3. Self-diagnosis function

Error Indicator

- This function indicates type of failure in self-diagnosis and occurrence of failure for air condition.
- Error mark is displayed on display window of indoor units and wired remote controller, and 7-segment LED of outdoor unit control board as shown in the table.
- If more than two troubles occur simultaneously, low number of error code is first displayed.
- After error occurrence, if error is released, error LED is also released simultaneously.

Error display method

1st and 2nd LED of 7-segment refers to the error number and the 3rd LED refers to the outdoor unit number.
Ex) 011: Error No. 1 of outdoor unit No. 1
011➠051: Error No. 105 of outdoor unit No. 1

	Display number			Error item	Root cause of error
Indoor unit	0	1	-	Indoor unit air temperature sensor error	Indoor unit air temperature sensor disconnection or short circuit
	0	2	-	Indoor unit pipe inlet temperature sensor error	Indoor unit pipe inlet temperature sensor disconnection or short circuit
	0	3	-	Communication error between wired remote controller and indoor unit	Occurs when indoor unit communication signal is not received from the wired remote controller
	0	4	-	Indoor unit drain error	Drain pump and float switch error
	0	5	-	Communication error between outdoor unit and indoor unit	When the indoor unit does not receive the outdoor communication signal continuously for 5 minutes or more
	0	6	-	Indoor unit pipe outlet temperature sensor error	Indoor unit pipe outlet temperature sensor disconnection or short circuit
	0	7	-	Different mode operation	When operated in different operating mode than the one first operated
	0	9	-	Indoor unit EEPROM error	Communication error between MICOM and EEPROM or when there is no indoor unit EEPROM data
	1	0	-	Indoor unit BLDC motor feedback signal error	When motor connector is removed or defective
	1	1	-	Communication error between indoor unit/outdoor unit	When the communication is working but cannot be called from the outdoor unit (must be readdressed)
Outdoor unit	2	1	1	Master outdoor unit inverter compressor IPM fault	Master outdoor unit inverter compressor drive IPM error
	2	1	2	Slave outdoor unit inverter compressor IPM fault	Slave outdoor unit inverter compressor drive IPM error
	2	3	1	Master outdoor unit inverter compressor DC link under-voltage	DC voltage is not charged after master outdoor unit operating relay is turned on
	2	3	2	Slave outdoor unit inverter compressor DC link under-voltage	DC voltage is not charged after slave outdoor unit operating relay is turned on
	2	4	1	Master outdoor unit high pressure switch	Compressor maintenance by master outdoor unit high pressure switch
	2	4	2	Master outdoor unit high pressure switch	Compressor maintenance by slave outdoor unit high pressure switch
	2	5	1	Master outdoor unit input voltage over-voltage/under-voltage	Master outdoor unit input voltage of 487V or above or 270V or less
	2	5	2	Slave outdoor unit input voltage over-voltage/under-voltage	Slave outdoor unit input voltage of 487V or above or 270V or less
	2	6	1	Master outdoor unit inverter compressor operation failure error	Initial operation failure due to master outdoor unit inverter compressor error
	2	6	2	Slave outdoor unit inverter compressor operation failure error	Initial operation failure due to slave outdoor unit inverter compressor error
	2	8	1	Master outdoor unit inverter DC link over-voltage error	Compressor turned Off due to master outdoor unit inverter DC voltage over-charge

	Display number			Error item	Root cause of error
Outdoor unit	2	8	2	Slave outdoor unit inverter DC link over-voltage error	Compressor turned Off due to slave outdoor unit inverter DC voltage over-charge
	2	9	1	Master outdoor unit inverter compressor over-current	Master outdoor unit inverter compressor error or operating component (IPM) error operation
	2	9	2	Slave outdoor unit inverter compressor over-current	Slave outdoor unit inverter compressor error or operating component (IPM) error operation
	3	1	1	Master outdoor unit inverter CT under-current error	Compressor turned off due to master outdoor unit inverter CT under-current
	3	1	2	Slave outdoor unit inverter CT under-current error	Compressor turned off due to slave outdoor unit inverter CT under-current
	3	2	1	Master outdoor unit inverter compressor discharge temperature over-rise	Compressor turned off due to master outdoor unit inverter compressor discharge temperature over-rise
	3	2	2	Slave outdoor unit inverter compressor discharge temperature over-rise	Compressor turned off due to slave outdoor unit inverter compressor discharge temperature over-rise
	3	3	1	Master outdoor unit static speed compressor discharge temperature over-rise	Compressor turned off due to master outdoor unit static speed compressor discharge temperature over-rise
	3	3	2	Slave outdoor unit static speed compressor discharge temperature over-rise	Compressor turned off due to slave outdoor unit static speed compressor discharge temperature over-rise
	3	4	1	Master outdoor unit high pressure over-rise	Compressor turned off due to master outdoor unit high pressure over-rise
	3	4	2	Slave outdoor unit high pressure over-rise	Compressor turned off due to slave outdoor unit high pressure over-rise
	3	5	1	Master outdoor unit low pressure over-drop.	Compressor turned off due to master outdoor unit low pressure over-drop.
	3	5	2	Slave outdoor unit low pressure over-drop.	Compressor turned off due to slave outdoor unit low pressure over-drop.
	4	0	1	Master outdoor unit inverter compressor CT sensor error	Master outdoor unit inverter compressor current detection (CT) sensor disconnection or short circuit
	4	0	2	Slave outdoor unit inverter compressor CT sensor error	Slave outdoor unit inverter compressor current detection (CT) sensor disconnection or short circuit
	4	1	1	Master outdoor unit inverter compressor discharge temperature sensor error	Master outdoor unit inverter compressor discharge temperature sensor disconnection or short circuit
	4	1	2	Slave outdoor unit inverter compressor discharge temperature sensor error	Slave outdoor unit inverter compressor discharge temperature sensor disconnection or short circuit
	4	2	1	Master outdoor unit under-voltage sensor error	Master outdoor unit under-voltage sensor disconnection or short circuit
	4	2	2	Slave outdoor unit under-voltage sensor error	Slave outdoor unit under-voltage sensor disconnection or short circuit
	4	3	1	Master outdoor unit over-voltage sensor error	Master outdoor unit over-voltage sensor disconnection or short circuit
	4	3	2	Slave outdoor unit over-voltage sensor error	Slave outdoor unit over-voltage sensor disconnection or short circuit
	4	4	1	Master outdoor unit air temperature sensor error	Master outdoor unit air temperature sensor disconnection or short circuit
	4	4	2	Slave outdoor unit air temperature sensor error	Slave outdoor unit air temperature sensor disconnection or short circuit
	4	5	1	Master outdoor unit heat exchange temperature sensor (A) error	Master outdoor unit heat exchange temperature sensor (A) disconnection or short circuit
	4	5	2	Slave outdoor unit heat exchange temperature sensor (A) error	Slave outdoor unit heat exchange temperature sensor (A) disconnection or short circuit
	4	6	1	Master outdoor unit suction temperature sensor error	Master outdoor unit suction temperature sensor disconnection or short circuit
	4	6	2	Slave outdoor unit suction temperature sensor error	Slave outdoor unit suction temperature sensor disconnection or short circuit
	4	7	1	Master outdoor unit static speed compressor discharge temperature sensor error	Master outdoor unit static speed compressor discharge temperature sensor disconnection or short circuit
	4	7	2	Slave outdoor unit static speed compressor discharge temperature sensor error	Slave outdoor unit static speed compressor discharge temperature sensor disconnection or short circuit

