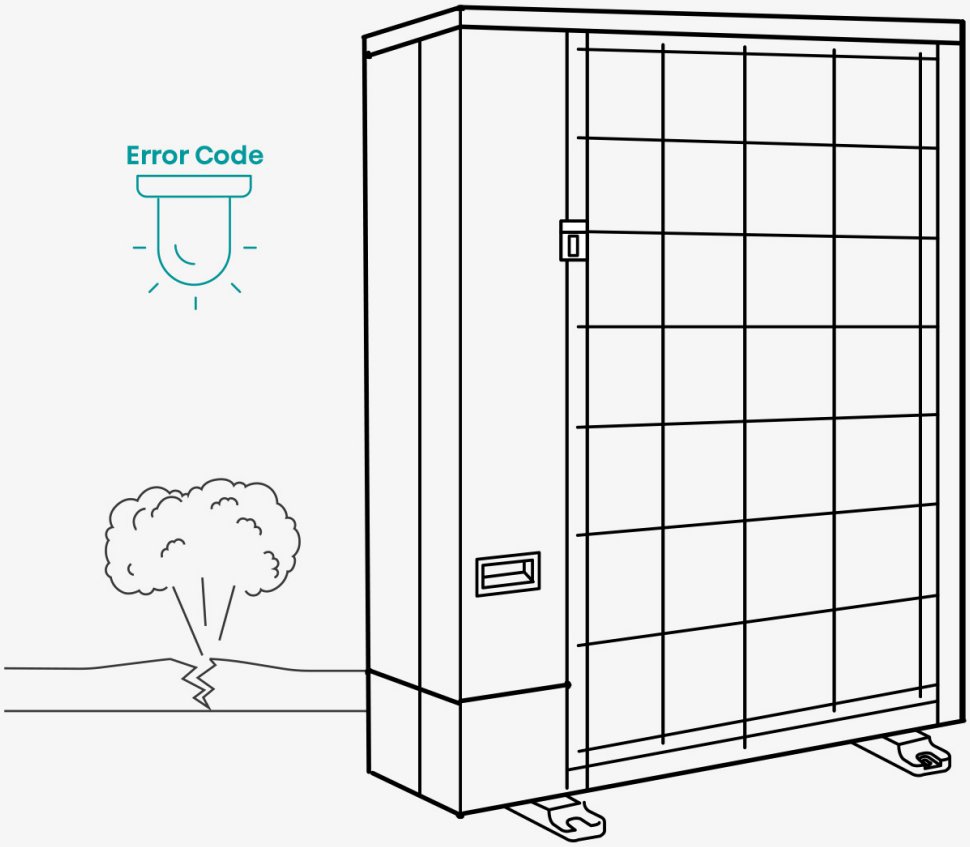
STORINGSLIJST VRF E+ L+ C+



HS CLIMATE SOLUTIONS | Hisense

De VRF E+, L+, en C+ series vertegenwoordigen ultra-compacte 2-pijps VRF-systemen, ontworpen voor efficiënt koelen of verwarmen. Met kenmerken zoals Black fin condensorcoating, aansluitbaarheid tot 19 binnendelen, en een aansluitwaarde van 150%, bieden ze geavanceerde oplossingen voor klimaatbeheersing.

Deze systemen bevatten lange leidinglengtes, en zijn standaard uitgerust met een low noise modus reductie voor een stille werking. Ondanks hun geavanceerde functionaliteiten kunnen ze soms storingscodes genereren.

In de volgende sectie van deze handleiding worden de specifieke storingscodes besproken, inclusief hun mogelijke betekenissen. Dit helpt u bij het snel en efficiënt oplossen van eventuele problemen met uw VRF-systeem.

1. **Alarmcode identificeren:**
   Wanneer zich een storing voordoet, observeert u de alarmcode die op het display verschijnt. Deze code is essentieel voor een snelle diagnose.

2. **Stapsgewijze oplossingen in de Storingslijst:**
   Op onze storingslijst hebben we elke mogelijke storing georganiseerd op basis van de bijbehorende alarmcodes. Op de eerste pagina van de storingslijst vindt u een overzicht van alarmcodes.

3. **Directe toegang tot oplossingen:**
   Klik eenvoudigweg op de alarmcode die overeenkomt met de storing op de unit. Deze klik leidt u onmiddellijk naar de juiste pagina in het document met gedetailleerde instructies en oplossingen voor de specifieke storing.

1.2 Troubleshooting Procedure

1.2.1 Alarm Code Table

Code	Category	Content of Abnormality
01	Indoor Unit	Activation of Protection Device (Float Switch)
02	Outdoor Unit	Activation of Safty Device (High Pressure Cut)
03		Abnormality between Indoor and Outdoor
04	Transmission	Abnormality between Inverter PCB and Outdoor Unit PCB
05	Supply Phase	Abnormality Power Supply Phases
06	Voltage	Abnormal Inverter Voltage
07	Cycle	Decrease in Discharge Gas Superheat
08		Increase in Discharge Gas Temperature
11	Sensor on Indoor Unit Water Module	Inlet Air Thermistor/Inlet Water Thermistor
12		Outlet Air Thermistor/ Outlet Water Thermistor
13		Freeze Protection Thermistor
14		Gas Piping Thermistor
19	Fan Motor	Activation of Protection Device for Indoor Fan
21	Sensor on Outdoor Unit	High Pressure Sensor
22		Outdoor Air Thermistor
23		Discharge Gas Thermistor
24		Heat Exchanger Liquid Pipe Thermistor
29		Low Pressure Sensor
31	System	Incorrect Capacity Setting of Outdoor Unit and Indoor Unit/water module
35		Incorrect Setting of Indoor Unit No.
36		Incorrect of Indoor Unit Combination
38		Abnormality of Picking up Circuit for Protection in Outdoor Unit
43	Protection Device	Activation of Low Compression Ratio Protection Device
46		Activation of High Pressure Decrease Protection Device
47		Activation of Low Pressure Decrease Protection Device (Vacuum Operation Protection)
48		Activation of Inverter Overcurrent Protection Device

Code	Category	Content of Abnormality
51	Sensor	Abnormal Inverter Current Sensor
53	Inverter	Inverter Error Signal Detection
54		Abnormality of Inverter Fin Temperature
55		Inverter Failure
57		Activation of Fan Motor
b1	Outdoor Unit No. Setting	Incorrect Setting of Unit and Refrigerant Cycle No.
b5	Indoor Unit No. Setting	Incorrect Indoor Unit Connection Number Setting
Ab	Cooling	Abnormality of Refrigerant Cooling Module Temperature
EE	Compressor	Compressor Protection

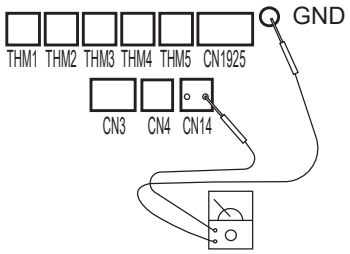
1.2.7 Troubleshooting by Alarm Code

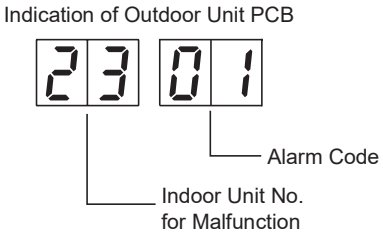
Alarm Code	Activation of Protection Device (Float Switch) in Indoor Unit

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ This alarm code is indicated when the contact between #1 and #2 of CN14 is opened for over 120 seconds during the cooling, dry, fan or heating operation.

I.U. PCB: Indoor Unit PCB



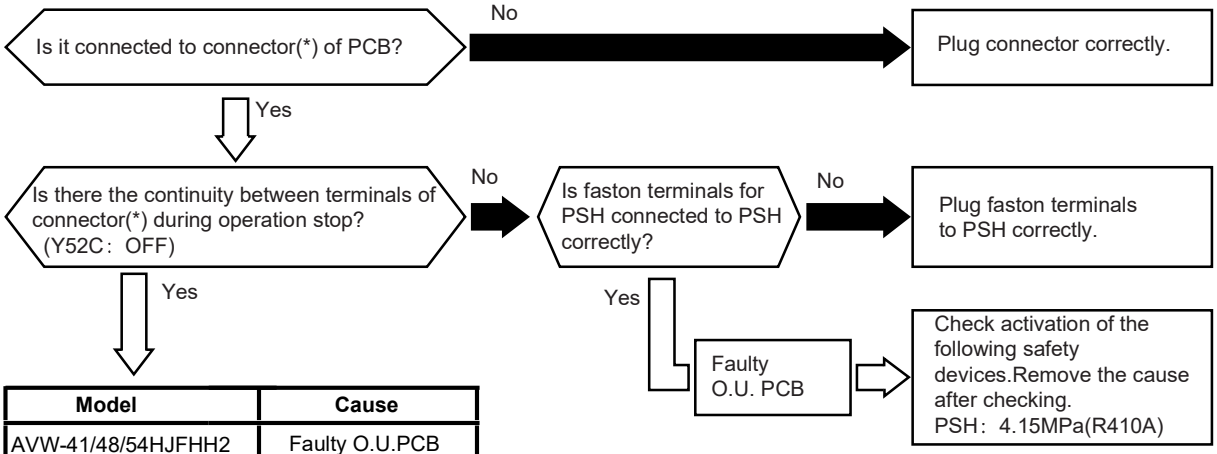


Phenomenon	Cause		Check Item	Action (Turn OFF Main Switch)
Activation of Float Switch	High Drain Level	Clogging of Drainage Up-Slope Drain Piping	Check drain pan. Check drainage by pouring water.	Remove foreign particles clogging the drainage.
	Faulty Float Switch	Fault	Check conduction when drain level is low.	Replace float switch if faulty.
		Faulty Contacting	Measure resistance by tester.	Repair looseness and replace connector.
		Faulty Connection	Check connections.	Repair connection.
Faulty Indoor Unit PCB			Check PCB by self-checking .	Replace it if faulty.

Alarm Code 02	Activation of the safety device (high pressure switch) in the outdoor unit

- The RUN LED flickers and “ALARM” is displayed on the remote control switch.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

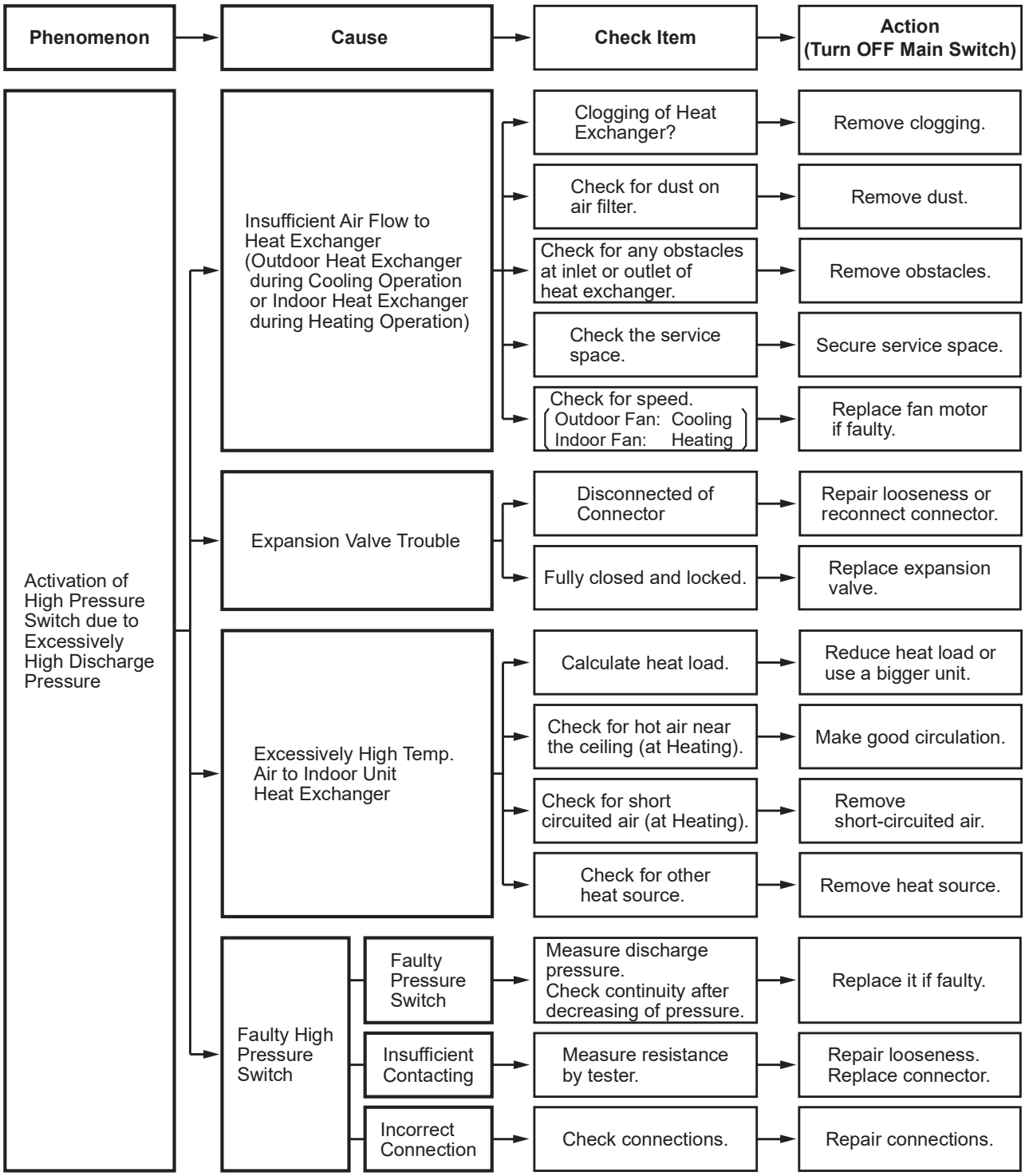
★ This alarm code is indicated when the high pressure switch (PSH) is activated during the compressor operation.

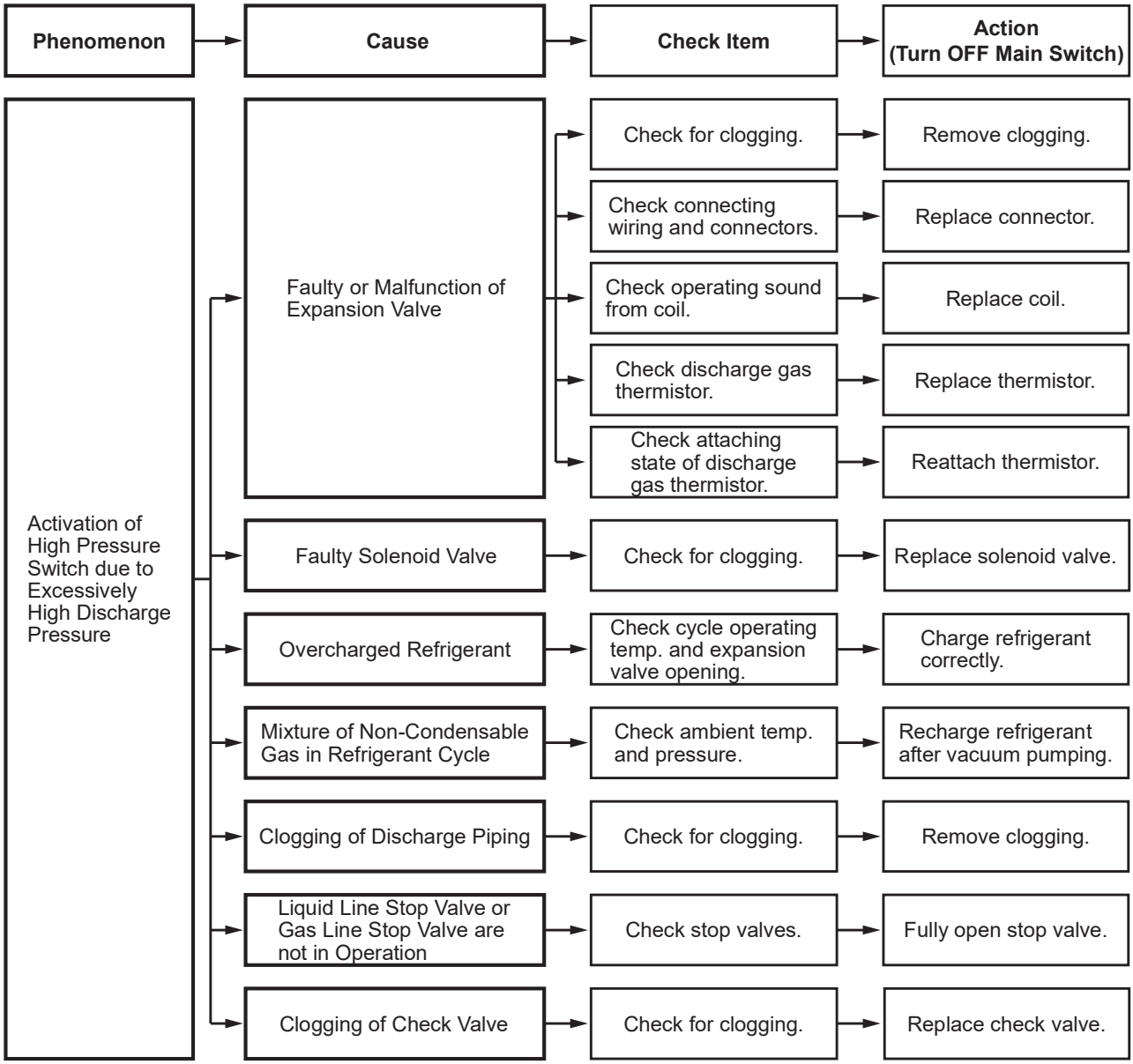


Model	Cause
AVW-41/48/54HJFHH2	Faulty O.U.PCB
AVW-41/48/54HJFHH1 AVW-41/48/54HKFHH2 AVW-76/96/114HKFHH2	Faulty INV PCB

(*)

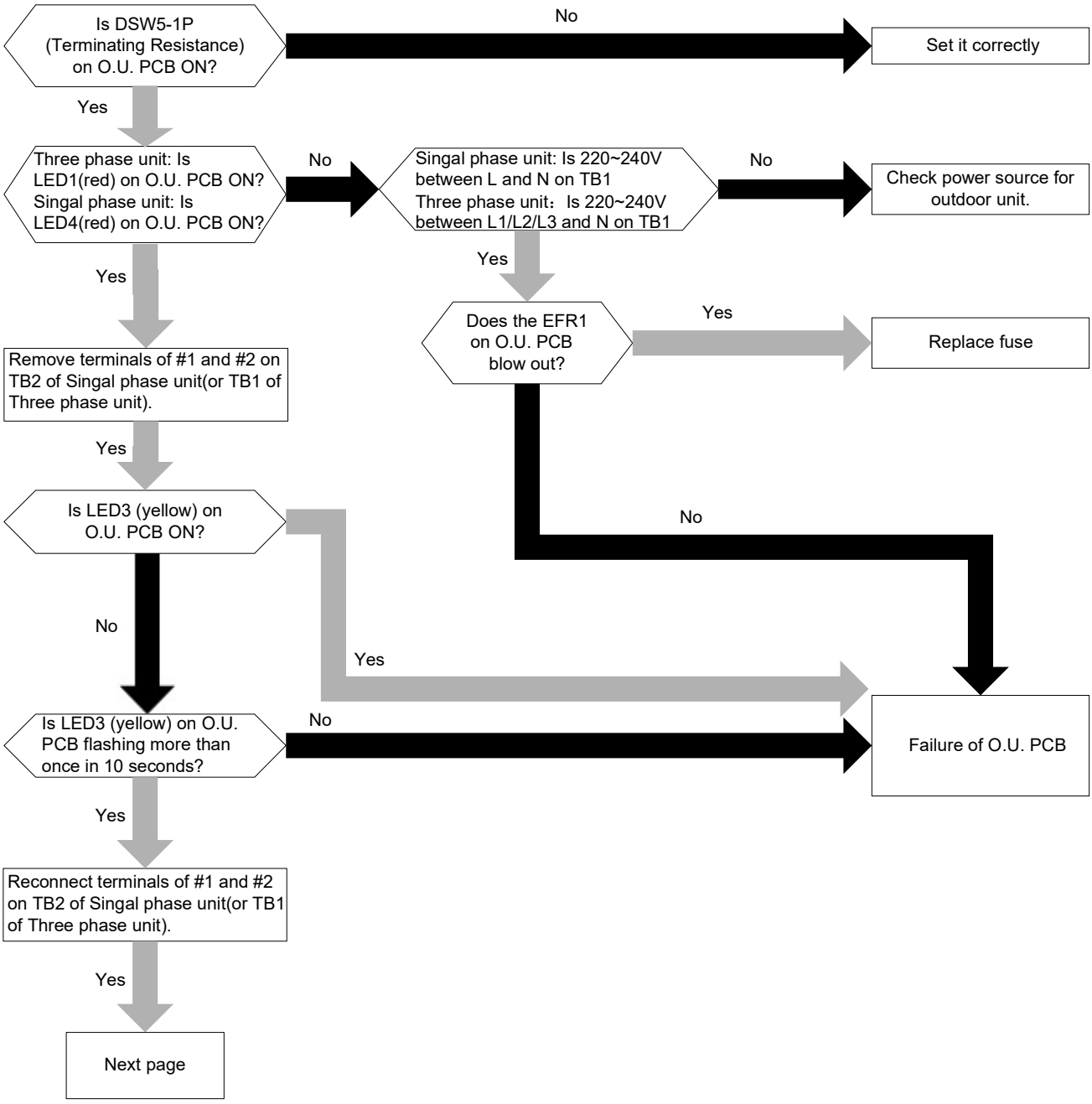
Model	PCB connector	Pin
AVW-41/48/54HJFHH1 AVW-41/48/54HKFHH2 AVW-76/96/114HKFHH2	PCN401 (INV PCB)	#1-#3
AVW-41/48/54HJFHH2	PCN8 (O.U.PCB)	#1-#3

