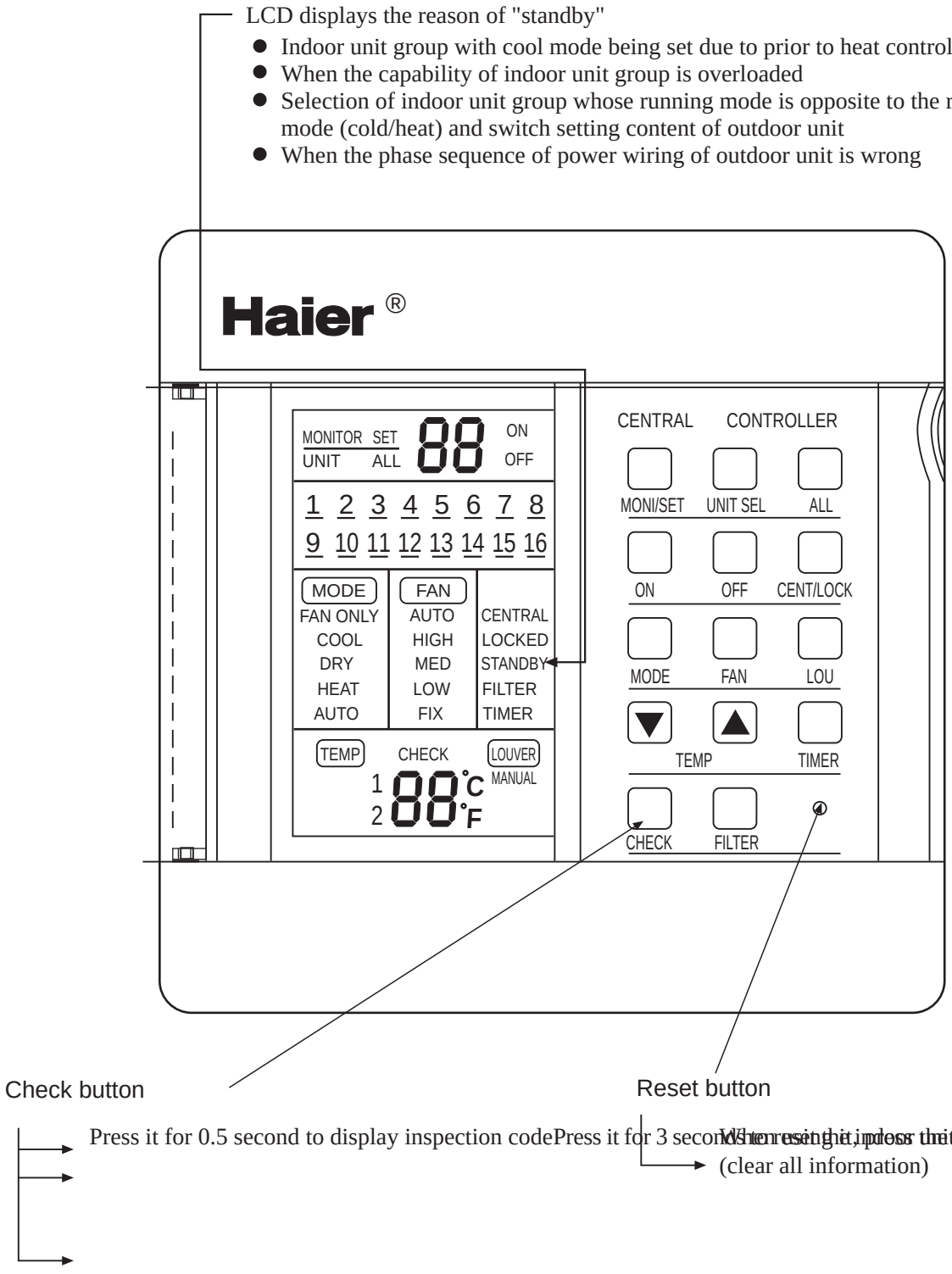
(For example) When thereis not any



C. Central controller

(1) Check display operation

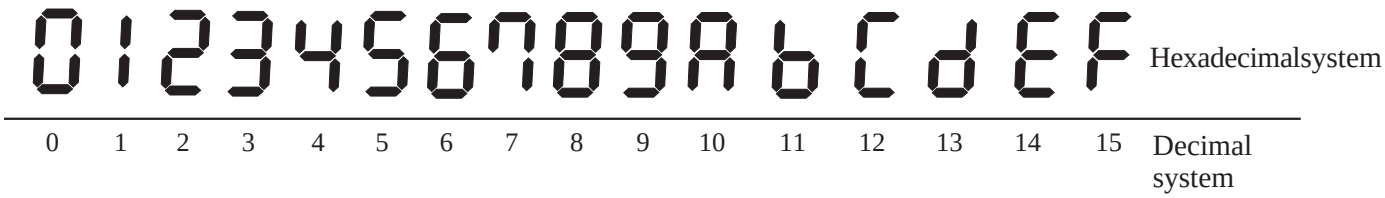
Pressing check button can confirm inspection code. Refer to item 2 for reading method of inspection code:



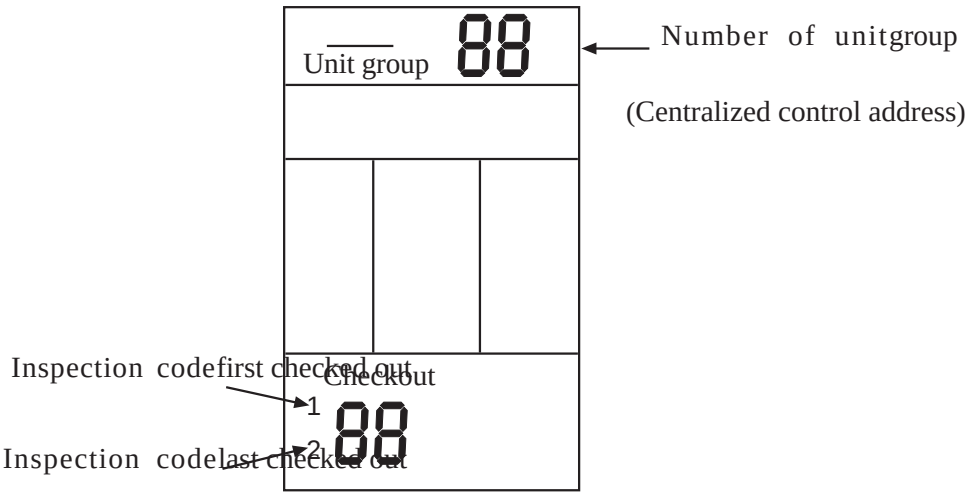
(2) Reading method of inspection code

Press the check button, the number (centralized control address) of indoor unit group with inspection codewill be disp

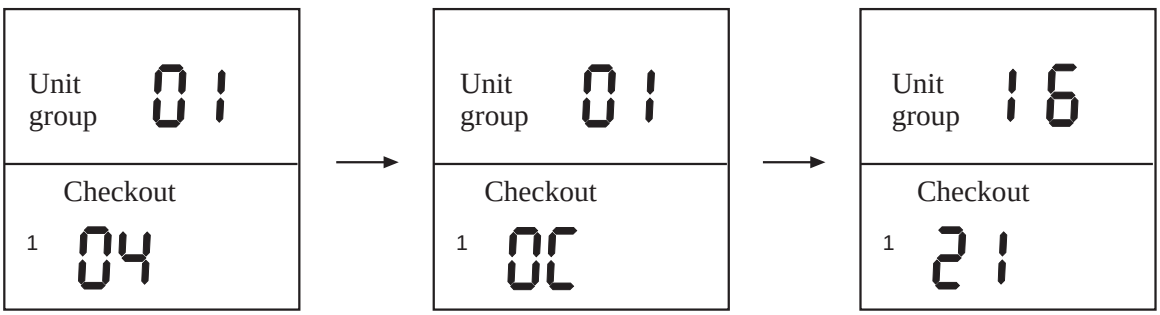
<7-segment display>



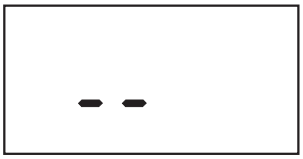
<Check>



(For example) The outdoor unit serial communication of No.1 unit group first has fault, then the room temperature sensor of No. 1 unit has fault and the high pressure switch of No.16 unit group starts action.

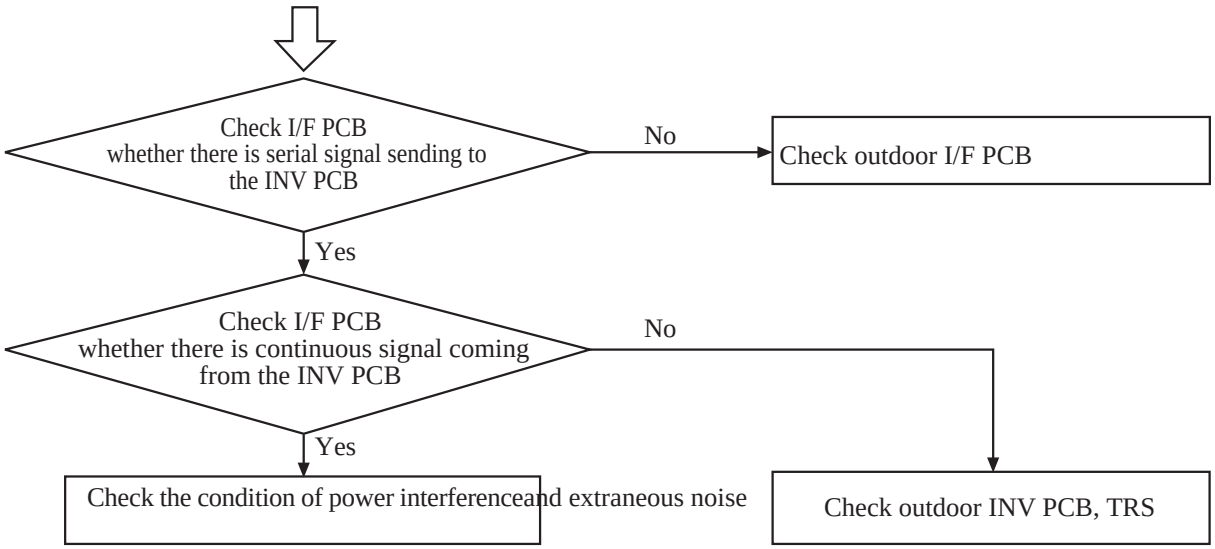


(For example) When there is not any inspection code

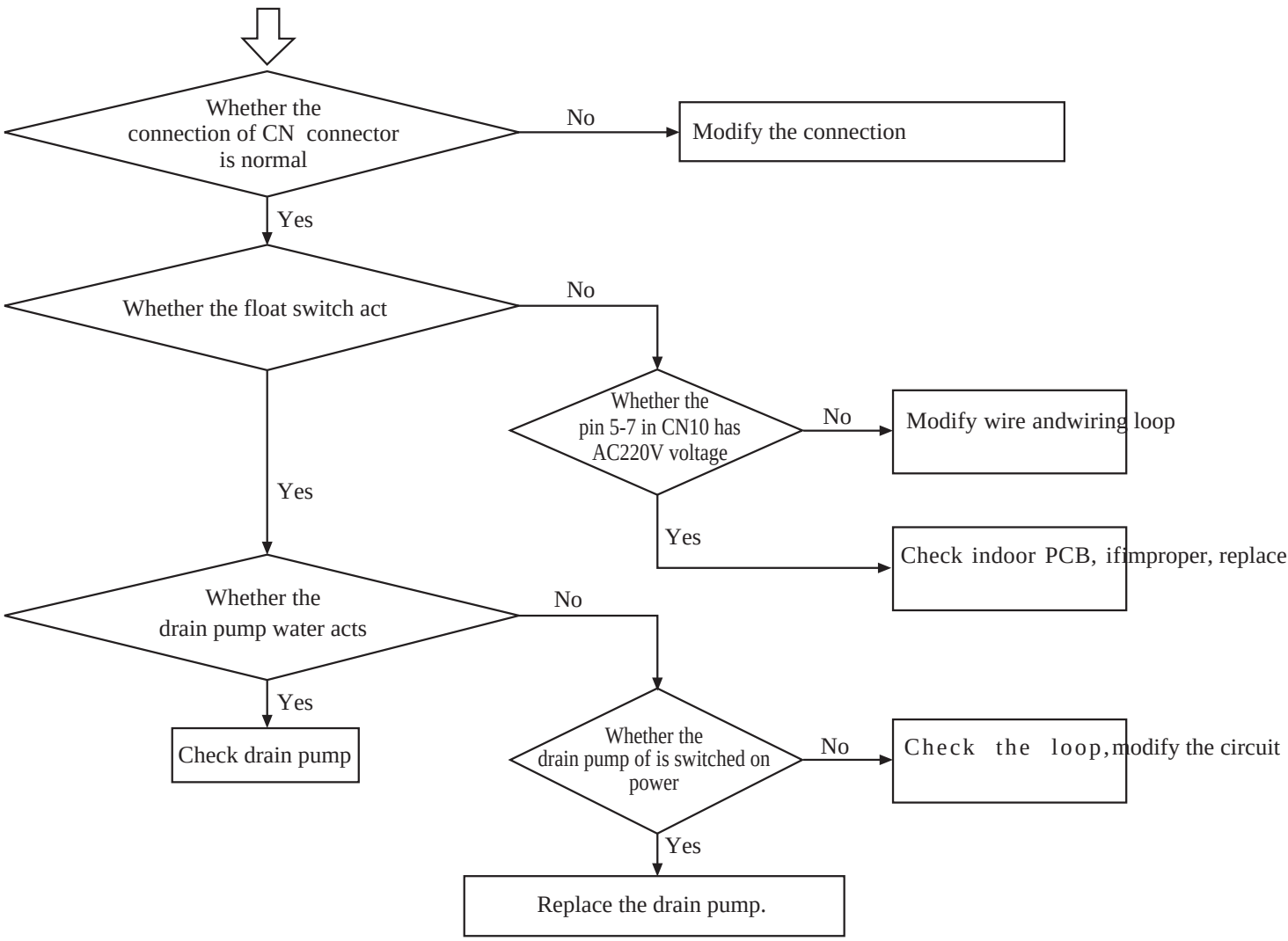


(3) Sequence of judgment

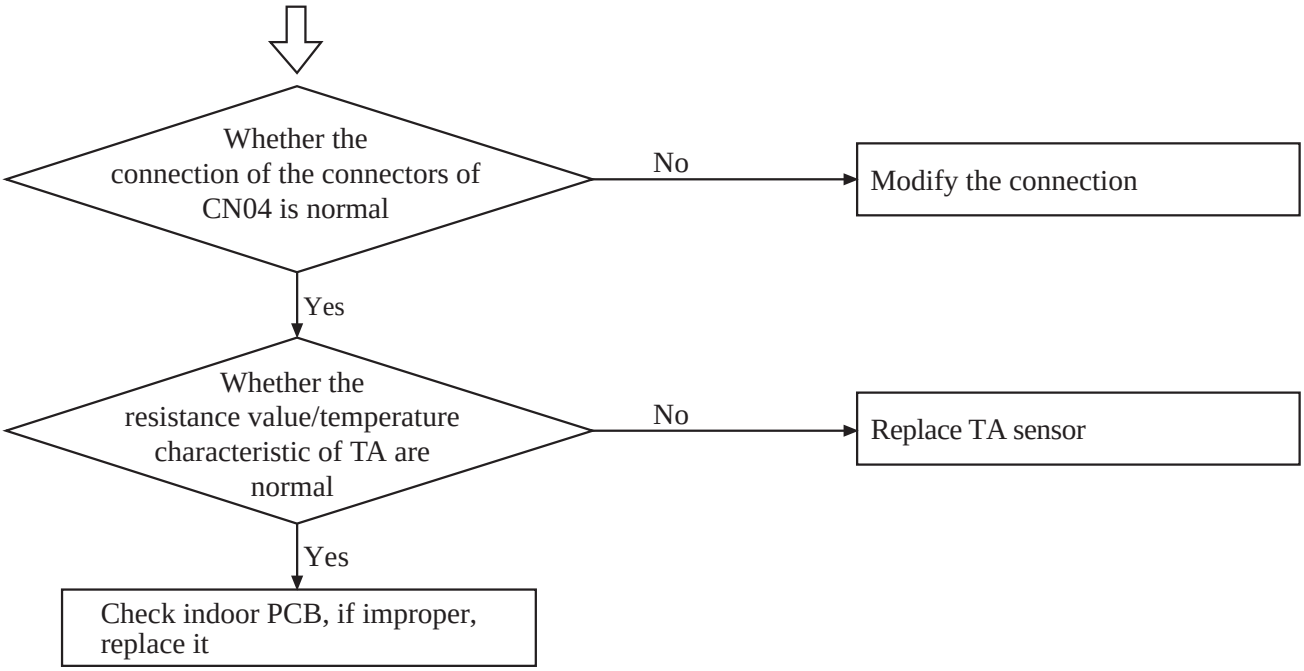
[04] Serial communication circuit of I/F interface PCB and INV PCB, TRS temperature switch circuit.



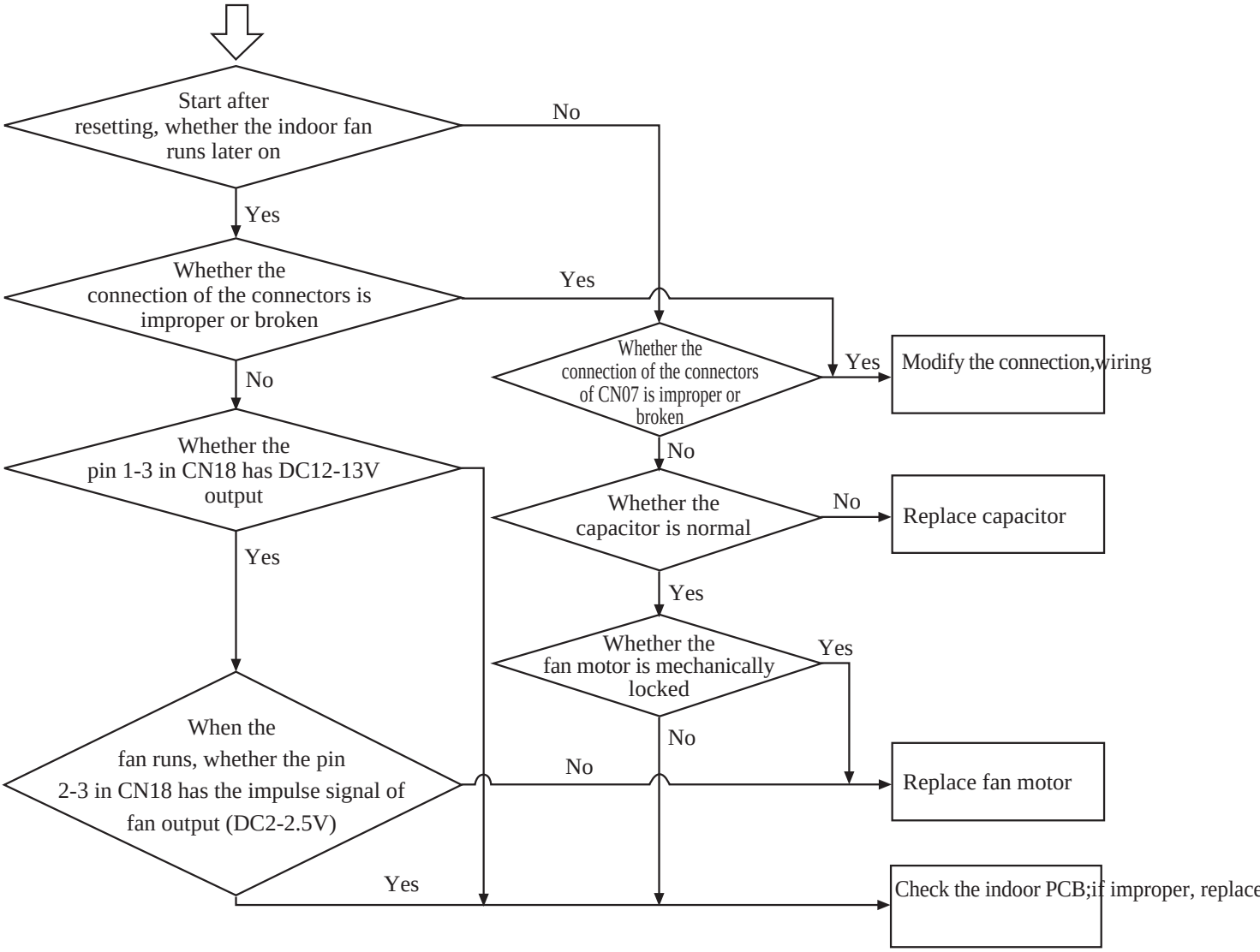
[0b] Drain pump system of condensed water (float switch circuit of indoor PCB)



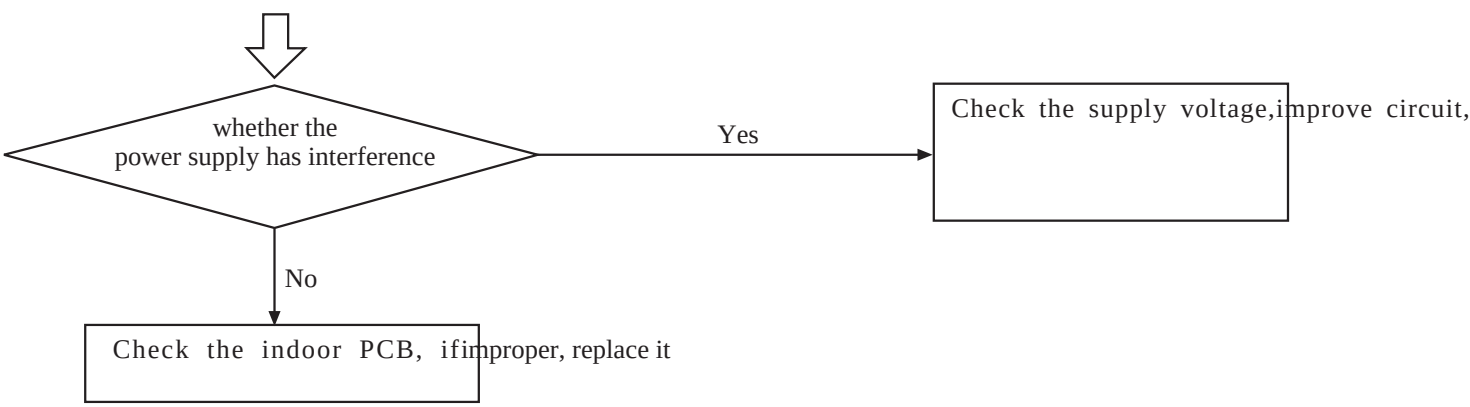
[0C] Circuit of room temperature sensor (TA)



[11] Motor circuit (phase silicon control)

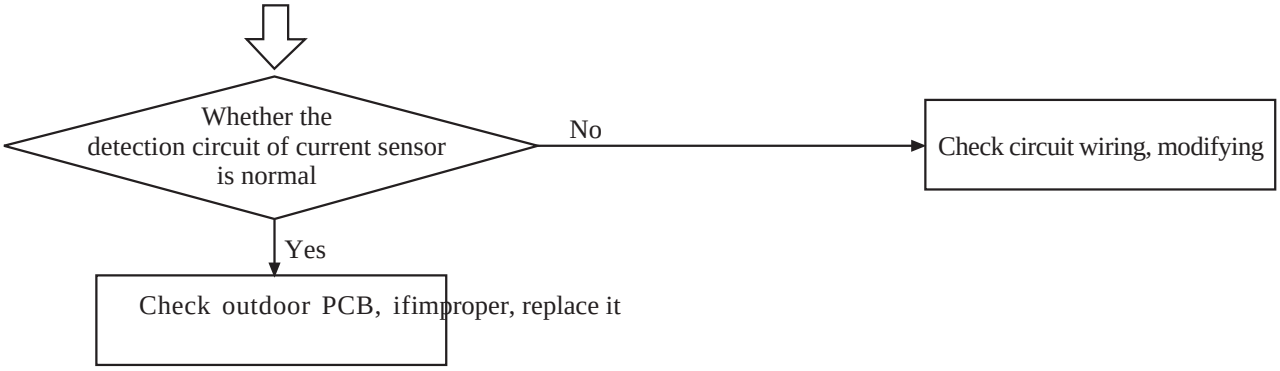


[12] Indoor PCB circuit

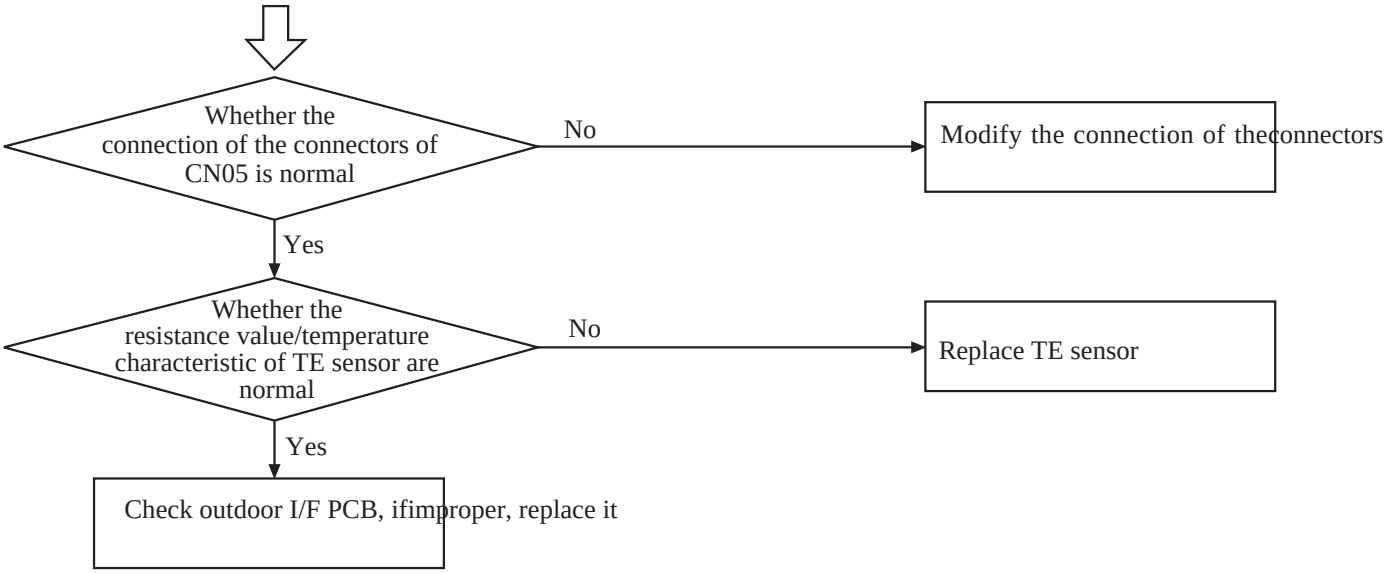


[14] Overcurrent protection circuit of inverter

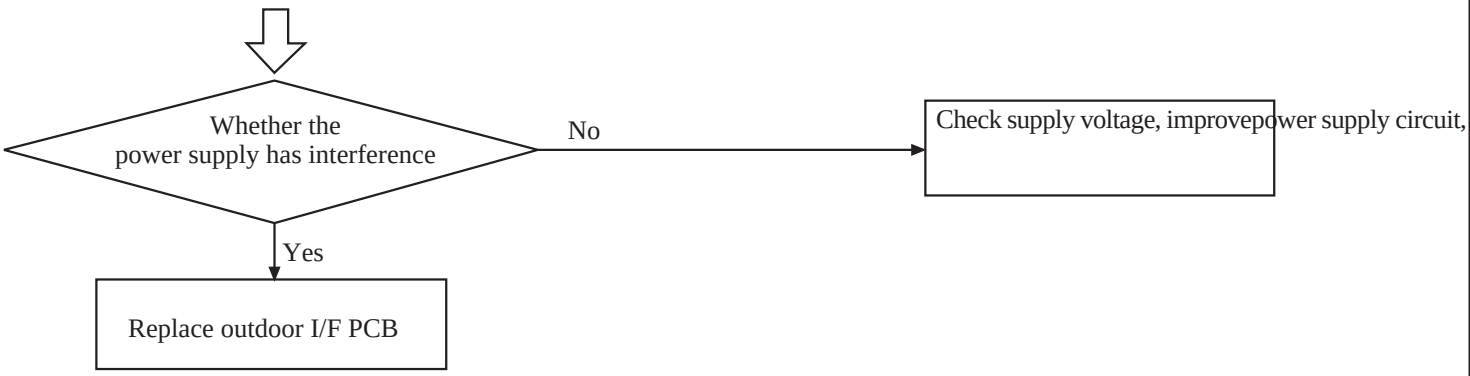
[17] Circuit of current sensor



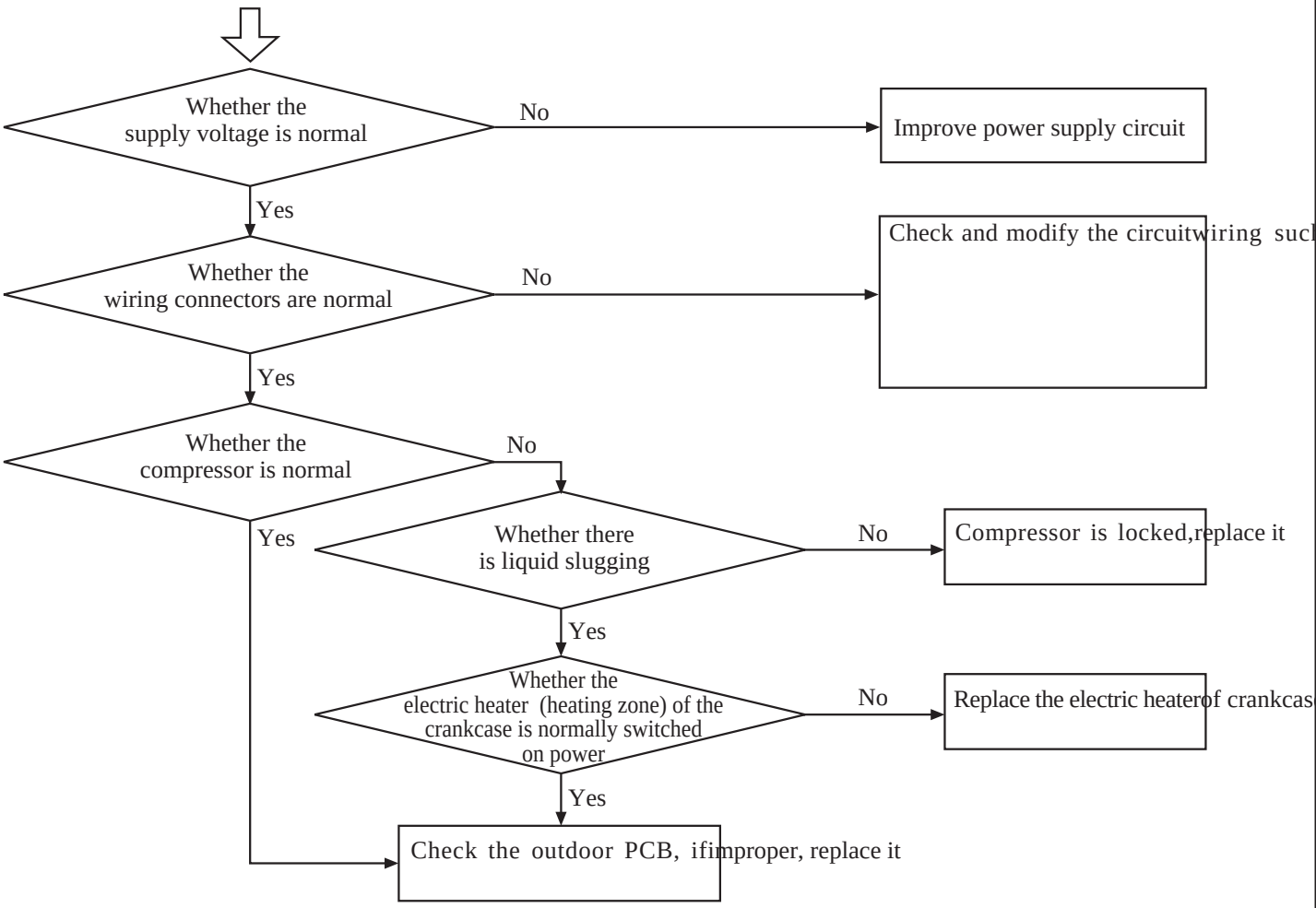
[18] Outdoor heat exchanger sensor (TE) loop