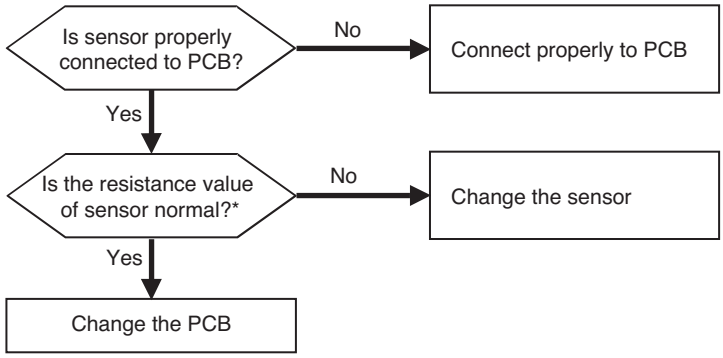
	Display number	Error item	Root cause of error
Outdoor unit	4 8 1	Master outdoor unit static speed compressor discharge temperature sensor error	Master outdoor unit static speed compressor discharge temperature sensor disconnection or short circuit
	4 8 2	Slave outdoor unit static speed compressor discharge temperature sensor error	Slave outdoor unit static speed compressor discharge temperature sensor disconnection or short circuit
	5 0 1	Master outdoor unit 3 phase power missing	Master outdoor unit power line phase missing
	5 0 2	Slave outdoor unit 3 phase power missing	Slave outdoor unit power line phase missing
	5 1 -	Over-capacity (Indoor unit capacity sum is excessive) connection	Excessive connection of indoor unit connection display value (Different from outdoor unit)
	5 2 1	Communication error with master outdoor unit inverter controller	When the inverter controller signal is not received from the master outdoor unit inverter controller
	5 2 2	Communication error with slave outdoor unit inverter controller	When the inverter controller signal is not received from the slave outdoor unit inverter controller
	5 3 -	Communication error with master outdoor unit controller and indoor unit	When the indoor unit control signal is not received from the master outdoor unit controller
	5 4 1	Master outdoor unit 3 phase power reverse phase	Master outdoor unit 3 phase power reverse phase connection
	5 4 2	Slave outdoor unit 3 phase power reverse phase	Slave outdoor unit 3 phase power reverse phase connection
	6 0 1	Master outdoor unit inverter PCB EEPROM error	Master outdoor unit inverter PCB EEPROM ACCESS error
	6 0 2	Slave outdoor unit inverter PCB EEPROM error	Slave outdoor unit inverter PCB EEPROM ACCESS error
	7 0 1	Master outdoor unit static speed CT sensor error	Master outdoor unit static speed CT sensor disconnection or short circuit
	7 0 2	Slave outdoor unit static speed CT sensor error	Slave outdoor unit static speed CT sensor disconnection or short circuit
	7 3 1	Master outdoor unit inverter PCB input instant over-current (Peak)	Master outdoor unit inverter PCB input instant over-current (Peak) exceeded
	7 3 2	Slave outdoor unit inverter PCB input instant over-current (Peak)	Slave outdoor unit inverter PCB input instant over-current (Peak) exceeded
	7 4 1	Master outdoor unit inverter PCB phase imbalance	When the master outdoor unit inverter PCB input current is different
	7 4 2	Slave outdoor unit inverter PCB phase imbalance	When the slave outdoor unit inverter PCB input current is different
	8 6 1	Master outdoor unit master PCB EEPROM error	Communication error between master outdoor unit master MICOM and EEPROM or EEPROM missing
	8 6 2	Slave outdoor unit master PCB EEPROM error	Communication error between slave outdoor unit master MICOM and EEPROM or EEPROM missing
	1 0 4 1	Communication error between master outdoor unit and outdoor unit	When signal from slave outdoor unit is not received from master outdoor unit master MICOM
	1 0 4 2	Communication error between slave outdoor unit and outdoor unit	When signal from slave outdoor unit is not received from slave outdoor unit master MICOM
	1 1 3 1	Master outdoor unit liquid pipe temperature sensor error	Master outdoor unit liquid pipe temperature sensor disconnection or short circuit
	1 1 3 2	Slave outdoor unit liquid pipe temperature sensor error	Slave outdoor unit liquid pipe temperature sensor disconnection or short circuit
	1 1 4 1	Master outdoor unit over-cooling inlet temperature sensor error	Master outdoor unit over-cooling inlet temperature sensor disconnection or short circuit
	1 1 4 2	Slave outdoor unit over-cooling inlet temperature sensor error	Slave outdoor unit over-cooling inlet temperature sensor disconnection or short circuit
	1 1 5 1	Master outdoor unit over-cooling outlet temperature sensor error	Master outdoor unit over-cooling outlet temperature sensor disconnection or short circuit
	1 1 5 2	Slave outdoor unit over-cooling outlet temperature sensor error	Slave outdoor unit over-cooling outlet temperature sensor disconnection or short circuit

	Display number				Error item	Root cause of error
Outdoor unit	1	5	1	-	Outdoor unit 4 way valve switch failure	Outdoor unit 4 way valve switch error
	1	7	3	1	Master outdoor unit static speed compressor error	Master outdoor unit static speed compressor burn, locking and over-current
	1	7	3	2	Slave outdoor unit static speed compressor error	Slave outdoor unit static speed compressor burn, locking and over-current
	1	8	0	-	Plate type heat exchanger freeze prevention	Plate type heat exchanger freeze prevention error
	1	8	1	-	Water temperature sensor error	Water temperature sensor open/short
	1	8	2	-	Communication error between MICOMs	Communication error between main MICOM and sub MICOM

■ **Refer to the troubleshooting guide of service technical manual for each error.**

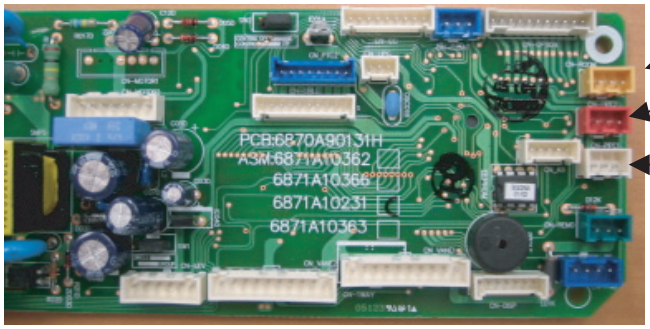
Error No.	Error Type	Error Point	Main Reasons
01	Indoor unit air sensor error	Indoor unit sensor is open/short	1. Indoor unit PCB wrong connection 2. Indoor unit PCB failure 3. Sensor problem (main reason)
02	Indoor unit pipe inlet sensor error		
06	Indoor unit pipe outlet sensor error		