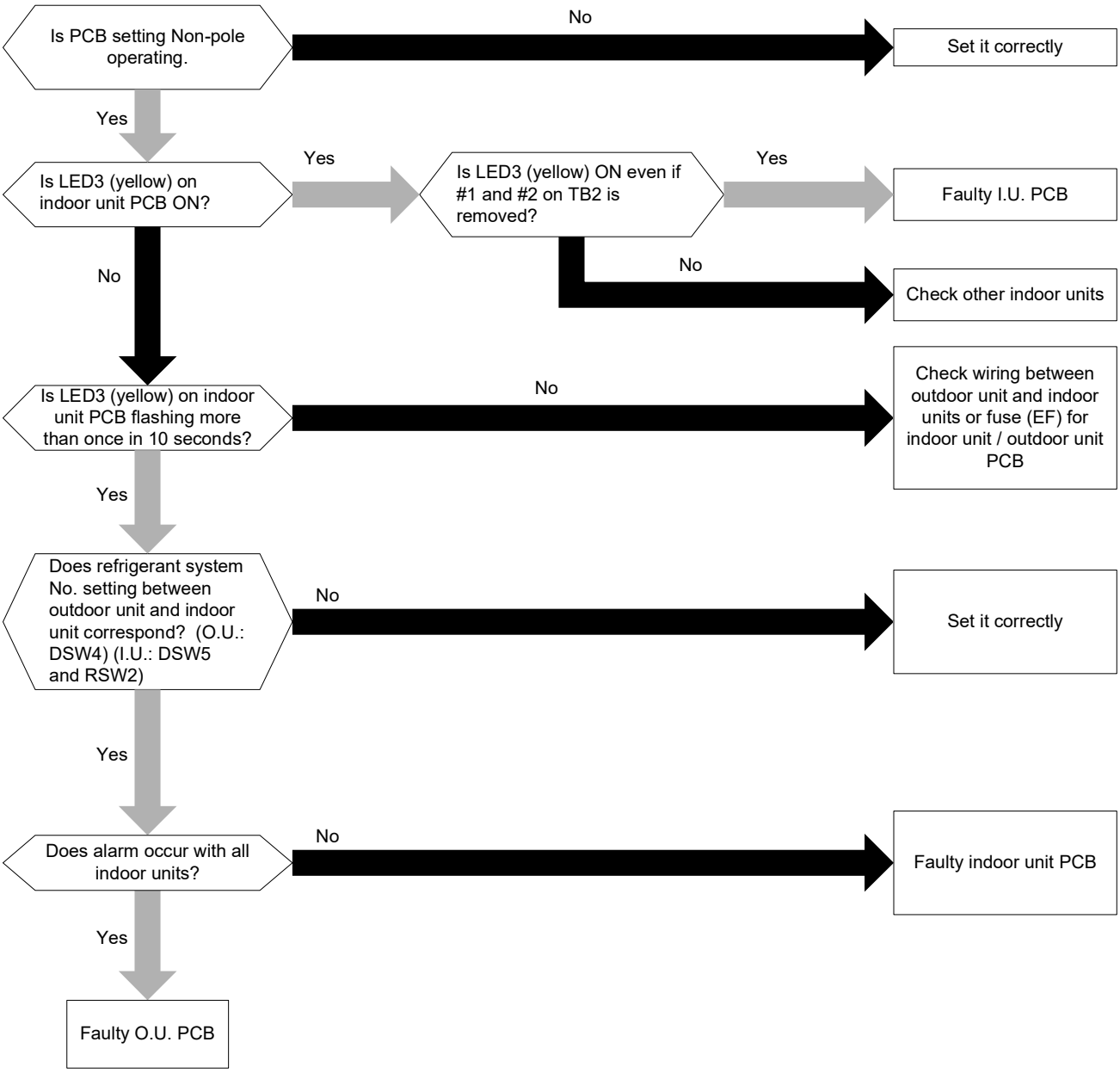

Phenomenon
Cause
Check Item
Action (Turn OFF Main Switch)
Activation of High Pressure Switch due to Excessively High Discharge Pressure
Insufficient Air Flow to Heat Exchanger (Outdoor Heat Exchanger during Cooling Operation or Indoor Heat Exchanger during Heating Operation)
Clogging of Heat Exchanger?
Remove clogging.
Check for dust on air filter.
Remove dust.
Check for any obstacles at inlet or outlet of heat exchanger.
Remove obstacles.
Check the service space.
Secure service space.
Check for speed.
Outdoor Fan: Cooling
Indoor Fan: Heating
Replace fan motor if faulty.
Expansion Valve Trouble
Disconnected of Connector
Repair looseness or reconnect connector.
Fully closed and locked.
Replace expansion valve.
Excessively High Temp. Air to Indoor Unit Heat Exchanger
Calculate heat load.
Reduce heat load or use a bigger unit.
Check for hot air near the ceiling (at Heating).
Make good circulation.
Check for short circuited air (at Heating).
Remove short-circuited air.
Check for other heat source.
Remove heat source.
Faulty High Pressure Switch
Faulty Pressure Switch
Measure discharge pressure.
Check continuity after decreasing of pressure.
Replace it if faulty.
Insufficient Contacting
Measure resistance by tester.
Repair looseness.
Replace connector.
Incorrect Connection
Check connections.
Repair connections.


Phenomenon
Cause
Check Item
Action (Turn OFF Main Switch)
Activation of High Pressure Switch due to Excessively High Discharge Pressure
Faulty or Malfunction of Expansion Valve
Check for clogging.
Remove clogging.
Check connecting wiring and connectors.
Replace connector.
Check operating sound from coil.
Replace coil.
Check discharge gas thermistor.
Replace thermistor.
Check attaching state of discharge gas thermistor.
Reattach thermistor.
Faulty Solenoid Valve
Check for clogging.
Replace solenoid valve.
Overcharged Refrigerant
Check cycle operating temp. and expansion valve opening.
Charge refrigerant correctly.
Mixture of Non-Condensable Gas in Refrigerant Cycle
Check ambient temp. and pressure.
Recharge refrigerant after vacuum pumping.
Clogging of Discharge Piping
Check for clogging.
Remove clogging.
Liquid Line Stop Valve or Gas Line Stop Valve are not in Operation
Check stop valves.
Fully open stop valve.
Clogging of Check Valve
Check for clogging.
Replace check valve.

Alarm Code 03	Abnormal Transmitting between Indoor and Outdoor Units

- The RUN LED flickers and “ALARM” is displayed on the remote control switch.
- The unit number, the alarm code and the unit code are alternately displayed on the set temperature section.
- The unit number and the alarm code are displayed on the display of the outdoor unit PCB.
  - ★ This alarm is displayed when an abnormal operation is maintained for three minutes after the normal transmission between the indoor units and the outdoor unit. Also, an abnormal operation is maintained for 30 seconds after the micro-computer is automatically reset.
  - ★ The alarm is displayed when the abnormal transmission is maintained for 30 seconds from the starting of the outdoor unit.
  - ★ Investigate the cause of the overcurrent and take the necessary action when the fuses are blown out or the breaker for the outdoor unit is activated.




Is PCB setting Non-pole operating.
No
Set it correctly
Yes
Is LED3 (yellow) on indoor unit PCB ON?
Yes
Is LED3 (yellow) ON even if #1 and #2 on TB2 is removed?
Yes
Faulty I.U. PCB
No
Check other indoor units
No
Is LED3 (yellow) on indoor unit PCB flashing more than once in 10 seconds?
No
Check wiring between outdoor unit and indoor units or fuse (EF) for indoor unit / outdoor unit PCB
Yes
Does refrigerant system No. setting between outdoor unit and indoor unit correspond? (O.U.: DSW4) (I.U.: DSW5 and RSW2)
No
Set it correctly
Yes
Does alarm occur with all indoor units?
No
Faulty indoor unit PCB
Yes
Faulty O.U. PCB

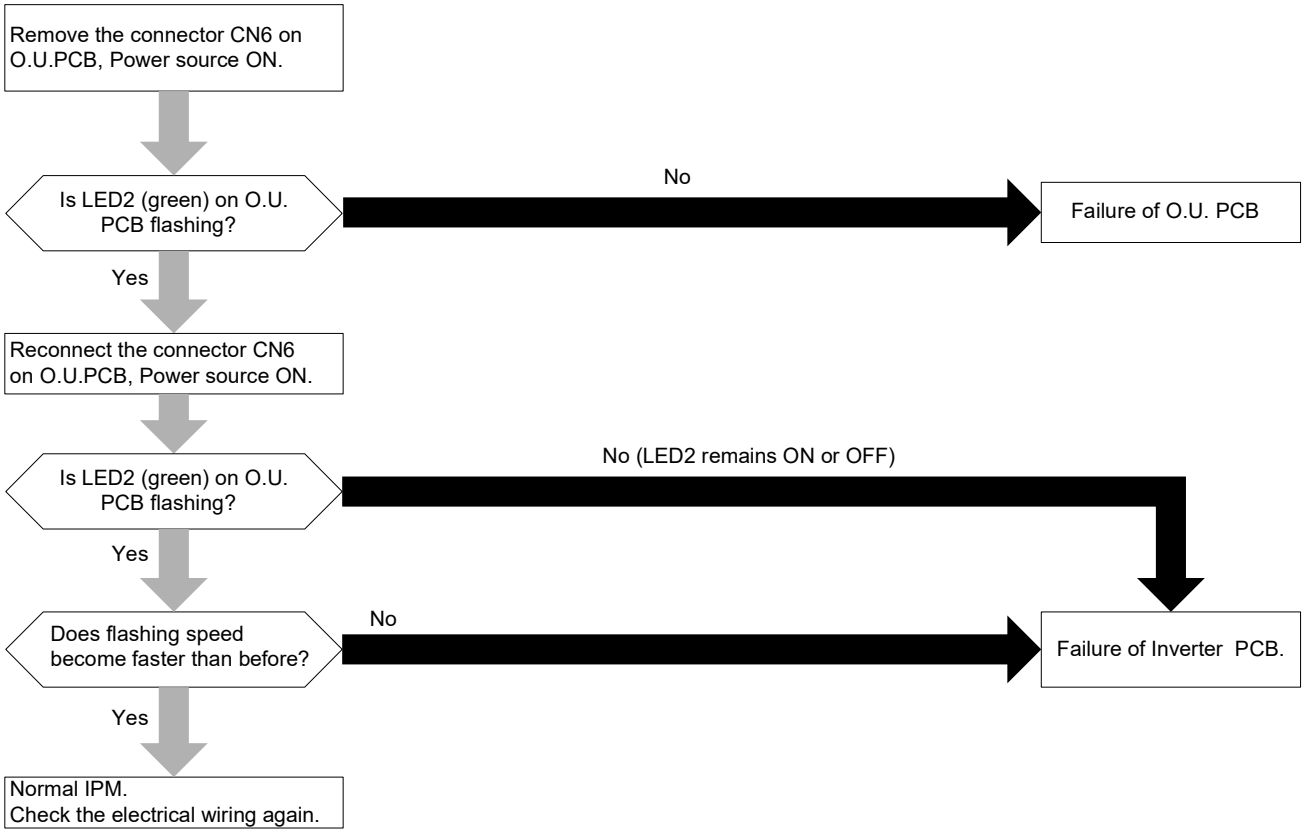
Phenomenon	Cause	Check Item	Action (Turn OFF Main Switch)
Power Failure of No Power Supply		Measure voltage by tester.	Supply power.
Melted Fuse for Power Supply or Activation of Breaker (Outdoor Unit)	Short Circuit between Wires	Check for breakage of insulation.	Remove cause of short circuit. Replace fuse and/or I.U./O.U. PCB if faulty.
	Short Circuited Wire to Ground	Measure insulation resistance.	Remove cause of short circuit to ground. Replace fuse and/or I.U./O.U. PCB if faulty.
	Faulty Comp. Motor	Measure resistance between wires and insulation resistance.	Replace comp. and fuse. (O.U.) Replace inverter PCB and/or PCB if faulty. (O.U.)
	Faulty Outdoor Unit Fan Motor	Measure resistance between wires and insulation resistance.	Replace outdoor unit fan motor and fuse. Replace O.U. PCB if faulty.
Melted Fuse on PCB (Outdoor Unit)	Short Circuit between Wires	Check for breakage of insulation.	Remove cause of short circuit and replace fuse.
	Short Circuit (to Ground)	Measure insulation resistance.	Remove cause of short circuit and replace fuse.
	Faulty Solenoid Coil for Magnetic Switch (CMC) for Comp. Motor	Measure resistance of coil.	Replace magnetic switch (CMC) and fuse.
	Failure of Outdoor Unit Fan Motor	Measure resistance between wires and insulation resistance.	Replace fan motor and fuse.
Incorrect Power Supply Circuit of O.U. PCB		Measure O.U. PCB output.	Replace O.U. PCB.
Disconnected Wires Insufficient Contacting or Incorrect Connection	Between Outdoor Unit and Indoor Unit	Check continuity of wires. Check for looseness of connection screws. Check terminal Nos.	Replacing wires, repairing and tightening screws.
	Power Supply Wiring for Outdoor Unit		Correctly connect wires.
Faulty PCB (Outdoor Unit, Indoor Unit)	Disconnected Wires to I.U./O.U. PCB	Check connections.	Correctly connect wires.
	Faulty I.U./O.U.PCB		Replace it if faulty.
Incorrect Wiring	Disconnected Wire Insufficient Contacting	Check continuity and looseness of connection screws.	Replacing Wires, Repairing and Tightening Screws
	Incorrect Wiring	Check terminal Nos.	Correctly connect wires.

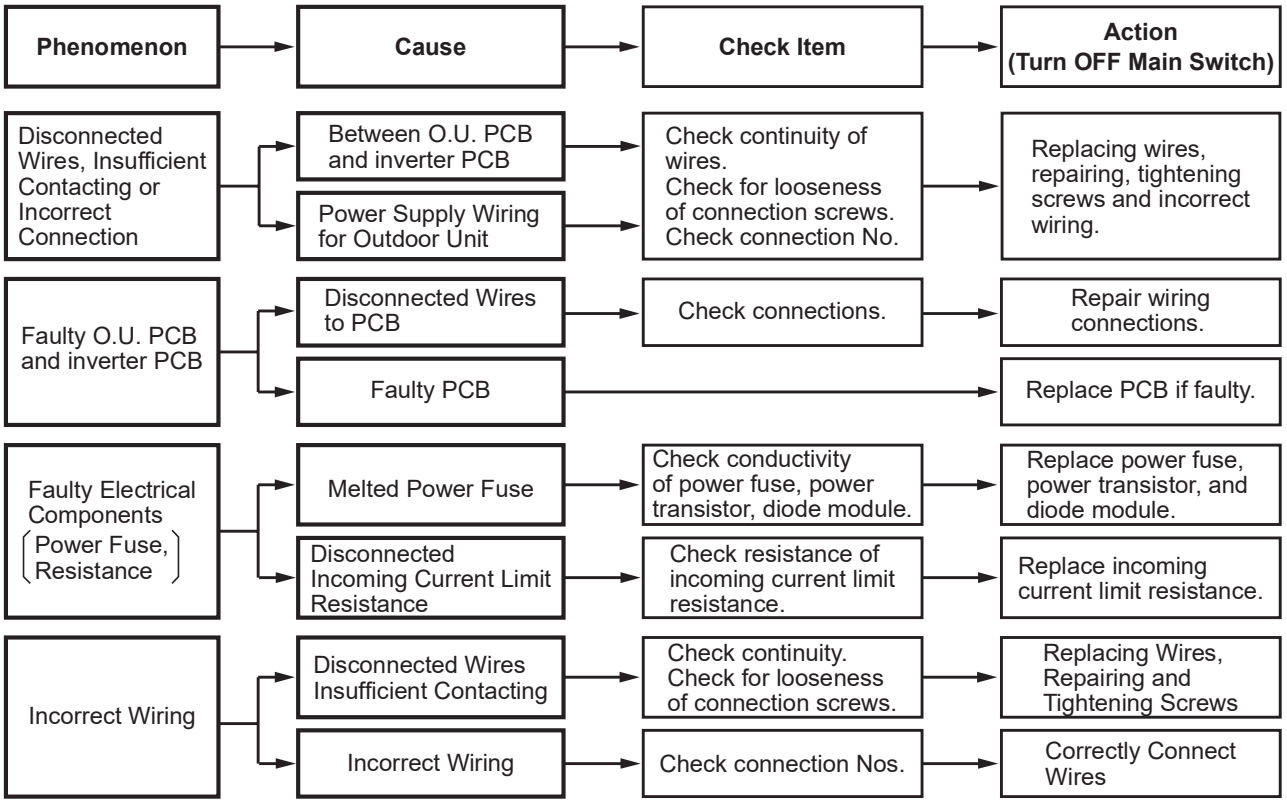
O.U. PCB: Outdoor Unit PCB
I.U. PCB: Indoor Unit PCB

Alarm Code 04	Abnormal Transmitting between Inverter PCB and Outdoor Unit PCB

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ This alarm code is indicated when abnormality continues for 30 seconds after normal transmitting between the outdoor unit PCB and inverter PCB, and also abnormality continues for 30 seconds after the micro-computer is automatically reset. The alarm is indicated when the abnormal transmitting continues for 30 seconds from starting of the outdoor unit.



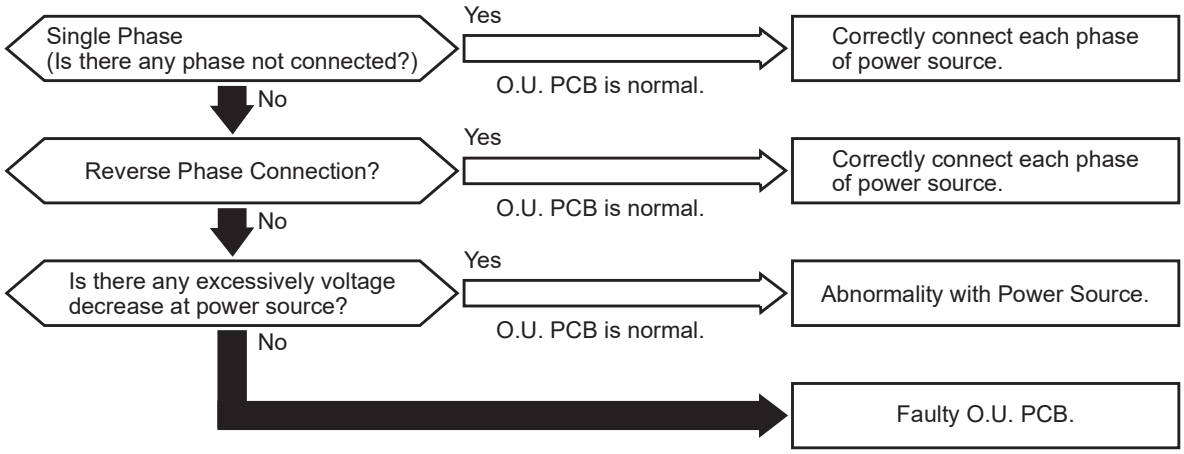

Phenomenon
Cause
Check Item
Action (Turn OFF Main Switch)
Disconnected Wires, Insufficient Contacting or Incorrect Connection
Between O.U. PCB and inverter PCB
Power Supply Wiring for Outdoor Unit
Check continuity of wires. Check for looseness of connection screws. Check connection No.
Replacing wires, repairing, tightening screws and incorrect wiring.
Faulty O.U. PCB and inverter PCB
Disconnected Wires to PCB
Faulty PCB
Check connections.
Repair wiring connections.
Replace PCB if faulty.
Faulty Electrical Components (Power Fuse, Resistance
Melted Power Fuse
Disconnected Incoming Current Limit Resistance
Check conductivity of power fuse, power transistor, diode module.
Check resistance of incoming current limit resistance.
Replace power fuse, power transistor, and diode module.
Replace incoming current limit resistance.
Incorrect Wiring
Disconnected Wires Insufficient Contacting
Incorrect Wiring
Check continuity. Check for looseness of connection screws.
Check connection Nos.
Replacing Wires, Repairing and Tightening Screws
Correctly Connect Wires

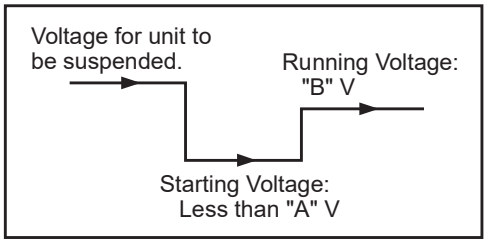
Alarm Code 05	Abnormal Power Supply Phase(Only for Three Phase Unit)

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ This alarm code is indicated when the main power supply phase is reversely connected or one phase is not connected.

