TOYOTOMI

SERVICE MANUAL

ROOM AIR CONDITIONER

TAN/TAG-A53HW

TAN/TAG-A70HW

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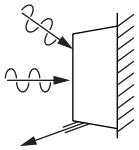
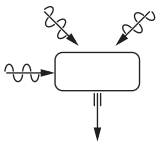
TAN/TAG-A53GW

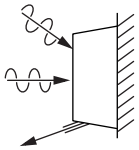
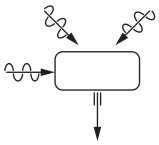
		Unit	INDOOR	OUTDOOR
			TAN-A53HW	TAG-A53HW
Cooling Capacity		BTU/h	16,900	–
Heating Capacity		BTU/h	20,500	–
Moisture Removal		L/h	3.1	–
Power source		phase	Single	
		V	230	
		Hz	50	
Airflow Method		OUTLET INTAKE	SIDE VIEW 	TOP VIEW 
Air circulation (at High)		m^3/min	Cooling ; 12.0 Heating ; 12.0	–
Electrical Data	Input	W	Cooling ; 1,760 Heating ; 1,665	–
	Running Current	A	Cooling ; 8.1 Heating ; 7.7	–
	Starting Current	A	29.0	–
Piping Connection Port (Flare piping)		inch	L ; Half Union 1/4"	L ; 2-way valve 1/4"
		inch	G ; Half Union 1/2"	G ; 3-way valve 1/2"
Pipe Size (Flare piping)		inch	L (liquid side) ; 1/4"	L (liquid side) ; 1/4"
		inch	G (gas side) ; 1/2"	G (gas side) ; 1/2"
Drain hose	Inner diameter	mm	14	–
	Length	m	0.6	–
Power Cord	Length	m	1.4	–
	Number of core-wire		core-wire/ 2 mm^2	–
Dimensions	Height	mm	297	642
	Width	mm	799	780
	Depth	mm	210	245
Net Weight		kg	9.1	44

SPECIFICATION

		Unit	INDOOR	OUTDOOR
			TAN-A53HW	TAG-A53HW
Air Circulation	Type		Cross-flow Fan	Propeller Fan
	Motor Type		DC brushless (8-pole)	Induction (6-pole)
	Rated Output	W	30	38
Heat Exchanger			Plate fin configuration,forced draft	
			21.2FPI	19.5 FPI
Refrigerant Control Device			–	Capilary Tube
Refrigerant (R410 A)		g (oz)	–	1,460(51.5)
Thermostat			Electronic Control	–
Protection Device			–	OLR(INNER)
Timer			Real time dual ON/OFF 7-hour OFF	–
Air Filter			Mold-proof	–
Parts Provided			1 Mounting plate 2 Remote controller 3 Battery (2 pcs.) 4 Remote controller holder 5 Screw cap (2 pcs.) 6 Drain elbow	

★ Specifications are subject to change without notice.

TAN/TAG-A70GW

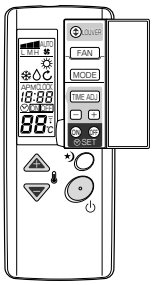
		Unit	INDOOR	OUTDOOR
			TAN-A70HW	TAG-A70HW
Cooling Capacity		BTU/h	22,000	–
Heating Capacity		BTU/h	24,500	–
Moisture Removal		L/h	4.4	–
Power source		phase	Single	
		V	230	
		Hz	50	
Airflow Method		OUTLET / INTAKE	SIDE VIEW 	TOP VIEW 
Air circulation (at High)		m^3/min	Cooling ; 14.0 Heating ; 15.0	–
Electrical Data	Input	W	Cooling ; 2,290 Heating ; 2,240	–
	Running Current	A	Cooling ; 10.1 Heating ; 9.9	–
	Starting Current	A	54.0	–
Piping Connection Port (Flare piping)		inch	L ; Half Union 1/4"	L ; 2-way valve 1/4"
		inch	G ; Half Union 5/8"	G ; 3-way valve 5/8"
Pipe Size (Flare piping)		inch	L (liquid side) ; 1/4"	L (liquid side) ; 1/4"
		inch	G (gas side) ; 5/8"	G (gas side) ; 5/8"
Drain hose	Inner diameter	mm	14	–
	Length	m	0.6	–
Power Cord	Length	m	1.4	–
	Number of core-wire		core-wire/ 2 mm^2	–
Dimensions	Height	mm	295	643
	Width	mm	799	850
	Depth	mm	210	330
Net Weight		kg	9.1	59

SPECIFICATION

		Unit	INDOOR	OUTDOOR
			TAN-A70HW	TAG-A70HW
Air Circulation	Type		Cross-flow Fan	Propeller Fan
	Motor Type		DC brushless (8-pole)	Induction (6-pole)
	Rated Output	W	30	100
Heat Exchanger			Plate fin configuration,forced draft	
			21.2FPI	18.1FPI
Refrigerant Control Device			–	Capillary Tube
Refrigerant (R410A)		g (oz)	–	1,700(60.0)
Thermostat			Electronic Control	–
Protection Device			–	OLR(INNER)
Timer			Real time dual ON/OFF 7-hour OFF	–
Air Filter			Mold-proof	–
Parts Provided			1 Mounting plate 2 Remote controller 3 Battery (2 pcs.) 4 Remote controller holder 5 Screw cap (2 pcs.) 6 Drain elbow	

★ Specifications are subject to change without notice.

REMOTE-CONTROL TRANSMITTER



ON/OFF

Operation mode selection
AUTOMATIC
COOL
DRY
HEAT
CIRCULATER

Air flow selection
AUTOMATIC
HIGH
MEDIUM
LOW

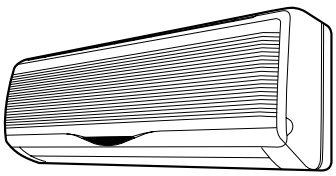
Room temperature setting
16℃ ～ 30℃

Timer operation selection
CONTINUOUS operation
OFF
ON
Sleep

Timer / time setting
Operation stops at the set time(OFF timer)
Operation starts at the set time(ON timer)
0.5 ～ 7.0hours(Sleep timer)

Air flow direction control
Auto angle selection
Auto swing mode
Manual mode

INDOOR UNIT



Sensing the room temperature
Room temperature sensor (thermistor)

Time delay safety control
Restarting is inhibited for approximately 3 minutes.

Indoor fan speed control
High, Med, Low

Operation indication lamps (LED)
(GREEN)..... Light up in operation
(YELLOW) .... Timer in operation
(GREEN)..... Outdoor unit operate

Dry operation mode
Intermittent operation of fan at low speed.

Room temperature control
Maintains the room temperature in accordance with the setting temperature.

Deice (defrost) control
Deicing operation automatically starts when the heating efficiency is declined by the ice formed in the outdoor unit.
After deicing operation, heating operation automatically starts with “Hot start function.”

OUTDOOR UNIT

Hot-start control (heating)

The indoor fan stops until the evaporator piping temperature will be reached.

Overload protection

Anti-freezing control for the evaporator

Compressor will be stopped when the evapolator's piping temperature is below 2℃ for one minute.
Compressor will be restarted when the evaporator's piping temperature is above 2℃.

Airflow direction control

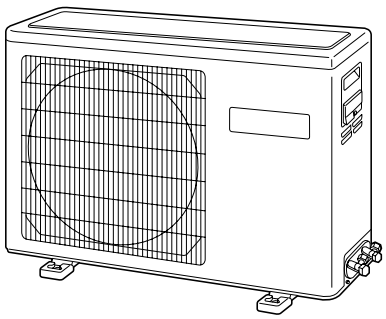
Automatic airflow direction control
The louver automatically swings up and down (cooling, dry)...horizontal and 30° downward.
The louver is set at 60° downward during heating operation.
The louver is set as horizontal when the fan is stopped.
Airflow direction manual control.
Can be set within a range at horizontal to 60° downward.

Auto recovery function

If there is any power failure during operation, operation status before power failure is memorized.
3 ～ 4 minutes after power recovery, the unit restarts automatically with previous operation status memorized.
(3 ～ 4 minutes is protective time for compressor.)

Attention

Because of Auto Recovery Function, if shutting off the power supply during operation, the unit may restart irrespective your intention when turning on the power supply next time.
If the unit is not to be used for a long time, shut off the power supply after terminating all operation with remote controller.



Compressor overload protector

When overheating of the compressor is detected, inner protector stops the operation of the compressor.
When high current supplied to the compressor is detected, the main controller stops the operaiton of outdoor unit including compressor

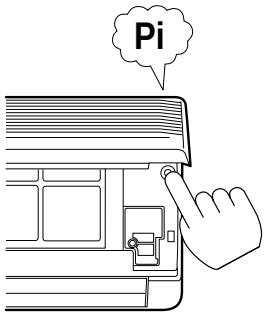
3 min. forced operation control

Once the compressor is activated, it does not stop for 3 minutes.
In case of termination of this operation, push the ON/OFF button on remote controller.

EMERGENCY AND TEST OPERATION

Emergency Operation

- Use this operation only when the remote controller is out of order or lost.
- When the emergency operation switch is pressed, the “Pi” sound starts once, which means the start of this operation.
- In this operation, the system automatically selects the operation modes, cooling (or heating when available) according to the room temperature, as follows.



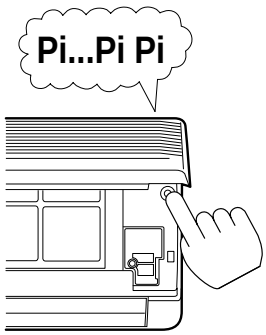
Temperature	Operation mode	Designated temperature	Timer mode	Air flow
ABOVE 23℃	COOLING	26℃	CONTINUOUS	AUTOMATIC
BELOW 23℃	HEATING	23℃	CONTINUOUS	AUTOMATIC

- It is not possible to operate in dry mode.

Test Operation

Test operation switch is same as emergency one.

- Use this operation only for testing the performance of the machine in the condition where the room temperature is less than 16℃.
- Continue to press the test operation switch for more than 5 seconds. After you hear the “Pi” sound twice, release your finger from the switch: the cooling operation starts with the air flow speed “HI.”
- If the test operation switch is pressed more than 10 seconds, it doesn’t work.
- After 30 minutes, test operation ends automatically.



HOW TO RELEASE EMERGENCY AND TEST OPERATION

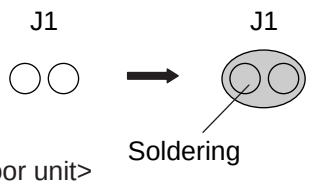
- In case of releasing during those operations, you can either push emergency operation switch once more or apply operation using remote control.

  You will hear a beep sound and emergency/ test operation is released.
- If you release the operation by remote control, operation will continue as setting of the remote control automatically.

INTERFERENCE PREVENTION OF SIGNALS FROM THE REMOTE CONTROLLER

When two indoor units used in the same room, interference of the signals may happen. To avoid this, alternative signal model B can be selected by the following. (Ex-factory setting is mode A)

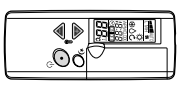
- Remote controller side : Have “J1” on the PC board short-circuited by soldering.
- Indoor unit side : Cut “R10” on the PC board.



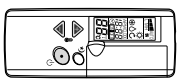
(Each Operations Details)

<Remote control unit>

Ex-factory setting (Mode A)

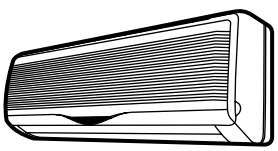


Have "J1"on the PC board short-circuited by soldering (Mode B)

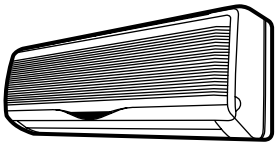


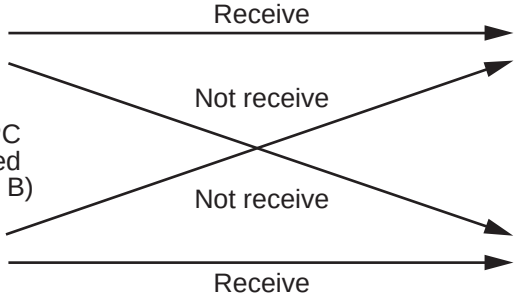
<Indoor unit>

Ex-factory setting (Mode A)



Cut R10 on the PC board (Mode B)





TIMER OPERATION

ON Timer operation

- Press the ON/OFF switch.
- Set the “ON Time” : Press the “TIME ADJ” button twice.
  Adjust the time with the “⊞, ⊟” button.
  Press the “TIME ADJ” button twice.The setting of “ON Time” is complete and the present time appears on the LCD.
- Set the “ON Timer” : Press the Timer fixing button “ON”.

OFF Timer operation

- Press the ON/OFF switch.
- Set the “OFF Time” : Press the “TIME ADJ” button 3 times.
  Adjust the time with the “⊞, ⊟” button.
  Press the “TIME ADJ” button once.The setting of “OFF Time” is complete and the present time appears on the LCD.
- Set the “OFF Timer” : Press the Timer fixing button “OFF”.

Sleep Timer operation

- Press the “SLEEP” button during the operation.
- Set the operating period by pressing the “SLEEP” button until the period appears on the LCD.

Timer Cancellation

- ON/OFF Timer : Press the Timer fixing button “ON”(On Timer) and/or “OFF”(Off Timer) once again.
- Sleep Timer : Press the “SLEEP” button until the operating period on the LCD disappears.

AIRFLOW DIRECTION CONTROL

Vertical adjustment

When ON/OFF switch is pressed, the vertical louver will move to the adequate positions for each operation automatically.