■ Error diagnosis and countermeasure flow chart



** In case the value is more than 100kΩ (open) or less than 100Ω (short), Error occurs

Refer: Resistance value maybe change according to temperature of temp sensor,
It shows according to criteria of current temperature(±5% margin) ➔ Normal
Air temp sensor: 10°C = 20.7kΩ : 25°C= 10kΩ : 50°C= 3.4kΩ
Pipe temp sensor: 10°C = 10kΩ : 25°C= 5kΩ : 50°C= 1.8kΩ



CN-ROOM : Indoor air temp sensor

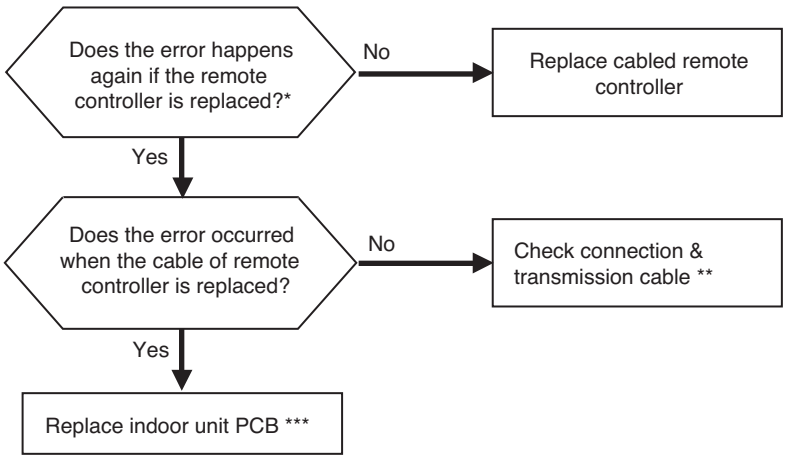
CN-PIPE2 : Pipe outlet temp sensor

CN-PIPE1 : Pipe inlet temp sensor

Measure the resistance of outlet pipe temp sensor.

Error No.	Error Type	Error Point	Main Reasons
03	No transmission between cabled remote controller & indoor unit	The remote controller did not receive the signal from indoor unit during specific time	1. Remote controller fault 2. Indoor unit PCB fault 3. Connector fault, Wrong connection 4. transmission cable problem

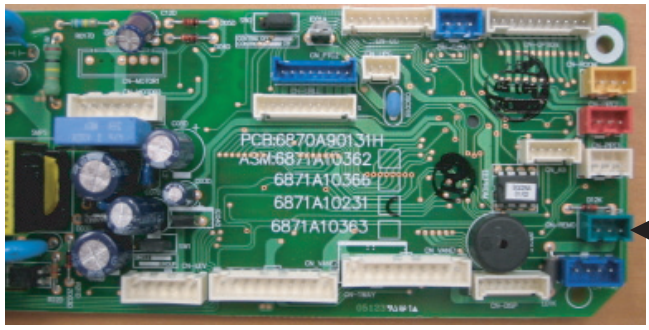
■ Error diagnosis and countermeasure flow chart



* If there is no remote controller to replace : Use another unit's remote controller doing well

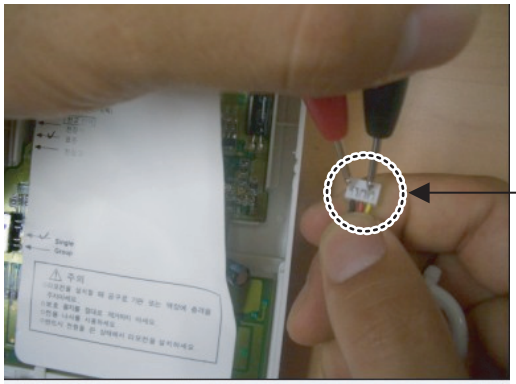
** Check cable : Contact failure of connected portion or extension of cable are main cause
Check any surrounded noise (check the distance with main power cable)
➔ make safe distance from the devices generate electromagnetic wave

*** After replacing indoor unit PCB, do Auto Addressing & input unit's address if connected to central controller.
(All the indoor units connected should be turned on before Auto Addressing



CN-REMO : Remote controller connection

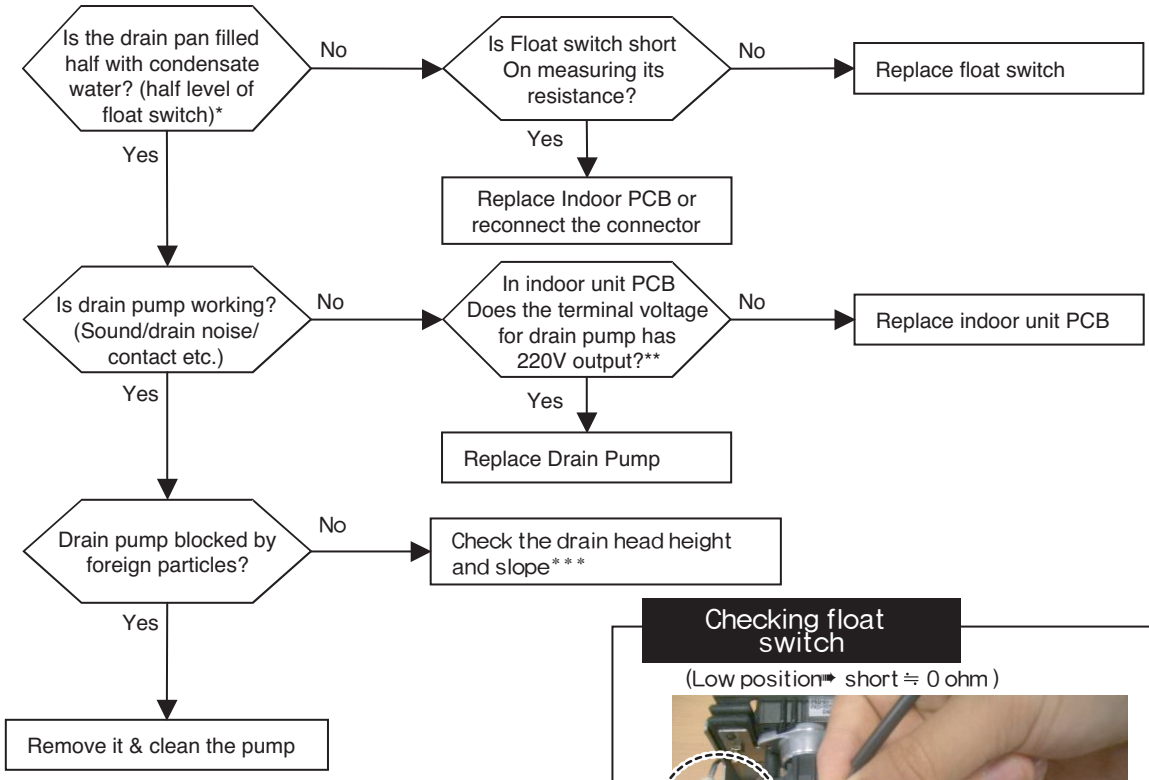
※ The PCB can differ from model to model.
Check from the right source.