O.U. PCB: Outdoor Unit PCB





Check Item

Power Supply	"A"	"B"
380-415V/50Hz	323	342 to 456
380V/60Hz	323	342 to 418

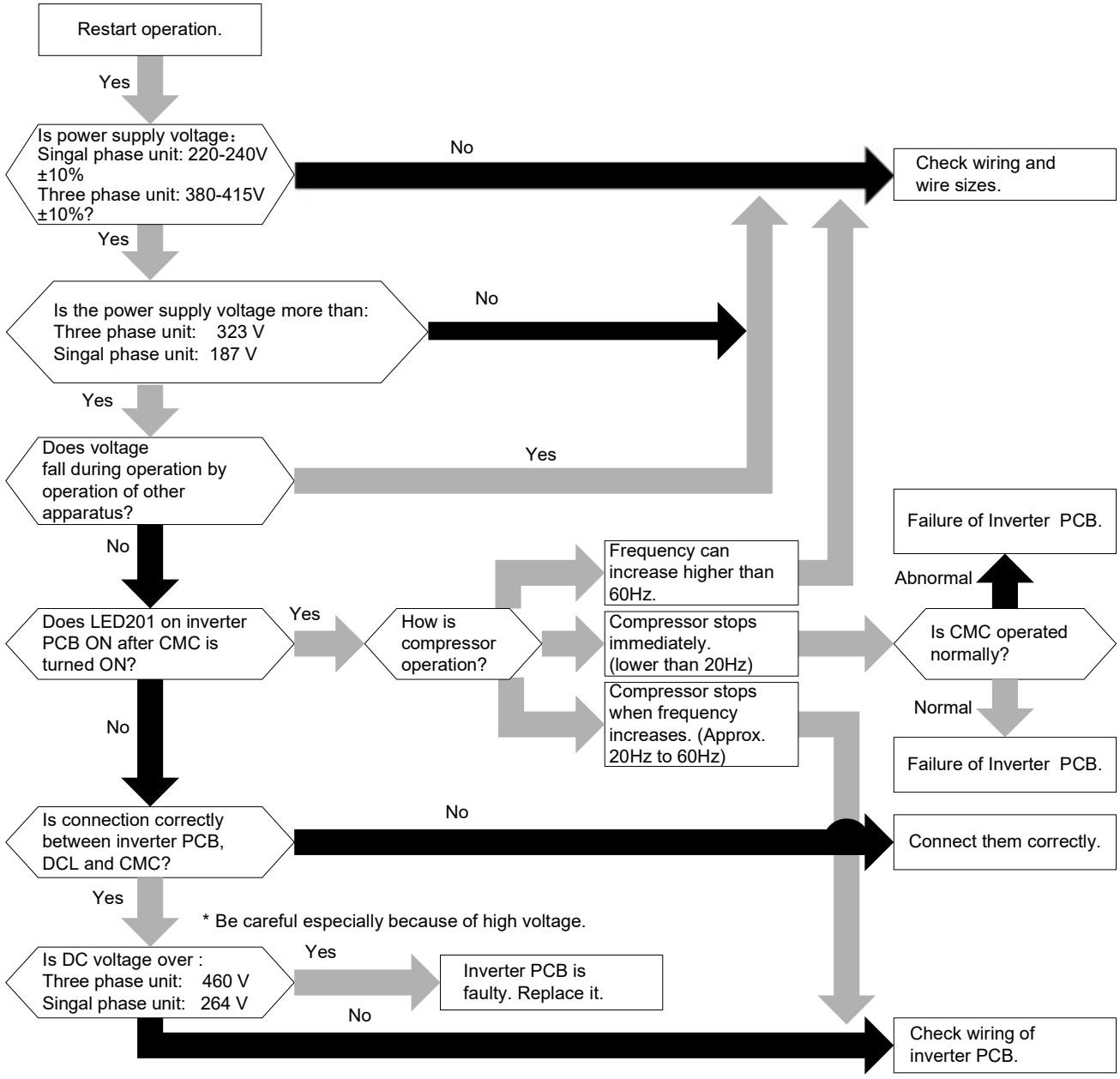
Phenomenon	Cause	Check Item	Action (Turn OFF Main Switch)
Activation of Reverse Phase Sensor in Outdoor Unit	Reverse or Single Phase	Check it according to electrical wiring .	Replacing Wires, Repair, Tightening Screws or Correct Wiring
	Faulty O.U. PCB		Replace O.U. PCB if faulty.

Alarm Code 06

Abnormal Inverter Voltage (Insufficient Inverter Voltage or Overvoltage)

- The RUN indicator (Red) is flashing.
- The indoor unit number (Ref. system number - I.U. number), the alarm code, the model code*1), the model name*1) and the number of connected indoor units are displayed on the LCD. The alarm code is flashed on the 7-segment display on the outdoor unit PCB.
  *1) Except for some models.

★ When either insufficient voltage or overvoltage is detected between the terminal R-S on the inverter PCB three tim in 30 minutes, the operation stops and this alarm code is displayed. If this occurs less than three times in 30 minutes, the operation is automatically retried.



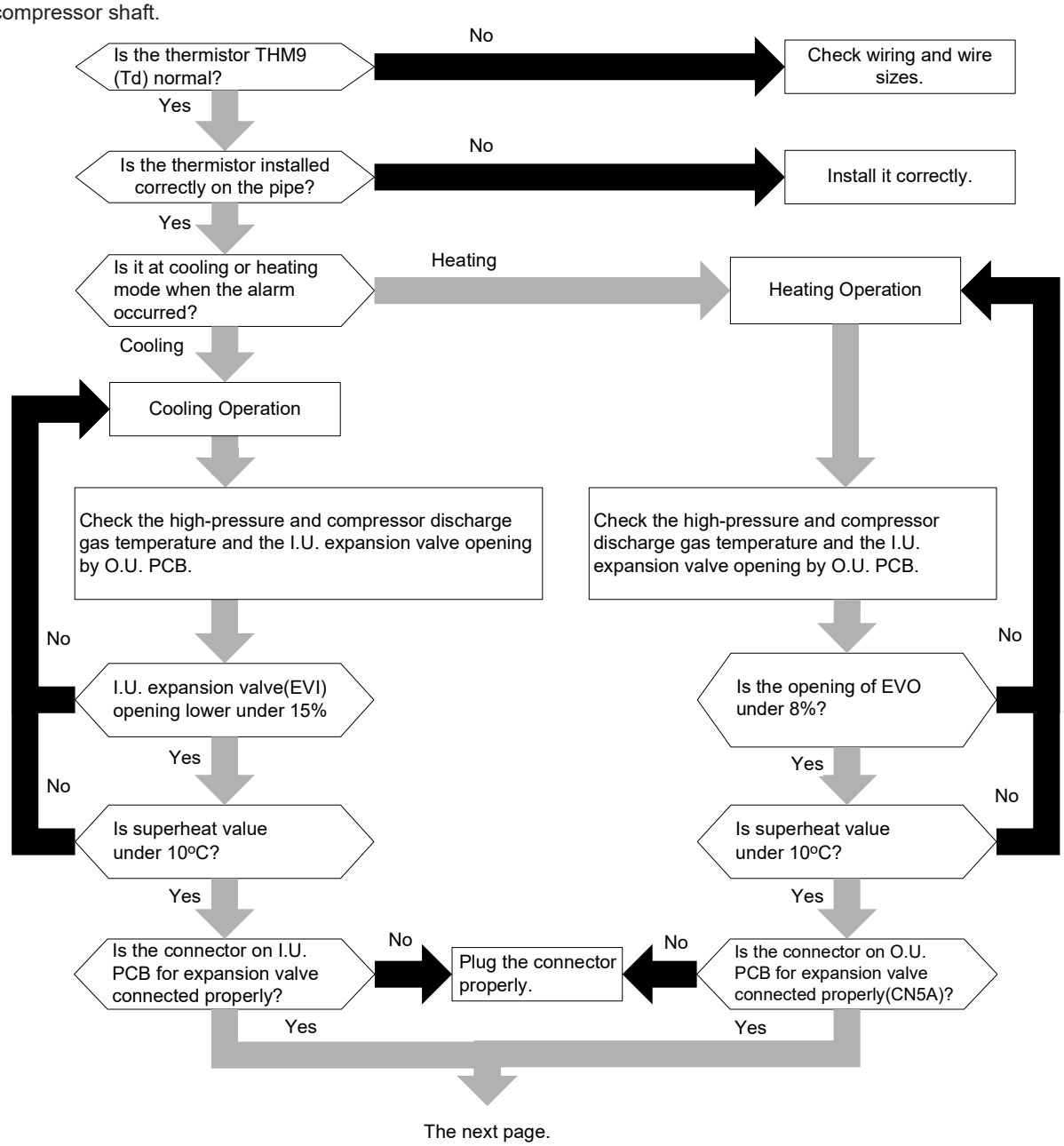
CMC: Magnet Switch for Compressor
DCL: Reactor

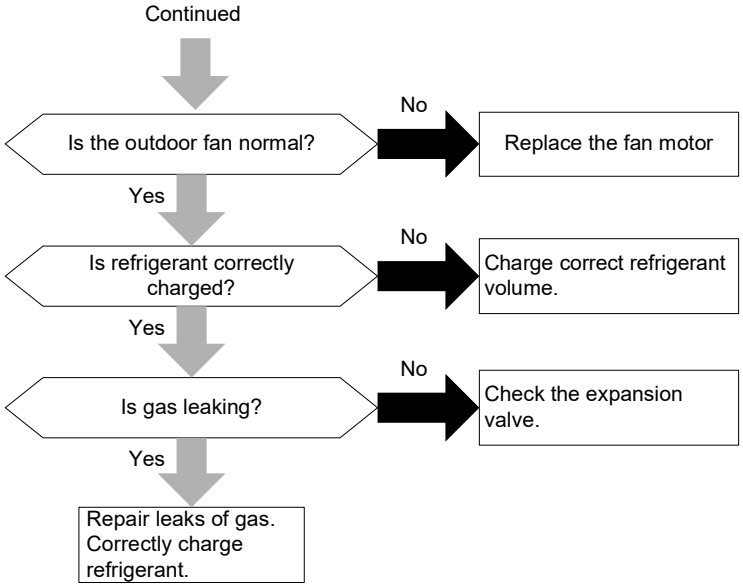
Alarm Code 07	Decrease in Discharge Gas Superheat

- The RUN indicator (Red) is flashing.
- The indoor unit number (Ref. system number - I.U. number), the alarm code, the model code*1), the model name*1) and the number of connected indoor units are displayed on the LCD. The alarm code is flashed on the 7-segment display on the outdoor unit PCB.
  *1) Except for some models.

★ If the temperature of compressor discharge gas is below the estimated condensing temperature for 30 minutes during operation, the compressor stops and then the operation is automatically retried after three minutes. If this occurs again twice in the next 120 minutes, this alarm code is displayed.

★ This alarm code is displayed when an abnormality cannot be detected by the step-out detection, caused by locking of compressor shaft.





Phenomenon	Cause		Check Item	Action (Turn OFF Main Switch)
Decrease of Discharge Gas Superheat	Ref. Cycle is Different from the Electrical System		Check ref. cycle and the electrical system.	Repair wiring.
	Overcharged Refrigerant		Check pressures.	Correctly charge refrigerant.
	Faulty Expansion Valve		Check expansion valve.	Replace expansion valve if faulty.
	Faulty PCB	Fault	Replace PCB and check operation.	Replace PCB if faulty.
		Disconnected Wires for Expansion Valve Control	Check connections.	Repair wiring connections.
	Faulty Discharge Gas Thermistor	Fault	Check resistance of thermistor.	Replace thermistor if faulty.
		Incorrect Mounting	Check mounting state.	Correctly mount thermistor.
		Incorrect Connection	Check connections.	Remove looseness, replace connector or repair connections.

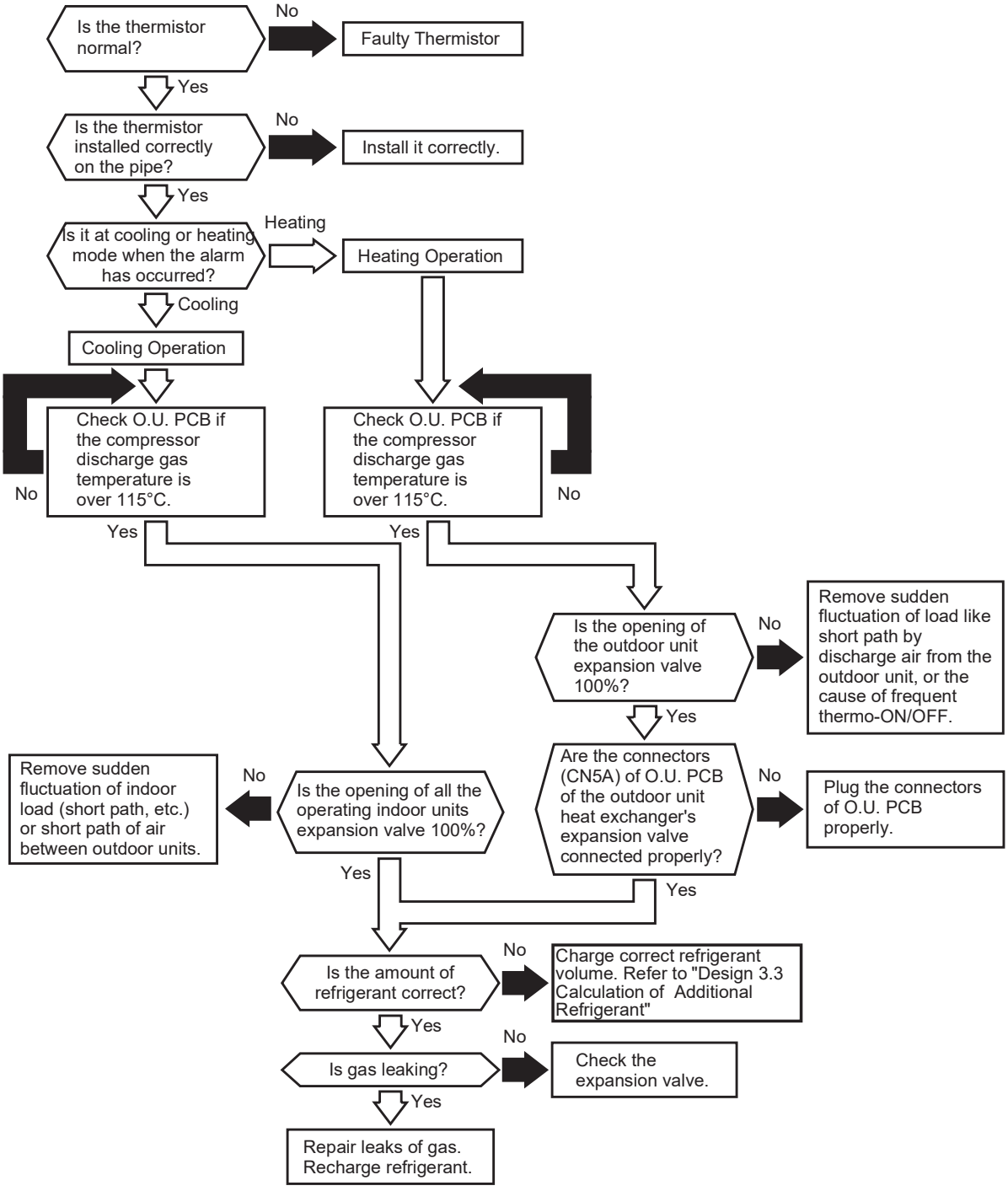
Alarm Code 08	Increase in Discharge Gas Temperature of Compressor

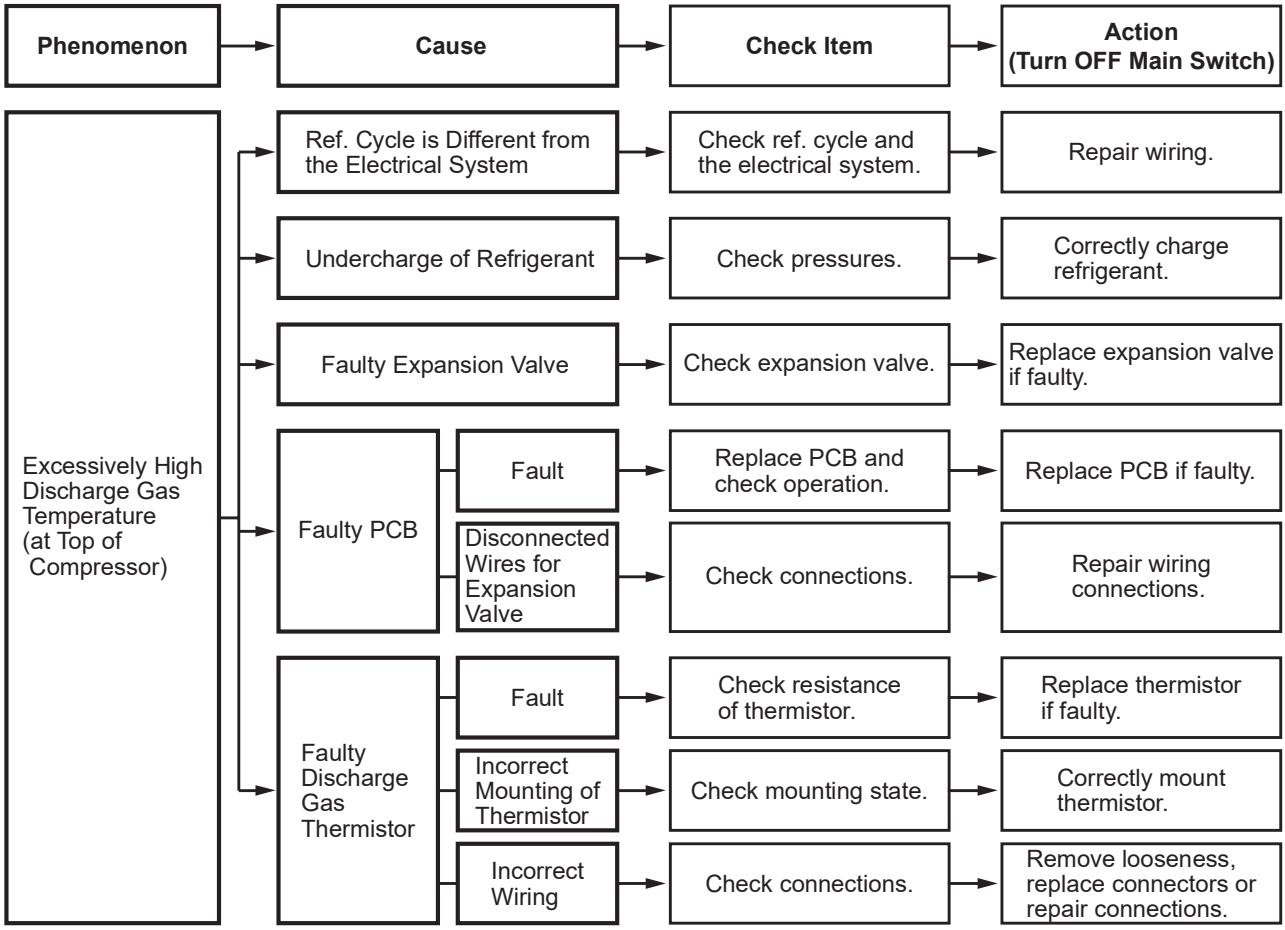
- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ When either of the following conditions occurs, retry operation is performed. However, if it occurs three times within one hour, this alarm code is indicated;

(1) The temperature of the thermistor on the top of the compressor is kept higher than 115°C for 10 minutes.
(2) The temperature of the thermistor on the top of the compressor is kept higher than 122°C for 5 seconds.

O.U. PCB: Outdoor Unit PCB

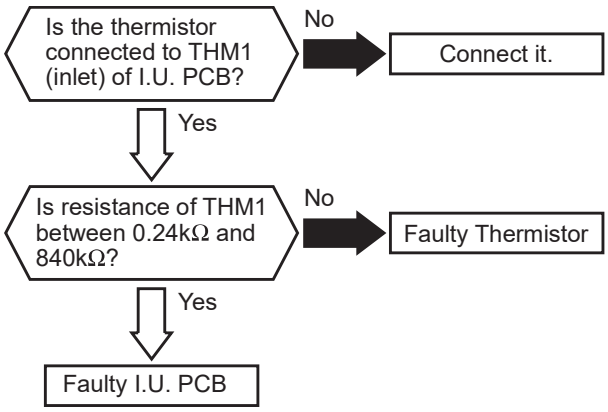



Phenomenon
Cause
Check Item
Action (Turn OFF Main Switch)
Excessively High Discharge Gas Temperature (at Top of Compressor)
Ref. Cycle is Different from the Electrical System
Check ref. cycle and the electrical system.
Repair wiring.
Undercharge of Refrigerant
Check pressures.
Correctly charge refrigerant.
Faulty Expansion Valve
Check expansion valve.
Replace expansion valve if faulty.
Faulty PCB
Fault
Replace PCB and check operation.
Replace PCB if faulty.
Disconnected Wires for Expansion Valve
Check connections.
Repair wiring connections.
Faulty Discharge Gas Thermistor
Fault
Check resistance of thermistor.
Replace thermistor if faulty.
Incorrect Mounting of Thermistor
Check mounting state.
Correctly mount thermistor.
Incorrect Wiring
Check connections.
Remove looseness, replace connectors or repair connections.