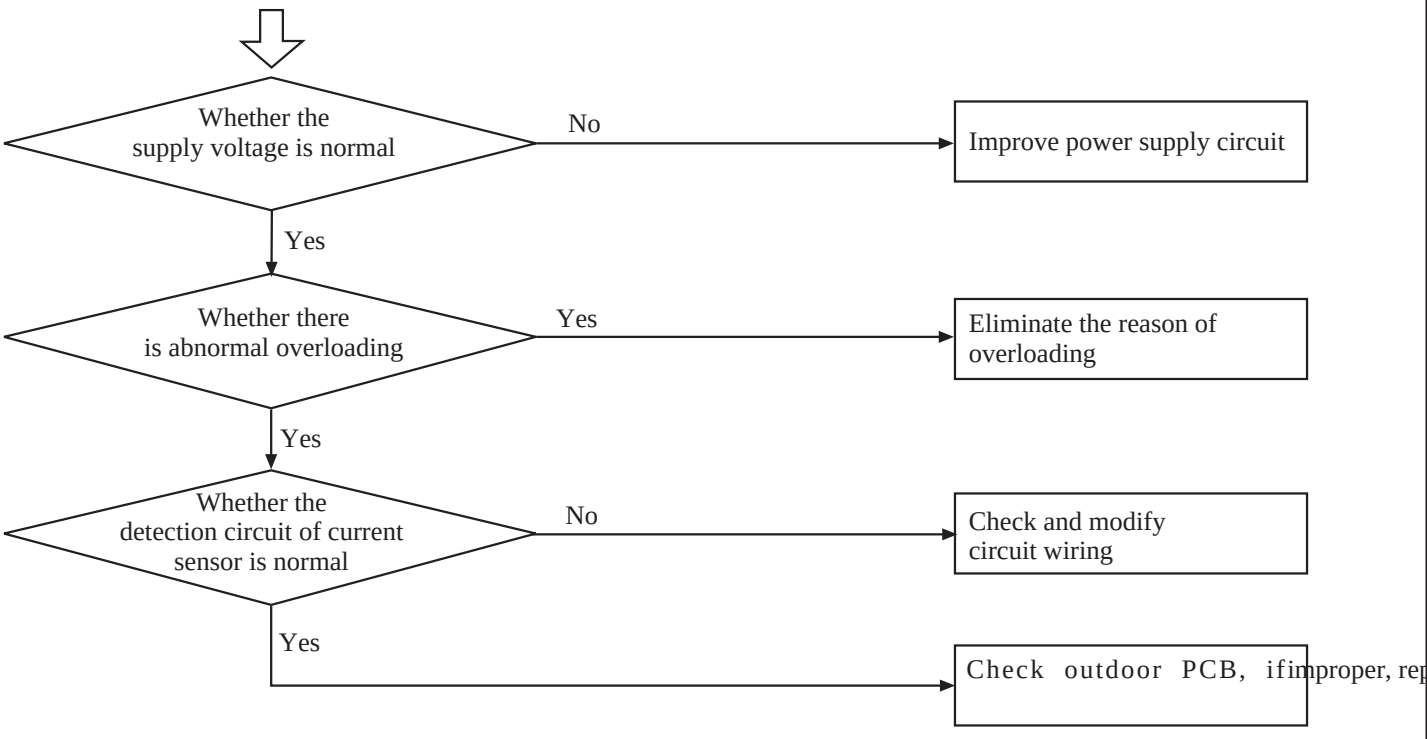
[1C] Interface PCB loop



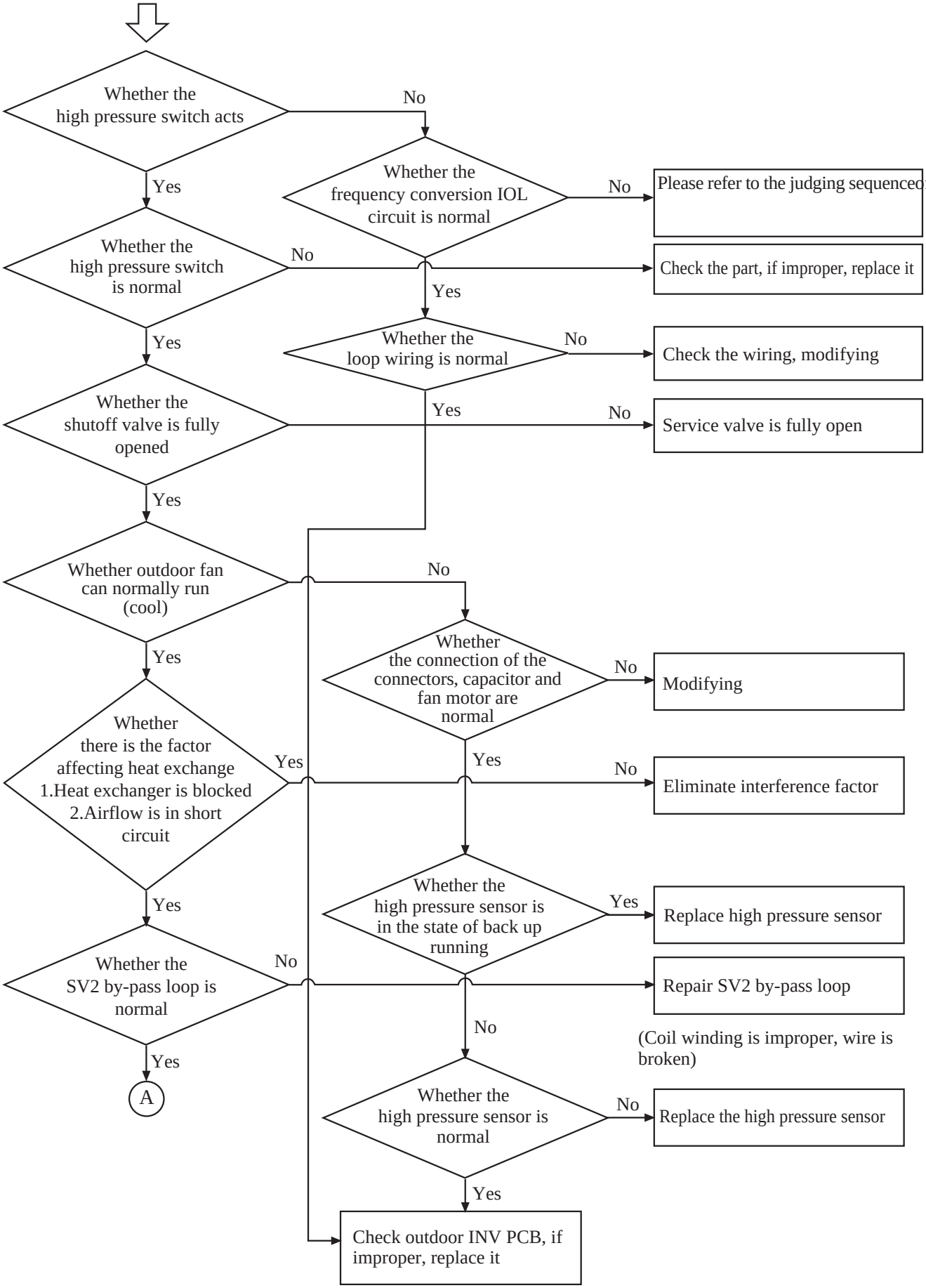
[1d] Compressor system loop



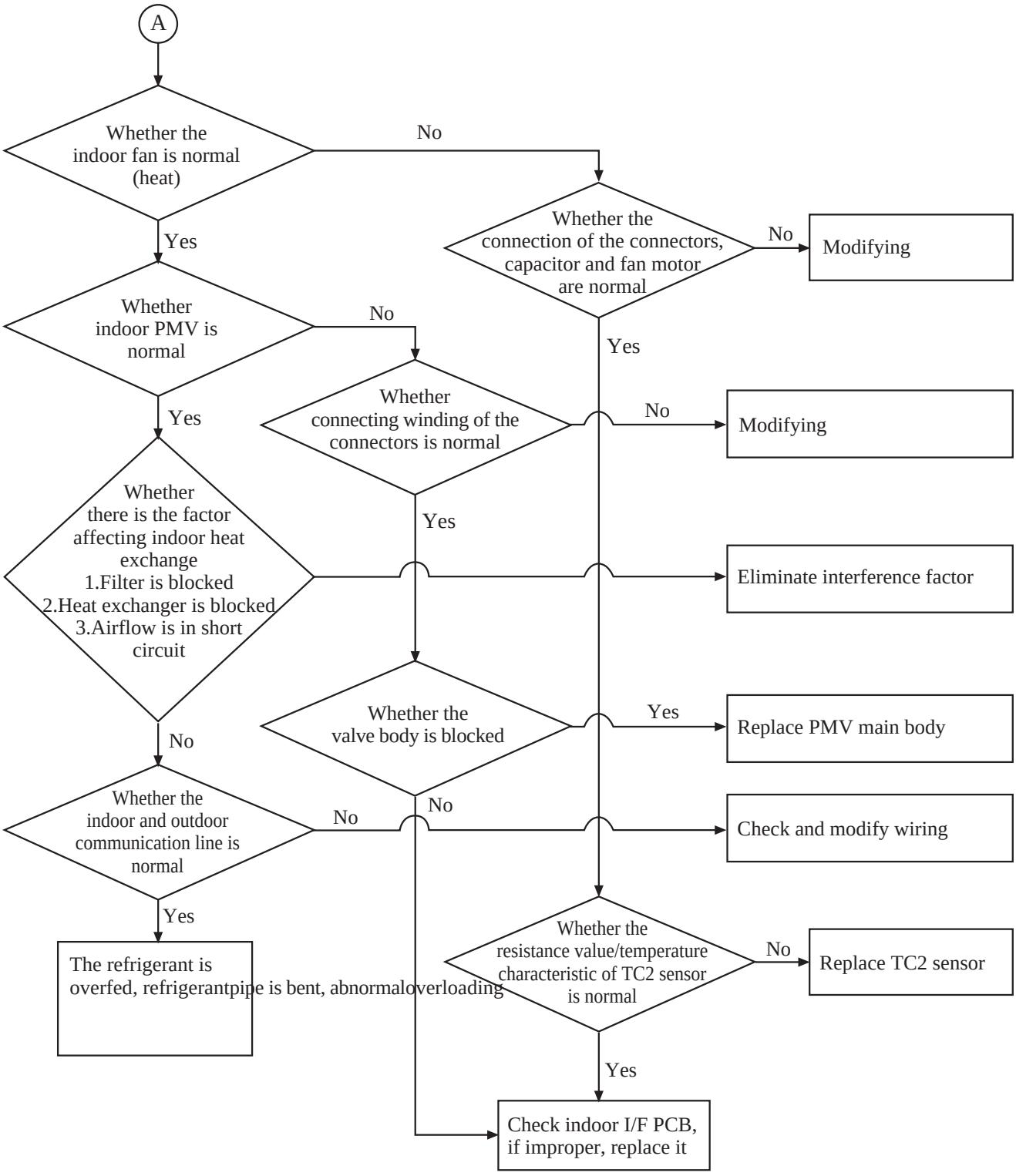
[1F] Current checkout loop



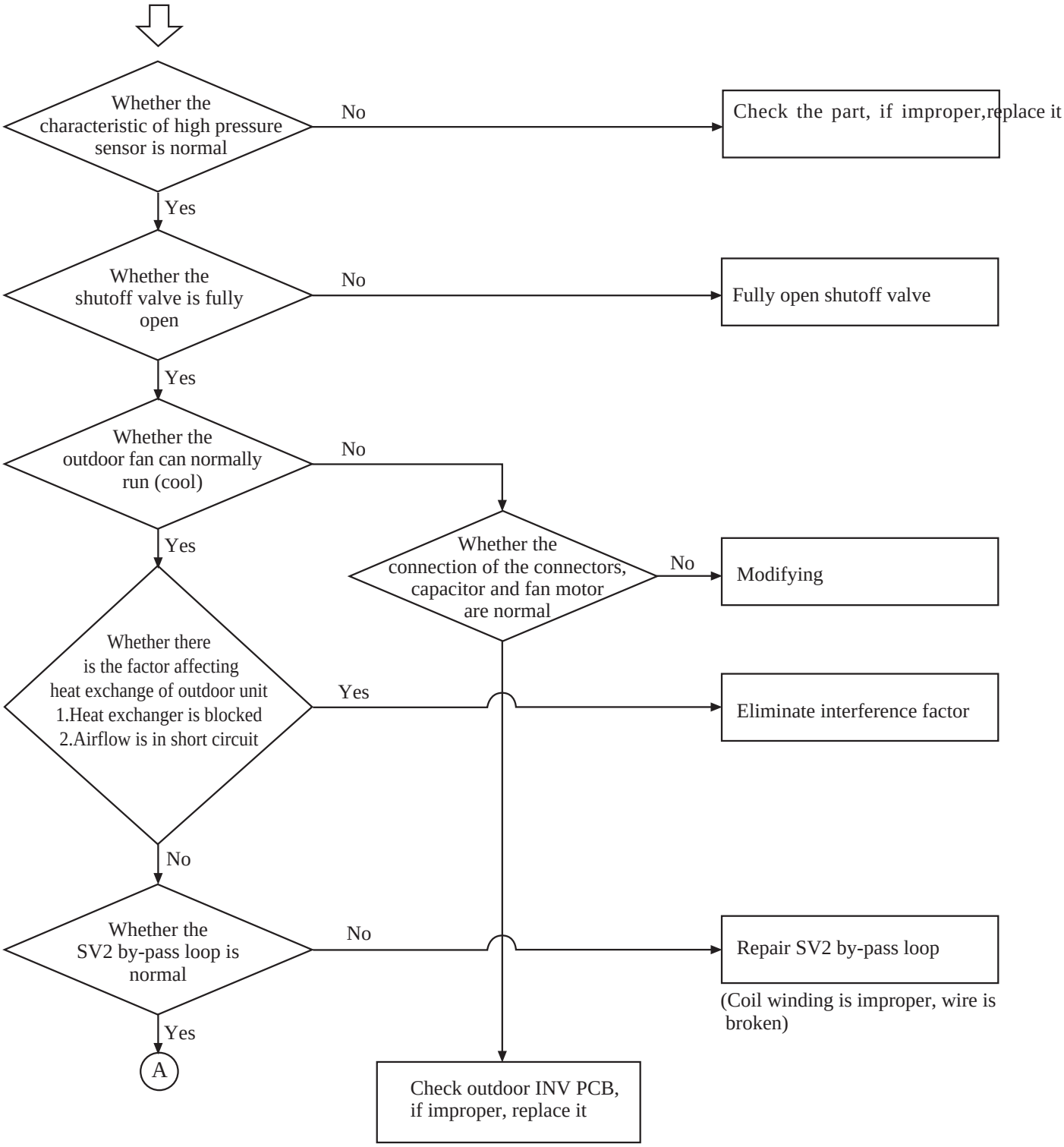
[21] High pressure switch system circuit (inverter)

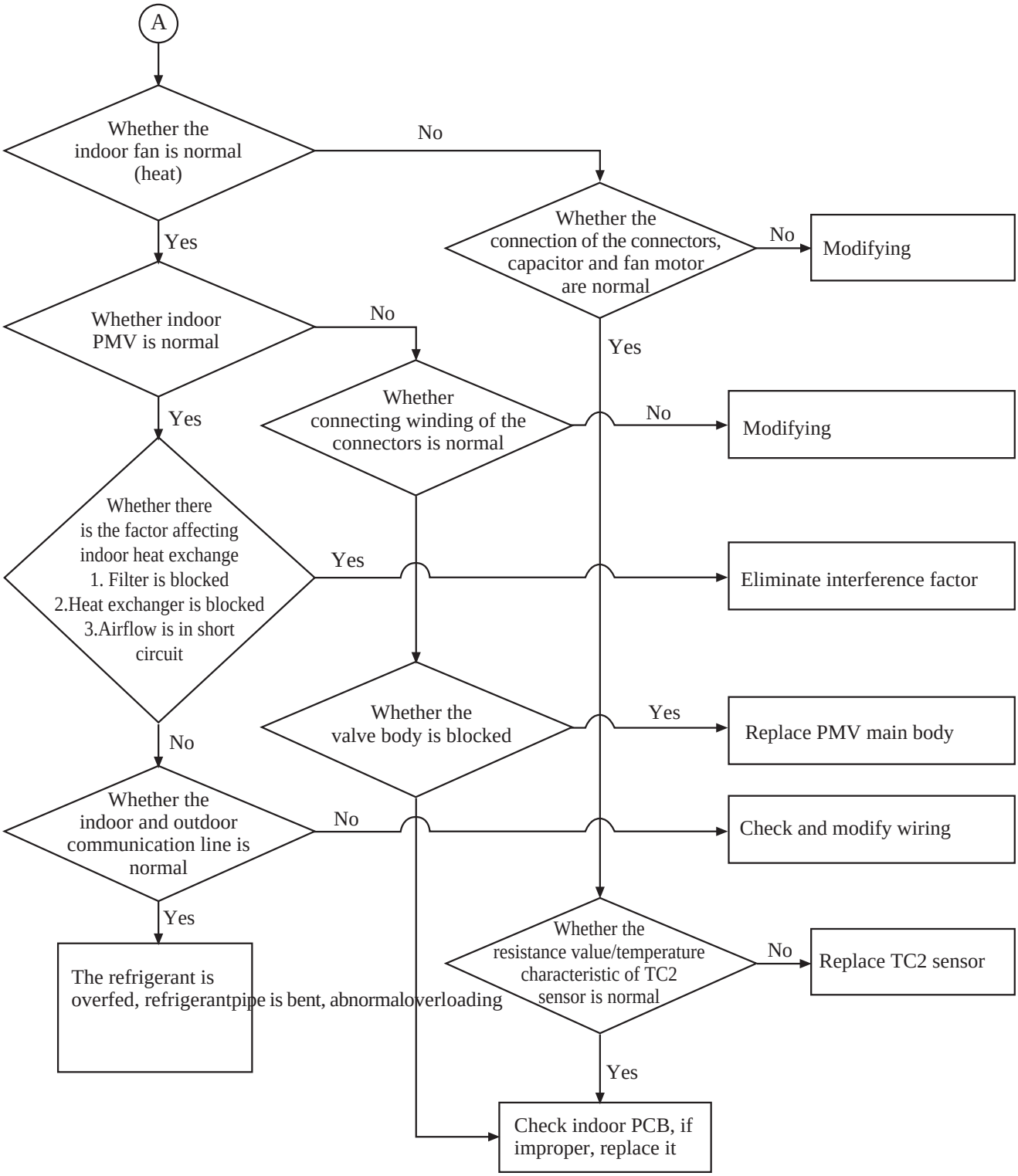


[21] High pressure switch system circuit (inverter)

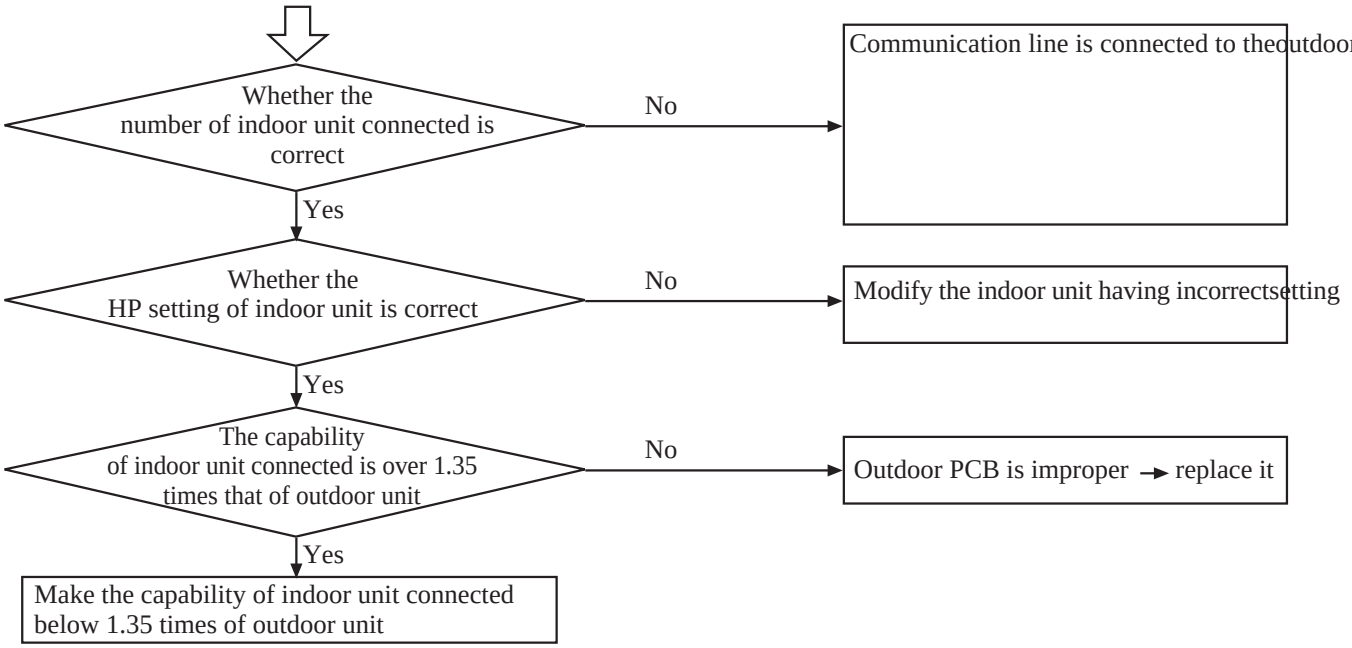


[22] High pressure protection action (Pd sensor)

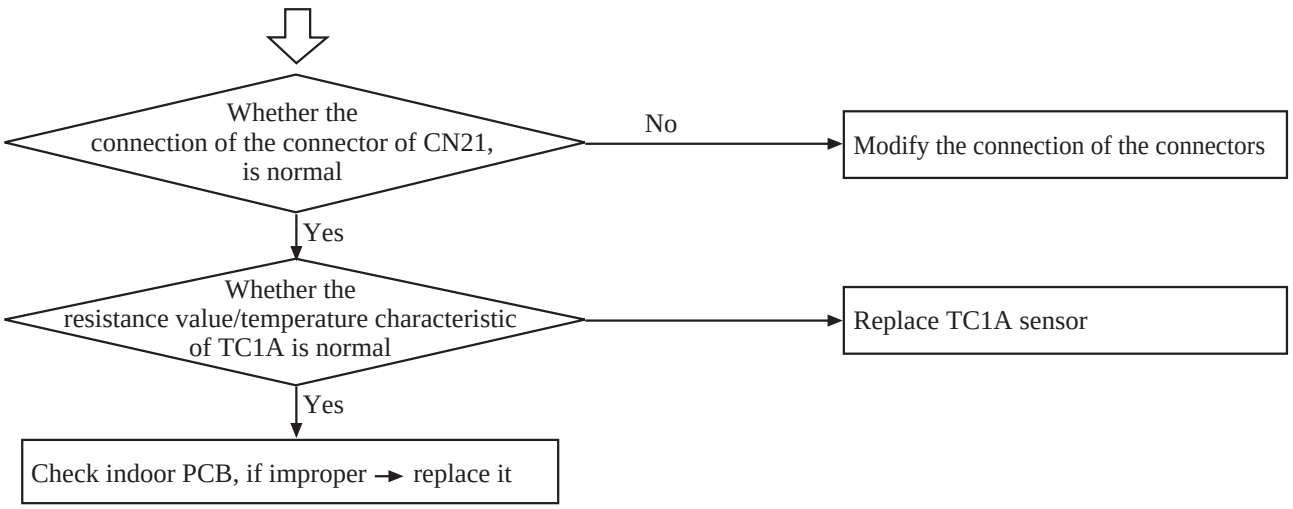




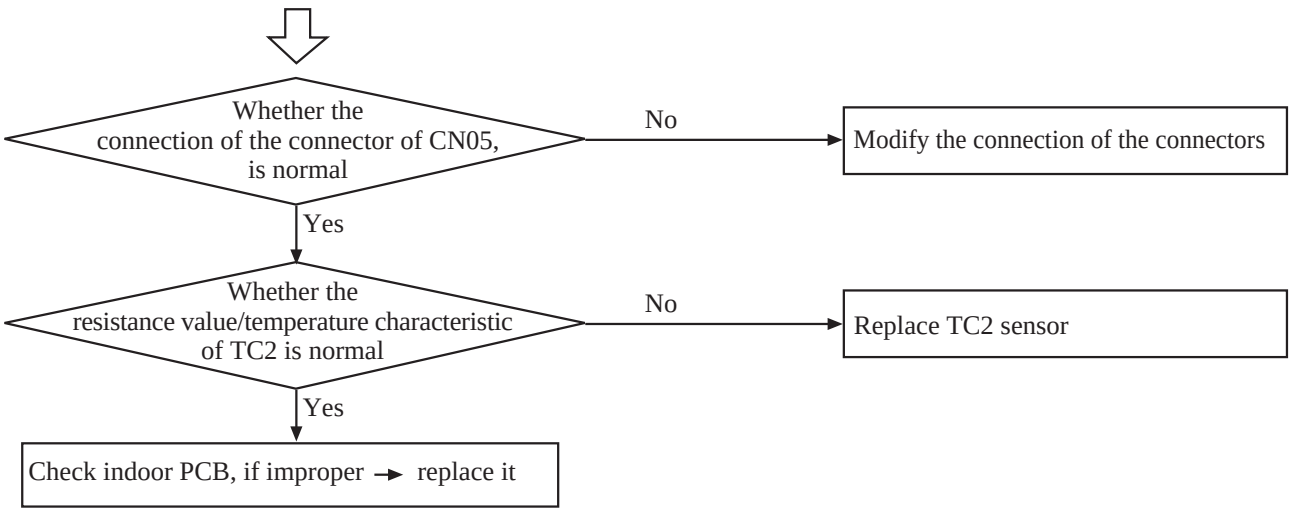
[89] Capability of indoor unit connected overload



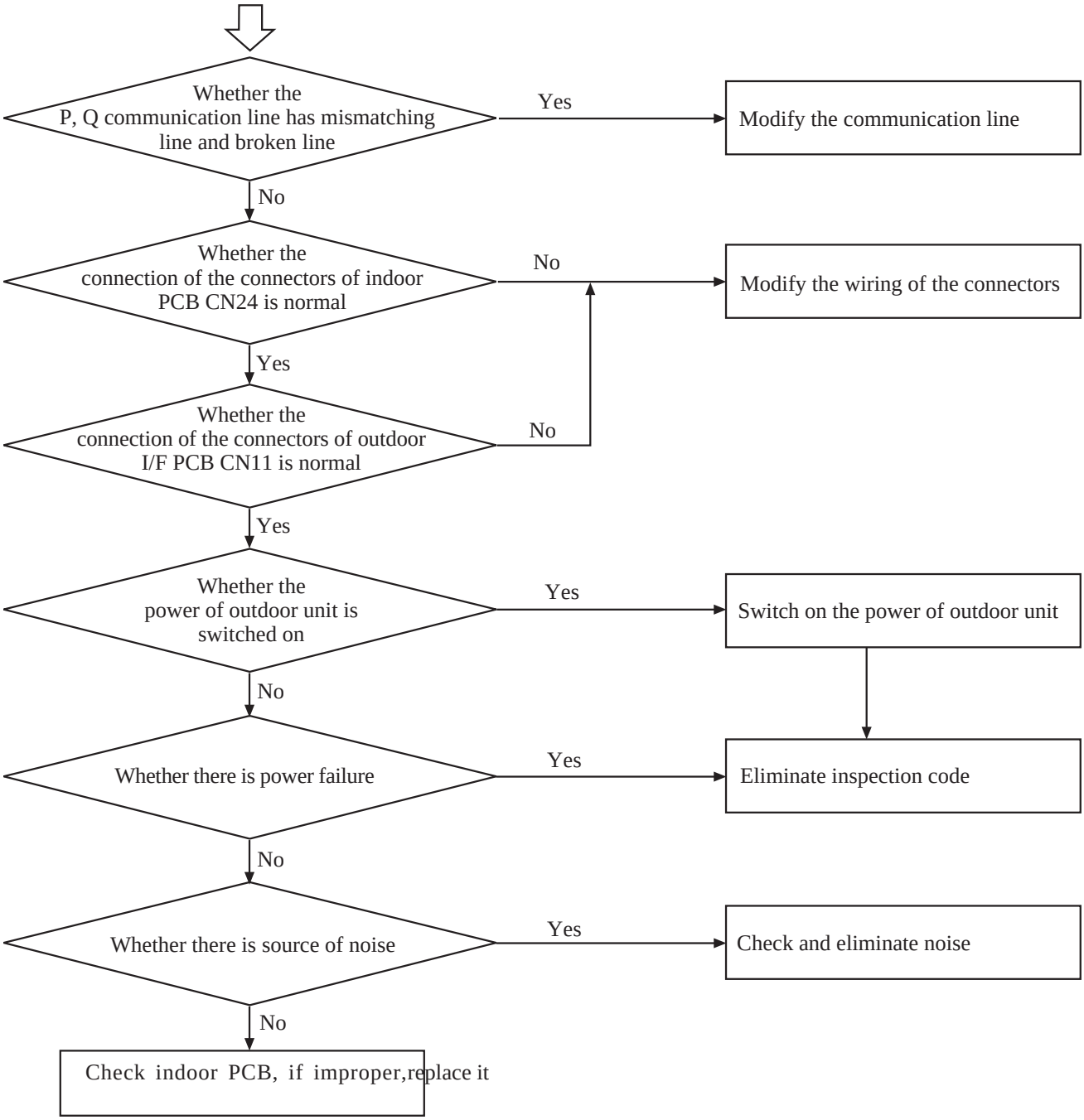
[93] TC1 circuit of indoor heat exchanger sensor



[94] TC2 circuit of indoor heat exchanger

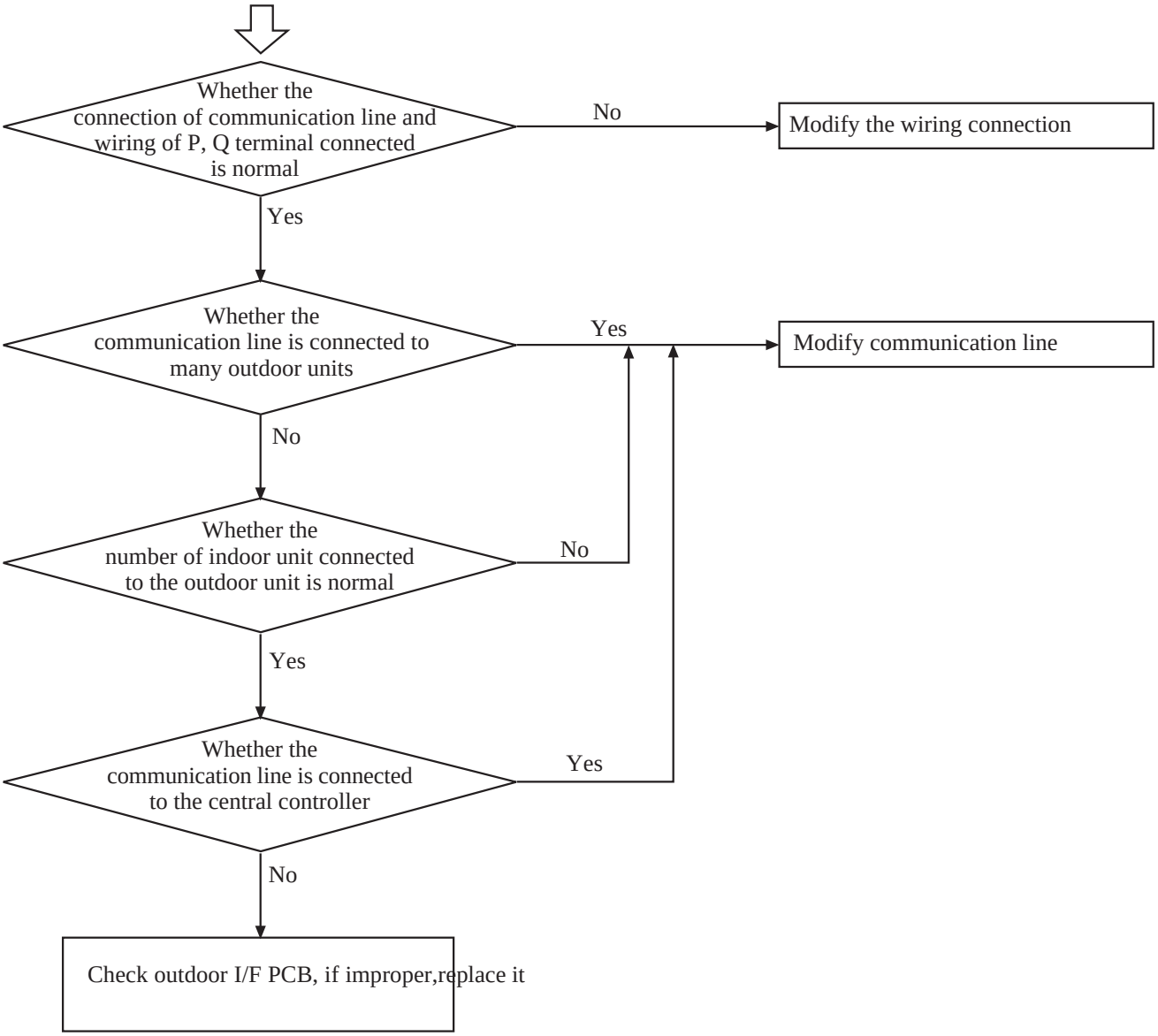


[95] Indoor and outdoor communication circuit

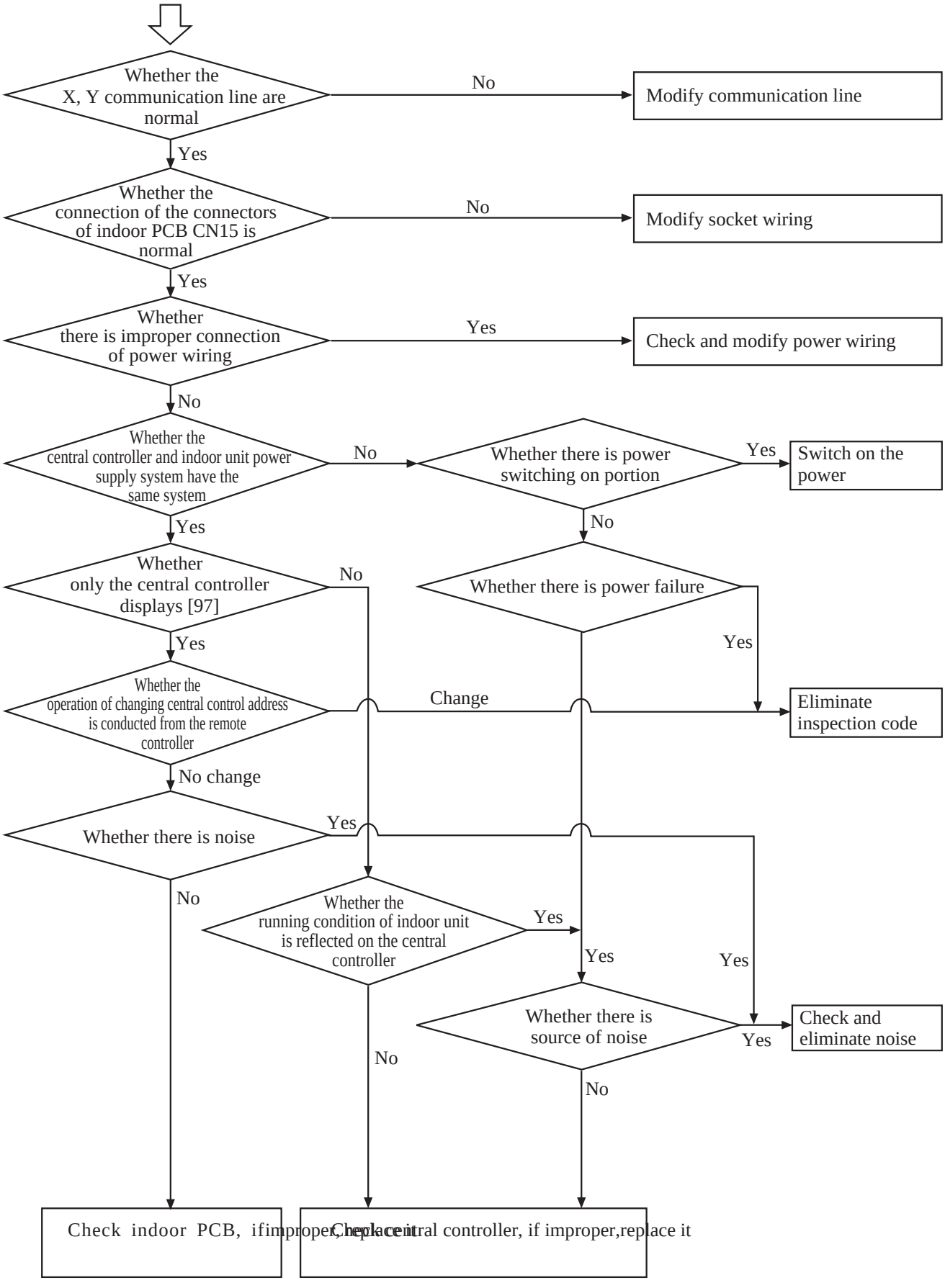


* When first switch on the power of indoor unit and then (more than 1 minute) switch on the power of outdoor unit