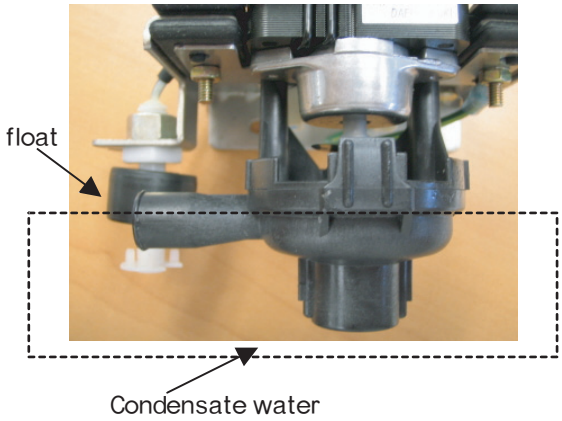
Checking transmission cable connection status

Error No.	Error Type	Error Point	Main Reasons
04	Drain pump error	Float switch is open due to rising of condensate water level because of drain pump fault or drain pipe clogging	1. Drain pump/float switch fault 2. Improper drain pipe location, clogging of drain pipe 3. Indoor unit PCB fault

■ Error diagnosis and countermeasure flow chart



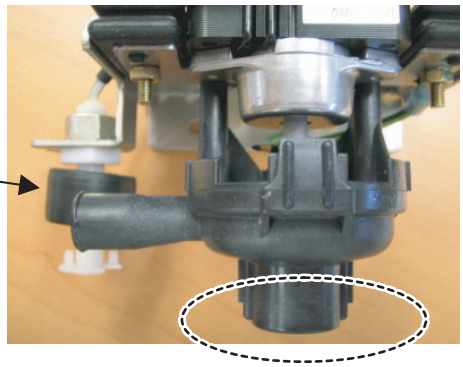
* If the float goes up higher than a half of float switch then the circuit is open & the unit is stopped automatically.



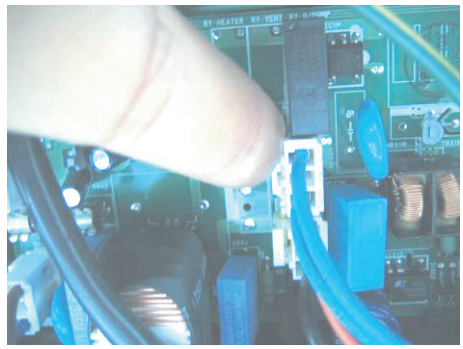
Checking float switch

(Low position➠ short ≒ 0 ohm)

(High position➠ Open)



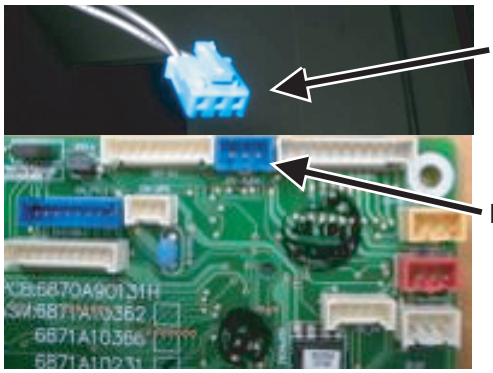
A:Point to check rotating



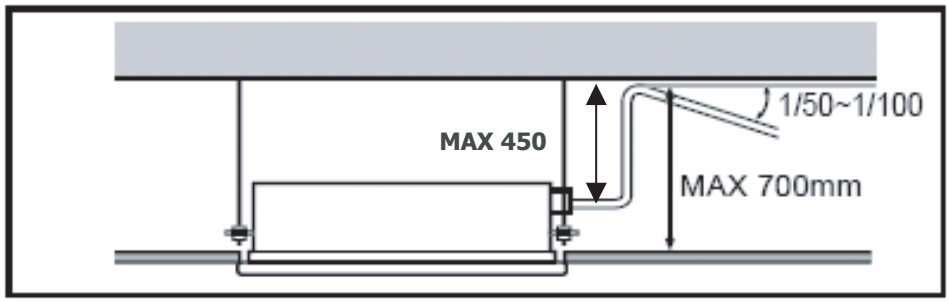
*** Indoor PCB drain pump connector

(Check input of 220V)