Swing of air flow

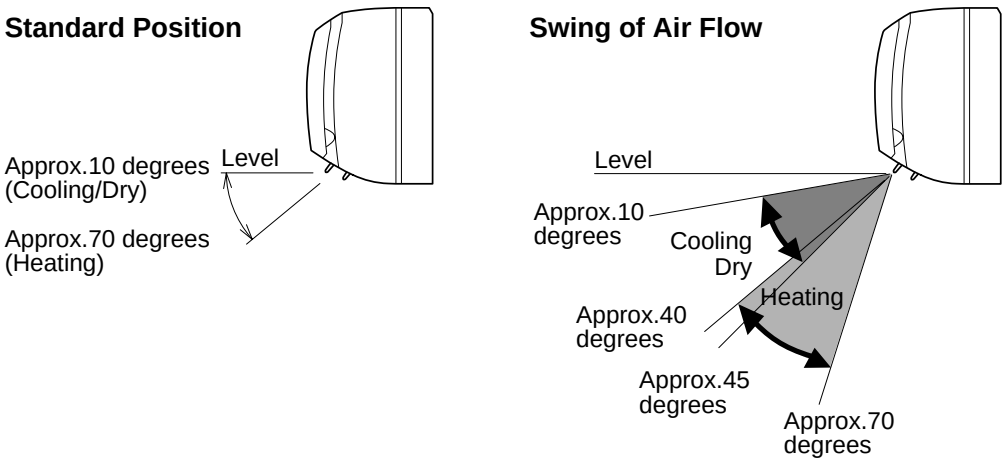
If air flow direction switch is pressed once, the vertical louver will move within the range of figures.

Fixing the flow direction

If air flow direction switch is pressed again, the vertical louver will be fixed and that position is memorized. From the next operation the louver will be set at previous position automatically.

Notes :

- In Swing Mode, the louver automatically moves up and down within the certain range, as the illustration below.
- There is two different ranges of louver swinging; one is of cooling & dry mode operation and the other is of heating operation.

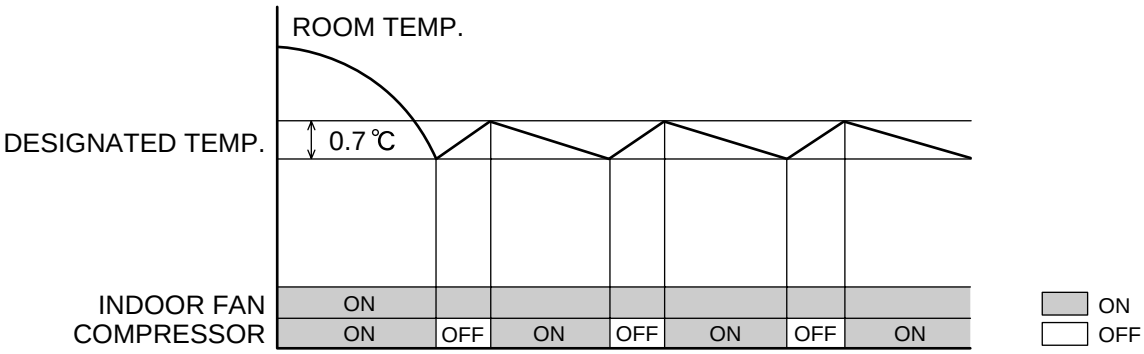


TIME DELAY SAFETY CONTROL FUNCTION - FOR PROTECTION OF COMPRESSOR

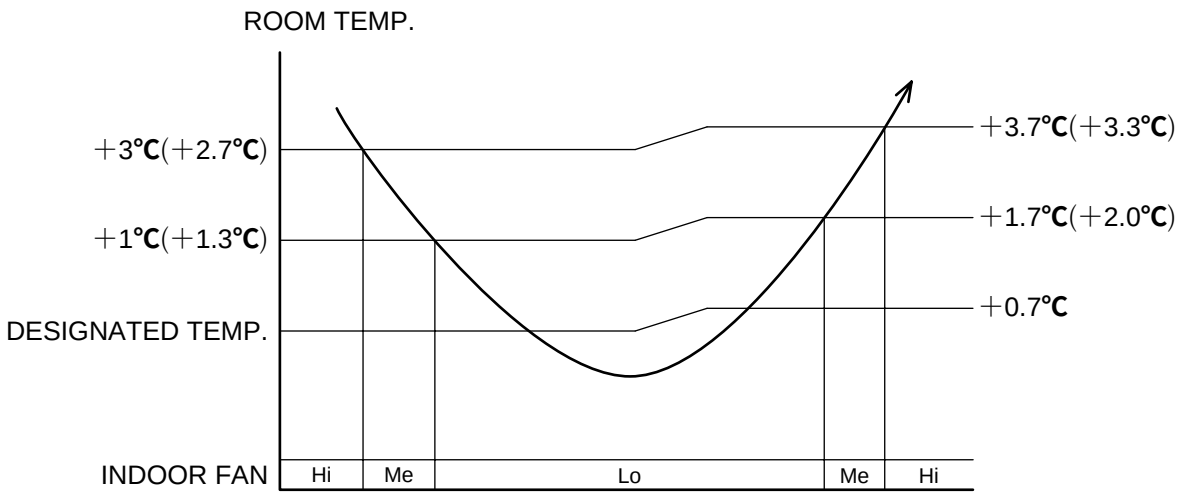
- Compressor will not restart, in any operation modes, for 3 minutes after its stop.
- Compressor does not stop during the first 3 minutes of its operation even if the room temperature reaches to the designated temperature, except changing setting temperature.

COOLING MODE OPERATION

- Compressor stops when the room temperature is cooled down to the designated temperature.
- Compressor restarts when room temperature is raised to +0.7℃ higher than the designated temperature.

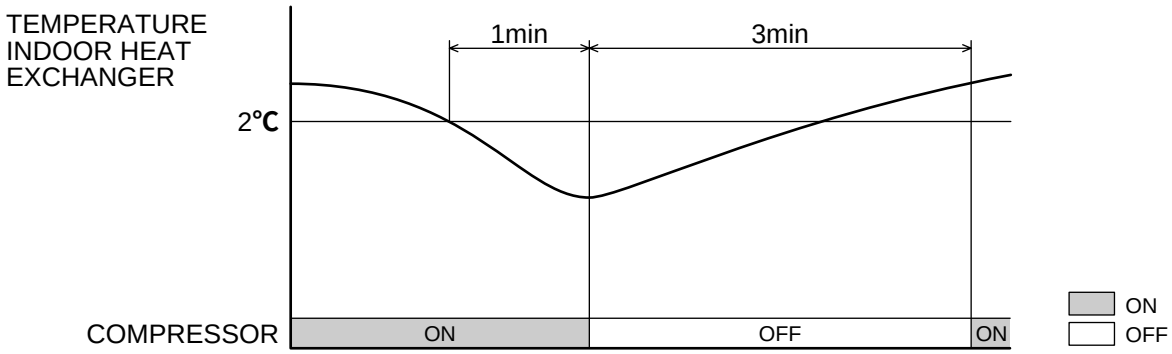


- Fan speed control when “Auto” is selected in fan mode
  When “Auto” is selected,the fan speed is automatically controlled according to the difference between the room and designated temperatures.



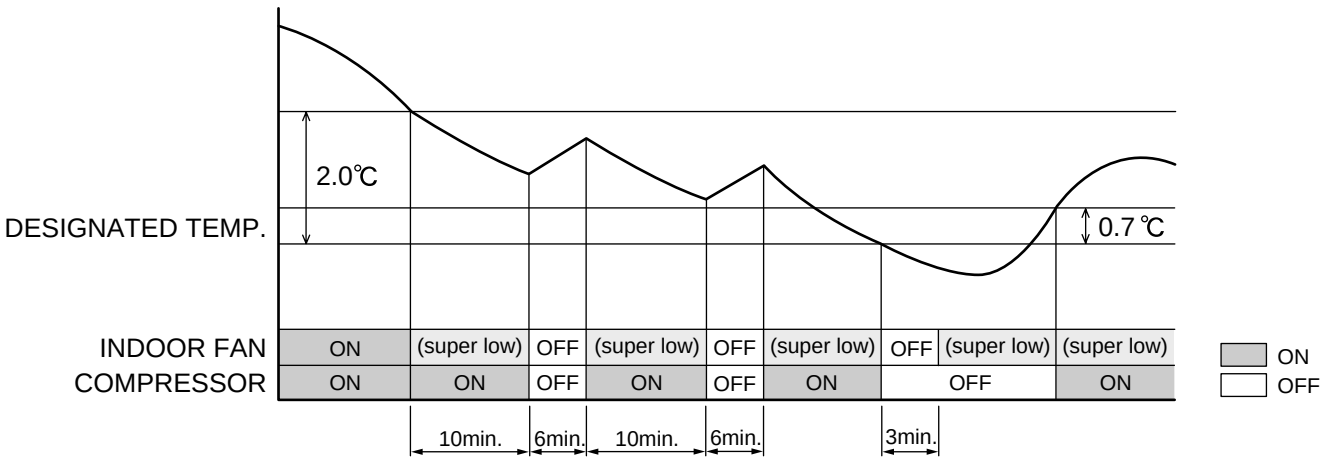
• Method of anti-freezing control of heat-exchanger(indoor)

When the sensor(heat-exchanger) detects the temperature below 2℃ for the duration of one minute,the compressor stops the operation.
After that,the compressor will automatically resume the operation
when the sensor(heat-exchanger) detects the temperature 2℃ and above.



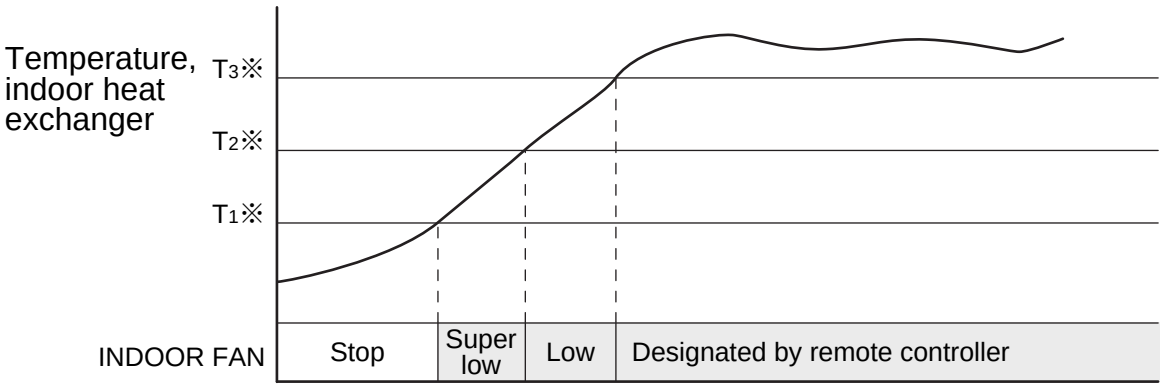
DRY MODE OPERATION

1. When the room temperature is +2℃ (or more) higher than designated temperature, compressor and indoor fan operate.
2. When the room temperature has been cooled to the temperature +2℃ higher than the designated, the compressor and indoor fan start intermittent operation, ON (for 10 min.) and OFF (for 6 min.) by turns. The air flow speed of indoor fan is super low.
3. When the room temperature is cooled to designated temperature, compressor and indoor fan stop. The indoor fan restarts at the air flow speed of super low, after 3 minutes the compressor stops.
4. When the room temperature is raised to +0.7℃ higher than the designated temperature, the intermittent operation above #2 starts.
5. When operating in #2 above, if the room temperature becomes +2.7℃ higher than the designated, the operation #1 above starts.



HEATING MODE OPERATION

- When room temperature is raised to +4℃ higher than the designated temperature, compressor stops.
- When room temperature gets less than +3.3℃ higher than the designated temperature, compressor turns on.
- At the start of heating operation, if the room temperature is less than +10℃, additional +1℃ is set to the temperature designated by the remote controller. (Canceled when the compressor first stops.)
- Hot Start Function
  To prevent the unpleasant cold air to flow, the air flow speed is determined as shown below according to the temperature of the indoor heat exchanger.



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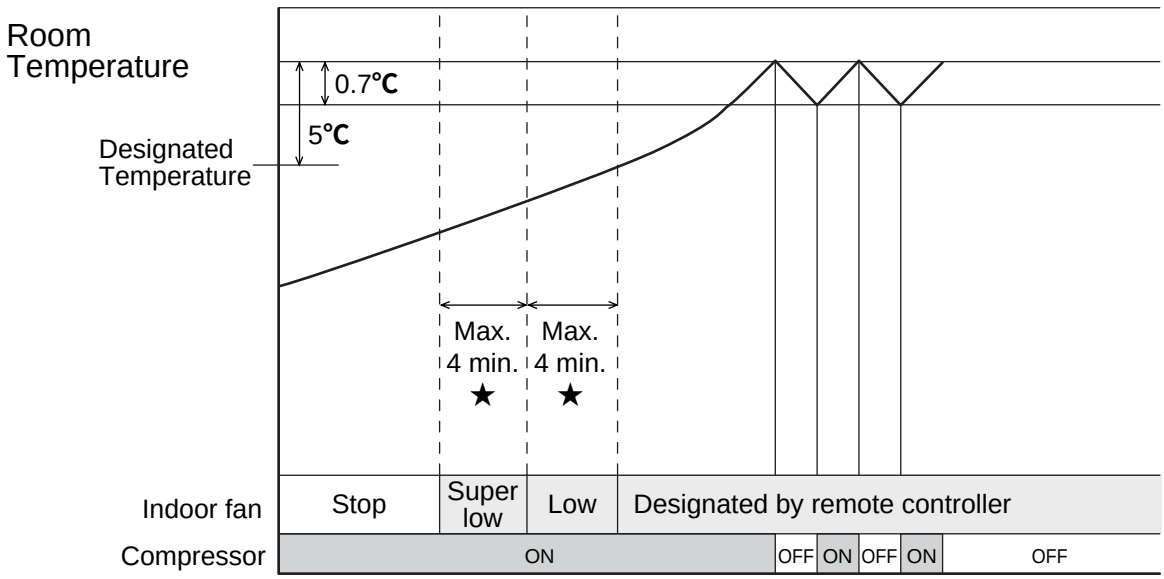
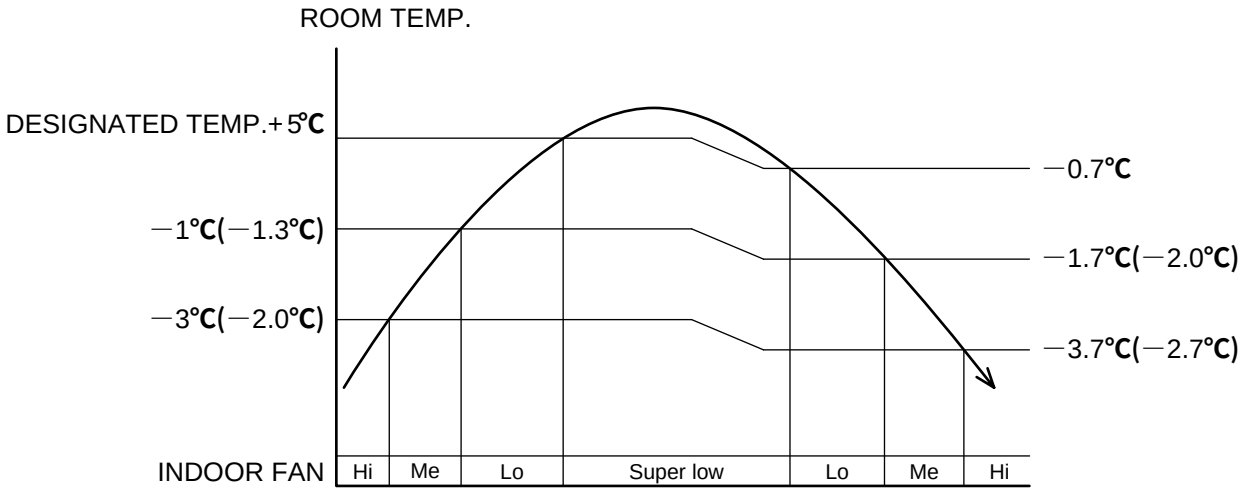
	T1	T2	T3
TAN/TAG-A53EW	22℃	33℃	38℃
TAN/TAG-A70EW	23℃	35℃	40℃