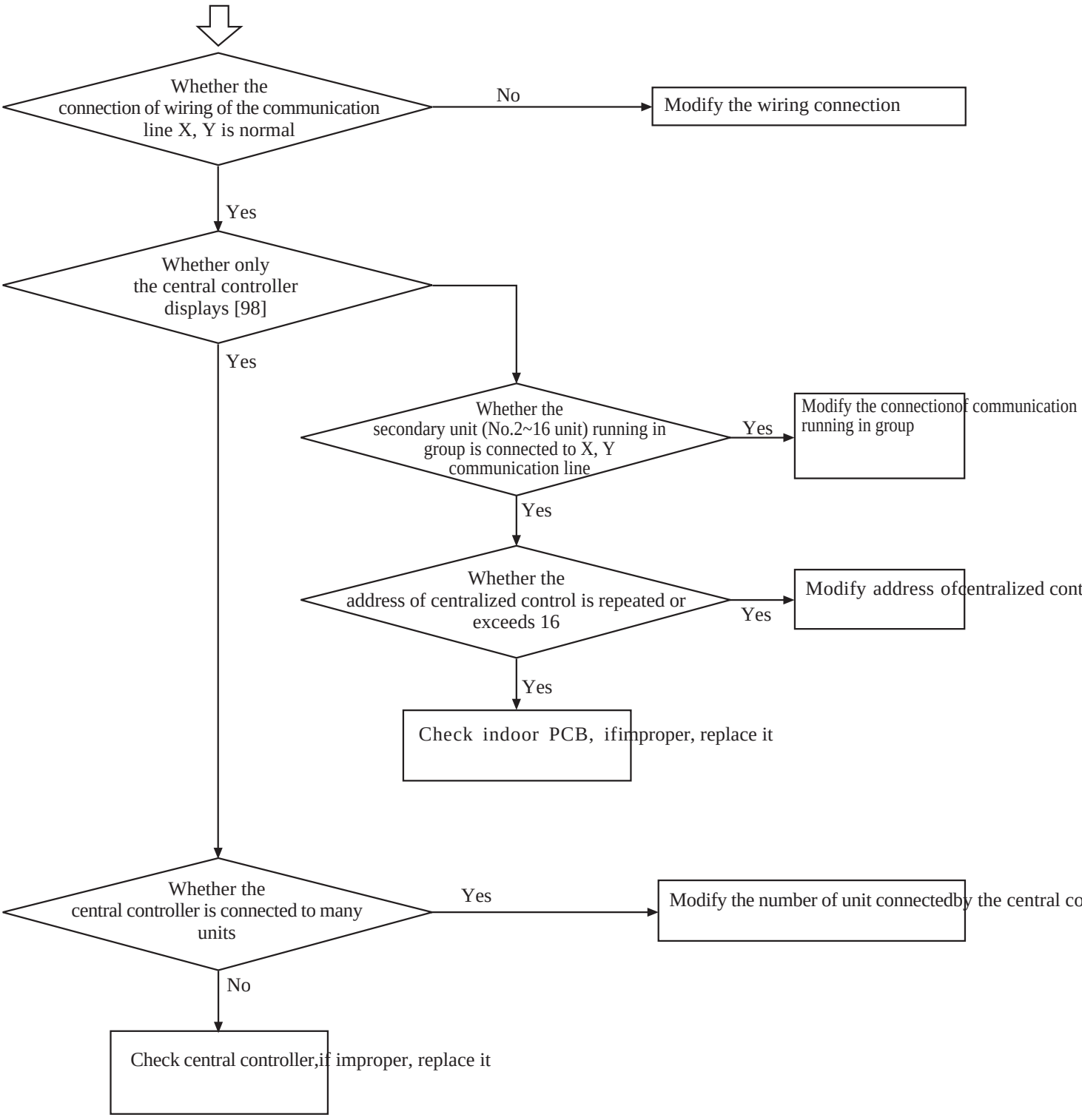
[96] Contradiction checkout of indoor and outdoor address



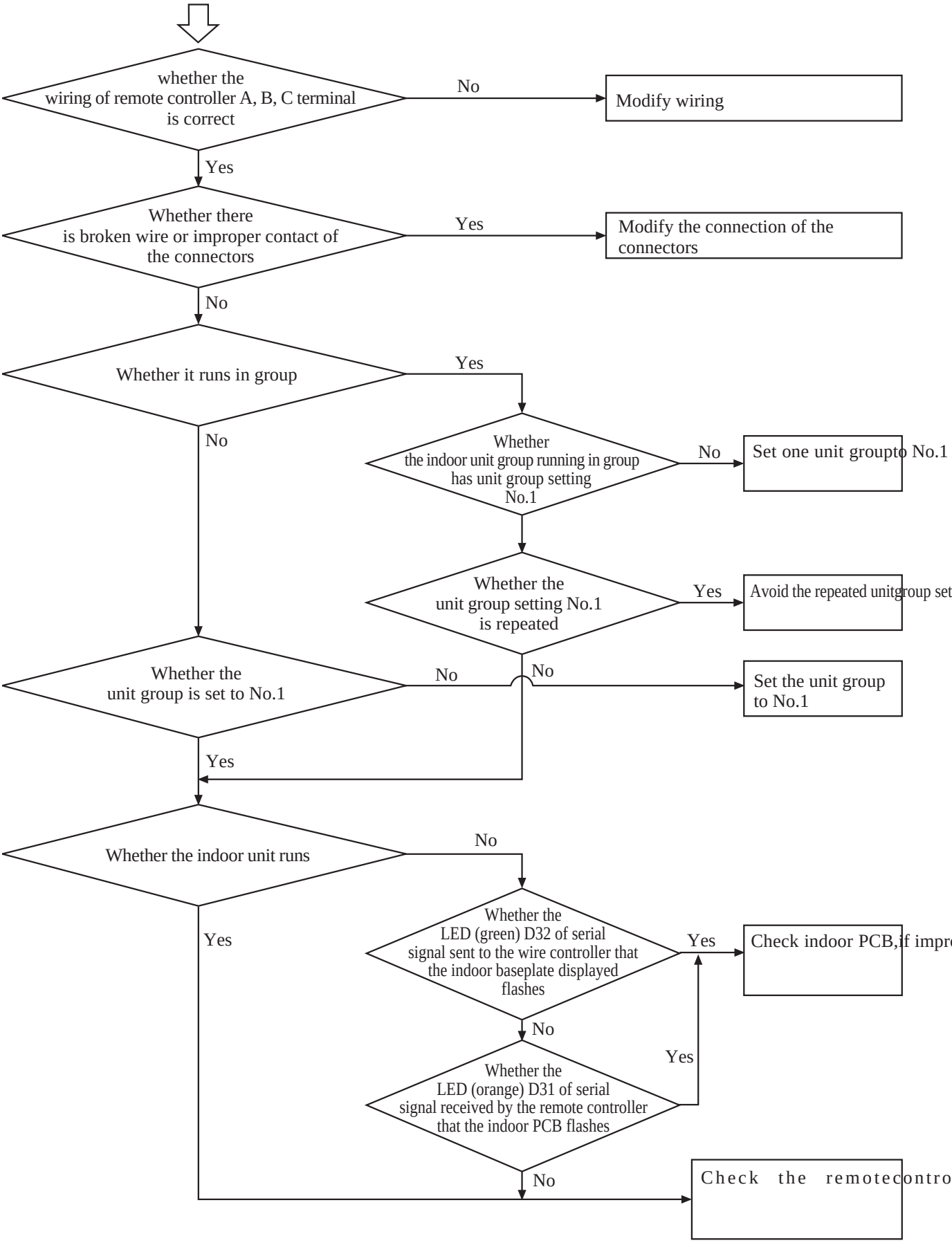
[97] Communication circuit of centralize control



[98] Address setting of centralized management



[99] Mismatching line of remote controller terminal



[9A] Mismatching line and wrong connection of indoor unit group

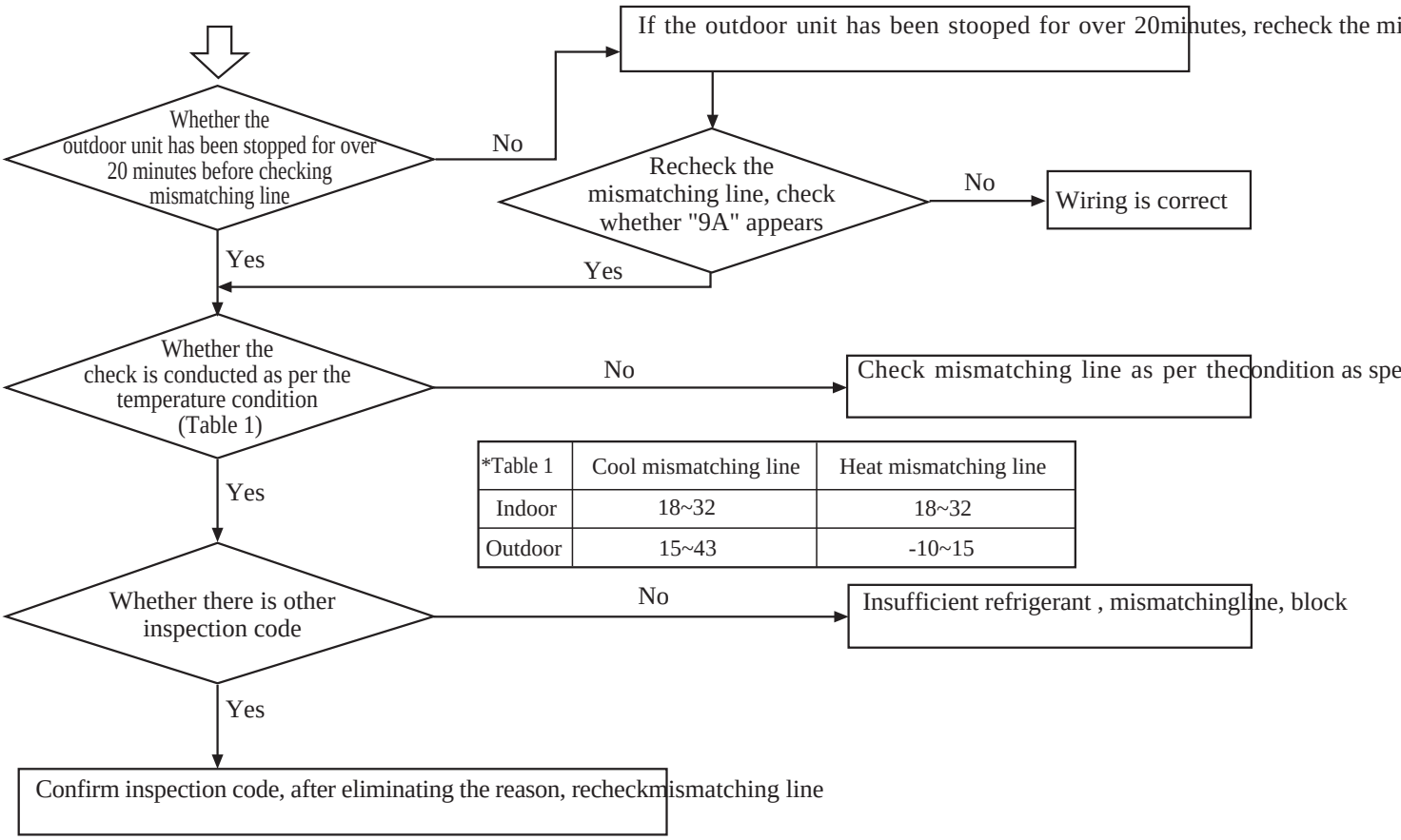
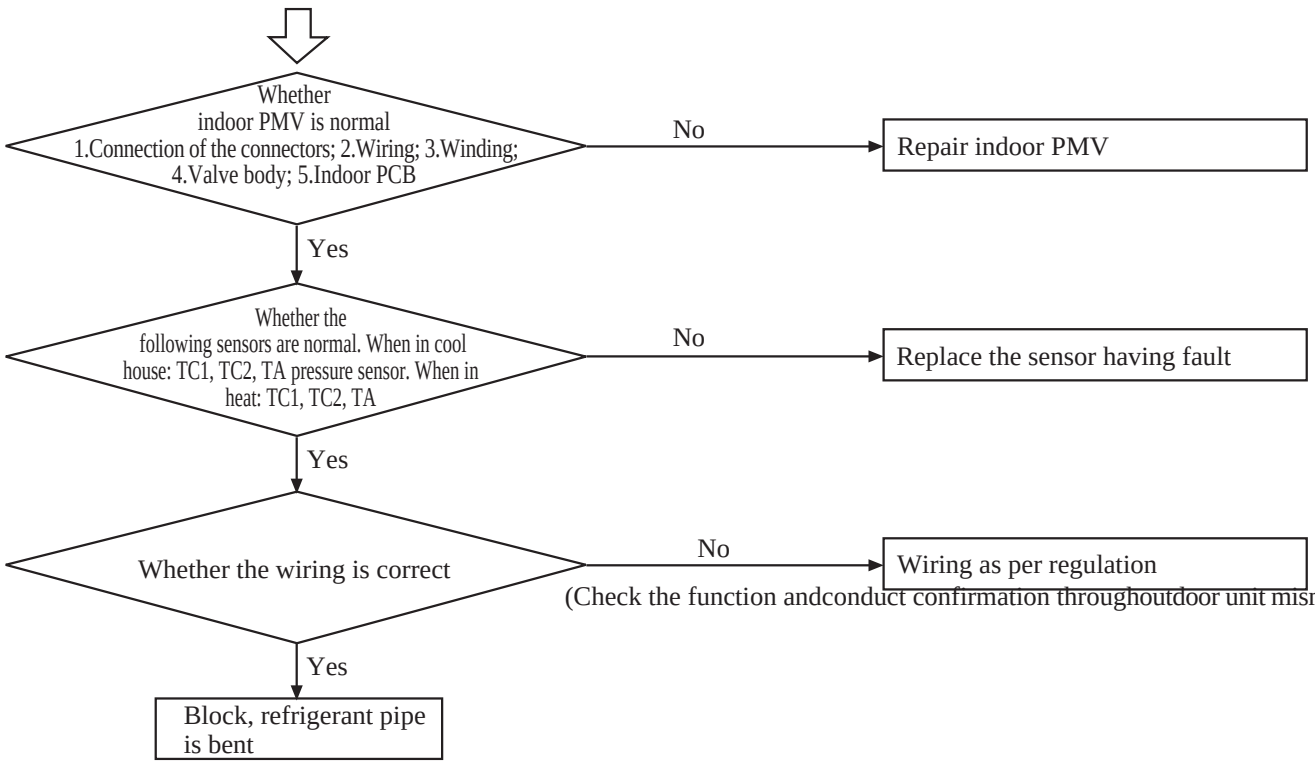
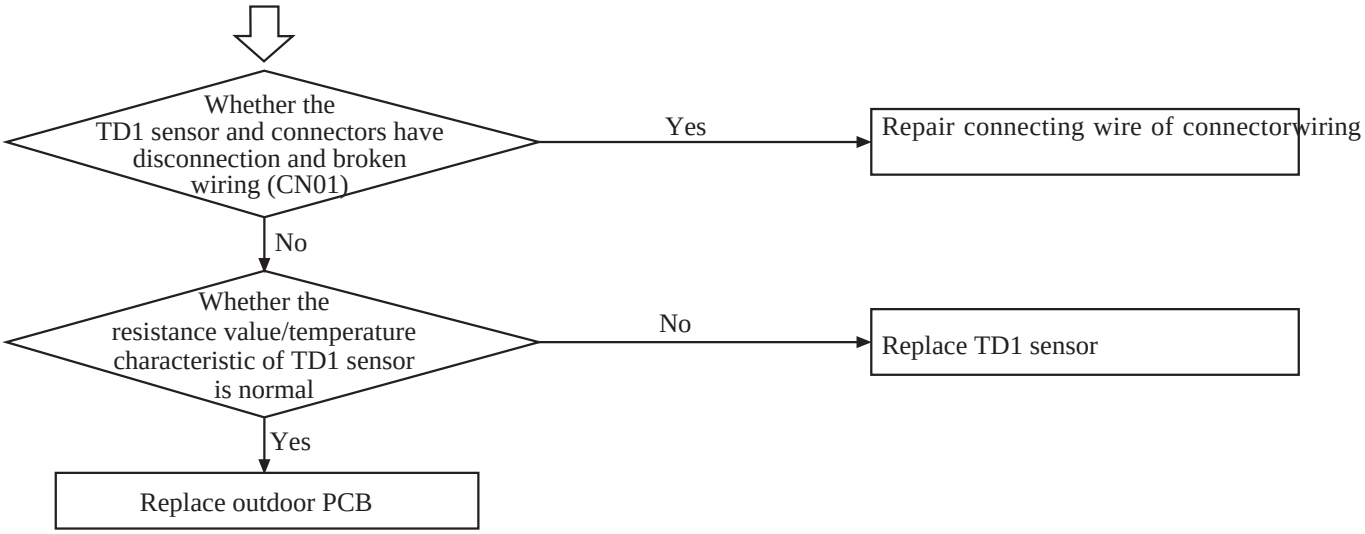


*Table 1	Cool mismatching line	Heat mismatching line
Indoor	18~32	18~32
Outdoor	15~43	-10~15

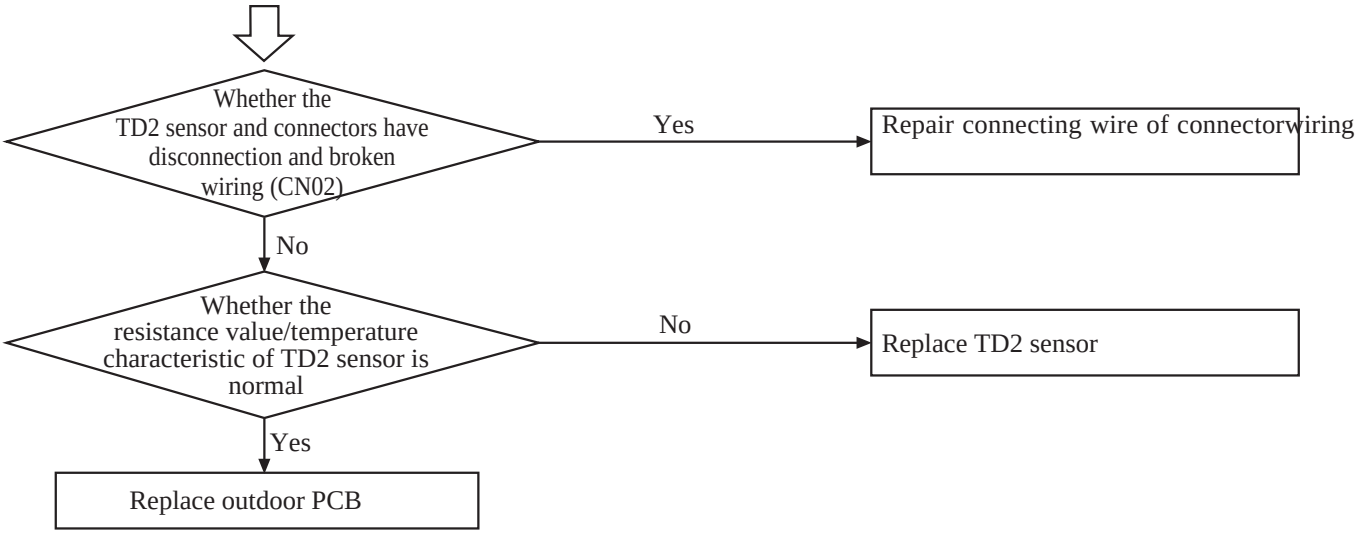
[9F] Judgment of insufficient refrigerant cycle



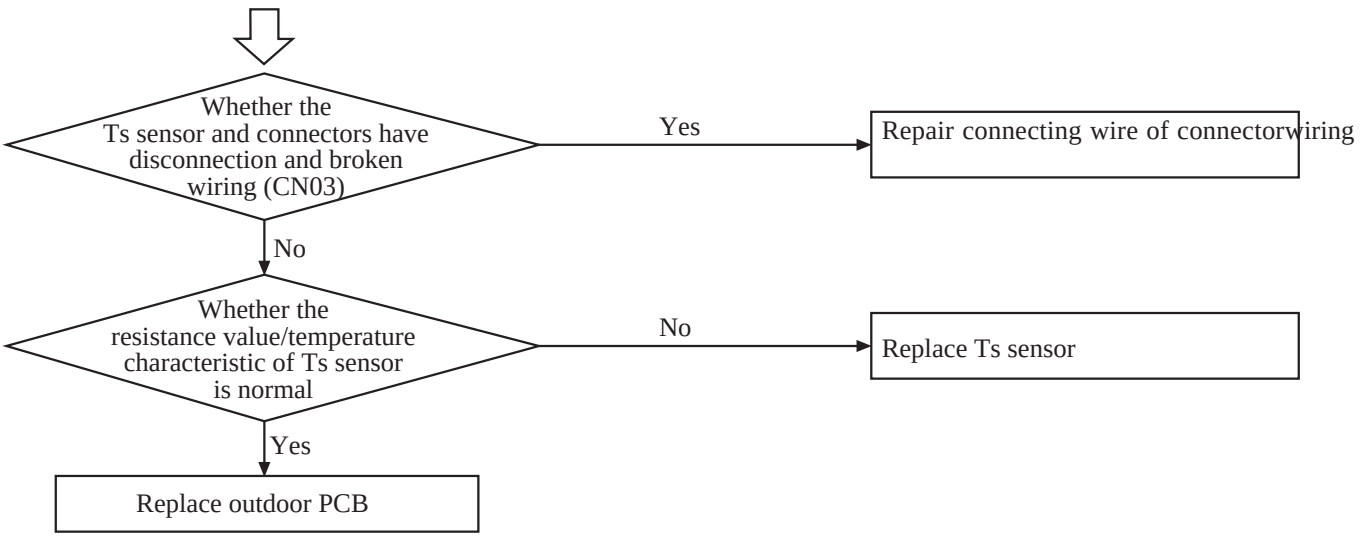
[A0] Exhaust temperature sensor (TD1) circuit



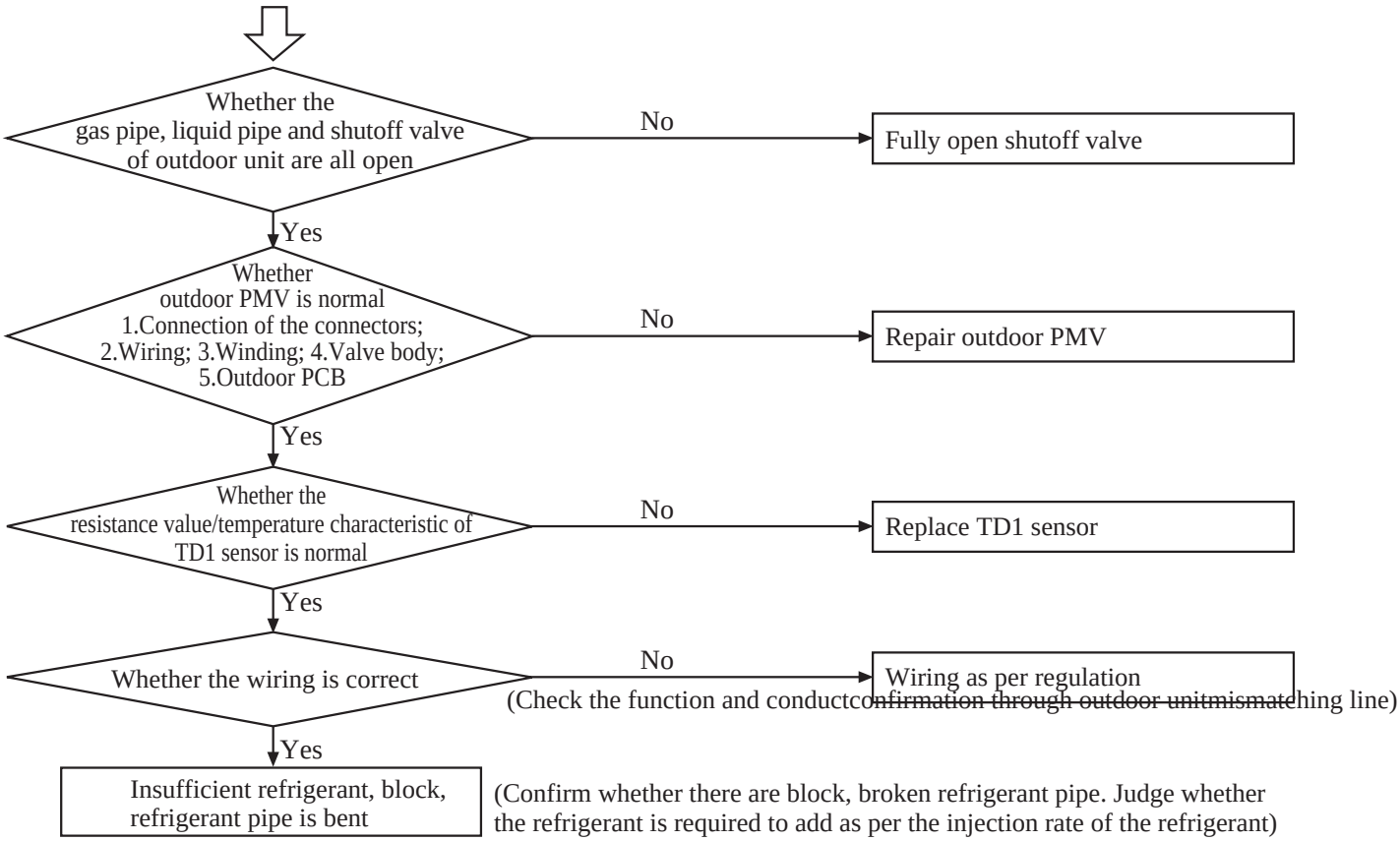
[A1] Exhaust temperature sensor (TD2) circuit



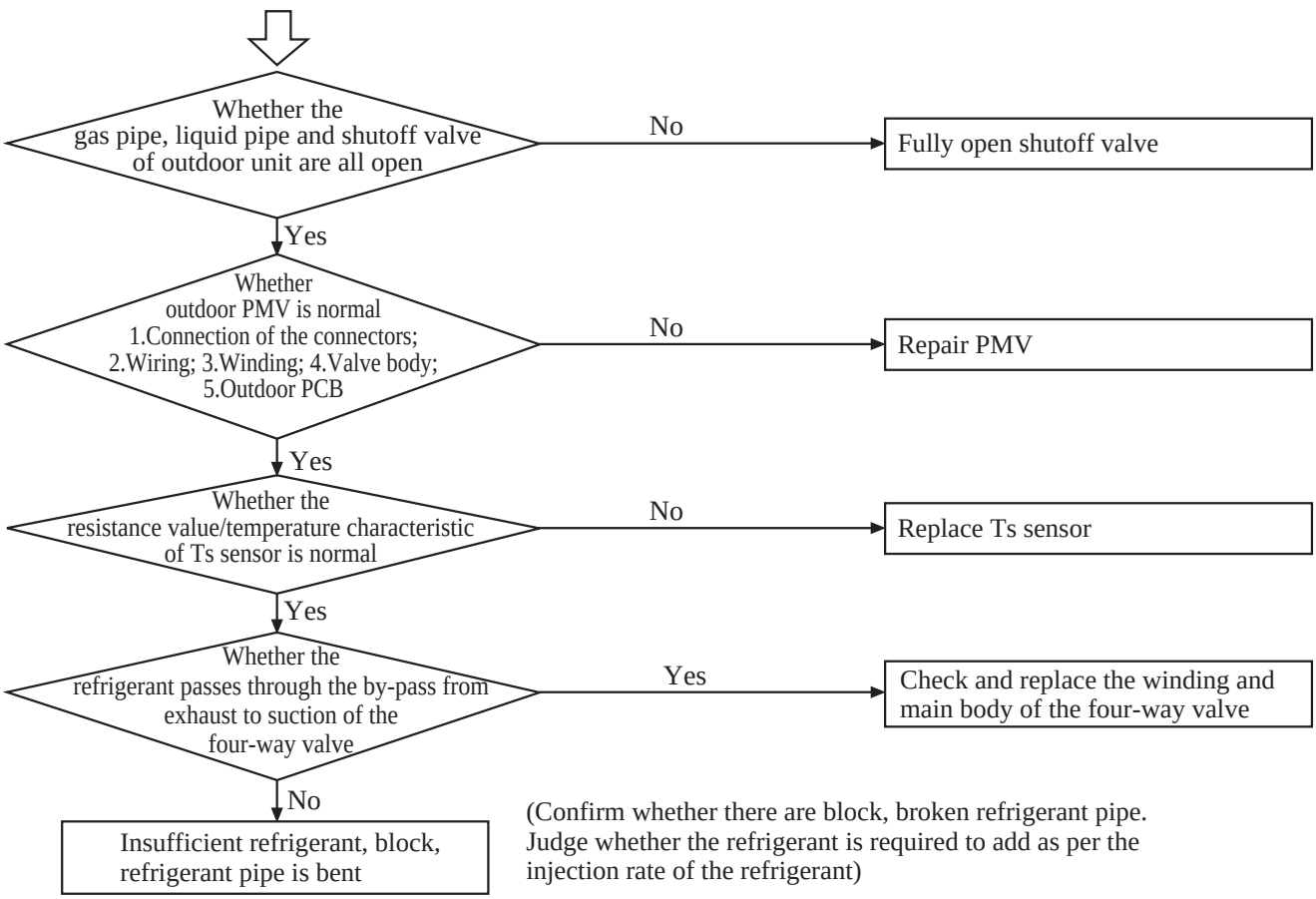
[A2] Exhaust temperature sensor (Ts) circuit



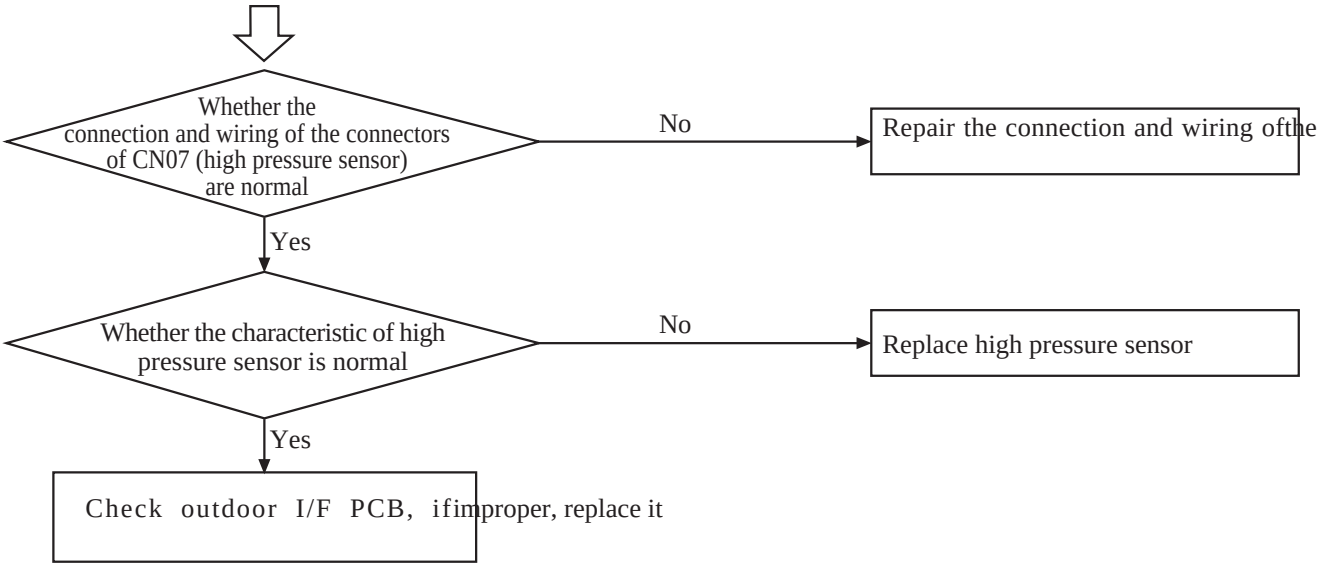
[A6] Protection action of exhaust temperature sensor (TD1)



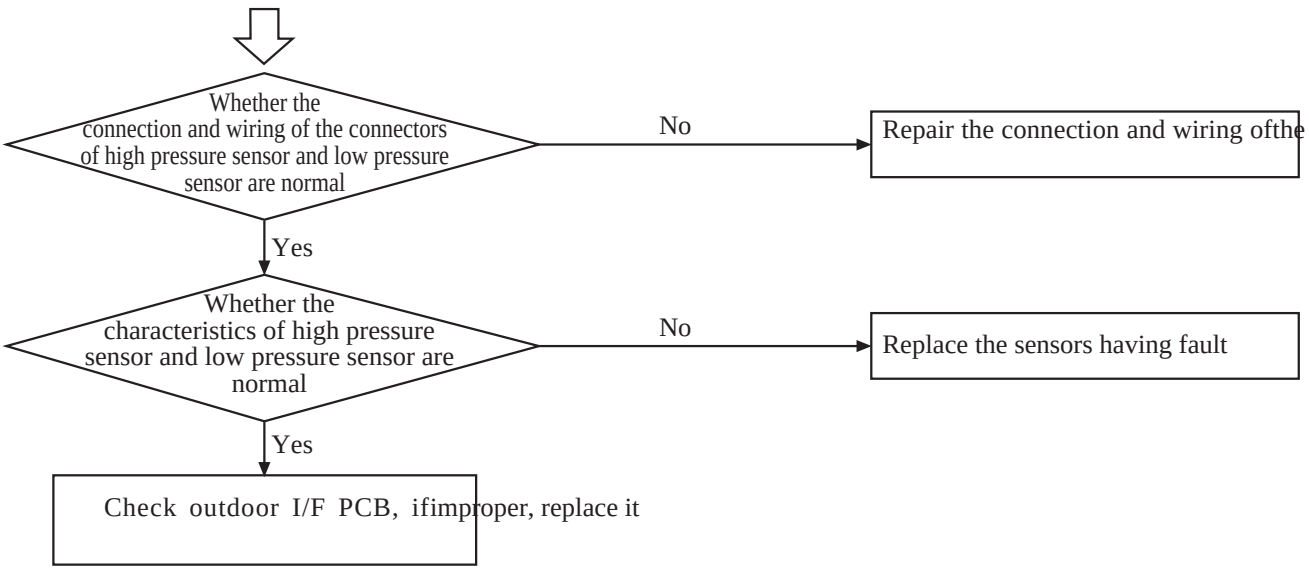
[A7] Protection action of suction temperature (Ts)