(Marked as **CN-DPUMP)**

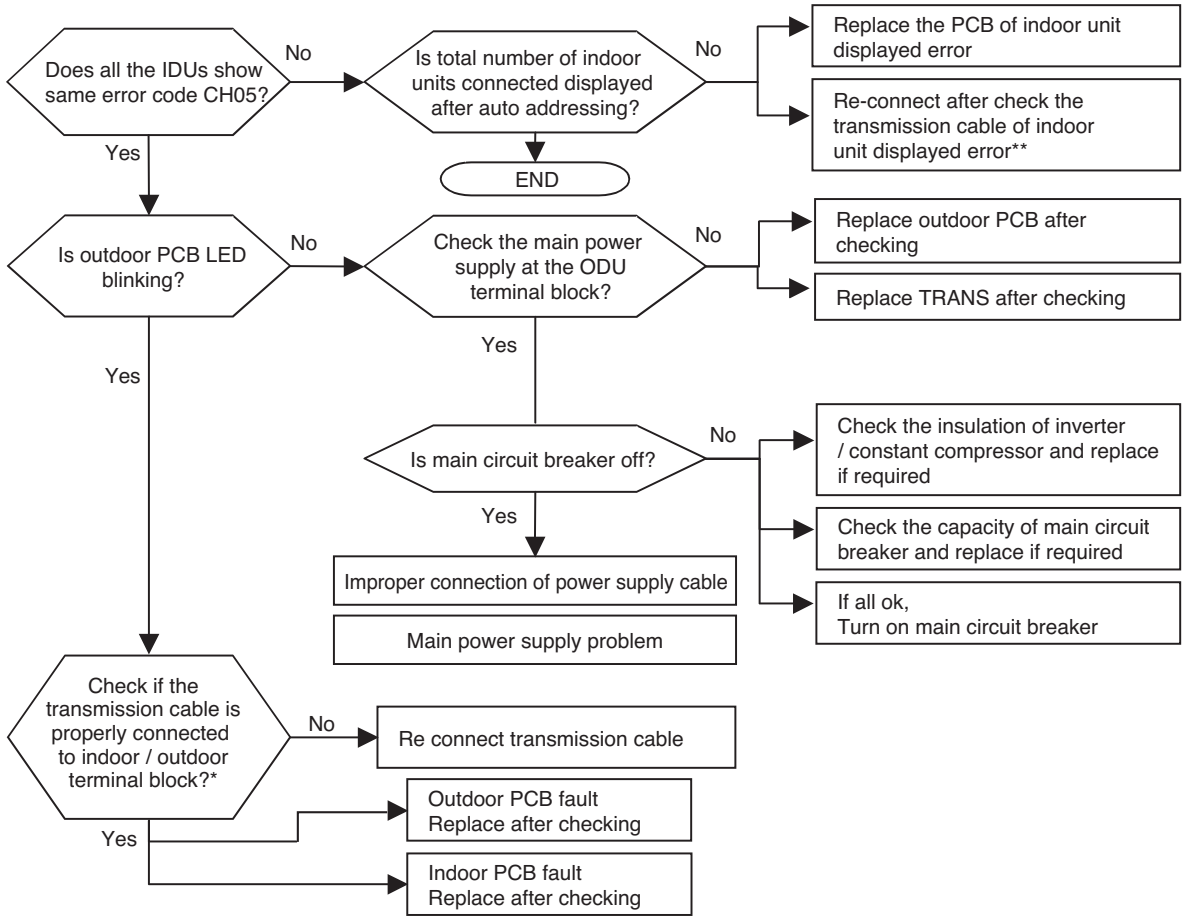


[***] Standard of drain pipe head height / slope

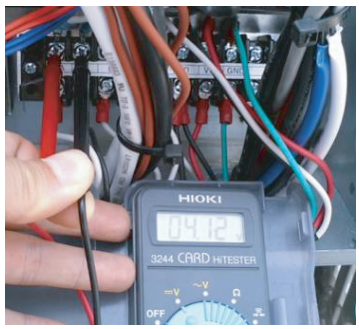


Error No.	Error Type	Error Point	Main Reasons
05	Indoor & Outdoor unit transmission error	No signal transmission between indoor & outdoor units.	1. Auto addressing is not done 2. transmission cable is not connected 3. Short circuit of transmission cable 4. Indoor unit transmission circuit fault 5. Outdoor unit transmission circuit fault 6. Not enough distance between power and transmission cable?

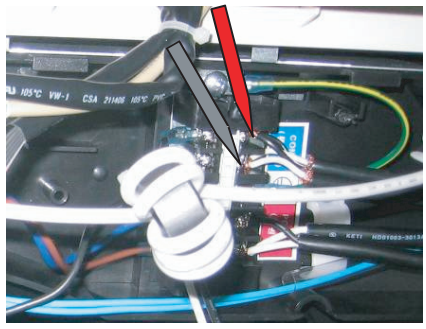
■ Error diagnosis and countermeasure flow chart



* (Note1) Transmission from IDU is normal if voltage fluctuation(-9V ~ +9V) exists when checking DC voltage of communication terminal between IDU and ODU



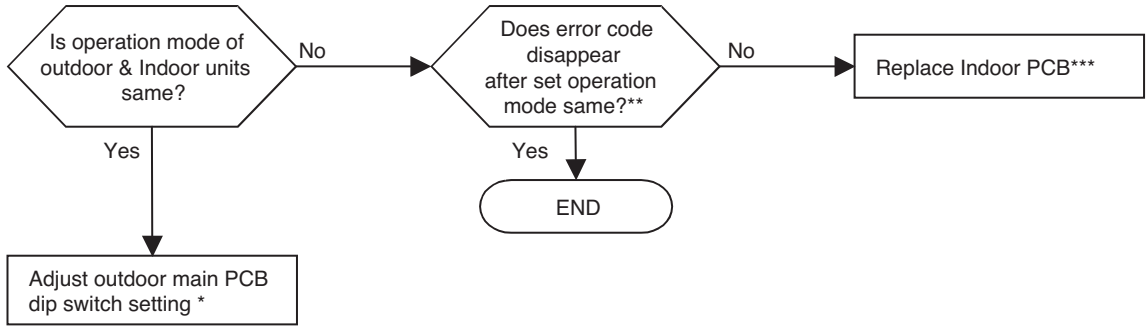
* If the DC voltage between transmission terminal A, B of indoor unit is fluctuate within (-9V~+9V) then transmission from outdoor unit is normal



Error No.	Error Type	Error Point	Main Reasons
06	Indoor unit outlet pipe temperature sensor error	Indoor unit outlet pipe temperature sensor open or short	Refer to CH02

Error No.	Error Type	Error Point	Main Reasons
07	All Indoor units are not running in same mode	The Indoor units started later are operated in different mode from earlier one.	1. Indoor units are in different mode 2. PCB fault 3. cabled remote controller fault ※ Checking ch07 method IDU doesn't operate as Operation mode is flickering at IDU wired remote controller and IDU display window.

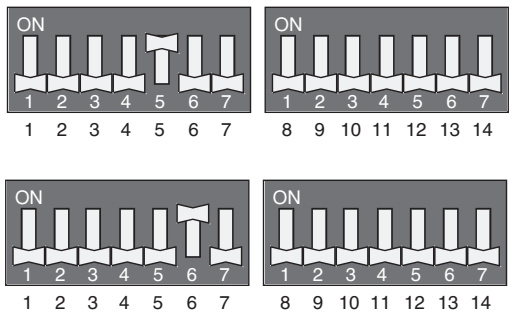
■ Error diagnosis and countermeasure flow chart



* Check mode selection setting of wired remote controller.

** Outdoor main PCB dip switch no.5 (Cooling) or no.6 (heating) is in On, different mode operation error may occur because the operation mode is fixed by dip switch setting.

♦ Dip switch Setting ♦



*** Dissolution method CH07 with remote controller

1) Error removal method : Turn off remote controller by pressing the On/Off button on the cabled remote controller. The error code will be removed automatically after few seconds.
With cableless remote controller: Turn off indoor unit, and then turn on by changing the operation mode. The error will disappear.

**** After replacing the indoor unit PCB, make sure to be done to do Auto addressing and input the address of central control

***** If ODU Dry Contact function is set , different mode operation error may be occurred because the operation mode is fixed.

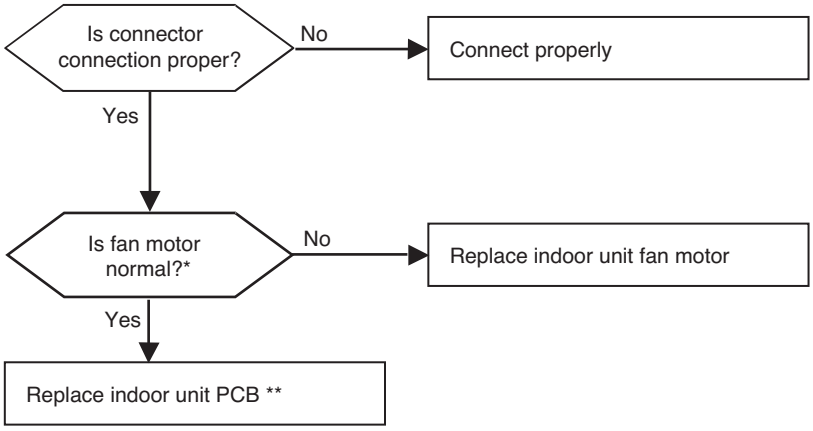
Error No.	Error Type	Error Point	Main Reasons
09	Indoor unit EEPROM error		1. Error developed in transmission between the micro- processor and the EEPROM on the surface of the PCB. 2. ERROR due to the EEPROM damage