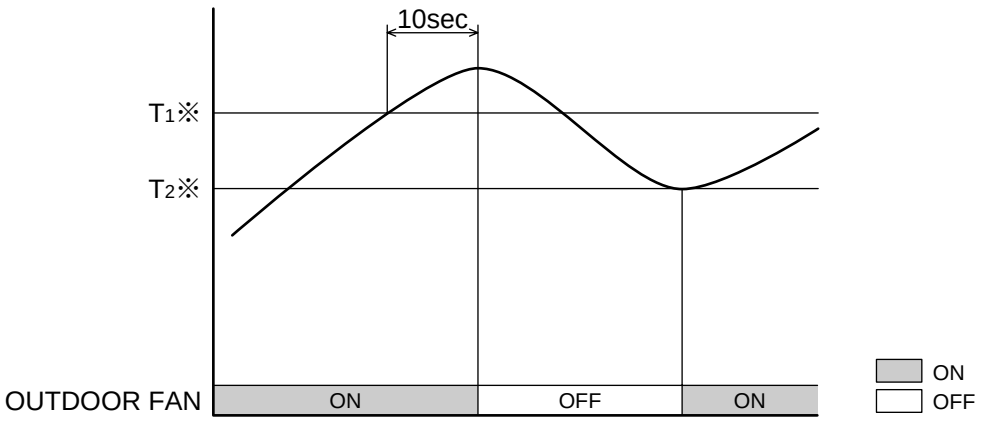
★ : In maximum 4 minutes,the operation proceed to the next steps when the heat exchanger is not warmed up to the reference temperature shown above.

ON
OFF

- Fan speed control when “Auto” is selected in fan mode
  When “Auto” is selected,the fan speed is automatically controlled according to the difference between the room and designated temp.+4℃.



- Method of overload control by checking the temperature of heat-exchanger(indoor)



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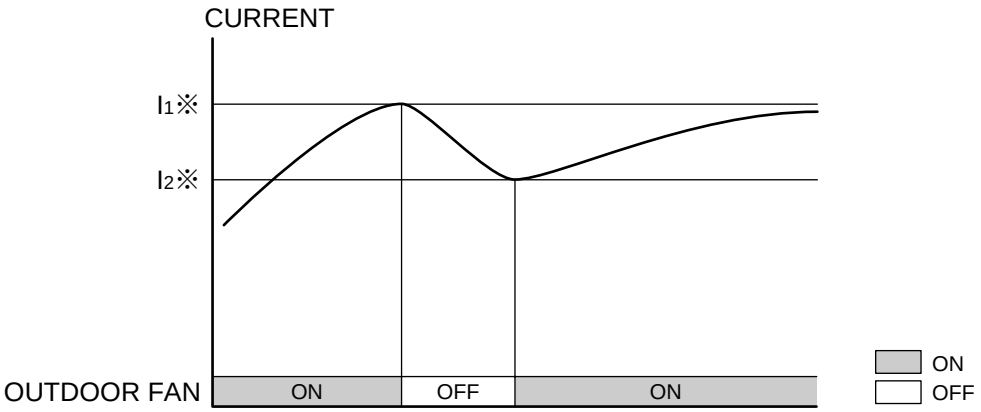
	T1	T2
TAN/TAG-A53GW	54℃	52℃
TAN/TAG-A70GW	54℃	52℃

- Method of overload control by checking the operating current



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	I_1	I_2
TAN/TAG-A53GW	7.6A	8.0A
TAN/TAG-A70GW	11.1A	10.8A

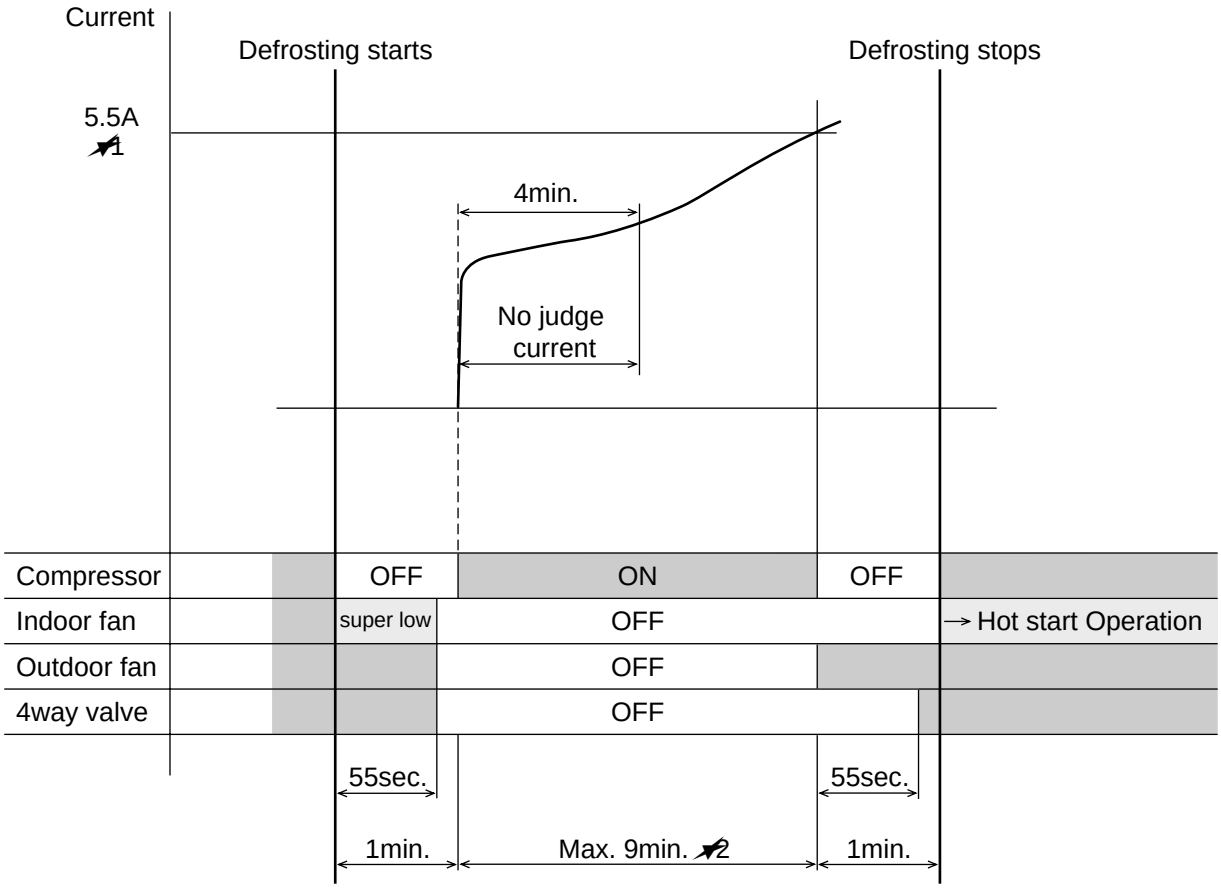
DEFROSTING OPERATION

- Defrosting operation is controlled by room temperature, temperature of indoor heat exchanger and timer switch.
- Defrosting operation start when

(a) 50 minutes pass after the start of heating operation or after the completion of previous defrosting operation, and while compressor is running, the temperature of indoor heat exchanger falls below "room temperature + 14℃". Condition(a)

or

(b) accumulated time for the stop of outdoor fan, which is for the protection of compressor from excess current or for the prevention of overheating of indoor heat exchanger, exceeds 90 minutes after the start of heating operation or after the completion of previous defrosting operation. Condition(b)



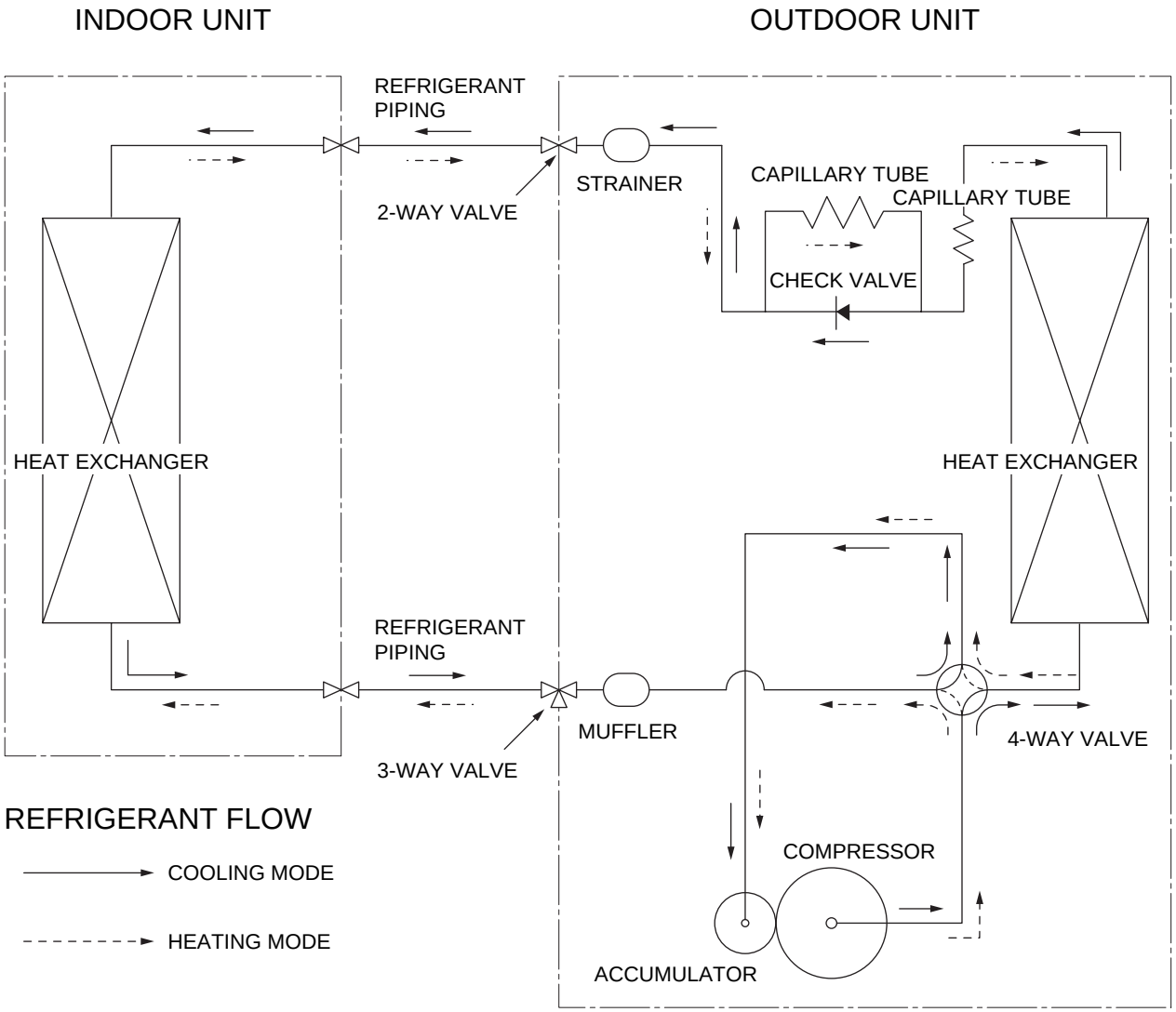
★ : 1.

	Condition(a)	Condition(b)
TAN/TAG-A53GW	6.7A	5.6A
TAN/TAG-A70GW	7.5A	6.5A

★: 2. Defrosting operation is called off after 9 minutes at maximum, even if the current value does not reach to the above.