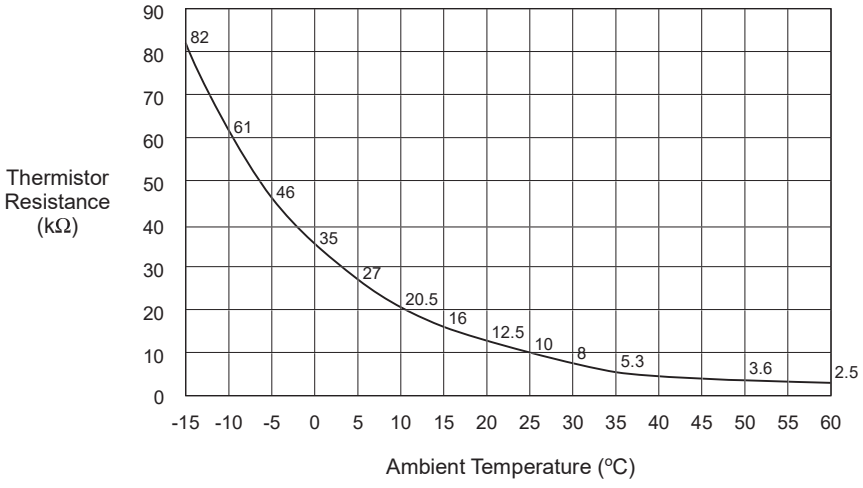
Alarm Code 11	Abnormality of Thermistor for Indoor Unit Inlet Air Temperature (Inlet Air Thermistor)

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

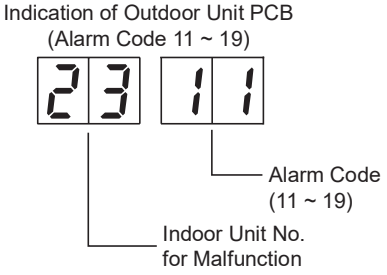
★ This alarm code is indicated when a short circuit (less than 0.24kΩ) or disconnection (more than 840kΩ) of the thermistor is detected during the heating or cooling operation. The operation is automatically restarted when the malfunction is removed.



Phenomenon	Cause	Check Item	Action (Turn OFF Main Switch)
Faulty Inlet Air Thermistor	Fault	Check resistance.	Replace thermistor if faulty.
	Incorrect Connection	Check connection.	Connect wiring correctly.
Faulty I.U. PCB		Replace I.U. PCB and check operation.	Replace I.U. PCB if faulty.



Thermistor Characteristics



NOTE:
This figure is applicable to the following thermistors.

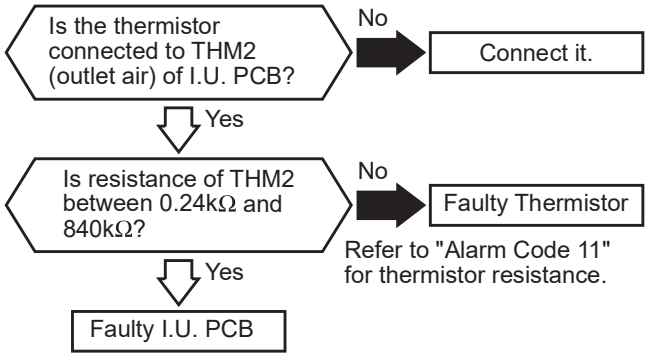
1. Inlet Air Thermistor (THM1)
2. Liquid Pipe Thermistor (Freeze Protection) (THM3)
3. Gas Pipe Thermistor (THM5)
4. Outlet Air Thermistor (THM2)(Some indoor units are not. Please refer to the technical manual of indoor units.)

Alarm Code 17	Abnormality of Thermistor for Indoor Unit Outlet Air Temperature (Outlet Air Thermistor)

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ This alarm code is indicated when a short circuit (less than 0.24kΩ) or disconnection (more than 840kΩ) of the thermistor is detected during the heating or cooling operation. The operation is automatically restarted when the malfunction is removed.

★ Some indoor units are not outlet air thermistor. Please refer to the technical manual of indoor units.

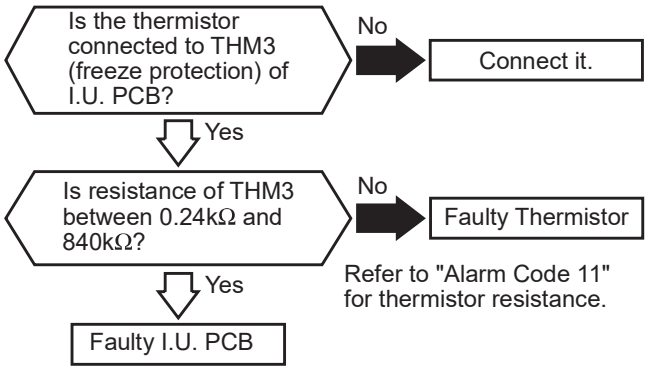


Phenomenon	Cause	Check Item	Action (Turn OFF Main Switch)
Faulty Outlet Air Thermistor	Fault	Check resistance.	Replace thermistor if faulty.
	Incorrect Connection	Check wiring to I.U. PCB.	Connect wiring correctly.
Faulty I.U. PCB		Replace I.U. PCB and check operation.	Replace I.U. PCB if faulty.

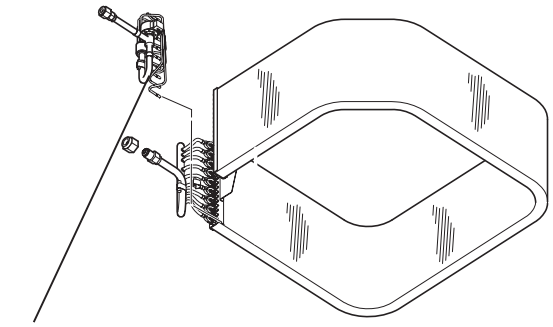
Alarm Code 13	Abnormality of Thermistor for Liquid Refrigerant Pipe Temperature at Indoor Unit Heat Exchanger (Freeze Protection Thermistor)

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

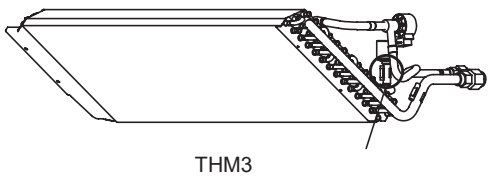
★ This alarm code is indicated when a short circuit (less than 0.24kΩ) or disconnection (more than 840kΩ) of the thermistor is detected during the heating or cooling operation. The operation is automatically restarted when the malfunction is removed.



Phenomenon	Cause	Check Item	Action (Turn OFF Main Switch)
Faulty Freeze Protection Thermistor	Fault	Check resistance.	Replace thermistor if faulty.
	Incorrect Connection	Check wiring to I.U. PCB.	Connect wiring correctly.
Faulty I.U. PCB		Replace I.U. PCB and check operation.	Replace I.U. PCB if faulty.



THM3
Liquid Pipe Thermistor (Freeze Protection)

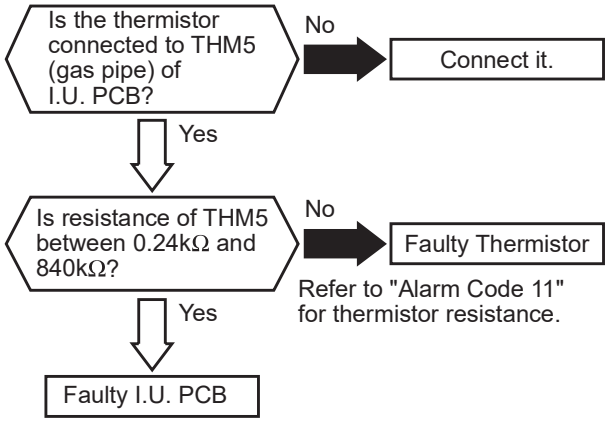


THM3
Liquid Pipe Thermistor (Freeze Protection)

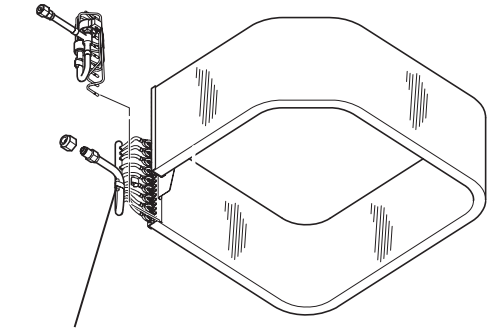
Alarm Code 14	Abnormality of Thermistor for Gas Refrigerant Pipe Temperature at Indoor Unit Heat Exchanger (Gas Pipe Thermistor)

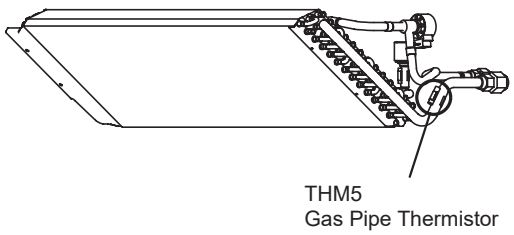
- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ This alarm code is indicated when a short circuit (less than 0.24kΩ) or disconnection (more than 840kΩ) of the thermistor is detected during the heating or cooling operation. The operation is automatically restarted when the malfunction is removed.



Phenomenon	Cause	Check Item	Action (Turn OFF Main Switch)
Faulty Thermistor for Indoor Unit Heat Exchanger Gas Pipe Temp.	Fault	Check resistance.	Replace thermistor if faulty.
	Incorrect Connection	Check wiring to I.U. PCB.	Connect wiring correctly.
Faulty I.U. PCB		Replace I.U. PCB and check operation.	Replace I.U. PCB if faulty.

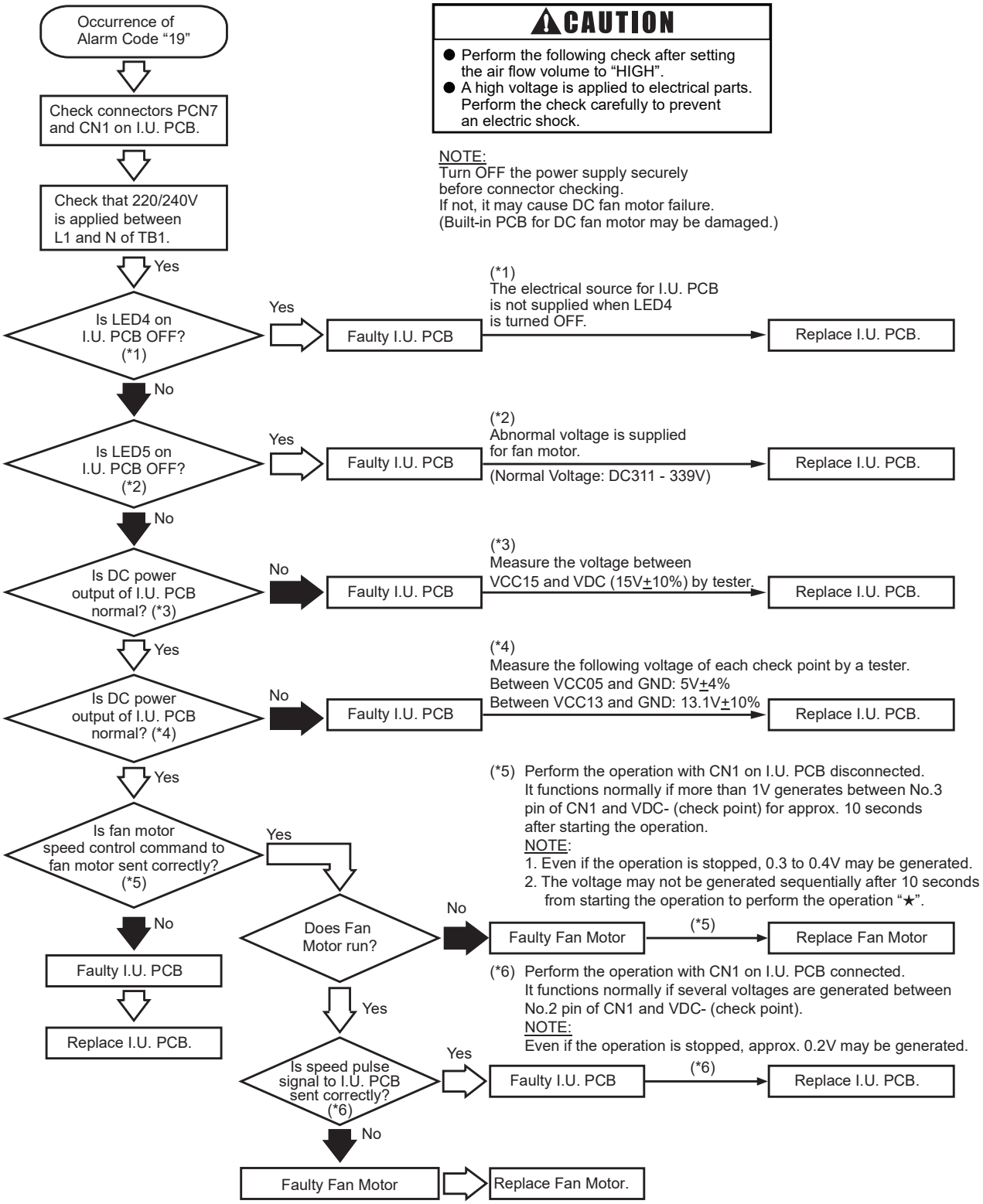




Alarm Code 19	Activation of Protection Device for Indoor Fan Motor (Indoor Unit with DC Motor)

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★This alarm code is indicated when the indoor fan motor rotates at less than 70rpm for 5 seconds three times in 30 minutes during the operation.



⚠CAUTION

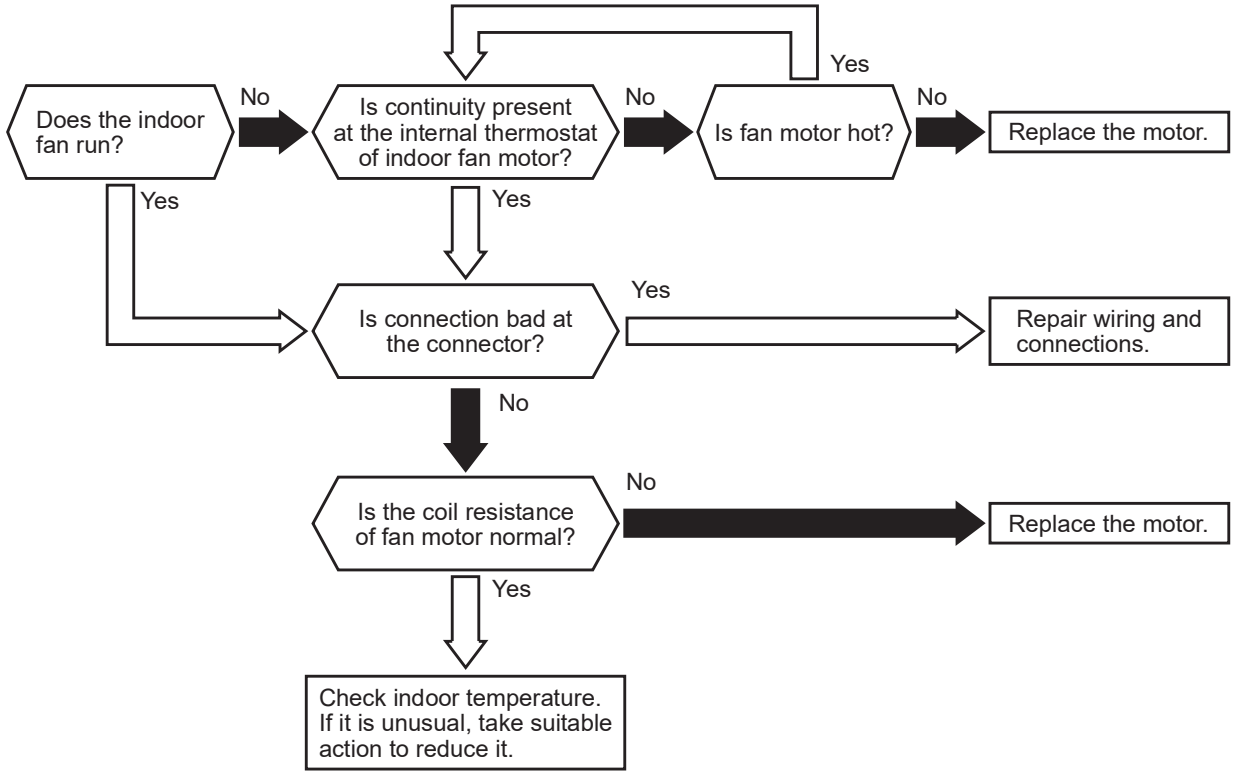
- Perform the following check after setting the air flow volume to "HIGH".
- A high voltage is applied to electrical parts. Perform the check carefully to prevent an electric shock.

NOTE:
Turn OFF the power supply securely before connector checking.
If not, it may cause DC fan motor failure.
(Built-in PCB for DC fan motor may be damaged.)

Alarm Code 19	Activation of Protection Device for Indoor Fan Motor (Indoor Unit with AC Motor)

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ This alarm code is indicated when over approximately 1A is applied to the indoor unit fan motor.



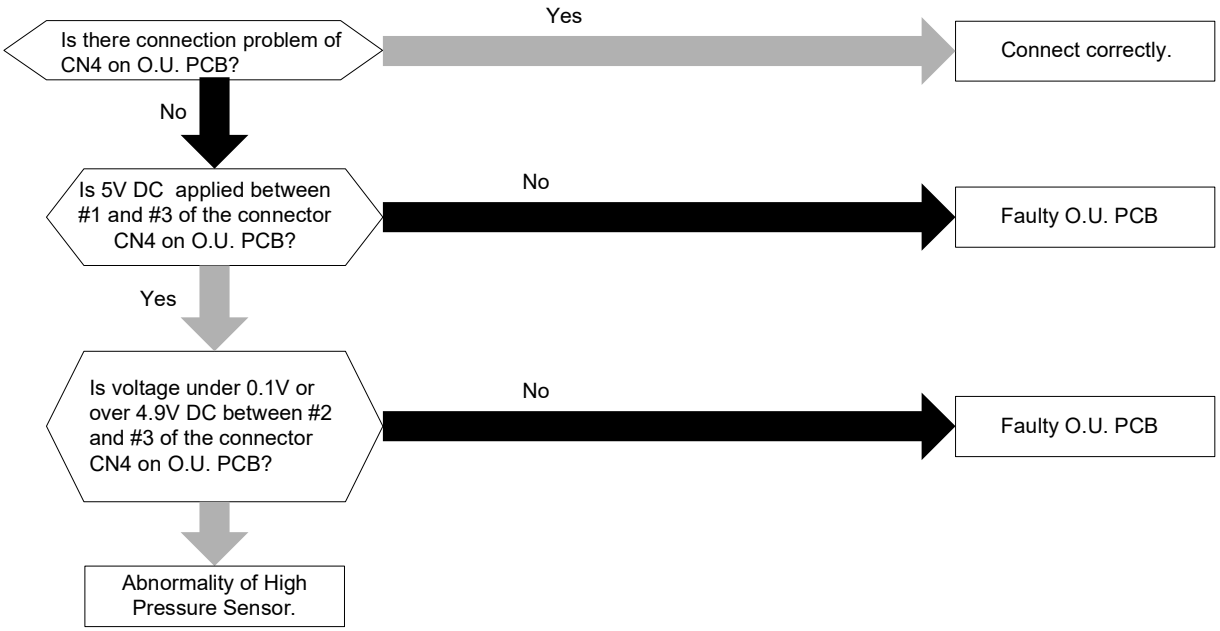
Phenomenon	Cause		Check Item	Action (Turn OFF Main Switch)
Activation of Internal Thermostat for Indoor Unit Fan Motor	Faulty Indoor Unit Fan Motor		Measure coil resistance and insulation resistance.	Replace motor if faulty.
	Faulty Internal Thermostat	Fault	Check continuity after fan motor temperature decreases to room temp.	Replace fan motor if no continuity.
		Insufficient Contacting	Measure resistance by tester.	Correct looseness. Replace connectors.
		Incorrect Connection	Check connections.	Repair connections.

Alarm Code 21	Abnormality of High Pressure Sensor for Outdoor Unit (Pd)

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ This alarm code is indicated when the pressure sensor voltage decreases to 0.1V or less or increases to 4.9V or more during running.

O.U. PCB: Outdoor Unit PCB



Phenomenon	Cause	Check Item	Action (Turn OFF Main Switch)
Indication Value of High Pressure (Pd) is Excessively High or Low	Fault	Check output characteristics *1)	Replace High Pressure Sensor if faulty.
	Incorrect Connection	Check wiring to O.U. PCB.	Repair wiring and connections.
Faulty O.U. PCB		Replace O.U. PCB and check operation.	Replace O.U. PCB if faulty.

