

1.6 MAINTENANCE DATA

1.6.1 Servicing

(1) Evacuation

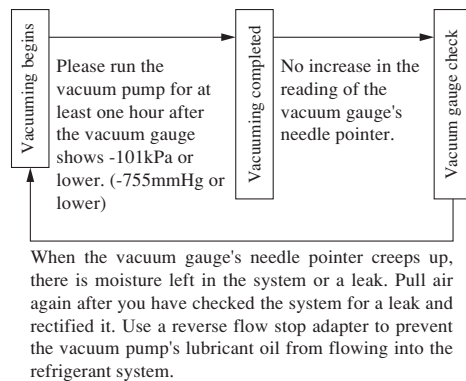
The evacuation is a procedure to purge impurities, such as noncondensable gas, air, moisture from the refrigeration circuit by using a vacuum pump. Since the refrigerant R410A is very insoluble in water, even a small amount of moisture left in the refrigeration circuit will freeze, causing what is called ice clogging.

Evacuation procedure

Make sure that the both service valves of gas and liquid line are fully opened.

- Check to ensure that there is no internal pressure in the unit. If there is an internal pressure, it should be relieved through the service port to vacant refrigerant cylinder.
- Connect the charging hose of the gauge manifold to the service port of the gas piping. Close high pressure valve ② of gauge manifold.
- Connect the charging hose ① to a vacuum pump.

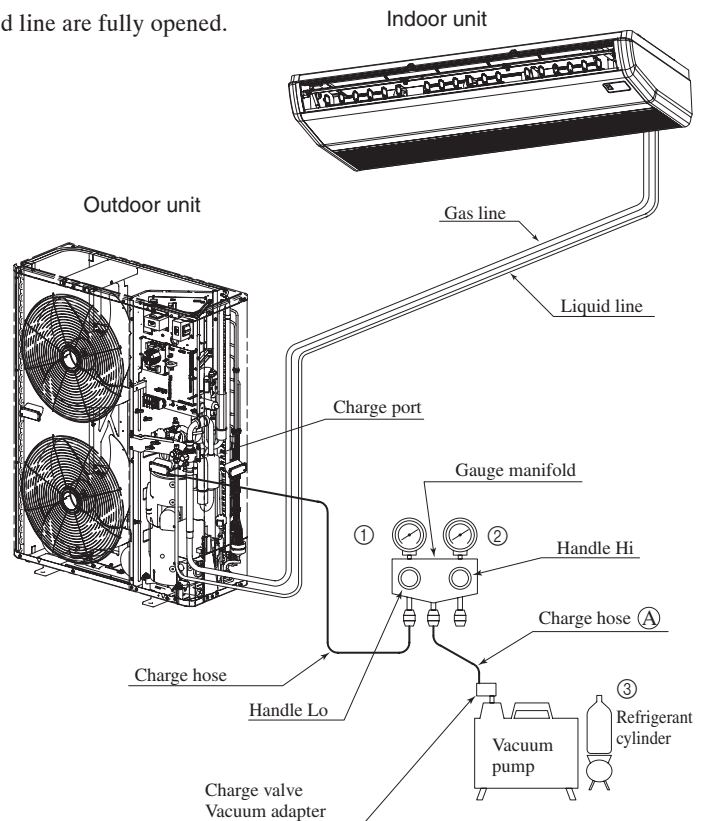
Repeat evacuation in the following sequence.



Notes (1) Do not use the refrigerant pressure to expel air.

(2) Do not use the compressor for evacuation.

(3) Do not operate the compressor in a vacuum condition.



(2) Refrigerant charging

- After the evacuation shown in the above, change the connection of the charge hose ④ to the refrigerant cylinder.
- Purge air from the charge hose ④.
First loosen the connecting portion of the charge hose at the gauge manifold side and open valve ③ for a few seconds, and then immediately retighten it after observing that gas has blown out from loosened connecting portion.
- Open valves ① and ③ then gas refrigerant begins flowing from the cylinder into the unit.
When refrigerant has been charged into the unit to some extent, refrigerant flow becomes stagnant. When that happens, start the compressor in cooling cycle until the system is filled with the specified amount of gas, then close valves ① and ③ and remove the gauge manifold. Cover the service port with caps and tighten them securely.
- Check for gas leakage by applying a gas leak detector around the piping connection.
- Start the air conditioner and make sure of its operating condition.

1.6.2 Trouble shooting for refrigerant circuit

(1) Judgement of operating condition by operation pressure and temperature difference

Making an accurate judgement requires a skill that is acquired only after years of experience, one trouble may lead to another trouble from a single trouble source and several other troubles may exist at the same time which comes from an undetected different trouble source.

Filtering out the trouble sources can be done easier by comparing with daily operating conditions. Some good guides are to judge the operating pressure and the temperature difference between return air and supply air of indoor unit.

Following are some pointers,

Pressure						Trouble cause
Indication	Too low	A little low	Normal	A little high	Too high	
Circuit						
High side Low side					● ●	1) Excessive overcharging of refrigerant 2) Mixture of non condensable gas (air etc.)
High side Low side	●				●	Ineffective compression (defective compressor)
High side Low side	●	●				1) Insufficient refrigerant in circuit 2) Clogging of strainer 3) Gas leakage 4) Clogging of air filter (in cooling) 5) Decrease in heat load (in cooling) 6) Locking of indoor fan (in cooling)
High side Low side				●	●	1) Locking of outdoor fan (in cooling) 2) Dirty outdoor heat exchanger (in cooling) 3) Mixture of non condensable gas (air etc.)
High side Low side				●	●	1) Too high temperature of room

1.6.3 Diagnosing of microcomputer circuit

(1) Selfdiagnosis function

(a) Check Indicator Table

Whether a failure exists or not on the indoor unit and outdoor unit can be know by the contents of remote controller error code, indoor/outdoor unit green LED (power pilot lamp and microcomputer normality pilot lamp) or red LED (check pilot lamp).

(i) Indoor unit side

Remote controller		Indoor unit control PCB		Outdoor unit control PCB		Location of trouble	Description of trouble	Repair method	Reference page
Error code	Red LED	Red LED	Green LED (1)	Red LED	Green LED (1)				
No-indication	Stays OFF	Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	—	• Normal operation	—	—
		Stays OFF	Stays OFF	2 times flash	Stays OFF	Indoor unit power supply	• Power OFF, broken wire/blown fuse, broken transformer wire	Repair	274
		* 3 times flash	Keeps flashing	Stays OFF	Keeps flashing	Remote controller wires	• Poor connection, breakage of remote controller wire * For wire breaking at power ON, the LED is OFF.	Repair	275
						Remote controller	• Defective remote controller PCB	Replacement of remote controller	
WAIT or stays OFF		Stays OFF	Keeps flashing	2 times flash	Keeps flashing	Indoor-outdoor units connection wire	• Poor connection, breakage of indoor-outdoor units connection wire	Repair	276~284
						Remote controller	• Improper setting of master and slave by remote controller		
E1		Stays OFF	* Keeps flashing	Stays OFF	Keeps flashing	Remote controller wires (Noise)	• Poor connection of remote controller signal wire (White) * For wire breaking at power ON, the LED is OFF	Repair	285
						Remote controller indoor unit control PCB	• Intrusion of noise in remote controller wire * Defective remote controller or indoor unit control PCB (defective communication circuit)?	Replacement of remote controller or PCB	
E5		2 times flash	Keeps flashing	2 times flash	Keeps flashing	Indoor-outdoor units connection wire	• Poor connection of wire between indoor-outdoor units during operation (disconnection, loose connection) • Anomalous communication between indoor-outdoor units by noise, etc.	Repair	286
		2 times flash	Keeps flashing	Stays OFF	Keeps flashing	(Noise)	• CPU-runaway on outdoor unit control PCB	Power reset or Repair	
		2 times flash	Keeps flashing	Stays OFF	Keeps flashing	Outdoor unit control PCB	* Occurrence of defective outdoor unit control PCB on the way of power supply (defective communication circuit)?	Replacement of PCB	
		2 times flash	Keeps flashing	Stays OFF	Stays OFF	Outdoor unit control PCB	• Defective outdoor unit control PCB on the way of power supply	Replacement	
E6		1 time flash	Keeps flashing	Stays OFF	Keeps flashing	Indoor unit heat exchanger temperature thermistor	• Defective indoor unit heat exchanger temperature thermistor (defective element, broken wire, short-circuit) • Poor contact of temperature thermistor connector	Replacement, repair of temperature thermistor	287
						Indoor unit PCB	* Defective indoor unit control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E7		1 time flash	Keeps flashing	Stays OFF	Keeps flashing	Indoor unit return air temperature thermistor	• Defective indoor unit return air temperature thermistor (defective element, broken wire, short-circuit) • Poor contact of temperature thermistor connector	Replacement, repair of temperature thermistor	288
						Indoor unit control PCB	* Defective indoor unit control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E8	Keeps flashing	1 time flash	Keeps flashing	Stays OFF	Keeps flashing	Installation or operating condition	• Heating over-load (Anomalous high indoor unit heat exchanger temperature)	Repair	289
						Indoor unit heat exchanger temperature thermistor	• Defective indoor unit heat exchanger temperature thermistor (short-circuit)	Replacement of temperature thermistor	
						Indoor unit control PCB	* Defective indoor unit control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E9		1 time flash	Keeps flashing	Stays OFF	Keeps flashing	Drain trouble	• Defective drain pump (DM), broken drain pump wire, disconnected connector	Replacement, repair of DM	290
						Float switch	• Anomalous float switch operation (malfunction)	Repair	
						Indoor unit control PCB	* Defective indoor unit control PCB (Defective float switch input circuit) * Defective indoor unit control PCB (Defective DM drive output circuit)?	Replacement of PCB	
						Option	• Defective optional parts (At optional anomalous input setting)	Repair	
E10		Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	Number of connected indoor units	• When multi-unit control by remote controller is performed, the number of units is over	Repair	291
E14		3 times flash	Keeps flashing	Stays OFF	Keeps flashing	Indoor unit No. setting	• No master is assigned to slaves.	Repair	292
						Remote controller wires	• Anomalous remote controller wire connection, broken wire between master and slave units		
E16		Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	Fan motor	• Defective fan motor (FDT)	Replacement, repair	293
						Indoor unit control PCB	• Defective indoor unit control PCB	Replacement	
E19		1 time flash	Keeps flashing	Stays OFF	Keeps flashing	Indoor unit control PCB	• Improper operation mode setting	Repair	294
E28		Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	Remote controller temperature thermistor	• Broken wire of remote controller temperature thermistor	Repair	295

Note (1) Normal indicator lamp (Indoor, outdoor units: Green) extinguishes (or lights continuously) only when CPU is anomalous. It keeps flashing in any trouble other than anomalous CPU.

(2) * mark in the Description of trouble means that, in ordinary diagnosis, it cannot identify the cause definitely, and, if the trouble is repaired by replacing the part, it is judged consequently that the replaced part was defective.

(ii) Outdoor unit side

1) Model SRC40~60

Remote controller		Indoor unit control PCB		Outdoor unit control PCB	Location of trouble	Description of trouble	Repair method	Reference page
Error code	Red LED	Red LED	Green LED	Red LED				
E33	Keeps flashing	Stays OFF	Keeps flashing	1 time flash	Power supply wires	• Anomalous current on inverter primary side	Repair	296
E35		Stays OFF	Keeps flashing	8 times flash	Installation, operation status	• Higher outdoor unit heat exchanger temperature	Repair	299
					Outdoor unit heat exchanger temperature thermistor	• Defective outdoor unit heat exchanger temperature thermistor	Replacement, repair of temperature thermistor	
					Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E36		Stays OFF	Keeps flashing	8 times flash	Installation, operation status	• Higher discharge temperature	Repair	301
					Discharge pipe temperature thermistor	• Defective discharge pipe temperature thermistor	Replacement, repair of temperature thermistor	
					Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E37		Stays OFF	Keeps flashing	8 times flash	Outdoor unit heat exchanger temperature thermistor	• Defective outdoor unit heat exchanger temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	302
					Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E38		Stays OFF	Keeps flashing	8 times flash	Ambient air temperature thermistor	• Defective ambient air temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	303
					Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E39		Stays OFF	Keeps flashing	8 times flash	Discharge pipe temperature thermistor	• Defective discharge pipe temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	304
					Outdoor unit control PCB	*• Defective outdoor unit control PCB (Defective temperature sensor input circuit)?	Replacement of PCB	
E42		Stays OFF	Keeps flashing	1 time flash	Outdoor unit control PCB compressor	• Current cut (Anomalous compressor over-current)	Replacement of PCB	307, 308
					Installation, operation status	• Service valve closing operation	Repair	
E47		Stays OFF	Keeps flashing	1 time flash	Outdoor unit control PCB power transistor	• Anomalous inverter over-voltage	Repair PCB replacement	310
E48		Stays OFF	Keeps flashing	Keeps flashing	DC fan motor	• Defective DC fan motor	Replacement	311
					Outdoor unit control PCB	• Defective outdoor unit control PCB		
E57		Stays OFF	Keeps flashing	2 times flash	Operation status	• Shortage in refrigerant quantity	Repair	319
					Installation status	• Service valve closing operation	Service valve opening check	
E59		Stays OFF	Keeps flashing	2 times flash	Compressor outdoor unit control PCB	• Anomalous compressor startup	Replacement	320
E60		Stays OFF	Keeps flashing	7 times flash	Compressor	• Anomalous compressor rotor lock	Replacement	322

Note (1) * mark in the Description of trouble means that, in ordinary diagnosis, it cannot identify the cause definitely, and, if the trouble is repaired by replacing the part, it is judged consequently that the replaced part was defective.

2) Model FDC71~250

Remote controller		Indoor unit control PCB		Outdoor unit control PCB		Location of trouble	Description of trouble	Repair method	Reference page
Error code	Red LED	Red LED	Green LED (1)	Red LED	Green LED (1)				
E34	Keeps flashing	Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Power supply wires	• Outdoor unit power supply L3-phase interruption, defective noise filter (3-phase model only)	Repair	297, 298
						Outdoor unit control PCB	• Defective outdoor unit control PCB (Defective power supply input circuit)? (3-phase model only)	Replacement of PCB	
E35		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Installation or operating condition	• Higher outdoor unit heat exchanger temperature	Repair	300
						Outdoor unit heat exchanger temperature thermistor	• Defective outdoor unit heat exchanger temperature thermistor	Replacement of temperature thermistor	
						Outdoor unit control PCB	• Defective outdoor unit control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E36		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Installation or operating condition	• Higher discharge temperature	Repair	301
						Discharge pipe temperature thermistor	• Defective discharge pipe temperature thermistor	Replacement, repair of temperature thermistor	
						Outdoor unit control PCB	• Defective outdoor unit control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E37		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Outdoor unit heat exchanger temperature thermistor	• Defective outdoor unit heat exchanger temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	302
						Outdoor unit control PCB	• Defective outdoor unit control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E38		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Ambient air temperature thermistor	• Defective ambient air temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	303
						Outdoor unit control PCB	• Defective outdoor unit control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E39		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Discharge pipe temperature thermistor	• Defective discharge pipe temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	304
						Outdoor unit control PCB	• Defective outdoor unit control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E40		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Installation or operating condition	• Rising high pressure (Operation of 63H1) • Service valve closing operation	Repair	305
						Outdoor unit control PCB	• Defective outdoor unit control PCB (Defective 63H input circuit)?	Replacement of PCB	
E41		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Inverter PCB or radiator fin	• Power transistor overheat (Model 200, 250 only)	Replacement of PCB or Repair	306
E42		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Outdoor unit control PCB compressor	• Current cut (Anomalous compressor over-current)	Replacement of PCB	307, 308
						Installation or operating condition	• Service valve closing operation	Repair	
E45		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Outdoor unit control PCB	• Anomalous outdoor unit control PCB communication	Service valve opening check	309
						Inverter PCB	• Anomalous inverter PCB communication	Replacement of PCB	
E48		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Outdoor unit DC fan motor	• Anomalous outdoor unit DC fan motor	Replacement, repair	312
						Outdoor unit control PCB	• Defective outdoor unit control PCB (Defective DC motor input circuit)?	Replacement of PCB	
E49		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Installation or operating condition	• Low pressure error • Service valve closing operation	Repair	313, 314
						Low pressure sensor	• Anomalous low pressure, broken wire of low pressure sensor or poor connector connection	Replacement, repair of sensor	
						Outdoor unit control PCB	• Defective outdoor unit control PCB (Defective sensor input circuit)?	Replacement of control PCB	
E51		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Inverter PCB	• Anomalous inverter PCB	Replacement of PCB	315
E53		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Suction pipe temperature thermistor	• Defective suction pipe temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	316
						Outdoor unit control PCB	• Defective outdoor unit PCB (Defective thermistor input circuit)?	Replacement of control PCB	
E54		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Low pressure sensor	• Defective low pressure sensor	Replacement of sensor	317
						Outdoor unit control PCB	• Defective outdoor unit control PCB (Defective sensor input circuit)?	Replacement of control PCB	
E55		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Compressor underneath temperature thermistor	• Defective compressor underneath temperature thermistor (Model 200, 250 only)	Replacement of temperature thermistor	318
						Outdoor unit control PCB	• Defective outdoor unit control PCB (Defective thermistor input circuit)? (Model 200, 250 only)	Replacement of control PCB	
E57		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Operation status	• Shortage in refrigerant quantity	Repair	319
						Installation status	• Service valve closing operation	Service valve opening check	
E59		Stays OFF	Keeps flashing	5 times flash	Keeps flashing	Compressor inverter PCB	• Anomalous compressor startup	Replacement	321
E60		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Compressor	• Anomalous compressor rotor position detection (Model 200, 250 only)	Replacement	322

Note (1) * mark in the Description of trouble means that, in ordinary diagnosis, it cannot identify the cause definitely, and, if the trouble is repaired by replacing the part, it is judged consequently that the replaced part was defective.

(iii) Optional controller in-use

SL-1N-E SL-2N-E SL-3N-E		Indoor unit control PCB		Outdoor unit control PCB		Location of trouble	Description of trouble	Repair method
Error code	Red LED	Red LED	Green LED	Red LED	Green LED			
E75	Keeps flashing	Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	SL-1N-E SL-2N-E SL-3N-E	• Communication error (Defective communication circuit on the main unit of SL1N-E, SL2N-E or SL3N-E)	Replacement

(iv) Display sequence of error codes or inspection indicator lamps

■ Occurrence of one kind of error

Displays are shown respectively according to errors.

■ Occurrence of plural kinds of error

Section	Category of display
Error code on remote controller	Displays the error of higher priority (When plural errors are persisting)
Red LED on indoor unit control PCB	
Red LED on outdoor unit control PCB	
	Displays the present errors. (When a new error has occurred after the former error was reset.)

E1 > E5 > > E10 > E32 > > E60

■ Error detecting timing

Section	Error description	Error code	Error detecting timing
Indoor	Drain trouble (Float switch activated)	<i>E9</i>	Whenever float switch is activated after 30 second had past since power ON.
	Communication error at initial operation	“ WAIT ”	No communication between indoor and outdoor units is established at initial operation.
	Remote controller communication circuit error	<i>E1</i>	Communication between indoor unit and remote controller is interrupted for mote than 2 minutes continuously after initial communication was established.
	Communication error during operation	<i>E5</i>	Communication between indoor and outdoor units is interrupted for mote than 2 minutes continuously after initial communication was established.
	Excessive number of connected indoor units by controlling with one remote controller	<i>E10</i>	Whenever excessively connected indoor units is detected after power ON.
	Return air temperature thermistor anomaly	<i>E7</i>	-50°C or lower is detected for 5 seconds continuously within 60 minutes after initial detection of this anomalous temperature. Or 48°C or higher is detected for 5 seconds continuously.
	Indoor heat exchanger temperature thermistor anomaly	<i>E6</i>	-50°C or lower is detected for 5 seconds continuously within 60 minutes after initial detection of of this anomalous temperature. Or 70°C or higher is detected for 5 seconds continuously.
Outdoor	Ambient air temperature thermistor anomaly	<i>E38</i>	-30°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. Or -30°C or lower is detected for 5 seconds continuously within 20 seconds after compressor ON.
	Outdoor heat exchanger temperature thermistor anomaly	<i>E37</i>	-50°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. Or -50°C or lower is detected for 5 seconds continuously within 20 seconds after compressor ON.
	Discharge pipe temperature thermistor anomaly	<i>E39</i>	-10°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature.
	Suction pipe temperature thermistor anomaly	<i>E53</i>	-50°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature.
	Low pressure sensor anomaly	<i>E54</i>	0V or lower or 3.49V or higher is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous pressure.
	Underneath temperature thermistor anomaly	<i>E55</i>	-50°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature.

■ Error log and reset

Error indicator	Memorized error log	Reset
Remote controller display	• Higher priority error is memorized.	- Stop the unit by pressing the ON/OFF switch of remote controller. - If the unit has recovered from anomaly, it can be operated.
Red LED on indoor unit control PCB	• Not memorized.	
Red LED on outdoor unit control PCB	• Memorizes a mode of higher priority.	

■ Resetting the error log

- Resetting the memorized error log in the remote controller

Holding down “CHECK” button, press “TIMER” button to reset the error log memorized in the remote controller.

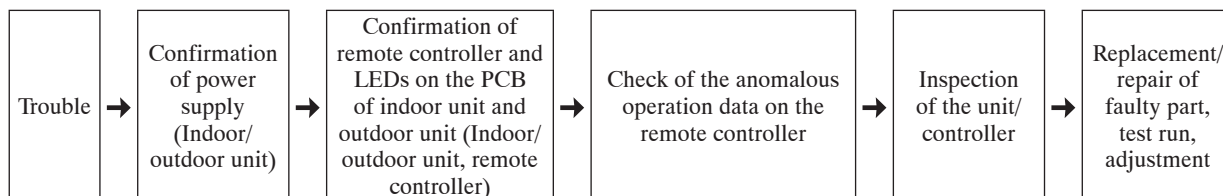
- Resetting the memorized error log

The remote controller transmits error log erase command to the indoor unit when “VENTI” button is pressed while holding down “CHECK” button.

Receiving the command, the indoor unit erase the log and answer the status of no error.

(2) Troubleshooting procedure

When any trouble has occurred, inspect as follows. Details of respective inspection method will be described on later pages.



(3) Troubleshooting at the indoor unit side

With the troubleshooting, find out any defective part by checking the voltage (AC, DC), resistance, etc. at respective connectors at around the indoor PCB, according to the inspection display or operation status of unit (the compressor does not run, fan does not run, the 4-way valve does not switch, etc.), and replace or repair in the unit of following part.

(a) Replacement part related to indoor PCB's

Control PCB, power supply PCB, temperature thermistor (return air, indoor heat exchanger), remote controller switch, limit switch, transformer and fuse

Note (1) With regard to parts of high voltage circuits and refrigeration cycle, judge it according to ordinary inspection methods.

(b) Instruction of how to replace indoor control PCB

SAFETY PRECAUTIONS	
• Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the replacement in order to protect yourself. • The precautionary items mentioned below are distinguished into two levels, WARNING and CAUTION. Both mentions the important items to protect your health and safety so strictly follow them by any means.	
 WARNING	Wrong installation would cause serious consequences such as injuries or death.
 CAUTION	Wrong installation might cause serious consequences depending on circumstances.
• After completing the replacement, do commissioning to confirm there are no anomaly.	
 WARNING • Replacement should be performed by the specialist. If you replace the PCB by yourself, it may lead to serious trouble such as electric shock or fire. • Replace the PCB correctly according to these instructions. Improper replacement may cause electric shock or fire. • Shut off the power before electrical wiring work. Replacement during the applying the current would cause the electric shock, unit failure or improper running. It would cause the damage of connected equipment such as fan motor, etc. • Fasten the wiring to the terminal securely, and hold the cable securely so as not to apply unexpected stress on the terminal. Loose connections or hold could result in abnormal heat generation or fire. • Check the connection of wiring to PCB correctly before turning on the power, after replacement. Defectiveness of replacement may cause electric shock or fire.	
 CAUTION • In connecting connector onto the PCB, connect not to deform the PCB. It may cause breakage or malfunction. • Insert connector securely, and hook stopper. It may cause fire or improper running. • Bundle the cables together so as not to be pinched or be tensioned. It may cause malfunction or electric shock for disconnection or deformation.	

◆ Model: FDT, FDTC series

• Control PCB

This PCB is for spare part that must be set up according to following instruction since it is common.

① Set to an appropriate address and function by using switch on PCB.

Select the same setting with the removed PCB.

item	switch	Content of control			
Address	SW2	Plural indoor units control by 1 remote controller			
Master /Slave setting	SW5-1	Master	Slave1	Slave2	Slave3
		—	—	○	○
Test run	SW7-1	—	Normal		
		○	Operation check/drain motor test run		

○:ON —:OFF

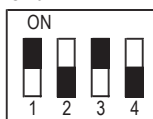
② Set to an appropriate capacity by using the model selector switch(SW6).

Select the same capacity with the PCB removed from the unit.

SW6	-1	-2	-3	-4
40V	○	○	—	—
50V	○	—	○	—
60V	○	○	○	—
71V	○	—	—	○

○:ON —:OFF

SW6



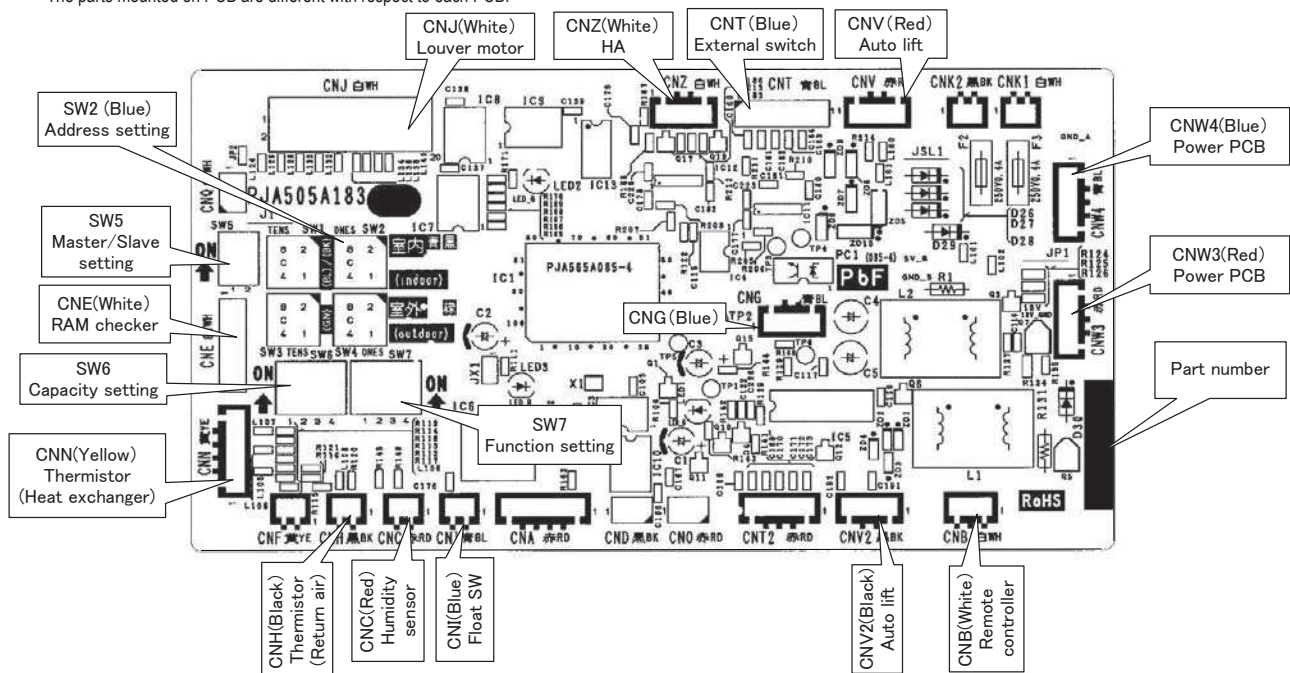
Example setting for 50V

③ Replace the PCB

1. Fix the PCB so as not to pinch the wirings.
2. Be sure to connect the connectors with same color of the PCB connectors.
3. Be sure not to pass the wirings on the surface of PCB (especially CPU).