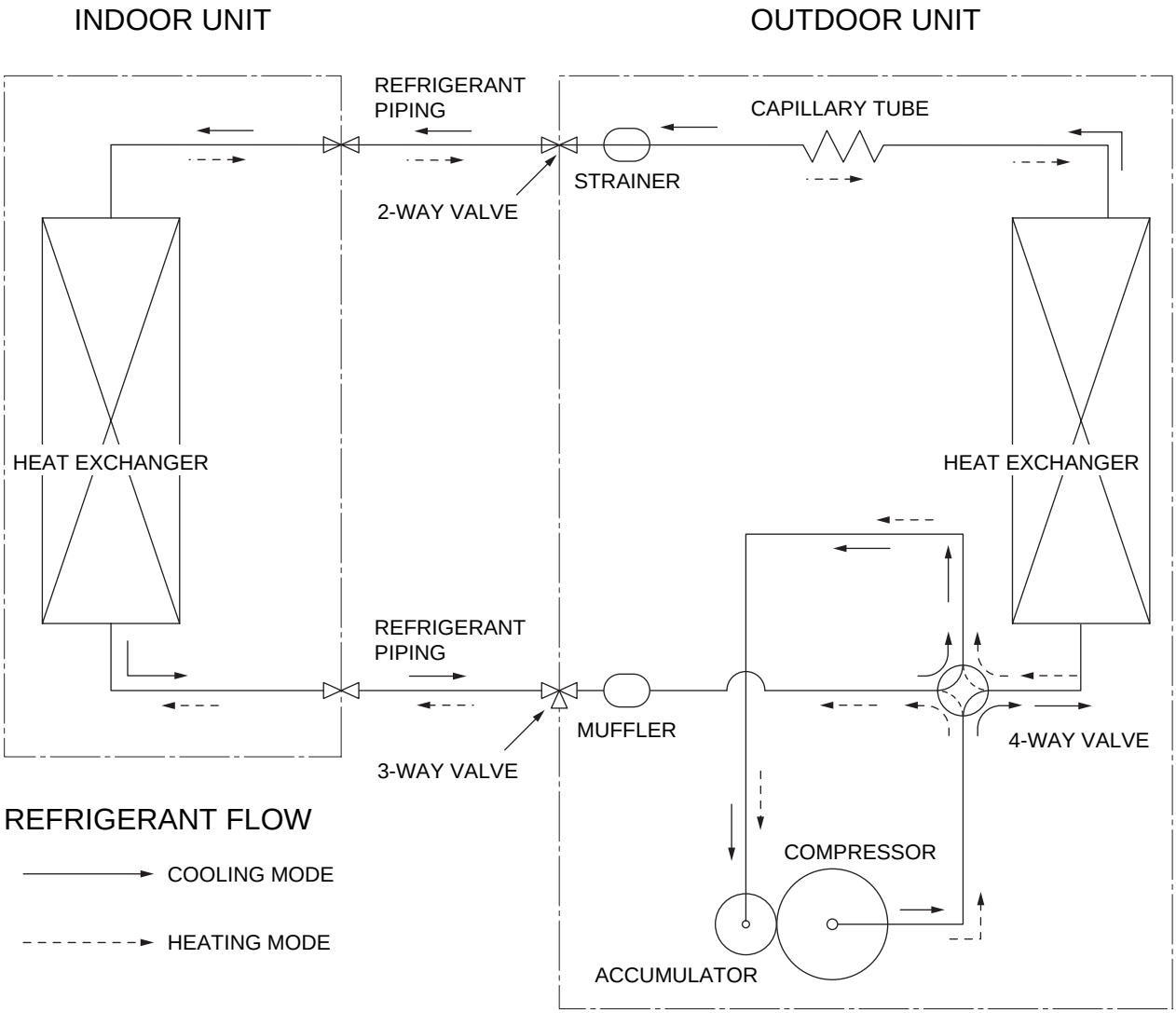
TAN/TAG-A53HW

REFRIGERATION CYCLE DIAGRAM



TAN/TAG-A70HW

REFRIGERATION CYCLE DIAGRAM



FOR YOUR SAFETY USE

TAN : indoor unit TAG : outdoor unit

●For the safety and proper use and handling of the product, please read and follow the instructions carefully.

●The meaning of the marks below are as follows.

⚠ Danger	Improper use will cause the significant risk of death or serious injury of the user.
⚠ Warning	Improper use may cause the risk of death or serious injury of the user.

●Please refer the marks below.

⚠	Caution	⚠	High Voltage		Off the Plug	⊘	Prohibited
❗	Strict enforcement	⏚	Connect the earthing cable	♨	High Temperatare		

⚠ Danger

Check Point	● Be sure to off the plug when servicing. It may cause the risk of electric shock.	
	● If leakage of refrigerant occur in the installation, ventilate a room. If the leaked refrigerant is exposed fire, poisonous gas may be generated.	
	● Boosting capacitor make the control box assembly (TAG unit) high voltage. Make the capacitor discharge enough when servicing. Otherwise will be struck by electricity.	
	● **Never remodel appliance.** Use designated parts or accessories to avoid accidents.	
	● In case of gas leakage, not only refill the required amount of the refrigerant gas but also find out the gas leakage point and mend it. If the service work has to be suspended before mending the leakage points, be sure to collect the refrigerant gas in the outdoor unit by using pump then fasten the service ports to avoid any further leakage. Poisonous gas may be generated when the leaked refrigerant is exposed to fire.	
	● Clean the pins of the plug and insert the plug completely into the outlet.	
	● Be sure to change the cable if it is damaged. Do not use damaged cable.	
	● Do not use power supply cord extended or connected in halfway.	

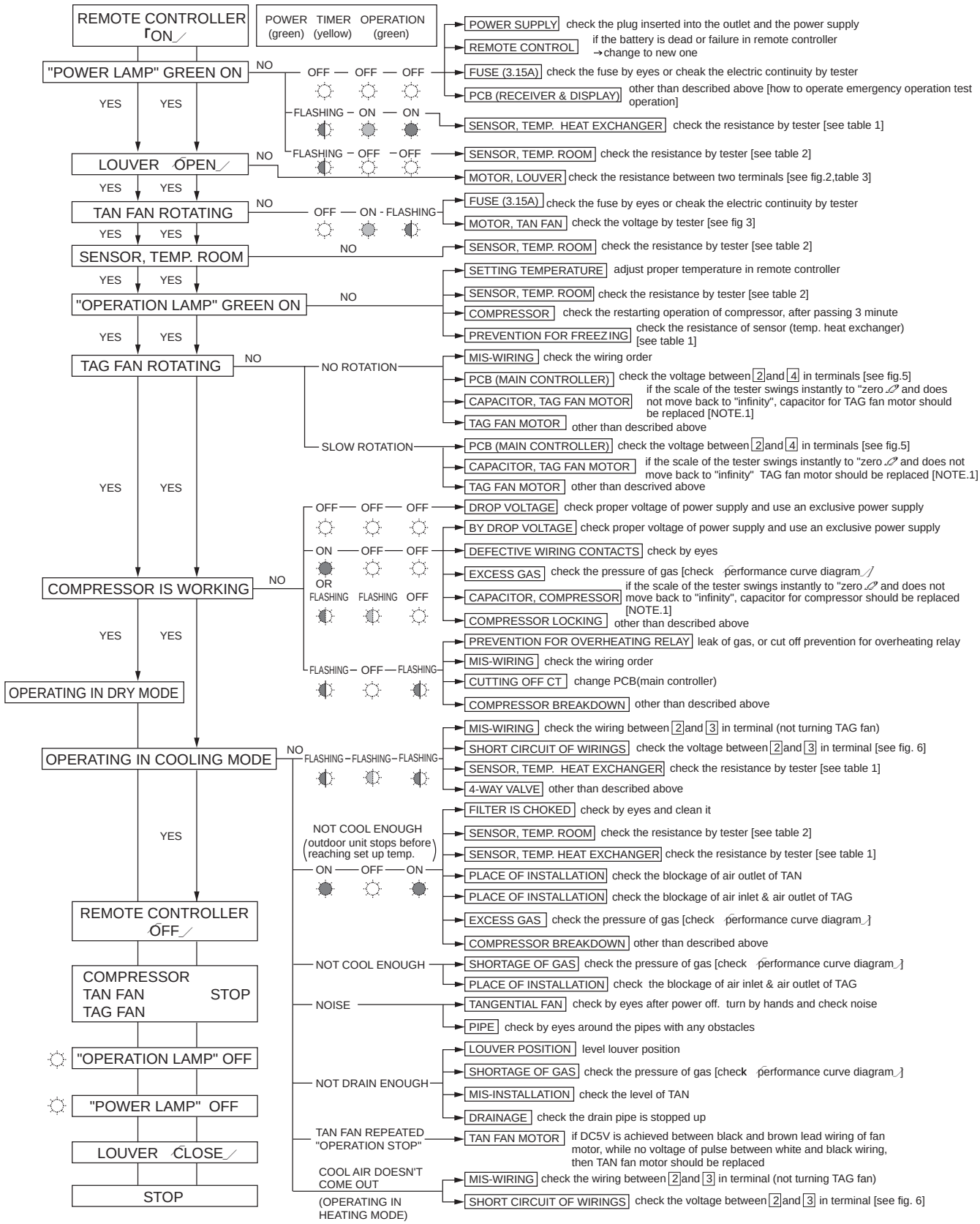
⚠ Warning

Check Point	● Be sure to put the units to earthing works.	
	● Be sure to check the insulated resistance, more than 1MΩ.	

※ The combinations of three LED indicators (ON/Flashing/OFF) provide the self-diagnosis information as most of them shown in the trouble shooting guide.

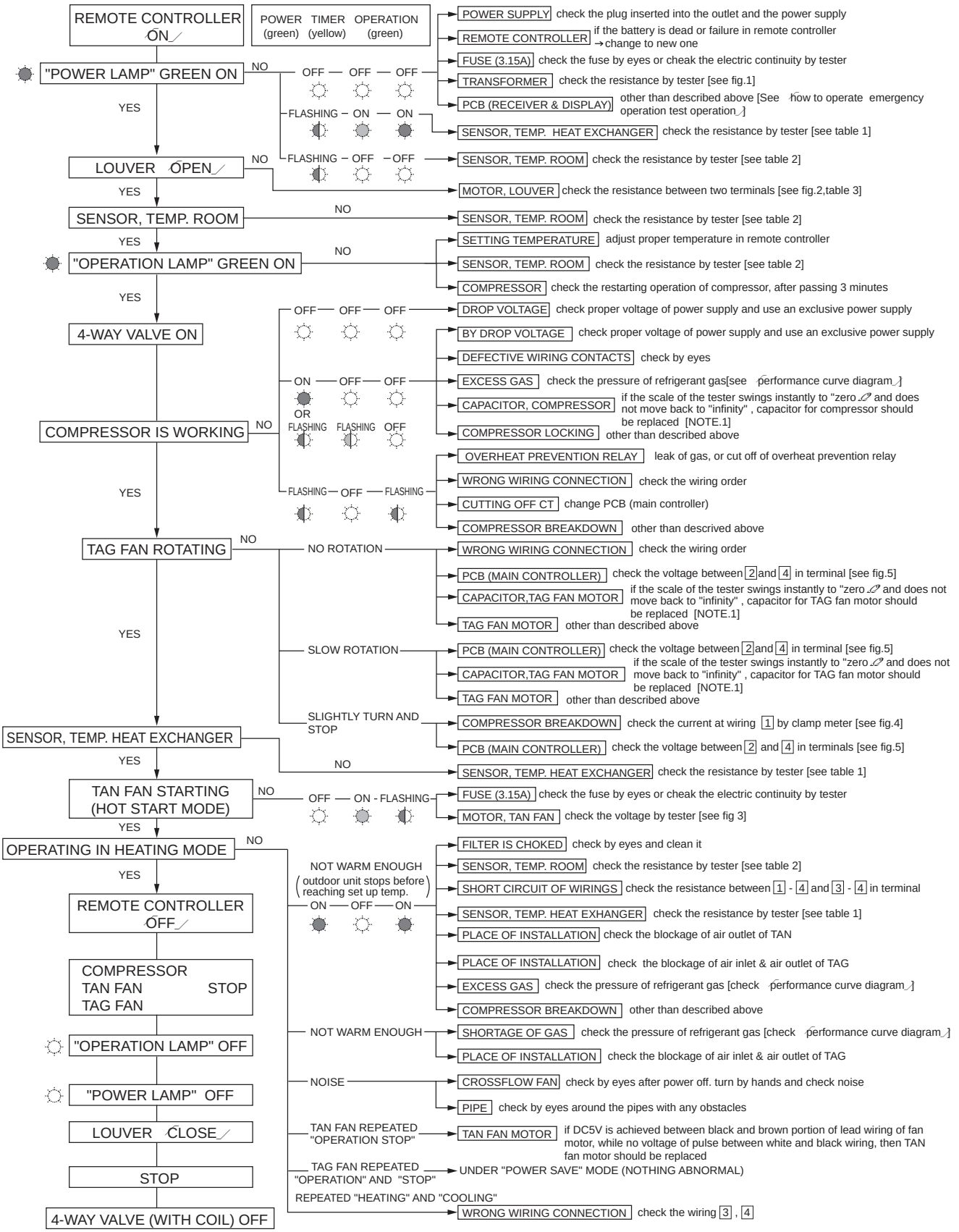
[Note1] Discharge electricity of the capacitor by making short circuit firstly. Then check the capacitor by tester. Be sure to set up the tester for the measurement of bigger resistance.