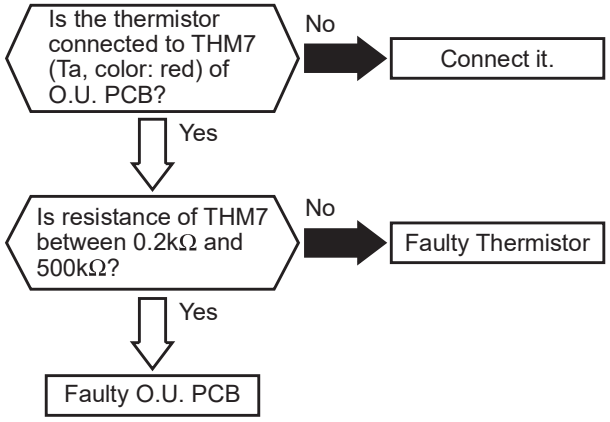
*1) Check output characteristics refer to "2.5.3 pressure sensor"

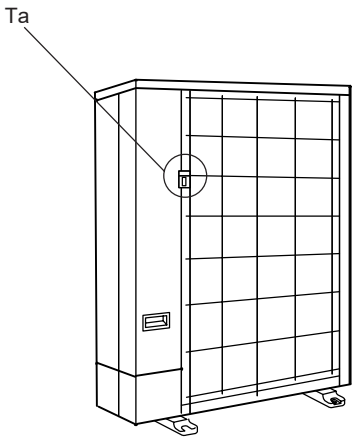
Alarm Code 22	Abnormality of Thermistor for Outdoor Unit Ambient (Ta)

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

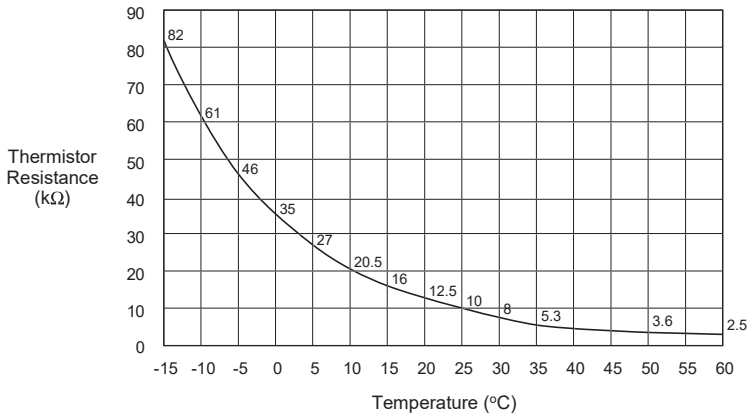
★ This alarm code is indicated when a short circuit (less than 0.2kΩ) or disconnection (more than 500kΩ) of the thermistor is detected during the operation.

O.U. PCB: Outdoor Unit PCB





Phenomenon	Cause	Check Item	Action (Turn OFF Main Switch)
Faulty Thermistor for Outdoor Unit Ambient	Fault	Check resistance.	Replace thermistor if faulty.
	Incorrect Connection	Check wiring to O.U. PCB.	Repair wiring and connections.
Faulty O.U. PCB1		Replace O.U. PCB1 and check operation.	Replace O.U. PCB1 if faulty.



Thermistor Characteristics

NOTE:
This figure is applicable to the following thermistors.

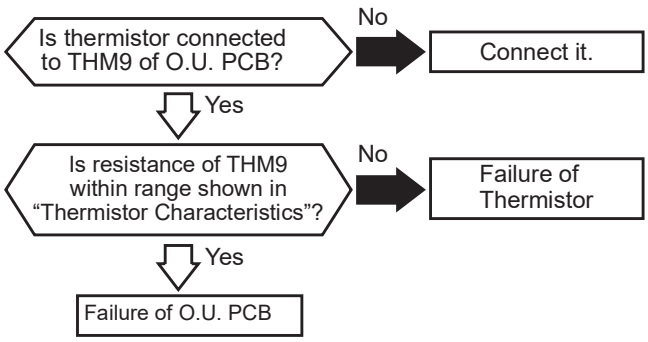
1. Ta (THM7),
2. Te (THM8)
3. Tsc (THM19),

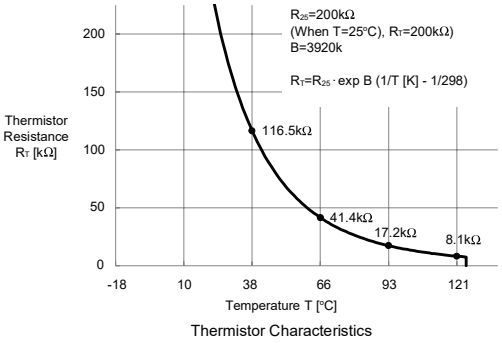
Alarm Code 23	Abnormality of Thermistor for Discharge Gas Temperature(Td)

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB. (For the combination of outdoor units, the alarm code is displayed on PCB of outdoor unit A.) Additionally for the outdoor unit number and compressor number with abnormal thermistor, check the alarm code history.

★ This alarm code is indicated when a short circuit (less than 0.9kΩ) for a second or disconnection (more than 5946kΩ) of the thermistor is detected during the operation.

O.U. PCB: Outdoor Unit PCB





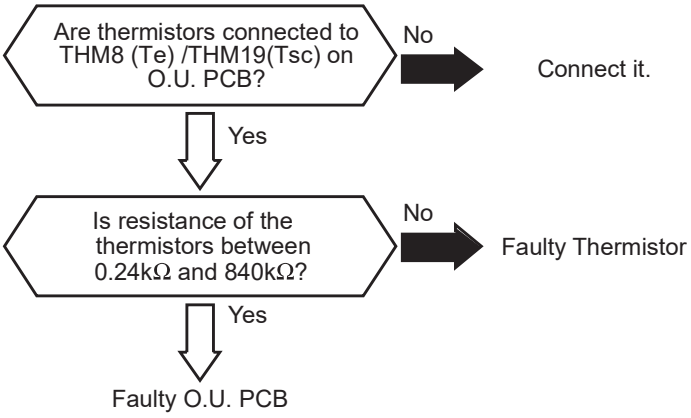
Phenomenon	Cause	Check Item	Action (Turn OFF Main Switch)
Faulty Discharge Gas Thermistor	Fault	Check resistance.	Replace thermistor if faulty.
	Incorrect Connection	Check wiring to O.U. PCB.	Repair wiring and connections.
Faulty O.U. PCB		Replace O.U. PCB and check operation.	Replace O.U. PCB if faulty.

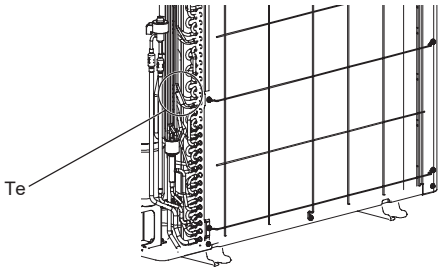
Alarm Code 24	Abnormality of Thermistor for Evaporating Temperature during Heating Operation (Te) and Refrigerant Cooler(Tsc*1)

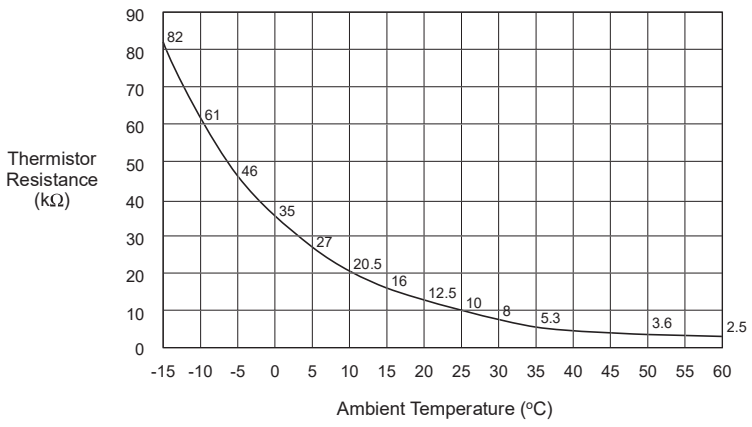
- The RUN indicator (Red) is flashing.
- The indoor unit number (Ref. system number - I.U. number), the alarm code and the number of connected indoor units are displayed on the LCD. The alarm code is flashed on the 7-segment display o the outdoor unit PCB.

  *1) Only for AVW-41~114HKFHH2.

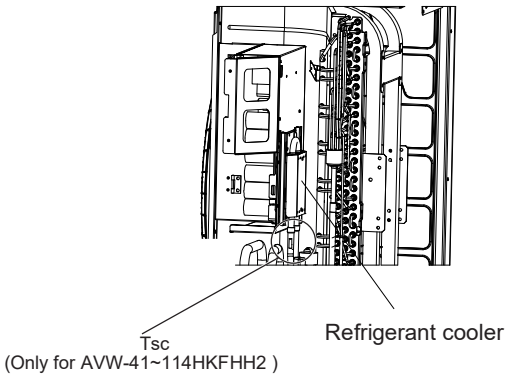
★ This alarm code is displayed when a short circuit (0.24kΩ or less) or disconnection (840kΩ or more) of the thermistor is detected during heating or cooling operation.







Thermistor Characteristics



O.U. PCB: outdoor unit PCB

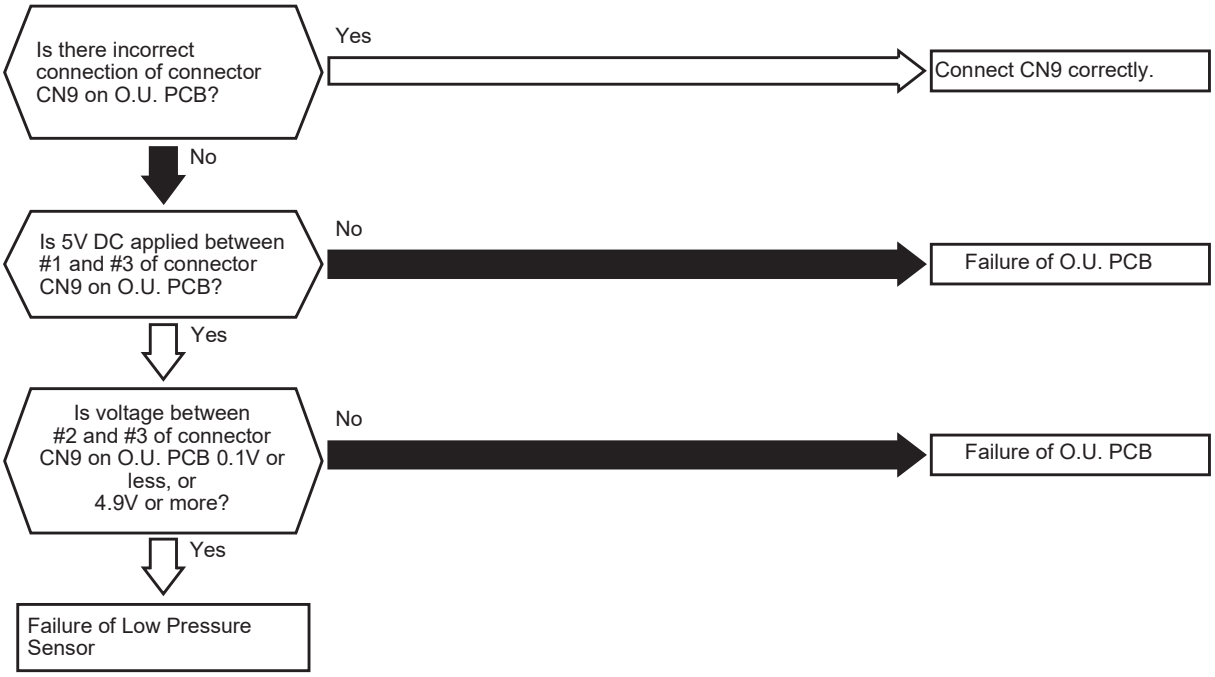
Phenomenon	Cause	Check Item	Action (Turn OFF Main Switch)
Failure of Thermistor	Failure	Check resistance.	Replace thermistor if faulty.
	Incorrect Connection	Check wiring to O.U. PCB.	Repair wiring and connection.
Failure of O.U. PCB		Replace O.U. PCB. and check operation.	Replace O.U. PCB if faulty.

Alarm Code 29	Abnormality of Low Pressure Sensor for Outdoor Unit (Ps)

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ This alarm code is indicated when the pressure sensor voltage decreases to 0.1V or less or increases to 4.9V or more during running.

O.U. PCB: Outdoor Unit PCB



Phenomenon	Cause	Check Item	Action (Turn OFF Main Switch)
Indication Value of Low Pressure (Ps) is Excessively High or Low	Fault	Check output characteristics *1)	Replace Low Pressure Sensor if faulty.
	Incorrect Connection	Check wiring to O.U. PCB.	Repair wiring and connections.
Faulty O.U. PCB		Replace O.U. PCB and check operation.	Replace O.U. PCB if faulty.

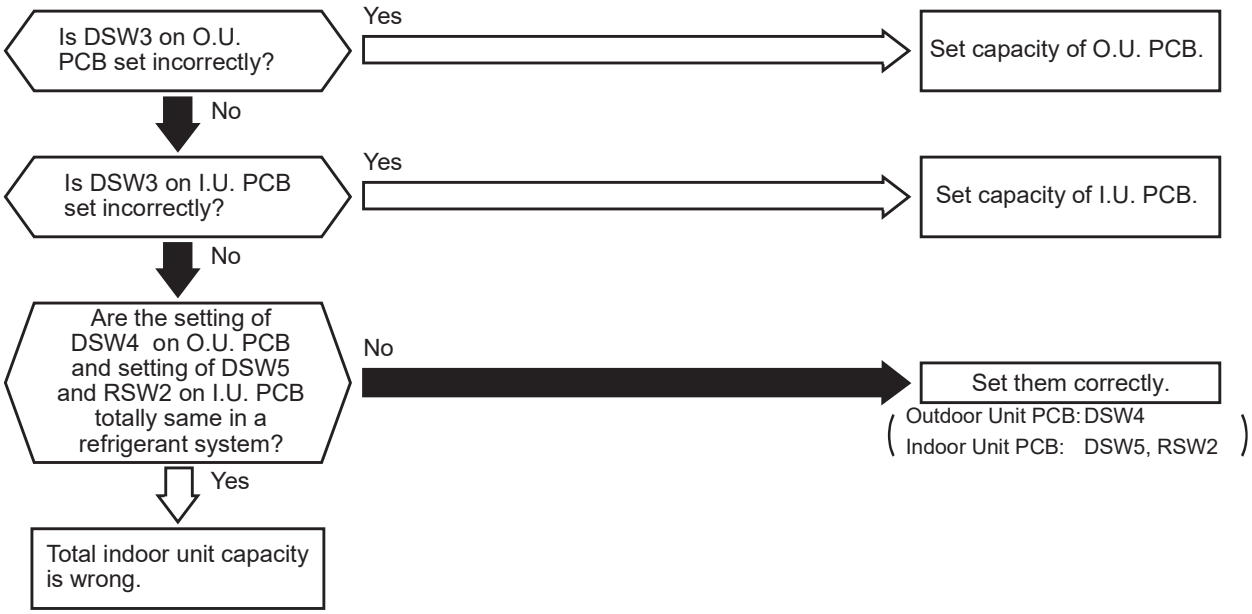
*1) Check output characteristics refer to "2.5.3 pressure sensor"

Alarm Code 31	Incorrect Capacity Setting of Indoor Unit and Outdoor Unit

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ This alarm code is indicated when the capacity setting dip switch, DSW3 on the outdoor unit PCB is not set (all the settings from #1 to #4 are OFF) or set incorrectly.

★ This alarm code is indicated when the total indoor unit capacity is smaller than 50% or greater than 150% of the combined outdoor unit capacity.



Phenomenon	Cause	Check Item	Action (Turn OFF Main Switch)
Incorrect Capacity Setting of Indoor Unit		Check combination of indoor units and capacity setting on I.U. PCB.	Correctly set DIP switch, DSW3.
Incorrect Capacity Setting of Outdoor Unit		Check capacity setting on O.U. PCB.	Correctly set DIP switch, DSW3.
Total Indoor Unit Capacity Connected to the Outdoor Unit is Beyond Permissible Range		Check outdoor unit model by calculating total indoor units capacity.	Ensure that total indoor unit capacity is from 50% to 150%.
Refrigeration Cycle Setting of Outdoor Unit and Indoor Unit is Different		Check refrigeration cycle setting on O.U. PCB and I.U. PCB.	Set them correctly.

Alarm Code 35	Incorrect Indoor Unit No. Setting

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ This alarm code is displayed when the duration of automatic addressing of indoor unit exceeds 5 minutes after power-on of outdoor unit.

★ This alarm code is displayed when the number of connected indoor units exceeds the maximum allowed .*1)

★ This alarm code is displayed when refrigerant system No. set by DSW4 on O.U. PCB in the same H-NET system duplicates.

*1) The value of maximum number of connectable I.U. is refer to "Design 1.2 Application Case"

NOTE:

- In the case of H-NET system, this alarm code may be displayed when DSW4 (for refrigerant system No. setting) on the outdoor unit PCB and DSW5 and RSW2 (for refrigerant system No. setting) on the indoor unit PCB are not set correctly. In this case, turn OFF the power supply and set them correctly, and turn ON the power supply again.
(The rotary switch RSW2 is not available depending on the indoor unit model.)

Alarm Code 36	Incorrect Indoor Unit Combination

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

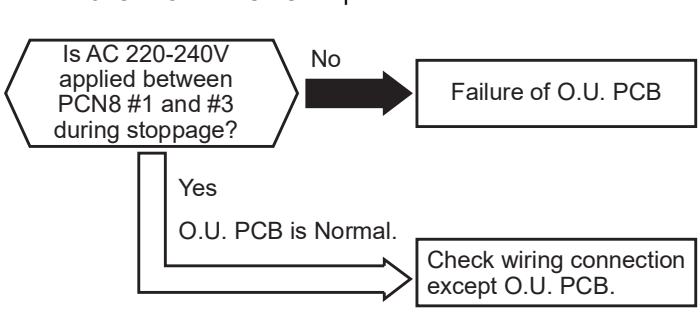
★ This alarm code is indicated when the indoor unit connected to the outdoor unit is for other refrigerants (R22 or R407C).

Alarm Code 38	Abnormality of Picking up Circuit for Protection in Outdoor Unit

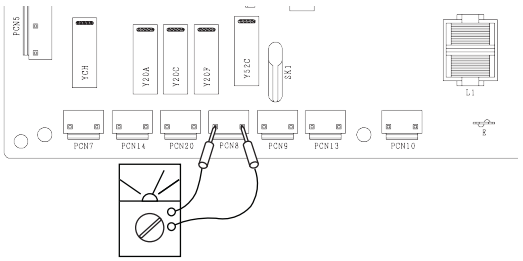
- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

AVW-41/48/54HJFHH2

- The alarm code appears if AC 200V or AC 240V is supplied to the connector on the outdoor unit PCB (see table below) while Y52C is OFF or CMC is open.



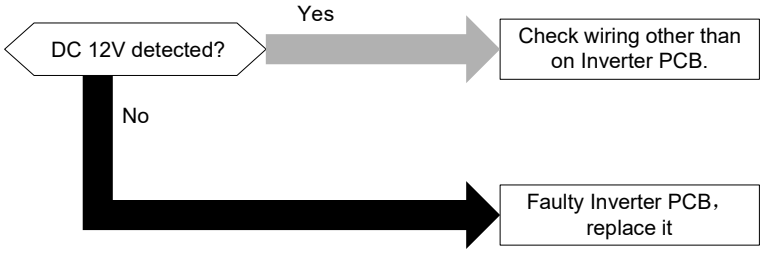
O.U. PCB: Outdoor Unit PCB

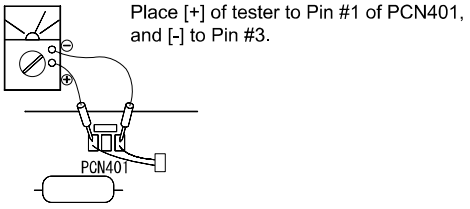


	Connector No. for Check
Connector	PCN8
Pin No.	#1 and #3

AVW-41/48/54HJFHH1. AVW-41~114HKFHH2

- The alarm code appears if approx. DC12V is supplied to the Inverter PCB connector (see table below) when the inverter operation is commanded (after five seconds following activation of the remote control switch).
  Place the tester as shown in the diagram below to check the connector of PCN401. The connector shall remain inserted. DC12V will constantly be detected and disturb the diagnosis if the connector of PCN401 is pulled out.





Phenomenon	Cause	Check Item	Action (Turn OFF Main Switch)
Activation of Picking up Circuit for Protection	Starting Outdoor Unit at Activation of Pickig up Circuit for Protection	Alarm Code History: “02” before “38”.	Refer to Alarm Code “02”
Abnormality of Picking up Circuit for Protection	Incorrect Connection	Check voltage supplied to connectors.	Repair wiring connections.
Faulty O.U. PCB or inverter PCB			Replace O.U. PCB. or inverter PCB

*1): This alarm code may be indicated when the high pressure switch (PSH) is connected incorrectly or fails (open fault). The item for alarm code 02 should be checked as well.