■ Error diagnosis and countermeasure flow chart

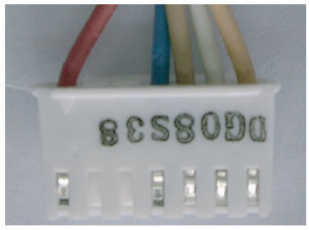
- Replace the indoor unit PCB, and then make sure to perform Auto addressing and input the address of central control

Error No.	Error Type	Error Point	Main Reasons
10	Indoor unit BLDC fan motor failure	Indoor BLDC fan motor feedback signal is absent (for 50 sec.)	1. Motor connector connection fault 2. Indoor PCB fault 3. Motor fault

■ Error diagnosis and countermeasure flow chart



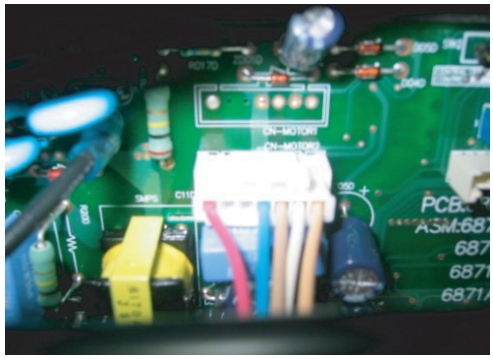
* It is normal when check hall sensor of indoor fan motor as shown below



Each termainl with the tester

Tester		Normal resistance(±10%)	
+	-	TH chassis	TD chassis
①	④	∞	∞
⑤	④	hundreds kΩ	hundreds kΩ
⑥	④	∞	∞
⑦	④	hundreds kΩ	hundreds kΩ

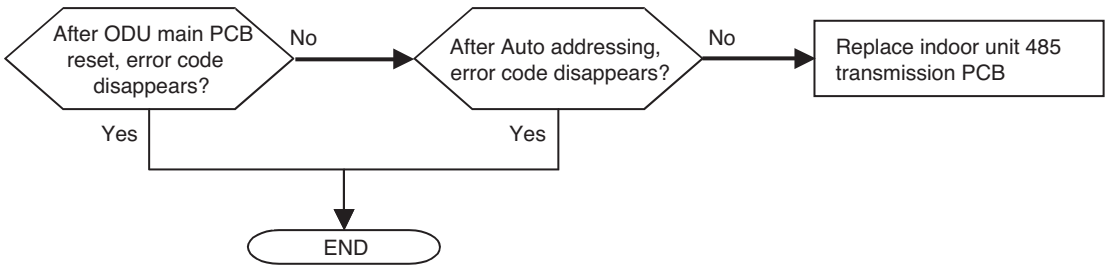
<Checking connection state of fan motor connector>



** Replace the indoor unit PCB, and then make sure to do Auto addressing and input the address of central control
(Notice: The connection of motor connector to PCB should be done under no power supplying to PCB)

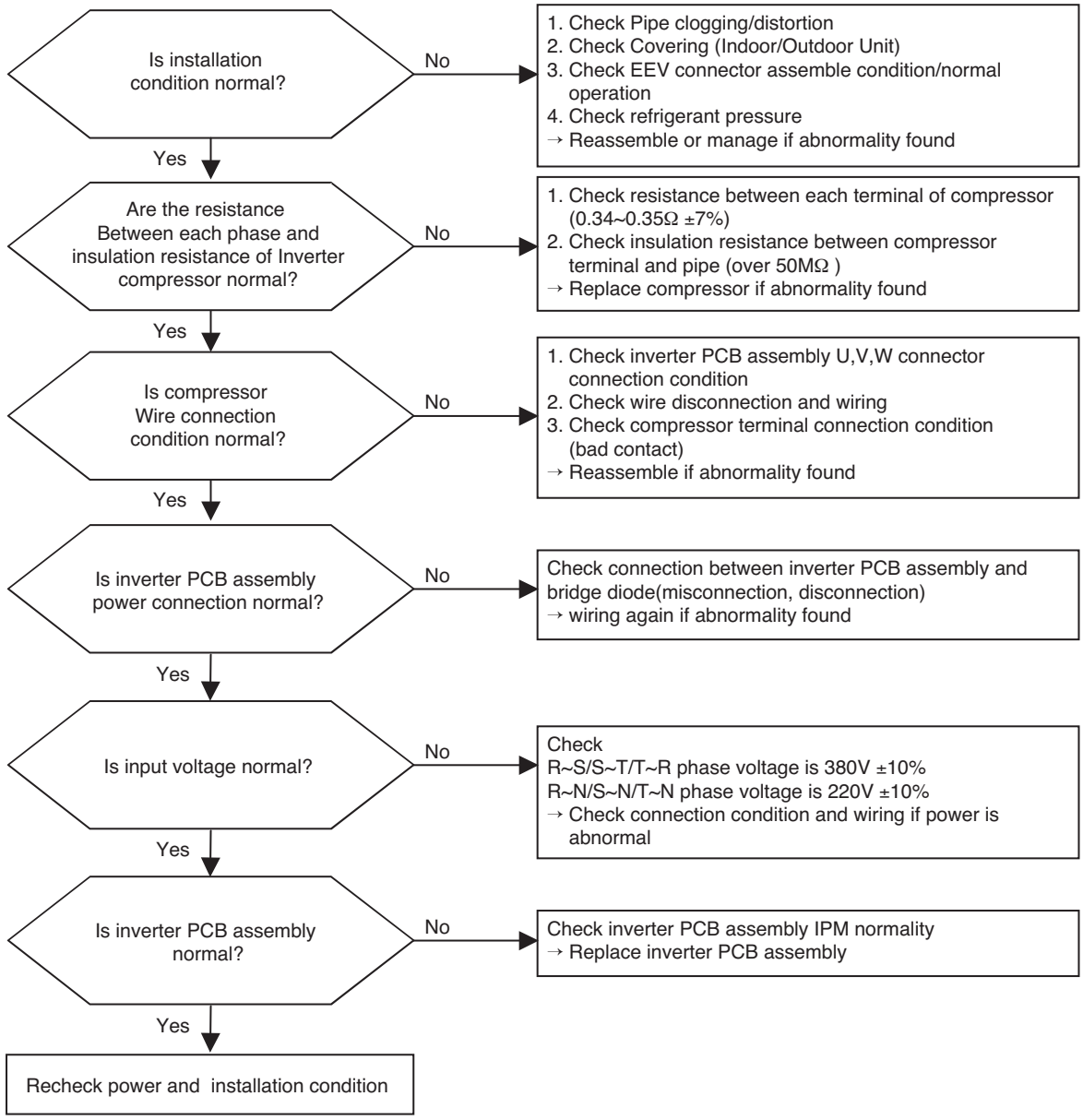
Error No.	Error Type	Error Point	Main Reasons
11	Indoor unit transmission error	Indoor unit doesn't get signal from ODU for 3 minutes continuously	1. Indoor 485 transmission PCB fault 2. After PCB replacing, auto addressing was not done