DRY & COOLING OPERATION



[NOTE.1] Measure the resistance by changing the pole of the tester by turns.
★ 1 ~ 4 Terminal Number on Terminal Block of TAG. (outdoor unit)

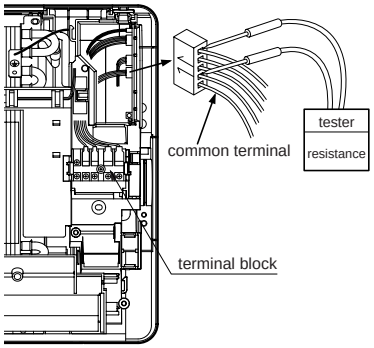
HEATING OPERATION



★ 1～4 Terminal Number on Terminal Block of TAG. (outdoor unit)

CHECK A FOLLOWING STEPS

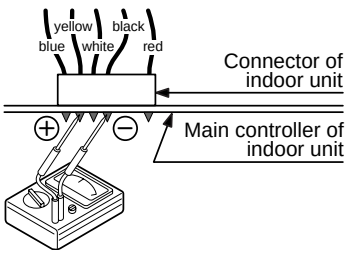
〔fig. 2〕 Resistance of louver motor



※ Take off the connector and check the resistance between the terminals

〔fig. 3〕 Voltage of indoor motor,fan

attention electric shock



Check the DC voltage in each pair of pins on the black side of the indoor - main-controller during cooling operation in the following combination;

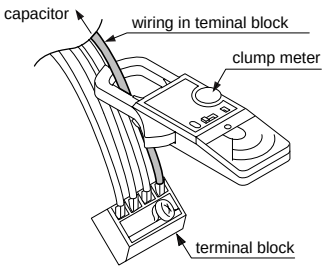
《Right value》
Approx.DC325V red⊕ -⊖ black
Approx.DC3～5V yellow⊕ -⊖ black
Approx.DC15V white⊕ -⊖ black

〔fig. 4〕 Current of compressor (operating in heating mode)

〔table 4〕 Current of wiring in terminal

50Hz	more than about 20 A

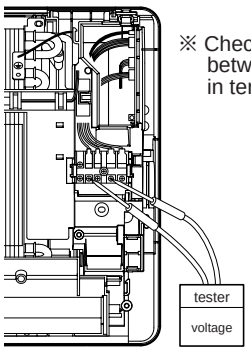
attention electric shock



※ Check the current of wiring in terminal 1 and if the current stays at the level above shown, compressor is defective. (heating operation only)

〔fig. 5〕 Voltage of PCB (main controller)

attention electric shock

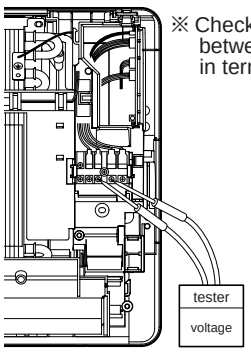


※ Check the voltage between 2 and 4 in terminal

Normal : 207V ～ 253V

〔fig. 6〕 Voltage of link line (operation in dry & cooling mode)

attention electric shock



※ Check the voltage between 2 and 3 in terminal

Normal : 0V

ELECTRIC CHARACTER

〔table 1〕 Sensor, temp. heat exchanger

Temp. (℃)	Resistance (kΩ)
10	19
15	15
20	12
25	10
30	8
35	7

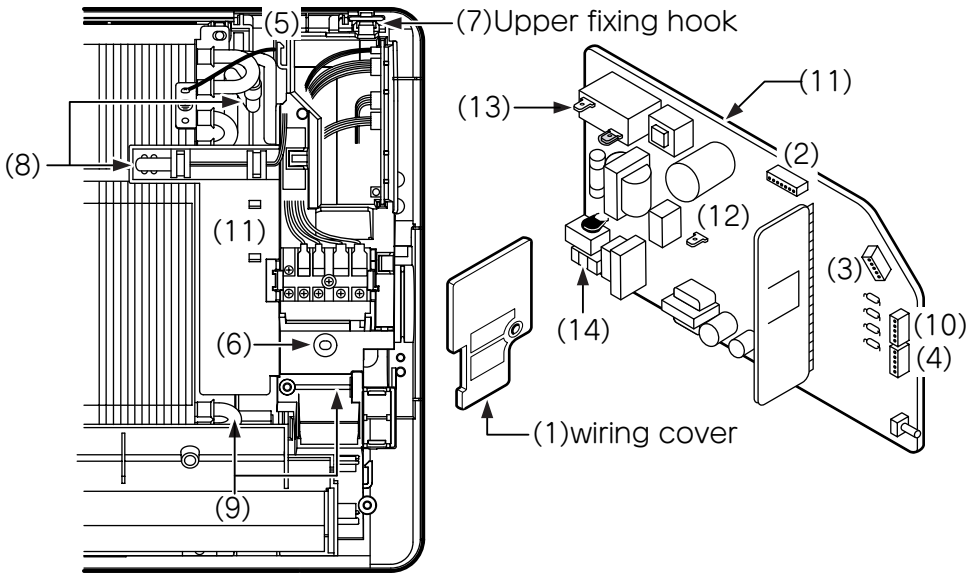
〔table 2〕 Sensor, temp. room

Temp. (℃)	Resistance (kΩ)
10	47
15	37
20	29
25	23
30	18
35	15

〔table 3〕 Louver motor

Common terminal (lower part) ～ Each terminal
200 Ω ± 7%
Between terminals
400 Ω ± 7%

HOW TO DETACH CONTROL BOX AND MAIN CONTROLLER



《How to remove the control box assembly》

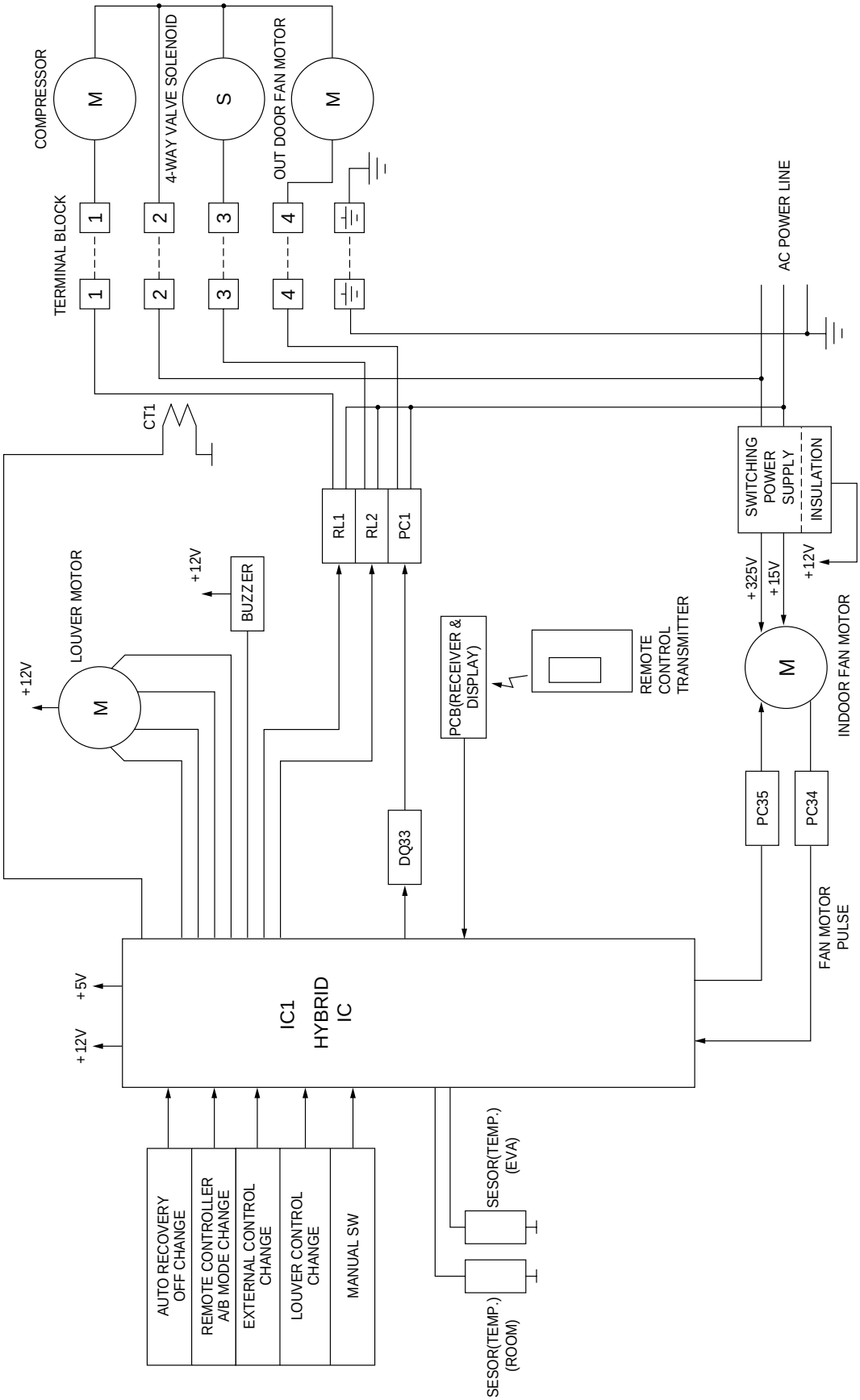
(1) Remove the wiring cover and pull out the connecting cables.
(2) Pull out the connector of the Indoor fan motor.
(3) Pull out the connector of PCB(receiver&display).
(4) Pull out the connector of the vertical louver motor.
(5) Remove the earthing wire from hook on upper-left of the control box.
(6) Remove a screw(box-fixing screw).
(7) Sliding the box down,detach the fixing hook.
(8) Remove the sensor,heat exchanger temp.from Its fixing position.
(9) If no sufficient space in the right side of the unit,detaching the upper-right hook of the drain pan and pulling the right side of pan slightly,pull out the whole control box this side.

《How to detach PCB (main controller)》

(10) Pull out the connector of sensors,temp (room&heat exchanger).
(11) Pull out the PCB this side from the control box.
(12) Pull out the wire from the PCB.
(13) Pull out the power supply cord from the PCB.
(14) Pull out the leads and connector from the PCB.

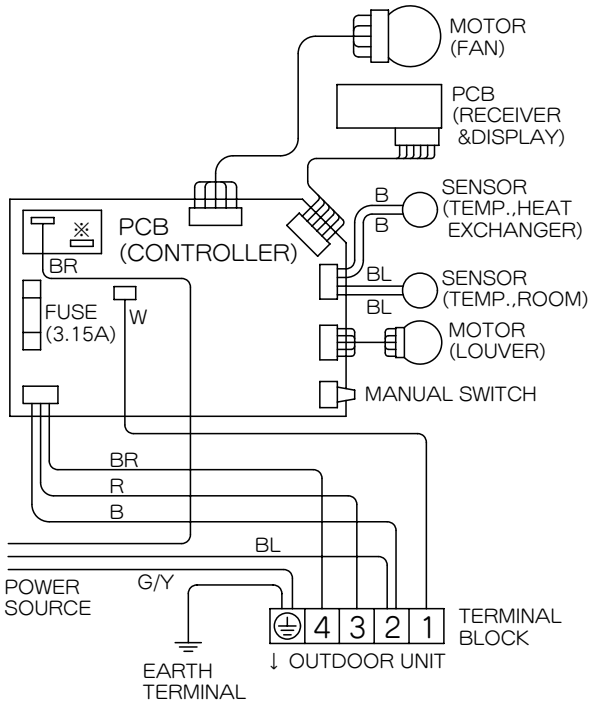
BLOCK DIAGRAM

TAN-A53HW, TAN-A70HW



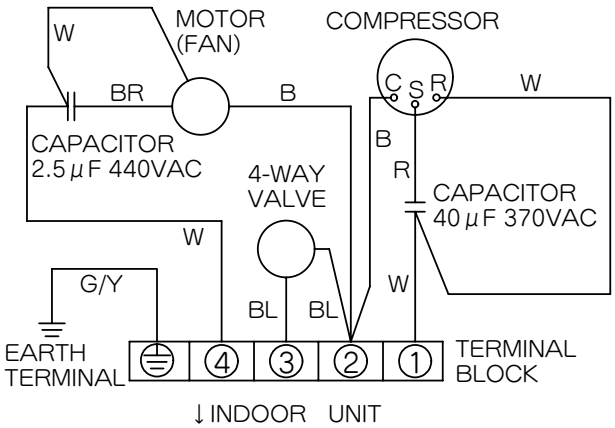
WIRING DIAGRAM

TAN-A53HW, TAN-A70HW

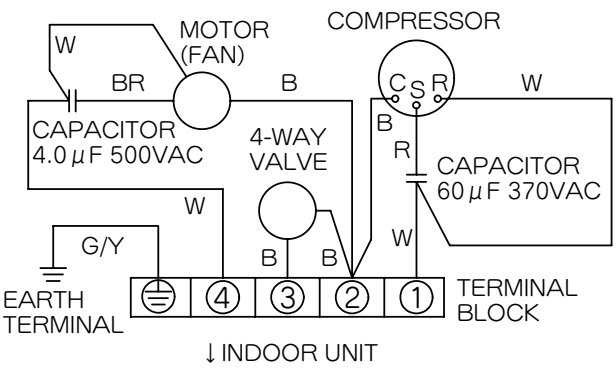


※ Marking in the drawing is not for any use.