Alarm Code 43	Activation of Low Compression Ratio Protection Device (Only for AVW-41/48/54HJFHH1 with low-pressure switch)

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

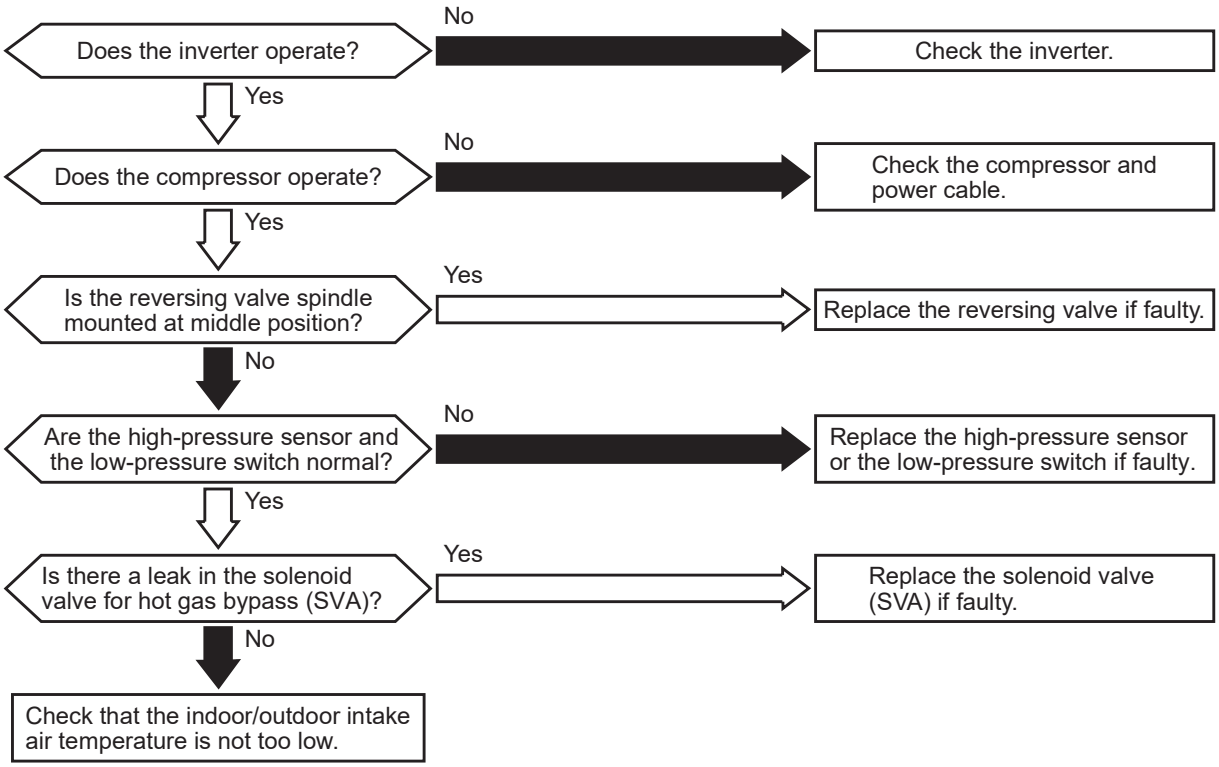
★ If the pressure ratio ε*1) is less than 1.0 for 1 minute or less than 1.5 for 5 minute, the compressor stops. The operation automatically restarts after three minutes. If this occurs again twice in the next 30 minutes, this alarm code is displayed.

*1) Pressure Ratio ε = (Pd[MPa] + 0.1)/(Ps[MPa] + 0.06))

Pd: high pressure (discharge pressure)

Ps: low pressure (suction pressure)

O.U. PCB: Outdoor Unit PCB



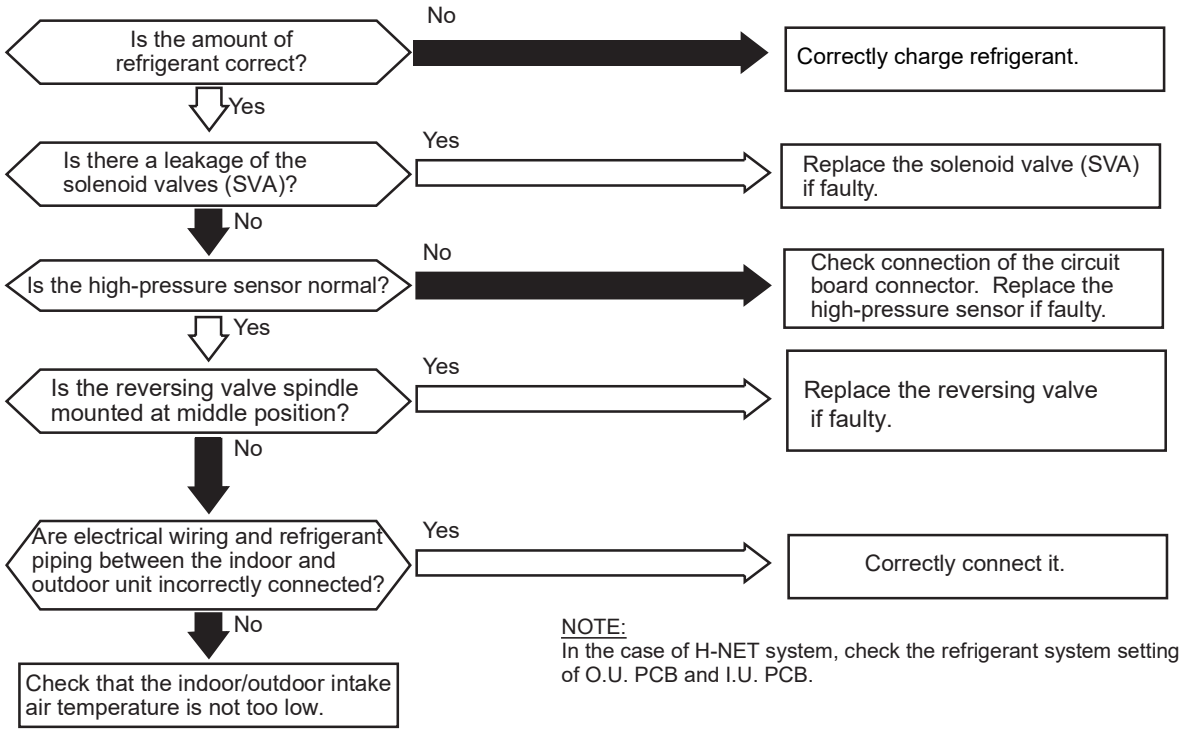
Phenomenon	Cause	Check Item	Action (Turn OFF Main Switch)
Excessively Low Compression Ratio	Inverter is not Functioning	Check inverter.	Repair faulty part.
	Compressor is not Operating	Check compressor.	Replace comp. if faulty.
	Valve Stoppage at Middle Position of Reversing Valve	Measure suction pipe temp. of reversing valve.	Replace reversing valve if faulty.
	Abnormality of High Pressure Sensor or Low Pressure Switch	Check connector for O.U. PCB, power supply and pressure indication.	Replace components if faulty.
	Excessively Low Indoor Intake Air Temperature	Check indoor unit and outdoor unit air temp. thermistor.	Replace thermistor if faulty.
	Leakage from solenoid valve (SVA)	Check solenoid valve.	Replace SVA if leakage occurs.

Alarm Code 46	Activation of High Pressure Decrease Protection Device (Only for AVW-41/48/54HJFHH1 with low-pressure switch)

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ When the discharge pressure (Pd) continues to be lower than 1.0MPa for 30 minutes,all the compressors stop and then retry the operation after 3 minutes.
This alarm code is indicated when this occurs once more within the next 35 minutes.

O.U. PCB: Outdoor Unit PCB
I.U. PCB: Indoor Unit PCB



NOTE:
In the case of H-NET system, check the refrigerant system setting of O.U. PCB and I.U. PCB.

Phenomenon	Cause	Check Item	Action (Turn OFF Main Switch)
Excessively Low Discharge Pressure	Shortage of Ref.	Check charged ref. volume or check for leakage.	Repair leakage and correctly charge.
	Leakage of Solenoid Valve (SVA)	Check Solenoid Valve.	Replace SVA if leakage occurs.
	Abnormal High Pressure Sensor	Check connectors for O.U. PCB.	Replace pressure sensor if faulty.
	Valve Stoppage at Middle Position of Reversing Valve	Measure suction pipe temp. of reversing valve.	Replace reversing valve if faulty.
	Incorrect Connection between Indoor Unit and Outdoor Unit	Check electrical system and ref. cycle.	Correctly connect them.
	Excessively Low Indoor/ outdoor Intake Air Temperature	Check indoor unit and outdoor unit air temp. thermistor.	Replace thermistor if faulty.

Alarm Code 47	Activation of Low Pressure Decrease Protection Device (Vacuum Operation Protection)

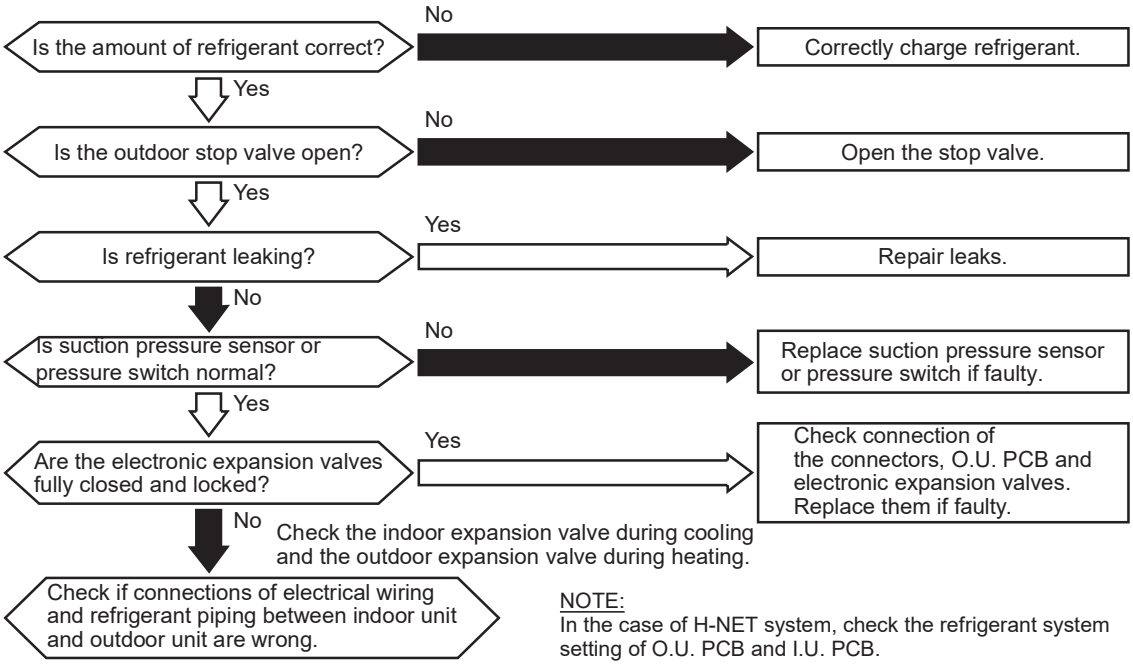
- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★This alarm code is indicated when a suction pressure (Ps) is lower than 0.09MPa for over 12 minutes and the same condition occurs twice or more within one hour.

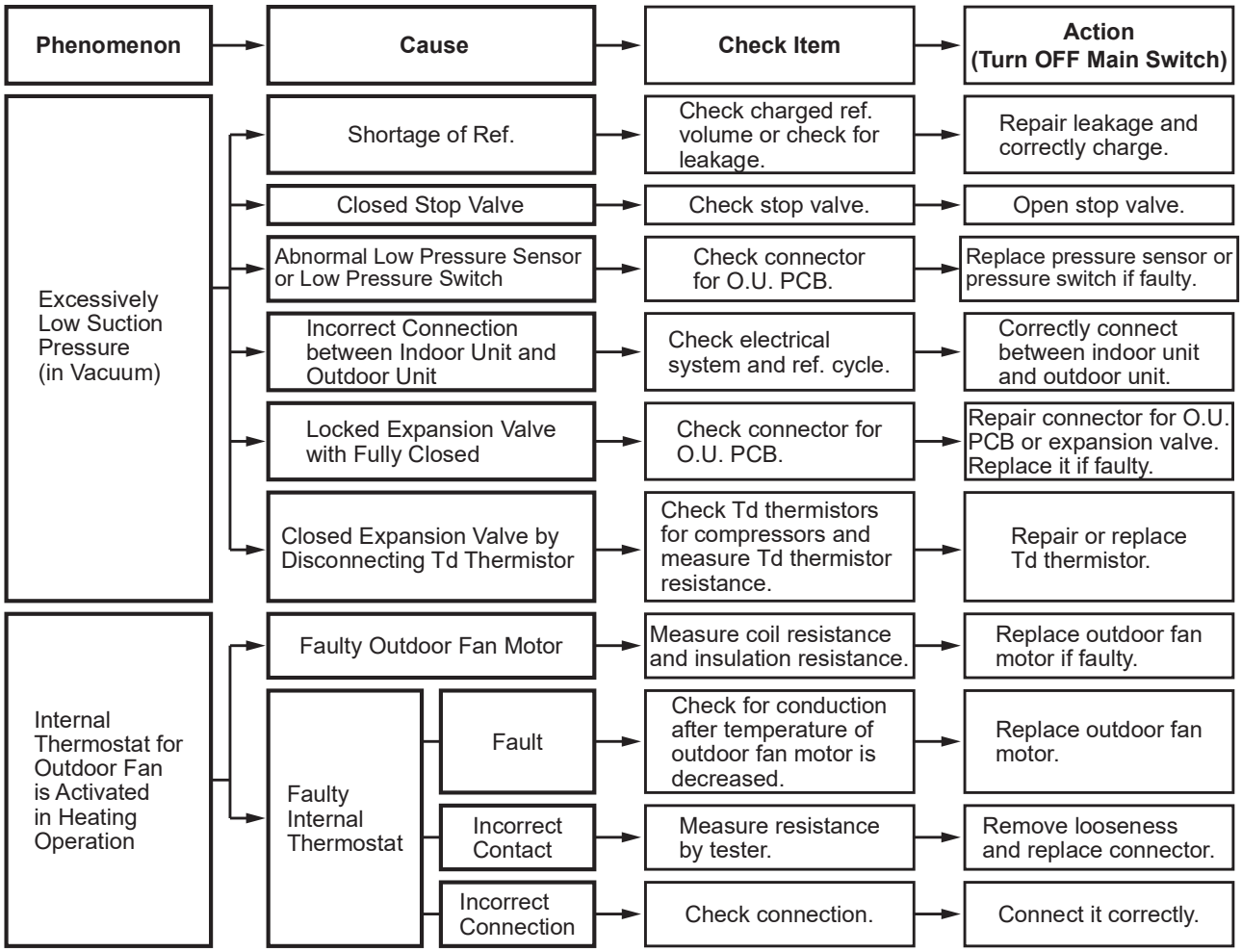
★This alarm code is indicated when The action of low pressure switch(PSL) lasts for 30 seconds and the same condition occurs twice or more within one hour.

Low preesure switch	AVW-41/48/54HKFHH1
Low pressure sensor	AVW-41/48/54HJFHH2,AVW-41~114HKFHH2

O.U. PCB: Outdoor Unit PCB
I.U. PCB: Indoor Unit PCB



NOTE:
In the case of H-NET system, check the refrigerant system setting of O.U. PCB and I.U. PCB.


Phenomenon
Cause
Check Item
Action (Turn OFF Main Switch)
Excessively Low Suction Pressure (in Vacuum)
Shortage of Ref.
Check charged ref. volume or check for leakage.
Repair leakage and correctly charge.
Closed Stop Valve
Check stop valve.
Open stop valve.
Abnormal Low Pressure Sensor or Low Pressure Switch
Check connector for O.U. PCB.
Replace pressure sensor or pressure switch if faulty.
Incorrect Connection between Indoor Unit and Outdoor Unit
Check electrical system and ref. cycle.
Correctly connect between indoor unit and outdoor unit.
Locked Expansion Valve with Fully Closed
Check connector for O.U. PCB.
Repair connector for O.U. PCB or expansion valve. Replace it if faulty.
Closed Expansion Valve by Disconnecting Td Thermistor
Check Td thermistors for compressors and measure Td thermistor resistance.
Repair or replace Td thermistor.
Internal Thermostat for Outdoor Fan is Activated in Heating Operation
Faulty Outdoor Fan Motor
Measure coil resistance and insulation resistance.
Replace outdoor fan motor if faulty.
Faulty Internal Thermostat
Fault
Check for conduction after temperature of outdoor fan motor is decreased.
Replace outdoor fan motor.
Incorrect Contact
Measure resistance by tester.
Remove looseness and replace connector.
Incorrect Connection
Check connection.
Connect it correctly.

Alarm Code 48	Activation of Inverter Overcurrent Protection Device (1)

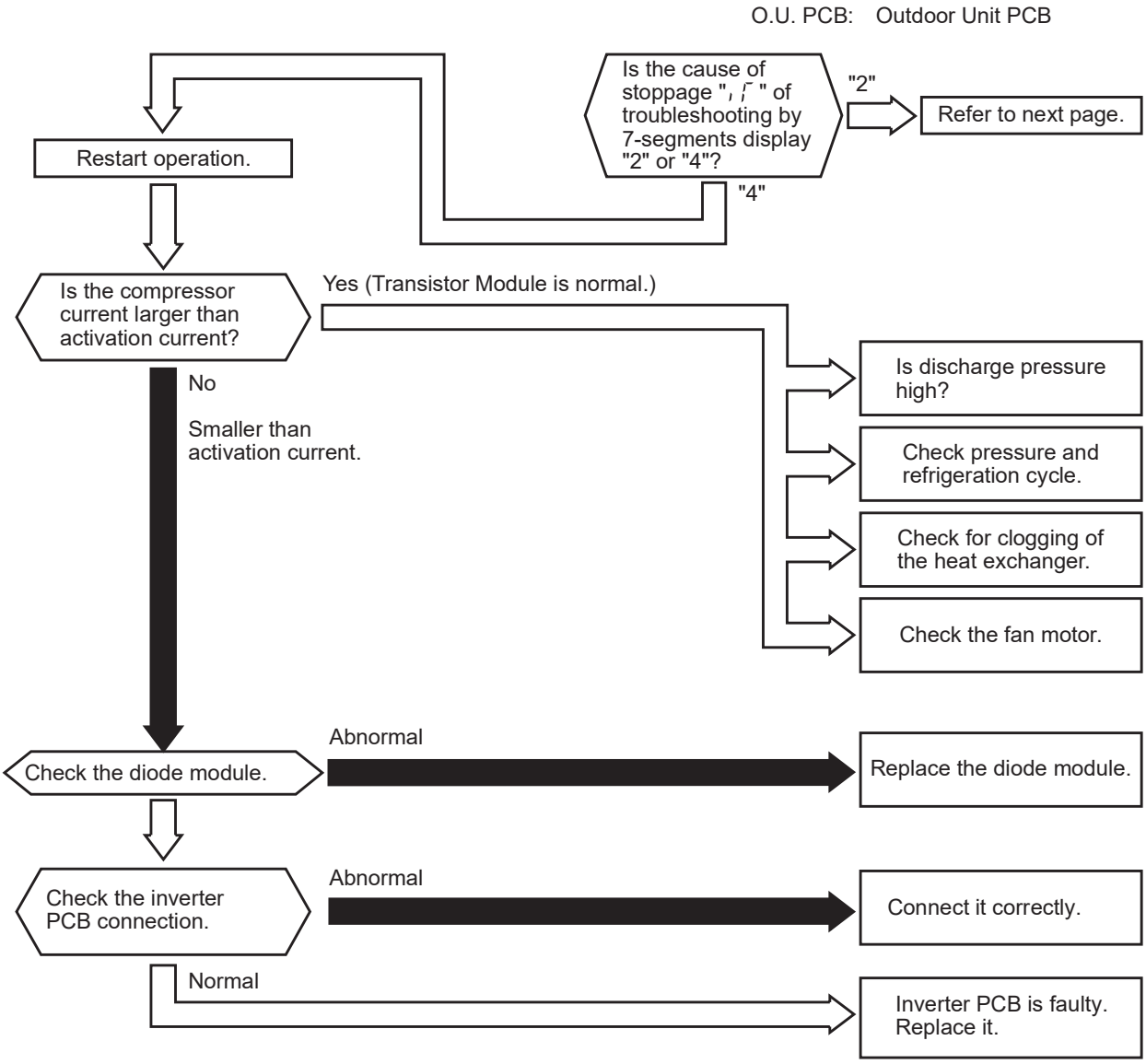
- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ This alarm code is indicated when inverter electronic thermal protection is activated six times within 30 minutes. (Retry operation is performed up to the occurrence of five times.)

Conditions of Activation:

(1) Inverter current with 105% of the rated current runs for 30 seconds continuously.
(2) Inverter current runs intermittently and the accumulated time reaches up to 3 minutes, in 10 minutes.