■ Error diagnosis and countermeasure flow chart



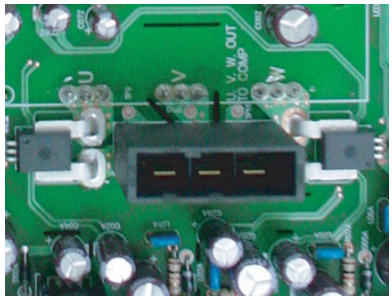
Error No.	Error Type	Error Point	Main Reasons
22* Master 221 Slave1 222	AC Input Current Over Error	Inverter PCB Assembly input 3 phase power current is over limited value(22A)	1. Overload operation (Pipe clogging/Covering/EEV defect/Ref. overcharge) 2. Compressor damage(Insulation damage/Motor damage) 3. Input voltage low 4. Power Line Misconnection 5. Inverter PCB Assembly damage (Input current sensing part)

■ Error Diagnosis and Countermeasure Flow Chart

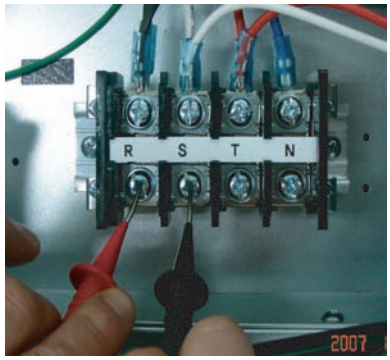


* Measuring resistance between each terminal of compressor

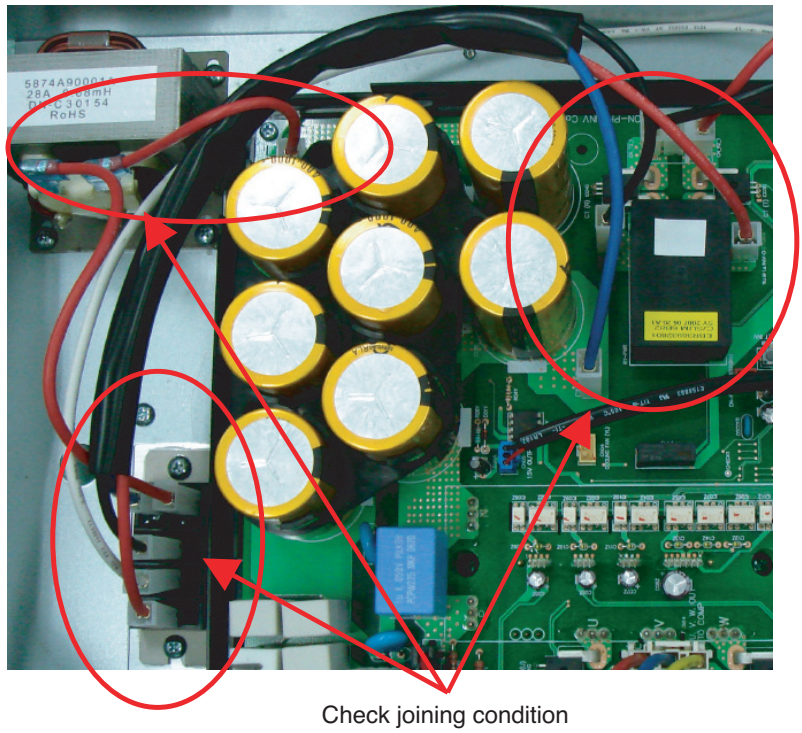
* Compressor wire connector connection



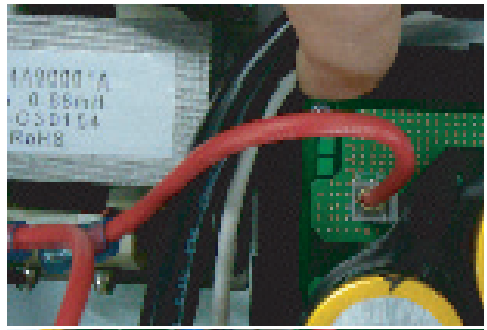
* Measuring input voltage



* Inverter PCB & bridge diode wiring

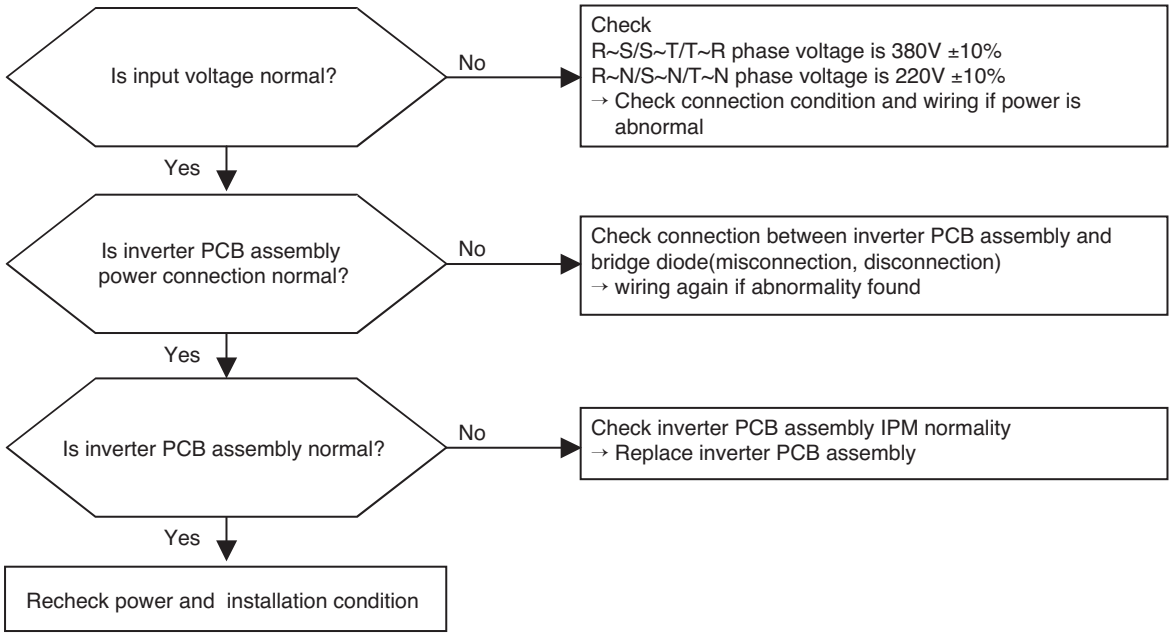


Check joining condition

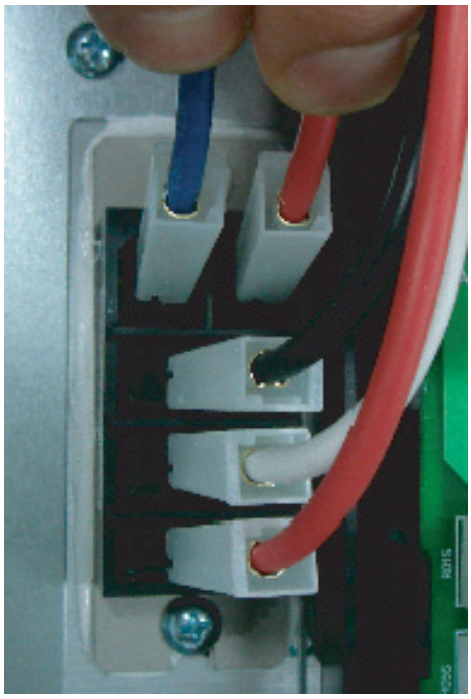


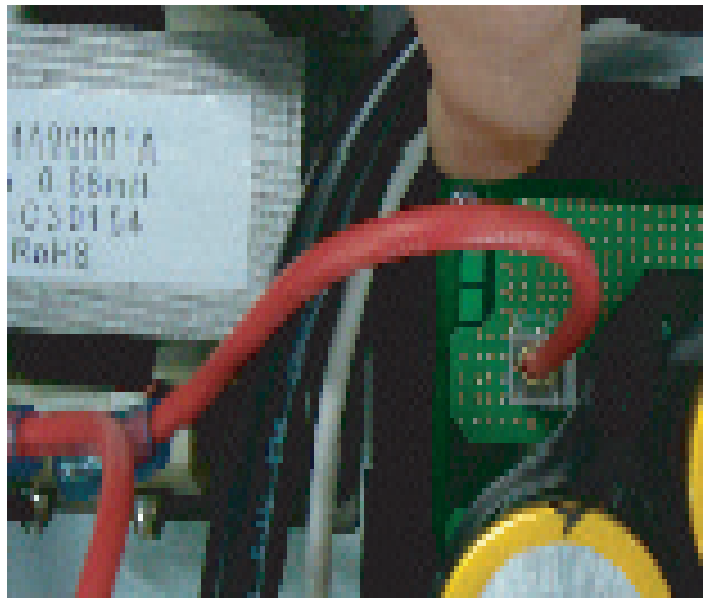