④ Control PCB

The parts mounted on PCB are different with respect to each PCB.



- Power PCB

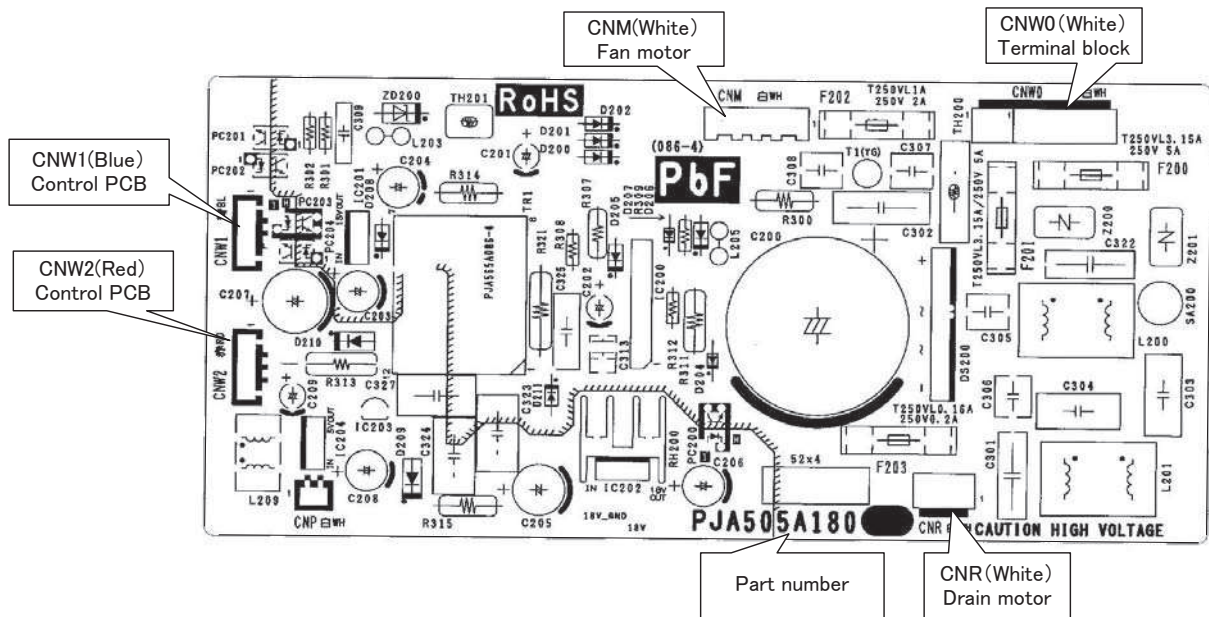
This PCB is for spare part that must be set up according to following instruction since it is common.

① Replace the PCB

1. Fix the PCB so as not to pinch the wirings.
2. Be sure to connect the connectors with same color of the PCB connectors.

② Power PCB

The parts mounted on PCB are different with respect to each PCB.



◆ **Model: FDUM, FDDU, FDEN series**

① Set an appropriate address and Master/Slave setting by using dip switches.

Set the same setting with the PCB removed from the unit.

item	switch	Content of control			
Address	SW2	Plural indoor units control by 1 remote controller			
Master /Slave setting	SW5-1	—	—	○	○
	SW5-2	—	○	—	○
Test run	SW7-1	—	Normal		
		○	Operation check/drain motor test run		

○ : ON — : OFF

② Set to an appropriate capacity by using the model selector switch(SW6).

Select the same capacity with the PCB removed from the unit.

SW6	-1	-2	-3	-4
40V	○	○	—	—
50V	○	—	○	—
60V	○	○	○	—
71V	○	—	—	○

SW6	-1	-2	-3	-4
100V	○	○	—	○
125V	—	—	○	○
140V	○	—	○	○

SW6	-1	-2	-3	-4
200V	—	○	○	○
250V	○	○	○	○



Example setting for 50V

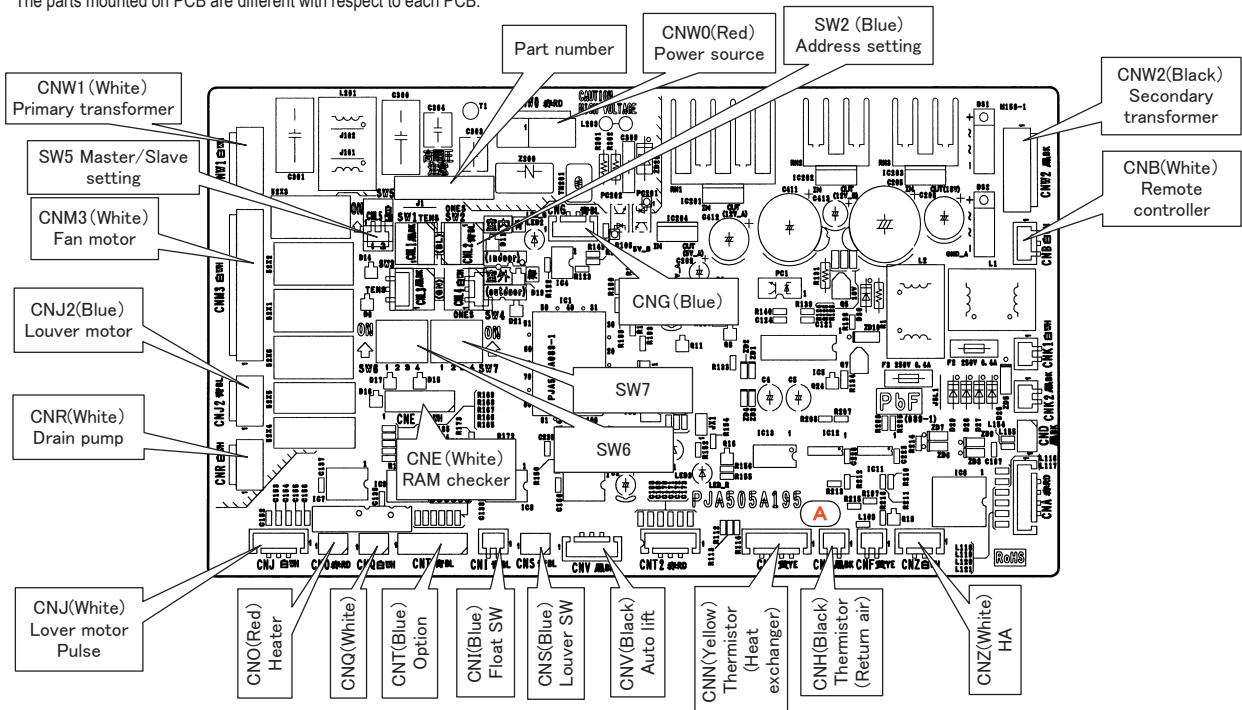
○ : ON — : OFF

③ Replace the PCB

1. Fix the PCB so as not to pinch the wirings.
2. Be sure to connect the connectors with same color of the PCB connectors.
3. Be sure not to pass the wirings on the surface of PCB (especially CPU).

④ Control PCB

The parts mounted on PCB are different with respect to each PCB.



(4) Troubleshooting at the outdoor unit side

When troubleshooting the outdoor unit, firstly assess the overview of malfunction and try to presume the cause and the faulty part by checking the error code displayed on the remote controller and flashing pattern of indicator lamps (Red LED and Green LED), and then proceed further inspection and remedy it.

Self-diagnosis system by microcomputer on indoor and outdoor PCB can assist to find the cause of malfunction smoothly by making a diagnosis of not only the anomaly of microcomputer, but also the anomaly in power supply system, installation space, overload resulting from improper charging amount of refrigerant and etc.

Unless the power is reset, the error log is saved in memory and the inspection indicator lamps on outdoor PCB keep flashing after automatical recovering from malfunction.

After automatical recovering from malfunction, if any another error mode which has a higher priority than the previous error saved in memory occurs, it is overwritten in memory and is displayed.

[Reset of power supply]

Be sure to avoid electrical shock, when replacing or checking the outdoor control PCB, because some voltage is still retained in the electrolytic capacitor on the PCB even after shutting down the power supply to the outdoor unit.

Be sure to start repairing work, after confirming that the Red LED (or Green LED for 71-250type) on the PCB has been extinguished for more than 10 seconds after more than 3 minutes had been passed since power shut down, and reconfirming that voltage has been discharged sufficiently by measuring the voltage (DC) between both terminals of electrolytic capacitor (C58) (Measurement of voltage may be disturbed by the moisture-proof coating. In such case, remove the coating and measure it by taking care of avoiding electrical shock)

(a) Module of part to be replaced for outdoor unit controller

Outdoor control PCB, Inverter PCB, Temperature thermistor (of outdoor heat exchanger, discharge pipe, ambient air, power transistor, suction pipe and underneath), Fuses (for power supply and control PCB), Noise filter, Capacitor, Reactor and Transformer

(b) Replacement procedure of outdoor control PCB

Precautions for Safety	
Since the following precaution is the important contents for safety, be sure to observe them. WARNING and CAUTION are described as follows:	
 WARNING	Indicates an imminently hazardous situation which will result in death or serious injury if proper safety procedures and instructions are not adhered to.
 CAUTION	Indicates a potentially hazardous situation which may result in minor or moderate injury if proper safety procedures and instructions are not adhered to.
 WARNING	
- Securely replace the PCB according to this procedure. If the PCB is incorrectly replaced, it will cause an electric shock or fire. - Be sure to check that the power source for the outdoor unit is turned OFF before replacing the PCB. The PCB replacement under current-carrying will cause an electric shock or fire. - After finishing the PCB replacement, check that wiring is correctly connected with the PCB before power distribution. If the PCB is incorrectly replaced, it will cause an electric shock or fire.	
 CAUTION	
Band the wiring so as not to tense because it will cause an electric shock.	

Replace the control PCB according to the following procedure.

1) Model FDC71VN

- Replace the PCB **after elapsing 3 minutes from power OFF.**
(Be sure to measure voltage (DC) between T26 and T27 on inverter PCB, and check that the voltage is discharged sufficiently(10V or less).(Refer to Fig.2))
- Disconnect the connectors from the control PCB.
- Match the switches setting (SW4) with the former PCB.
- Connect the connectors to the control PCB.(Confirm the **connectors are not half inserted.**)

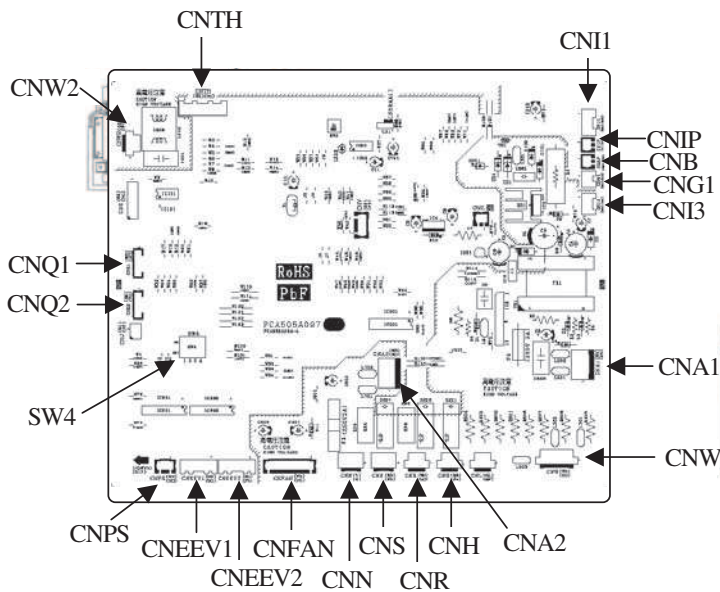


Fig.1 Parts arrangement view

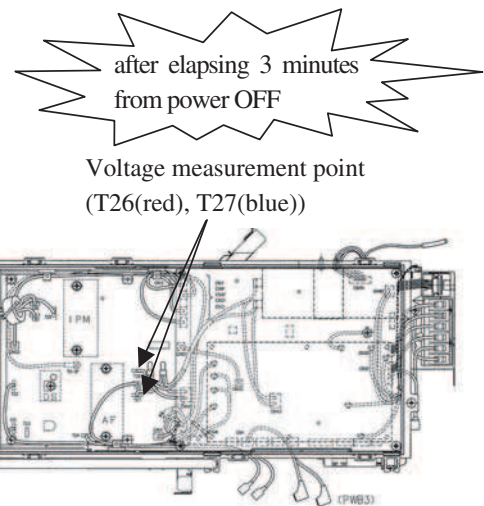
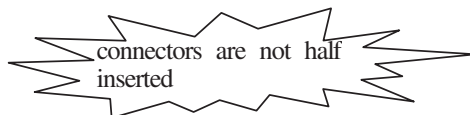


Fig.2 Position of terminal

2) Model FDC100VN, 125VN, 140VN

- Replace the PCB after elapsing 3 minutes from power OFF.
(Be sure to measure voltage (DC) on both capacitor terminals located in controller back, and check that the voltage is discharged sufficiently. (Refer to Fig.2))
- Disconnect the connectors from the control PCB.
- Disconnect the white wiring passing through CT1 on the PCB before replacing the PCB.
- Match the setting switches (SW3-5, JSW) with the former PCB.
- Tighten up a screw after passing white wiring through CT1 of the changed.
- Connect the connectors to the control PCB. (Confirm the connectors are not half inserted.)

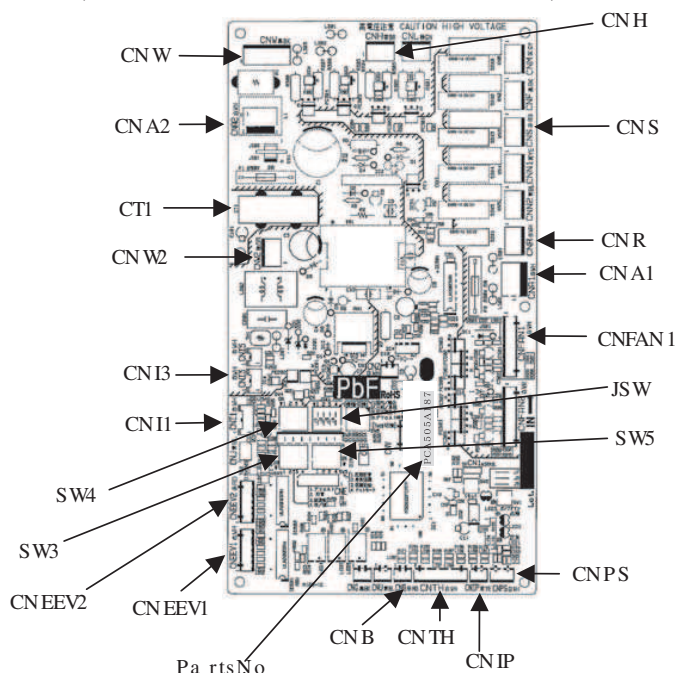


Fig.1 Parts arrangement view

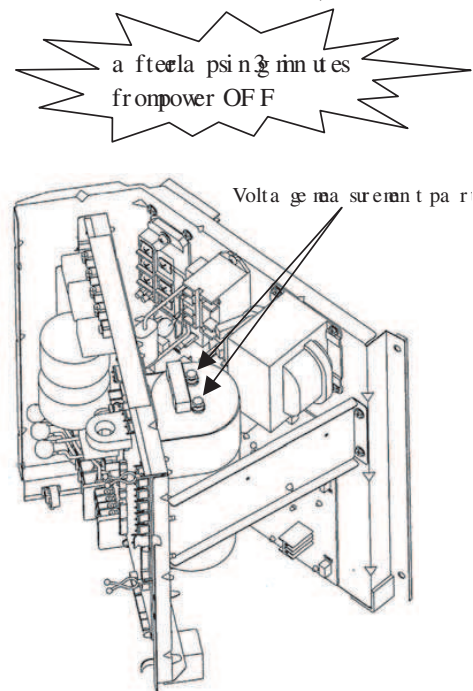
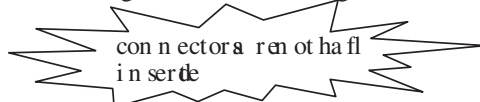


Fig.2 Position of capacitor

3) Model FDC100VS, 125VS, 140VS

- Replace the PCB **after elapsing 3 minutes from power OFF.**
(**Be sure to measure voltage (DC)** on both capacitor terminals located in controller back, and **check that the voltage is discharged sufficiently.** (Refer to Fig.2))
- Disconnect the connectors from the control PCB.
- Disconnect the white wiring passing through CT1 on the PCB before replacing the PCB.
- Match the setting switches (SW3-5,JSW) with the former PCB.
- Tighten up a screw after passing white wiring through CT1 of the changed.
- Connect the connectors to the control PCB.(Confirm the **connectors are not half inserted.**)

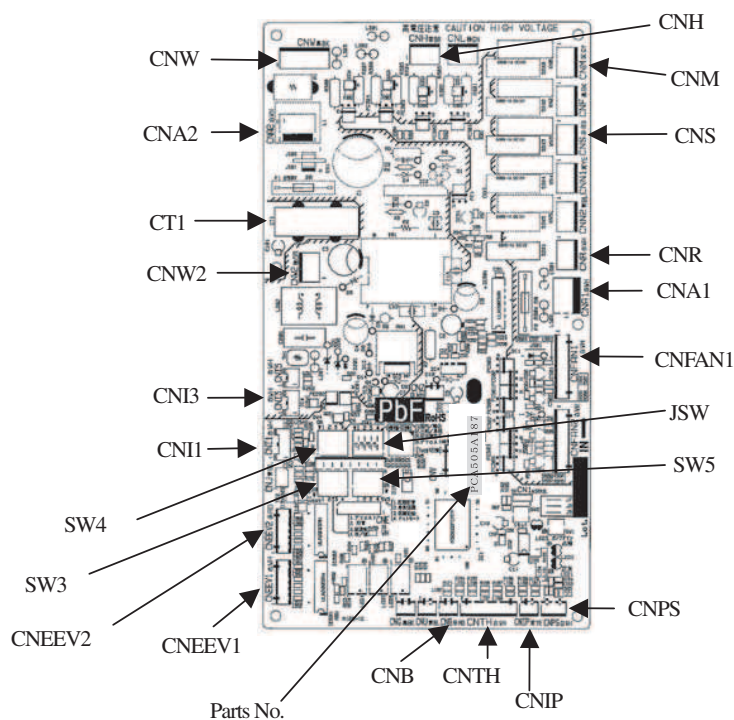


Fig.1 Parts arrangement view

connectors are not half inserted

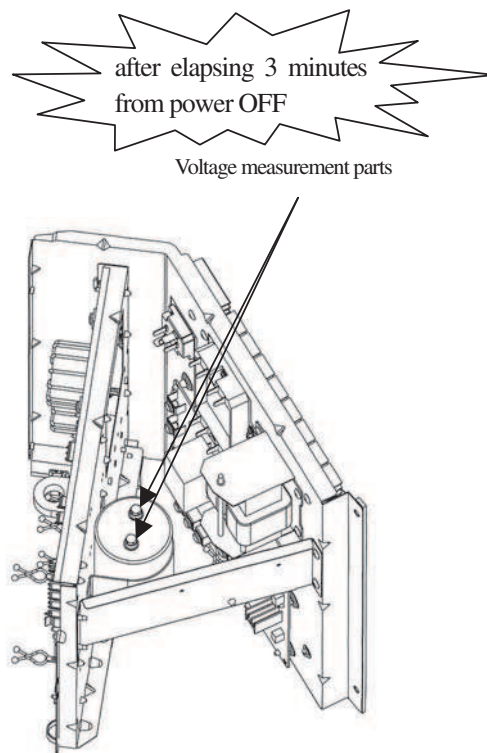


Fig.2 Position of capacitor

4) Model FDC200VS, 240VS

- Replace the PCB **after elapsing 3 minutes from power OFF.**
(**Be sure to measure the voltage (DC) of two places** (1.Resistor on PCB at the front of controller 2.Both capacitor terminals located in back of controller), and **check that the voltage is discharged sufficiently.** (Refer to Fig.2))
- Disconnect the connectors from the control PCB.
- Disconnect the blue wiring passing through CT1 on the PCB before replacing the PCB.
- Match the setting switches (SW3-5, JSW) with the former PCB.
- Tighten up a screw after passing blue wiring through CT1 of the changed.
- Connect the connectors to the control PCB. (Confirm the **connectors are not half inserted**)

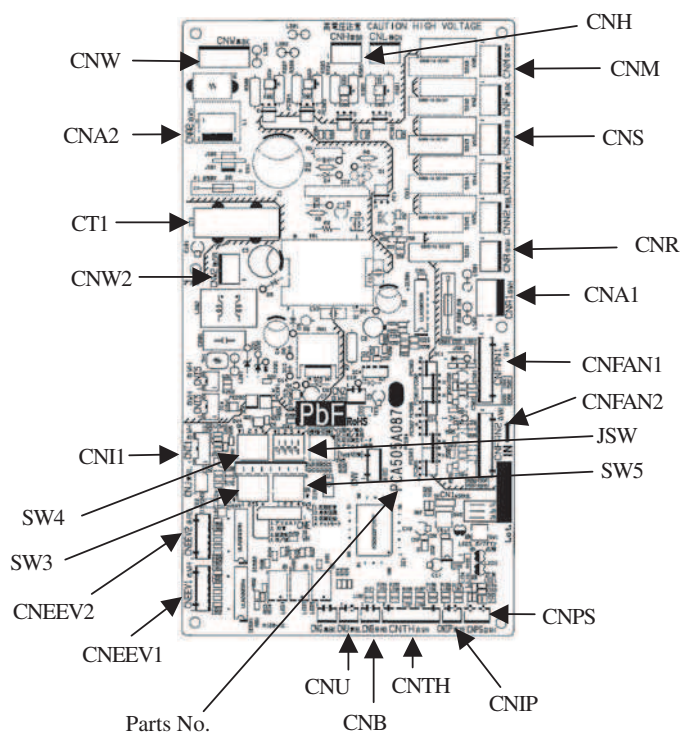


Fig.1 Parts arrangement view

connectors are not half inserted

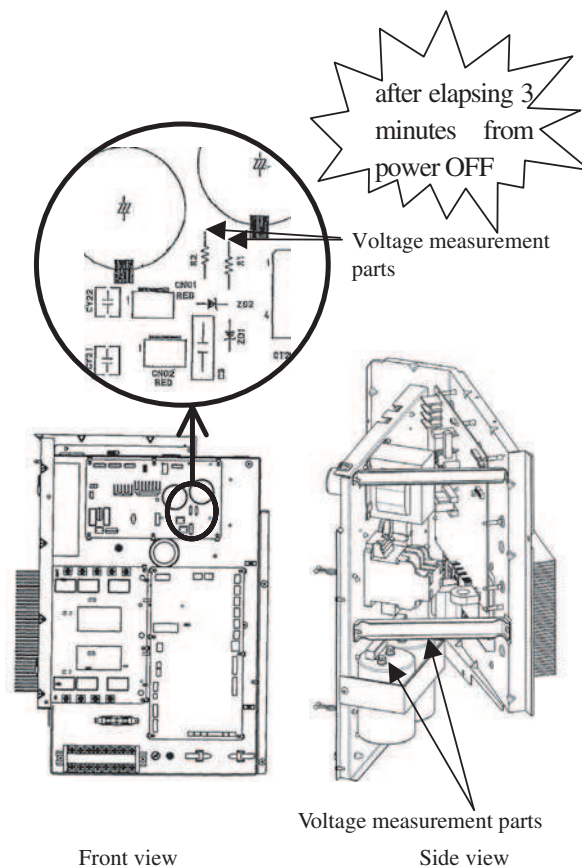


Fig.2 Position of capacitor

(c) Outdoor inverter PCB replacement procedure

Precautions for Safety	
Since the following precaution is the important contents for safety, be sure to observe them. WARNING and CAUTION are described as follows:	
 WARNING	Indicates an imminently hazardous situation which will result in death or serious injury if proper safety procedures and instructions are not adhered to.
 CAUTION	Indicates a potentially hazardous situation which may result in minor or moderate injury if proper safety procedures and instructions are not adhered to.
 WARNING	
- Securely replace the PCB according to this procedure. If the PCB is incorrectly replaced, it will cause an electric shock or fire. - Be sure to check that the power source for the outdoor unit is turned OFF before replacing the PCB. The PCB replacement under current-carrying will cause an electric shock or fire. - After finishing the PCB replacement, check that wiring is correctly connected with the PCB before power distribution. If the PCB is incorrectly replaced, it will cause an electric shock or fire.	
 CAUTION	
Band the wiring so as not to tense because it will cause an electric shock.	

Replace the inverter PCB according to the following procedure.