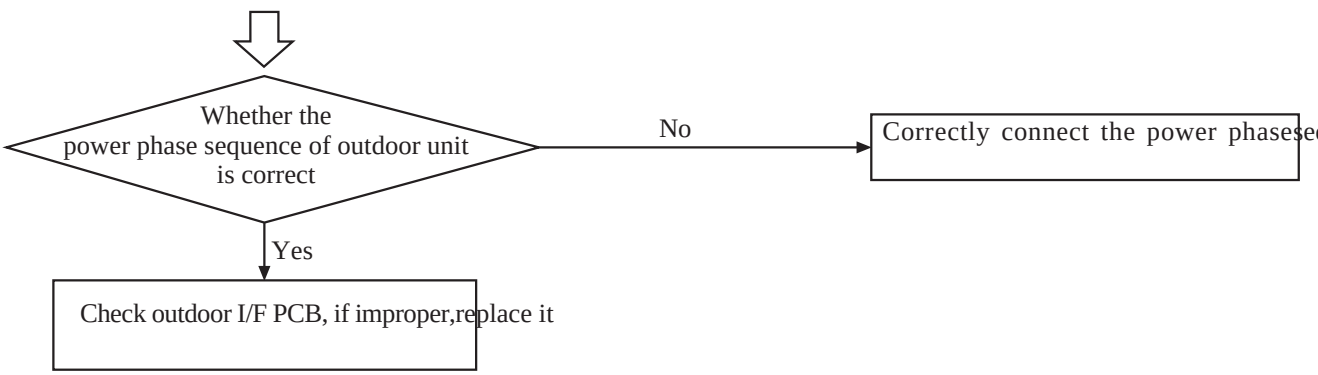
[AA] High pressure sensor (Pd) loop



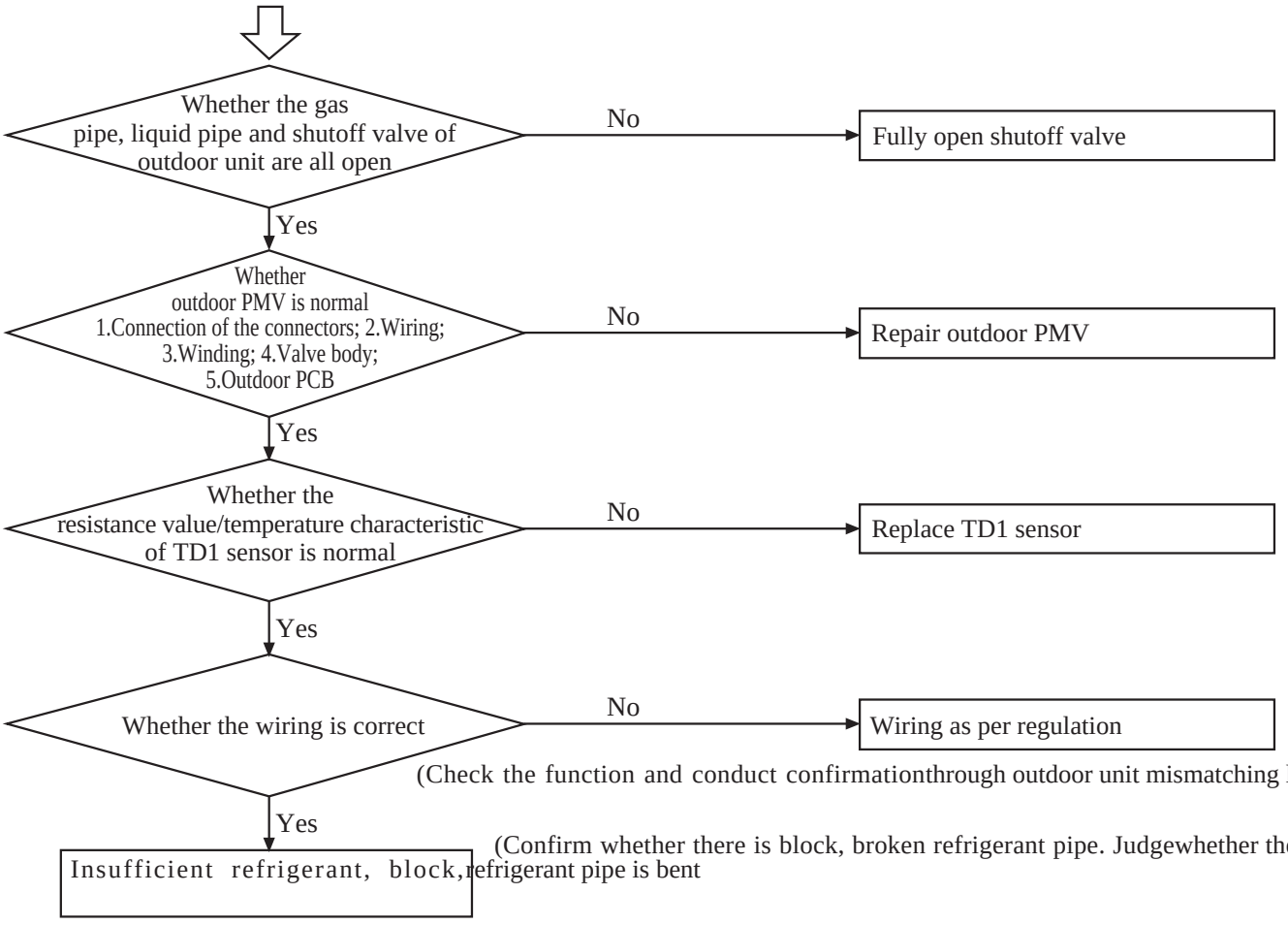
[Ab] Pressure sensor (Pd, Ps) mismatching line



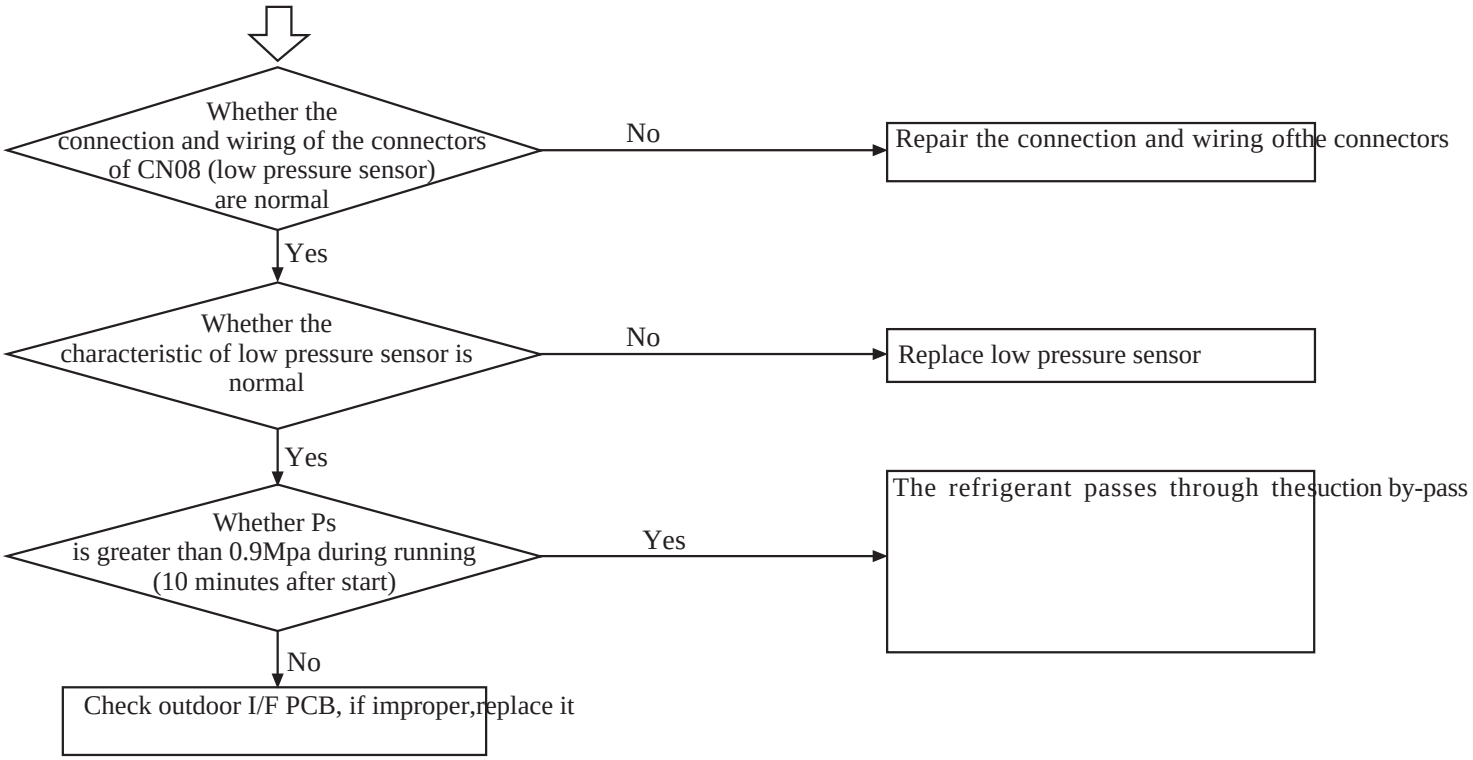
[E6] Power phase sequence mismatching line of outdoor unit



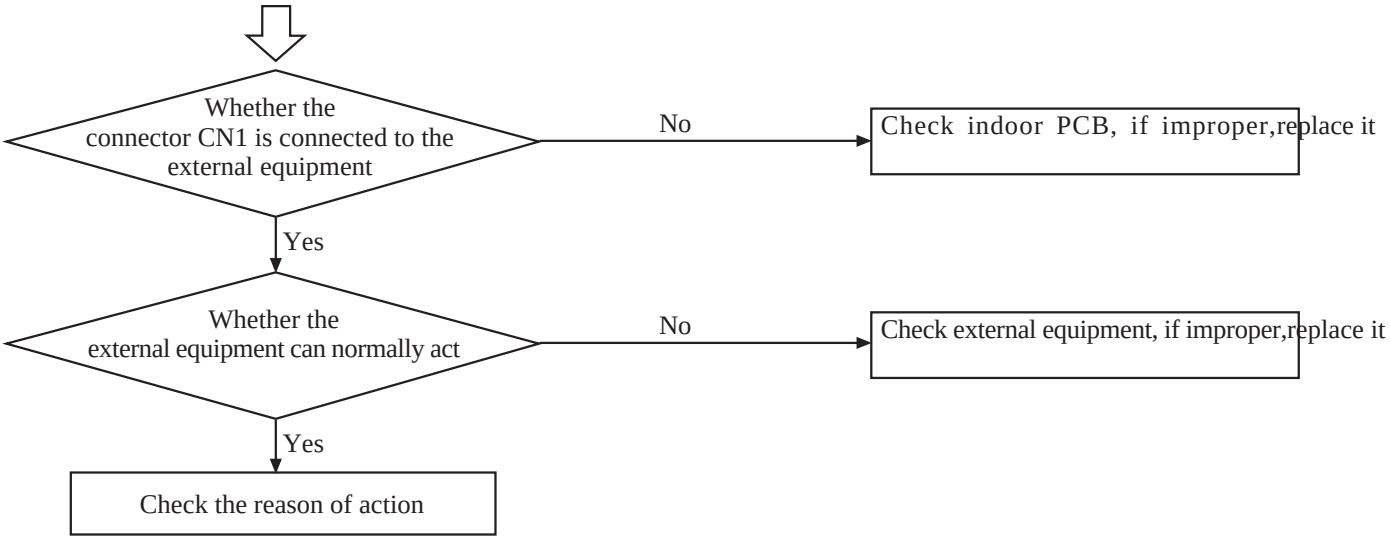
[AE] protection action of exhaust temperature at low freguency



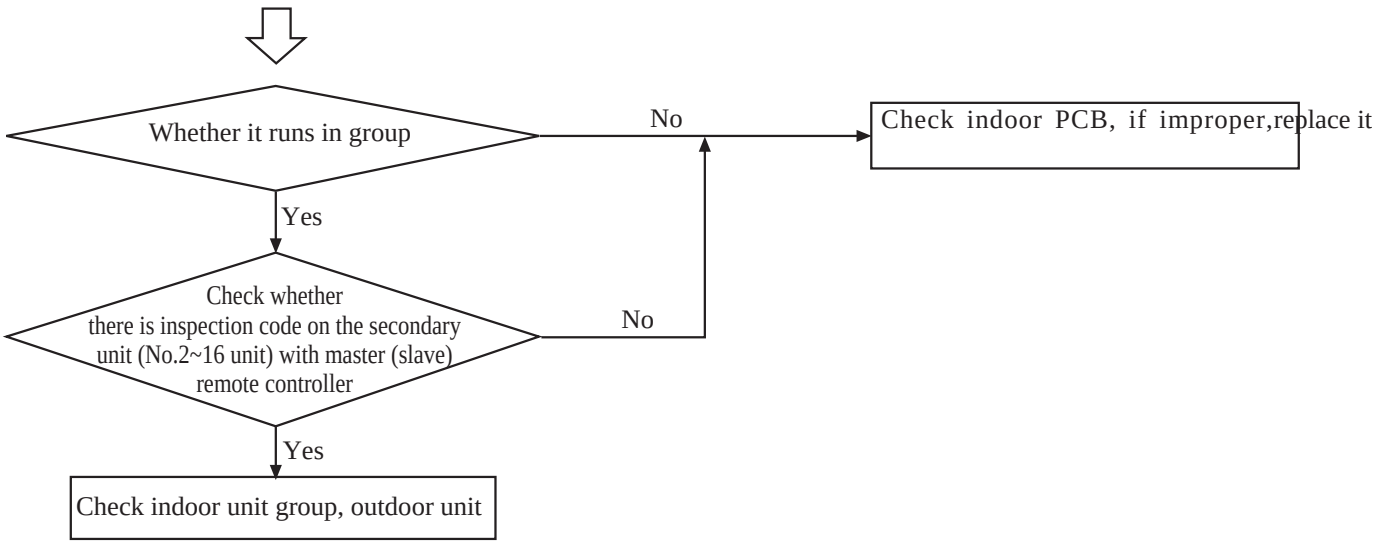
[b4] Low pressure sensor (Ps) circuit



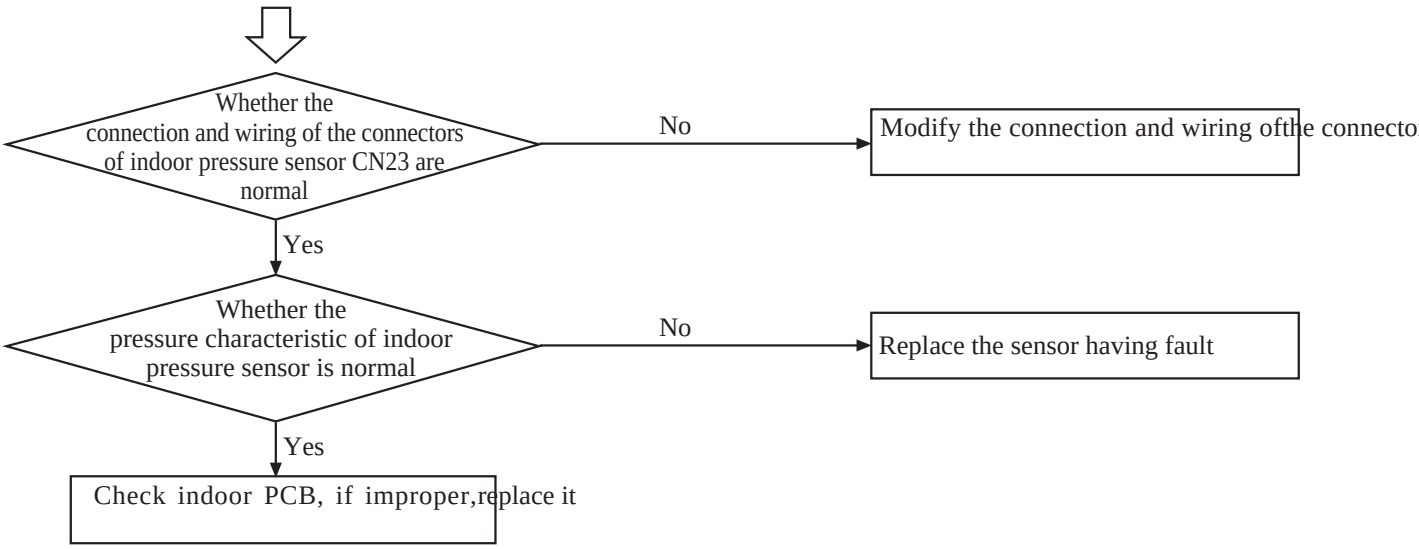
[b5] External input display, [b6] external interlocking display



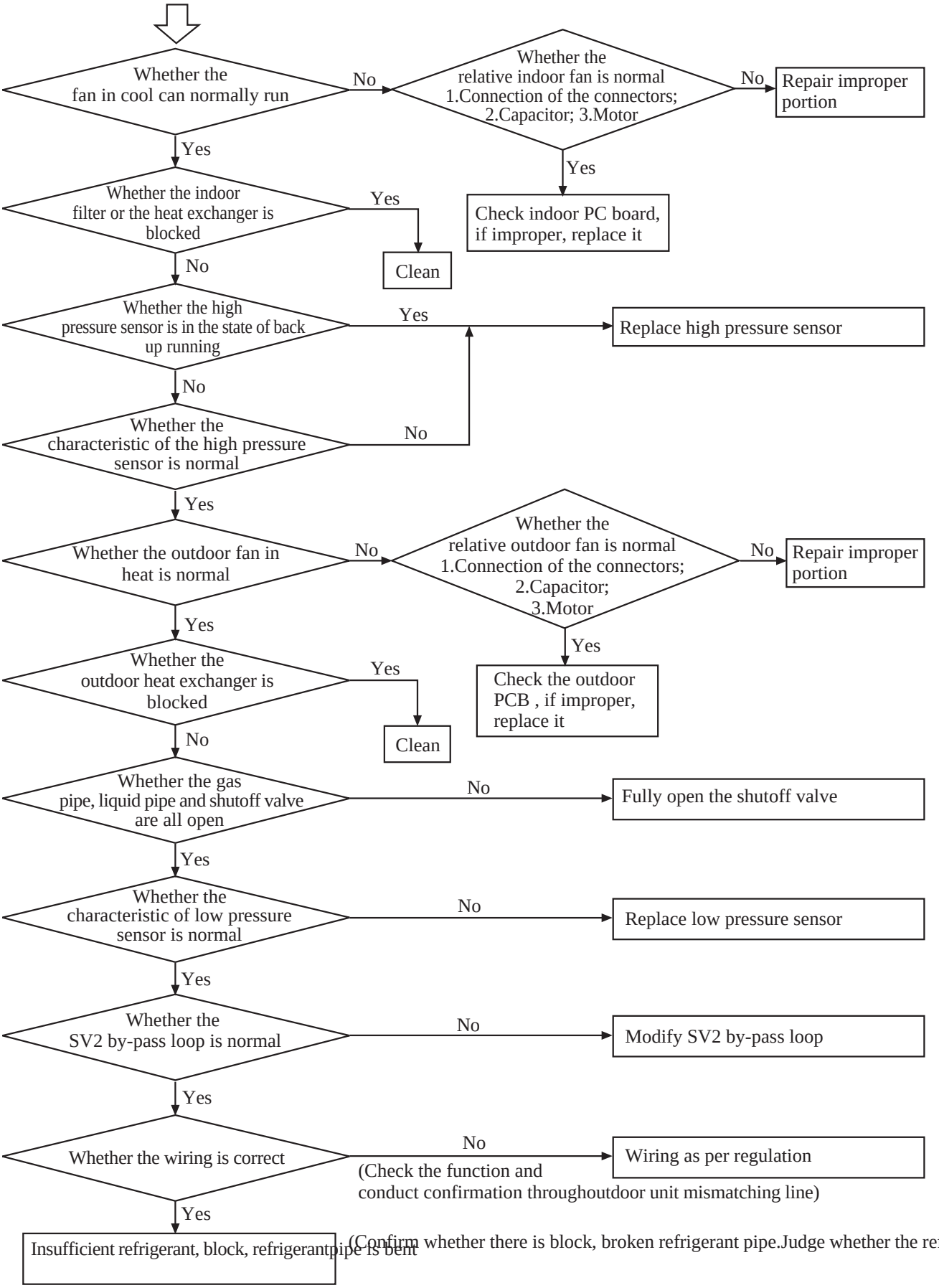
[b7] Inspection code display of secondary unit (only for central controller to display this code)



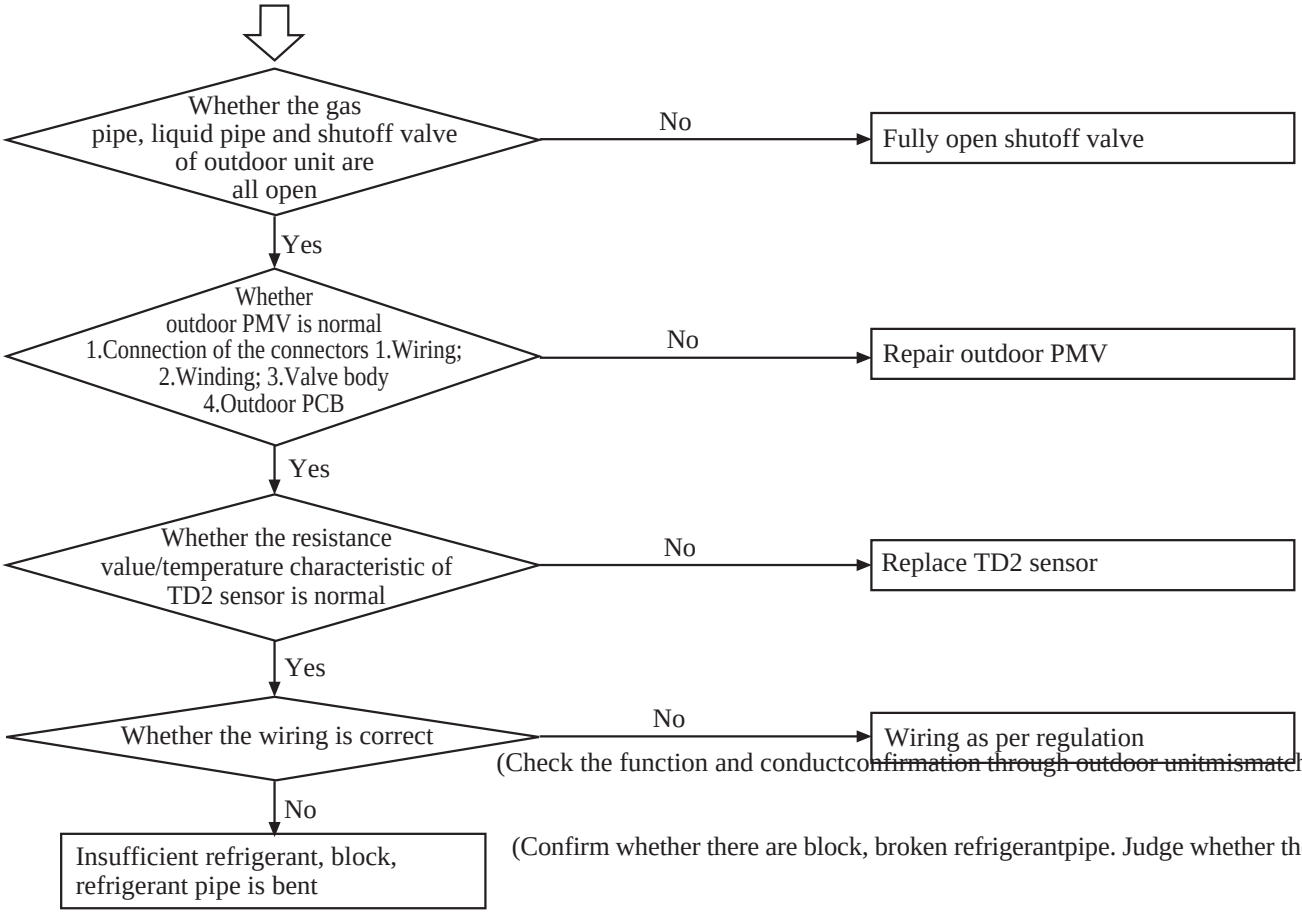
[b9] Indoor pressure sensor circuit



[bE] Protection action of low pressure



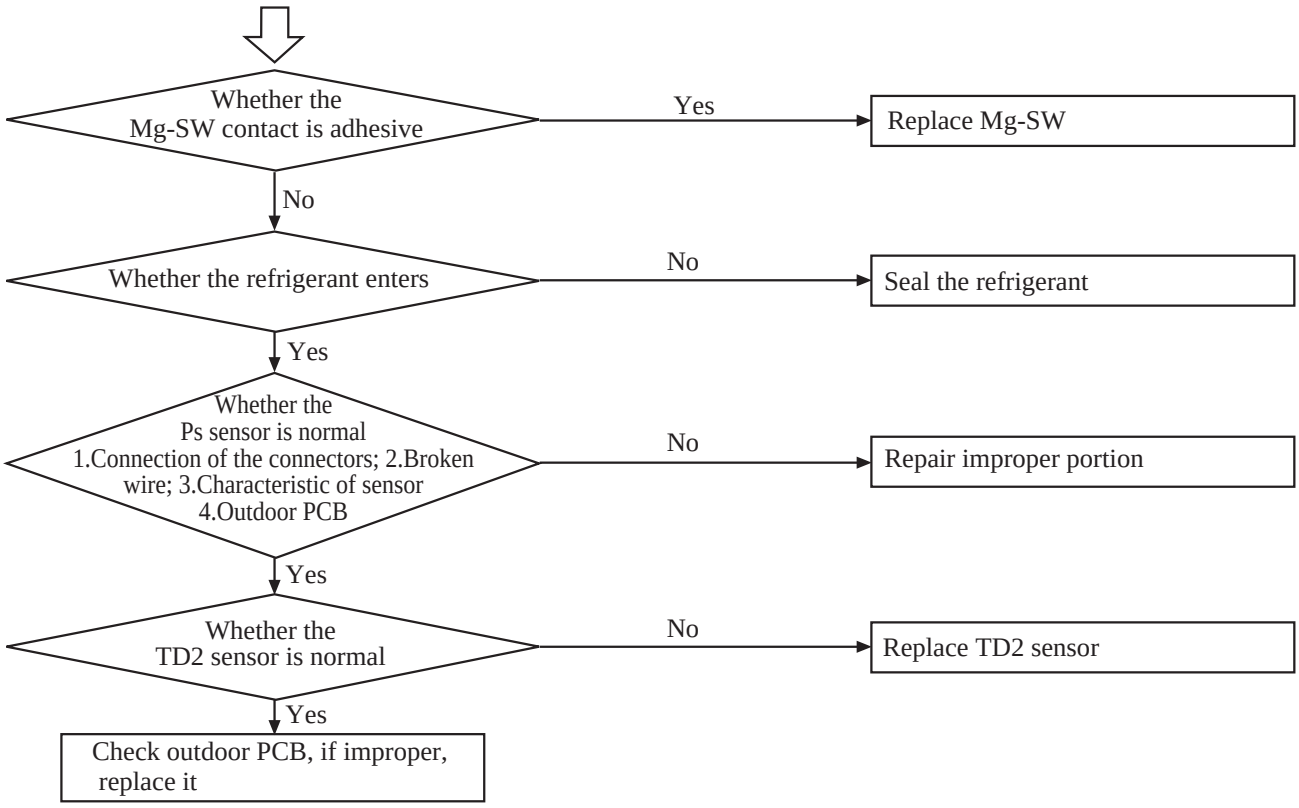
[bb] Protection action of exhaust temperature (TD2)



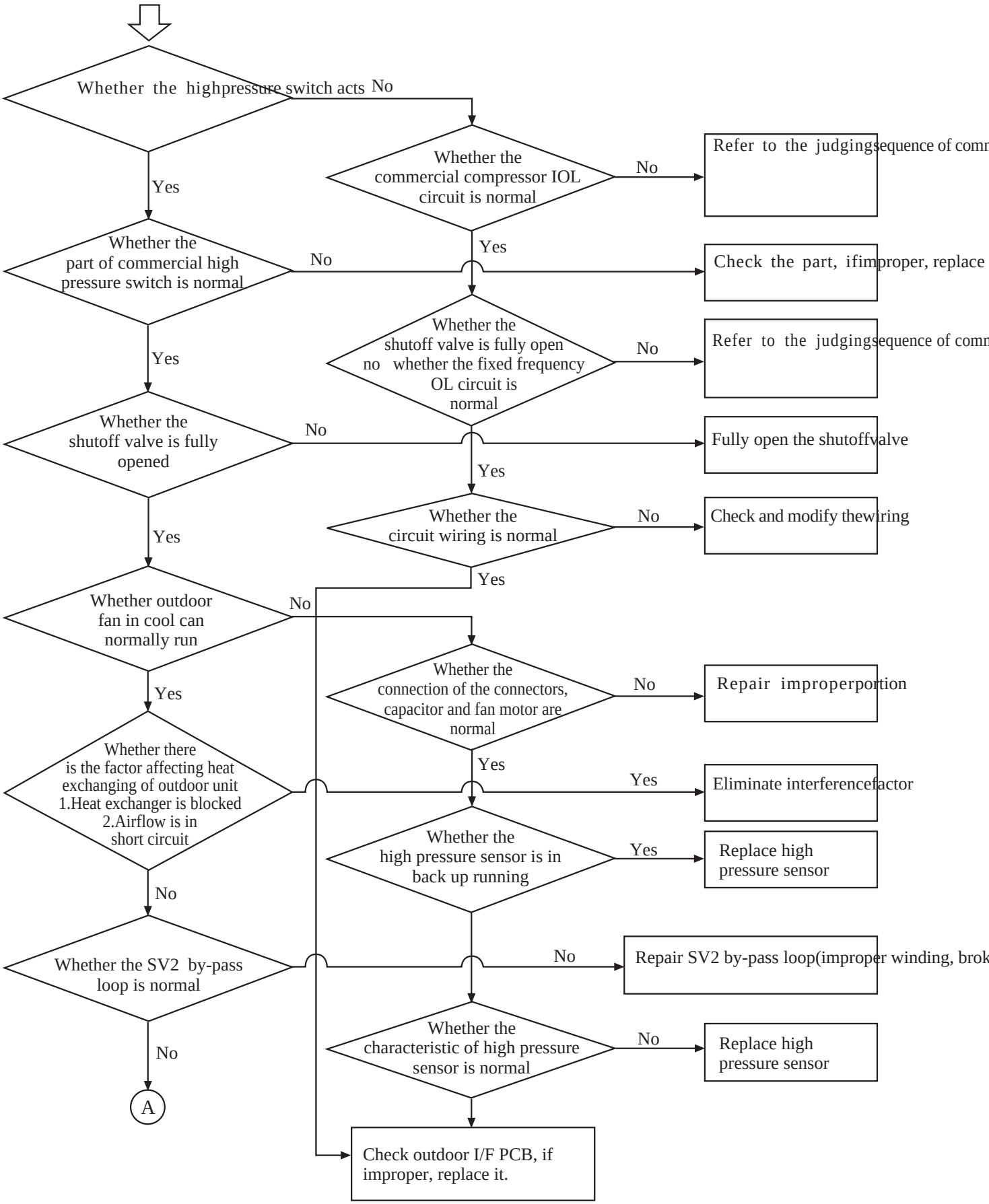
(Check the function and conductconfirmation through outdoor unitmismatching line)