O.U. PCB: Outdoor Unit PCB



iTC	Cause of inverter stoppage
2	Instantaneous overcurrent
4	Inverter overcurrent

Alarm Code 48	Activation of Inverter Overcurrent Protection Device (2)

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

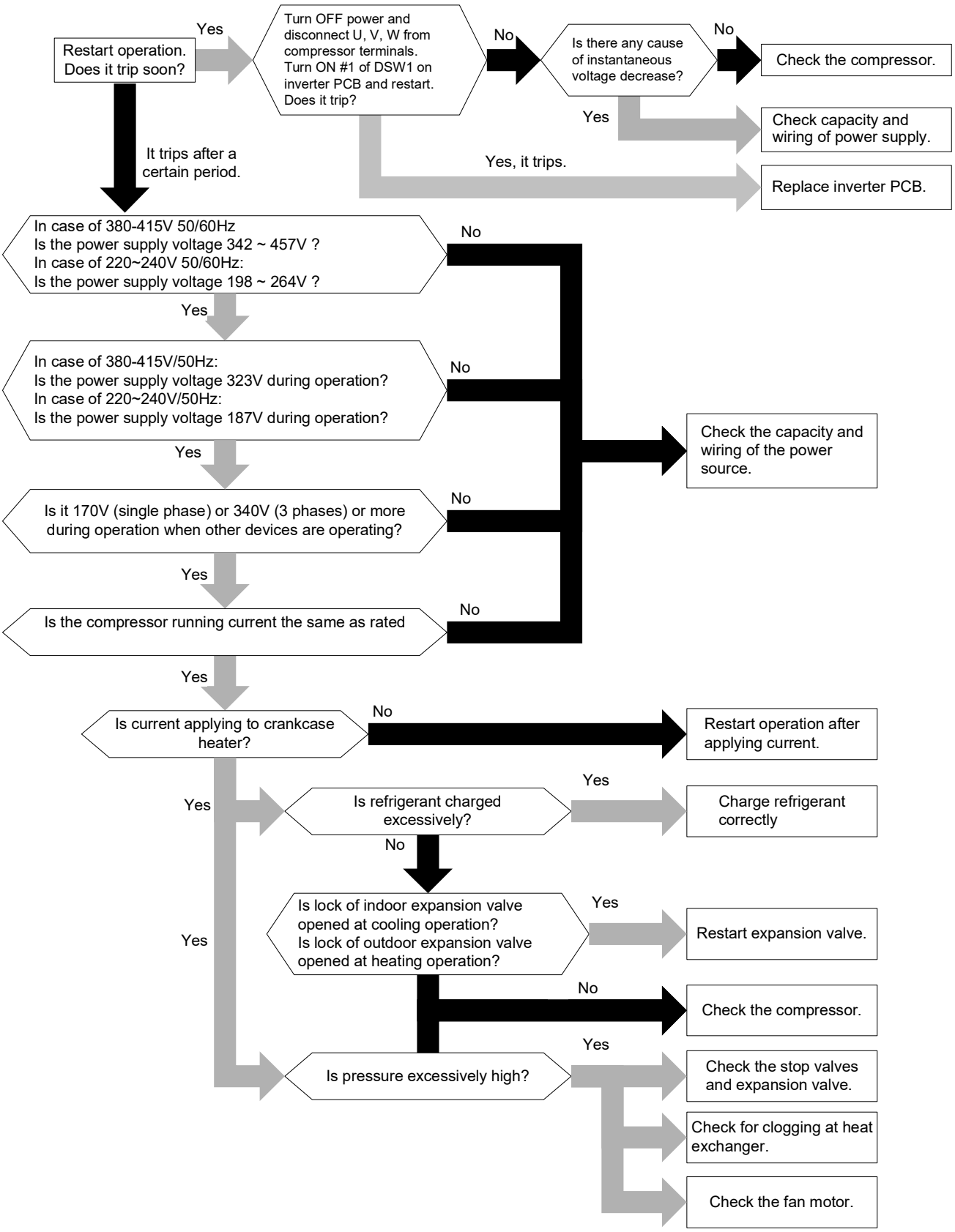
★ If instantaneous overcurrent or electronic thermal protection occurs on inverter as follows, the compressor stops. The operation automatically restarts after three minutes. If this occurs again five times in the next 30 minutes, this alarm code is displayed.

Condition of Activation:

(1) Instantaneous overcurrent (Cause code of inverter stoppage = 2)
Inverter secondary current is higher than 150% of the rated current instantaneously.

(2) Inverter electronic thermal protection (Cause code of inverter stoppage = 4)
Inverter primary/secondary current is higher than 105% of the rated current for 30 seconds continuously, or Inverter primary/secondary current is higher than 105% of the rated current intermittently for 3 minutes per 10 minutes.

O.U.: Outdoor Unit
I.U.: Indoor Unit



Alarm Code 51	Abnormality of Current Sensor

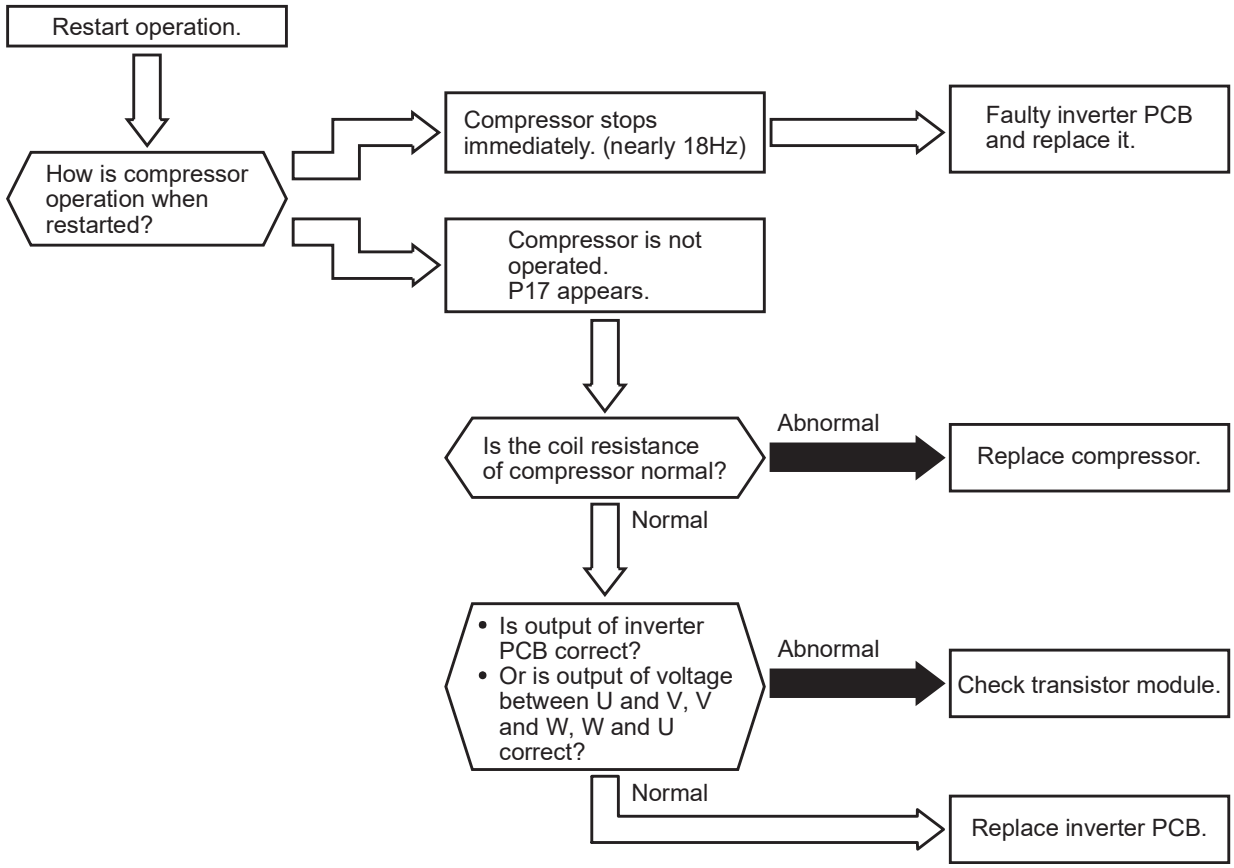
- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ In case that the abnormality of current transformer (0A detecting) occurs three times within 30 minutes, this alarm code is indicated at the third time.
(Retry operation is performed for the first two times.)

Condition of Activation:

(1) When the frequency of compressor is maintained at 15 to 18Hz after compressor is started, one of the absolute value of running current detected by the current transformer at each phase U+, U-, V+ and V- is less than 1.5A (including 1.5A).

(2) The wave height value of running current for the phase positioning is less than 5A before the compressor is started (at completing the phase positioning).



iTC	Cause of inverter stoppage
8	Abnormal current sensor or imbalance of U/V/W

Alarm Code 53	Inverter Error Signal Detection

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

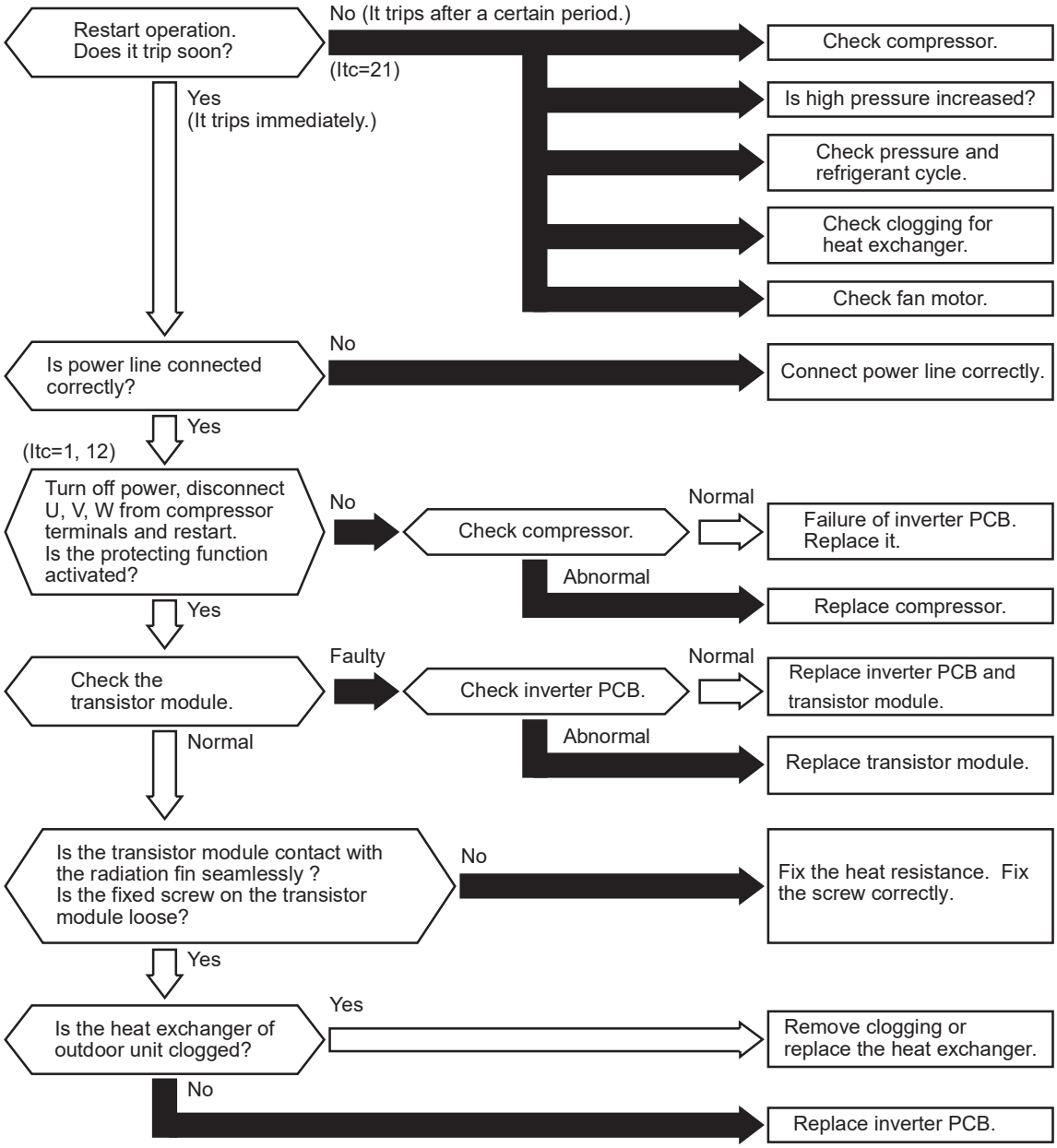
★ IPM (Transistor Module) has abnormality-detecting function.
This alarm code is indicated when the abnormality is detected seven times within 30 minutes.
(Retry operation is performed for the first 6 times.)

Condition of Activation:

(1) IPM Error (Cause code of inverter stoppage = 1)
Inverter PCB detects IPM fault signal due to abnormal current, control voltage decrease or etc.

(2) Ground Fault Detection from Compressor (Cause code of inverter stoppage = 12)
Inverter PCB detects overcurrent when checking ground fault before compressor starts operation.

(3) Step-Out Detection (Cause code of inverter stoppage = 21)
The angle difference between the shaft in compressor and the shaft in the control program exceeds 60°.



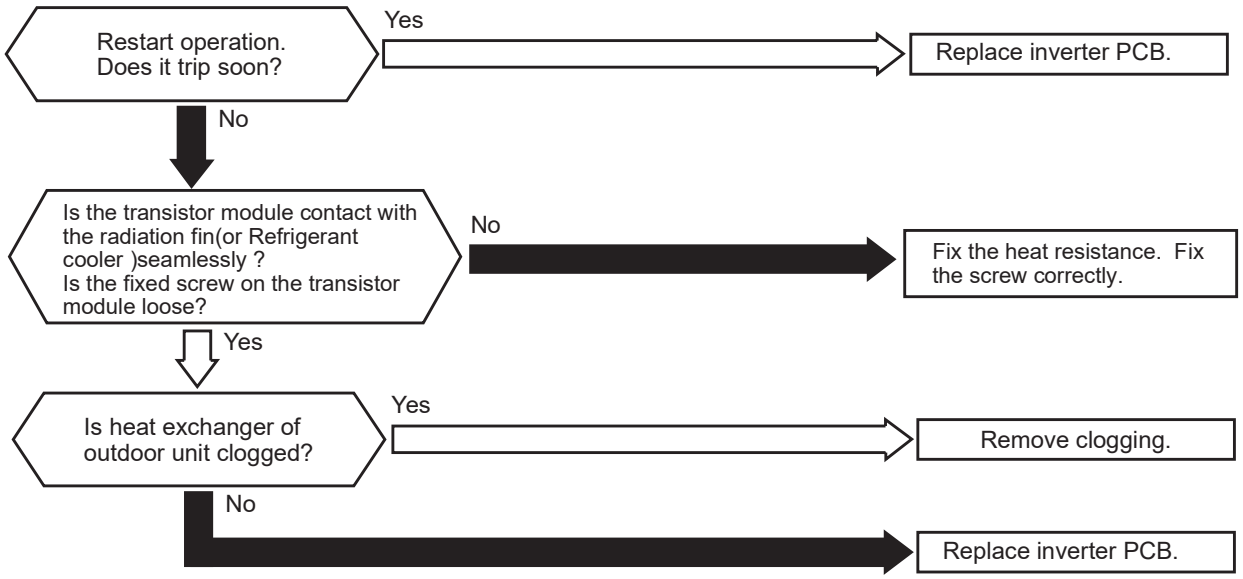
Alarm Code 54	Abnormality of Inverter Fin Temperature

- The RUN indicator (Red) is flashing.
- The indoor unit number (Ref. system number - I.U. number), the alarm code and the number of connected indoor units are displayed on the LCD. The alarm code is flashed on the 7-segment display of the outdoor unit PCB. Check the inverter stoppage code when this alarm code is displayed.

★ When the following condition occurs three times in 30 minutes, the operation stops and this alarm code is displayed. If this occurs less than three times in 30 minutes, the operation automatically restarts.

Condition of Activation:

(1) Inverter fin thermistor protection a.ctivation (Cause code of inverter stoppage = 3)
The temperature of inverter fin exceeds 80°C.



* The maintenance and replacement for inverter PCB should be performed after performing surely the voltage discharge.

Alarm Code 55	Inverter Failure

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ This alarm code is indicated when the following phenomenon occurs three times in 30 minutes. (Retry operation is performed for the first two times.)

Actual frequency from inverter PCB is less than 10Hz (after inverter frequency output from outdoor unit PCB).

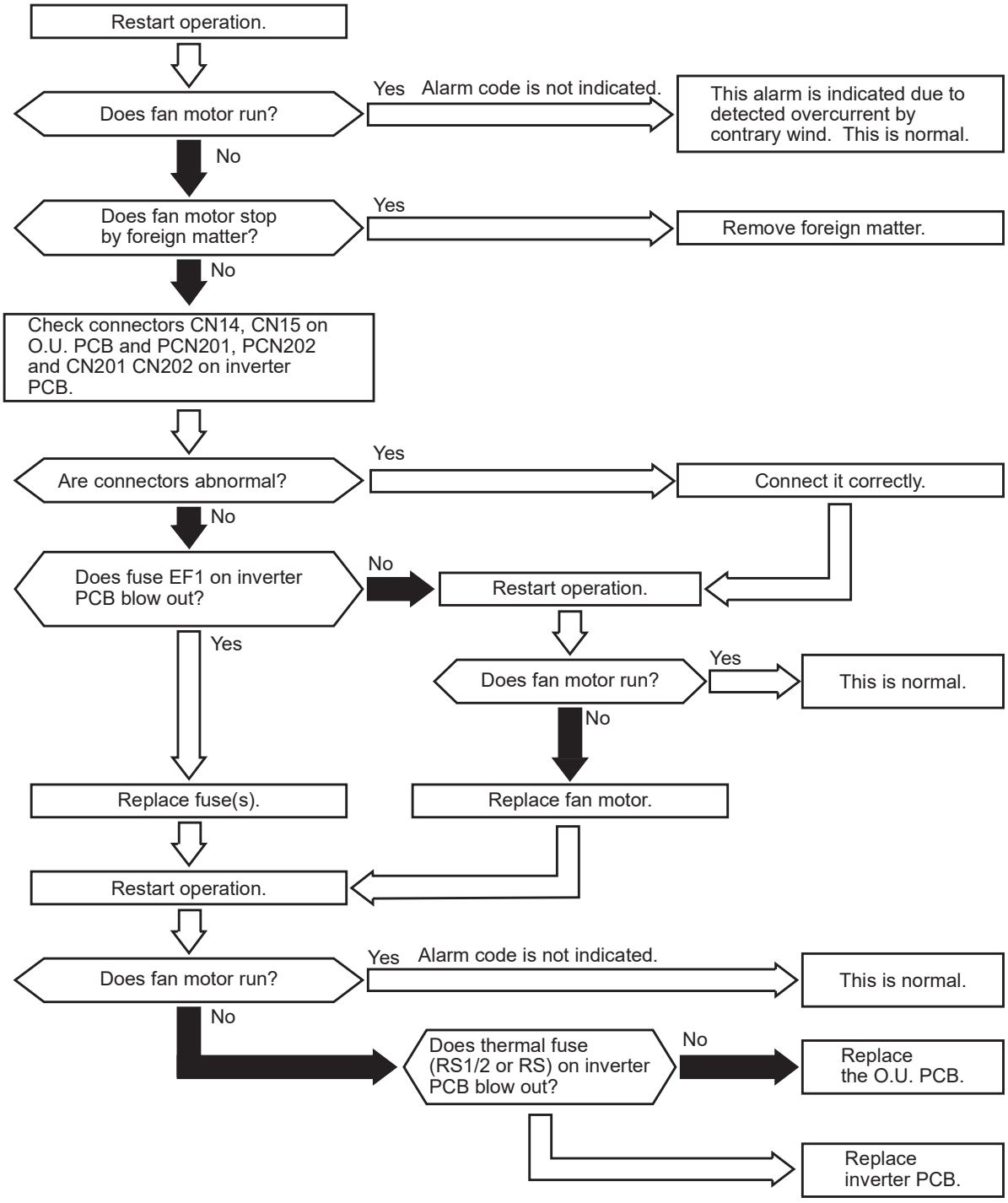
Conditions of Activation: Inverter PCB does not operate normally.

*1): When the excessive surge current is applied to the unit due to lightning or other causes, this alarm code or the cause code of inverter stoppage (Itc=11) will be displayed on the 7-segment display on O.U. PCB and the unit can not be operated. In this case, check to ensure the surge absorber (SA) on the noise filter. The surge absorber may be damaged if the inner surface of the surge absorber is changed to black. If the surge absorber is damaged, replace the noise filter. If the surge absorber does not have abnormality, turn OFF the power supply once and wait until LED201 (red) goes off on inverter PCB in approx. 5 min. Then, turn ON again.

Alarm Code 57	Abnormality of Fan Motor

- The RUN indicator (Red) is flashing.
- The indoor unit number (Ref. system number - I.U. number), the alarm code, the model code, the model name and the number of connected indoor units are displayed on the LCD. The alarm code is flashed on the 7-segment display of the outdoor unit PCB.

★ If the revolution of the fan motor is less than 10rpm 10 seconds after the fan motor starts operation, the fan motor stops. The fan motor restarts operation automatically after 10 seconds (During this, the compressor continues to operate). If this occurs again nine times in the next five minutes, this alarm code is displayed. This alarm is caused by locking or electrical abnormality of the fan motor.



Alarm Code	Incorrect Setting of Unit and Refrigerant Cycle Number

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the number of connected indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ This alarm code is displayed in the following conditions. Check the settings of the DIP switches (DSW) and the rotary switches (RSW) after turning OFF the power supply.

Conditions	Action
The unit No. setting (DSW6 and RSW1) or the refrigerant system No. setting (DSW5 and RSW2) on I.U. PCB is set as “64” or more, or more than 2 pins of DSW5 or DSW6 are set.	(a) Unit No. Setting / Ref. System No. Setting Starting from “1” (recommended) Set the unit No. and the refrigerant system No. from “1” to “63”. (Setting No. for the 64th unit is “0”.) (b) Unit No. Setting / Ref. System No. Setting Starting from “0” Set the unit No. and the refrigerant system No. from “0” to “63.” (Setting No. for the 64th unit is “63”.)
The unit No. setting and the refrigerant system No. setting are set between “16” and “63,” and the indoor unit does not support H-NET.	Set the unit No. and the refrigerant system No. between “0” and “15.”

Alarm Code	Incorrect Setting of Indoor Unit Number for H-NET Type

- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code*1), the unit model code and the number of connected indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.
  *1): The alarm code indicated on the remote control switch is “35”.

Condition	Action
The number of the connected indoor units not supporting H-NET is 17 and after.	The number of the connected indoor units shall be 16 and before.