1) Model FDC71VN

- Replace the PCB **after elapsing 3 minutes from power OFF**.
(**Be sure to measure voltage (DC)** between T26 and T27 on inverter PCB, and **check that the voltage is discharged sufficiently (10V or less)**. (Refer to Fig.2))
- Take off the connection of inverter PCB terminal and connector, and remove the screw of power transistor (IC10), active filter (IC2), and diode stack (DS1) then remove the PCB. Wipe off the silicon grease neatly on the controller's radiation heat fins. (Refer to Fig.1 and 2)
- Refer to table1 for the setting of switch (JSW10, 11) of new PCB.
- Before installing the power transistor (IC10), active filter (IC2), and diode stack (DS1) on the new PCB, apply silicon grease equally to the their surface. (Make full use of the silicon grease.) **They may be damaged unless they apply it.**
- Tighten the screw of power transistor (IC10), active filter (IC2), and diode stack (DS1) on inverter PCB and connect terminal and connector. Confirm the connection and there is not the half insertion. **Tighten properly power transistor, (IC10) active filter (IC2), and diode stack (DS1) with a screw and make sure there is no slack. They can be damage if not properly tighten.** (Recommended tightening torque: power transistor (IC10) 1.2 ± 0.1 and active filter (IC2) 0.98 ± 0.1 , diode stack(DS1) 0.5 ± 0.1)Unit N·m

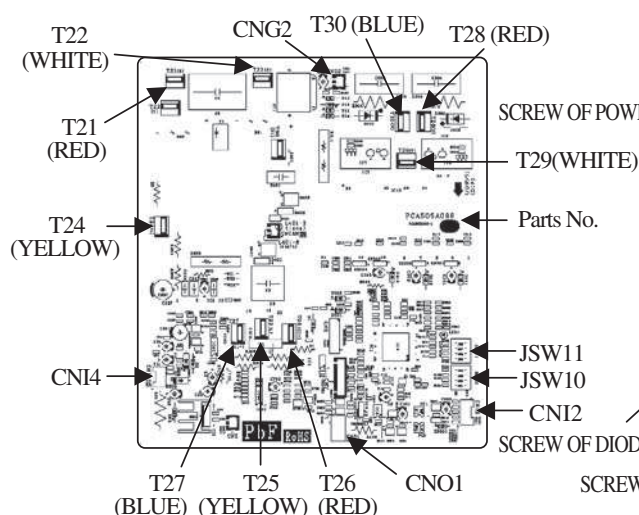


Fig. 1 Parts arrangement view

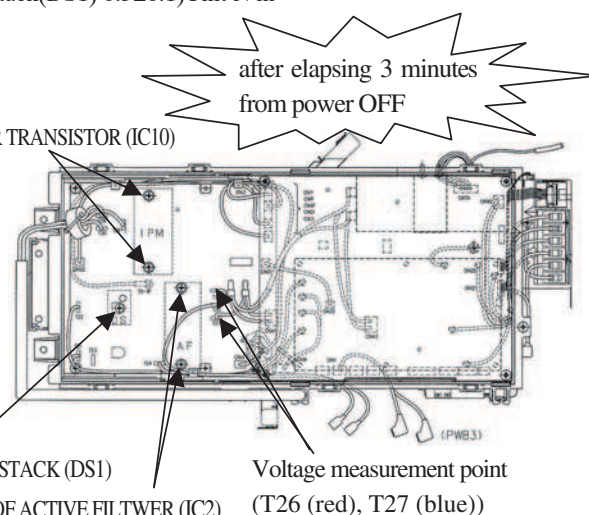


Fig. 2 Position of fastontab and terminal

Table. 1 Switch setting

JSW10	-1	OFF	JSW11	-1	ON
	-2	OFF		-2	ON
	-3	OFF		-3	OFF
	-4	OFF		-4	OFF

Connectors are not half inserted

2) Model FDC100VN, 125VN, 140VN

- Replace the PCB **after elapsing 3 minutes from power OFF.**
(**Be sure to measure voltage (DC)** on both capacitor terminals located in controller back, and **check that the voltage is discharged sufficiently.**(Refer to Fig.2))
- Take off the connection of inverter PCB terminal block connector and remove the screw of power transistor then remove the PCB. Wipe off the silicon grease neatly on the controller's radiation heat fins.
- Refer to table1 for the setting of switch (JSW10,11) of new PCB.
- Before installing the power transistor on the new PCB,Apply uniformly a bundled of silicon grease first on the surface of power transistor.Make sure it is applied to prevent damage on power transistor.
- Tighten the screw of power transistor on inverter PCB and connect the terminal block.Confirm the connection and don't use soldering in the connection.Tighten properly the power transistor with a screw and make sure there is no clearance gap.Power transistor can be damage if not properly tighten.(Recommended power transistor tightening torque:0.98~1.47N·m)

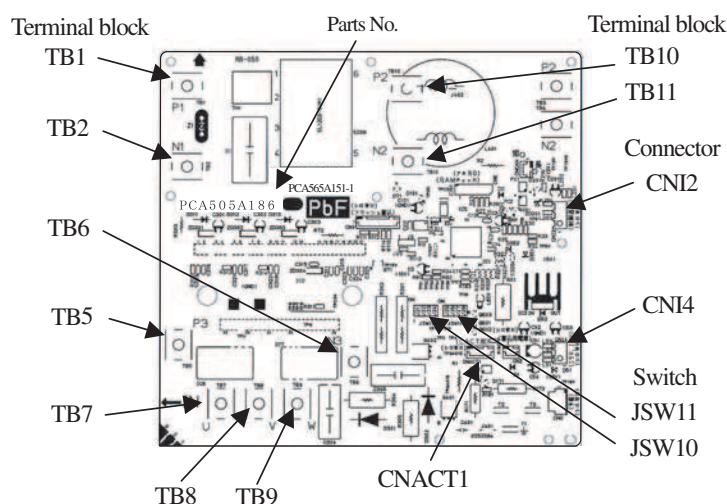


Fig.1 Parts arrangement view

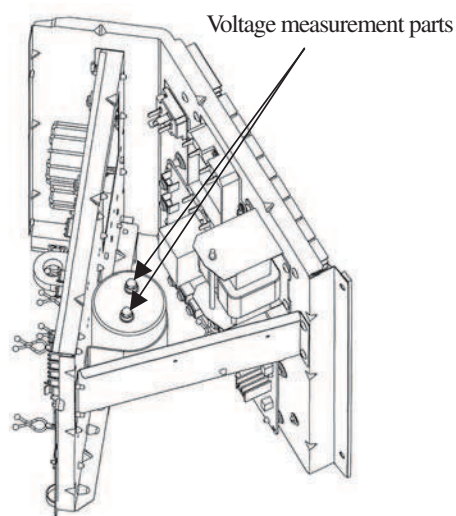


Fig.2 Position of capacitor

Table. 1 Switch setting

JSW10	-1	OFF	JSW11	-1	ON
	-2	OFF		-2	OFF
	-3	OFF		-3	OFF
	-4	OFF		-4	ON

3) Model FDC100VS, 125VS, 140VS

- Replace the PCB **after elapsing 3 minutes from power OFF.**
(**Be sure to measure voltage (DC)** on both capacitor terminals located in controller back, and **check that the voltage is discharged sufficiently.**(Refer to Fig.2))
- Take off the connection of inverter PCB terminal block connector and remove the screw of power transistor then remove the PCB. Wipe off the silicon grease neatly on the controller's radiation heat fins.
- Refer to table1 for the setting of switch (JSW10,11) of new PCB.
- Before installing the power transistor on the new PCB, Apply uniformly a bundled of silicon grease first on the surface of power transistor. Make sure it is applied to prevent damage on power transistor.
- Tighten the screw of power transistor on inverter PCB and connect the terminal block. Confirm the connection and don't use soldering in the connection. Tighten properly the power transistor with a screw and make sure there is no clearance gap. Power transistor can be damage if not properly tighten. (Recommended power transistor tightening torque: 0.98~1.47N·m)

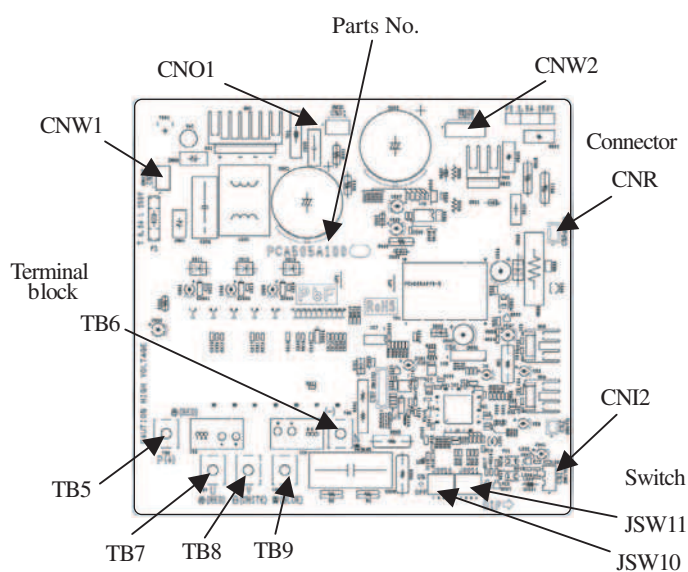


Fig.1 Parts arrangement view

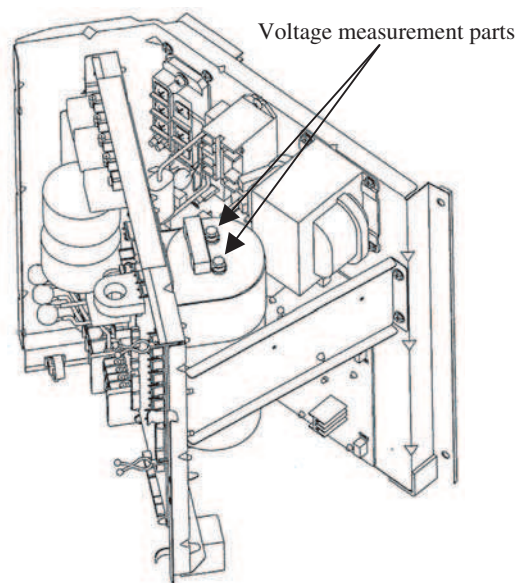


Fig.2 Position of capacitor

Table. 1 Switch setting

JSW10	-1	OFF	JSW11	-1	OFF
	-2	OFF		-2	ON
	-3	OFF		-3	OFF
	-4	OFF		-4	ON

4) Model FDC200VS, 250VS

- Replace the inverter PCB after 10 minutes from power OFF. (Be sure to check that LED(LED1,2) of the inverter PCB put out the lights. It measures that the voltage (AC) between terminals(R,S,T) on the noise filter PCB (see Fig 2) is discharged sufficiently.)
- Remove the terminal on the terminal block (TB1) of the inverter PCB and the connector (CNR) of exchange the PCB.
- Make set switch (SW1,2) as shown in Table 1.
- Connect the terminal of terminal block and the connector to the inverter PCB.

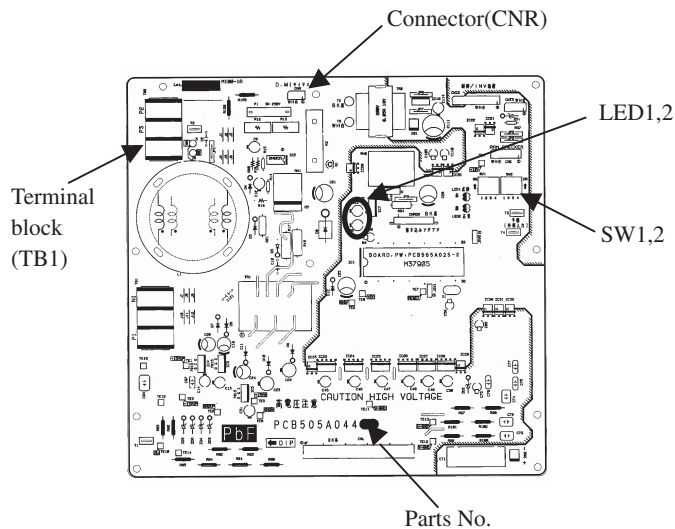


Fig.1 Parts arrangement view
(the inverter substrate)

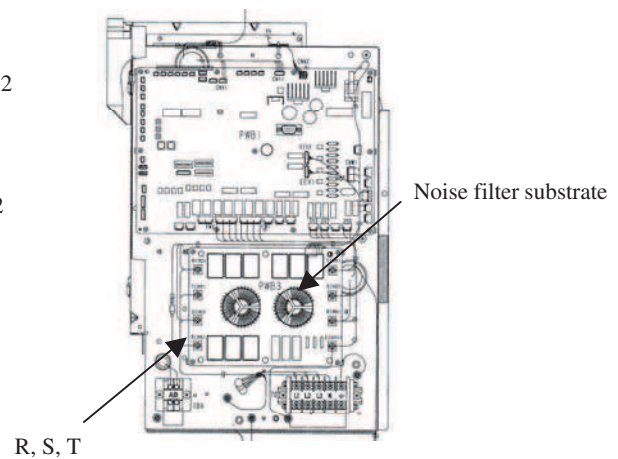


Fig.2 The front of control

Table.1 Switch setting

SW1-1	off
SW1-2	off
SW1-3	off
SW1-4	off
SW2-1	off
SW2-2	off
SW2-3	off
SW2-4	off

(5) Check of anomalous operation data with the remote controller

Operation data can be checked with remote control unit operation.

- ① Press the **CHECK** button.

The display change “OPER DATA ▼”

- ② Press the **○** (SET) button while “OPER DATA ▼” is displayed.

- ③ When only one indoor unit is connected to remote controller, “DATA LOADING” is displayed (blinking indication during data loading).

Next, operation data of the indoor unit will be displayed. Skip to step ⑦.

- ④ When plural indoor units is connected, the smallest address number of indoor unit among all connected indoor unit is displayed.

[Example]:

“SELECT I/U” (blinking 1 seconds) → “I/U000 ▲” blinking.

- ⑤ Select the indoor unit number you would like to have data displayed with the **▲** **▼** button.

- ⑥ Determine the indoor unit number with the **○** (SET) button.

(The indoor unit number changes from blinking indication to continuous indication)

“I/U000” (The address of selected indoor unit is blinking for 2 seconds.)



“DATA LOADING” (A blinking indication appears while data loaded.)

Next, the operation data of the indoor unit is indicated.

- ⑦ Upon operation of the **▲** **▼** button, the current operation data is displayed in order from data number 01.

The items displayed are in the above table.

*Depending on models, the items that do not have corresponding data are not displayed.

- ⑧ To display the data of a different indoor unit, press the **AIR CON NO.** button, which allows you to go back to the indoor unit selection screen.

- ⑨ Pressing the **ON/OFF** button will stop displaying data.

Pressing the **↺** (RESET) button during remote control unit operation will undo your last operation and allow you to go back to the previous screen.

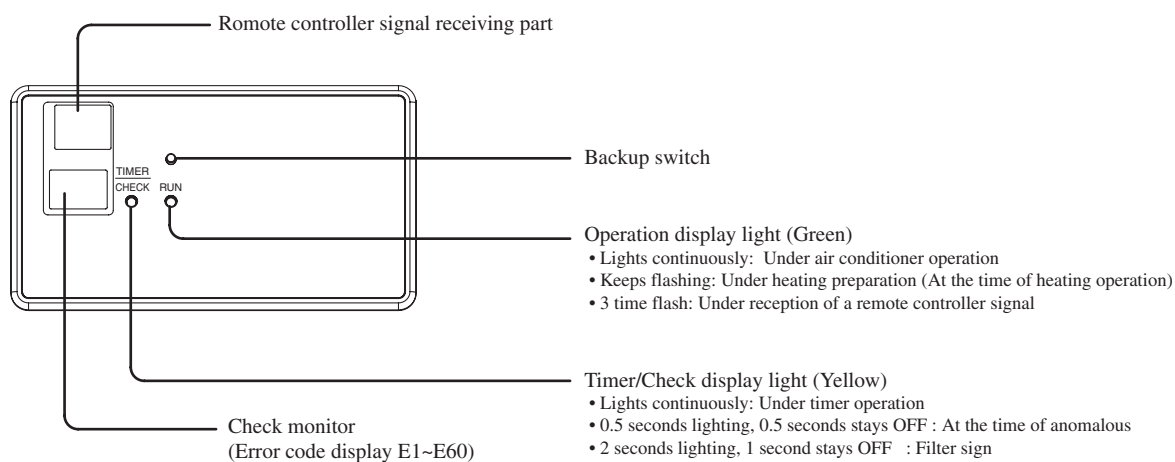
○ If two (2) remote controllers are connected to one (1) inside unit, only the master controller is available for trial operation and confirmation of operation data. (The slave remote controller is not available.)

Number	Data Item
01	(Operation Mode)
02	SET TEMP (Set Temperature)
03	RETURN AIR (Return Air Temperature)
04	(Remote Controller Thermistor Temperature)
05	THI-R1 (Indoor Unit Heat Exchanger Thermistor / U Bend)
06	THI-R2 (Indoor Unit Heat Exchanger Thermistor / Capillary)
07	THI-R3 (Indoor Unit Heat Exchanger Thermistor / Gas Header)
08	I/U FANSPEED (Indoor Unit Fan Speed)
09	DEMAND Hz (Frequency Requirements)
10	ANSWER Hz (Response Frequency)
11	I/U EEV P (Pulse of Indoor Unit Expansion Value)
12	TOTAL I/U RUN H (Total Running Hours of The Indoor Unit)
21	OUTDOOR (Outdoor Air Temperature)
22	THO-R1 (Outdoor Unit Heat Exchanger Thermistor)
23	THO-R2 (Outdoor Unit Heat Exchanger Thermistor)
24	COMP Hz (Compressor Frequency)
25	HP MPa (High Pressure)
26	LP MPa (Low Pressure)
27	Td (Discharge Pipe Temperature)
28	COMP BOTTOM (Comp Bottom Temperature)
29	CT AMP (Current)
30	TARGET SH (Target Super Heat)
31	SH (Super Heat)
32	TDSH (Discharge Pipe Super Heat)
33	PROTECTION No. (Protection State No. of The Compressor)
34	O/U FANSPEED (Outdoor Unit Fan Speed)
35	63H1 (63H1 On/Off)
36	DEFROST (Defrost Control On/Off)
37	TOTAL COMP RUN H (Total Running Hours of The Compressor)
38	O/U EEV1 P (Pulse of The Outdoor Unit Expansion Valve EEVC)
39	O/U EEV2 P (Pulse of The Outdoor Unit Expansion Valve EEVH)

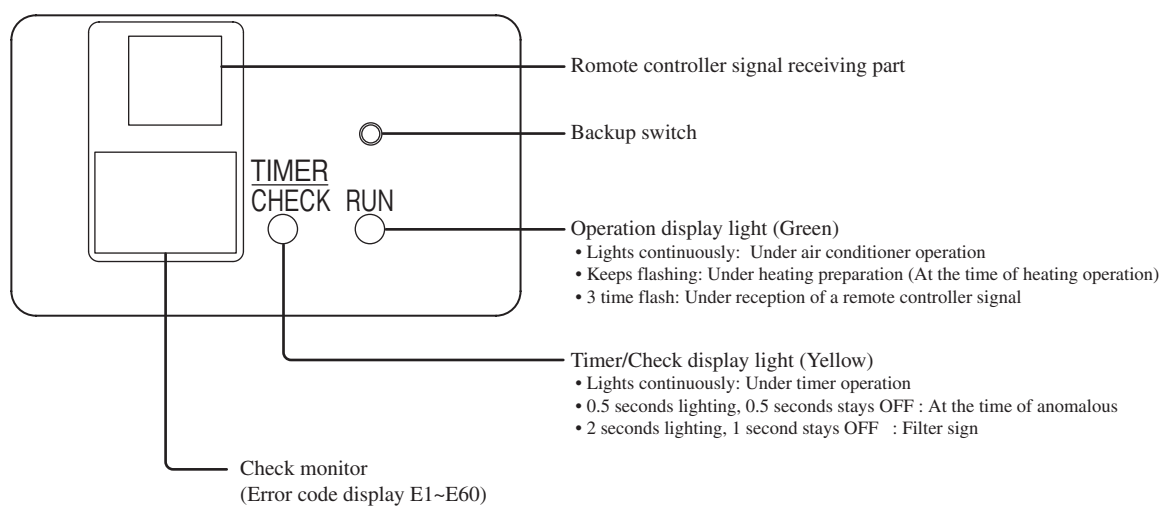
(6) Inspection display of wireless specification model (FDEN, FDT)

(a) Display

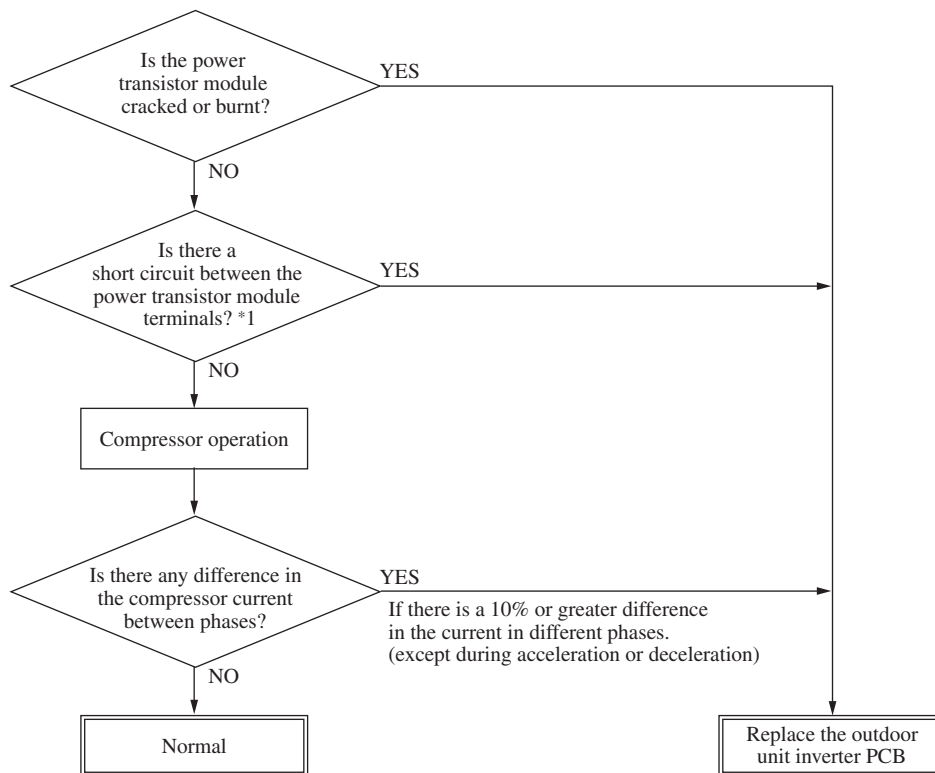
1) FDEN Series



2) FDT (Wireless kit) [For details of the wireless kit, refer to page 353.]



(7) Power transistor module (including the driver PCB) inspection procedure



Note (1) In models 200 and 250, also replace the power transistor.

*1 Power transistor module terminal short circuit check procedure

Disconnect the compressor wiring, then conduct a short circuit check.

P-U, P-V, P-W

N-U, N-V, N-W

Check between the P-N terminals.

Bring the tester probes in contact with the following places on each terminal.

P: Power transistor P terminal,

N: Power transistor N terminal,

U: End of red harness to compressor

V: End of white harness to compressor

W: End of black or blue harness to compressor

Check for a power transistor short circuit.

- When you do not have a diagnostic checker for judging if the inverter is defective, measure between the terminals of the power transistor parts, judge whether the power transistor is defective or not.
- Disconnect the compressor, then measure with the controller incorporated.

Tester		Normal values (Ω)		
Terminal (+)	Terminal (-)	Model 71	Model 100~140	Model 200, 250
P	N	0 ~ (Numerical value rises.)	Approx. 1 M Approx. 300~400	Scores of M
N	P			A few of M
P	U	Several M (Numerical value rises.)	0	Scores of M
P	V			Scores of M
P	W			Scores of M
N	U	Approx. 650 k	Approx. 1.2 M	Hundreds of K
N	V			Hundreds of K
N	W			Hundreds of K
U	P	Approx. 670 k	Approx. 1.3 M	Hundreds of K
V	P	Approx. 4.4 M		Hundreds of K
W	P	Approx. 4.4 M		Hundreds of K
U	N	Approx. 650 k	0	Scores of M
V	N	Approx. 4.8 M		Scores of M
W	N	Approx. 4.9 M		Scores of M

If the measured values range from 0 ~ several kW, there is a possibility that the elements are damaged, so replace the power transistor parts.