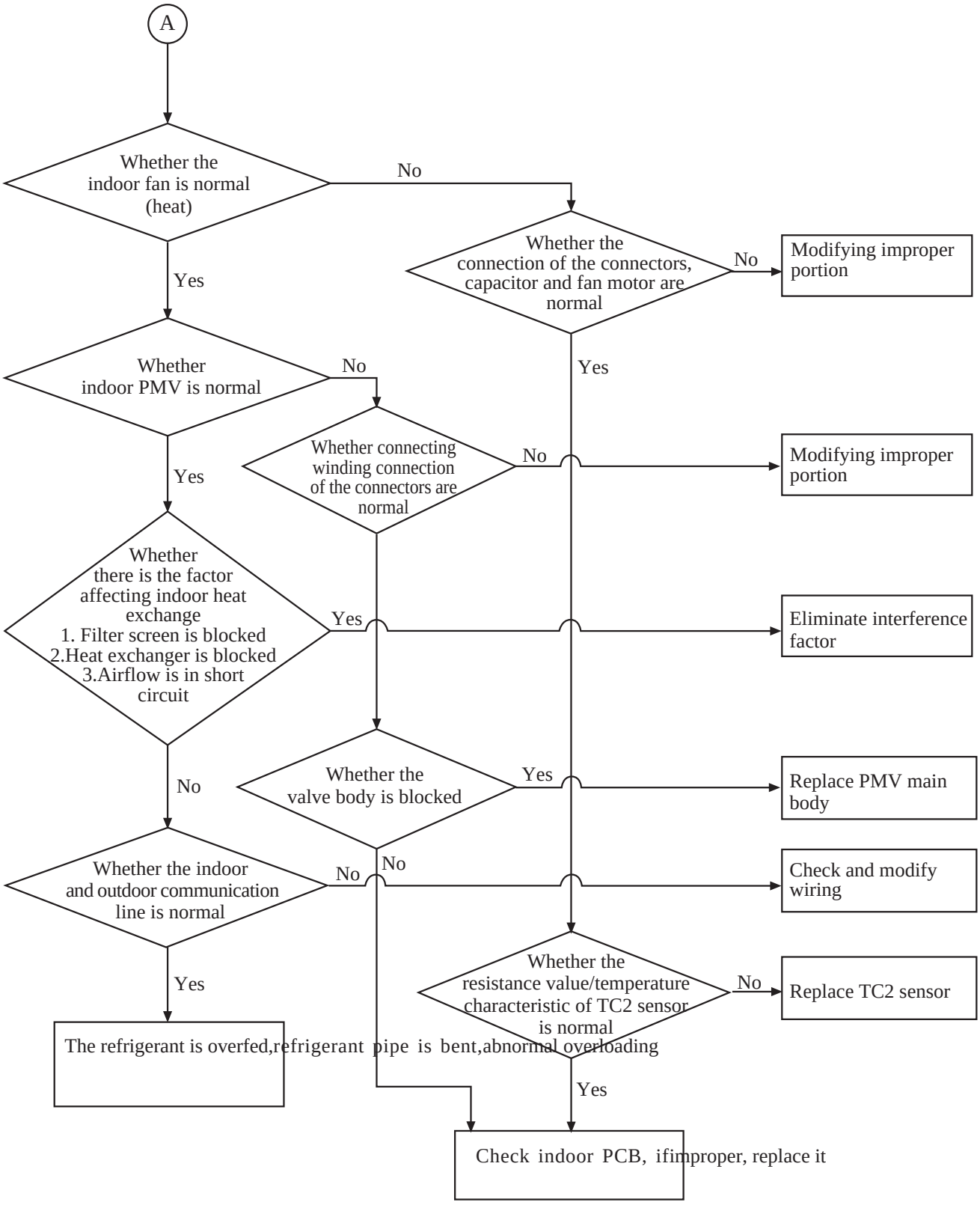
(Confirm whether there are block, broken refrigerantpipe. Judge whether the refrigeran

[bd] Contact adhesion of AC contactor (for commercial compressor)

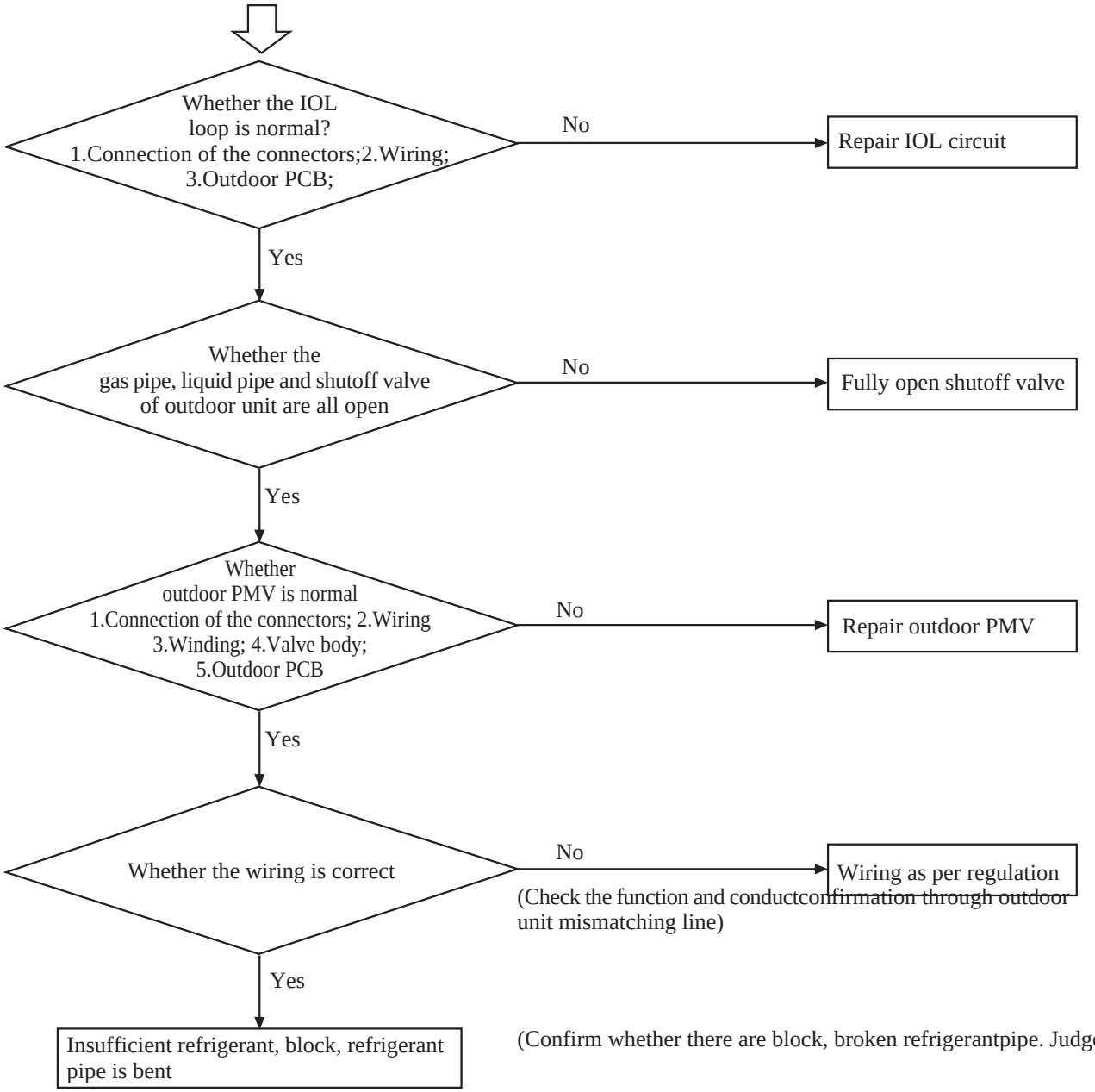


[E1] High pressure switch circuit for commercial compressor

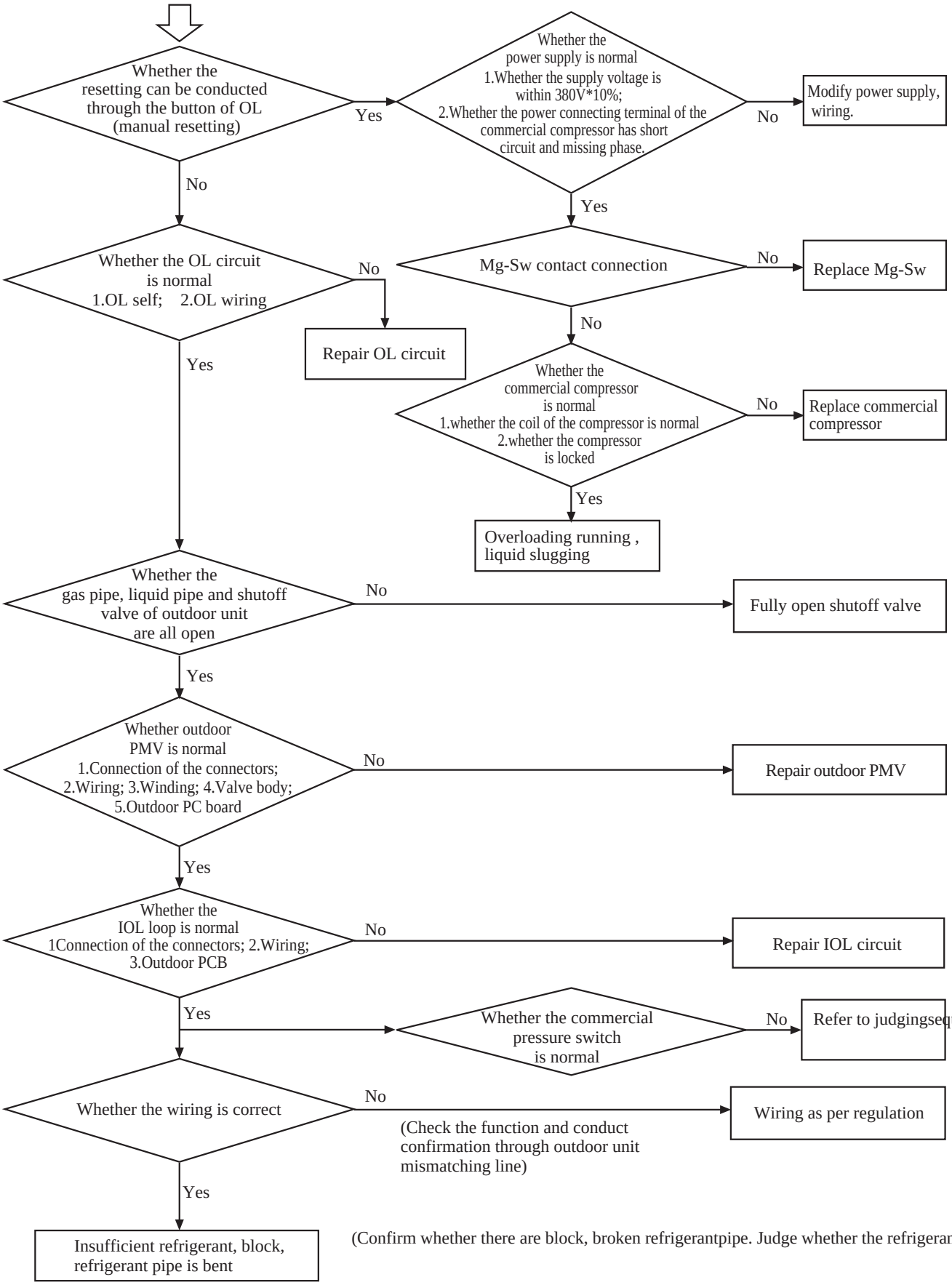




[E5] Inverter IOL action circuit

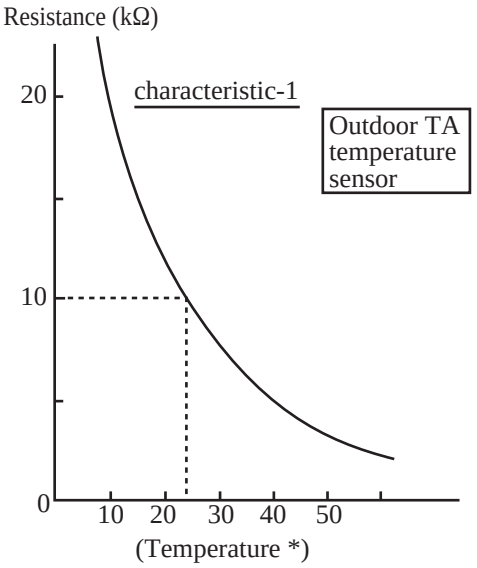


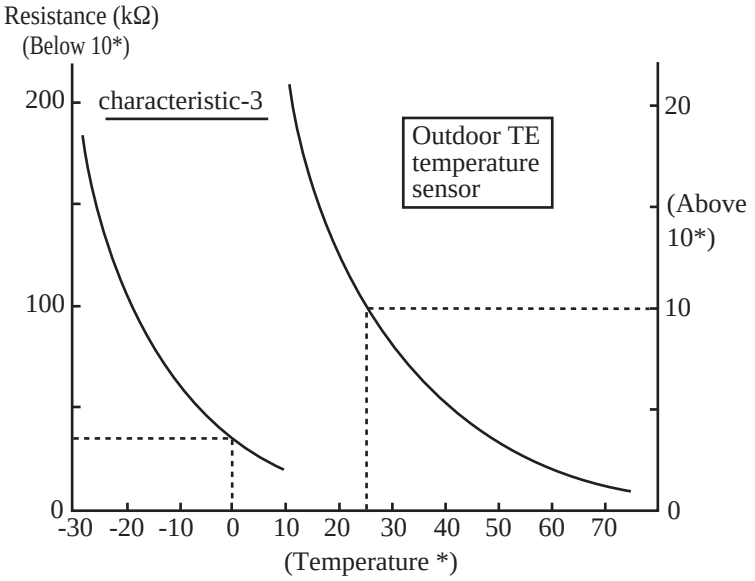
[E6] Commercial IOL, OL circuit

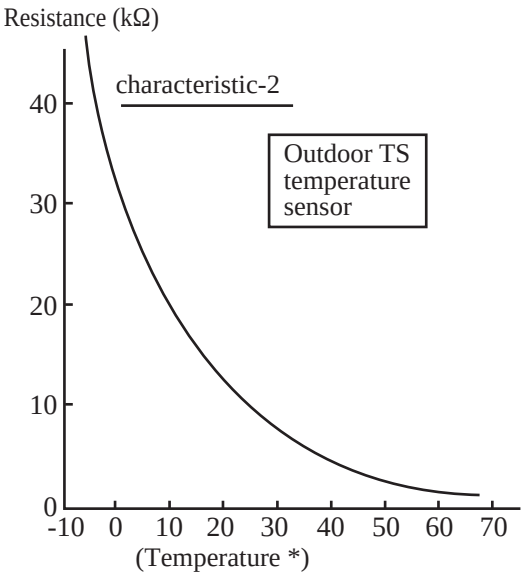


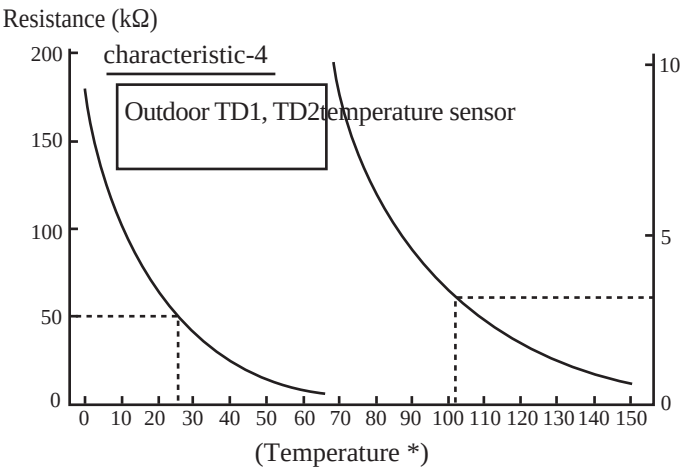
4. Characteristics of sensor

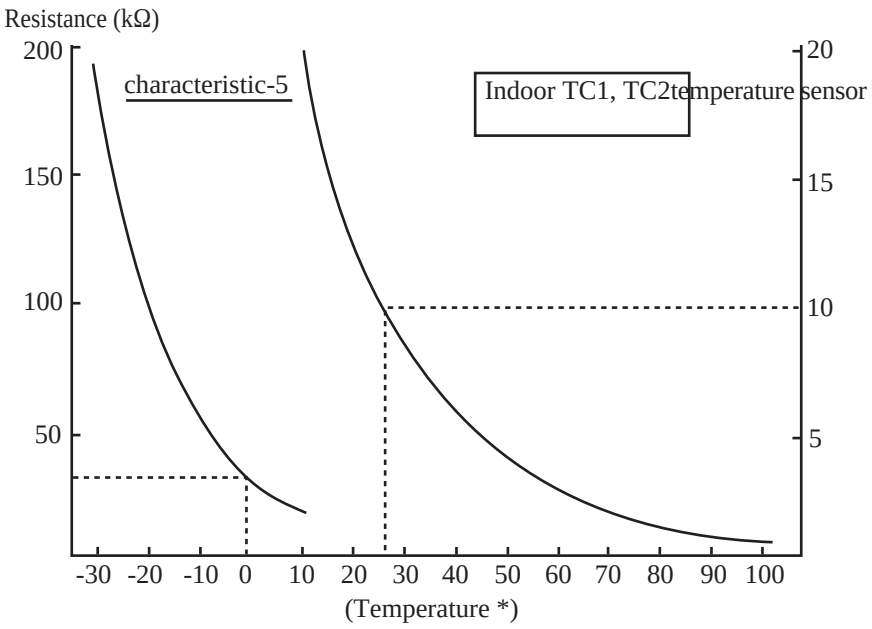
(1) Characteristic of temperature sensor







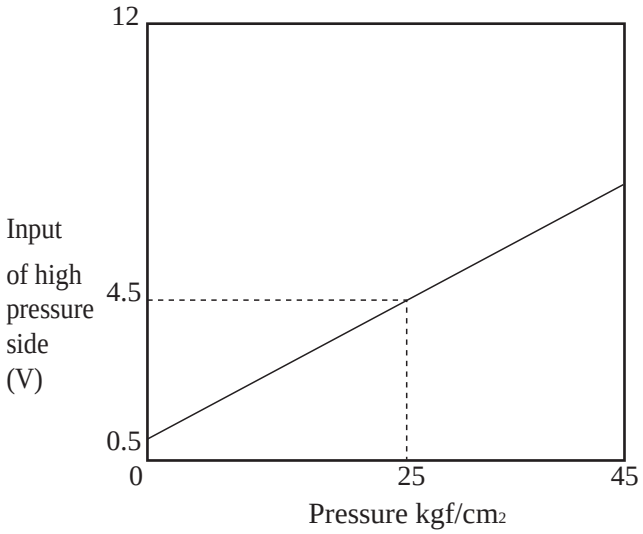


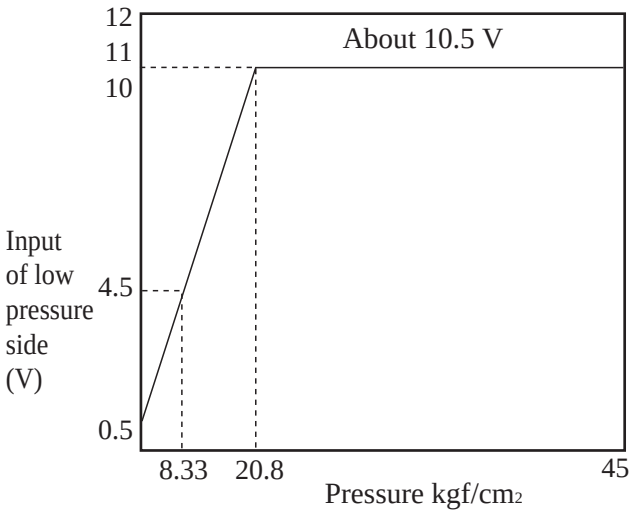


(1) Characteristic of pressure sensor

No. of terminal	Name	Color of wiring
1	GND	Black
2	Out (high pressure side)	White
3	------	------
4	Out (low pressure side)	Blue
5	------	------
6	+12V	Red

High pressure side	Low pressure side
0.5~4.5 V 1.0~25kgf/cm2	0.5~4.5 V 1.0~8.33kgf/cm2





(1) Conversion table for data of sensor

a. TA*TC sensor.

Indoor unit saturated temp.

Temp. *	Code (HEX)	Temp. *	Code (HEX)	Temp. *	Code (HEX)	Temp. *	Code (HEX)	Temp. *	Code (HEX)
38.0	9C	57.5	C3	-16.5	2F	3.5	56	22.5	7D
38.5	9D	58.0	C4	-16.0	30	3.0	57	23.0	7E
39.0	9E	58.5	C5	-15.5	31	4.5	58	23.5	7F
39.5	9F	59.0	C6	-15.0	32	4.0	59	24.0	80
40.0	A0	59.5	C7	-14.5	33	5.0	5A	24.5	81
40.5	A1	60.0	C8	-14.0	34	5.5	5B	25.0	82
41.0	A2	60.5	C9	-13.5	35	6.0	5C	25.5	83
41.5	A3	61.0	CA	-13.0	36	6.5	5D	26.0	84
42.0	A4	61.5	CB	-12.5	37	7.0	5E	26.5	85
42.5	A5	62.0	CC	-12.0	38	7.5	5F	27.0	86
43.0	A6	62.5	CD	-11.5	39	8.0	60	27.5	87
43.5	A7	63.0	CE	-11.0	3A	8.5	61	28.0	88
44.0	A8	63.5	CF	-10.5	3B	9.0	62	28.5	89
44.5	A9	64.0	D0	-10.0	3C	9.5	63	29.0	8A
45.0	AA	64.5	D1	-9.5	3D	10.0	64	29.5	8B
45.5	AB	65.0	D2	-9.0	3E	10.5	65	30.0	8C
46.0	AC	65.5	D3	-8.5	3F	11.0	66	30.5	8D
46.5	AD	66.0	D4	-8.0	40	11.5	67	31.0	8E
47.0	AE	66.5	D5	-7.5	41	12.0	68	31.5	8F
47.5	AF	67.0	D6	-7.0	42	12.5	69	32.0	90
48.0	B0	-26.0	1C	-6.5	43	13.0	6A	32.5	91
48.5	B1	-25.5	1D	-6.0	44	13.5	6B	33.0	92
49.0	B2	-25.0	1E	-5.5	45	14.0	6C	33.5	93
49.5	B3	-24.5	1F	-5.0	46	14.5	6D	34.0	94
50.0	B4	-24.0	20	-4.5	47	15.0	6E	34.5	95
50.5	B5	-23.5	21	-4.0	48	15.5	6F	35.0	96
51.0	B6	-23.0	22	-3.5	49	16.0	70	35.5	97
51.5	B7	-22.5	23	-3.0	4A	16.5	71	36.0	98
52.0	B8	-22.0	24	-2.5	4B	17.0	72	36.5	99
52.5	B9	-21.5	25	-2.0	4C	17.5	73	37.0	9A
53.0	BA	-21.5	26	-1.5	4D	18.0	74	37.5	9B
53.5	BB	-20.5	27	-1.0	4E	18.5	75		
54.0	BC	-20.0	28	-0.5	4F	19.0	76		
54.5	BD	-19.5	29	0.0	50	19.5	77		
55.0	BE	-19.0	2A	0.5	51	20.0	78		
55.5	BF	-18.5	2B	1.0	52	2.05	79		
56.0	C0	-18.0	2C	1.5	53	21.0	7A		
56.5	C1	-17.5	2D	2.5	54	21.5	7B		
57.0	C2	-17.0	2E	2.0	55	22.0	7C		

b. TS, TE sensor

TS: SW01- "1", SW02- "2", TE: SW01- "1", SW02- "3"

Code	temp. *	Code	temp. *	Code	temp. *	Code	temp. *	Code	temp. *
01	165.90	34	30.27	67	9.92	9A	-5.03	CD	-21.17
02	135.40	35	29.73	68	9.61	9B	-5.32	CE	-21.55
03	119.39	36	29.20	69	9.29	9C	-5.60	CF	-21.93
04	108.72	37	28.68	6A	8.98	9D	-5.89	D0	-22.32
05	100.81	38	28.17	6B	8.17	9E	-6.18	D1	-22.72
06	94.57	39	27.67	6C	8.36	9F	-6.46	D2	-23.12
07	89.42	3A	27.18	6D	8.05	A0	-6.75	D3	-23.53
08	85.06	3B	29.69	6E	7.74	A1	-7.04	D4	-23.94
09	81.29	3C	26.21	6F	7.43	A2	-7.33	D5	-24.36
0A	77.97	3D	25.74	70	7.13	A3	-7.62	D6	-24.78
0B	75.01	3E	25.27	71	6.82	A4	-7.91	D7	-25.22
0C	72.33	3F	24.81	72	6.52	A5	-8.20	D8	-25.66
0D	69.90	40	24.36	73	6.22	A6	-8.49	D9	-26.10
0E	67.67	41	23.91	74	5.92	A7	-8.79	DA	-26.56
0F	65.61	42	23.47	75	5.62	A8	-9.08	DB	-27.02
10	63.70	43	23.04	76	5.32	A9	-9.38	DC	-27.49
11	61.92	44	22.61	77	5.03	AA	-9.67	DD	-27.97
12	60.24	45	22.18	78	4.73	AB	-9.97	DE	-28.46
13	58.67	46	21.76	79	4.44	AC	-10.27	DF	-28.96
14	57.19	47	21.35	7A	4.14	AD	-10.57	E0	-29.47
15	55.78	48	20.94	7B	3.85	AE	-10.87	E1	-30.00
16	54.45	49	20.53	7C	3.56	AF	-11.17	E2	-30.53
17	53.18	4A	20.13	7D	3.27	B0	-11.47	E3	-31.08
18	51.96	4B	19.74	7E	2.97	B1	-11.78	E4	-31.64
19	50.80	4C	19.34	7F	2.68	B2	-12.08	E5	-32.22
1A	49.69	4D	18.95	80	2.39	B3	-12.39	E6	-32.82
1B	48.63	4E	18.57	81	2.11	B4	-12.70	E7	-33.43
1C	47.60	4F	18.19	82	1.82	B5	-13.01	E8	-34.06
1D	46.61	50	17.81	83	1.53	B6	-13.32	E9	-34.71
1E	45.66	51	17.44	84	1.24	B7	-13.63	EA	-35.39
1F	44.74	52	17.07	85	0.95	B8	-13.95	EB	-36.08
20	43.85	53	16.70	86	0.67	B9	-14.27	EC	-36.81
21	42.99	54	16.34	87	0.38	BA	-14.57	ED	-37.56
22	42.15	55	15.98	88	0.10	BB	-14.91	EE	-38.35
23	41.34	56	15.62	89	-0.19	BC	-15.23	EF	-39.17
24	40.56	57	15.26	8A	-0.47	BD	-15.56	F0	-40.63
25	39.79	58	14.91	8B	-0.76	BE	-15.89	F1	-40.94
26	39.05	59	14.56	8C	-1.04	BF	-16.22	F2	-41.90
27	38.32	5A	14.22	8D	-1.33	C0	-16.55	F3	-42.91
28	37.62	5B	13.87	8E	-1.61	C1	-16.89	F4	-44.00
29	36.93	5C	13.53	8F	-1.90	C2	-17.23	F5	-45.16
2A	36.25	5D	13.19	90	-2.18	C3	-17.57	F6	-46.41
2B	35.60	5E	13.86	91	-2.47	C4	-17.91	F7	-47.77
2C	34.95	5F	12.52	92	-2.75	C5	-18.26	F8	-49.27
2D	34.32	60	12.19	93	-3.04	C6	-18.61	F9	-50.94
2E	33.71	61	11.86	94	-3.32	C7	-18.96	FA	-52.83
2F	33.11	62	11.53	95	-3.60	C8	-19.32	FB	-55.01
30	32.52	63	11.21	96	-3.89	C9	-19.68	FC	-57.62
31	31.94	64	10.81	97	-4.17	CA	-20.05	FD	-60.87
32	31.37	65	10.56	98	-4.46	CB	-20.42	FE	-65.28
33	30.81	66	10.24	99	-4.74	CC	-20.79	FF	-72.38

c. TD1, TD2 sensor

TD1: SW01-"1" SW02-"0" TD2: SW01-"1" SW02-"1"

Code	temp. *	Code	temp. *	Code	temp. *	Code	temp. *	Code	temp. *
01	408.97	34	126.96	67	91.86	9A	67.03	CD	41.12
02	337.14	35	126.02	68	91.32	9B	66.57	CE	10.52
03	301.59	36	125.09	69	90.79	9C	66.10	CF	39.91
04	278.70	37	124.17	6A	90.26	9D	65.63	D0	39.29
05	262.09	38	123.28	6B	89.74	9E	65.16	D1	38.67
06	249.20	39	122.39	6C	89.22	9F	64.69	D2	38.04
07	238.73	3A	121.53	6D	88.70	A0	64.22	D3	37.40
08	229.96	3B	120.68	6E	88.18	A1	63.75	D4	36.75
09	222.44	3C	119.84	6F	87.67	A2	63.28	D5	36.09
0A	215.88	3D	119.01	70	87.16	A3	62.81	D6	35.43
0B	210.07	3E	118.20	71	86.65	A4	62.34	D7	34.75
0C	204.86	3F	117.40	72	86.14	A5	61.87	D8	34.06
0D	200.15	40	116.61	73	85.64	A6	61.39	D9	33.37
0E	195.85	41	115.83	74	85.13	A7	60.92	DA	32.66
0F	191.90	42	115.06	75	84.63	A8	60.44	DB	31.94
10	188.25	43	114.31	76	84.14	A9	59.96	DC	31.20
11	184.86	44	113.56	77	83.64	AA	59.48	DD	30.45
12	181.70	45	112.82	78	83.15	AB	59.00	DE	29.69
13	178.73	46	112.10	79	82.66	AC	58.52	DF	28.91
14	175.94	47	111.38	7A	82.17	AD	58.04	E0	28.12
15	173.31	48	110.67	7B	81.68	AE	57.55	E1	27.31
16	170.82	49	109.97	7C	81.19	AF	57.07	E2	26.48
17	168.45	4A	109.28	7D	80.70	B0	56.58	E3	25.63
18	166.20	4B	108.59	7E	80.22	B1	56.09	E4	24.76
19	164.06	4C	107.92	7F	79.74	B2	55.60	E5	23.87
1A	162.01	4D	107.25	80	79.26	B3	55.10	E6	22.95
1B	160.04	4E	106.59	81	78.78	B4	54.61	E7	22.01
1C	158.16	4F	105.95	82	78.30	B5	54.11	E8	21.04
1D	156.35	50	105.28	83	77.82	B6	53.61	E9	20.04
1E	154.60	51	104.64	84	77.35	B7	53.10	EA	19.00
1F	152.93	52	104.01	85	76.87	B8	52.60	EB	17.94
20	151.30	53	103.83	86	76.40	B9	52.09	EC	16.83
21	149.74	54	102.76	87	75.92	BA	51.58	ED	15.68
22	148.22	55	102.14	88	75.45	BB	51.06	EE	14.48
23	146.76	56	101.53	89	74.98	BC	50.54	EF	13.23
24	145.33	57	100.92	8A	74.51	BD	50.02	F0	11.92
25	143.95	58	100.32	8B	74.04	BE	49.50	F1	10.54
26	142.61	59	99.73	8C	73.57	BF	48.97	F2	9.09
27	141.31	5A	99.14	8D	73.10	C0	48.44	F3	7.56
28	140.04	5B	98.55	8E	72.63	C1	47.90	F4	5.93
29	138.80	5C	97.97	8F	72.16	C2	47.36	F5	4.18
2A	137.60	5D	97.39	90	71.70	C3	46.82	F6	2.30
2B	136.42	5E	96.82	91	71.23	C4	46.27	F7	0.26
2C	135.28	5F	96.26	92	70.76	C5	45.72	F8	-1.97
2D	134.16	60	95.29	93	70.30	C6	45.16	F9	-4.45
2E	133.06	61	95.13	94	69.83	C7	44.60	FA	-7.25
2F	131.99	62	94.58	95	69.36	C8	44.04	FB	-10.47
30	130.94	63	94.03	96	68.90	C9	43.46	FC	-14.29
31	129.92	64	93.48	97	68.43	CA	42.89	FD	-19.04
32	128.91	65	92.93	98	67.97	CB	42.30	FE	-25.42
33	127.93	66	92.39	99	67.50	CC	41.72	FF	-35.58

d. Pd, Ps sensor

Pd: SW01-"1" SW02-"4" Ps: SW01-"1" SW02-"5"

Code	Pd	Code	Pd
00	0	22	17.0
01	0.5	23	17.5
02	1.0	24	18.0
03	1.5	25	18.5
04	2.0	26	19.0
05	2.5	27	19.5
06	3.0	28	20.0
07	3.5	29	20.5
08	4.0	2A	21.0
09	4.5	2B	21.5
0A	5.0	2C	22.0
0B	5.5	2D	22.5
0C	6.0	2E	23.0
0D	6.5	2F	23.5
0E	7.0	30	24.0
0F	7.5	31	24.5
10	8.0	32	25.0
11	8.5	33	25.5
12	9.0	34	26.0
13	9.5	35	26.5
14	10.0	36	27.0
15	10.5	37	27.5
16	11.0	38	28.0
17	11.5	39	28.5
18	12.0	3A	29.0
19	12.5	3B	29.5
1A	13.0	3C	30.0
1B	13.5	3D	30.5
1C	14.0		
1D	14.5		
1E	15.0		
1F	15.5		
20	16.0		
21	16.5		

Code	Ps	Code	Ps	Code	Ps
00	0	22	3.4	44	6.8
01	0.1	23	3.5	45	6.9
02	0.2	24	3.6	46	7.0
03	0.3	25	3.7	47	7.1
04	0.4	26	3.8	48	7.2
05	0.5	27	3.9	49	7.3
06	0.6	28	4.0	4A	7.4
07	0.7	29	4.1	4B	7.5
08	0.8	2A	4.2	4C	7.6
09	0.9	2B	4.3	4D	7.7
0A	1.0	2C	4.4	4E	7.8
0B	1.1	2D	4.5	4F	7.9
0C	1.2	2E	4.6	50	8.0
0D	1.3	2F	4.7	51	8.1
0E	1.4	30	4.8	52	8.2
0F	1.5	31	4.9	53	8.3
10	1.6	32	5.0	54	8.4
11	1.7	33	5.1	55	8.5
12	1.8	34	5.2	56	8.6
13	1.9	35	5.3	57	8.7
14	2.0	36	5.4	58	8.8
15	2.1	37	5.5	59	8.9
16	2.2	38	5.6	5A	9.0
17	2.3	39	5.7	5B	9.1
18	2.4	3A	5.8	5C	9.2
19	2.5	3B	5.9	5D	9.3
1A	2.6	3C	6.0	5E	9.4
1B	2.7	3D	6.1	5F	9.5
1C	2.8	E	6.2	60	9.6
1D	2.9	3F	6.3	61	9.7
1E	3.0	40	6.4	62	9.8
1F	3.1	41	6.5	63	9.9
20	3.2	42	6.6	64	10.0
21	3.3	43	6.7		

(4) Check of output voltage of pressure sensor

a. Pd sensor 0~30kgf/cm2 (0~25 kgf/cm2: 0.5~4.5 voutput)
Outdoor unit CN07* - * voltage between terminals (* terminal connects universal meter*meter pen)
Indoor unit CN23* - * voltage between terminals (* terminal connects universal meter*meter pen)