Alarm Code	Abnormality of Refrigerant Cooling Module Temperature(Tsc) (Only for AVW-41~114HKFHH2)

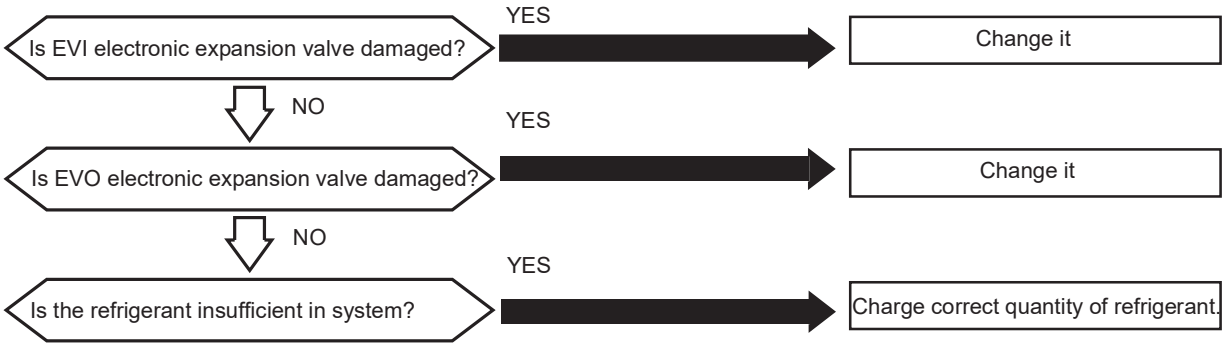
- The RUN indicator (Red) is flashing.
- The indoor unit number, the alarm code, the unit model code and the connected number of indoor units are displayed on LCD. Meanwhile, the indoor unit number and the alarm code are displayed on the 7-segment of outdoor unit PCB.

★ This alarm code is indicated when the following conditions occurs twice or more within the next 60 minutes.

(1) The temperature of super cooler inlet pipe is lower than ambient temperature.

(2) The inverter fin temperature is lower than ambient temperature.

O.U. PCB: outdoor unit PCB
I.U. PCB: indoor unit PCB



Alarm Code	Compressor Protection

★ This alarm code appears when one of the following alarms occurs three times within 6 hours, which may result in serious compressor damages, if the outdoor unit is continuously operated without removing the cause.

Alarm Code	Content of Abnormality
02	Activation of Protection Device (High Pressure Switch) in Outdoor Unit
07	Decrease in Discharge Gas Superheat
08	Excessively High Discharge Gas Temperature at Top of Compressor
43	Activation of Pressure Ratio Decrease Protection
44	Activation of Low Pressure Increase Protection
45	Activation of High Pressure Increase Protection Device
47	Activation of Low Pressure Decrease Protection

These alarms are able to be checked by the CHECK Mode. Follow the action indicated in each alarm chart.
These alarms are cleared only by turning OFF the main power supply to the system. Do not restart the operation without taking any necessary action, since there is a possibility of causing serious damages to the compressors.

(4) Alarm Code

Code	Category	Content of Abnormality	Leading Cause
01	Indoor Unit	Activation of Protection Device (Float Switch)	Activation of Float Switch(High Water Level in Drain Pan,Abnormality of Drain Pipe, Float Switch or Drain Pan)
02	Outdoor Unit	Activation of Protection Device (High Pressure Cut)	Activation of PSH (Pipe Clogging, Excessive Refrigerant, Inert Gas Mixing)
03	Transmission	Abnormality between Indoor and Outdoor	Incorrect Wiring, Loose Terminals, Disconnect Wire, Blowout of Fuse, Outdoor Unit Power OFF
04		Abnormality between Inverter PCB and Outdoor Unit PCB	Inverter PCB - Outdoor Unit PCB Transmission Failure (Loose Connector, Wire Breaking, Blowout of Fuse)
05	Supply Phase	Abnormality Power Supply Phases	Incorrect Power Supply, Connection to Reversed Phase, Open-Phase
06	Voltage	Abnormal Inverter Voltage	Outdoor Voltage Drop, Insufficient Power Capacity
06.		Abnormal Fan Controller Voltage	Outdoor Voltage Drop, Insufficient Power Capacity
07	Cycle	Decrease in Discharge Gas Superheat	Excessive Refrigerant Charge, Failure of Thermistor, Incorrect Wiring, Incorrect Piping Connection, Expansion Valve Locking at Opened Position (Disconnect Connector)
08		Increase in Discharge Gas Temperature	Insufficient Refrigerant Charge, Pipe Clogging Failure of Thermistor, Incorrect Wiring, Incorrect Piping Connection, Expansion Valve Locking at Closed Position (Disconnect Connector)
11	Sensor on Indoor Unit and Controller	Inlet Air Thermistor/ Inlet Water Thermistor	Incorrect Wiring, Disconnecting Wiring Breaking Wire, Short Circuit
12		Outlet Air Thermistor/ Outlet Water Thermistor	
13		Freeze Protection Thermistor	
14		Gas Piping Thermistor	
15		Abnormality of Indoor Air Thermistor (Total Heat Exchanger)	
16		Abnormality of Remote Control Thermistor	
17		Abnormality of Thermistor in Wire Controller	
19	Fan Motor	Activation of Protection Device for Indoor Fan	Fan Motor Overheat, Locking
21	Sensor on Outdoor Unit	High Pressure Sensor	Incorrect Wiring, Disconnecting Wiring Breaking Wire, Short Circuit
22		Outdoor Air Thermistor	
23		Discharge Gas Thermistor on Top of Compressor	
24		Heat Exchanger Liquid Pipe Thermistor or Tsc Thermistor	
29		Low Pressure Sensor	
31	System	Incorrect Capacity Setting of Outdoor Unit and Indoor Unit/water module	Incorrect Capacity Code Setting of Combination Excessive or Insufficient Indoor Unit /Water Module Total Capacity Code
		Abnormal Transmitting between Outdoor Units	
35		Incorrect Setting of Indoor Unit No.	Duplication of Indoor Unit No. in same Ref. Gr.
36		Incorrect of Indoor Unit Combination	Indoor Unit is Designed for R22
38		Abnormality of Picking up Circuit for Protection in Outdoor Unit	Failure of Protection Detecting Device (Incorrect Wiring of Outdoor Unit PCB)
43	Protection Device	Activation of Low Compression Ratio Protection Device	Defective Compression (Failure of Compressor of Inverter, Loose Power Supply Connection)
44		Activation of Low Pressure Increase Protection Device	Overload at Cooling, High Temperature at Heating, Expansion Valve Locking (Loose Connector)
46		Activation of High Pressure Decrease Protection Device	Insufficient Refrigerant, Blow-by of the Reversing Valve
47		Activation of Low Pressure Decrease Protection Device (Vacuum Operation Protection)	Insufficient Refrigerant, Refrigerant Piping, Clogging, Expansion Valve Locking at Open Position (Loose Connector)
48		Activation of Inverter Overcurrent Protection Device	Overload Operation, Compressor Failure
51	Sensor	Abnormal Inverter Current Sensor	Current Sensor Failure
53	Inverter	Inverter Error Signal Detection	Driver IC Error Signal Detection (Protection for Overcurrent, Low Voltage, Short Circuit)
54		Abnormality of Inverter Fin Temperature	Abnormal Inverter Fin Thermistor, Heat Exchanger Clogging, Fan Motor Failure
55		Inverter Failure	Inverter PCB Failure
57	Fan Controller	Activation of Fan Controller Protection	Incorrect Wiring between PCB,Driver IC and Fan-motor (Broken,wrong wiring)
EE	Compressor	Compressor Protection Alarm (It is can not be reset from remote controller)	This alarm code appears when the following alarms* occurs three times within 6 hours. *02, 07, 08, 43 to 45, 47
A6	Inverter	Abnormality of Refrigerant Cooling Module Temperature	Insufficient Refrigerant, or Abnormal EVO
b1	Outdoor Unit No. Setting	Incorrect Setting of Unit and Refrigerant Cycle No.	Over 64 Number is Set for Address or Refrigerant Cycle.
b5	Indoor Unit No. Setting	Incorrect Indoor Unit Connection Number Setting	More than 17 Non-Corresponding to H-NET Units are Connected to One System.

NOTES:

1. When the RUN indicator flashes every 4 seconds, the communication failure between the indoor unit and the wired controller (Loosening at connector, Incorrect Wiring, Disconnecting Wiring, Breaking Wire) occurs.
2. The outdoor unit is designed for single phase. Accordingly, the alarm code “05” is not available.

(5) Cause Code of Inverter Stoppage (, F)

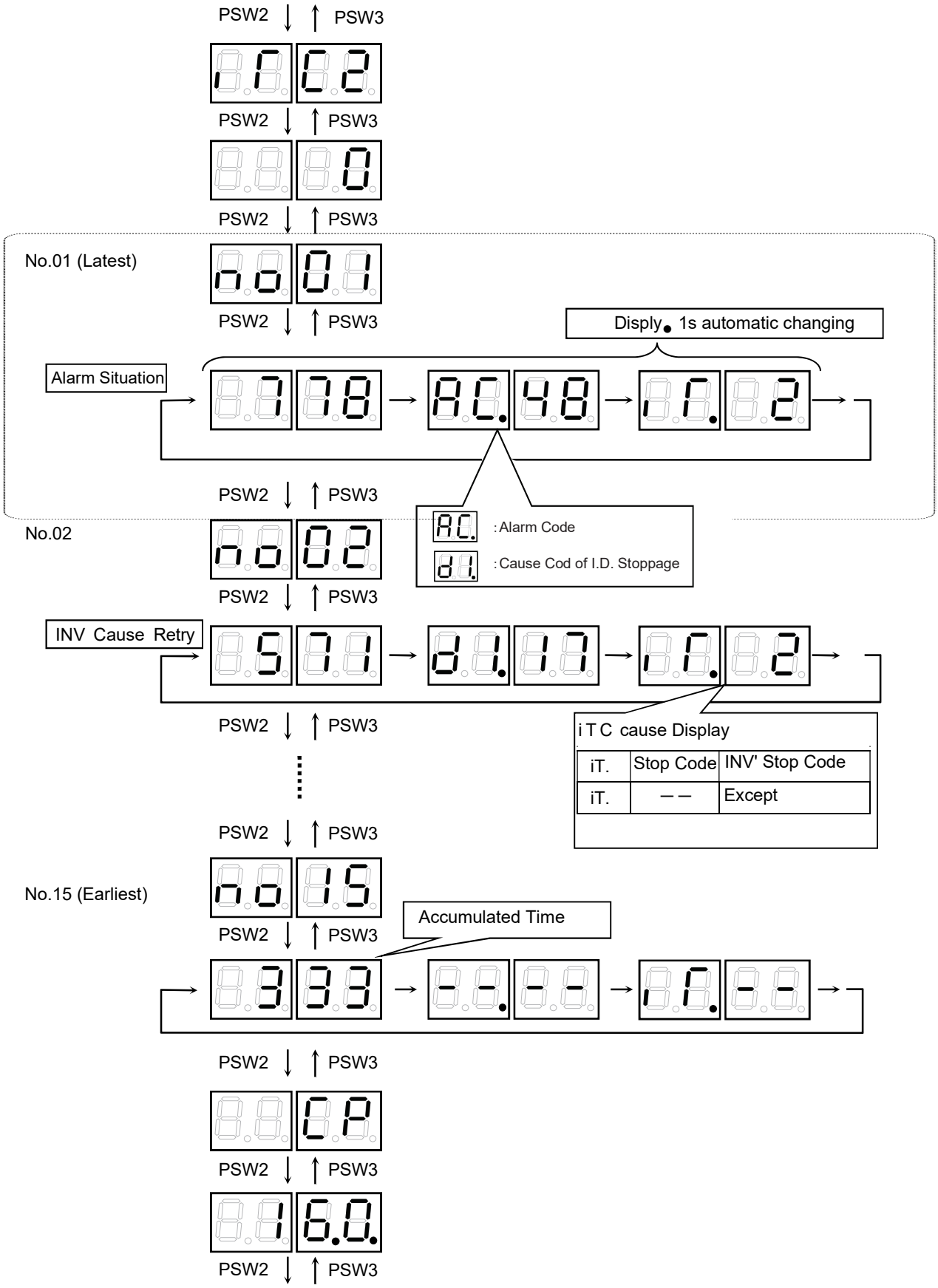
Code (SEG1)	Cause	Corresponding of Cause Code of I.D. Stoppage	Remark	
			Indication during Retry	Alarm Code
1	IPM Error	17	P17	53
2	Instantaneous Overcurrent	17	P17	48
3	Inverter Fin Thermistor Protection Activation	17	P17	54
4	Electronic Thermal Protection	17	P17	48
5	Inverter Voltage Decrease	18	P18	06
6	Overvoltage	18	P18	06
7	Abnormal Communication	18	-	04
8	Abnormal Current Detection	17	P17	51
9	Instantaneous Power Failure Detection	18	-	-
11	Reset of Micro-Computer for Inverter	18	-	-
12	Ground Fault Detection from Compressor	17	P17	53
13	Open Phase Detection	18	-	-
16	Inverter Malfunction	18	P18	55
17	Communication Error	18	-	55
18	Protection Device Actuation (PSH)	-	-	02
19	Abnormal Protective Device	-	-	38
20	Early Return Protective Device	18	-	-
21	Step-Out Detection	17	P17	53
22	Abnormal PCB setup	-	-	31
23	EERPOM Error	-	-	55

(6) Abnormal Data Record

“Abnormal Data Record”(No.01 ~ No.15) in checking item can record recent abnormal stoppages.
(The maximum number of recordable is 15. No. 01 is the latest one.)
In case of abnormal stoppage in following table, accumulated operation time when abnormal happened, alarm code/cause code of I.D. stoppage, and cause code of inverter/fan stoppage are recorded.

Example:

No. of Abnormal Data	NO.01
Accumulated Operation Time	1278 h
Alarm Code	48
Cause Code of Inverter Stoppage	2

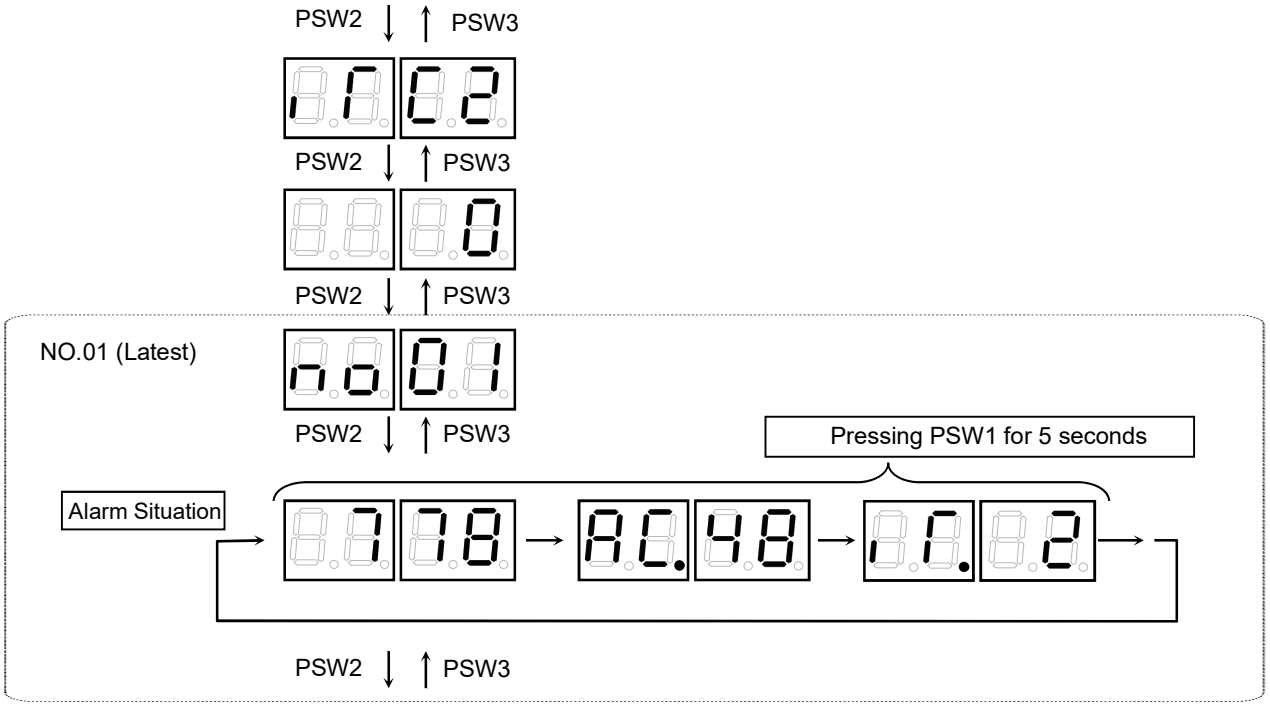

PSW2
PSW3
No.01 (Latest)
Disply 1s automatic changing
Alarm Situation
No.02
: Alarm Code
: Cause Cod of I.D. Stoppage
INV Cause Retry
i T C cause Display
iT. Stop Code INV' Stop Code
iT. — — Except
No.15 (Earliest)
Accumulated Time

Alarm Code or Cause Code of I.D. Stoppage	Contents	Cause code of inverter/fan stoppage	
		ITC	FTC
02	Activation of the safety device (high pressure switch) in the outdoor unit	- -	- -
03	Abnormal Transmitting between Indoor and Outdoor Units	- -	- -
04	Abnormal Transmitting between Inverter PCB and Outdoor Unit PCB	- -	- -
05	Abnormal Power Supply Phase	- -	- -
06 d1-18	Abnormal Inverter Voltage (Insufficient Inverter Voltage or Overvoltage)	5,6	5,6
07 d1-16	Activation of discharge gas superheat decrease protection	- -	- -
08 d1-15	Activation of discharge gas temperature increase protection	- -	- -
21	Abnormality of high pressure sensor (Pd)	- -	- -
22	Abnormality of thermistor for outdoor air temperature (Ta)	- -	- -
23	Abnormality of thermistor for discharge gas temp. (Td)	- -	- -
24	Abnormality of thermistor for outdoor unit heat exchanger liquid pipe (Te)	- -	- -
29	Abnormality of Low Pressure Sensor for outdoor unit (Ps)	- -	- -
31	Incorrect capacity ratio with indoor unit and outdoor unit	- -	- -
32	Abnormal communication of other indoor units	- -	- -
35	Incorrect indoor unit No. setting	- -	- -
36	Incorrect indoor unit combination	- -	- -
38	Abnormality of picking up circuit for protection in outdoor unit	- -	- -
43 d1-11	Abnormality of low compression ratio	- -	- -
— d1-12	Activation of low pressure increase protection	- -	- -
46 d1-26	Activation of high-pressure decrease protection device (Vacuum operation protection)	- -	- -
47 d1-15	Activation of low pressure decrease protection	- -	- -
48 d1-17	Activation of overcurrent protection	2,4	- -
51 d1-17	Abnormality of current sensor for inverter	8	- -
53 d1-17	Activation of inverter module protection device	1,12	- -
54 d1-17	Activation of inverter fin temperature increase protectio	3	- -
55 d1-18	Inverter failure	0,9,10,11,13, 14,15,16	- -
57	Abnormality of Outdoor Fan Motor	- -	- -
b5	Incorrect setting of indoor unit connection number	- -	- -
EE	Compressor protection alarm	- -	- -
d1-05	Instantaneous power failure at the outdoor unit	- -	- -
d1-13	Activation of high pressure increase protection	- -	- -
A6	Abnormality of refrigerant cooling module temperature	- -	- -
d1-42		- -	- -

iTC: Inverter Stoppage Code d1 : Retry
FTC: Fan Controller Stoppage Code

NOTE:
All History will be erased by pressing PSW1 for 5 seconds when Abnormal Data Record is displayed.

* Deletion of Alarm Code History



1.2.2 Checking of Protection Control Information

Protection control code is displayed on 7-segment display while a protection control is activated. It is turned OFF when the protection control is canceled. If several protection controls are activated, the code of the protection control with highest priority will be displayed. Also if several retry control is activated, the code of the latest retry control will be displayed.

Rank Order.	Indication	Protection Control Performed
1	P01	Pressure Ratio Protection Control
2	P02	High Pressure Increase Protection Control
3	P03	Inverter Current Protection Control
4	P04	Inverter Fin Temperature Increase Protection Control
5	P05	Discharge Temperature Increase Protection Control
6	P06	Low Pressure Decrease Protection Control
7	P0A	Demand Current Control
8	P0d	Low Pressure Increase Protection Control
9	P09	High Pressure Decrease Protection Control

		② Lower Rank Order of Protection Control Function			
		Forced Decrease	Forced Increase	Prohibition of Increase	Prohibition of Decrease
① Higher Rank Order of Protection Control Function	Forced Decrease	①	①	①	①
	Forced Increase	①	①	①	①
	Prohibited Increase	②	①	② *1	①
	Prohibited Decrease	②	②	②	②

*1: Discharge Temperature Increase Protection Control (P05) is higher than the following protection controls.
a) Low Pressure Decrease Protection Control (P06)
b) Demand Current Control (P0A)

Indication	Protection Control	Remark
	Pressure Ratio Protection Control	To control the compressor frequency for prevention of operation with high/low pressure ratio.
	High Pressure Increase Protection Control	To control the compressor frequency for prevention of high pressure increase.
	Inverter Current Protection Control	To control the compressor frequency for prevention of inverter current increase in the outdoor unit during operation.
	Inverter Fin Temperature Increase Protection Control	To control the compressor frequency for prevention of inverter fin temperature increase. The inverter fin temperature is detected at the inverter PCB.
	Discharge Temperature Increase Protection Control	To control the compressor frequency for prevention of discharge gas temperature increase during operation.
	Low pressure Decrease Protection Control	To control the compressor frequency for prevention of low pressure decrease.
	High Pressure Decrease Protection Control	To control the compressor frequency for prevention of high pressure decrease, which would interrupt smooth refrigerant distribution to indoor units with different height and oil supply to the compressor.
	Demand Current Control	To control the compressor frequency for fixing the inverter primary current around the set value (60~100% of rated current for cooling).
	Low Pressure Increase Protection Control	To control the compressor frequency for prevention of low pressure increase.

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