(8) Troubleshooting flow**(a) List of troubles**

No.	Remote controller display	Description of trouble	Reference page
1	None	Operates but does not cool.	267
2	None	Operates but does not heat.	268
3	None	Earth leakage breaker activated	269
4	None	Excessive noise, vibration (1/3)	270
5	None	Excessive noise, vibration (2/3)	271
6	None	Excessive noise, vibration (3/3)	272
7	None	Louver motor failure	273
8	None	Power supply system error (Power supply to indoor unit PCB)	274
9	None	Power supply system error (Power supply to remote controller)	275
10	INSPECT I/U	INSPECT I/U (When 1 or 2 remote controllers are connected)	276
11	INSPECT I/U	INSPECT I/U (Connection of 3 units or more remote controllers)	277
12	🔊WAIT🔊	Communication error at initial operation (Model 40~60 only)	278~280
13	🔊WAIT🔊	Communication error at initial operation (Model 71~250 only)	281~283
14	None	No display	284
15	E1	Remote controller communication circuit error	285
16	E5	Communication error during operation	286
17	E6	Indoor unit heat exchanger temperature thermistor anomaly	287
18	E7	Return air temperature thermistor anomaly	288
19	E8	Heating overload operation	289
20	E9	Drain trouble (FDT and FDTC series)	290
21	E10	Excessive number of connected indoor units (more than 17 units) by controlling with one remote controller	291
22	E14	Communication error between master and slave indoor units	292
23	E16	Indoor fan motor anomaly (In case of FDTC and FDT)	293
24	E19	Indoor unit operation check, drain motor check setting error	294
25	E28	Remote controller temperature thermistor anomaly	295
26	E33	Inverter primary current error (Model SRC40~60 only)	296
27	E34	Open L3 phase on power supply (3-phase model only)	297, 298
28	E35	Cooling overload operation (Model SRC40~60)	299
29	E35	Cooling overload operation (Model FDC71~250)	300
30	E36	Discharge pipe temperature error	301
31	E37	Outdoor heat exchanger temperature thermistor anomaly	302
32	E38	Ambient air temperature thermistor anomaly	303
33	E39	Discharge pipe temperature thermistor anomaly	304
34	E40	High pressure error (63H1 activated) (Model FDC71~250 only)	305
35	E41	Power transistor overheat (Model FDC200, 250 only)	306
36	E42	Current cut	307, 308
37	E45	Inverter communication error (Model FDC71~250)	309
38	E47	Inverter over-current error (Model SRC40~60)	310
39	E48	DC fan motor error (Model SRC40~60)	311
40	E48	Outdoor DC fan motor (Model FDC71~250)	312
41	E49	Low pressure error or low pressure sensor anomaly (Model 71~250)	313, 314
42	E51	Inverter fan motor anomaly (Model 71~250)	315
43	E53	Suction pipe temperature thermistor anomaly (Model 71~250)	316
44	E54	Low pressure sensor anomaly (Model 71~250)	317
45	E55	Underneath temperature thermistor anomaly (Model FDC200, 250)	318
46	E57	Insufficient in refrigerant amount or detection of service valve closure	319
47	E59	Compressor startup amount (Model SRC40~60)	320
48	E59	Compressor startup failure (Model FDC71~250)	321
49	E60	Anomalous compressor rotor lock (Model FDC200, 250)	322

(b) Troubleshooting

Error code	LED	Green	Red	Content
Remote controller: None	Indoor	Keeps flashing	Stays Off	Operates but does not cool
	Outdoor	Keeps flashing	Stays Off	

1. Applicable model	5. Troubleshooting
All models	
2. Error detection method	Diagnosis
	Check the indoor unit fan operation. Check the temperature difference between return and supply air. Is the temperature difference between return and supply air 10-20degC at cooling? NO Is the compressor operating? NO Mistake in model selection. Calculate heat load once more. Does the heat load increase after installation? NO YES “WAIT” message is displayed (for 3 seconds) when performing cooling, defrosting and heating operations from the remote controller. YES NO YES Is the compressor rotation speed low? NO YES Check which control “Determination control of compressor rotation speed” or “Protective control by controlling compressor rotation speed” is appropriate to this phenomenon. Are the temperature conditions of room and ambient air close to the rated conditions? (1) YES NO The unit is operating normally but is operating under the control for protecting compressor or other respective parts. Note (1) Ambient: 35°C, Room: 27°CDB/19°CWB
3. Condition of Error displayed	Countermeasure
	It is normal. (This unit is designed to start in the soft start mode by detecting the under dome temperature of compressor when it restart after power reset. It is necessary to replace to higher capacity one or to install additional unit. Compressor refrigerant oil protection control at starting is activated. For the contents of control, refer to the compressor start control of the microcomputer control functions. Compressor may be stopped by the error detection control. For the contents of control, refer to anomalous stop control by controlling compressor rotation speed of microcomputer control functions. Inspect the followings. • Minor clogging of filter • Minor clogging of heat exchanger • Minor short-circuit • Minor shortage of refrigerant amount • Poor compression of compressor Considering appropriate operation control, check suspicious points. Inspect the followings for reference. • Major clogging of filter • Major clogging of heat exchanger • Major short-circuit • Major shortage of refrigerant amount • Compressor protection ON • Indoor fan tap • Valid setting of silent mode
4. Presumable cause	
• Poor compression of compressor • Faulty expansion valve operation	

Note:

Error code	LED	Green	Red	Content
Remote controller: None	Indoor	Keeps flashing	Stays Off	Operates but does not heat
	Outdoor	Keeps flashing	Stays Off	

1.Applicable model	5.Troubleshooting				
All models	<table> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> <tr> <td> Check the indoor unit fan operation. Check the temperature difference between return and supply air. Is the temperature difference between return and supply air 10-30degC at heating? YES → Does the heat load increase after installation? NO → YES → Mistake in model selection. Calculate heat load once again. → NO → Is the compressor operating? NO → YES → "WAIT" message is displayed (for 3 seconds) when performing cooling, defrosting and heating operations from the remote controller. YES → NO → Is the compressor rotation speed low? NO → YES → Check which control "Determination control of compressor rotation speed" or "Protective control by controlling compressor rotation speed" is appropriate to this phenomenon. Are the temperature conditions of room and ambient air close to the rated conditions? (1) YES → NO → The unit is operating normally but is operating under the control for protecting compressor or other respective parts. Note (1) Ambient: 7°C, Room: 20°C, DB </td><td> It is normal. (This unit is designed to start in the soft start mode by detecting the under dome temperature of compressor when it restart after power reset. It is necessary to replace to higher capacity one or to install additional unit. Compressor refrigerant oil protection control at starting is activated. For the contents of control, refer to the compressor start control of the microcomputer control functions. Compressor may be stopped by the error detection control. For the contents of control, refer to anomalous stop control by controlling compressor rotation speed of microcomputer control functions. Inspect the followings. • Minor clogging of filter • Minor clogging of heat exchanger • Minor short-circuit • Minor shortage of refrigerant amount • Poor compression of compressor Considering appropriate operation control, check suspicious points. Inspect the followings for reference. • Major clogging of filter • Major clogging of heat exchanger • Major short-circuit • Major shortage of refrigerant amount • Compressor protection ON • Indoor fan tap • Valid setting of silent mode </td></tr> </table>	Diagnosis	Countermeasure	Check the indoor unit fan operation. Check the temperature difference between return and supply air. Is the temperature difference between return and supply air 10-30degC at heating? YES → Does the heat load increase after installation? NO → YES → Mistake in model selection. Calculate heat load once again. → NO → Is the compressor operating? NO → YES → "WAIT" message is displayed (for 3 seconds) when performing cooling, defrosting and heating operations from the remote controller. YES → NO → Is the compressor rotation speed low? NO → YES → Check which control "Determination control of compressor rotation speed" or "Protective control by controlling compressor rotation speed" is appropriate to this phenomenon. Are the temperature conditions of room and ambient air close to the rated conditions? (1) YES → NO → The unit is operating normally but is operating under the control for protecting compressor or other respective parts. Note (1) Ambient: 7°C, Room: 20°C, DB	It is normal. (This unit is designed to start in the soft start mode by detecting the under dome temperature of compressor when it restart after power reset. It is necessary to replace to higher capacity one or to install additional unit. Compressor refrigerant oil protection control at starting is activated. For the contents of control, refer to the compressor start control of the microcomputer control functions. Compressor may be stopped by the error detection control. For the contents of control, refer to anomalous stop control by controlling compressor rotation speed of microcomputer control functions. Inspect the followings. • Minor clogging of filter • Minor clogging of heat exchanger • Minor short-circuit • Minor shortage of refrigerant amount • Poor compression of compressor Considering appropriate operation control, check suspicious points. Inspect the followings for reference. • Major clogging of filter • Major clogging of heat exchanger • Major short-circuit • Major shortage of refrigerant amount • Compressor protection ON • Indoor fan tap • Valid setting of silent mode
Diagnosis	Countermeasure				
Check the indoor unit fan operation. Check the temperature difference between return and supply air. Is the temperature difference between return and supply air 10-30degC at heating? YES → Does the heat load increase after installation? NO → YES → Mistake in model selection. Calculate heat load once again. → NO → Is the compressor operating? NO → YES → "WAIT" message is displayed (for 3 seconds) when performing cooling, defrosting and heating operations from the remote controller. YES → NO → Is the compressor rotation speed low? NO → YES → Check which control "Determination control of compressor rotation speed" or "Protective control by controlling compressor rotation speed" is appropriate to this phenomenon. Are the temperature conditions of room and ambient air close to the rated conditions? (1) YES → NO → The unit is operating normally but is operating under the control for protecting compressor or other respective parts. Note (1) Ambient: 7°C, Room: 20°C, DB	It is normal. (This unit is designed to start in the soft start mode by detecting the under dome temperature of compressor when it restart after power reset. It is necessary to replace to higher capacity one or to install additional unit. Compressor refrigerant oil protection control at starting is activated. For the contents of control, refer to the compressor start control of the microcomputer control functions. Compressor may be stopped by the error detection control. For the contents of control, refer to anomalous stop control by controlling compressor rotation speed of microcomputer control functions. Inspect the followings. • Minor clogging of filter • Minor clogging of heat exchanger • Minor short-circuit • Minor shortage of refrigerant amount • Poor compression of compressor Considering appropriate operation control, check suspicious points. Inspect the followings for reference. • Major clogging of filter • Major clogging of heat exchanger • Major short-circuit • Major shortage of refrigerant amount • Compressor protection ON • Indoor fan tap • Valid setting of silent mode				
2.Error detection method					
3. Condition of Error displayed					
4.Presumable cause	• Faulty 4-way valve operation • Poor compression of compressor • Faulty expansion valve operation				

Note:

Error code	LED	Green	Red	Content
	Indoor	Stays Off	Stays Off	
	Outdoor	Stays Off	Stays Off	
Remote controller: None				Earth leakage breaker activated

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
	Are OK the insulation resistance and coil resistance of compressor? NO YES Is insulation of respective harnesses OK? Is any harness bitten between pannel and casing or etc? NO YES Check the outdoor unit grounding wire/earth leakage breaker.	Replace compressor.*

Note:

Error code Remote controller: None	LED	Green	Red	Content Excessive noise/vibration (1/3)
	Indoor	—	—	
	Outdoor	—	—	

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
	<pre>graph TD Q1{Does noise/vibration occur during or soon after stopping operation of air-conditioner?} Q2{[Installation work] Does noise/vibration occur not only from the air-conditioner but also from entire building?} Q3{Does the installation of indoor/outdoor unit loose?} Q4{Are pipes touching the wall, etc?} Q5{[Product] Does noise/vibration occur from operating fan (fan only)?} Q6{Is there a fan or louver touching other components?} CM1[If excessive noise/vibration persists when sufficient time has elapsed after stopping the unit, it is considered that the air-conditioner is not the source.] CM2[Check the installed condition carefully, and correct the position or insert rubber cushions or others into the gap, if necessary.] CM3[Prevent the vibration from transmitting to wall and etc by fixing pipes on the wall or wrapping rubber cushion around the pipe which goes through the hole in the wall or applying other appropriate means.] CM4[Strength of ceiling wall, floor, etc. may be insufficient. Review the installing position or reinforce it.] CM5[Check for leaning of installed unit or anomalous mounting of fan, louver or motor and specify the contacting point and correct it.] CM6[When the heat exchanger or filter is clogged, clean them. In case that the unit is installed at the site where background noise is very low, small noise from indoor unit can be heard, but it is normal. Before installation, check for background noise. If background noise is very low, convince client prior to installation.] Q1 -- NO --> CM1 Q1 -- YES --> Q2 Q2 -- YES --> Q3 Q2 -- NO --> Q4 Q3 -- YES --> CM2 Q3 -- NO --> Q4 Q4 -- YES --> CM3 Q4 -- NO --> Q5 Q5 -- YES --> Q6 Q5 -- NO --> T23[To 2/3] Q6 -- YES --> CM5 Q6 -- NO --> CM6</pre>	If excessive noise/vibration persists when sufficient time has elapsed after stopping the unit, it is considered that the air-conditioner is not the source. Check the installed condition carefully, and correct the position or insert rubber cushions or others into the gap, if necessary. Prevent the vibration from transmitting to wall and etc by fixing pipes on the wall or wrapping rubber cushion around the pipe which goes through the hole in the wall or applying other appropriate means. Strength of ceiling wall, floor, etc. may be insufficient. Review the installing position or reinforce it. Check for leaning of installed unit or anomalous mounting of fan, louver or motor and specify the contacting point and correct it. When the heat exchanger or filter is clogged, clean them. In case that the unit is installed at the site where background noise is very low, small noise from indoor unit can be heard, but it is normal. Before installation, check for background noise. If background noise is very low, convince client prior to installation.
2.Error detection method		
3. Condition of Error displayed		
4.Presumable cause		
① Improper installation work • Improper anti-vibration work at instllation • Insufficient strength of mounting face ② Defective product • Before/after shipping from factory ③ Improper adjustment during commissioning • Excess/shortage of refrigerant, etc.		

Note:

Error code	LED	Green	Red	Content
Remote controller: None	Indoor	—	—	Excessive noise/vibration (2/3)
	Outdoor	—	—	

1. Applicable model	5. Troubleshooting	
All models	Diagnosis	Countermeasure
2. Error detection method	<pre> graph TD Start([From 1/3]) --> D1{[Unit side] Does noise/vibration occur when the cooling/ heating operation is performed normally?} D1 -- YES --> D2{Are the pipes contacting the casing?} D1 -- NO --> End([To 3/3]) D2 -- YES --> C1[Rearrange the piping to avoid contact with the casing.] D2 -- NO --> D3{Is it heard continuous hissing or roaring sound?} D3 -- YES --> C2[It is noise/vibration that is generated when the refrigerant gas or liquid flow through inside of piping of air-conditioner. It is likely to occur particularly during cooling or defrosting in the heating mode. It is normal.] D3 -- NO --> D4{Are hissing sounds heard at the startup or stopping?} D4 -- YES --> C3[The noise/vibration occurs when the refrigerant starts or stops flowing. It is normal.] D4 -- NO --> D5{Is blowing sound heard at the start/stop of defrosting during heating?} D5 -- YES --> C4[When the defrosting starts or stops during heating, the refrigerant flow is reversed due to switching 4-way valve. This causes a large change in pressure which produces a blowing sound. It may accompany also the hissing sounds as mentioned above. They are normal.] D5 -- NO --> D6{Is cracking noise heard during heating operation?} D6 -- YES --> C5[After the start or stop of heating operation or during defrosting, abrupt changes in temperature cause resin parts to shrink or expand. This is normal.] D6 -- NO --> D7{Is hissing noise heard during cooling operation or after stopping?} D7 -- YES --> C6[It is the sound produced by the drain pump that discharges drain from the indoor unit. The pump continues to run for 5 minutes after stopping the cooling operation. This is normal.] D7 -- NO --> C7[Apply the damper sealant at places considered to be the sources such as the pressure reducing mechanism (expansion valve), capillary, etc.] </pre>	
3. Condition of Error displayed		
4. Presumable cause		

Note:

Error code	LED	Green	Red	Content
Remote controller: None	Indoor	—	—	Excessive noise/vibration (3/3)
	Outdoor	—	—	

1. Applicable model	5. Troubleshooting	
All models	Diagnosis	Countermeasure
2. Error detection method	From 2/3 Adjustment during commissioning Does noise/vibration occur when the cooling/heating operation is in anomalous condition?	
3. Condition of Error displayed	If insufficient cooling/heating problem happens due to anomalous operating conditions at cooling/heating, followings are suspicious. • Overcharge of refrigerant • Insufficient charge of refrigerant • Intrusion of air, nitrogen, etc. In such occasion, it is necessary to recover refrigerant, vacuum-dry and recharge refrigerant. * Since there could be many causes of noise/vibration, the above do not cover all. In such case, check the conditions when, where, how the noise/vibration occurs according to following check point. • Indoor/outdoor unit • Cooling/heating/fan mode • Startup/stop/during operation • Operating condition (Indoor/outdoor temperatures, pressure) • Time it occurred • Operation data retained by the remote controller such as compressor rotation speed, heat exchanger temperature, EEV opening degree, etc. • Tone (If available, record the noise) • Any other anomalies	
4. Presumable cause		

Note:

Error code	LED	Green	Red	Content
Remote controller: None	Indoor	Keeps flashing	Stays Off	Louver motor failure
	Outdoor	Keeps flashing	Stays Off	

1.Applicable model	5.Troubleshooting		
All models	Diagnosis		Countermeasure
2.Error detection method	▲ Check at the indoor unit side. <pre> graph TD Start([Start]) --> Wait[Operate after waiting for more than 1 minute.] Wait --> Q1{Does the louver operate at the power on?} Q1 -- YES --> Q2{Is the louver operable with the remote controller?} Q1 -- NO --> Q3{Is LM wiring broken?} Q3 -- YES --> C1[Repair wiring.] Q3 -- NO --> Q4{Is LM locked?} Q4 -- YES --> C2[Replace LM.] Q4 -- NO --> C3[Replace indoor control PCB.] Q2 -- YES --> C4[Normal] Q2 -- NO --> C5[Adjust LM lever and then check again.] </pre>		
3. Condition of Error displayed			
4.Presumable cause	• Defective LM • LM wire breakage		

Note:

Error code Remote controller: None	LED	Green	Red	Content Power supply system error (Power supply to indoor unit PCB)
	Indoor	Stays Off	Stays Off	
	Outdoor	Stays Off	2 times flash	

1.Applicable model	5.Troubleshooting
All models	
2.Error detection method	
3. Condition of Error displayed	
4.Presumable cause	
- Misconnection or breakage of connecting wires - Blown fuse - Faulty transformer - Faulty indoor power PCB - Broken harness - Faulty indoor control PCB	Diagnosis Is AC220/240V detected between L1 and N on the terminal block of indoor unit? NO Is AC380/415V for 3-phase unit detected between L1, L2 and L3 on the terminal block of outdoor unit or is AC220/240V for 1-phase unit detected between L1 and N on the terminal block of outdoor unit? NO Defective outdoor PCB (Noise filter) YES Misconnection or breakage of connecting wires YES Note(1) FDT Series: F200, F201 Other than FDT: Fuse between wires (1) Are fuses OK (2 pcs.)? NO Is the check of resistance between ①-③ of CNW0 OK? NO Defective indoor power PCB → Replace. YES Note (2) Remove the transformer for other than FDT Series. (CNW1) Is the checked result of resistance of FM, LM, etc OK? NO Replace FM, LM, etc. YES Replace fuse. Other than FDT Series FDT Series Is DC5V detected between ④-⑤ of CNW2? NO Defective indoor power PCB → Replace. YES Note (3) ⑤ for GND Is JX1 open? NO Open JX1. YES Defective indoor control PCB → Replace. Is AC14V or higher detected between Red-Red (CNW2) at transformer secondary side? NO Replace transformer. YES Is JX1 open? NO Open JX1. YES Defective indoor PCB → Replace.

Note:

Error code Remote controller: None	LED	Green	Red	Content Power supply system error (Power supply to remote controller)
	Indoor	Keeps flashing	Stays Off	
	Outdoor	Keeps flashing	2 times flash	

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
2.Error detection method	Isn't there any loose connection of remote controller wires? YES Correct. NO Isn't remote controller wire broken or short-circuited? YES Replace wires. NO Disconnect remote controller wires. Is DC15V or higher detected between X-Y of indoor unit terminal block? YES Replace remote controller. NO Other than FDT Series Is 24V or higher between (Brown-Brown) of transformer secondary side? NO Replace transformer. YES Replace indoor PCB. FDT Series Is DC18V between ①-② of CNW2? NO Replace power PCB. YES Replace control PCB.	
3.Condition of Error displayed		
4.Presumable cause	Remote controller wire breakage/short-circuit Defective remote controller Malfunction by noise Faulty indoor power PCB Broken harness Faulty indoor control PCB	

Note:

Error code	LED	Green	Red	Content
Remote controller: INSPECT I/U	Indoor	Keeps flashing	Stays Off	INSPECT I/U (When 1 or 2 remote controllers are connected)
	Outdoor	Keeps flashing	2 times flash	

1. Applicable model	5. Troubleshooting
All models	Diagnosis
2. Error detection method	Countermeasure
Communication between indoor unit and remote controller is disabled for more than 30 minutes after the power on.	<pre> graph TD Q1{Are 2 units of remote controller connected?} Q2{Is it set at the slave remote controller?} Q3{Does it become normal?} Q4{Do more than one indoor units have the same address?} Q5{Are remote controller wires laid along high voltage wires?} Q6{Does DM start 60 seconds later automatically.} Q1 -- YES --> S1[Set one remote controller for "Master" and the other for "Slave" Note (1) Use SW1 to set at master or slave.] S1 --> Q3 Q3 -- NO --> Q4 Q1 -- NO --> Q2 Q2 -- YES --> C1[Set SW1 on remote controller PCB at "Master".] Q2 -- NO --> Q4 Note2[Note (2) "Slave" is displayed on the remote controller LCD.] Q4 -- YES --> C2[Set address again. (SW2 on indoor PCB)] Q4 -- NO --> Q5 Q5 -- YES --> C3[Separate remote controller wires from high voltage wires.] Q5 -- NO --> S2[Disconnect the connecting wire ③ between the indoor and outdoor unit.] S2 --> S3[Power supply reset] S3 --> Q6 Q6 -- YES --> C4[Defective indoor control PCB → Replace.] Q6 -- NO --> C5[Defective remote controller → Change.] </pre>
3. Condition of Error displayed	
Same as above	
4. Presumable cause	
• Improper setting • Surrounding environment • Defective remote controller communication circuit	

Note: If any error is detected 30 minutes after displaying “WAIT” on the remote controller, the display changes to “INSPECT I/U”.

Error code	LED	Green	Red	Content
Remote controller: INSPECT I/U	Indoor	Keeps flashing	Stays Off	INSPECT I/U (connection of 3 units or more remote controller)
	Outdoor	Keeps flashing	2 times flash	

1.Applicable model All models	5.Troubleshooting <table> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> <tr> <td> <pre> graph TD D1{Are more than 3 units of remote controller connected?} -- YES --> C1[Reduce to 2 units or less.] D1 -- NO --> D2{Does remote controller display "Slave"?} D2 -- YES --> C2[Change remote controller setting to "Master". (SW1 on remote controller PCB)] D2 -- NO --> D3{Do more than one indoor units have the same address?} D3 -- YES --> C3[Change address. (SW2 on indoor PCB)] D3 -- NO --> D4{Is it set to a slave indoor unit. SW5-1, 2?} D4 -- YES --> C4[Change to master. (SW5-1, 2 on indoor PCB)] D4 -- NO --> D5{Is there loose or wrong connection at the terminal of wiring between indoor and outdoor units?} D5 -- YES --> C5[Correct] D5 -- NO --> D6{Is the grounding wire connected properly?} D6 -- NO --> C6[Correct] D6 -- YES --> D7{Is approx. DC20V detected between ②-③ on the outdoor unit terminal block?} D7 -- NO --> C7[Defective outdoor control PCB→Change.] D7 -- YES --> D8{Is approx. DC20V detected between ②-③ on the indoor unit terminal block?} D8 -- NO --> C8[Broken connecting wire→Correct.] D8 -- YES --> C9[Change indoor control PCB.] </pre> </td><td></td></tr> </table>	Diagnosis	Countermeasure	<pre> graph TD D1{Are more than 3 units of remote controller connected?} -- YES --> C1[Reduce to 2 units or less.] D1 -- NO --> D2{Does remote controller display "Slave"?} D2 -- YES --> C2[Change remote controller setting to "Master". (SW1 on remote controller PCB)] D2 -- NO --> D3{Do more than one indoor units have the same address?} D3 -- YES --> C3[Change address. (SW2 on indoor PCB)] D3 -- NO --> D4{Is it set to a slave indoor unit. SW5-1, 2?} D4 -- YES --> C4[Change to master. (SW5-1, 2 on indoor PCB)] D4 -- NO --> D5{Is there loose or wrong connection at the terminal of wiring between indoor and outdoor units?} D5 -- YES --> C5[Correct] D5 -- NO --> D6{Is the grounding wire connected properly?} D6 -- NO --> C6[Correct] D6 -- YES --> D7{Is approx. DC20V detected between ②-③ on the outdoor unit terminal block?} D7 -- NO --> C7[Defective outdoor control PCB→Change.] D7 -- YES --> D8{Is approx. DC20V detected between ②-③ on the indoor unit terminal block?} D8 -- NO --> C8[Broken connecting wire→Correct.] D8 -- YES --> C9[Change indoor control PCB.] </pre>	
Diagnosis	Countermeasure				
<pre> graph TD D1{Are more than 3 units of remote controller connected?} -- YES --> C1[Reduce to 2 units or less.] D1 -- NO --> D2{Does remote controller display "Slave"?} D2 -- YES --> C2[Change remote controller setting to "Master". (SW1 on remote controller PCB)] D2 -- NO --> D3{Do more than one indoor units have the same address?} D3 -- YES --> C3[Change address. (SW2 on indoor PCB)] D3 -- NO --> D4{Is it set to a slave indoor unit. SW5-1, 2?} D4 -- YES --> C4[Change to master. (SW5-1, 2 on indoor PCB)] D4 -- NO --> D5{Is there loose or wrong connection at the terminal of wiring between indoor and outdoor units?} D5 -- YES --> C5[Correct] D5 -- NO --> D6{Is the grounding wire connected properly?} D6 -- NO --> C6[Correct] D6 -- YES --> D7{Is approx. DC20V detected between ②-③ on the outdoor unit terminal block?} D7 -- NO --> C7[Defective outdoor control PCB→Change.] D7 -- YES --> D8{Is approx. DC20V detected between ②-③ on the indoor unit terminal block?} D8 -- NO --> C8[Broken connecting wire→Correct.] D8 -- YES --> C9[Change indoor control PCB.] </pre>					
2.Error detection method Indoor unit cannot communicate for more than 30 minutes after the power on with remote controller.					
3.Condition of Error displayed Same as above					
4.Presumable cause • Improper setting • Surrounding environment • Defective remote controller communication circuit					

Note: If any error is detected 30 minutes after displaying “ WAIT ” on the remote controller, the display changes to “INSPECT I/U”.