VOUT	Pd value	VOUT	Pd value	VOUT	Pd value	VOUT	Pd value	VOUT	Pd value
-0.000	-3.13	1.144	4.03	2.289	11.18	3.434	18.33	4.579	25.48
0.022	-2.99	1.166	4.16	2.311	11.32	3.456	18.47	4.601	25.62
0.044	-2.85	1.188	4.30	2.333	11.45	3.478	18.61	4.623	25.76
0.066	-2.71	1.203	4.44	2.355	11.59	3.500	18.74	4.645	25.90
0.088	-2.58	1.210	4.58	2.377	11.73	3.522	18.88	4.667	26.03
0.110	-2.44	1.232	4.71	2.399	11.87	3.544	19.02	4.689	26.17
0.132	-2.30	1.254	4.85	2.421	12.00	3.566	19.16	4.711	26.31
0.154	-2.16	1.276	4.99	2.443	12.14	3.588	19.29	4.733	26.45
0.176	-2.03	1.298	5.13	2.465	12.28	3.610	19.43	4.755	26.58
0.198	-1.89	1.320	5.26	2.487	12.42	3.632	19.57	4.777	26.72
0.220	-1.75	1.365	5.40	2.509	12.55	3.654	19.71	4.799	26.86
0.242	-1.61	1.387	5.54	2.531	12.69	3.676	19.84	4.821	27.00
0.264	-1.48	1.409	5.65	2.553	12.83	3.698	19.98	4.843	27.13
0.286	-1.34	1.431	5.81	2.578	12.97	3.720	20.12	4.865	27.27
0.308	-1.20	1.453	5.95	2.597	13.10	3.742	20.26	4.887	27.41
0.330	-1.06	1.475	6.09	2.619	13.24	3.764	20.39	4.909	27.55
0.352	-0.93	1.497	6.23	2.641	13.38	3.786	20.53	4.931	27.68
0.374	-0.79	1.519	6.36	2.663	13.52	3.808	20.67	4.953	27.82
0.396	-0.65	1.541	6.50	2.685	13.65	3.830	20.81	4.975	27.96
0.418	-0.51	1.563	6.64	2.708	13.79	3.852	20.94	4.997	28.10
0.440	-0.38	1.585	6.78	2.730	13.93	3.866	21.08	5.019	29.23
0.462	-0.24	1.607	6.91	2.752	14.07	3.896	21.22	5.041	28.37
0.484	-0.10	1.629	7.01	2.774	14.20	3.918	21.36	5.063	28.51
0.506	-0.04	1.651	7.19	2.796	14.34	3.940	21.49	5.085	28.65
0.528	0.17	1.673	7.33	2.818	14.48	3.962	21.63	5.107	28.78
0.550	0.31	1.695	7.46	2.840	14.62	3.984	21.77	5.129	28.92
0.572	0.45	1.717	7.60	2.862	14.75	4.006	21.91	5.151	29.06
0.594	0.59	1.739	7.74	2.884	14.89	4.028	22.04	5.173	29.20
0.616	0.72	1.761	7.88	2.906	15.03	4.050	22.18	5.195	29.33
0.638	0.86	1.783	8.01	2.928	15.17	4.073	22.32	5.217	29.47
0.660	1.00	1.805	8.15	2.950	15.30	4.095	22.46	5.239	29.61
0.682	1.14	1.827	8.29	2.972	15.44	4.117	22.59	5.261	29.75
0.704	1.27	1.849	8.43	2.994	15.58	4.139	22.73	5.283	29.88
0.726	1.41	1.871	8.56	3.016	15.72	4.161	22.87	5.305	30.02
0.748	1.55	1.893	8.70	3.038	15.85	4.183	23.01	5.327	30.16
0.770	1.69	1.915	8.84	3.060	15.99	4.205	23.14	5.349	30.30
0.792	1.82	1.937	8.98	3.082	16.13	4.227	23.28	5.371	30.43
0.814	1.96	1.959	9.11	3.104	16.27	4.249	23.42	5.393	30.57
0.836	2.10	1.981	9.25	3.126	16.40	4.271	23.56	5.415	30.71
0.858	2.24	2.003	9.39	3.148	16.54	4.293	23.69	5.438	30.85
0.880	2.38	2.025	9.53	3.170	16.68	4.315	23.83	5.460	30.98
0.902	2.51	2.047	9.66	3.192	16.82	4.337	23.97	5.482	31.12
0.924	2.65	2.069	9.80	3.114	16.95	4.359	24.11	5.504	31.26
0.946	2.79	2.091	9.94	3.236	17.09	4.381	24.24	5.526	31.40
0.968	2.93	2.113	10.08	3.258	17.23	4.403	24.38	5.548	31.53
0.990	3.06	2.135	10.22	3.260	17.37	4.425	24.52	5.570	31.67
1.012	3.20	2.157	10.35	3.302	17.50	4.447	24.66	5.592	31.81
1.034	3.34	2.179	10.49	3.324	17.64	4.469	24.79	5.614	31.95
1.056	3.48	2.201	10.63	3.346	17.78	4.491	24.93		
1.078	3.61	2.223	10.77	3.368	17.92	4.513	25.07		
1.100	3.75	2.245	10.90	3.390	18.06	4.535	25.21		
1.122	3.89	2.267	11.04	3.412	18.19	4.557	25.34		

b. Ps sensor

0~10kgf/cm2 (0~8.33 kgf.cm2: 0.5~4.5 voutput)
Outdoor unit CN08* - *voltage between terminals (* terminal connects universal meter*meter pen)
Indoor unit CN23* - *voltage between terminals (* terminal connects universal meter*meter pen)

VOUT	Ps value	VOUT	Ps value	VOUT	Ps value	VOUT	Ps value	VOUT	Ps value
-0.000	-1.04	1.144	1.34	2.289	3.73	3.434	6.11	4.579	8.49
0.022	-1.00	1.166	1.39	2.311	3.77	3.456	6.16	4.601	8.54
0.044	-0.95	1.188	1.43	2.333	3.82	3.478	6.20	4.623	8.59
0.066	-0.90	1.203	1.47	2.355	3.86	3.500	6.25	4.645	8.63
0.088	-0.86	1.210	1.48	2.377	3.91	3.522	6.29	4.667	8.68
0.110	-0.81	1.232	1.53	2.399	3.96	3.544	6.34	4.689	8.72
0.132	-0.77	1.254	1.57	2.421	4.00	3.566	6.39	4.711	8.77
0.154	-0.68	1.276	1.62	2.443	4.05	3.588	6.43	4.733	8.82
0.176	-0.72	1.298	1.66	2.465	4.09	3.610	6.48	4.755	8.86
0.198	-0.63	1.320	1.71	2.487	4.14	3.632	6.52	4.777	8.91
0.220	-0.58	1.365	1.80	2.509	4.18	3.654	6.57	4.799	8.95
0.242	-0.54	1.387	1.85	2.531	4.23	3.676	6.61	4.821	9.00
0.264	-0.49	1.409	1.89	2.553	4.28	3.698	6.66	4.843	9.04
0.286	-0.45	1.431	1.94	2.578	4.32	3.720	6.73	4.865	9.09
0.308	-0.40	1.453	1.98	2.597	4.37	3.742	6.75	4.887	9.14
0.330	-0.35	1.475	2.03	2.619	4.41	3.764	6.80	4.909	9.18
0.352	-0.31	1.497	2.08	2.641	4.46	3.786	6.84	4.931	9.23
0.374	-0.26	1.519	2.12	2.663	4.51	3.808	6.89	4.953	9.27
0.396	-0.22	1.541	2.17	2.685	4.55	3.830	6.94	4.975	9.32
0.418	-0.17	1.563	2.21	2.708	4.60	3.852	6.98	4.997	9.37
0.440	-0.13	1.585	2.26	2.730	4.64	3.866	7.03	5.019	9.41
0.462	-0.08	1.607	2.30	2.752	4.69	3.896	7.07	5.041	9.46
0.484	-0.03	1.629	2.35	2.774	4.73	3.918	7.12	5.063	9.50
0.506	0.01	1.651	2.41	2.796	4.78	3.940	7.16	5.085	9.55
0.528	0.06	1.673	2.44	2.818	4.83	3.962	7.21	5.107	9.59
0.550	0.10	1.695	2.49	2.840	4.87	3.984	7.26	5.129	9.64
0.572	0.15	1.717	2.53	2.862	4.92	4.006	7.30	5.151	9.69
0.594	0.20	1.739	2.58	2.884	4.96	4.028	7.35	5.173	9.73
0.616	0.24	1.761	2.63	2.906	5.01	4.050	7.39	5.195	9.78
0.638	0.29	1.783	2.67	2.928	5.06	4.073	7.44	5.217	9.82
0.660	0.33	1.805	2.72	2.950	5.10	4.095	7.49	5.239	9.87
0.682	0.38	1.827	2.76	2.972	5.15	4.117	7.53	5.261	9.92
0.704	0.42	1.849	2.81	2.994	5.19	4.139	7.58	5.283	9.96
0.726	0.47	1.871	2.85	3.016	5.24	4.161	7.62	5.305	10.01
0.748	0.52	1.893	2.90	3.038	5.28	4.183	7.67	5.327	10.05
0.770	0.56	1.915	2.95	3.060	5.33	4.205	7.71	5.349	10.10
0.792	0.61	1.937	2.99	3.082	5.38	4.227	7.76	5.371	10.14
0.814	0.65	1.959	3.04	3.104	5.42	4.249	7.81	5.393	10.19
0.836	0.70	1.981	3.08	3.126	5.47	4.271	7.85	5.415	10.24
0.858	0.75	2.003	3.13	3.148	5.51	4.293	7.90	5.438	10.28
0.880	0.79	2.025	3.18	3.170	5.56	4.315	7.94	5.460	10.33
0.902	0.84	2.047	3.22	3.192	5.61	4.337	7.99	5.482	10.37
0.924	0.88	2.069	3.27	3.114	5.65	4.359	8.04	5.504	10.42
0.946	0.93	2.091	3.31	3.236	5.70	4.381	8.08	5.526	10.47
0.968	0.98	2.113	3.36	3.258	5.74	4.403	8.13	5.548	10.51
0.990	1.02	2.135	3.41	3.280	5.79	4.425	8.17	5.570	10.56
1.012	1.07	2.157	3.45	3.302	5.83	4.447	8.22	5.592	10.60
1.034	1.11	2.179	3.50	3.324	5.88	4.469	8.26	5.614	10.65
1.056	1.16	2.201	3.54	3.346	5.93	4.491	8.31		
1.078	1.20	2.223	3.59	3.368	5.97	4.513	8.36		
1.100	1.25	2.245	3.63	3.390	6.02	4.535	8.40		
1.122	1.30	2.267	3.68	3.412	6.06	4.557	8.45		

5. Check function for fault of outdoor unit (I/F PCB)

The content displayed on 7-segment nixie tube will switch according to the combination of SW01 and SW02. Content indicated in 7-segment nixie tube "0" indicates no display.

SW01	SW02	Table of outdoor control data	
0	0~15	Outdoor control data1	Detailed table 1
1	0~15	Outdoor control data2	Detailed table 2
2	0~15	Outdoor control data3	Detailed table 3
3	0~15	Receiving state of indoor BUS communication	When receiving: 1; when no signal receiving:-- (see page51)
4	0~15	Indoor inspection code	Inspection code; when there is no inspection code: --
5	0~15	Indoor HP	0.2, 0.5, 0.8, -1, 1.2, 1.7, 1.8, 2.0, 2.5, -3, 3.2, -4, -5, -6, -8, 10
6	0~15	Indoor required capacity	Hexadecimal system indicates: (00h~1Fh)
7	0~15	——	——
8	0~15	Not used	——
9	0~15	Indoor PMV opening data	Hexadecimal system indicates: current opening/10
10	0~15	Indoor saturation temperature data	Hexadecimal system indicates: -26.0~67.0* (1Ch~D6h)
11	0~15	Indoor TA sensor data	Hexadecimal system indicates: -26.0~67.0* (1Ch~D6h) (see page91)
12	0~15	Indoor TC2 sensor data	Hexadecimal system indicates: -26.0~67.0* (1Ch~D6h) (see page91)
13	0~15	Indoor TC1A sensor data	Hexadecimal system indicates: -26.0~67.0* (1Ch~D6h) (see page91)
14	0~15	Indoor TC1B sensor data	Hexadecimal system indicates: -26.0~67.0* (1Ch~D6h) NOT USED
15	0~15	Indoor individual start/stop	When there is running command: 11; when there is stop command: 00 When usually running: 11; when stopping: 00; When not connecting wire: --

Note: If the indoor unit selected by SW02 is not connected, "--" will be displayed

(1) Table 1 of outdoor control data

SW01	SW02	Table of outdoor control data	
0	0	Outdoor abnormal data	Outdoor unit inspection code, when there is no inspection code: --
	1	Outdoor running mode	Cool: -C, Heat –H Defrost: -J;
	2	Not used	——
	3	——	——
	4	INV command frequency	Command frequency (hexadecimal system):-0~-F
	5	INV receiving frequency	Receiving frequency (hexadecimal system): -0~-F
	6	Number of indoor unit connected	Number of indoor unit connected
	7	When back up running	When back up running of TS sensor: 1- When back up running of TE sensor: -1 When back up running of TE TS sensor: 11
	8	Indoor PMV switch	Fully open: FF, Usual: --
	9 10	Mismatching line check	During mismatching check: 10: CC. 11: HH Usual: -- when finishing check, check the number of indoor unit displayed
	11	Cool trial run	Cool trial run of all indoor unit (see page 38)
	12	Heat trial run	Heat trial run of all indoor unit (see page 39)
	13	——	——
	14	Indoor unit uniform start/stop	When there is running command: 11; when there is stopping command: 00 usual: --
	15	Display of indoor wire controller connected	When indicating command: 11; usual: --

(2) Table 2 of outdoor control data

SW01	SW02	Table of outdoor control data	
1	0	Outdoor TD1 sensor data	(Hexadecimal system) sensor data (see page 93)
	1	Outdoor TD2 sensor data	(Hexadecimal system) sensor data (see page 93)
	2	Outdoor TS sensor data	(Hexadecimal system) sensor data (see page 93)
	3	Outdoor TE sensor data	(Hexadecimal system) sensor data (see page 92)
	4	Outdoor Pd sensor data	After hexadecimal system sensor data changes hexadecimal system into decimal system which is then divided by 2, the real pressure value (kgf/cm2)can be got (see page 94)
	5	Outdoor Ps sensor data	After hexadecimal system sensor data changes hexadecimal system into decimal system which is then divided by 10, the real pressure value (kgf/cm2)can be got (see page 94)
	6	Outdoor PMV opening	(hexadecimal system) indicates opening data 00-F0
	7	Commercial compressor	ON: -1; OFF: -- blank
	8	Solenoid valve SV1	ON: -1; OFF: -- blank
	9	Solenoid valve SV2	ON: -1; OFF: -- blank
	10	—	— blank
	11	Solenoid valve SV4	ON: -1; OFF: -- blank
	12	Temperature sensor ON output relay	ON: -1; OFF: -- blank
	13	Four-way valve	ON: -1; OFF: -- blank
	14	Running state of outdoor unit	OFF: 07; Mode R1: 01~mode R1: 07
	15	Not functioned	—

(3) Table 3 of outdoor control data

SW01	SW02	Table of outdoor control data	
2	0	Requiring (energy saving) control	During requiring control:-1 usual: --
	1	Selection of running mode	Cool: -C; Heat: _H Prior to heat: --
	2	Outdoor unit uniform start/stop	Running input: -1; Stopping input: -0; usual: --
	3	Snowfall preventing fan control	Snowfall preventing fan control input: -1; usual: --
	4	Night low noise running control	Night low noise running control input: -1; usual: --
	5	—	
	6	—	—
	7	—	—
	8	Not used	—
	9	Not used	—
	10	Not used	—
	11	Not used	—
	12	Not used	—
	13	Not used	—
	14	Not used	—
	15	Not used	—

6. LED display on inverter PCB

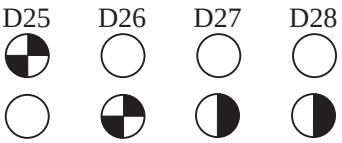
According to the position of SW01, the 4 LED (D25~D28) of frequency conversion can express the following content:

(1) If the LED displaying <IGBT short circuit> protection has no abnormal locking, when shortening time, it will flicker in 5 Hz frequency.

(2) When conducting protection action, the LED displaying protection function will flicker in 5 Hz frequency, other LED will be lighted.

For example: IGBT short circuit protection action

Current detection circuit protection action



(3) Do not display the number of protection action of high pressure

SW01		D25	D26	D27	D28
1	2				
OFF	OFF	IGBT short circuit protection action	Compressor protection action	Overcurrent protection action	High pressure switch action
ON	OFF	No	Current detection circuit protection action	Counter of protection action: Normal → … → Protection action	
OFF	ON	Serial receiving Sx (frequency data)			
ON	ON	Serial transmitting Sy (frequency data)			

○ : Lamp ON ● : Lamp OFF ◒ : Flicker in 5 Hz ◑ : Flicker in 1 Hz

7. Switching function of I/F PCB

Switch No.	Type of switch		Function		
SW01	16-digit knob switch (0~15)		Displaying switching (1)	7-segment nixie tube display switching	
SW02	16 digit knob switch (0~15)		Displaying switching (2)	7-segment nixie tube display switching	
SW03	3-digit dial switch	1	Back up running of inverter compressor	ON: back up running	OFF: usual running
		2	Back up running of commercial compressor	ON: back up running	OFF: usual running
		3	Selectable function switching	ON: requiring control	OFF: Snowfall preventing fan control
SW04	Micro switch		"Running" for maintenance	If pressed down, indoor unit runs	
SW05	Micro switch		"stopping" for maintenance	If pressed down, indoor unit stops	
SW06	3-digit dial switch (see page 115,116)	1	Pd sensor back up running	ON: back up running	OFF: usual running
		2	Ps sensor back up running	ON: back up running	OFF: usual running
		3	Not used	ON: —	OFF: —
SW07	1-digit dial switch		Indoor indicates switching	ON: 17~30	OFF: 1~16

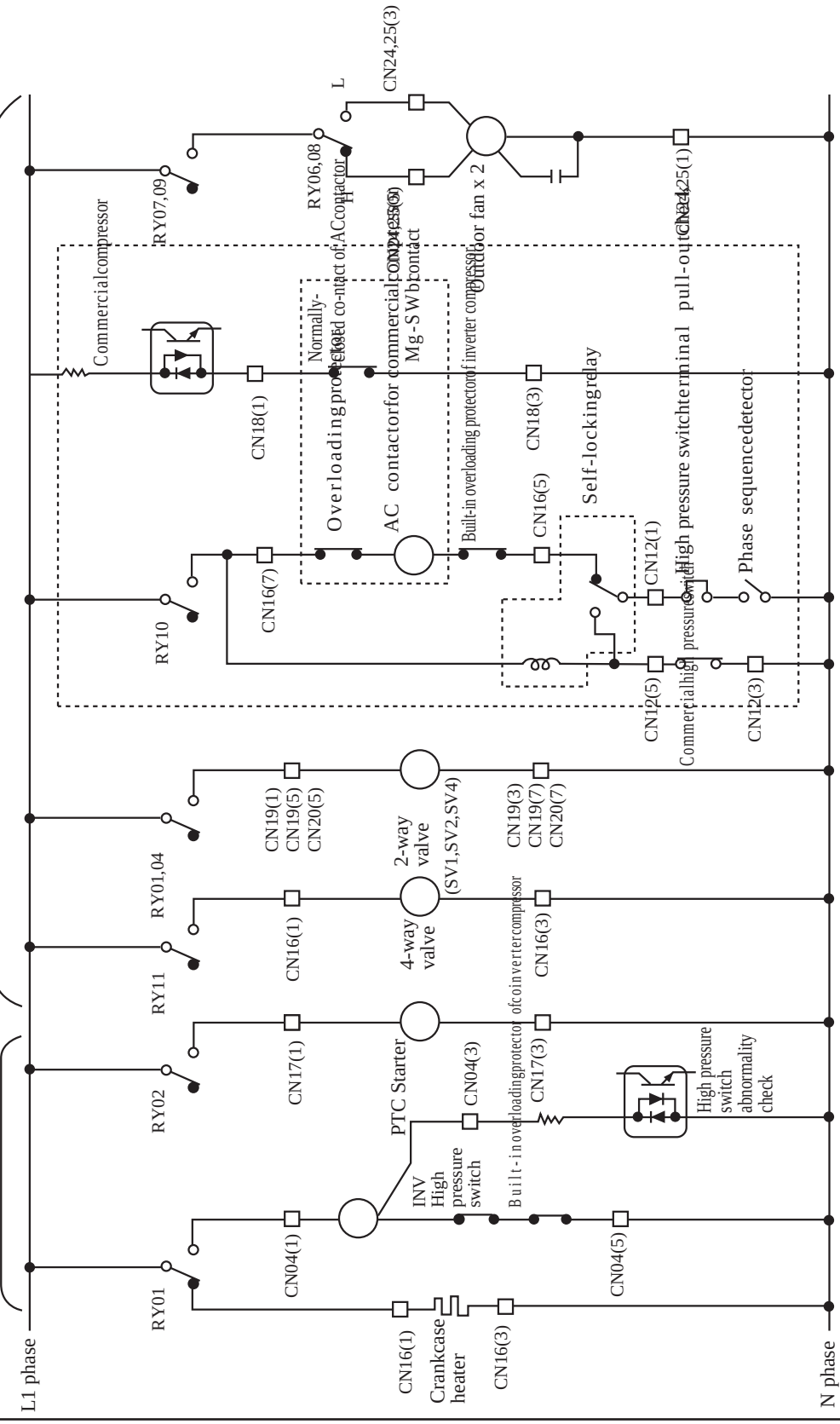
Note: 1. ⬚ is the position of delivery 2. In this system, SW07 is fixed on side of OFF, do not change it into the side of ON.

8. 220 V wiring diagram of outdoor unit AU96NFTAHA

**	

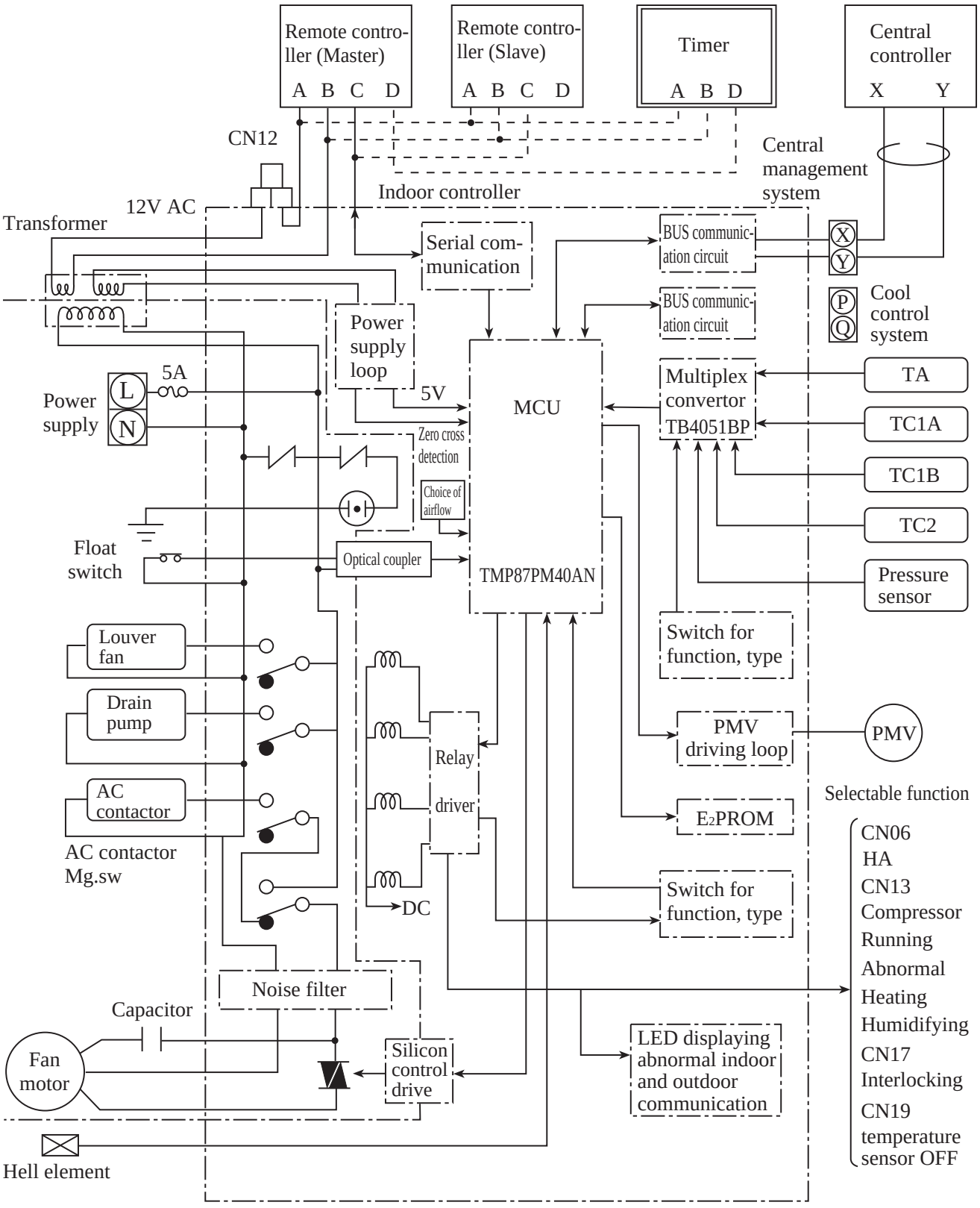
Instruction: AU55NFUAHA without the circuit dotted line and frame, with 1 outdoor fan; 2-way valve is SV1, SV2; AU96NFTAHAwith 2 outdoor fan; 2-way valve is SV

220 V wiring diagram of outdoor unit



9. Block diagram of indoor unit control

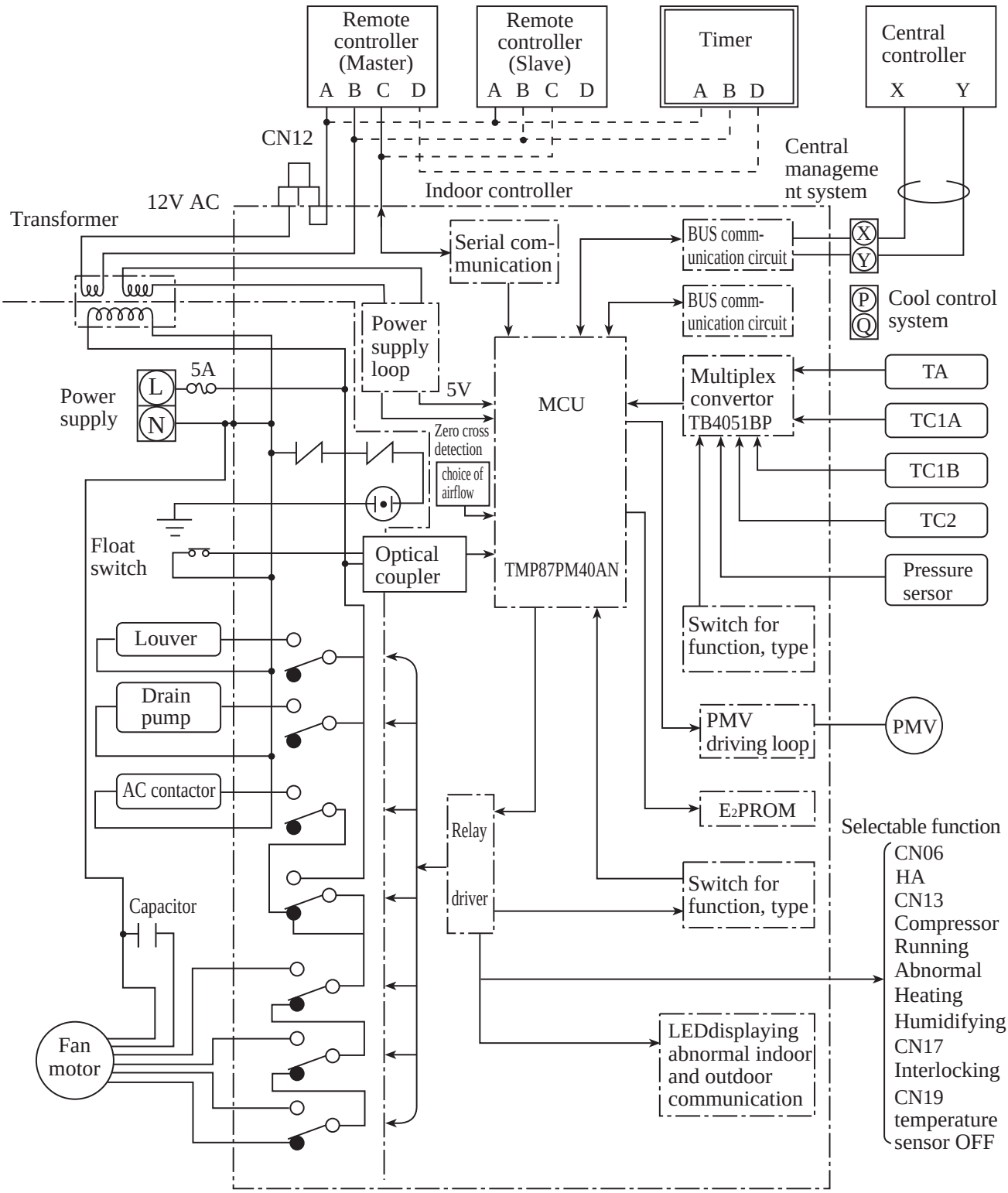
(MCC-1333-02: speed regulating of silicon control)



TA: room temperature sensor TC1A: pipe temperature sensor TC1B: same TC1A TC2: pipe sensor

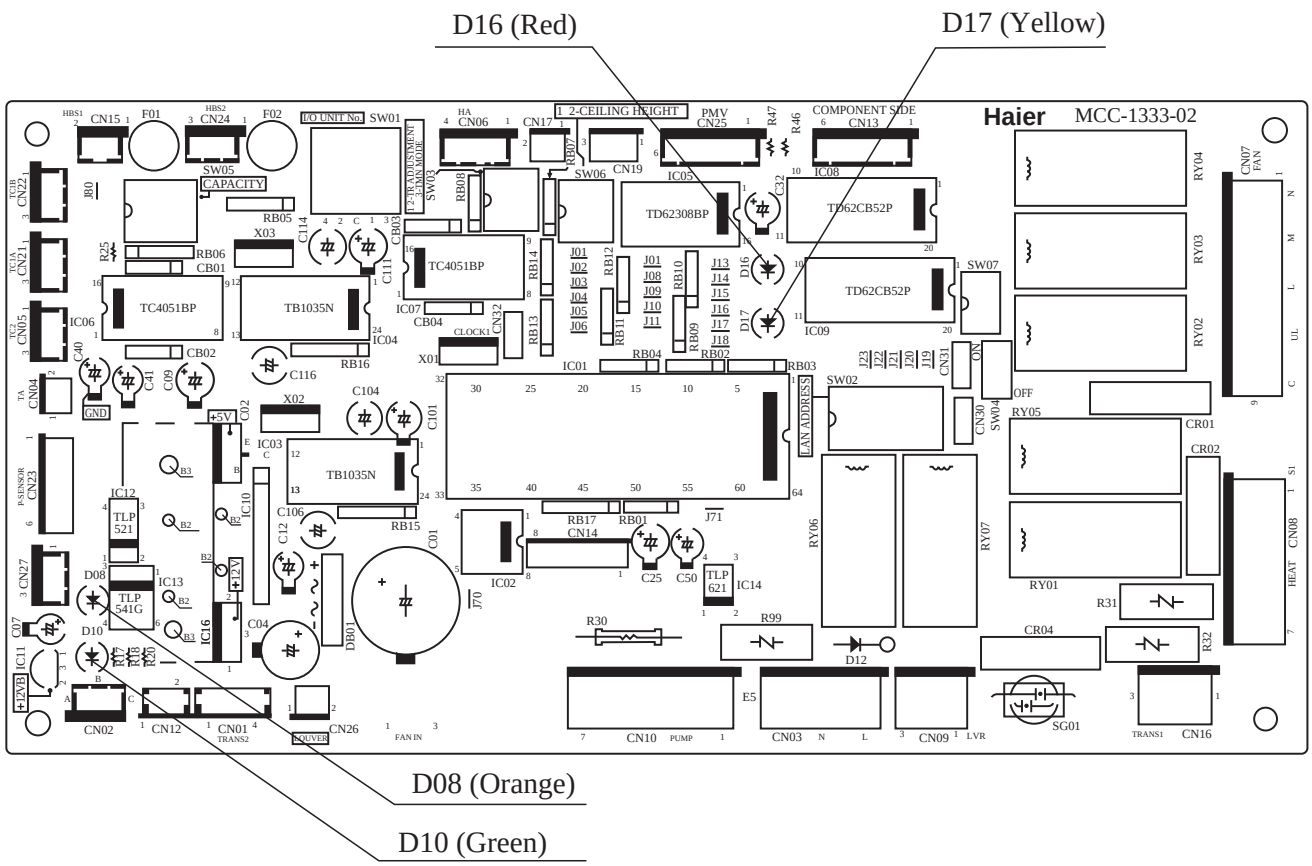
Block diagram of indoor unit control

(MCC-1256 MCC-1234-01: relay speed regulating)



10. LED display on the PC board of indoor unit

Type of part	Color	Indication	Detail
D08	Orange	Serial communication input	Flicker when remote controller serial signal inputting
D10	Green	Serial communication output	Flicker when remote controller serial signal transmitting
D16	Red	Full abnormal stop display	Light when indoor unit stops due to abnormality
D17	Yellow	Indoor and outdoor unit communication	Flicker when inputting outdoor unit communication signal



Layout of indoor PCB part

11. Display of remote controller

In the following cases, the remote controller will display "standby" or "preheat defrost".

1) "standby" display

The fan may run, but the indoor unit PMV does not start (refrigerant does not circulate).

① Capability overloading of indoor unit

When the total Hp of indoor unit exceeds 1.35 times that of outdoor unit, indoor unit will enter into state of stand-by.

It also displays inspection code "89", in addition to displaying "standby".

② When the heating of outdoor unit is preferential

When outdoor unit conducts heat running, indoor unit set to the cool mode will enter into the state of stand-by.

Display "standby", but do not display inspection code.

③ Cool running of outdoor unit

When the outdoor unit only sets cool running mode, indoor unit set to heat mode will be in the state of stand-by.

Display "standby", but do not display inspection code.

④ Control when the indoor running Hp does not reach 0.8 HP

When the indoor total running HP does not reach 0.8 Hp, indoor unit set to run will be in the state of stand-by.

Display "standby", but do not display inspection code.

The setting of indoor HP may be wrong, please confirm the setting of SW05 again.

2) "preheat defrost" display

The fan of indoor unit may stop.

① After beginning heat running, when the heat exchanger is not hot enough, “preheat defrost” will display. After the heat exchanger becomes hot, the display "preheat defrost" will disappear, and the fan will begin running.