TAG-A53GW



TAG-A70GW

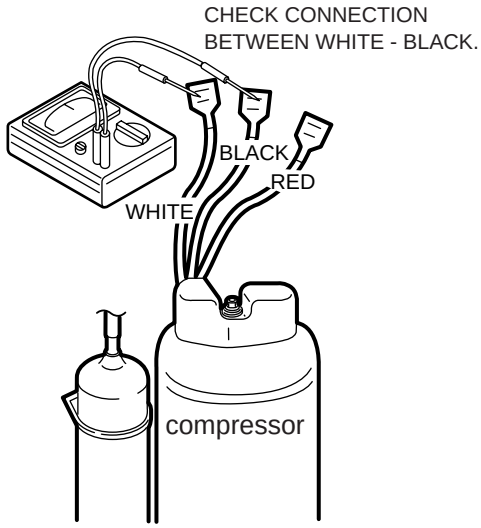


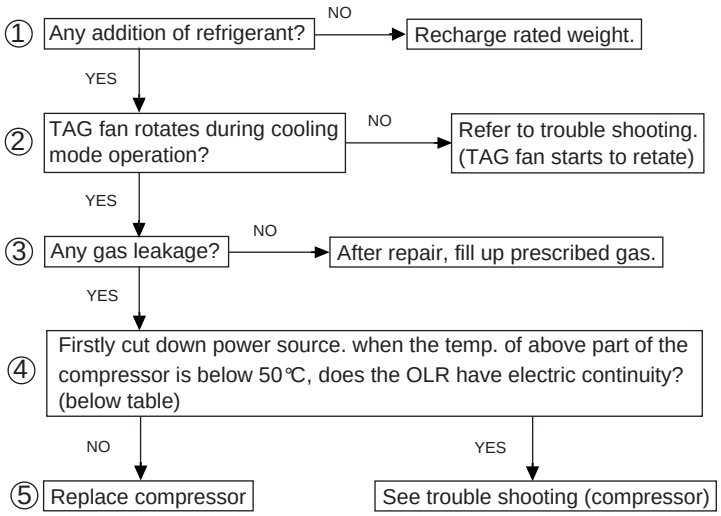
TAN : INDOOR UNIT
TAG : OUTDOOR UNIT

B : BLACK
BL : BLUE
BR : BROWN
G : GREEN
R : RED
W : WHITE
Y : YELLOW

OVERHEAT PREVENTIVE RELAY(OLR,INNERPROTECTOR)

INNERPROTECTOR





Phenomenon	OLR/INNERPROTECTOR works
Cause	① Excessive refrigerant ② TAG fan does not rotate ③ Gas leakage ④ OLR is defective ⑤ Compressor does not operate

REMARKS FOR GAS PRESSURE CHECK AND CHARGING

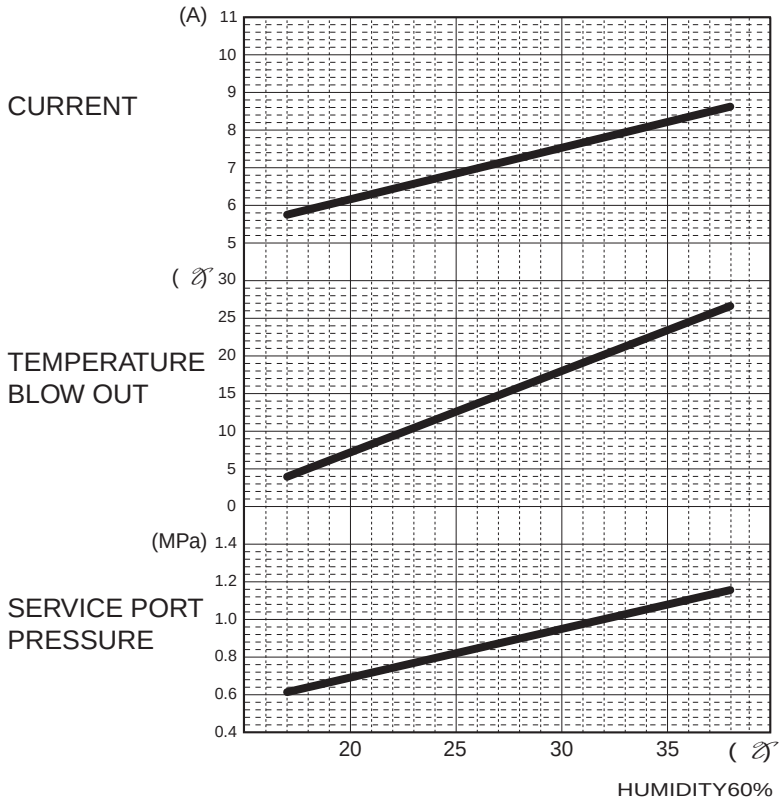
Gas pressure is to be measured at COMPULSORY COOLING OPERATION for cooling or EMERGENCY OPERATION for heating.
If you find substantial difference in performance compared with PERFORMANCE CURVE as shown above, recharge the refrigerant.
(In order to avoid excessive charging purge all the remaining refrigerant first and then evacuate the unit completely with vacuum pump and finally apply rated volume charging of refrigerant.)
Charging of refrigerant should be done by cooling operation, because the pressure at service valve will be too high at heating cycle, then the heating performance characteristics must be checked by restarting of heating operation.

Model		TAN/TAG-A53EW	TAN/TAG-A70EW
Piping size	Liquid side	6.35mm	6.35mm
	Gas side	12.7mm	15.88mm
Max. tube length		10m	10m
Max. height difference		5m	5m

PERFORMANCE CURVE DIAGRAM

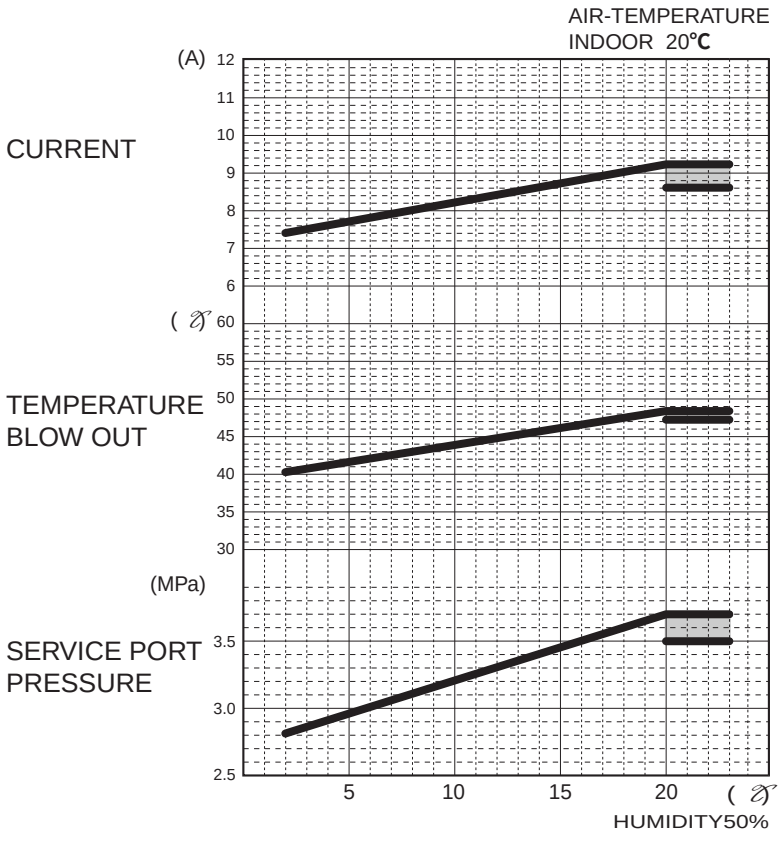
TAN/TAG-A53HW

COOLING



AIR TEMPERATURE INDOOR-OUTDOOR

HEATING

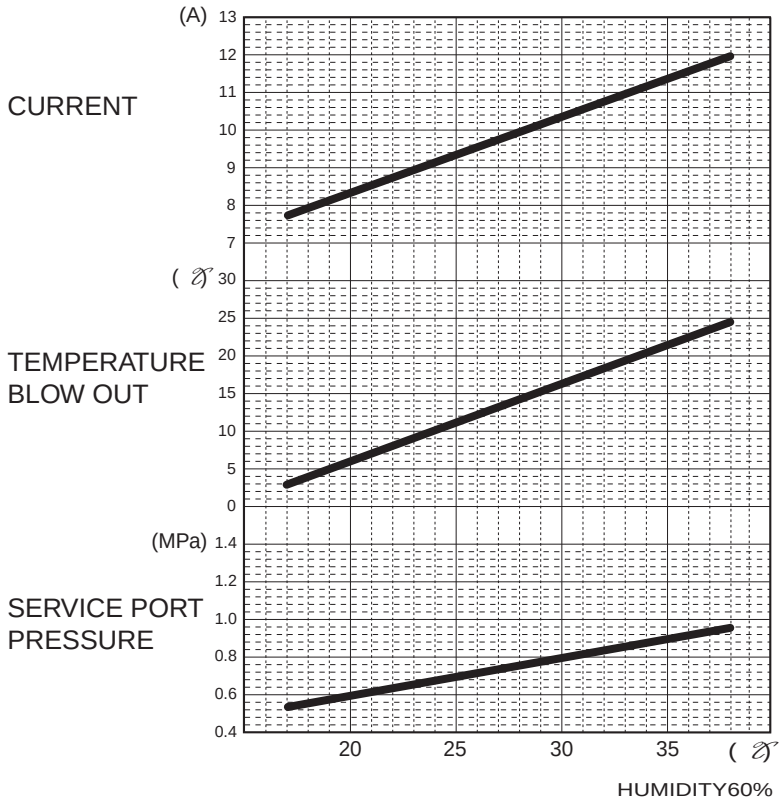


AIR TEMPERATURE-OUTDOOR

PERFORMANCE CURVE DIAGRAM

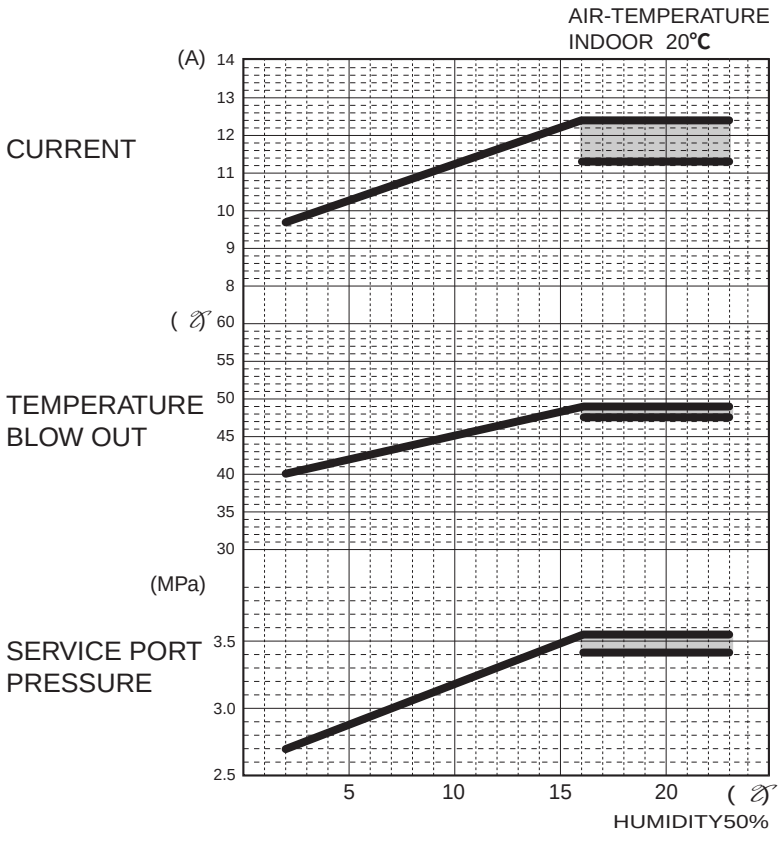
TAN/TAG-A70HW

COOLING



AIR TEMPERATURE INDOOR-OUTDOOR

HEATING



AIR TEMPERATURE-OUTDOOR

SENSOR, ROOM TEMPERATURE

TAN SENSOR, ROOM TEMPERATURE
B CONSTANT 4200
STANDARD TEMPERATURE ..... 25.0℃
STANDARD RESISTANCE 23kΩ

T(℃)	R(Ω)	T(℃)	R(Ω)	T(℃)	R(Ω)
-30.0	5.566E+05	-7.50	1.289E+05	15.0	3.750E+04
-29.5	5.373E+05	-7.00	1.251E+05	15.5	3.657E+04
-29.0	5.186E+05	-6.50	1.215E+05	16.0	3.566E+04
-28.5	5.007E+05	-6.00	1.179E+05	16.5	3.477E+04
-28.0	4.835E+05	-5.50	1.145E+05	17.0	3.392E+04
-27.5	4.669E+05	-5.00	1.112E+05	17.5	3.308E+04
-27.0	4.510E+05	-4.50	1.080E+05	18.0	3.227E+04
-26.5	4.356E+05	-4.00	1.049E+05	18.5	3.148E+04
-26.0	4.209E+05	-3.50	1.019E+05	19.0	3.072E+04
-25.5	4.067E+05	-3.00	9.904E+04	19.5	2.997E+04
-25.0	3.930E+05	-2.50	9.624E+04	20.0	2.925E+04
-24.5	3.799E+05	-2.00	9.352E+04	20.5	2.854E+04
-24.0	3.672E+05	-1.50	9.089E+04	21.0	2.786E+04
-23.5	3.550E+05	-1.00	8.835E+04	21.5	2.719E+04
-23.0	3.433E+05	-0.50	8.588E+04	22.0	2.654E+04
-22.5	3.320E+05	0.00	8.350E+04	22.5	2.591E+04
-22.0	3.211E+05	0.50	8.118E+04	23.0	2.530E+04
-21.5	3.106E+05	1.00	7.894E+04	23.5	2.470E+04
-21.0	3.005E+05	1.50	7.677E+04	24.0	2.412E+04
-20.5	2.907E+05	2.00	7.467E+04	24.5	2.355E+04
-20.0	2.813E+05	2.50	7.263E+04	25.0	2.300E+04
-19.5	2.723E+05	3.00	7.065E+04	25.5	2.246E+04
-19.0	2.636E+05	3.50	6.874E+04	26.0	2.194E+04
-18.5	2.551E+05	4.00	6.688E+04	26.5	2.143E+04
-18.0	2.470E+05	4.50	6.508E+04	27.0	2.094E+04
-17.5	2.392E+05	5.00	6.333E+04	27.5	2.046E+04
-17.0	2.317E+05	5.50	6.164E+04	28.0	1.999E+04
-16.5	2.244E+05	6.00	6.000E+04	28.5	1.953E+04
-16.0	2.173E+05	6.50	5.840E+04	29.0	1.909E+04
-15.5	2.106E+05	7.00	5.686E+04	29.5	1.865E+04
-15.0	2.040E+05	7.50	5.536E+04	30.0	1.823E+04
-14.5	1.977E+05	8.00	5.391E+04	30.5	1.782E+04
-14.0	1.916E+05	8.50	5.250E+04	31.0	1.742E+04
-13.5	1.857E+05	9.00	5.113E+04	31.5	1.703E+04
-13.0	1.800E+05	9.50	4.980E+04	32.0	1.665E+04
-12.5	1.745E+05	10.0	4.851E+04	32.5	1.628E+04
-12.0	1.692E+05	10.5	4.726E+04	33.0	1.592E+04
-11.5	1.641E+05	11.0	4.604E+04	33.5	1.556E+04
-11.0	1.592E+05	11.5	4.486E+04	34.0	1.522E+04
-10.5	1.544E+05	12.0	4.372E+04	34.5	1.489E+04
-10.0	1.498E+05	12.5	4.260E+04	35.0	1.456E+04
-9.50	1.453E+05	13.0	4.152E+04	35.5	1.424E+04
-9.00	1.410E+05	13.5	4.047E+04	36.0	1.393E+04
-8.50	1.368E+05	14.0	3.945E+04	36.5	1.363E+04
-8.00	1.328E+05	14.5	3.846E+04	37.0	1.334E+04