Error code	LED	Green	Red	Content
Remote controller: WAIT	Indoor	Keeps flashing	Stays Off	WAIT (1/3) (Model SRC40 - 60)
	Outdoor	Keeps flashing	2 times flash	

1.Applicable model	5.Troubleshooting				
Model SRC40 – 60 When the remote controller LCD displays “ WAIT ” 2 minutes after the power on.	<table> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> <tr> <td> <pre> graph TD Start([The remote controller LCD displays "WAIT" 2 minutes after the power on.]) --> Step1[Turn the breaker off once and then back on again 3 minutes later.] Step1 --> Dec1{Is normal condition restored?} Dec1 -- NO --> Dec2{Isn't blown the power supply fuse (20A) on the outdoor unit controller?} Dec2 -- NO --> Act1[Replace the power supply fuse.] Dec2 -- YES --> Dec3{Is AC220/240V detected at the secondary side of noise filter?} Dec3 -- NO --> Act2[Replace noise filter.] Dec3 -- YES --> Dec4{Are OK the connection wires between the noise filter and the inverter PCB'S?} Dec4 -- NO --> Act3[Connect properly.] Dec4 -- YES --> Dec5{Isn't F6 fuse (250V, 6A) blown.} Dec5 -- NO --> Act4[Replace fuse.] Dec5 -- YES --> Dec6{Is the green LED of indoor unit flashing?} Dec6 -- NO --> Act5[Defective indoor control PCB→Replace.] Dec6 -- YES --> Dec7{Is the green LED of indoor unit flashing twice?} Dec7 -- NO --> Act6[Replace indoor control PCB. Defective remote controller →Replace. Broken remote controller wire Y→Replace.] Dec7 -- YES --> Dec8{Are wires connected properly between the indoor and the outdoor units?} Dec8 -- NO --> Act7[Correct connection wires between indoor and outdoor units.] Dec8 -- YES --> Dec9{Is approx. DC20V detected between ①-② on the outdoor unit terminal block?} Dec9 -- NO --> Act8[Replace outdoor control PCB.] Dec9 -- YES --> Dec10{Is approx. DC20V detected between ①-②(N) on the outdoor unit terminal block?} Dec10 -- NO --> Act9[Defective connection wire (broken wire) Noise] Dec10 -- YES --> Act10[Defective indoor control PCB→Replace.] </pre> </td><td> See next page. Replace noise filter. Connect properly. Replace fuse. Defective indoor control PCB→Replace. Replace indoor control PCB. Defective remote controller →Replace. Broken remote controller wire Y→Replace. Correct connection wires between indoor and outdoor units. Replace outdoor control PCB. Defective connection wire (broken wire) Noise Defective indoor control PCB→Replace. </td></tr> </table>	Diagnosis	Countermeasure	<pre> graph TD Start([The remote controller LCD displays "WAIT" 2 minutes after the power on.]) --> Step1[Turn the breaker off once and then back on again 3 minutes later.] Step1 --> Dec1{Is normal condition restored?} Dec1 -- NO --> Dec2{Isn't blown the power supply fuse (20A) on the outdoor unit controller?} Dec2 -- NO --> Act1[Replace the power supply fuse.] Dec2 -- YES --> Dec3{Is AC220/240V detected at the secondary side of noise filter?} Dec3 -- NO --> Act2[Replace noise filter.] Dec3 -- YES --> Dec4{Are OK the connection wires between the noise filter and the inverter PCB'S?} Dec4 -- NO --> Act3[Connect properly.] Dec4 -- YES --> Dec5{Isn't F6 fuse (250V, 6A) blown.} Dec5 -- NO --> Act4[Replace fuse.] Dec5 -- YES --> Dec6{Is the green LED of indoor unit flashing?} Dec6 -- NO --> Act5[Defective indoor control PCB→Replace.] Dec6 -- YES --> Dec7{Is the green LED of indoor unit flashing twice?} Dec7 -- NO --> Act6[Replace indoor control PCB. Defective remote controller →Replace. Broken remote controller wire Y→Replace.] Dec7 -- YES --> Dec8{Are wires connected properly between the indoor and the outdoor units?} Dec8 -- NO --> Act7[Correct connection wires between indoor and outdoor units.] Dec8 -- YES --> Dec9{Is approx. DC20V detected between ①-② on the outdoor unit terminal block?} Dec9 -- NO --> Act8[Replace outdoor control PCB.] Dec9 -- YES --> Dec10{Is approx. DC20V detected between ①-②(N) on the outdoor unit terminal block?} Dec10 -- NO --> Act9[Defective connection wire (broken wire) Noise] Dec10 -- YES --> Act10[Defective indoor control PCB→Replace.] </pre>	See next page. Replace noise filter. Connect properly. Replace fuse. Defective indoor control PCB→Replace. Replace indoor control PCB. Defective remote controller →Replace. Broken remote controller wire Y→Replace. Correct connection wires between indoor and outdoor units. Replace outdoor control PCB. Defective connection wire (broken wire) Noise Defective indoor control PCB→Replace.
Diagnosis	Countermeasure				
<pre> graph TD Start([The remote controller LCD displays "WAIT" 2 minutes after the power on.]) --> Step1[Turn the breaker off once and then back on again 3 minutes later.] Step1 --> Dec1{Is normal condition restored?} Dec1 -- NO --> Dec2{Isn't blown the power supply fuse (20A) on the outdoor unit controller?} Dec2 -- NO --> Act1[Replace the power supply fuse.] Dec2 -- YES --> Dec3{Is AC220/240V detected at the secondary side of noise filter?} Dec3 -- NO --> Act2[Replace noise filter.] Dec3 -- YES --> Dec4{Are OK the connection wires between the noise filter and the inverter PCB'S?} Dec4 -- NO --> Act3[Connect properly.] Dec4 -- YES --> Dec5{Isn't F6 fuse (250V, 6A) blown.} Dec5 -- NO --> Act4[Replace fuse.] Dec5 -- YES --> Dec6{Is the green LED of indoor unit flashing?} Dec6 -- NO --> Act5[Defective indoor control PCB→Replace.] Dec6 -- YES --> Dec7{Is the green LED of indoor unit flashing twice?} Dec7 -- NO --> Act6[Replace indoor control PCB. Defective remote controller →Replace. Broken remote controller wire Y→Replace.] Dec7 -- YES --> Dec8{Are wires connected properly between the indoor and the outdoor units?} Dec8 -- NO --> Act7[Correct connection wires between indoor and outdoor units.] Dec8 -- YES --> Dec9{Is approx. DC20V detected between ①-② on the outdoor unit terminal block?} Dec9 -- NO --> Act8[Replace outdoor control PCB.] Dec9 -- YES --> Dec10{Is approx. DC20V detected between ①-②(N) on the outdoor unit terminal block?} Dec10 -- NO --> Act9[Defective connection wire (broken wire) Noise] Dec10 -- YES --> Act10[Defective indoor control PCB→Replace.] </pre>	See next page. Replace noise filter. Connect properly. Replace fuse. Defective indoor control PCB→Replace. Replace indoor control PCB. Defective remote controller →Replace. Broken remote controller wire Y→Replace. Correct connection wires between indoor and outdoor units. Replace outdoor control PCB. Defective connection wire (broken wire) Noise Defective indoor control PCB→Replace.				
2.Error detection method					
3.Condition of Error displayed					
4.Presumable cause	• Blown fuse • Faulty noise filter • Connection between PCB's • Blown fuse on single phase model • Faulty indoor control PCB • Defective remote controller • Broken remote controller wire • Faulty outdoor control PCB				

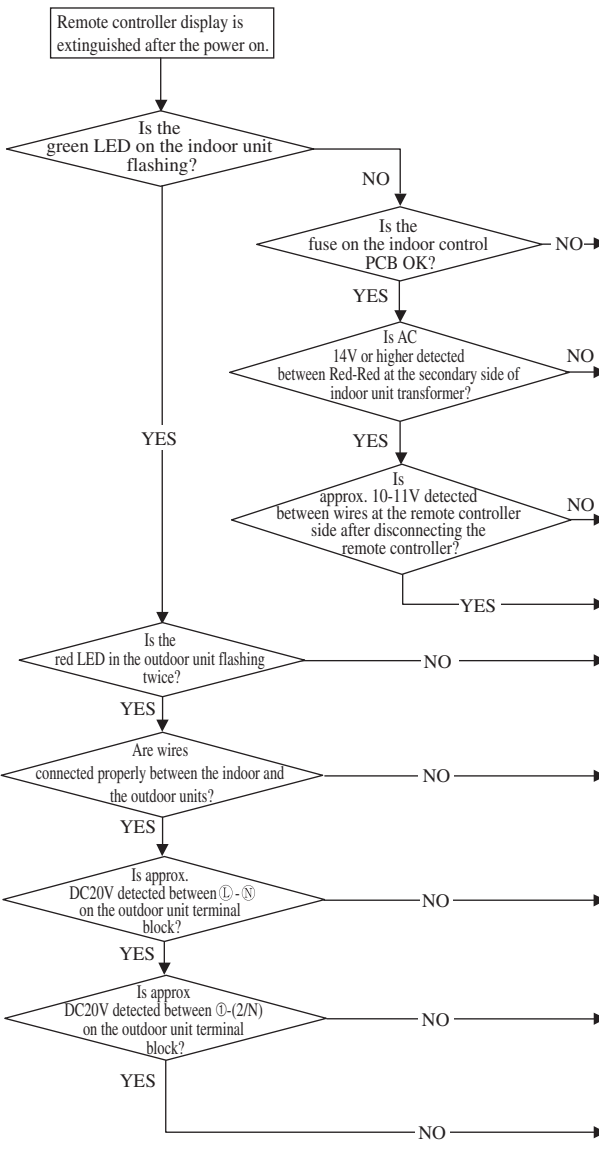
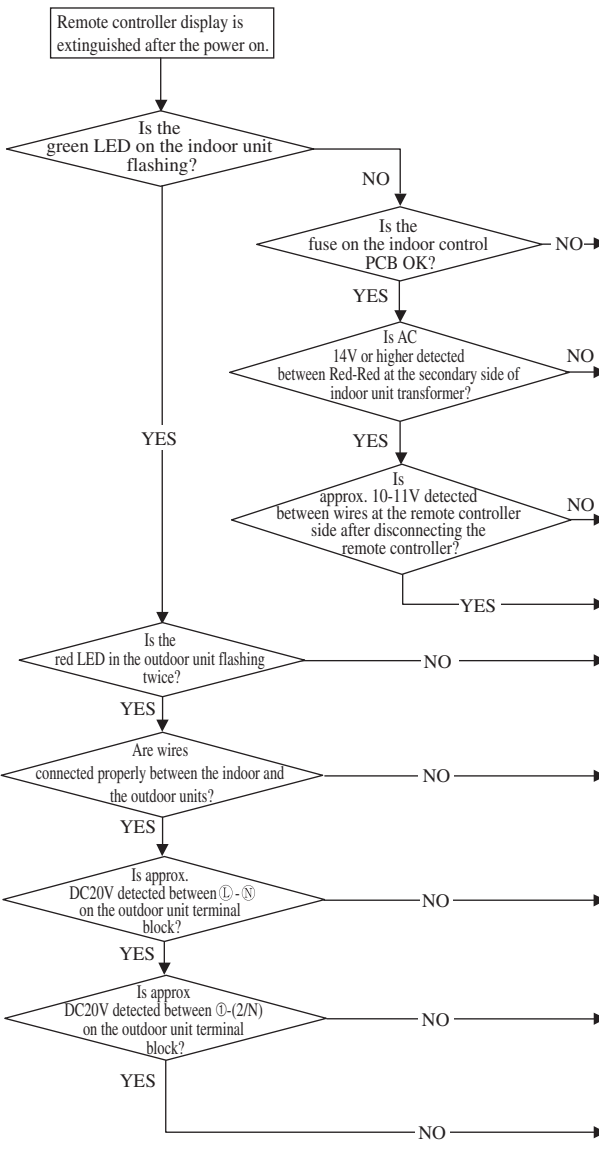
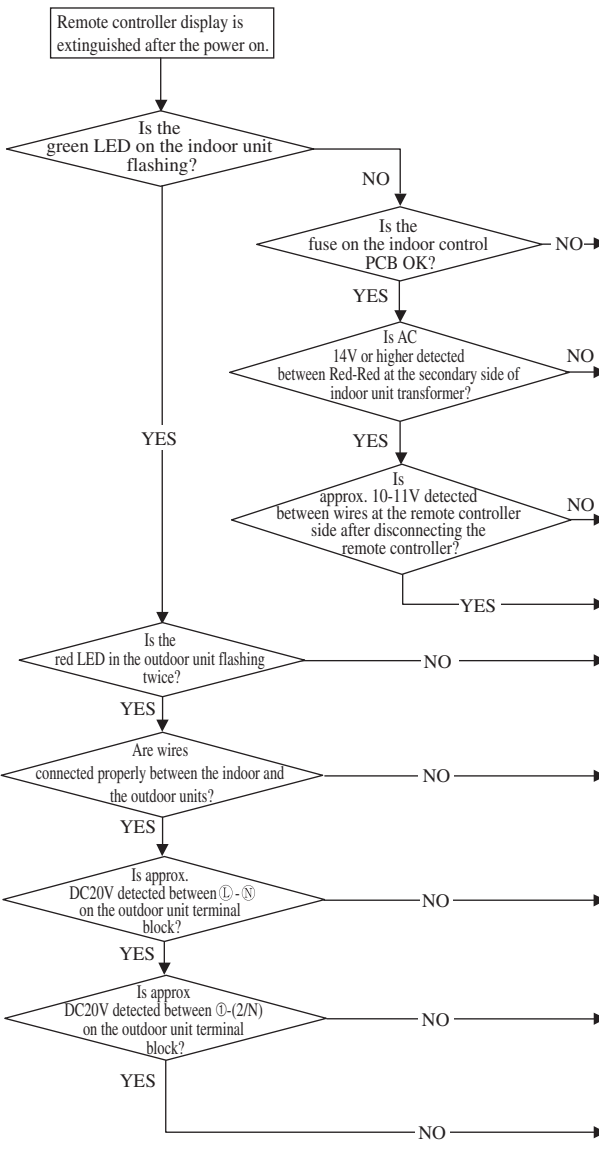
Note: If any anomaly is detected during communication, the error code E5 is displayed. (Outdoor unit red LED flashes twice.) Inspection procedure is same as above. (Excluding matters related to connection) When the power supply is reset after the occurrence of E5, the LED will display “ WAIT ” if the anomaly continues. If the breaker ON/OFF is repeated in a short period of time (within 1 minute), “ WAIT ” may be displayed. In such occasion, turn the breaker off and wait for 3 minutes.

Error code	LED	Green	Red	Content	 WAIT  (2/3) (Model SRC40 - 60)
Remote controller: 	Indoor	Keeps flashing	Stays Off		
	Outdoor	Keeps flashing	2 times flash		

1.Applicable model	5.Troubleshooting	
Model SRC40 – 60	Diagnosis	Countermeasure
When the fuse is blown, the method to inspect inverter before replacing the power supply fuse	Isn't there a short-circuit between phases of noise filter? NO Replace the noise filter. YES Aren't there cracks or burning on the power ransistor module or diode stack? NO Replace the control PCB. YES Isn't reactor the anomalous? NO Replace the reactor. YES Replace fuse.	
2.Error detection method		
3.Condition of Error displayed		
4.Presumable cause		
• Blown fuse • Faulty noise filter • Connection between PCB's • Blown fuse on single phase model • Faulty indoor control PCB • Defective remote controller • Breakage of remote controller wire • Faulty outdoor control PCB		

Note:

Error code	LED	Green	Red	Content
Remote controller: WAIT	Indoor	Keeps flashing	Stays Off	 WAIT  (3/3) (Model SRC40 - 60)
	Outdoor	Keeps flashing	2 times flash	

1.Applicable model	5.Troubleshooting				
Model SRC40 – 60 When the remote controller display is extinguished after the power on.	<table> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> <tr> <td>  <pre> graph TD Start[Remote controller display is extinguished after the power on.] --> Q1{Is the green LED on the indoor unit flashing?} Q1 -- NO --> Q2{Is the fuse on the indoor control PCB OK?} Q2 -- NO --> C1[Replace fuse.] Q2 -- YES --> Q3{Is AC 14V or higher detected between Red-Red at the secondary side of indoor unit transformer?} Q3 -- NO --> C2[Defective transformer] Q3 -- YES --> Q4{Is approx. 10-11V detected between wires at the remote controller side after disconnecting the remote controller?} Q4 -- YES --> C3[Defective remote controller] Q4 -- NO --> C4[Short-circuit on remote controller wire] Q1 -- YES --> Q5{Is the red LED in the outdoor unit flashing twice?} Q5 -- NO --> C5[Defective indoor control PCB Defective remote controller Broken remote controller wire X or Z] Q5 -- YES --> Q6{Are wires connected properly between the indoor and the outdoor units?} Q6 -- NO --> C6[Correct wires.] Q6 -- YES --> Q7{Is approx. DC20V detected between L - N on the outdoor unit terminal block?} Q7 -- NO --> C7[Defective outdoor control PCB] Q7 -- YES --> Q8{Is approx. DC20V detected between ① - (2/N) on the outdoor unit terminal block?} Q8 -- NO --> C8[Defective connection wire (Broken wire) Noise] Q8 -- YES --> C9[Defective indoor control PCB] </pre> </td><td></td></tr> </table>	Diagnosis	Countermeasure	 <pre> graph TD Start[Remote controller display is extinguished after the power on.] --> Q1{Is the green LED on the indoor unit flashing?} Q1 -- NO --> Q2{Is the fuse on the indoor control PCB OK?} Q2 -- NO --> C1[Replace fuse.] Q2 -- YES --> Q3{Is AC 14V or higher detected between Red-Red at the secondary side of indoor unit transformer?} Q3 -- NO --> C2[Defective transformer] Q3 -- YES --> Q4{Is approx. 10-11V detected between wires at the remote controller side after disconnecting the remote controller?} Q4 -- YES --> C3[Defective remote controller] Q4 -- NO --> C4[Short-circuit on remote controller wire] Q1 -- YES --> Q5{Is the red LED in the outdoor unit flashing twice?} Q5 -- NO --> C5[Defective indoor control PCB Defective remote controller Broken remote controller wire X or Z] Q5 -- YES --> Q6{Are wires connected properly between the indoor and the outdoor units?} Q6 -- NO --> C6[Correct wires.] Q6 -- YES --> Q7{Is approx. DC20V detected between L - N on the outdoor unit terminal block?} Q7 -- NO --> C7[Defective outdoor control PCB] Q7 -- YES --> Q8{Is approx. DC20V detected between ① - (2/N) on the outdoor unit terminal block?} Q8 -- NO --> C8[Defective connection wire (Broken wire) Noise] Q8 -- YES --> C9[Defective indoor control PCB] </pre>	
Diagnosis	Countermeasure				
 <pre> graph TD Start[Remote controller display is extinguished after the power on.] --> Q1{Is the green LED on the indoor unit flashing?} Q1 -- NO --> Q2{Is the fuse on the indoor control PCB OK?} Q2 -- NO --> C1[Replace fuse.] Q2 -- YES --> Q3{Is AC 14V or higher detected between Red-Red at the secondary side of indoor unit transformer?} Q3 -- NO --> C2[Defective transformer] Q3 -- YES --> Q4{Is approx. 10-11V detected between wires at the remote controller side after disconnecting the remote controller?} Q4 -- YES --> C3[Defective remote controller] Q4 -- NO --> C4[Short-circuit on remote controller wire] Q1 -- YES --> Q5{Is the red LED in the outdoor unit flashing twice?} Q5 -- NO --> C5[Defective indoor control PCB Defective remote controller Broken remote controller wire X or Z] Q5 -- YES --> Q6{Are wires connected properly between the indoor and the outdoor units?} Q6 -- NO --> C6[Correct wires.] Q6 -- YES --> Q7{Is approx. DC20V detected between L - N on the outdoor unit terminal block?} Q7 -- NO --> C7[Defective outdoor control PCB] Q7 -- YES --> Q8{Is approx. DC20V detected between ① - (2/N) on the outdoor unit terminal block?} Q8 -- NO --> C8[Defective connection wire (Broken wire) Noise] Q8 -- YES --> C9[Defective indoor control PCB] </pre>					
2.Error detection method					
3.Condition of Error displayed					
4.Presumable cause	• Blown fuse • Faulty noise filter • Connection between PCB's • Blown fuse on single phase model • Faulty indoor control PCB • Defective remote controller • Wire breakage on remote controller • Faulty outdoor control PCB				

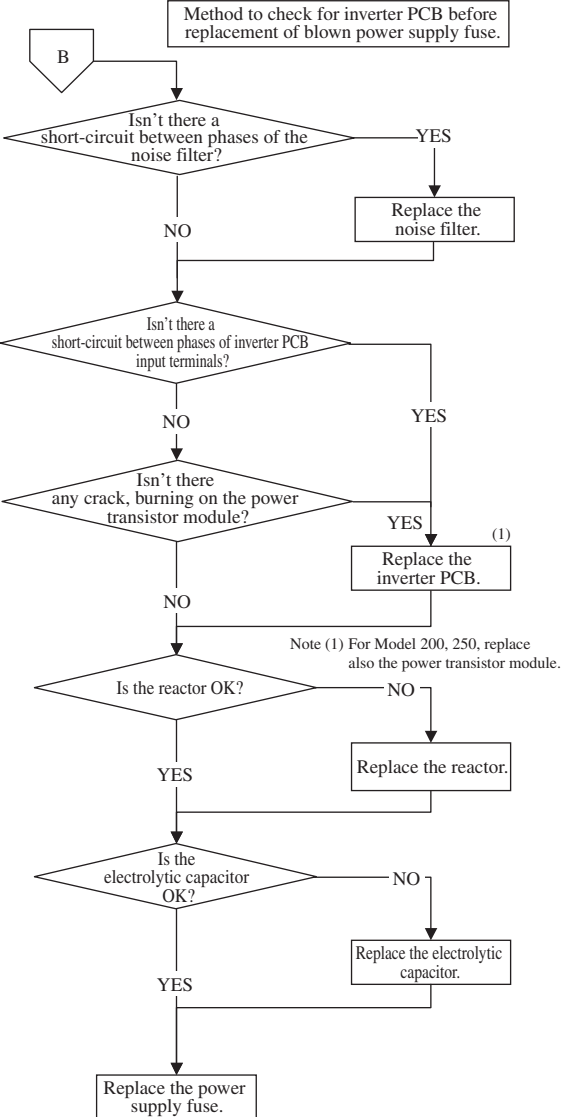
Note:

Error code	LED	Green	Red	Content
Remote controller: 🖱️WAIT🖱️	Indoor	Keeps flashing	Stays Off	🖱️WAIT🖱️ (2/3) (Model 71 – 250)
	Outdoor	Keeps flashing	2 times flash	

1.Applicable model	5.Troubleshooting	
Model FDC71 - 250	Diagnosis	Countermeasure
2.Error detection method	Diagnosis for when the outdoor control PCB LED is turned off A Shut down the breaker and back on again the breaker 3 minutes later. Does it reset normally? YES Normal (Malfunction by noise) NO Isn't the outdoor unit controller power supply fuse (30A) blown?(1) NO To check method for inverter PCB before replacment of blown power supply fuse. B See next page. YES Is AC220/240V detected at the noise filter secondary side? NO Replace noise filter. YES Model 71 - 140 Is DC255-310V detected at CNA2? Model 200, 250 Is 220/240V detected at CNW2? NO Check connection of diode stack and electrolytic capacitor by referring main electrical circuit diagram YES Isn't F1 (250V, 2A) on the control PCB blown? NO Replace control PCB. YES Is DC5V detected on the control PCB (Between ①-④ of CNFAN)? NO Defective outdoor control PCB YES Is DC5V detected if the connector of outdoor unit fan motor is disconnected? NO Defective outdoor fan motor YES Is DC5V detected if the inverter power supply connector (CN3) is disconnected? NO Defective inverter PCB YES Defective outdoor control PCB	
3.Condition of Error displayed		
4.Presumable cause	• Blown fuse • Faulty noise filter • Misconnection between PCB's • Blown fuse on single phase model • Faulty indoor control PCB • Defective remote controller • Broken remote controller wire • Faulty outdoor control PCB	

Note:

Error code	LED	Green	Red	Content
Remote controller: WAIT	Indoor	Keeps flashing	Stays Off	 WAIT  (3/3) (Model 71 – 250)
	Outdoor	Keeps flashing	2 times flash	

1.Applicable model	5.Troubleshooting	
Model FDC71 - 250	Diagnosis	Countermeasure
2.Error detection method	Method to check for inverter PCB before replacement of blown power supply fuse.  <pre> graph TD B[B] --> D1{Isn't there a short-circuit between phases of the noise filter?} D1 -- YES --> A1[Replace the noise filter.] D1 -- NO --> D2{Isn't there a short-circuit between phases of inverter PCB input terminals?} D2 -- YES --> D3{Isn't there any crack, burning on the power transistor module?} D3 -- YES --> A2[Replace the inverter PCB. (1)] D3 -- NO --> D4{Is the reactor OK?} D4 -- NO --> A3[Replace the reactor.] D4 -- YES --> D5{Is the electrolytic capacitor OK?} D5 -- NO --> A4[Replace the electrolytic capacitor.] D5 -- YES --> A5[Replace the power supply fuse.] </pre> Note (1) For Model 200, 250, replace also the power transistor module.	
3.Condition of Error displayed		
4.Presumable cause	• Blown fuse • Faulty noise filter • Misconnection between PCB's • Blown fuse on single phase model • Faulty indoor control PCB • Defective remote controller • Broken remote controller wire • Faulty outdoor control PCB	

Note:

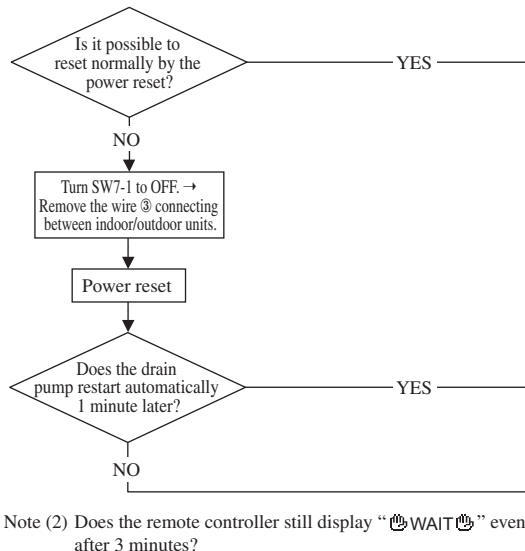
Error code	LED	Green	Red	Content
Remote controller: None	Indoor	Keeps flashing	Stays Off	No display (Model 71 – 250)
	Outdoor	Keeps flashing	2 times flash	

1.Applicable model	5.Troubleshooting	
Model FDC71 - 250	Diagnosis	Countermeasure
2.Error detection method	Remote controller does not display anything after the power on. Is DC10V or higher detected at remote controller connection terminals? YES Defective remote controller NO Is DC10V or higher detected on remote controller wires if the remote controller is removed? YES Defective remote controller NO Are wires connected properly between the indoor/outdoor units? YES Defective connecting wire. Defective remote controller wire (Short-circuit, etc.) NO Defective indoor control PCB	
3.Condition of Error displayed		
4.Presumable cause		

- Blown fuse
- Faulty noise filter
- Connection between PCB's
- Blown fuse on single phase model
- Faulty indoor control PCB
- Defective remote controller
- Broken remote controller wire
- Faulty outdoor control PCB

Note:

Error code	LED	Green	Red	Content
Remote controller: E1	Indoor	Keeps flashing	Stays Off	Remote controller communication circuit error
	Outdoor	Keeps flashing	Stays Off	

1.Applicable model	5.Troubleshooting		
All models	Diagnosis		Countermeasure
2.Error detection method	 <pre> graph TD A{Is it possible to reset normally by the power reset?} -- YES --> B[Malfunction by noise Check peripheral environment.] A -- NO --> C[Turn SW7-1 to OFF. → Remove the wire ③ connecting between indoor/outdoor units.] C --> D[Power reset] D --> E{Does the drain pump restart automatically 1 minute later?} E -- YES --> F[Defective indoor PCB → Replace.] E -- NO --> G[Defective remote controller → Replace.] H[Note (2) Does the remote controller still display "WAIT" even after 3 minutes?] --> G </pre>		
3.Condition of Error displayed			
Same as above			
4.Presumable cause			
- Defective communication circuit between remote controller-indoor unit - Noise			

Note:If the indoor unit cannot communicate normally with the remote controller for 180 seconds, the indoor unit PCB starts to reset automatically.