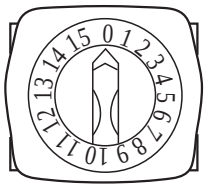
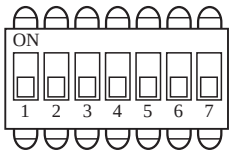
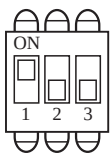
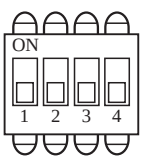
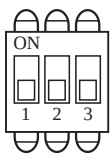
② Refrigerant under heat mode: when conducting oil recovery control, the indoor unit under the mode other than heat or stop after its heat reaches the set temperature will stop the running of the fan, and display "preheat defrost". But the indoor unit stopping before refrigerant and oil recovery will not display "preheat defrost".

12. Full ON/OFF function of indoor unit PMV

It can force the indoor unit to use the function of PMV full ON, OFF, medium opening, and maintain 2 minutes.

CN31	CN30	PMV opening
Opening	Opening	Normal running
Opening	Short circuit	Full ON
Short circuit	Opening	Full CLOSE
Short circuit	Short circut	Medium opening (Between full On and full OFF)

13. Position of switches before delivery

<table>
<tr><th>Number of SW</th><th>Function</th><th>Content of function</th><th>Position when delivery</th></tr>
<tr><td>SW01</td><td>Number setting of indoor unit</td><td>Setting in group running control
0: master unit 1~15: slave unit</td><td>  </td></tr>
<tr><td>SW02</td><td>Address setting of central control</td><td>No.7: ON, remote controller can not set address
No.7: OFF, remote controller can set address
For content of address setting, refer to the following page</td><td>  </td></tr>
<tr><td rowspan="2">SW03</td><td>No.1,2 Temperature compensation of room temperature control</td><td>Temperature compensation of room temperature when heat running
<table><tr><td>No.1/2</td><td>ON/ON</td><td>ON/OFF</td><td>OFF/ON</td><td>OFF/OFF</td></tr><tr><td>Control temperature</td><td>+0*</td><td>+2*</td><td>+4*</td><td>+6*</td></tr></table></td><td rowspan="2">  </td></tr>
<tr><td>No.3
Not used</td><td>No.3 In the state of OFF</td></tr>
<tr><td>SW04</td><td>Setting of emergency running</td><td><table><tr><td>ON</td><td>emergency running</td></tr><tr><td>OFF</td><td>Normal running</td></tr></table></td><td>  </td></tr>
<tr><td>SW05</td><td>Setting of indoor HP</td><td>Have been set before delivery
For content of setting, refer to the following page</td><td>  </td></tr>
<tr><td>SW06</td><td>Airflow rate compensation (only for cassette)</td><td>When installing height exceeds 2.7 m,
No.1, No.2 setting is on the ON side
No.3 not used</td><td>  </td></tr>
<tr><td>SW07</td><td></td><td><table><tr><td>No.1: ON</td><td>After running for 29 minutes, change into rated power running</td></tr><tr><td>No.1: OFF</td><td>usual</td></tr><tr><td>No.2: OFF</td><td>Heat pump</td></tr></table>No.2: ON Cooling only</td><td>  </td></tr>
</table>

14. Switch setting content

Table of relationship between setting content of dial switch SW02 and address of central control

*Under the state of power supply cutting off, turn the 7th position of dial switch SW02 to ON side. At that time the remote controller is forbidden to use to set address. (When delivery, all dial switches are in the position of OFF.

* Address No.1)

	SW02					
	1	2	3	4	5	6
1	×	×	×	×	×	×
2	○	×	×	×	×	×
3	×	○	×	×	×	×
4	○	○	×	×	×	×
5	×	×	○	×	×	×
6	○	×	○	×	×	×
7	×	○	○	×	×	×
8	○	○	○	×	×	×
9	×	×	×	○	×	×
10	○	×	×	○	×	×
11	×	○	×	○	×	×
12	○	○	×	○	×	×
13	×	×	○	○	×	×
14	○	×	○	○	×	×
15	×	○	○	○	×	×
16	○	○	○	○	×	×
17	×	×	×	×	○	×
18	○	×	×	×	○	×
19	×	○	×	×	○	×
20	○	○	×	×	○	×
21	×	×	○	×	○	×
22	○	×	○	×	○	×
23	×	○	○	×	○	×
24	○	○	○	×	○	×
25	×	×	×	○	○	×
26	○	×	×	○	○	×
27	×	○	×	○	○	×
28	○	○	×	○	○	×
29	×	×	○	○	○	×
30	○	×	○	○	○	×
31	×	○	○	○	○	×
32	○	○	○	○	○	×

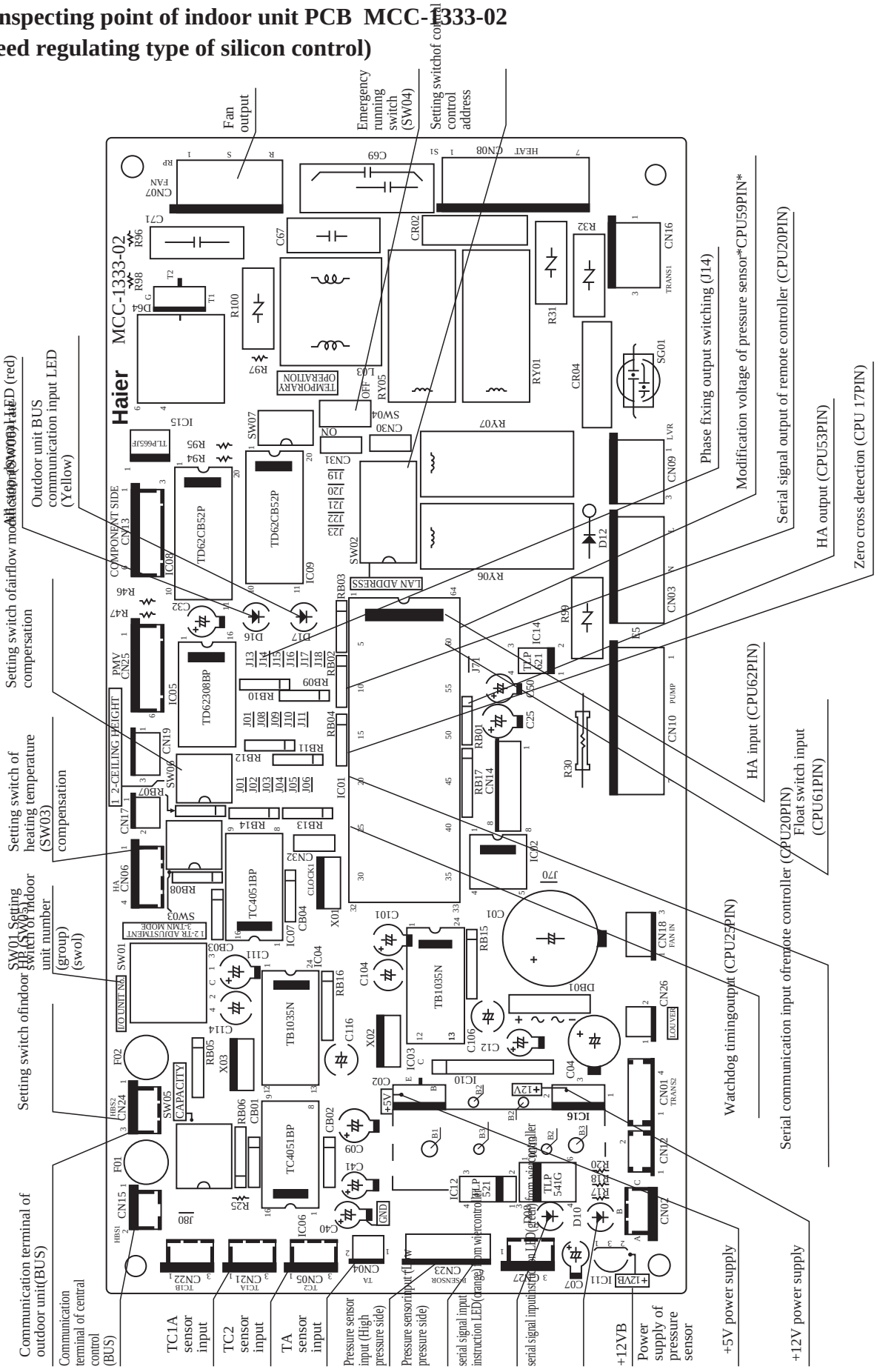
	SW02					
	1	2	3	4	5	6
33	×	×	×	×	×	○
34	○	×	×	×	×	○
35	×	○	×	×	×	○
36	○	○	×	×	×	○
37	×	×	○	×	×	○
38	○	×	○	×	×	○
39	×	○	○	×	×	○
40	○	○	○	×	×	○
41	×	×	×	○	×	○
42	○	×	×	○	×	○
43	×	○	×	○	×	○
44	○	○	×	○	×	○
45	×	×	○	○	×	○
46	○	×	○	○	×	○
47	×	○	○	○	×	○
48	○	○	○	○	×	○
49	×	×	×	×	○	○
50	○	×	×	×	○	○
51	×	○	×	×	○	○
52	○	○	×	×	○	○
53	×	×	○	×	○	○
54	○	×	○	×	○	○
55	×	○	○	×	○	○
56	○	○	○	×	○	○
57	×	×	×	○	○	○
58	○	×	×	○	○	○
59	×	○	×	○	○	○
60	○	○	×	○	○	○
61	×	×	○	○	○	○
62	○	×	○	○	○	○
63	×	○	○	○	○	○
64	○	○	○	○	○	○

Table of setting dial switch SW05 and indoor unit HP

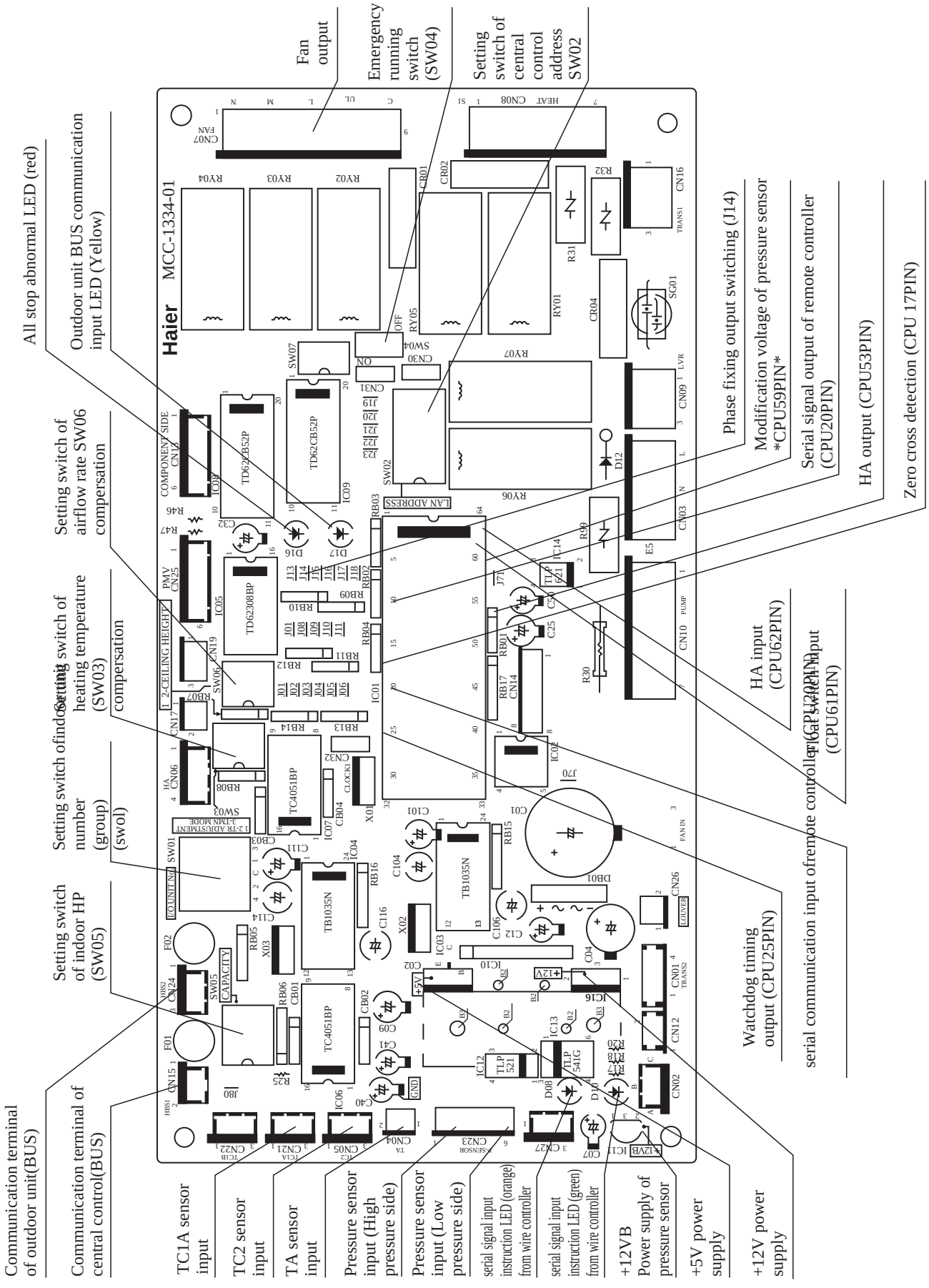
SW05				
1	2	3	4	Switching content
×	×	×	×	Indoor capability 0.2 Hp
×	×	×	○	ndoor capability 0.5Hp
×	×	○	×	Indoor capability 0.8Hp
×	×	○	○	Indoor capability 1.0Hp
×	○	×	×	Indoor capability 1.25Hp
×	○	×	○	Indoor capability 1.5Hp
×	○	○	×	Indoor capability 1.7Hp
×	○	○	○	Indoor capability 2.0Hp
○	×	×	×	Indoor capability 2.5Hp
○	×	×	○	Indoor capability 3.0Hp
○	×	○	×	Indoor capability 3.2Hp
○	×	○	○	Indoor capability 4.0Hp
○	○	×	×	Indoor capability 5.0Hp
○	○	×	○	Indoor capability 6.0Hp
○	○	○	×	Indoor capability 8.0Hp
○	○	○	○	Indoor capability 10.0Hp

15. Indoor unit circuit

(1)Inspecting point of indoor unit PCB MCC-1333-02 (Speed regulating type of silicon control)



(2)Inspecting points MCC-1334-01 of outdoor unit
(Speed regulating type of relay)

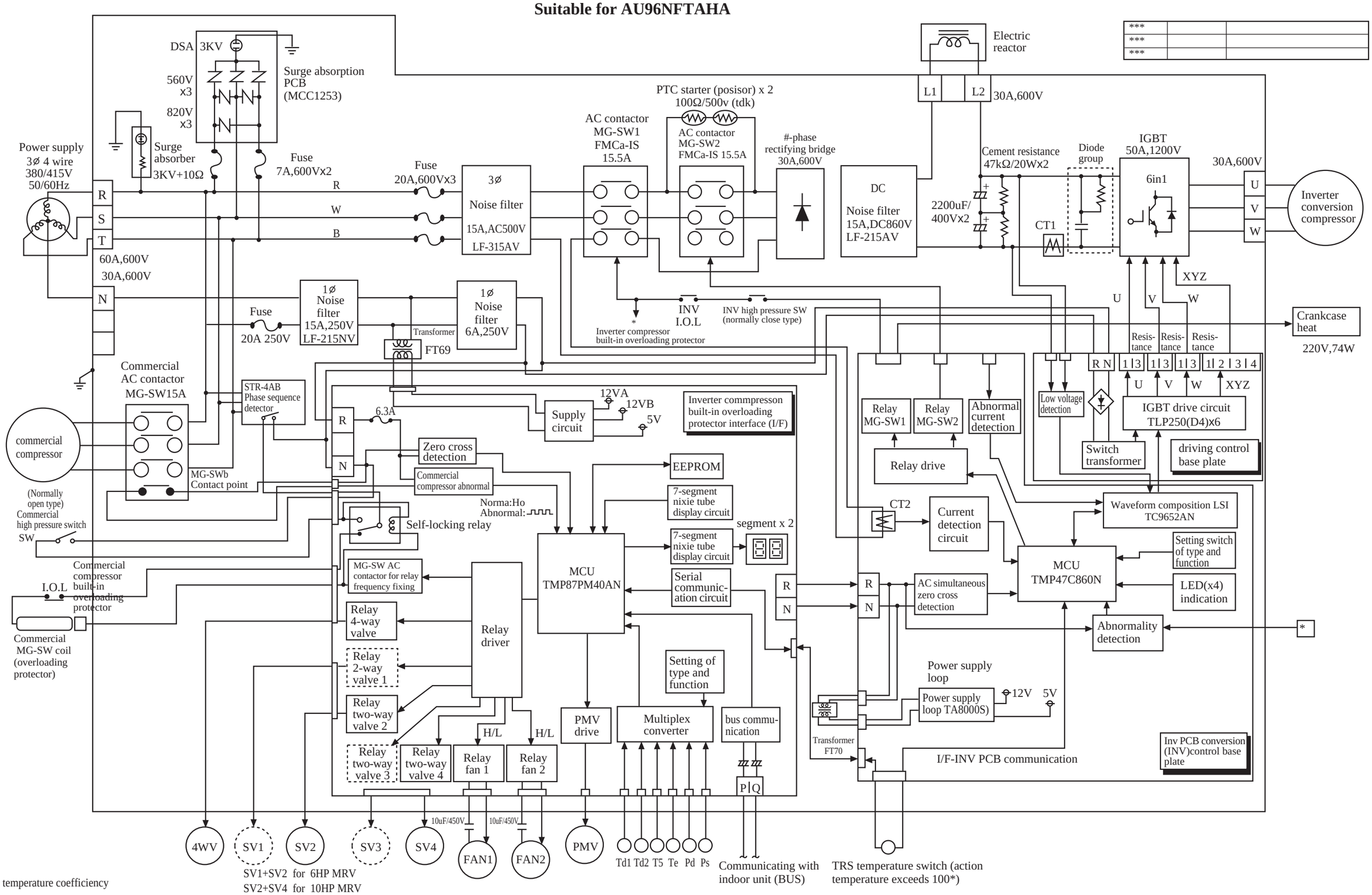


16. Block diagram of outdoor unit control

(1) Control block diagram of outdoor unit

Suitable for AU96NFTAHA

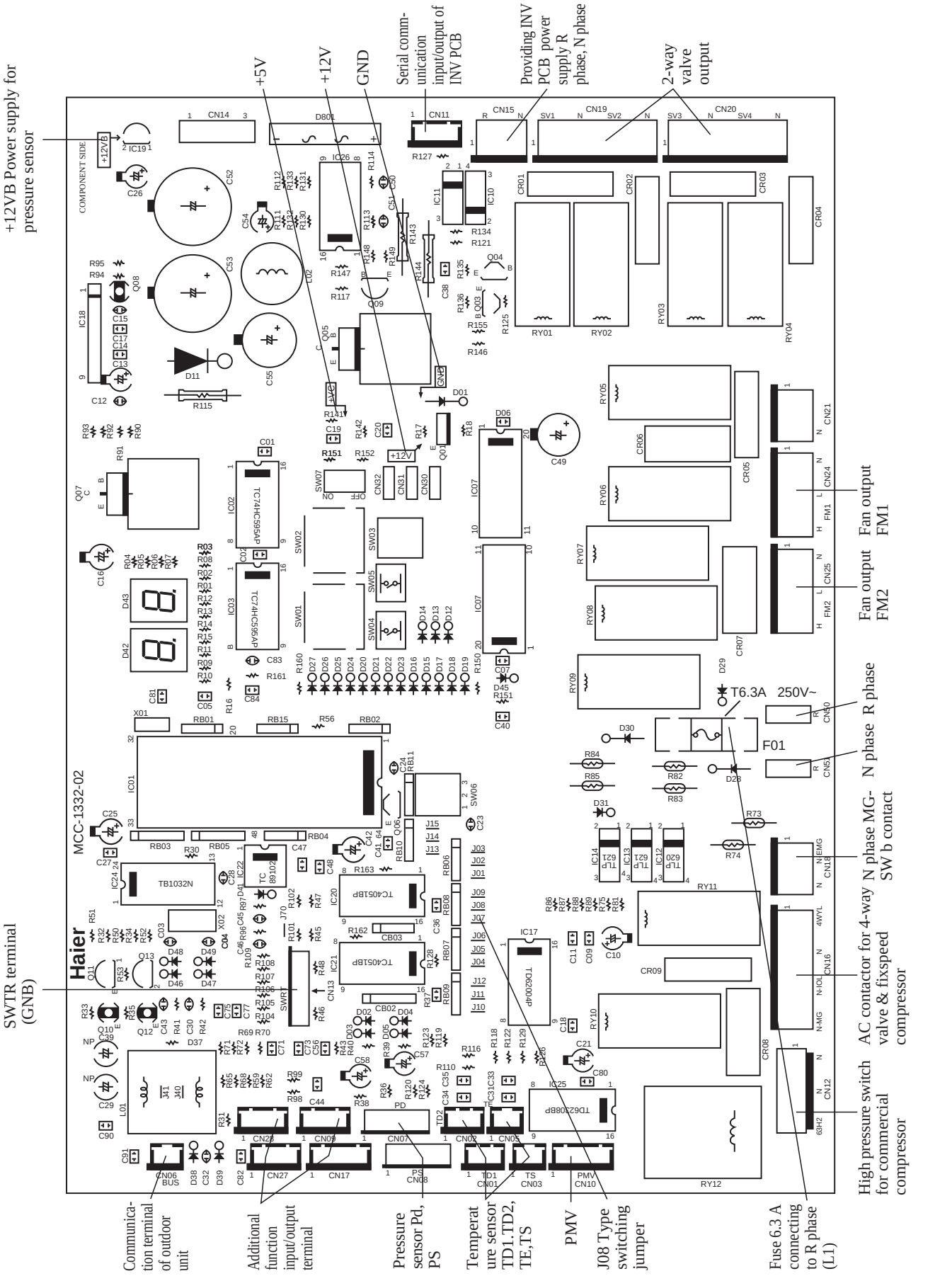
***		
***		
***		



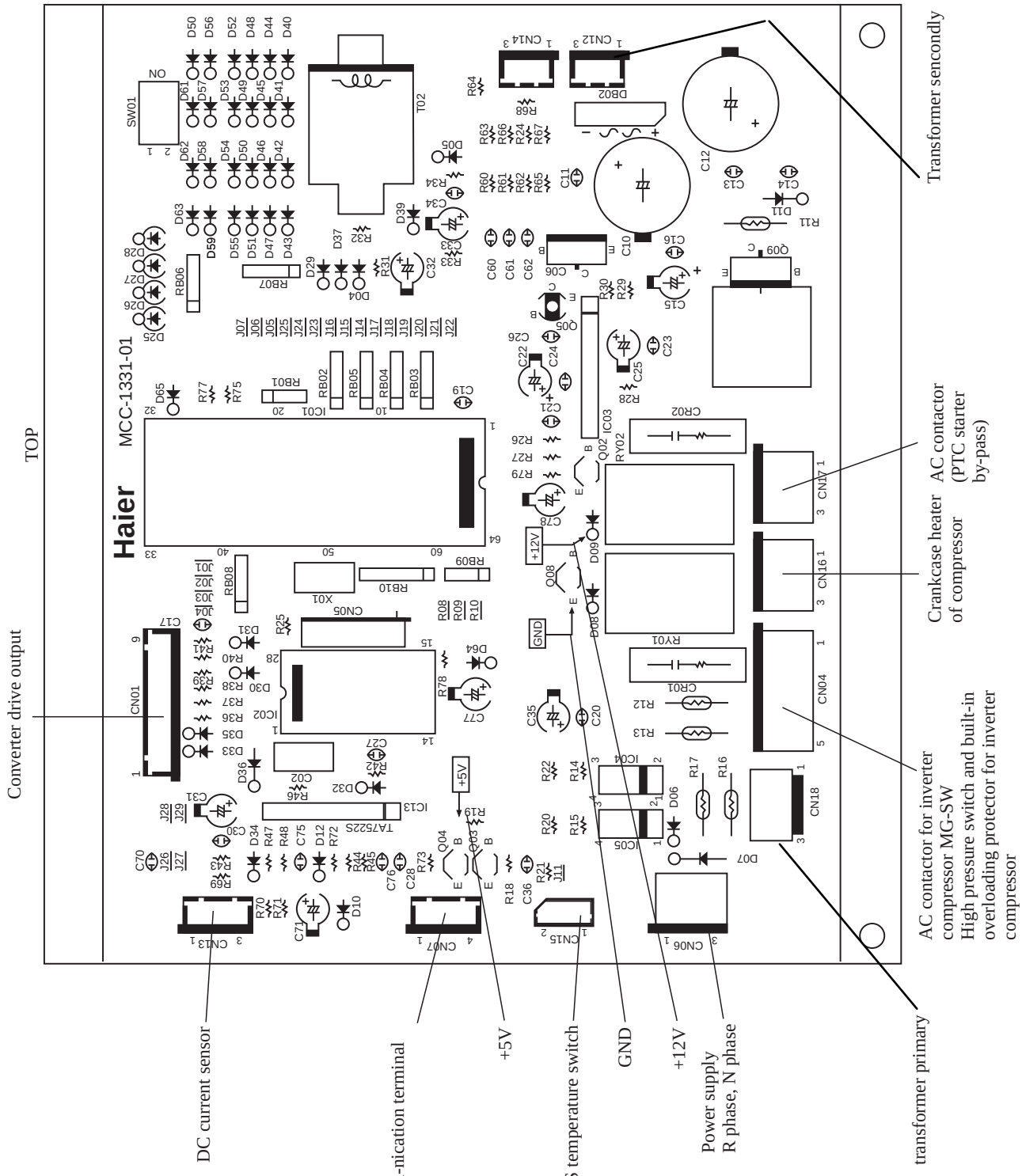
PTC: Possive temperature coefficiency

SV1+SV2 for 6HP MRV
SV2+SV4 for 10HP MRV

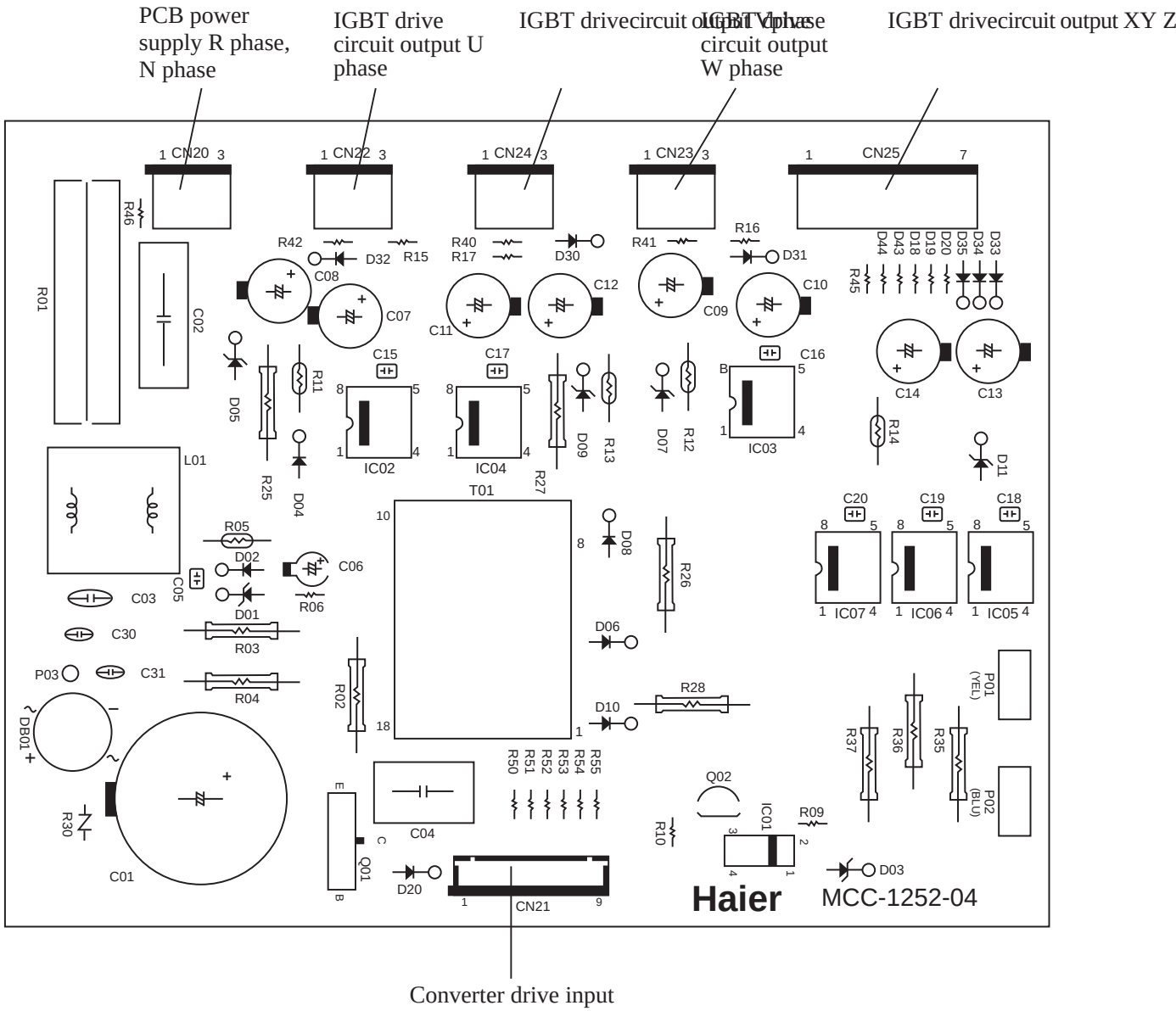
(2) Inspecting point of outdoor unit I/F PCB
MCC-1332-02



(3) Inspecting point of INV PCB (MCC-1331-01)



(4) Inspecting point of IG BT PCB (MCC-1252-04)



(5) Checking gate drive circuit of IGBT PCB(MCC-1252-04)

a. Measuring gate drive voltage

	Measuring part	Voltage
U phase	IC02 ⑧–⑤	24.5*0.5V
V phase	IC03 ⑧–⑤	
W phase	IC04 ⑧–⑤	
XYZ phase	IC05 ⑧–⑤	

b. Checking the signal to IGBT

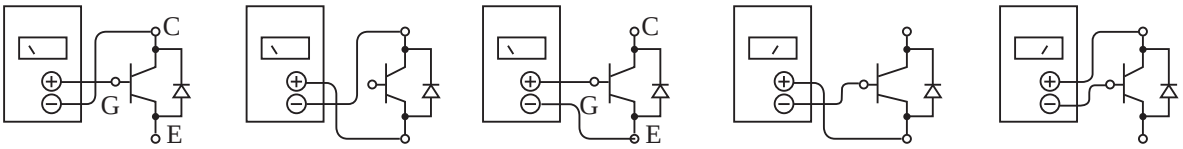
Pull out the connectors on IGBT PCB CN22, CN23, CN24 and CN25, check the voltage value of eachindicator. Check all items when it is in Thermo ON and Thermo OFF.

	Measuring part	Voltage
Thermo On	U phase CN22 ①–③	1.5~2.0V
	V phase CN23 ①–③	
	W phase CN24 ①–③	
	X phase CN25 ⑦–①	
	Y phase CN12 ⑤–①	
	Z phase CN12 ③–⑤	
Thermo OFF	U phase CN22 ③–①	8~10V
	V phase CN23 ③–①	
	W phase CN24 ③–①	
	X phase CN25 ①–⑦	
	Y phase CN25 ①–⑤	
	Z phase CN25 ①–③	

The voltage values in above positions must be consistent and within the range of the table.

(6) Judging whether the IGBT is normal

Resistance value when IGBT is normal



Above 100 k* Above 100 k* About 47 k* About 47 k* Above 40 k*

Note 1) As the testing instrument may not be consistent, so when testing the normal elements, the testing value can

1)Transportation, packing

A)Packing with conductive foam, plastic bag or aluminum foil.

B)When handling elements, do not let the holding casing part touch the leading wire terminal part, especially the gate drive terminal.

C)Conduct operation on the conductive cushion reliably connected to the earth or take measure of eliminating static electricity such as earthing human body.

2) Test, check

A)when conducting single test of element

- When conducting characteristic test and check

When adding voltage, it must begin from 0V. After test, it must return to 0V. For each terminal, especiallywhen using

- When conducting simple check

Before checking with universal meter, conduct short circuit between gate pole and transmitting pole toeliminate elec charge on the gate pole drive circuit may lead to damage of the IGBT.

17. Back up running

a. Indoor unit

When the sensor of indoor unit have fault as shown in Table 1, it will automatically enter into back up runningwhile displayi

Table 1

Sensor with fault	Treatment	Inspection code
TC1	Conduct normal control by using another TC sensor	—
TC2	Automatic back up running	94
Pressure	Automatic back up running	B9
TA	Automatic back up running	0C
TC1 x 2	Automatic back up running	93
TC2 +TA	Automatic back up running	94, 0C
Pressure + TA	Automatic back up running	B9, 0C
TC1 x 2 + TA	Automatic back up running	93, 0C

b. Outdoor unit

The sensor used by outdoor unit can be classified as automatic back up running and manual setting back uprunning. (refer

Sensor	Treatment	Inspection code
Pd (discharge pressure)	Manual back up running (Fixed on Pd =1.96 Mpa (20kgf/cm$_2$)	—
Ps (intake pressure)	Manual back up running (Fixed on Ps =0.392 Mpa (4kgf/cm$_2$)	—
TS (intake temperature)	Manual back up running (TS = 10*)	A2
TE (Heat exchanger temperature)	Manual back up running (Fixed on TE = 20 *)	18

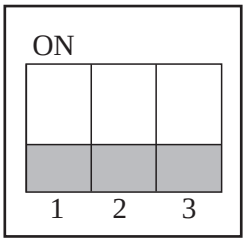
(1) Back up running function possessed by outdoor unit

Please open the following switches and conduct back up running through operating the switches (excluding TS, TE sensor). Operation must be conducted after cutting off the main power supply. Operating the switches with power supply switching on can not enter into back up running mode.