THERMISTOR RESISTANCE CHART

T(°C)	R(Ω)	T(°C)	R(Ω)	T(°C)	R(Ω)
37.5	1.305E+04	60.0	5.236E+03	82.5	2.358E+03
38.0	1.277E+04	60.5	5.138E+03	83.0	2.320E+03
38.5	1.249E+04	61.0	5.042E+03	83.5	2.282E+03
39.0	1.223E+04	61.5	4.948E+03	84.0	2.244E+03
39.5	1.197E+04	62.0	4.857E+03	84.5	2.208E+03
40.0	1.171E+04	62.5	4.767E+03	85.0	2.172E+03
40.5	1.147E+04	63.0	4.679E+03	85.5	2.137E+03
41.0	1.122E+04	63.5	4.593E+03	86.0	2.102E+03
41.5	1.099E+04	64.0	4.509E+03	86.5	2.068E+03
42.0	1.076E+04	64.5	4.426E+03	87.0	2.035E+03
42.5	1.053E+04	65.0	4.346E+03	87.5	2.002E+03
43.0	1.031E+04	65.5	4.267E+03	88.0	1.970E+03
43.5	1.010E+04	66.0	4.189E+03	88.5	1.939E+03
44.0	9.890E+03	66.5	4.114E+03	89.0	1.908E+03
44.5	9.686E+03	67.0	4.039E+03	89.5	1.878E+03
45.0	9.487E+03	67.5	3.967E+03	90.0	1.848E+03
45.5	9.293E+03	68.0	3.896E+03	90.5	1.819E+03
46.0	9.103E+03	68.5	3.826E+03	91.0	1.790E+03
46.5	8.917E+03	69.0	3.758E+03	91.5	1.762E+03
47.0	8.736E+03	69.5	3.691E+03	92.0	1.735E+03
47.5	8.559E+03	70.0	3.626E+03	92.5	1.707E+03
48.0	8.387E+03	70.5	3.562E+03	93.0	1.681E+03
48.5	8.218E+03	71.0	3.499E+03	93.5	1.655E+03
49.0	8.053E+03	71.5	3.438E+03	94.0	1.629E+03
49.5	7.892E+03	72.0	3.378E+03	94.5	1.604E+03
50.0	7.734E+03	72.5	3.319E+03	95.0	1.579E+03
50.5	7.581E+03	73.0	3.261E+03	95.5	1.555E+03
51.0	7.430E+03	73.5	3.205E+03	96.0	1.531E+03
51.5	7.284E+03	74.0	3.149E+03	96.5	1.508E+03
52.0	7.140E+03	74.5	3.095E+03	97.0	1.485E+03
52.5	7.000E+03	75.0	3.042E+03	97.5	1.462E+03
53.0	6.863E+03	75.5	2.989E+03	98.0	1.440E+03
53.5	6.729E+03	76.0	2.938E+03	98.5	1.418E+03
54.0	6.598E+03	76.5	2.888E+03	99.0	1.397E+03
54.5	6.470E+03	77.0	2.839E+03	99.5	1.376E+03
55.0	6.345E+03	77.5	2.791E+03	100.0	1.355E+03
55.5	6.223E+03	78.0	2.744E+03	100.5	1.335E+03
56.0	6.103E+03	78.5	2.697E+03	101.0	1.315E+03
56.5	5.986E+03	79.0	2.652E+03	101.5	1.296E+03
57.0	5.872E+03	79.5	2.608E+03	102.0	1.277E+03
57.5	5.760E+03	80.0	2.564E+03	102.5	1.258E+03
58.0	5.650E+03	80.5	2.521E+03	103.0	1.239E+03
58.5	5.543E+03	81.0	2.479E+03	103.5	1.221E+03
59.0	5.439E+03	81.5	2.438E+03	104.0	1.203E+03
59.5	5.336E+03	82.0	2.398E+03	104.5	1.185E+03

SENSOR, EVA TEMPERATURE

TAN SENSOR, ROOM TEMPERATURE
B CONSTANT 3700
STANDARD TEMPERATURE ..... 25.0℃
STANDARD RESISTANCE 10kΩ

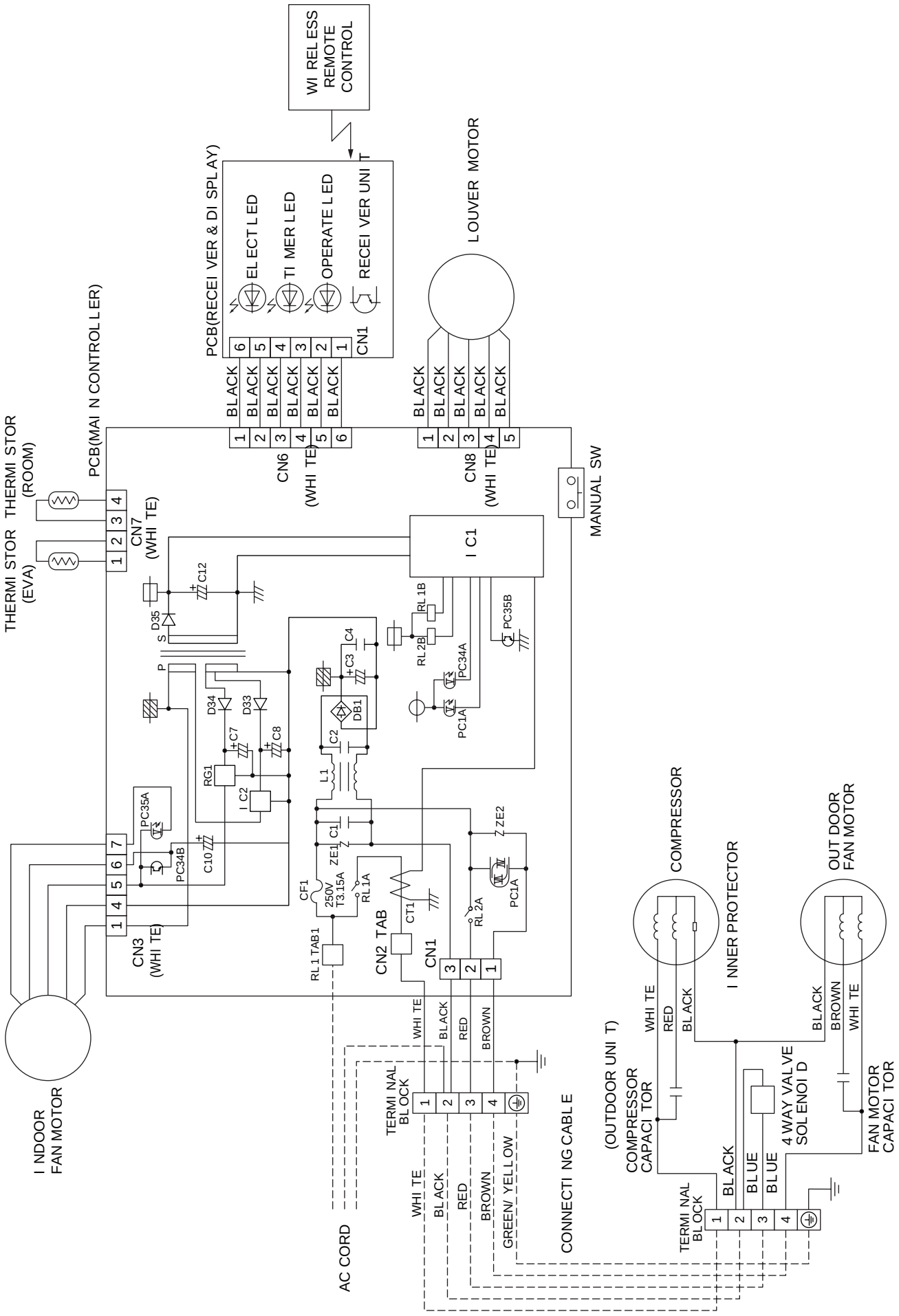
T(℃)	R(Ω)	T(℃)	R(Ω)	T(℃)	R(Ω)
-30.0	1.656E+05	-7.50	4.564E+04	15.0	1.538E+04
-29.5	1.605E+05	-7.00	4.446E+04	15.5	1.504E+04
-29.0	1.556E+05	-6.50	4.332E+04	16.0	1.471E+04
-28.5	1.509E+05	-6.00	4.221E+04	16.5	1.439E+04
-28.0	1.463E+05	-5.50	4.113E+04	17.0	1.408E+04
-27.5	1.419E+05	-5.00	4.008E+04	17.5	1.377E+04
-27.0	1.376E+05	-4.50	3.907E+04	18.0	1.348E+04
-26.5	1.335E+05	-4.00	3.808E+04	18.5	1.319E+04
-26.0	1.295E+05	-3.50	3.712E+04	19.0	1.290E+04
-25.5	1.256E+05	-3.00	3.619E+04	19.5	1.263E+04
-25.0	1.219E+05	-2.50	3.529E+04	20.0	1.236E+04
-24.5	1.183E+05	-2.00	3.441E+04	20.5	1.209E+04
-24.0	1.148E+05	-1.50	3.356E+04	21.0	1.184E+04
-23.5	1.114E+05	-1.00	3.273E+04	21.5	1.159E+04
-23.0	1.082E+05	-0.50	3.192E+04	22.0	1.134E+04
-22.5	1.050E+05	0.00	3.114E+04	22.5	1.111E+04
-22.0	1.020E+05	0.50	3.038E+04	23.0	1.087E+04
-21.5	9.906E+04	1.00	2.964E+04	23.5	1.065E+04
-21.0	9.621E+04	1.50	2.892E+04	24.0	1.043E+04
-20.5	9.346E+04	2.00	2.822E+04	24.5	1.021E+04
-20.0	9.079E+04	2.50	2.754E+04	25.0	1.000E+04
-19.5	8.821E+04	3.00	2.688E+04	25.5	9.794E+03
-19.0	8.572E+04	3.50	2.623E+04	26.0	9.594E+03
-18.5	8.330E+04	4.00	2.561E+04	26.5	9.398E+03
-18.0	8.096E+04	4.50	2.500E+04	27.0	9.206E+03
-17.5	7.870E+04	5.00	2.441E+04	27.5	9.020E+03
-17.0	7.651E+04	5.50	2.383E+04	28.0	8.837E+03
-16.5	7.438E+04	6.00	2.327E+04	28.5	8.659E+03
-16.0	7.233E+04	6.50	2.273E+04	29.0	8.485E+03
-15.5	7.034E+04	7.00	2.220E+04	29.5	8.315E+03
-15.0	6.841E+04	7.50	2.168E+04	30.0	8.149E+03
-14.5	6.654E+04	8.00	2.118E+04	30.5	7.987E+03
-14.0	6.473E+04	8.50	2.069E+04	31.0	7.829E+03
-13.5	6.297E+04	9.00	2.021E+04	31.5	7.674E+03
-13.0	6.127E+04	9.50	1.975E+04	32.0	7.523E+03
-12.5	5.962E+04	10.0	1.930E+04	32.5	7.375E+03
-12.0	5.802E+04	10.5	1.886E+04	33.0	7.230E+03
-11.5	5.647E+04	11.0	1.843E+04	33.5	7.089E+03
-11.0	5.497E+04	11.5	1.081E+04	34.0	6.951E+03
-10.5	5.351E+04	12.0	1.761E+04	34.5	6.817E+03
-10.0	5.210E+04	12.5	1.721E+04	35.0	6.685E+03
-9.50	5.073E+04	13.0	1.683E+04	35.5	6.556E+03
-9.00	4.940E+04	13.5	1.645E+04	36.0	6.430E+03
-8.50	4.811E+04	14.0	1.609E+04	36.5	6.307E+03
-8.00	4.686E+04	14.5	1.573E+04	37.0	6.187E+03