Error code	LED	Green	Red	Content
Remote controller: E5	Indoor	Keeps flashing	See below	Communication error during operation
	Outdoor	Keeps flashing	2 times flash	

1. Applicable model	5. Troubleshooting				
All models					
2. Error detection method					
When normal communication between indoor and outdoor unit is interrupted for more than 2 minutes.					
3. Condition of Error displayed					
Same as above is detected during operation.					
4. Presumable cause					
• Unit No. setting error • Broken remote controller wire • Faulty remote controller wire connection • Defective indoor control PCB	<table border="1"> <thead> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> </thead> <tbody> <tr> <td> In case that the indoor unit red LED flashes 2-times Note (1) Inspect faulty connections (disconnection, looseness) on the outdoor unit terminal block. Is the connection of signal wires at the outdoor unit side OK? NO → Repair signal wires. YES Note (2) Check for faulty connection or breakage of signal wires between indoor-outdoor units. Is the connection of signal wires between indoor-outdoor units OK? NO → Repair signal wires. YES Power reset Has the remote controller LCD returned to normal state? NO → To the diagnosis of “WAIT” YES → Unit is normal. (Malfunction by temporary noise, etc.) In case that the indoor unit red LED stays OFF Power reset NO Has the remote controller LCD returned to normal state? NO → Defective outdoor control PCB (Defective network communication circuit) → Replace. YES → Unit is normal. (Malfunction by temporary noise, etc.) </td><td></td></tr> </tbody> </table>	Diagnosis	Countermeasure	In case that the indoor unit red LED flashes 2-times Note (1) Inspect faulty connections (disconnection, looseness) on the outdoor unit terminal block. Is the connection of signal wires at the outdoor unit side OK? NO → Repair signal wires. YES Note (2) Check for faulty connection or breakage of signal wires between indoor-outdoor units. Is the connection of signal wires between indoor-outdoor units OK? NO → Repair signal wires. YES Power reset Has the remote controller LCD returned to normal state? NO → To the diagnosis of “WAIT” YES → Unit is normal. (Malfunction by temporary noise, etc.) In case that the indoor unit red LED stays OFF Power reset NO Has the remote controller LCD returned to normal state? NO → Defective outdoor control PCB (Defective network communication circuit) → Replace. YES → Unit is normal. (Malfunction by temporary noise, etc.)	
Diagnosis	Countermeasure				
In case that the indoor unit red LED flashes 2-times Note (1) Inspect faulty connections (disconnection, looseness) on the outdoor unit terminal block. Is the connection of signal wires at the outdoor unit side OK? NO → Repair signal wires. YES Note (2) Check for faulty connection or breakage of signal wires between indoor-outdoor units. Is the connection of signal wires between indoor-outdoor units OK? NO → Repair signal wires. YES Power reset Has the remote controller LCD returned to normal state? NO → To the diagnosis of “WAIT” YES → Unit is normal. (Malfunction by temporary noise, etc.) In case that the indoor unit red LED stays OFF Power reset NO Has the remote controller LCD returned to normal state? NO → Defective outdoor control PCB (Defective network communication circuit) → Replace. YES → Unit is normal. (Malfunction by temporary noise, etc.)					

Note: Pressing the pump-down switch cancels communications between indoor and outdoor unit so that “communication error-E5” is displayed on indoor unit and remote controller, but it is normal.

Error code Remote controller: E6	LED	Green	Red	Content Indoor heat exchanger temperature thermistor anomaly
	Indoor	Keeps flashing	1 time flash	
	Outdoor	Keeps flashing	Stays Off	

1.Applicable model	5.Troubleshooting		
All models	Diagnosis		Countermeasure
2.Error detection method	Is the connection of indoor heat exchanger temperature thermistor connector OK? NO Correct. → Insert connector securely. YES Are characteristics of indoor heat exchanger temperature thermistor OK? NO Defective indoor heat exchanger temperature thermistor → Replace. YES Defective indoor control PCB → Replace. (Defective indoor unit heat exchanger temperature thermistor input circuit)		
3.Condition of Error displayed	Temperature-resistance characteristic Temperature thermistor resistance (kΩ) Temperature (°C) Note (1) 22.5kΩ at -6°C		
4.Presumable cause	- Defective indoor heat exchanger thermistor connector - Indoor heat exchanger temperature thermistor anomaly - Faulty indoor control PCB		

Note:

Error code Remote controller: E7	LED	Green	Red	Content	Return air temperature thermistor anomaly
	Indoor	Keeps flashing	1 time flash		
	Outdoor	Keeps flashing	Stays Off		

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
	Is the connection of return air temperature thermistor connector OK? NO YES Are the characteristics of return air temperature thermistor OK? NO YES	Correct. → Connect connector. Defective return air temperature thermistor → Replace. Defective indoor control PCB → Replace. (Defective return air temperature thermistor input circuit)
2.Error detection method		
Anomalously low temperature or high temperature (resistance) is detected by indoor return air temperature thermistor (Thi-A)		
3.Condition of Error displayed		
- When the temperature thermistor detects -50°C or lower for 5 seconds continuously, the compressor stops. After 3-minute delay, the compressor starts again automatically, but if this error occurs again within 60 minutes after the initial detection. - Or if 48°C or higher is detected for 5 seconds continuously.		
4.Presumable cause		
- Defective return air temperature thermistor connector - Defective return air temperature thermistor - Faulty indoor control PCB		

Temperature-resistance characteristic

Temperature thermistor resistance (kΩ)

Temperature (°C)

5kΩ at 25°C

Note (1) 22.5kΩ at -6°C

Note:

Error code Remote controller: E8	LED	Green	Red	Content Heating overload operation
	Indoor	Keeps flashing	1 time flash	
	Outdoor	Keeps flashing	Stays Off	

1.Applicable model All models	5.Troubleshooting	
2.Error detection method Indoor heat exchanger temperature thermistor (ThI-R1, R2, R3)	Diagnosis	Countermeasure
3.Condition of Error displayed When it is detected 5 times within 60 minutes from initial detection or when the overload condition is detected for 6 minutes continuously.	<pre> graph TD Q1{Is the air filter clogged?} -- YES --> C1[Wash.] Q1 -- NO --> Q2{Is the indoor heat exchanger temperature thermistor connection OK?} Q2 -- YES --> Q3{Are the characteristics of indoor heat exchanger temperature thermistor OK?} Q2 -- NO --> C2[Defective indoor heat exchanger temperature thermistor connector → Correct.] Q3 -- YES --> P1[Check the error data with the remote controller.] Q3 -- NO --> C2 P1 --> Q4{Is the unit operating in the state of heating overload?} Q4 -- YES --> C3[Adjust] Q4 -- NO --> C4[Check refrigerant system.] </pre> Note (1) Judge if it is in the state of overload or not as follows. ▲ Is there any short-circuit of air? ▲ Isn't there any fouling or clogging on the indoor heat exchanger? ▲ Is the outdoor fan control normal? ▲ Isn't the room and ambient air temperature too high? Note (2) For characteristics of indoor heat exchanger temperature thermistor, see the error display E6.	
4.Presumable cause • Clogged air filter • Defective indoor heat exchanger temperature thermistor connector • Defective indoor heat exchanger temperature thermistor • Anomalous refrigerant system		

Note: During heating operation; After starting compressor, compressor rotation speed is decreased by detecting indoor heat exchanger temperature (Thi-R) in order to control high pressure.

Error code	LED	Green	Red	Content
Remote controller: E9	Indoor	Keeps flashing	1 time flash	Drain trouble (FDT and FDTC Series)
	Outdoor	Keeps flashing	Stays Off	

1.Applicable model	5.Troubleshooting
FDT and FDTC Series only	Diagnosis
2.Error detection method	<pre> graph TD Start([Check the error data in the remote controller.]) --> Overflow{Is there any overflow?} Overflow -- NO --> DC12V{Is DC 12V at CN1 connector.} DC12V -- YES --> CheckFS[Check float switch.] DC12V -- NO --> CN1Conn{Is the CN1 connected firmly?} CN1Conn -- NO --> ReplacePCB1[Replace indoor control PCB.] CN1Conn -- YES --> OptEq{Is there any anomaly on the optional equipment?} OptEq -- NO --> ReplacePCB2[Replace indoor control PCB.] OptEq -- YES --> CheckOptEq[Check optional equipment] Overflow -- YES --> HumidifierConn{Is the humidifier connected?} HumidifierConn -- YES --> Interlock{Is the humidifier Drain Motor interlocked by the indoor unit function setting of remote controller?} Interlock -- YES --> DMOn[Drain motor ON from the remote controller] Interlock -- NO --> CorrectSetting[Correct setting to "Humidifier DM interlock".] DMOn --> DMOperate{Does DM operate?} DMOperate -- NO --> AS220V{Is AS220/240V detected at CNR connector?} AS220V -- YES --> ReplacePCB3[Replace indoor control PCB. (Replace power PCB on FDT Series.)] AS220V -- NO --> CheckWiring[Check wiring of Drain motor] DMOperate -- YES --> DrainPiping{Is the drain piping unclogged? Is the drain pipe slop OK?} DrainPiping -- NO --> Correct[Correct.] DrainPiping -- YES --> CheckDM[Check drain motor.] </pre>
Float switch is activated	
3.Condition of Error displayed	
If the float switch OPEN is detected for 3 seconds continuously or if float switch connector or wire is disconnected.	
4.Presumable cause	
• Defective indoor control PCB • Float switch setting error • Humidifier DM interlock setting error • Optional equipment setting error • Drain piping error • Defective drain motor • Disconnection of drain motor wiring	
	Countermeasure

Note: When this error occurred at power ON, disconnection of wire or connector of the float switch is suspected. Check and correct it (or replace it, if necessary).

Error code Remote controller: E10	LED	Green	Red	Content Excessive number of connected indoor units (more than 17 units) by controlling with one remote controller
	Indoor	Keeps flashing	Stays Off	
	Outdoor	Keeps flashing	Stays Off	

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
	<pre> graph LR A{Aren't more than 17 indoor units connected to one remote controller?} -- NO --> B[Defective remote controller → Replace.] A -- YES --> C[Reduce to 16 or less units.] </pre>	
2.Error detection method		
When it detects more than 17 of indoor units connected to one remote controller		
3.Condition of Error displayed		
Same as above		
4.Presumable cause		
- Excessive number of indoor units connected - Defective remote controller		

Note:

Error code Remote controller: E14	LED	Green	Red	Content Communication error between master and slave indoor units
	Indoor	Keeps flashing	1 time flash	
	Outdoor	Keeps flashing	Stays Off	

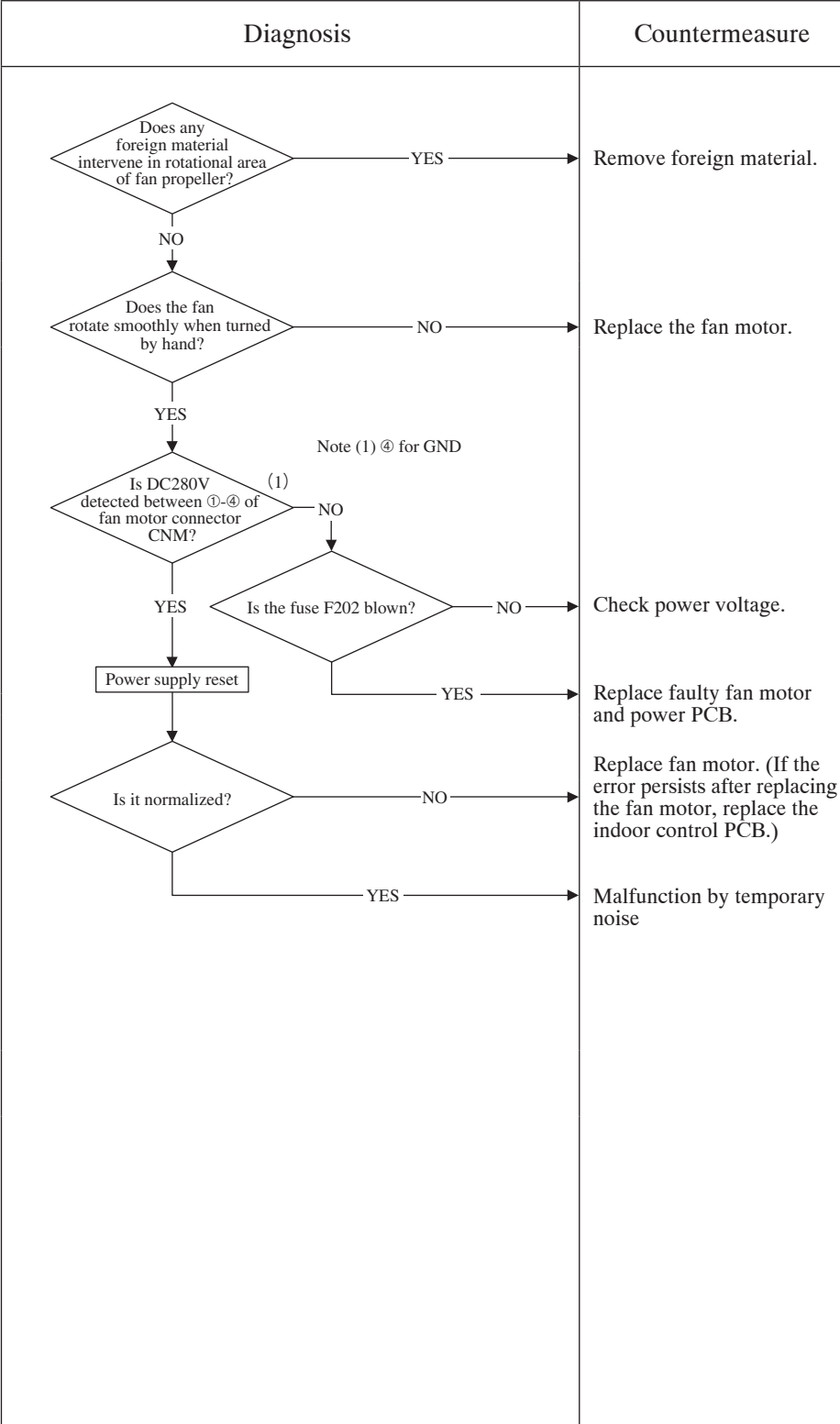
1.Applicable model	5.Troubleshooting																									
All models	Diagnosis			Countermeasure																						
	Is it OK the unit address setting for master and slave indoor units? NO YES Isn't the remote controller wiring between indoor units defective? YES NO Is it restored by resetting the power supply? NO YES			Correct unit address setting. Correct wiring. Defective indoor control PCB→Replace. • Malfunction by noise • Check surrounding environment.																						
2.Error detection method																										
When communication error between master and slave indoor units occurs																										
3.Condition of Error displayed																										
Same as above																										
	Note (1) Set dip switches SW5-1 and SW5-2 as shown in the following table. (Factory default setting – “Master”) <table><tr><td colspan="2" rowspan="2"></td><td colspan="4">Indoor unit</td></tr><tr><td>Master</td><td>Slave-a</td><td>Slave-b</td><td>Slave-c</td></tr><tr><td rowspan="2">Dip switch</td><td>SW5-1</td><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td></tr><tr><td>SW5-2</td><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td></tr></table>							Indoor unit				Master	Slave-a	Slave-b	Slave-c	Dip switch	SW5-1	OFF	OFF	ON	ON	SW5-2	OFF	ON	OFF	ON
		Indoor unit																								
		Master	Slave-a	Slave-b	Slave-c																					
Dip switch	SW5-1	OFF	OFF	ON	ON																					
	SW5-2	OFF	ON	OFF	ON																					
4.Presumable cause																										
• Unit address setting error • Broken remote controller wire • Defective remote controller wire connection • Defective indoor control PCB																										

Note:

Error code Remote controller: E16	LED	Green	Red	Content
	Indoor	Keeps flashing	Stays Off	
	Outdoor	Keeps flashing	Stays Off	

Indoor fan motor anomaly (In case of FDTC and FDT)

1.Applicable model	5.Troubleshooting
FDTC, FDT series only	
2.Error detection method	
Detected by rotation speed of indoor fan motor	
3.Condition of Error displayed	
When actual rotation speed of indoor fan motor drops to lower than 200rpm for 30 minutes continuously, the compressor and the indoor fan motor stop. After 2-seconds, it starts again automatically, but if this error occurs 4 times within 60 minutes after the initial detection.	
4.Presumable cause	
- Defective indoor power PCB - Foreign material at rotational area of fan propeller - Defective fan motor - Dust on control PCB - Blown fuse - External noise, surge	



Note:

Error code Remote controller: E19	LED	Green	Red	Content Indoor unit operation check, drain motor check setting error
	Indoor	Keeps flashing	1 time flash	
	Outdoor	Keeps flashing	Stays Off	

1.Applicable model	5.Troubleshooting		
All models	Diagnosis		Countermeasure
2.Error detection method	E19 occurs when the power ON Is SW7-1 on the indoor control PCB ON ? NO YES		Defective indoor control PCB (Defective SW7) →Replace Turn SW7-1 on the indoor control PCB OFF and reset the power
3.Condition of Error displayed			
Same as above			
4.Presumable cause			
Mistake in SW7-1 setting (Due to forgetting to turn OFF SW7-1 after indoor operation check)			

Note:

Error code Remote controller: E28	LED	Green	Red	Content Remote controller temperature thermistor anomaly
	Indoor	Keeps flashing	Stays Off	
	Outdoor	Keeps flashing	Stays Off	

1.Applicable model	5.Troubleshooting																																																																									
All models	Diagnosis	Countermeasure																																																																								
2.Error detection method	Is the remote controller temperature thermistor connected properly? NO Correct. YES Are the characteristics of remote controller temperature thermistor OK? Is the thermistor wire OK? NO Defective remote controller temperature thermistor → Replace. YES Defective remote controller PCB → Replace. (Defective remote controller temperature thermistor input circuit)																																																																									
3.Condition of Error displayed	Resistance-temperature characteristics of remote controller temperature thermistor (ThC) <table><tr><th>Temperature (°C)</th><th>Resistance value (kΩ)</th><th>Temperature (°C)</th><th>Resistance value (kΩ)</th><th>Temperature (°C)</th><th>Resistance value (kΩ)</th><th>Temperature (°C)</th><th>Resistance value (kΩ)</th></tr><tr><td>0</td><td>65</td><td>14</td><td>33</td><td>30</td><td>16</td><td>46</td><td>8.5</td></tr><tr><td>1</td><td>62</td><td>16</td><td>30</td><td>32</td><td>15</td><td>48</td><td>7.8</td></tr><tr><td>2</td><td>59</td><td>18</td><td>27</td><td>34</td><td>14</td><td>50</td><td>7.3</td></tr><tr><td>4</td><td>53</td><td>20</td><td>25</td><td>36</td><td>13</td><td>52</td><td>6.7</td></tr><tr><td>6</td><td>48</td><td>22</td><td>23</td><td>38</td><td>12</td><td>54</td><td>6.3</td></tr><tr><td>8</td><td>44</td><td>24</td><td>21</td><td>40</td><td>11</td><td>56</td><td>5.8</td></tr><tr><td>10</td><td>40</td><td>26</td><td>19</td><td>42</td><td>9.9</td><td>58</td><td>5.4</td></tr><tr><td>12</td><td>36</td><td>28</td><td>18</td><td>44</td><td>9.2</td><td>60</td><td>5.0</td></tr></table>		Temperature (°C)	Resistance value (kΩ)	Temperature (°C)	Resistance value (kΩ)	Temperature (°C)	Resistance value (kΩ)	Temperature (°C)	Resistance value (kΩ)	0	65	14	33	30	16	46	8.5	1	62	16	30	32	15	48	7.8	2	59	18	27	34	14	50	7.3	4	53	20	25	36	13	52	6.7	6	48	22	23	38	12	54	6.3	8	44	24	21	40	11	56	5.8	10	40	26	19	42	9.9	58	5.4	12	36	28	18	44	9.2	60	5.0
Temperature (°C)	Resistance value (kΩ)	Temperature (°C)	Resistance value (kΩ)	Temperature (°C)	Resistance value (kΩ)	Temperature (°C)	Resistance value (kΩ)																																																																			
0	65	14	33	30	16	46	8.5																																																																			
1	62	16	30	32	15	48	7.8																																																																			
2	59	18	27	34	14	50	7.3																																																																			
4	53	20	25	36	13	52	6.7																																																																			
6	48	22	23	38	12	54	6.3																																																																			
8	44	24	21	40	11	56	5.8																																																																			
10	40	26	19	42	9.9	58	5.4																																																																			
12	36	28	18	44	9.2	60	5.0																																																																			
4.Presumable cause	- Faulty connection of remote controller temperature thermistor - Defective remote controller temperature thermistor - Defective remote controller PCB																																																																									

Note: After 10 seconds has passed since remote controller thermistor was switched from valid to invalid, E28 will not be displayed even if the thermistor harness is disconnected. At same time the thermistor, which is effective, is switched from remote controller thermistor to indoor return air temperature thermistor. Even though the remote controller thermistor is set to be Effective, the return air temperature displayed on remote controller for checking still shows the value detected by indoor return air temperature thermistor, not by remote controller temperature thermistor.

Error code Remote controller: E33	LED	Green	Red	Content Inverter primary current error (Model SRC40 – 60)
	Indoor	Keeps flashing	—	
	Outdoor	—	8 times flash	

1.Applicable model SRC40 – 60 types	5.Troubleshooting	
2.Error detection method Inverter primary current	Diagnosis <pre> graph TD A{Is the power supply normal?} -- NO --> B[Restore normal condition.] A -- YES --> C{Is voltage within the specified range?} C -- NO --> D[Restore normal condition.] C -- YES --> E{Check soldered surfaces on the control PCB for foreign matter like dust, fouling, etc.} E -- NO --> F[Remove foreign matter like dust, fouling, etc.] E -- YES --> G[Replace control PCB.] </pre>	Countermeasure
3.Condition of Error displayed If the inverter primary current exceeds the setting value for 3 seconds, the compressor stops.		
4.Presumable cause - Faulty outdoor control PCB - Dust on control PCB - Anomalous power supply		

Note:

Error code	LED	Green	Red	Content
Remote controller: E34	Indoor	Keeps flashing	Stays Off	Open L3 Phase on power supply (3-phase model only)
	Outdoor	Keeps flashing	1 time flash	

1.Applicable model 3-phase models only	5.Troubleshooting <table> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> <tr> <td> <pre> graph TD D1{Measure the power supply voltage. Is AC380/415V between respective phases?} -- NO --> C1[Check power supply.] D1 -- YES --> D2{Isn't the power supply fuse blown?} D2 -- YES --> B1[Check the inverter. * See next page.] B1 --> C2[Replace fuse.] D2 -- NO --> D3{Is AC380/415V detected between respective phases at the secondary side of noise filter?} D3 -- NO --> C3[Replace noise filter.] D3 -- YES --> D4{Is wiring between the noise filter and the outdoor control PCB connected properly?} D4 -- NO --> C4[Connect properly.] D4 -- YES --> C5[Defective outdoor control PCB→Replace.] </pre> </td><td></td></tr> </table>	Diagnosis	Countermeasure	<pre> graph TD D1{Measure the power supply voltage. Is AC380/415V between respective phases?} -- NO --> C1[Check power supply.] D1 -- YES --> D2{Isn't the power supply fuse blown?} D2 -- YES --> B1[Check the inverter. * See next page.] B1 --> C2[Replace fuse.] D2 -- NO --> D3{Is AC380/415V detected between respective phases at the secondary side of noise filter?} D3 -- NO --> C3[Replace noise filter.] D3 -- YES --> D4{Is wiring between the noise filter and the outdoor control PCB connected properly?} D4 -- NO --> C4[Connect properly.] D4 -- YES --> C5[Defective outdoor control PCB→Replace.] </pre>	
Diagnosis	Countermeasure				
<pre> graph TD D1{Measure the power supply voltage. Is AC380/415V between respective phases?} -- NO --> C1[Check power supply.] D1 -- YES --> D2{Isn't the power supply fuse blown?} D2 -- YES --> B1[Check the inverter. * See next page.] B1 --> C2[Replace fuse.] D2 -- NO --> D3{Is AC380/415V detected between respective phases at the secondary side of noise filter?} D3 -- NO --> C3[Replace noise filter.] D3 -- YES --> D4{Is wiring between the noise filter and the outdoor control PCB connected properly?} D4 -- NO --> C4[Connect properly.] D4 -- YES --> C5[Defective outdoor control PCB→Replace.] </pre>					
2.Error detection method When 0V is detected on any of L1, L2, L3 for 5 seconds continuously after turning power on.					
3.Condition of Error displayed Same as above					
4.Presumable cause • Anomalous power supply • Blown power supply fuse • Defective noise filter • Defective wire connection on noise filter control PCB • Defective outdoor control PCB					

Note:

Error code Remote controller: E34	LED	Green	Red	Content Open L3 Phase on power supply (Continued) (3-phase model only)
	Indoor	Keeps flashing	Stays Off	
	Outdoor	Keeps flashing	1 time flash	

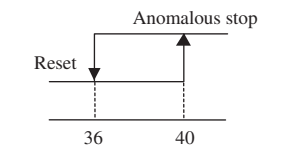
1.Applicable model 3-phase models only	5.Troubleshooting		
2.Error detection method When 0V is detected on any of L1, L2, L3 for 5 seconds continuously after turning power on	Diagnosis Method to check for inverter PCB before replacement of blown power supply fuse. <pre> graph TD A{Isn't there any short-circuit between phases of noise filter?} -- YES --> B[Replace the noise filter.] A -- NO --> C{Is there any crack or burning on the power transistor module or diode stack?} C -- YES --> D[Replace the control PCB, inverter PCB, power transistor module or diode stack] C -- NO --> E{Is the reactor OK?} E -- NO --> F[Replace the reactor.] E -- YES --> G[Replace the power supply fuse.] </pre>		
3.Condition of Error displayed Same as above	Countermeasure		
4.Presumable cause • Anomalous power supply • Blow power supply fuse • Defective noise filter • Defective wire connection on noise filter control PCB • Defective outdoor control PCB			

Note:

Error code	LED	Green	Red	Content
	Indoor	Keeps flashing	Stays Off	
	Outdoor	—	8 times flash	

Remote controller: E35

Cooling overload operation
(Model SRC40 - 60 only)

1.Applicable model	5.Troubleshooting
Model SRC40 – 60	
2.Error detection method	
 Outdoor unit heat exchanger temp. (°C)	
3.Condition of Error displayed	
When anomalous outdoor heat exchanger temperature occurs 5 times within 60 minutes or 40°C or higher continues for 10 minutes, including the compressor stop.	
4.Presumable cause	
- Defective outdoor heat exchanger temperature thermistor - Defective outdoor control PCB - Indoor, outdoor unit installation spaces - Short-circuit of air on indoor, outdoor units - Fouling, clogging of heat exchanger - Excessive refrigerant quantity	
	Diagnosis Countermeasure <pre> graph TD Q1{Are normal the characteristics of outdoor unit heat exchanger temperature thermistor normal?} Q2{Is the unit operating in the state of cooling overload?} Q3{Is the high pressure control normal} Q4{Is the temperature (measured actually) at direction of error correct?} Q1 -- NO --> C1[Replace outdoor heat exchanger temperature thermistor.] Q1 -- YES --> Q2 Q2 -- YES --> C2["Check unit side. • Isn't the air circulation of outdoor unit short-circuited? • Are installation spaces adequate? • Isn't there any fouling or clogging on heater exchanger?"] Q2 -- NO --> Q3 Q3 -- NO --> C3[Control operation check*] Q3 -- YES --> Q4 Q4 -- NO --> C4[Defective outdoor control PCB→Replace.] Q4 -- YES --> C5["Excessive refrigerant amount: Recharge refrigerant by weighing proper amount on a scale."] </pre> * For the characteristics of outdoor unit heat exchanger temperature thermistor, refer to E37. * For the contents of control, refer to the protective control by controlling compressor rotation speed and cooling high pressure protective control of micro computer control function for corresponding models.