No	Name	Switch	Step	Value in back up running
1	Inverter side	SW03	1	Only for running of commereial compressor
2	commercial side	SW03	2	Only for running of inverter compressor
3	Pd sensor	SW06	1	Pd =20kgf/cm2 fixing
4	Ps sensor	SW06	2	Ps =4kgf/cm2 fixing
5	TS sensor	Auto	Auto	TS =10* fixing
6	TE sensor	Auto	Auto	TE =20* fixing

In usual setting

SW03, SW06



Be sure to confirm the following matters before back up running

1. Whether the indoor unit connected has not conducted back up running of sensor. (The sensor of indoor unit can automatically conduct back up running when it is abnormal). If the sensor of indoor unit is conducting backup running, c running is strictly forbidden. Otherwise the compressor will be damaged.

Confirmation method: Switch SW01 on the outdoor unit interface base plate to “1”, SW02 to “0~15”, confirmthe display of

Display code	Abnormal sensor
0C	TA sensor
93	TC1 sensor
94	TC2 sensor
b9	Pressure sensor

2. When the outdoor unit is conducting other back up running, do not conduct new back up running.Confirmation method: 1.

Name of sensor	7-segment nixie tube
TE	"..1"
TS	"1.."

Both sides are under back up running “11”

2. Confirm that the first, second digit of SW03, SW06 are all in OFF.

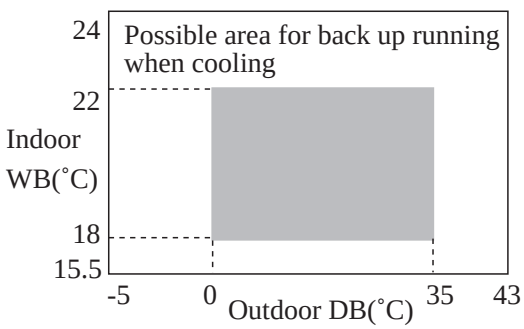
Points for attention during back up running

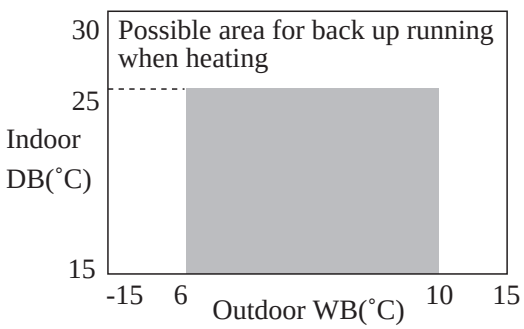
1)Sometimes the capability is insufficient.

2)The capacity between indoor units may unbalance

3)Back up running is emergency treatment for once, so replace the spare part immediately obtaining it, so as to resume normal running.

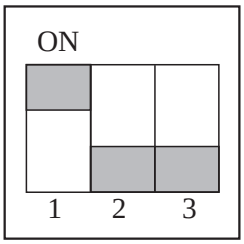
4)Please use within the range shown.



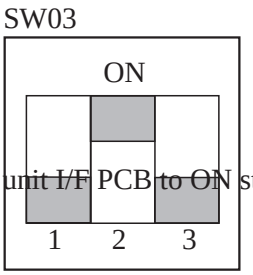


(2) Back up running method of outdoor unit

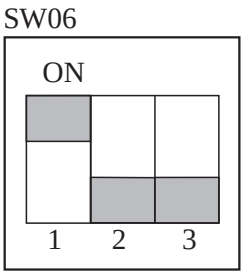
1. Inverter running (6 HP outdoor unit does not have this function) When the inverter circuit of the inverter compressor has fa
   (1)Cut off the main power supply;
   (2)Turn the first digit of SW03 on the outdoor unit I/F PCB to ON state;
   (3)Switch on the main power supply, conduct normal trial run;
   (4)Make total running amount of indoor unit up to over 5 HP.



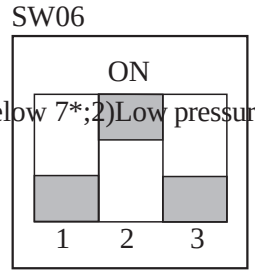
2. Back up running of commercial compressor
   (HP outdoor unit does not have this function)
   When the Mg-SW for fixed commercial or commercial compressor has fault, only the inverter compressor runs.
   (1)Cut off the main power supply; (2)Turn the second digit of digit 3 on the outdoor unit I/F PCB to ON state; (3)Swit



3. Back up running of Pd sensor
   When the Pd sensor has fault, conduct running by fixing the value (20kgf/cm2) of Pd sensor.
   (1)Cut off the main power supply;
   (2)Turn the first digit on the outdoor unit I/F PCB to ON state;
   (3)Switch on the main power supply, conduct normal trial run;



4. Back up running of Ps sensor When the Ps sensor has fault, conduct running by fixing the value (4kgf/cm2) of Ps sensor



In the following conditions, running is strictly forbidden:1)Outdoor heating running below 7*;2)Low pressure running cause

   (1)Cut off the main power supply;
   (2)Turn the second digit on the outdoor unit I/F PCB to ON state;
   (3)Switch on the main power supply, conduct normal trial run;

5. Back up running of TS sensor
   When the TS sensor has fault, it will automatically enter into back up running by fixing the value (10*) of TS sensor. The SW01 on the outdoor unit I/F PCB is "0", SW02 is "7" and 7-segment nixie tube display becomes "1..".

6. Back up running of TE sensor
   When the TE sensor has fault, it will automatically enter into auxiliary running by fixing the value (20*) of TE sensor.
   The SW01 on the outdoor unit I/F PCB is "0", SW02 is "7" and 7-segment nixie tube display becomes "..1".

18. Decomposition method

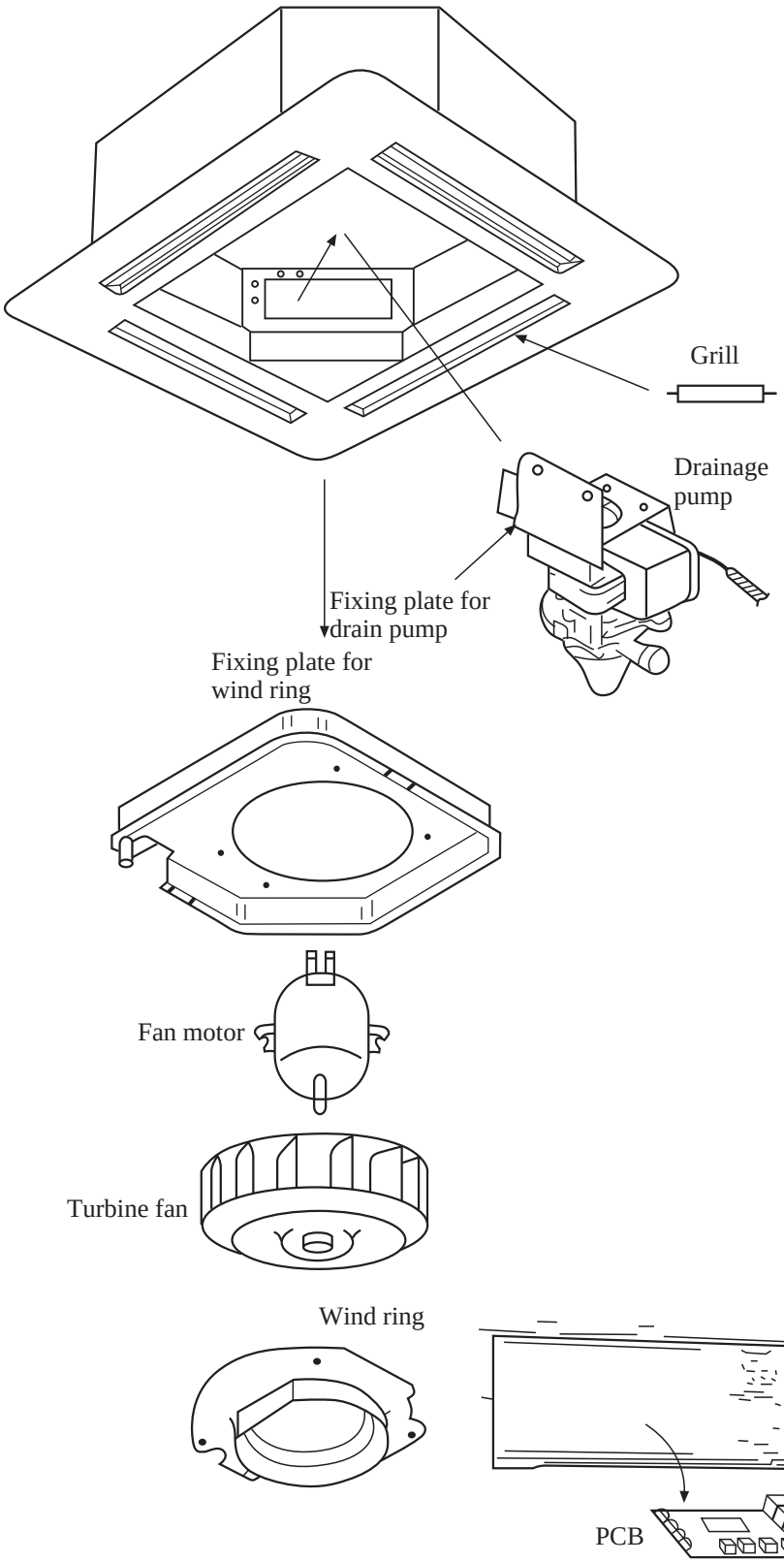
a. Indoor unit

(1) Cassette type with airflow in four directions

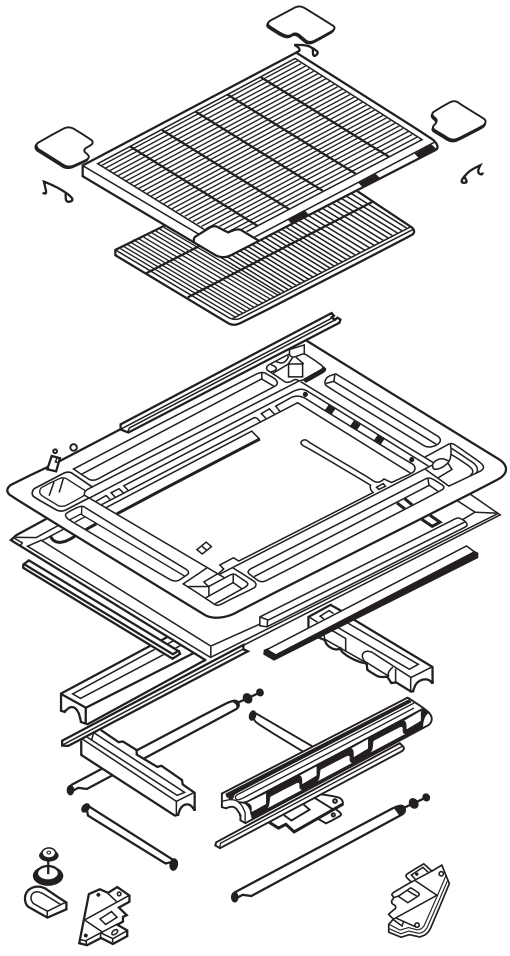
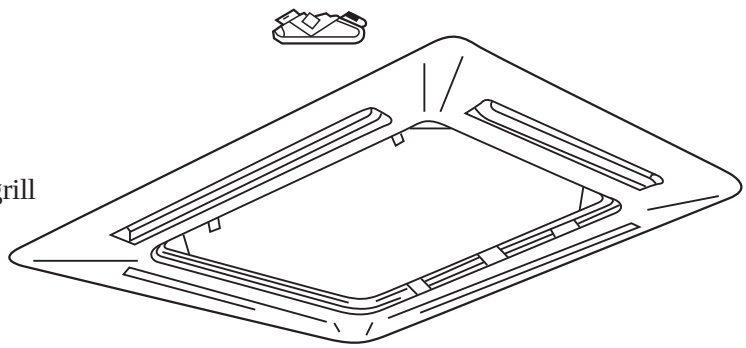
Category	Repair part	Step (Sequence)		Points for attention
		AB092FEAIA AB122FEAIA AB142FEAIA AB162FEAIA	AB182FEAIA AB242FEAIA AB282FEAIA AB322FEAIA	
Panel	Air outlet grill	1. Remove the installing screws on both sides and remove the grill		Remove from the air outlet
	Air inlet grill	1. Operate the grill locking button, open the air inlet grill 2. Remove the lifting rope 3. Lift the rotary shaft of air inlet grill and remove it		Can adjust the grill locking button, only direction moving
	Air filter screen	Remove the screw for fixing air filter screen on the lockingbutton side of air inlet grill and slide the block to the		Before installation, hang grid locking button
	Air swingvane			Before decomposition, confirm the assembly state and install as per the original state.
Parts	Electric control box	1. Remove the air inlet grill 2. Remove the casing of the electric control box 3. Inspection		The casing removed must be resumed
	Eccentric fan Fan motor	*1 Remove the installing screwon the electric control box 2. Turn 90* of the electric control box 3. Remove the medium-sized inlet sleeve 4.Remove the screw for installing the fan 5.Remove the fan 6. Remove the motor (Tightening torque: 2.9N.m)	*1 Remove the electriccontrol box and outer cover2. Remove the screw for installing the fan 3. Remove the fan 4. Remove the motor(Tightening torque: 3.9N.m)	1. Confirm that the pashing bar for fixing the turbine fan is really entered into the concave part, then fix the nut 2. For the fixing nut of turbine fan, please fix it
	Drainage pump	*1 Remove the fan motor 2. Remove the cover of drain pump3. Remove the screw on the installing plate of drain pump forward	*1 Remove the water tray2. Remove the screw on the installing plate of draina 3. Pull out the drainage pump forward	1.Before lowering the water tray, pull out the plug for discharging water 2. When removing the water tray pallet , careful when assembling.
	Floating switch TC sensor	*1 Remove the air outlet grill cover on the electric control box2. Remove the fixing plate of water tray with four c 4. Remove the floating switch 5. Remove the TC sensor		For the assemblyafter decomposition, please clamp the leading wire; do not touch the fan and heater.
	Drainage hose	1. Remove the fixing plate of refrigerant pipe 2. Pull out the drain hose in the unit 3. Pull out the water pipe.		1. Conduct operation from the inspection port 2. Before entering into the step, please remove the water pipe
	Water tray	*1 Remove fan cirde. 2. Remove the fixing plate of drain hose with four corners		
	Heat exchanger (Distribution panel)	*1 Remove the electric control box of refrigerant pipe cover2. Remove the water tray 3. Remove the fixing screw for heat exchanger 4. Remove the heat exchanger		Remove the TC sensor in advance

Category	Repair part	Step (Sequence)		Points for attention
		AB092FEAIA AB122FEAIA AB142FEAIA AB162FEAIA	AB182FEAIA AB242FEAIA AB282FEAIA AB322FEAIA	
	Electronic control expanding valve coil	*1 Remove the fixing plate for refrigerant pipe 3. Remove the electronic expanding valve		1. Remove the electronic expanding valve coil with double-head wrench, do not tighten the expanding valve excessively 2. Remove the fixing nut for electronic expanding valve 3. Once the coil is removed, it should not be used again (otherwise the expanding valve may be damaged)
	Pressure sensor	*1. Remove the cover of refrigerant pipe and fixing plate 2. Remove the water tray 3. Remove the evaporator 4. Remove the pressure sensor having fault with welding method, and weld the new pressure sensor to the original position		Avoid welding block and through penetration

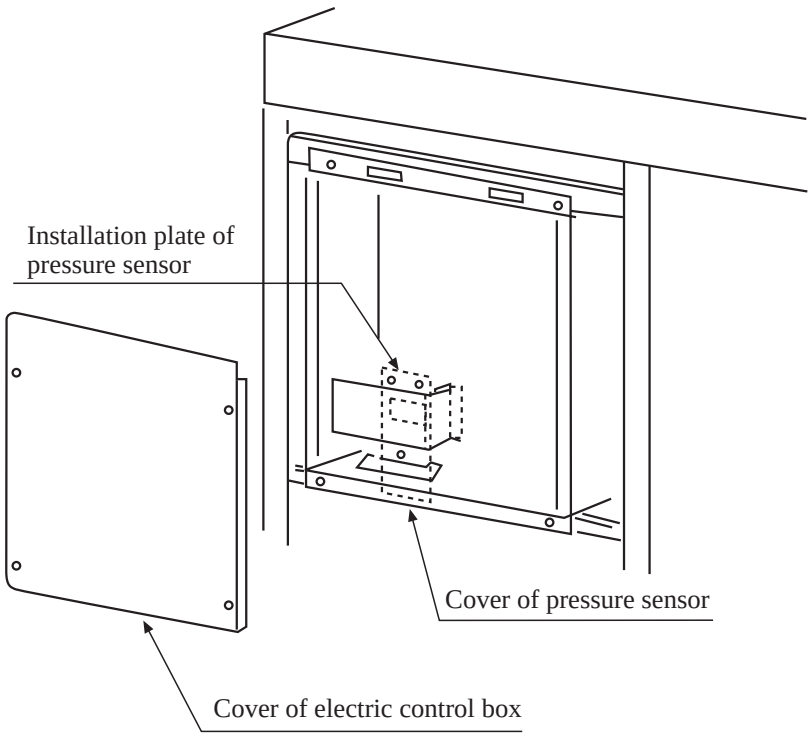
Main body

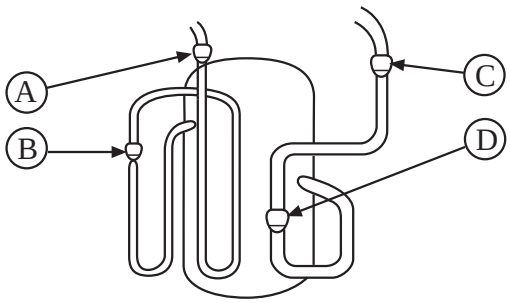
Item	Method	Key point
The parts can be repaired without removing the top panel. Remove the air inlet grill and filter screen, conduct operation from the air inlet.		Please record the original state before decomposing. The drainage pump can beinspected without When removingthe drainage pu and hose must be resumed their original state and fixed. The microcom-puter PCB for repair is the series universal part. But when operating its rotary speed must be consistent with that of the fan.

Ceiling

Item	Method	Key point
Repair of lifting grill		Please record thestate of thea When replacingthe cam, pleasea
Repair ofsingle grill	 1. Remove the screw for fixing horizontal grill to make the grill in horizontal 2. Remove the fixing screw fixed around the grill. 3. Remove the grill.	state.
Method ofeliminatingmud	1. The flocked cloth for the grill should be cleaned with neutral detergent,	and resume its original state after c

b. Outdoor unit

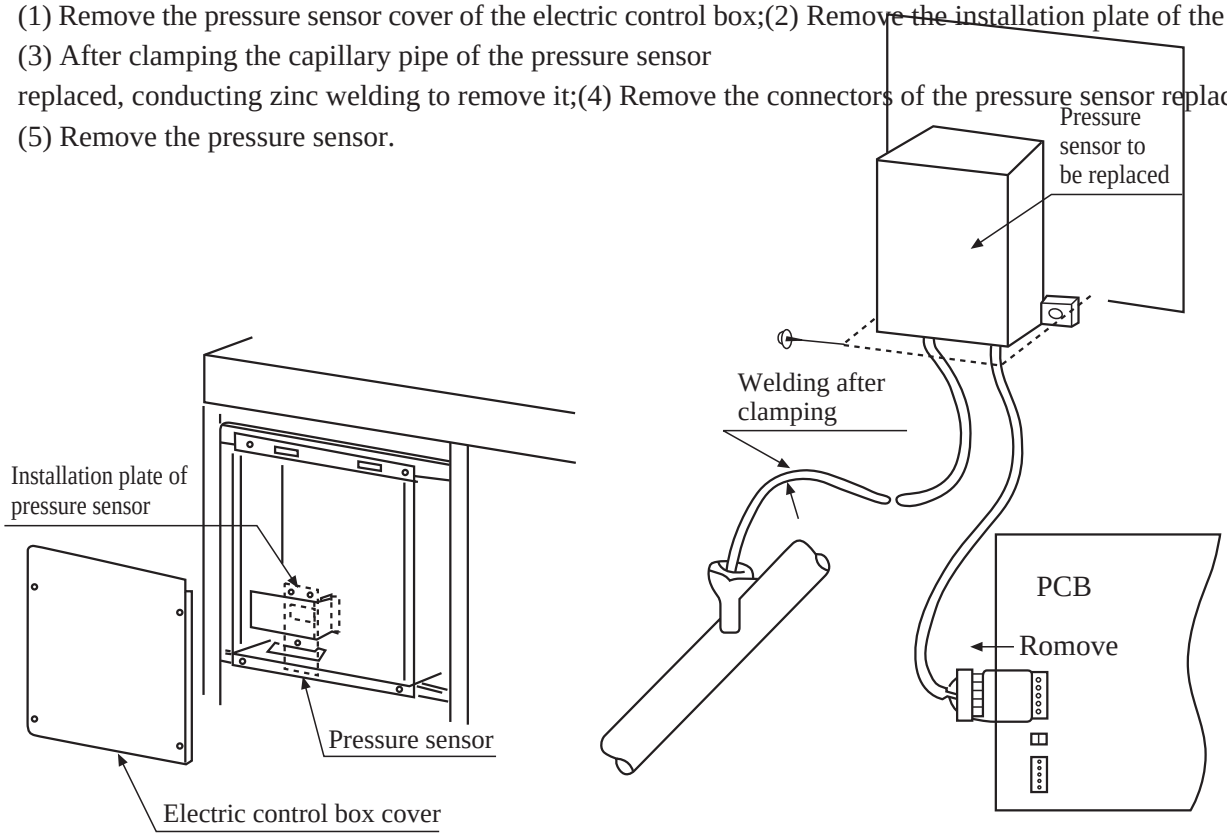
a. Replacing and inspection of electrical parts	(1) Remove the front panel; (M6 x 4, M4 x 1);(2) Remove the cover of electric control b (4) Remove the installation plate of pressure sensor; (5) Remove the whole wiring in the electric control box; Temperature sensor, press 
b. Replacing of Shaft airflow fan motor	(1) Remove the protecting wire net (M 4 x 2);(2) Release the fixing screw for the fan w

c. Replacing of compressor	(1)Remove the front panel (M6 x 4, M4 x1); (2)Recover the refrigerant; (3)Remove the electric control box;(4)Remove the exhaust temperature sensor (8 pieces), suction t  (6) Remove the coil box of reactor, reactor coil (M4 x 8); (7) Remove the sound insulation box; (8) Remove the sound insulation material;(9) Pull it out from the welding part of outlet pipe and suc (11) Pull out the compressor(M8 x 3); (12) Remove the connecting leading wire on the terminal of the compressor; (13) Replace the compressor, when replacing, first connect the leading wire on the terminal of the compressor; (14) When reinstalling, conduct it with the reverse sequence of removing the compressor.
d. Replace liquid separator	(1) Remove the front panel (M6x4, M4 x1); (2) Release the refrigerant; (3) Remove the electric control box; (4) Remove the refrigerant pipe installed on the liquid reservoir; (5) Remove the screw for fixing the liquid reservoir(M6 x 1); (6) Replace the liquid reservoir.
e. Replace liquid pot	(1) Remove the front panel (M6x4, M4x1); (2) Remove the electric control box; (3) Remove the refrigerant pipe installed on the liquid pot; (4) Remove the screw for fixing the liquid pot; (5) Replace the liquid pot.
f. Replace the oil separator (only AU55NFUAHA)	(1) Remove the front panel (M6x4, M4x1); (2) Remove the electric control box; (3) Remove the refrigerant pipe on the oil separator (4) Remove the screw for fixing the oil separator; (5) Replace the oil separator.
g. Replace heat exchanger	(1) Remove the front panel (M 6x4, M4 x1); (2) Release the refrigerant; (3) pull out the heat exchanger to be replaced from the heat exchanger connected;(4) Remove the c

Replacing of pressure sensor

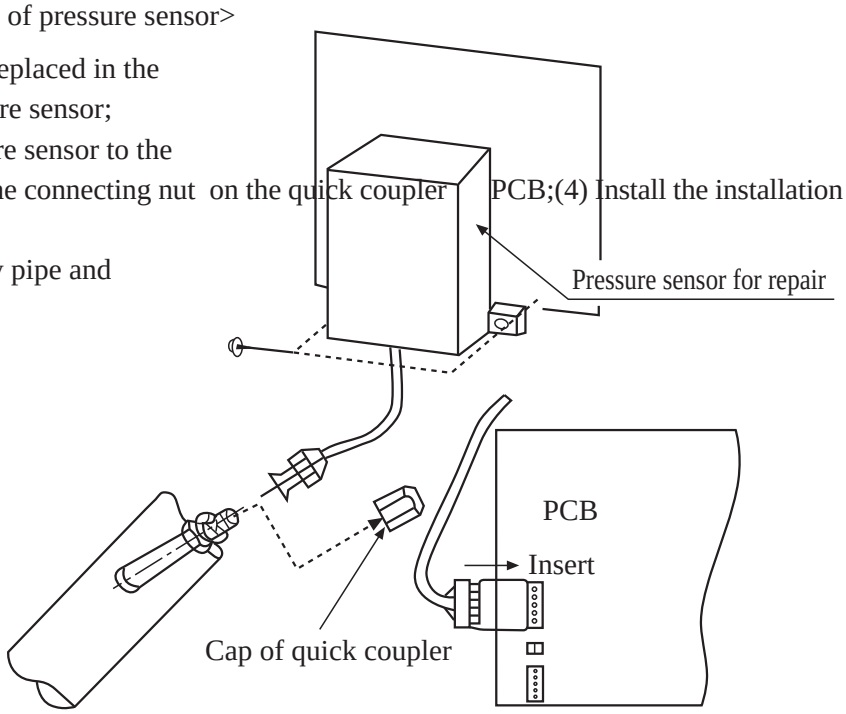
<Decoration method of pressure sensor>

(1) Remove the pressure sensor cover of the electric control box;(2) Remove the installation plate of the pressure senso
(3) After clamping the capillary pipe of the pressure sensor
replaced, conducting zinc welding to remove it;(4) Remove the connectors of the pressure sensor replaced from co
(5) Remove the pressure sensor.



<Replacing and installing method of pressure sensor>

(1) Fix the pressure sensor to be replaced in the installation plate of the pressure sensor;
(2) Fix the leading wire of pressure sensor to the computer board;(3) Replace the connecting nut on the quick coupler PCB;(4) Install the installation plate of the pressure sensor cover;
(5) Conduct treatment of capillary pipe and wiring.



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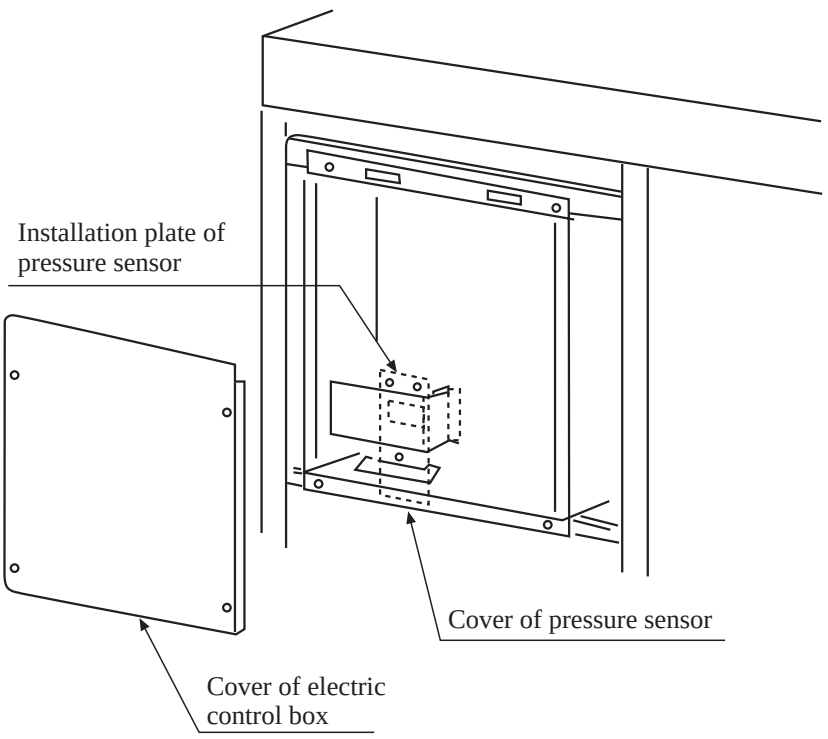
1. Replacing and inspection of electrical part	(1) Remove the front panel (m6x4, M4x1); (2) Remove the electric control cover (M4 x 4); <Inspection> (3) Remove the pressure sensor cover (M4 x1); (4) Remove the installation plate of the pressure sensor (M4 x 3);(5) Remove the whole (6) Remove the electric control box (M4 x 4). <lifting out after pushing> 
2. Replacing of shaft airflow fan and fan motor	(1) Remove the protecting wire net (M 4 x 2, two portions);(2) Release the fixing screw f

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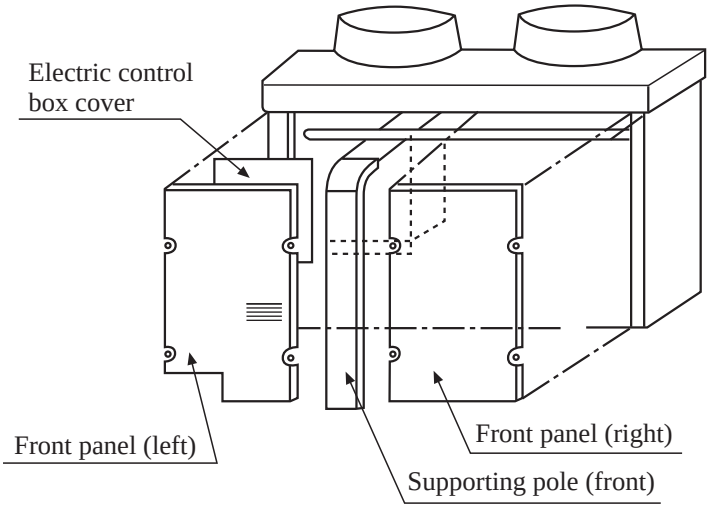
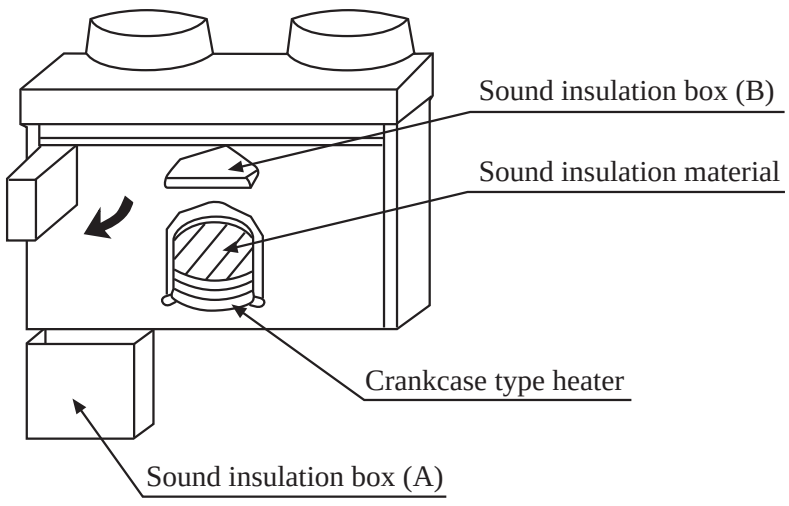
3. Replacing of compressor	(1) Remove the left, right front panel (M6 x 4, M4 x1);(2) When the system pressure of re (3) Remove the electric control box; (4) Remove the front supporting pole (front) (M9x9, M4x1);  (5) Remove the reactor coil box and reactor coil (M4x8); (6) Remove the sound insulation box (A) (M4x7); Remove the sound insulation box (B) (M4x4); (7) Remove the sound insulation material and crankcase type heater;  (8) Remove the pressure sensor on the lower row (left, right two portions), remove the drainage pipe.

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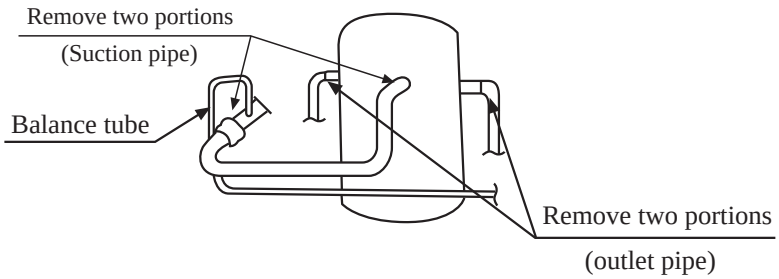
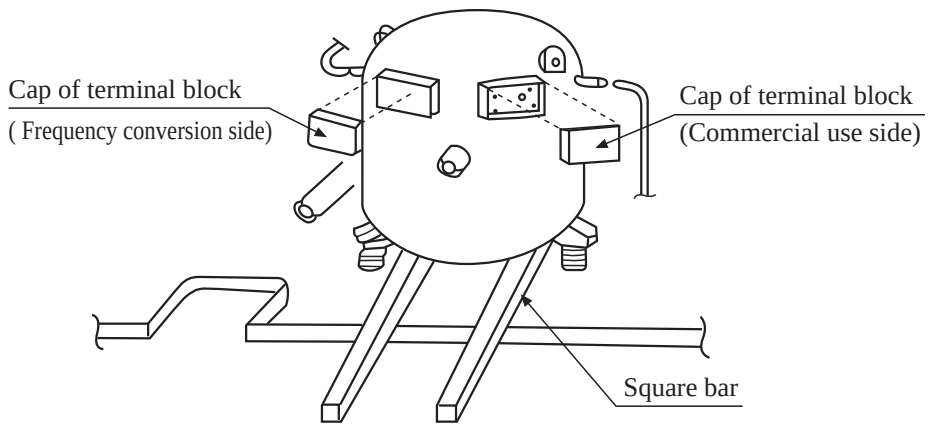
	(9) Remove the suction temperature sensor on the suction pipe side (1) , remove the suction pipe;  (10) Remove the balance tube on the suction pipe; (11) Remove the fixing nut for compressor (M10x3);  (12) Remove the connecting leading wire on the terminal of the compressor;(13) Insert the squar (14) Pull it to the front by using the hook ring to vibrate left and right; (15) Replace the compressor;(16) When reinstalling, conduct it with the reverse sequence of
4. Replacing of liquid reservoir	(1) Remove the front panel (M 6x4, M4 x1); (2) Release the refrigerant;(3) Pull out the heat exchanger to be replaced from the heat exchanger (5) Remove the heat exchanger left, right (M4x8, 2 portions).

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