THERMISTOR RESISTANCE CHART

T(°C)	R(Ω)	T(°C)	R(Ω)	T(°C)	R(Ω)
37.5	6.069E+03	60.0	2.715E+03	82.5	1.345E+03
38.0	5.954E+03	60.5	2.670E+03	83.0	1.325E+03
38.5	5.842E+03	61.0	2.626E+03	83.5	1.306E+03
39.0	5.732E+03	61.5	2.583E+03	84.0	1.287E+03
39.5	5.624E+03	62.0	2.541E+03	84.5	1.269E+03
40.0	5.519E+03	62.5	2.500E+03	85.0	1.251E+03
40.5	5.416E+03	63.0	2.459E+03	85.5	1.233E+03
41.0	5.315E+03	63.5	2.419E+03	86.0	1.215E+03
41.5	5.216E+03	64.0	2.380E+03	86.5	1.198E+03
42.0	5.120E+03	64.5	2.342E+03	87.0	1.181E+03
42.5	5.026E+03	65.0	2.304E+03	87.5	1.164E+03
43.0	4.933E+03	65.5	2.267E+03	88.0	1.148E+03
43.5	4.843E+03	66.0	2.231E+03	88.5	1.132E+03
44.0	4.755E+03	66.5	2.195E+03	89.0	1.116E+03
44.5	4.668E+03	67.0	2.160E+03	89.5	1.100E+03
45.0	4.583E+03	67.5	2.126E+03	90.0	1.085E+03
45.5	4.501E+03	68.0	2.093E+03	90.5	1.070E+03
46.0	4.419E+03	68.5	2.060E+03	91.0	1.055E+03
46.5	4.340E+03	69.0	2.027E+03	91.5	1.040E+03
47.0	4.262E+03	69.5	1.996E+03	92.0	1.026E+03
47.5	4.186E+03	70.0	1.964E+03	92.5	1.012E+03
48.0	4.112E+03	70.5	1.934E+03	93.0	9.979E+02
48.5	4.039E+03	71.0	1.904E+03	93.5	9.842E+02
49.0	3.967E+03	71.5	1.874E+03	94.0	9.708E+02
49.5	3.897E+03	72.0	1.845E+03	94.5	9.576E+02
50.0	3.829E+03	72.5	1.817E+03	95.0	9.446E+02
50.5	3.762E+03	73.0	1.789E+03	95.5	9.318E+02
51.0	3.696E+03	73.5	1.762E+03	96.0	9.192E+02
51.5	3.631E+03	74.0	1.735E+03	96.5	9.068E+02
52.0	3.568E+03	74.5	1.708E+03	97.0	8.946E+02
52.5	3.506E+03	75.0	1.683E+03	97.5	8.827E+02
53.0	3.446E+03	75.5	1.657E+03	98.0	8.709E+02
53.5	3.387E+03	76.0	1.632E+03	98.5	8.593E+02
54.0	3.328E+03	76.5	1.608E+03	99.0	8.479E+02
54.5	3.272E+03	77.0	1.583E+03	99.5	8.366E+02
55.0	3.216E+03	77.5	1.560E+03	100.0	8.256E+02
55.5	3.161E+03	78.0	1.537E+03	100.5	8.147E+02
56.0	3.107E+03	78.5	1.514E+03	101.0	8.040E+02
56.5	3.055E+03	79.0	1.491E+03	101.5	7.934E+02
57.0	3.003E+03	79.5	1.469E+03	102.0	7.831E+02
57.5	2.953E+03	80.0	1.448E+03	102.5	7.728E+02
58.0	2.903E+03	80.5	1.426E+03	103.0	7.628E+02
58.5	2.855E+03	81.0	1.405E+03	103.5	7.529E+02
59.0	2.807E+03	81.5	1.385E+03	104.0	7.432E+02
59.5	2.761E+03	82.0	1.365E+03	104.5	7.336E+02

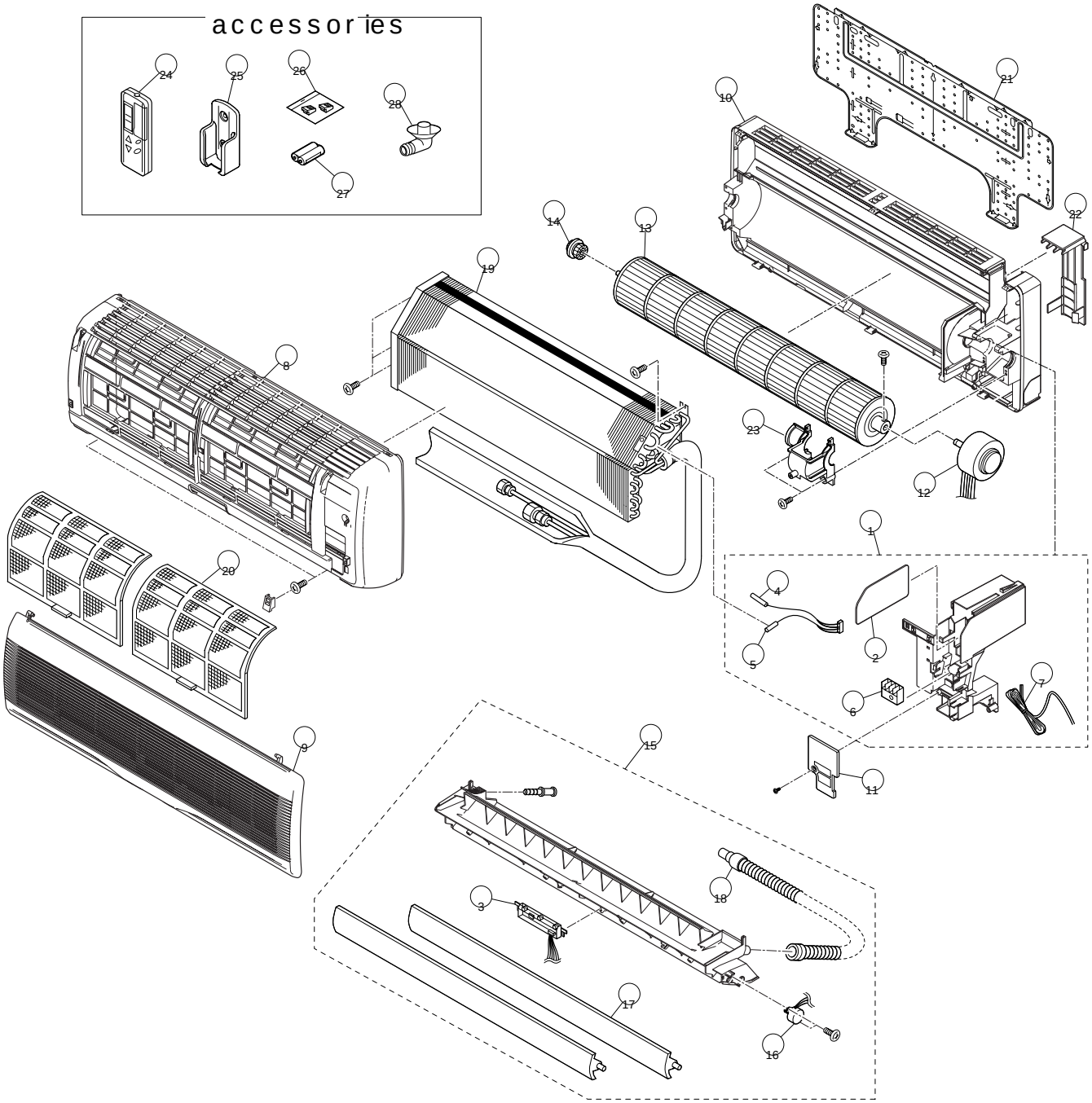
ELECTRIC CIRCUIT DIAGRAM

TAN/ TAG-A53HW, TAN/ TAG-A70HW



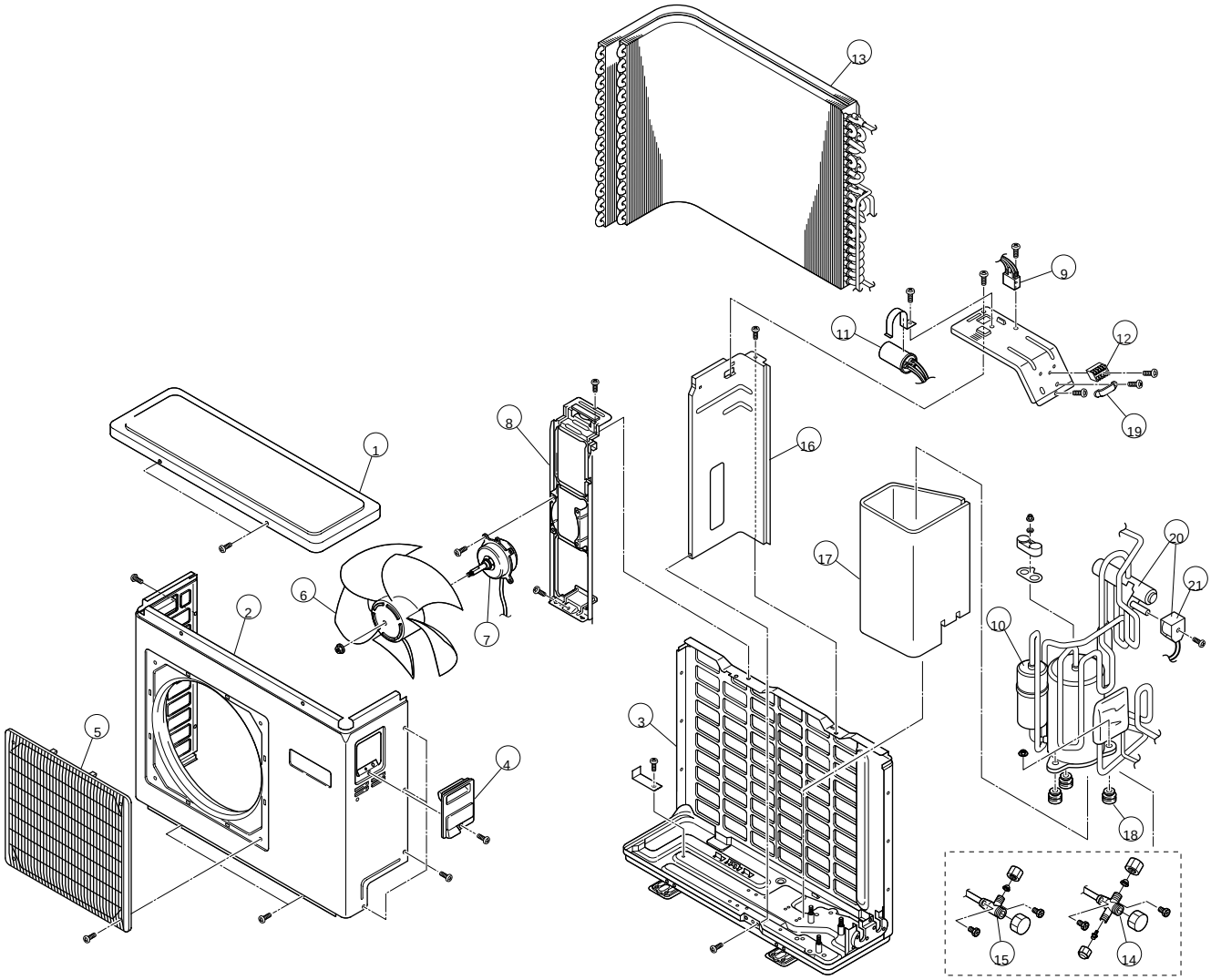
EXPLODED VIEW (INDOOR UNIT)

TAN-A53HW
TAN-A70HW

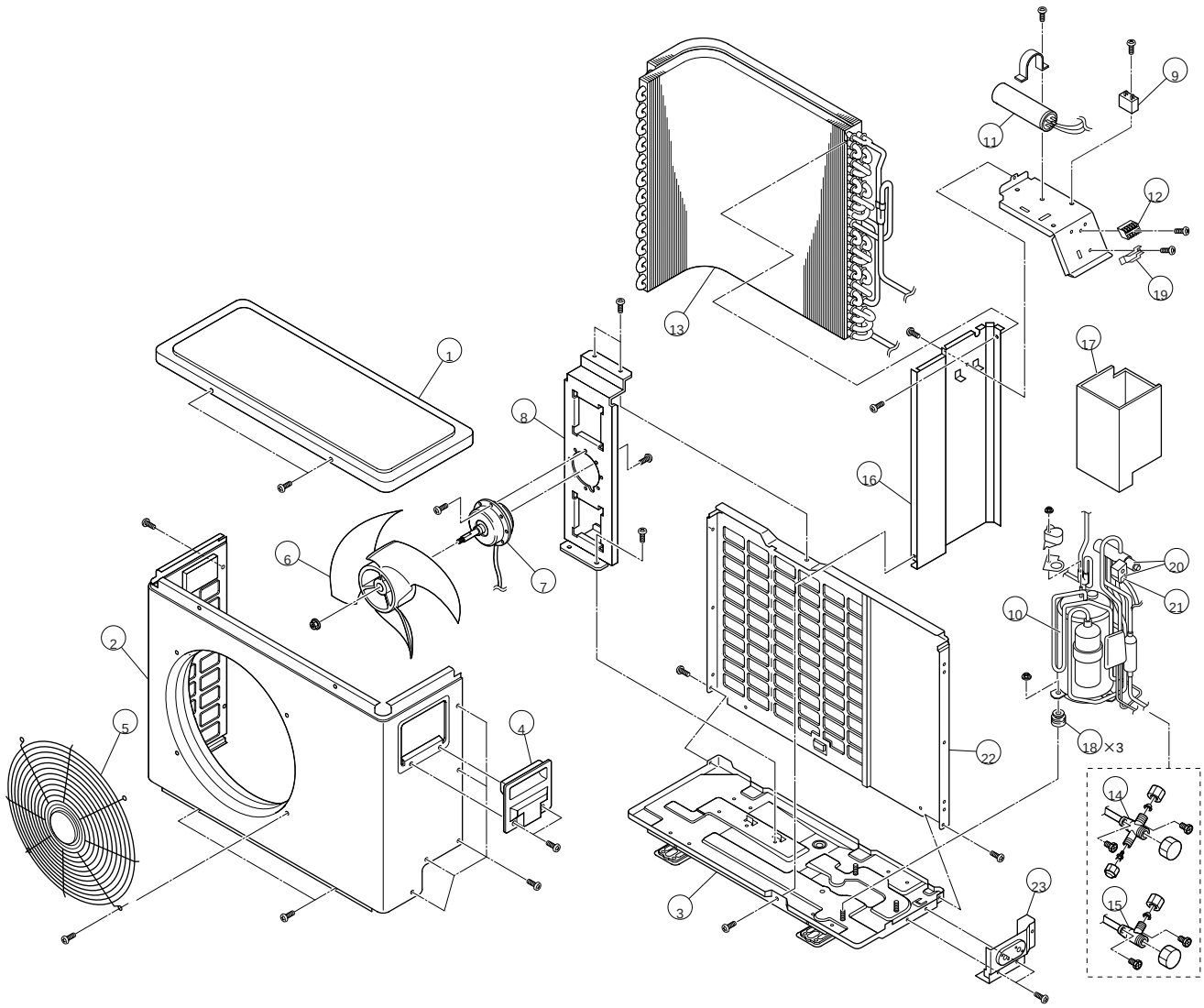


EXPLODED VIEW (OUTDOOR UNIT)

TAG-A53HW



TAG-A70HW



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