Note:

Error code	LED	Green	Red	Content
Remote controller: E36	Indoor	Keeps flashing	Stays Off	Discharge pipe temperature error
	Outdoor	Keeps flashing	1(8) time flash	

Note (1) () is for model 40~60.

1.Applicable model All models	5.Troubleshooting Diagnosis <pre> graph TD Q1{Are the characteristics of discharge pipe temperature thermistor normal?} -- NO --> A1[Replace discharge pipe temperature thermistor.] Q1 -- YES --> Q2{Is the discharge pipe temperature error persisted during cooling operation?} Q2 -- YES --> A2[Insufficient refrigerant amount : Recharge refrigerant by weighing proper amount on a scale.] Q2 -- NO --> Q3{Is the discharge pipe temperature control normal?} Q3 -- NO --> A3[Control operation check *] Q3 -- YES --> Q4{Is the temperature (measured actually) at detection of error correct?} Q4 -- NO --> A4[Defective outdoor control PCB→Replace.] Q4 -- YES --> A5[Check unit side: • Isn't filter clogged? • Are adequate indoor, outdoor unit installation spaces? • Isn't there any short-circuit of air? • Isn't there any fouling, clogging on indoor heat exchanger?] </pre> * For the characteristics of discharge pipe temperature, refer to E39. * For the contents of control, refer to the protective control by controlling compressor rotation speed and cooling high pressure protective control of micro computer control function for corresponding models. Countermeasure
2.Error detection method For the error detection method, refer to the protective control by controlling compressor rotation speed and cooling high pressure protective control of micro computer control function for corresponding models.	
3.Condition of Error displayed When discharge pipe temperature anomaly is detected 2 times within 60 minutes or this anomalous state is detected 60 minutes continuously including compressor stop.	
4.Presumable cause • Defective outdoor control PCB • Defective discharge pipe temperature thermistor • Clogged filter • Indoor, outdoor unit installation spaces • Short-circuit of air on indoor, outdoor units • Fouling, clogging of heat exchanger	

Note:

Error code Remote controller: E37	LED	Green	Red	Content Outdoor heat exchanger temperature thermistor anomaly
	Indoor	Keeps flashing	Stays Off	
	Outdoor	Keeps flashing	1(8) time flash	

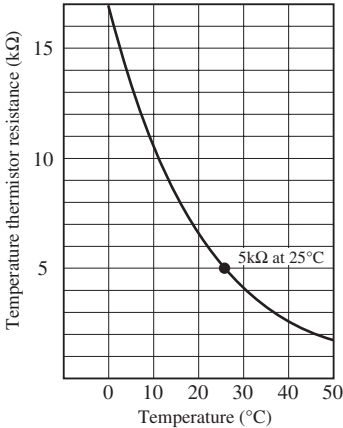
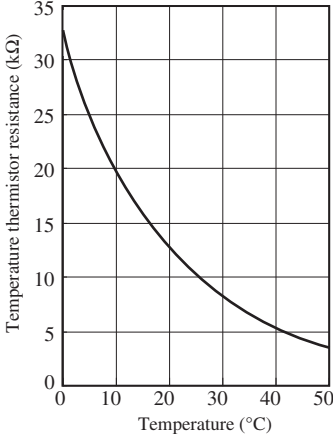
Note (1) () is for model 40~60.

1.Applicable model All models	5.Troubleshooting	
2.Error detection method Detection of anomalously low temperature (resistance) on the outdoor heat exchanger temperature thermistor	Diagnosis Is the outdoor heat exchanger temperature thermistor connector connected properly? NO Correct connector. YES For the characteristics of outdoor unit heat exchanger temperature thermistor, see the following graph. Are the characteristics of outdoor heat exchanger temperature thermistor OK? NO Defective outdoor heat exchanger temperature thermistor→Replace. YES Defective outdoor control PCB→Replace. (Defective outdoor heat exchanger temperature thermistor input circuit)	Countermeasure
3.Condition of Error displayed - When the temperature thermistor detects -50°C or lower for 20 seconds continuously within 2 minutes to 2 minutes 20 seconds after the compressor ON, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this anomalous temperature is detected 3 times within 40 minutes. - When -50°C or lower is detected for 5 seconds continuously within 20 second after compressor ON.	Temperature-resistance characteristics	
4.Presumable cause - Defective outdoor control PCB - Broken thermistor harness or temperature sensing section - Disconnected wire connection (connector)		

Note:

Error code Remote controller: E38	LED	Green	Red	Content Ambient air temperature thermistor anomaly
	Indoor	Keeps flashing	Stays Off	
	Outdoor	Keeps flashing	1(8) time flash	

Note (1) () is for model 40~60.

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
	Is the ambient air temperature thermistor connector connected properly? NO Correct connector. YES Is the characteristics of the ambient air temperature thermistor OK? NO Defective ambient air temperature thermistor→ Replace. YES Defective outdoor control PCB→Replace. (Defective ambient air temperature thermistor input circuit) For the characteristics of ambient air temperature thermistor, see the following graph.	
2.Error detection method	• Model 40~71	
Detection of anomalously low temperature (resistance) on ambient air temperature thermistor	Temperature-resistance characteristics	
		
3.Condition of Error displayed	• Model 100 - 250	
- When the temperature thermistor detects -30°C or lower for 5 seconds continuously within 2 minutes to 2 minutes 20 seconds after the compressor ON, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this anomalous temperature is detected 3 times within 40 minutes. - When -30°C or lower is detected for 5 seconds continuously within 20 second after compressor ON.	Temperature-resistance characteristics	
		
4.Presumable cause		
- Defective outdoor control PCB - Broken thermistor harness or temperature sensing section (Check molding.) - Disconnected wire connection (connector)		

Note:

Error code Remote controller: E39	LED	Green	Red	Content Discharge pipe temperature thermistor anomaly
	Indoor	Keeps flashing	Stays Off	
	Outdoor	Keeps flashing	1(8) time flash	

Note (1) () is for model 40~60.

1.Applicable model	5.Troubleshooting
All models	
2.Error detection method	Diagnosis Is the discharge pipe temperature thermistor connector connected properly? NO Correct connector. YES Are the characteristics of discharge pipe temperature thermistor OK? NO Defective discharge pipe temperature thermistor→ Replace. YES Defective outdoor control PCB→ Replace. (Defective temperature thermistor input circuit) For the characteristics of discharge pipe temperature thermistor, see the following graph. • Model 40~71 Temperature-resistance characteristics • Model 100 - 250 Temperature-resistance characteristics
3.Condition of Error displayed	
When the temperature thermistor detects -10°C or lower for 5 seconds continuously within 10 minutes to 10 minutes 20 seconds after the compressor ON, the compressor stops. After 3-minutes delay, the compressor starts again automatically, but if this anomalous temperature is detected 3 times within 40 minutes.	
4.Presumable cause	
- Defective outdoor control PCB - Broken thermistor harness or temperature sensing section (Check molding.) - Disconnected wire connection (connector)	

Note:

Error code	LED	Green	Red	Content
Remote controller: E40	Indoor	Keeps flashing	Stays Off	High pressure error (63H1 activated) (Model FDC71 - 250)
	Outdoor	Keeps flashing	1 time flash	

1.Applicable model Model FDC 71 – 250	5.Troubleshooting <table border="1"> <thead> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> </thead> <tbody> <tr> <td> If the power supply breaker is turned OFF and ON too quickly, E40 may be displayed. (This is normal.) <pre> graph TD A{Is the service valve fully opened?} -- NO --> B[Open service valve.] A -- YES --> C{Has 63H1 activated?} C -- NO --> D{Is 63H1 connector connected properly?} D -- NO --> E[Correct 63H1 connector.] D -- YES --> F{Is the electronic expansion valve connector connection OK?} F -- NO --> G[Correct electronic expansion valve connector.] F -- YES --> H[Defective outdoor control PCB→Replace. (Defective 63H1 input circuit)] </pre> On operation of 63H1 1. During cooling - Is the outdoor fan motor running? - Isn't any short-circuit of air on the outdoor unit? - Are sufficient return air/supply air space secured? 2. During heating - Isn't the indoor heat exchanger temperature thermistor disconnected from the thermistor casing? - Isn't the filter clogged? * Under the condition of overcharging refrigerant, 63H1 may activate due to delay of starting the preventive control by compressor speed control, because detected heat exchanger temperature, which conducts compressor speed control, becomes lower than normal condition due to excess sub-cooling degree. </td><td></td></tr> </tbody> </table>	Diagnosis	Countermeasure	If the power supply breaker is turned OFF and ON too quickly, E40 may be displayed. (This is normal.) <pre> graph TD A{Is the service valve fully opened?} -- NO --> B[Open service valve.] A -- YES --> C{Has 63H1 activated?} C -- NO --> D{Is 63H1 connector connected properly?} D -- NO --> E[Correct 63H1 connector.] D -- YES --> F{Is the electronic expansion valve connector connection OK?} F -- NO --> G[Correct electronic expansion valve connector.] F -- YES --> H[Defective outdoor control PCB→Replace. (Defective 63H1 input circuit)] </pre> On operation of 63H1 1. During cooling - Is the outdoor fan motor running? - Isn't any short-circuit of air on the outdoor unit? - Are sufficient return air/supply air space secured? 2. During heating - Isn't the indoor heat exchanger temperature thermistor disconnected from the thermistor casing? - Isn't the filter clogged? * Under the condition of overcharging refrigerant, 63H1 may activate due to delay of starting the preventive control by compressor speed control, because detected heat exchanger temperature, which conducts compressor speed control, becomes lower than normal condition due to excess sub-cooling degree.	
Diagnosis	Countermeasure				
If the power supply breaker is turned OFF and ON too quickly, E40 may be displayed. (This is normal.) <pre> graph TD A{Is the service valve fully opened?} -- NO --> B[Open service valve.] A -- YES --> C{Has 63H1 activated?} C -- NO --> D{Is 63H1 connector connected properly?} D -- NO --> E[Correct 63H1 connector.] D -- YES --> F{Is the electronic expansion valve connector connection OK?} F -- NO --> G[Correct electronic expansion valve connector.] F -- YES --> H[Defective outdoor control PCB→Replace. (Defective 63H1 input circuit)] </pre> On operation of 63H1 1. During cooling - Is the outdoor fan motor running? - Isn't any short-circuit of air on the outdoor unit? - Are sufficient return air/supply air space secured? 2. During heating - Isn't the indoor heat exchanger temperature thermistor disconnected from the thermistor casing? - Isn't the filter clogged? * Under the condition of overcharging refrigerant, 63H1 may activate due to delay of starting the preventive control by compressor speed control, because detected heat exchanger temperature, which conducts compressor speed control, becomes lower than normal condition due to excess sub-cooling degree.					
2.Error detection method When the high pressure switch 63H1 is activated. Compressor ON Compressor OFF 3.15 4.15 High pressure (MPa)					
3.Condition of Error displayed If 63H1 turns OFF (opened), the compressor stops. After 3-minutes delay, the compressor restarts. If this anomaly occurs 5 times within 60 minutes or continues for 60 minutes continuously.					
4.Presumable cause - Short circuit of air flow, disturbance of air flow and clogging filter at heat exchanger (Condenser side)/ Breakdown of fan motor - Defective outdoor control PCB - Defective 63H-1 connector - Defective electronic expansion valve connector - Closed service valve - Mixing of non-condensing gas (nitrogen, etc.)					

Note: In the protective control range for compressor startup (initial startup after power ON), even if 63H1 is activated only once (63H1 turns OFF), immediately the error is displayed.

Error code	LED	Green	Red	Content
Remote controller: E41	Indoor	Keeps flashing	Stays Off	Power transistor overheat (Model FDC200, 250)
	Outdoor	Keeps flashing	1 time flash	

1.Applicable model	5.Troubleshooting																								
Model FDC200, 250																									
2.Error detection method																									
Anomalous rise of the internal power transistor temperature																									
3.Condition of Error displayed																									
When anomalous rise of the internal power transistor temperature is detected 5 times within 1 hour.																									
4.Presumable cause																									
- Defective inverter PCB - Defective outdoor fan motor - Improperly fixed power transistor radiator fin - Delective power transistor temperature thermistor - Inadequate installation space	<table border="1"> <thead> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> </thead> <tbody> <tr> <td> <pre> graph TD Q1{Is it possible to reset the error for about 10 minute after the compressor stopped?} -- NO --> A1[Defective inverter PCB] Q1 -- YES --> Q2{Is the installation space of outdoor unit enough?} Q2 -- NO --> A2[Correct.] Q2 -- YES --> Q3{Is the outdoor fan running?} Q3 -- NO --> A3[Replace the fan motor or outdoor control PCB.] Q3 -- YES --> Q4{Are the characteristics of power transistor temperature thermistor OK?} Q4 -- NO --> A4[Replace the power transistor temperature thermistor.] Q4 -- YES --> Q5{Is the power transistor temperature thermistor connector connection OK?} Q5 -- NO --> A5[Connect.] Q5 -- YES --> Q6{Is it OK the fixing to power transistor radiator fin? • Fixed screw • Application of radiation silicone} Q6 -- NO --> A6[Fix properly.] Q6 -- YES --> Q7{Does it recur?} Q7 -- YES --> Q1 Q7 -- NO --> OK1[OK] </pre> </td><td> OK Replace power transistor. OK Fix properly. OK </td></tr> <tr> <td colspan="2"> * Characteristics of power transistor temperature thermistor Temperature-resistance characteristics <table border="1"> <caption>Approximate data points from the graph</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Thermistor resistance (kΩ)</th> </tr> </thead> <tbody> <tr><td>0</td><td>180</td></tr> <tr><td>20</td><td>100</td></tr> <tr><td>40</td><td>50</td></tr> <tr><td>60</td><td>25</td></tr> <tr><td>80</td><td>10</td></tr> <tr><td>100</td><td>5</td></tr> <tr><td>120</td><td>2</td></tr> <tr><td>140</td><td>1</td></tr> </tbody> </table> </td></tr> </tbody> </table>	Diagnosis	Countermeasure	<pre> graph TD Q1{Is it possible to reset the error for about 10 minute after the compressor stopped?} -- NO --> A1[Defective inverter PCB] Q1 -- YES --> Q2{Is the installation space of outdoor unit enough?} Q2 -- NO --> A2[Correct.] Q2 -- YES --> Q3{Is the outdoor fan running?} Q3 -- NO --> A3[Replace the fan motor or outdoor control PCB.] Q3 -- YES --> Q4{Are the characteristics of power transistor temperature thermistor OK?} Q4 -- NO --> A4[Replace the power transistor temperature thermistor.] Q4 -- YES --> Q5{Is the power transistor temperature thermistor connector connection OK?} Q5 -- NO --> A5[Connect.] Q5 -- YES --> Q6{Is it OK the fixing to power transistor radiator fin? • Fixed screw • Application of radiation silicone} Q6 -- NO --> A6[Fix properly.] Q6 -- YES --> Q7{Does it recur?} Q7 -- YES --> Q1 Q7 -- NO --> OK1[OK] </pre>	OK Replace power transistor. OK Fix properly. OK	* Characteristics of power transistor temperature thermistor Temperature-resistance characteristics <table border="1"> <caption>Approximate data points from the graph</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Thermistor resistance (kΩ)</th> </tr> </thead> <tbody> <tr><td>0</td><td>180</td></tr> <tr><td>20</td><td>100</td></tr> <tr><td>40</td><td>50</td></tr> <tr><td>60</td><td>25</td></tr> <tr><td>80</td><td>10</td></tr> <tr><td>100</td><td>5</td></tr> <tr><td>120</td><td>2</td></tr> <tr><td>140</td><td>1</td></tr> </tbody> </table>		Temperature (°C)	Thermistor resistance (kΩ)	0	180	20	100	40	50	60	25	80	10	100	5	120	2	140	1
Diagnosis	Countermeasure																								
<pre> graph TD Q1{Is it possible to reset the error for about 10 minute after the compressor stopped?} -- NO --> A1[Defective inverter PCB] Q1 -- YES --> Q2{Is the installation space of outdoor unit enough?} Q2 -- NO --> A2[Correct.] Q2 -- YES --> Q3{Is the outdoor fan running?} Q3 -- NO --> A3[Replace the fan motor or outdoor control PCB.] Q3 -- YES --> Q4{Are the characteristics of power transistor temperature thermistor OK?} Q4 -- NO --> A4[Replace the power transistor temperature thermistor.] Q4 -- YES --> Q5{Is the power transistor temperature thermistor connector connection OK?} Q5 -- NO --> A5[Connect.] Q5 -- YES --> Q6{Is it OK the fixing to power transistor radiator fin? • Fixed screw • Application of radiation silicone} Q6 -- NO --> A6[Fix properly.] Q6 -- YES --> Q7{Does it recur?} Q7 -- YES --> Q1 Q7 -- NO --> OK1[OK] </pre>	OK Replace power transistor. OK Fix properly. OK																								
* Characteristics of power transistor temperature thermistor Temperature-resistance characteristics <table border="1"> <caption>Approximate data points from the graph</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Thermistor resistance (kΩ)</th> </tr> </thead> <tbody> <tr><td>0</td><td>180</td></tr> <tr><td>20</td><td>100</td></tr> <tr><td>40</td><td>50</td></tr> <tr><td>60</td><td>25</td></tr> <tr><td>80</td><td>10</td></tr> <tr><td>100</td><td>5</td></tr> <tr><td>120</td><td>2</td></tr> <tr><td>140</td><td>1</td></tr> </tbody> </table>		Temperature (°C)	Thermistor resistance (kΩ)	0	180	20	100	40	50	60	25	80	10	100	5	120	2	140	1						
Temperature (°C)	Thermistor resistance (kΩ)																								
0	180																								
20	100																								
40	50																								
60	25																								
80	10																								
100	5																								
120	2																								
140	1																								

Note:

Error code	LED	Green	Red	Content
Remote controller: E42	Indoor	Keeps flashing	Stays Off	Current cut (1/2)
	Outdoor	Keeps flashing	1 time flash	

1.Applicable model All models	5.Troubleshooting <table> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> <tr> <td> <pre> graph TD Q1{Is the Power supply voltage OK?} -- NO --> C1[Check power supply.] Q1 -- YES --> Q2{Are the service valves opened?} Q2 -- NO --> C2[Open the valves.] Q2 -- YES --> Q3{Is the high pressure during operation OK?} Q3 -- NO --> C3[Check refrigerant amount and refrigerant circuit *In case of transitional increase of high pressure and/or test run, several times restarting may recover it, because liquid refrigerant (migrated) in the compressor is discharged from the compressor.] Q3 -- YES --> Q4{Is the checked result of insulation resistance and coil resistance (1) of compressor motor OK? (1) 0.4Ω or more at 25°C} Q4 -- NO --> C4[Replace compressor.] Q4 -- YES --> C5[Continues to next page.] </pre> </td><td></td></tr> </table>	Diagnosis	Countermeasure	<pre> graph TD Q1{Is the Power supply voltage OK?} -- NO --> C1[Check power supply.] Q1 -- YES --> Q2{Are the service valves opened?} Q2 -- NO --> C2[Open the valves.] Q2 -- YES --> Q3{Is the high pressure during operation OK?} Q3 -- NO --> C3[Check refrigerant amount and refrigerant circuit *In case of transitional increase of high pressure and/or test run, several times restarting may recover it, because liquid refrigerant (migrated) in the compressor is discharged from the compressor.] Q3 -- YES --> Q4{Is the checked result of insulation resistance and coil resistance (1) of compressor motor OK? (1) 0.4Ω or more at 25°C} Q4 -- NO --> C4[Replace compressor.] Q4 -- YES --> C5[Continues to next page.] </pre>	
Diagnosis	Countermeasure				
<pre> graph TD Q1{Is the Power supply voltage OK?} -- NO --> C1[Check power supply.] Q1 -- YES --> Q2{Are the service valves opened?} Q2 -- NO --> C2[Open the valves.] Q2 -- YES --> Q3{Is the high pressure during operation OK?} Q3 -- NO --> C3[Check refrigerant amount and refrigerant circuit *In case of transitional increase of high pressure and/or test run, several times restarting may recover it, because liquid refrigerant (migrated) in the compressor is discharged from the compressor.] Q3 -- YES --> Q4{Is the checked result of insulation resistance and coil resistance (1) of compressor motor OK? (1) 0.4Ω or more at 25°C} Q4 -- NO --> C4[Replace compressor.] Q4 -- YES --> C5[Continues to next page.] </pre>					
2.Error detection method In order to prevent from overcurrent of inverter, if the current exceeds the specifications, it makes the compressor stopping.					
3.Condition of Error displayed If the output current of inveter exceeds the specifications, it makes the compressor stopping. After 3-minute delay, the compressor restarts, but if this amonaly occurs 4 times within 30 minute after the intial detection.					
4.Presumable cause • The valves closed • Faulty power supply • Insufficient refrigerant amount • Faulty compressor • Faulty power transistor module					

Note:

Error code Remote controller: E42	LED	Green	Red	Content
	Indoor	Keeps flashing	Stays Off	
	Outdoor	Keeps flashing	1 time flash	

Current cut (2/2)

1.Applicable model	5.Troubleshooting	
All models	Diagnosis	Countermeasure
2.Error detection method	Continue from previous page Is the checked result of power transistor module OK? NO Replace inverter PCB YES - Is the space for installation of indoor and/or outdoor unit enough? - Is there any short circuit of air on indoor and/or outdoor unit? - At cooling, does the outdoor fan motor run? Are the service valves fully opened? Is the filter clogged? - At heating, does the indoor fan motor run? Are the service valves fully opened? Is the filter clogged? - Is there any liquid flooding? Is the superheat within normal range? Is the low pressure sensor and suction pipe temperature thermistor normal? - Is there any anomalous sound on the compressor? YES After resetting power for several times does it become normal? NO Replace inverter PCB YES Temporary noise may cause of anomaly. If noise source can be found, take countermeasure.	
3.Condition of Error displayed		
If the output current of inveter exceeds the specifications, it makes the compressor stopping. After 3-minute delay, the compressor restarts, but if this amonaly occurs 4 times within 30 minute after the intial detection.		
4.Presumable cause		
- Open the valves - Faulty power supply - Insufficient refrigerant amount - Faulty compressor - Faulty power transistor module		

Note:

Error code Remote controller: E45	LED	Green	Red	Content Inverter communication error (Model FDC71 - 250)
	Indoor	Keeps flashing	Stays Off	
	Outdoor	Keeps flashing	1 time flash	

1.Applicable model Model FDC 71 – 250	5.Troubleshooting <table> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> <tr> <td> <pre> graph TD D1{Is the connector connection between the outdoor control PCB and the inverter PCB OK?} -- NO --> C1[Correct connector.] D1 -- YES --> D2{Are JSW10, 11 (SW1, 2) on the inverter PCB all OFF?} D2 -- NO --> C2[Change to OFF.] D2 -- YES --> D3{Is LED on the inverter PCB flashing?} D3 -- NO --> C3["Check why power is not supplied to inverter PCB. • Defective fan motor • Defective 52X (200, 250 types only) • Broken cement resistor (15Ω) (200, 250 types only)"] D3 -- YES --> D4{Is the communication wire between the control PCB and the inverter PCB connected properly?} D4 -- NO --> C4[Connect communication wire securely.] D4 -- YES --> P1[Replace the outdoor control PCB.] P1 --> D5{Is normal state restored?} D5 -- NO --> C5[Replace inverter PCB.] D5 -- YES --> C6[OK] </pre> </td><td></td></tr> </table>	Diagnosis	Countermeasure	<pre> graph TD D1{Is the connector connection between the outdoor control PCB and the inverter PCB OK?} -- NO --> C1[Correct connector.] D1 -- YES --> D2{Are JSW10, 11 (SW1, 2) on the inverter PCB all OFF?} D2 -- NO --> C2[Change to OFF.] D2 -- YES --> D3{Is LED on the inverter PCB flashing?} D3 -- NO --> C3["Check why power is not supplied to inverter PCB. • Defective fan motor • Defective 52X (200, 250 types only) • Broken cement resistor (15Ω) (200, 250 types only)"] D3 -- YES --> D4{Is the communication wire between the control PCB and the inverter PCB connected properly?} D4 -- NO --> C4[Connect communication wire securely.] D4 -- YES --> P1[Replace the outdoor control PCB.] P1 --> D5{Is normal state restored?} D5 -- NO --> C5[Replace inverter PCB.] D5 -- YES --> C6[OK] </pre>	
Diagnosis	Countermeasure				
<pre> graph TD D1{Is the connector connection between the outdoor control PCB and the inverter PCB OK?} -- NO --> C1[Correct connector.] D1 -- YES --> D2{Are JSW10, 11 (SW1, 2) on the inverter PCB all OFF?} D2 -- NO --> C2[Change to OFF.] D2 -- YES --> D3{Is LED on the inverter PCB flashing?} D3 -- NO --> C3["Check why power is not supplied to inverter PCB. • Defective fan motor • Defective 52X (200, 250 types only) • Broken cement resistor (15Ω) (200, 250 types only)"] D3 -- YES --> D4{Is the communication wire between the control PCB and the inverter PCB connected properly?} D4 -- NO --> C4[Connect communication wire securely.] D4 -- YES --> P1[Replace the outdoor control PCB.] P1 --> D5{Is normal state restored?} D5 -- NO --> C5[Replace inverter PCB.] D5 -- YES --> C6[OK] </pre>					
2.Error detection method					
3.Condition of Error displayed When communication is not established between the inverter PCB and the outdoor control PCB.					
4.Presumable cause - Defective inverter PCB - Defective connector between the control PCB and inverter PCB - Defective outdoor control PCB					

Note:

Error code Remote controller: E47	LED	Green	Red	Content Inverter over-current error (Model SRC40 – 60)
	Indoor	Keeps flashing	Stays Off	
	Outdoor	–	1 time flash	

1.Applicable model	5.Troubleshooting	
Model SRC40 – 60	Diagnosis	Countermeasure
2.Error detection method Error is displayed if the converter voltage exceeds 340V (3 times within 20 minutes). Remote controller may be set after 3 minutes delay.	<pre> graph TD A{Check soldered surfaces on the control PCB for foreign matter like dust, fouling, etc.} -- NO --> B[Remove foreign matter like dust, fouling, etc.] A -- YES --> C{Isn't F3 fuse (250V, 1A) blown?} C -- NO --> D[Replace fuse.] C -- YES --> E[Replace outdoor control PCB.] </pre>	
3.Condition of Error displayed Same as above		
4.Presumable cause • Defective outdoor control PCB • Dust on control PCB • Blown F3 fuse		

Note:

Error code Remote controller: E48	LED	Green	Red	Content Outdoor DC fan motor error (Model SRC40 - 60)
	Indoor	Keeps flashing	Stays Off	
	Outdoor	—	Keeps flashing	

1.Applicable model	5.Troubleshooting	
Model SRC 40 – 60	Diagnosis	Countermeasure
2.Error detection method	Does any foreign material intervene in rotational area of fan propeller? YES Remove foreign matter. NO Does the fan rotate smoothly when turned by hand? NO Replace fan motor. If resistance between ① (Vm):red -④(GND):blue is detected 1kΩ or lower, it is faulty. YES Is DC280V detected between (CNFAN ① (blue)-⑥ (red)) of fan motor connector? NO Is F3 fuse blown? NO Check power supply voltage. YES Replace faulty fan motor and control PCB. Power supply reset Is normal state restored? NO Replace fan motor (If anomaly persists after replacing fan motor, replace control PCB.) YES Malfunction by temporary noise	
3.Condition of Error displayed		
When actual rotation speed of outdoor fan motor drops to 75min ⁻¹ or lower for 30 minutes continuously, the compressor and the outdoor fan motor stop. After 3-minutes delay, it starts again automatically, but if this anomaly occurs 5 times within 60 minutes after the initial detection.		
4.Presumable cause		
• Defective outdoor control PCB • Foreign material at rotational area of fan propeller • Defective fan motor • Dust on control PCB • Blown F3 fuse		

Note: When E48 error occurs, in almost cases F3 fuse (1A) on the outdoor control PCB is blown. There are a lot of cases that fuse is blown and E48 occurs due to defective fan motor. And even though only the outdoor control PCB (or fuse) is replaced,, another trouble (*1) could occur. Therefore when fuse is blown, check whether the fan motor is OK or not.
After confirming the fan motor normal, check by power ON. (Don't power ON without confirming the fan motor normal.)
*1 The error which does not seem to relate E48 may occur like as “ WAIT ”, Stay OFF of LED on outdoor control PCB, inverter communication error (E45) and etc.

Error code	LED	Green	Red	Content
Remote controller: E48	Indoor	Keeps flashing	Stays Off	Outdoor DC fan motor error (Model FDC71 - 250)
	Outdoor	Keeps flashing	1 time flash	

1.Applicable model	5.Troubleshooting	
Model FDC 71 – 250	Diagnosis	Countermeasure
2.Error detection method	<pre>graph TD Q1{Does any foreign material intervene in rotational area of fan propeller?} -- YES --> C1[Remove foreign material.] Q1 -- NO --> Q2{Does the fan rotate smoothly when turned by hand?} Q2 -- YES --> Q3{Is DC280V detected between (CNFAN ① (red)-④ (blue)) of fan motor connector?} Q2 -- NO --> C2[Replace fan motor. If resistance between ① (Vm):red -④(GND):blue is detected 1kΩ or lower, it is faulty.] Q3 -- YES --> P1[Power supply reset] Q3 -- NO --> Q4{Is F2 fuse blown?} P1 --> Q5{Is normal state restored?} Q4 -- YES --> C3[Replace faulty fan motor and control PCB.] Q4 -- NO --> C4[Check power supply voltage.] Q5 -- YES --> C5[Malfunction by temporary noise] Q5 -- NO --> C6[Replace fan motor (If anomaly persists after replacing fan motor, replace control PCB.)]</pre> Note (1) Fuse of Model 71 is F3.	
Detected by rotation speed of outdoor fan motor		
3.Condition of Error displayed		
When actual rotation speed of outdoor fan motor (FMo1, 2) drops to 100min ⁻¹ or lower for 30 minutes continuously, the compressor and the outdoor fan motor stop. After 3-minutes delay, it starts again automatically, but if this anomaly occurs 5 times within 60 minutes after the initial detection.		
4.Presumable cause		
• Defective outdoor control PCB • Foreign material at rotational area of fan propeller • Defective fan motor • Dust on control PCB • Blow fuse • External noise, surge		

Note: When E48 error occurs, in almost cases F2 fuse (4A) on the outdoor control PCB [Model 71: F3 fuse (2A)] is blown. There are a lot of cases that fuse is blown and E48 occurs due to defective fan motor. And even though only the outdoor control PCB (or fuse) is replaced,, another trouble (*1) could occur. Therefore when fuse is blown, check whether the fan motor is OK or not.
After confirming the fan motor normal, check by power ON. (Don't power ON without confirming the fan motor normal.)
*1 The error which does not seem to relate E48 may occur like as “ WAIT ”, Stay OFF of LED on outdoor control PCB, inverter communication error (E45) and etc.

Error code Remote controller: E49	LED	Green	Red	Content Low pressure error or low pressure sensor anomaly (1/2) (Model FDC71 - 250)
	Indoor	Keeps flashing	Stays Off	
	Outdoor	Keeps flashing	1 time flash	

1.Applicable model Model FDC 71 – 250	5.Troubleshooting	
2.Error detection method Detected by low pressure drop and suction superheat	Diagnosis	
3.Condition of Error displayed ① When the low pressure sensor detects 0.079MPa or lower for 15 seconds continuously, compressor stops and it restarts automatically after 3-minutes delay. And if this anomaly occurs 3 times within 60 minutes, ② 10 minutes after the compressor starts, if the low pressure sensor detects 0.15MPa or lower for 60 minutes continuously and compressor suction superheat is detected 30degC or higher for 60 minutes continuously. And if this anomaly occurs 3 times within 60 minutes, ③ If low pressure sensor detects 0.079MPa or lower for 5 minutes continuously (including the compressor stop status),	Countermeasure	
4.Presumable cause - Defective outdoor control PCB - Defective low pressure sensor connector - Defective low pressure sensor - Defective suction pipe temperature thermistor connector - Defective suction pipe temperature thermistor	<pre> graph TD Q1{Is the low pressure sensor connection OK (at PCB side)?} Q1 -- NO --> C1[Correct.] Q1 -- YES --> S1[Check the low pressure value during following state from the remote controller ① Compressor is stopping ② Compressor is operating] S1 --> Q2{During both ① and ② state low pressure detected at around 0MPa without any fluctuation.} Q2 -- NO --> Q1 Q2 -- YES --> S2[Check the insulation resistance of pressure sensor.] S2 --> Q3{Is the insulation resistance more than 100Ω? at DC500V?} Q3 -- NO --> C2[Replace low pressure sensor.] Q3 -- YES --> S3[After connecting the gauge manifold on the low pressure line, measure at the state ① above. Compare the result with the value indicated on the remote controller.] S3 --> Q4{Is the pressure difference less than 0.2MPa?} Q4 -- YES --> C3[To checking of refrigerant amount, refrigerant circuit, etc. (next page)] Q4 -- NO --> S4[Connect the pressure sensor of spare part to outdoor control PCB in the condition open to atmosphere.] S4 --> Q5{Is the pressure 0MPa displayed on the remote controller?} Q5 -- NO --> C4[Replace outdoor control PCB.] Q5 -- YES --> C5[Replace low pressure sensor.] </pre>	

Note: * Connect the gauge manifold to the service valve check joint during cooling, or connect it to the check joint at internal piping of outdoor unit during heating.

Error code Remote controller: E49	LED	Green	Red	Content Low pressure error or low pressure sensor anomaly (2/2) (Model FDC71 - 250)
	Indoor	Keeps flashing	Stays Off	
	Outdoor	Keeps flashing	1 time flash	

1.Applicable model	5.Troubleshooting	
Model FDC 71 – 250	Diagnosis	Countermeasure
2.Error detection method	Continued from previous page. Is the service valve fully opened? NO Open fully. YES Are the connections of low pressure sensor and suction pipe temperature thermistor connector OK? NO Correct. YES Are the characteristics of low pressure sensor, suction pipe temperature thermistor OK? NO Defective low pressure sensor, suction pipe temperature thermistor→ Replace. YES Is the low pressure normal during operation? NO Charge refrigerant. YES Defective outdoor control PCB→Replace. (Defective low pressure sensor, suction pipe temperature thermistor circuits)	
3.Condition of Error displayed		
4.Presumable cause		

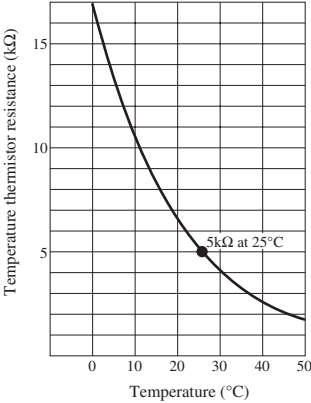
Note:

Error code Remote controller: E51	LED	Green	Red	Content Inverter and fan motor anomaly (Model FDC71 - 250)
	Indoor	Keeps flashing	Stays Off	
	Outdoor	Keeps flashing	1 time flash	

1.Applicable model	5.Troubleshooting		
Model FDC71 – 250			
2.Error detection method			
When power transistor anomaly is detected for 15 minutes continuously			
3.Condition of Error displayed			
Same as above			
4.Presumable cause			
- Defective outdoor fan motor - Defective inverter (control) PCB	Diagnosis Countermeasure - Model FDC 71 – 140 <pre> graph TD Q1{Is DC15V detected between the connector CNI4 ②-③ (CNI2 ②-③) on the inverter PCB?} Q2{Is DC15V detected between the hanesses at the control PCB side after disconnecting the connector (CNI3 or 1)?} Q3{Is DC15V detected on the fan motor connector?} Q1 -- YES --> C1[Replace inverter PCB.] Q1 -- NO --> Q2 Q2 -- YES --> C2[Broken harness wire] Q2 -- NO --> Q3 Q3 -- YES --> C3[Replace fan motor.] Q3 -- NO --> C4[Replace control PCB.] </pre> - Model FDC 200, 250 Replace immediately the inverter PCB and the power transistor.		

Note:

Error code	LED	Green	Red	Content	Suction pipe temperature thermistor anomaly (Model FDC71 - 250)
	Indoor	Keeps flashing	Stays Off		
	Outdoor	Keeps flashing	1 time flash		

1.Applicable model	5.Troubleshooting	
Model FDC 71 – 250	Diagnosis	Countermeasure
2.Error detection method	Is the connection of suction pipe temperature thermistor connector OK? NO Correct connection of suction pipe temperature thermistor connector. YES Are the characteristics of suction pipe temperature thermistor OK? NO Defective suction pipe temperature thermistor→ Replace. YES Replace outdoor control PCB. (Defective suction pipe temperature thermistor input circuit)	
3.Condition of Error displayed	Temperature-resistance characteristics 	
4.Presumable cause	- Defective suction pipe temperature thermistor connection - Defective suction pipe temperature thermistor - Defective outdoor control PCB	

Note:

Error code	LED	Green	Red	Content
Remote controller: E54	Indoor	Keeps flashing	Stays Off	Low pressure sensor anomaly (Model FDC71 - 250)
	Outdoor	Keeps flashing	1 time flash	

1.Applicable model	5.Troubleshooting		
Model FDC 71 – 250	Diagnosis		Countermeasure
2.Error detection method	<pre> graph TD D1{Are the connection of low pressure sensor connectors (at sensor side and PCB side) OK?} -- NO --> C1[Correct low pressure sensor connector connection.] D1 -- YES --> D2{Are the pressure (actual measurement) matched with the value indicated on the remote controller?} D2 -- YES --> C2[Is refrigerant amount charged properly? Is there any anomaly on the refrigeration circuit?] D2 -- NO --> P1[Replace the low pressure sensor.] P1 --> D3{Is normal condition restored?} D3 -- NO --> C3[Replace outdoor control PCB.] D3 -- YES --> C4[OK] </pre>		
3.Condition of Error displayed			
If the pressure sensor detects 0V or lower and 3.49V or higher for 5 seconds continuously within 2 minutes to 2 minutes 20 seconds after compressor ON, the compressor stops. When the compressor is restarted automatically after 3-minuts delay, if this anomaly occurs 3 times within 40 minutes			
4.Presumable cause			
• Defective low pressure sensor connection • Defective low pressure sensor • Defective outdoor control PCB • Improper amount of refrigerant • Anomalous refrigeration circuit			

Note:

Error code Remote controller: E55	LED	Green	Red	Content Underneath temperature thermistor anomaly (Model FDC200, 250)
	Indoor	Keeps flashing	Stays Off	
	Outdoor	Keeps flashing	1 time flash	

1.Applicable model	5.Troubleshooting																	
FDC 200, 250 types	Diagnosis	Countermeasure																
2.Error detection method	Is the connection of underneath temperature thermistor connector OK? NO Correct connection of underneath temperature thermistor connector. YES Are the characteristics of underneath temperature thermistor OK? NO Defective underneath temperature thermistor→ Replace. YES Replace outdoor control PCB. (Defective underneath temperature thermistor input circuit)																	
3.Condition of Error displayed	Temperature-resistance characteristics <table><caption>Temperature-resistance characteristics data points (approximate)</caption><thead><tr><th>Temperature (°C)</th><th>Resistance (kΩ)</th></tr></thead><tbody><tr><td>0</td><td>15</td></tr><tr><td>10</td><td>10</td></tr><tr><td>20</td><td>6</td></tr><tr><td>25</td><td>5</td></tr><tr><td>30</td><td>4</td></tr><tr><td>40</td><td>3</td></tr><tr><td>50</td><td>2</td></tr></tbody></table>		Temperature (°C)	Resistance (kΩ)	0	15	10	10	20	6	25	5	30	4	40	3	50	2
Temperature (°C)	Resistance (kΩ)																	
0	15																	
10	10																	
20	6																	
25	5																	
30	4																	
40	3																	
50	2																	
4.Presumable cause	- Defective underneath temperature thermistor connection - Defective underneath temperature thermistor - Defective outdoor control PCB																	

Note:

Error code	LED	Green	Red	Content
Remote controller: E57	Indoor	Keeps flashing	Stays Off	Insufficient refrigerant amount or detection of service valve closure
	Outdoor	Keeps flashing	1(2) time flash	

Note (1) () is for model 40~60.

1.Applicable model All models	5.Troubleshooting <table> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> <tr> <td> <pre> graph TD Q1{Is the service valve fully opened?} -- NO --> C1[Open fully.] Q1 -- YES --> Q2{Are the connections of indoor heat exchanger and/or return air temperature thermistor connectors OK?} Q2 -- NO --> C2[Correct indoor heat exchanger, return air temperature thermistor connector connections.] Q2 -- YES --> Q3{Are the characteristics of indoor heat exchanger and/or return air temperature thermistor OK?} Q3 -- NO --> C3[Defective indoor heat exchanger, return air temperature thermistor → Replace.] Q3 -- YES --> Q4{Is the low pressure during operation normal?} Q4 -- NO --> C4[Charge refrigerant.] Q4 -- YES --> C5[Replace indoor control PCB (Defective indoor heat exchanger, return air temperature thermistor input circuits)] </pre> </td><td></td></tr> </table> Indoor unit heat exchanger, return air temperature thermistor Temperature-resistance characteristics Note (1) 22.5kΩ at -6°C	Diagnosis	Countermeasure	<pre> graph TD Q1{Is the service valve fully opened?} -- NO --> C1[Open fully.] Q1 -- YES --> Q2{Are the connections of indoor heat exchanger and/or return air temperature thermistor connectors OK?} Q2 -- NO --> C2[Correct indoor heat exchanger, return air temperature thermistor connector connections.] Q2 -- YES --> Q3{Are the characteristics of indoor heat exchanger and/or return air temperature thermistor OK?} Q3 -- NO --> C3[Defective indoor heat exchanger, return air temperature thermistor → Replace.] Q3 -- YES --> Q4{Is the low pressure during operation normal?} Q4 -- NO --> C4[Charge refrigerant.] Q4 -- YES --> C5[Replace indoor control PCB (Defective indoor heat exchanger, return air temperature thermistor input circuits)] </pre>	
Diagnosis	Countermeasure				
<pre> graph TD Q1{Is the service valve fully opened?} -- NO --> C1[Open fully.] Q1 -- YES --> Q2{Are the connections of indoor heat exchanger and/or return air temperature thermistor connectors OK?} Q2 -- NO --> C2[Correct indoor heat exchanger, return air temperature thermistor connector connections.] Q2 -- YES --> Q3{Are the characteristics of indoor heat exchanger and/or return air temperature thermistor OK?} Q3 -- NO --> C3[Defective indoor heat exchanger, return air temperature thermistor → Replace.] Q3 -- YES --> Q4{Is the low pressure during operation normal?} Q4 -- NO --> C4[Charge refrigerant.] Q4 -- YES --> C5[Replace indoor control PCB (Defective indoor heat exchanger, return air temperature thermistor input circuits)] </pre>					
2.Error detection method • Judge insufficient refrigerant amount by detecting the temperature difference between indoor heat exchanger (Thi-R) and indoor return air (Thi-A). • In case of model 100-250, it detects at initial startup in cooling or dehumidifying mode after power ON. (In case of model 40~71 it cannot detect)					
3.Condition of Error displayed When the insufficient refrigerant amount is detected 3 times within 30 minutes. (In case of model 100-250 it makes anomalous stop at initial detection)					
4.Presumable cause • Defective indoor heat exchanger temperature thermistor • Defective indoor return air temperature thermistor • Defective indoor control PCB • Insufficient refrigerant amount					

Note: Insufficient refrigerant amount preventive control makes compressor stopped, if it judges insufficient refrigerant amount by detecting the temperature difference between indoor heat exchanger (Thi-R) and indoor return air (Thi-A) for 1 minute after compressor ON in cooling or dehumidifying mode and for 9 minutes after compressor ON in heating mode. [in cooling mode: (Thi-A)-(Thi-R)>4degC, in heating mode: (Thi-R)-(Thi-A)<4degC]

Error code	LED	Green	Red	Content
Remote controller: E59	Indoor	Keeps flashing	Stays Off	Compressor startup failure (Model SRC40~60)
	Outdoor	—	2 times flash	

1.Applicable model	5.Troubleshooting				
Model SRC40~60					
2.Error detection method					
If it fails to change over to the rotor detection operation of compressor motor (If the compressor speed cannot increase 11Hz or higher)					
3.Condition of Error displayed					
If compressor fails to startup for 14 times (7 patterns x 2 times). (It is available to reset by remote controller after 3 minutes delay)					
4.Presumable cause					
- Faulty outdoor fan motor - Faulty outdoor control PCB - Anomalous power supply voltage - Improper refrigerant amount and refrigerant circuit - Faulty compressor (Motor bearing)	<table border="1"> <thead> <tr> <th>Diagnosis</th><th>Countermeasure</th></tr> </thead> <tbody> <tr> <td> Compressor does not start at all. Neither noise nor vibration cannot be heard Disconnect the outdoor fan motor connector and try to startup Does compressor startup? YES → Replace outdoor fan motor NO → Is power supply voltage OK? NO → Check power supply voltage YES → Is the pressure balance at starting OK? NO → Check refrigerant amount and refrigerant circuit YES → Is the insulation resistance and coil resistance of compressor OK ? NO → Repalce compressor YES → Is power transistor module OK? NO (Inverter PCB is defective) → Replace outdoor control PCB YES → Is the output of inverter checker OK ? NO → Replace outdoor control PCB YES → Try to startup several times Note: Several times restarting may resolve it, because migrated liquid refrigerant in the compressor is discharged from the compressor. Does it start? NO → Repalce compressor </td><td></td></tr> </tbody> </table>	Diagnosis	Countermeasure	Compressor does not start at all. Neither noise nor vibration cannot be heard Disconnect the outdoor fan motor connector and try to startup Does compressor startup? YES → Replace outdoor fan motor NO → Is power supply voltage OK? NO → Check power supply voltage YES → Is the pressure balance at starting OK? NO → Check refrigerant amount and refrigerant circuit YES → Is the insulation resistance and coil resistance of compressor OK ? NO → Repalce compressor YES → Is power transistor module OK? NO (Inverter PCB is defective) → Replace outdoor control PCB YES → Is the output of inverter checker OK ? NO → Replace outdoor control PCB YES → Try to startup several times Note: Several times restarting may resolve it, because migrated liquid refrigerant in the compressor is discharged from the compressor. Does it start? NO → Repalce compressor	
Diagnosis	Countermeasure				
Compressor does not start at all. Neither noise nor vibration cannot be heard Disconnect the outdoor fan motor connector and try to startup Does compressor startup? YES → Replace outdoor fan motor NO → Is power supply voltage OK? NO → Check power supply voltage YES → Is the pressure balance at starting OK? NO → Check refrigerant amount and refrigerant circuit YES → Is the insulation resistance and coil resistance of compressor OK ? NO → Repalce compressor YES → Is power transistor module OK? NO (Inverter PCB is defective) → Replace outdoor control PCB YES → Is the output of inverter checker OK ? NO → Replace outdoor control PCB YES → Try to startup several times Note: Several times restarting may resolve it, because migrated liquid refrigerant in the compressor is discharged from the compressor. Does it start? NO → Repalce compressor					

Note: Insulation resistance

- The unit is left for long period without power supply or soon after installation, migrated liquid refrigerant may dissolve in the refrigerant oil in the compressor. In such case insulation resistance decreases upto several MΩ or lower. If the electric leakage breaker is activated due to low insulation resistance, check followings.
 - Check whehter the insulation resistance can recover or not, ater 6 hours has passed since power ON.
(By energize the crankcase heater, migrated liquid refrigerant in the refrigerant oil in compressor can be evaporated)
 - Check whether the electric leakage breake conforms to high-hermonic specifications
(As units has inverter, in order to prevent from improper operation, be sure to use high-hermonic one.)

Error code	LED	Green	Red	Content
Remote controller: E59	Indoor	Keeps flashing	Stays Off	Compressor startup failure (Model FDC71~250)
	Outdoor	Keeps flashing	5 times flash	

1.Applicable model	5.Troubleshooting
Model FDC71-250	
2.Error detection method	
If it fails to change over to the rotor detection operation of compressor motor (If the compressor speed cannot increase 11Hz or higher)	
3.Condition of Error displayed	
If compressor fails to startup for 20 times (10 patterns x 2 times). (It is available to reset by remote controller after 3 minutes delay)	
4.Presumable cause	
- Faulty outdoor fan motor - Faulty outdoor control PCB - Faulty inverter PCB - Anomalous power supply voltage - Improper refrigerant amount and refrigerant circuit - Faulty compressor (Motor bearing)	Diagnosis Compressor does not start at all. Neither noise nor vibration cannot be heard Disconnect the outdoor fan motor connector and try to startup Does compressor startup? YES → Replace outdoor fan motor NO → Is power supply voltage OK? NO → Check power supply voltage YES → Is the pressure balance at starting OK? NO → Check refrigerant amount and refrigerant circuit YES → Is the insulation resistance and coil resistance of compressor OK? NO → Repalce compressor YES → Is power transistor module OK? NO (Inverter PCB is defective) → Replace inverter PCB * For model 200 and 250, replace the power transistor as well YES → Is it model 200 or 250? YES → After power OFF, turn SW10-4 ON and connect the inverter checker. Then power ON again. NO → Is the output of inverter checker OK? NO → Replace inverter PCB * For model 200 and 250, replace the power transistor as well YES → Try to startup several times Note: Several times restarting may resolve it, because migrated liquid refrigerant in the compressor is discharged from the compressor. Does it start? NO → Repalce compressor

Note: Insulation resistance

- The unit is left for long period without power supply or soon after installation, migrated liquid refrigerant may dissolve in the refrigerant oil in the compressor. In such case insulation resistance decreases upto several MΩ or lower. If the electric leakage breaker is activated due to low insulation resistance, check followings.
 - Check whehter the insulation resistance can recover or not, ater 6 hours has passed since power ON.
(By energize the crankcase heater, migrated liquid refrigerant in the refrigerant oil in compressor can be evaporated)
 - Check whether the electric leakage breake conforms to high-hermonic specifications
(As units has inverter, in order to prevent from improper operation, be sure to use high-hermonic one.)

Error code	LED	Green	Red	Content
Remote controller: E60	Indoor	Keeps flashing	Stays Off	Compressor rotor lock error (Model SRC40~60, FDC200, 250)
	Outdoor	Keeps flashing	1(7) time flash	

Note (1) () is for model 40~60.

1.Applicable model	5.Troubleshooting
Model SRC40~60, FDC 200, 250	Diagnosis
2.Error detection method	Countermeasure
Compressor rotor position	<pre> graph TD Q1{Is the power supply voltage OK?} -- NO --> C1[Check and correct the power supply voltage] Q1 -- YES --> R1[Reset the power supply and restart operation.] R1 --> Q2{Does the compressor start?} Q2 -- NO --> Q3{Does E59 occur?} Q3 -- YES --> C2[Correct it based on the troubleshooting of E59] Q3 -- NO --> Q4{Does the compressor run without occurrence of E42?} Q4 -- NO --> C3[Correct it based on the troubleshooting of E42] Q2 -- YES --> Q5{Is the output from inverter checker OK?} Q5 -- NO --> C4["• Model 40-60 Replace outdoor control PCB. • Model 200-250 Replace inverter PCB and power transistor."] Q5 -- YES --> Q6{Is the noise or vibration of compressor normal?} Q6 -- NO --> C5[Replace compressor.] Q6 -- YES --> Q7{Does it start up normally without recurrence of E60.} Q7 -- NO --> C6[Check compressor for insulation, resistance. Replace compressor if necessary.] Q7 -- YES --> C7[Replace inverter PCB.] </pre>
3.Condition of Error displayed	
If it fails again to detect the rotor position after shifting to the compressor rotor position detection operation, the compressor stops. When it is restart automatically after 3 minutes, it is detected 4 times within 15 minutes.	
4.Presumable cause	
- Defective outdoor fan motor - Defective outdoor control PCB - Defective inverter PCB - Anomalous power supply voltage - Improper refrigerant amount and refrigerant circuit - Defective compressor (motor, bearing)	

Note: Insulation resistance

- The unit is left for long period without power supply or soon after installation, migrated liquid refrigerant may dissolve in the refrigerant oil in the compressor. In such case insulation resistance decreases upto several MΩ or lower. If the electric leakage breaker is activated due to low insulation resistance, check followings.
 - Check whether the insulation resistance can recover or not, after 6 hours has passed since power ON.
(By energize the crankcase heater, migrated liquid refrigerant in the refrigerant oil in compressor can be evaporated)
 - Check whether the electric leakage breaker conforms to high-harmonic specifications
(As units has inverter, in order to prevent from improper operation, be sure to use high-harmonic one.)