Error No.	Error Type	Error Point	Main Reasons
23* Master 231 Slave1 232	Inverter Compressor DC Link Low Voltage	DC Voltage isn't charged after starting relay on	1. DC Link terminal misconnection/terminal contact fault 2. Starting relay damage 3. Condenser damage 4. Inverter PCB assembly damage (DC Link voltage sensing part) 5. Input voltage low

■ Error Diagnosis and Countermeasure Flow Chart

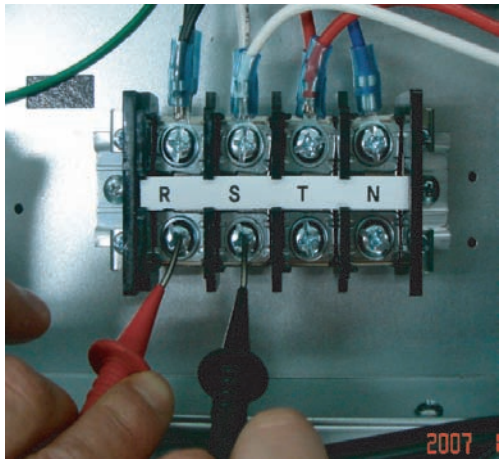


* Inverter PCB & bridge diode wiring



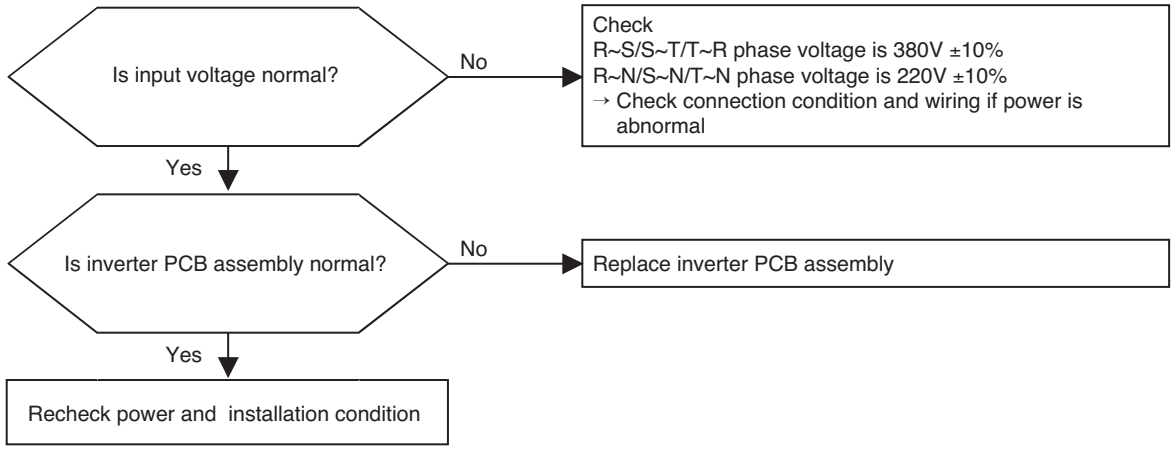


* Measuring input voltage

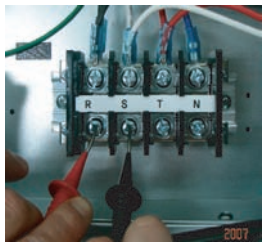


Error No.	Error Type	Error Point	Main Reasons
25* Master 251 Slave1 252	Input Voltage high/low	Input voltage is over limited value of the product (173V or less, 289V or more)	1. Input voltage abnormal (T-N) 2. Outdoor unit inverter PCB assembly damage (input voltage sensing part)

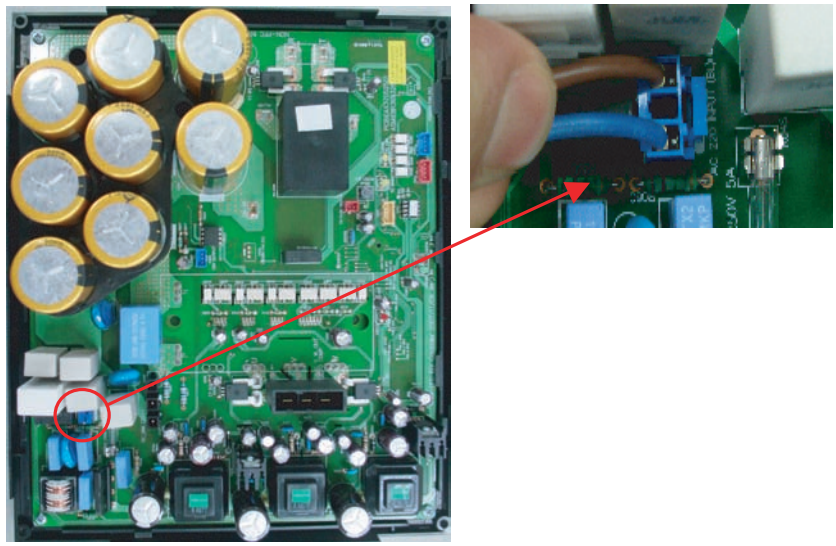
■ Error Diagnosis and Countermeasure Flow Chart



* Measuring input voltage

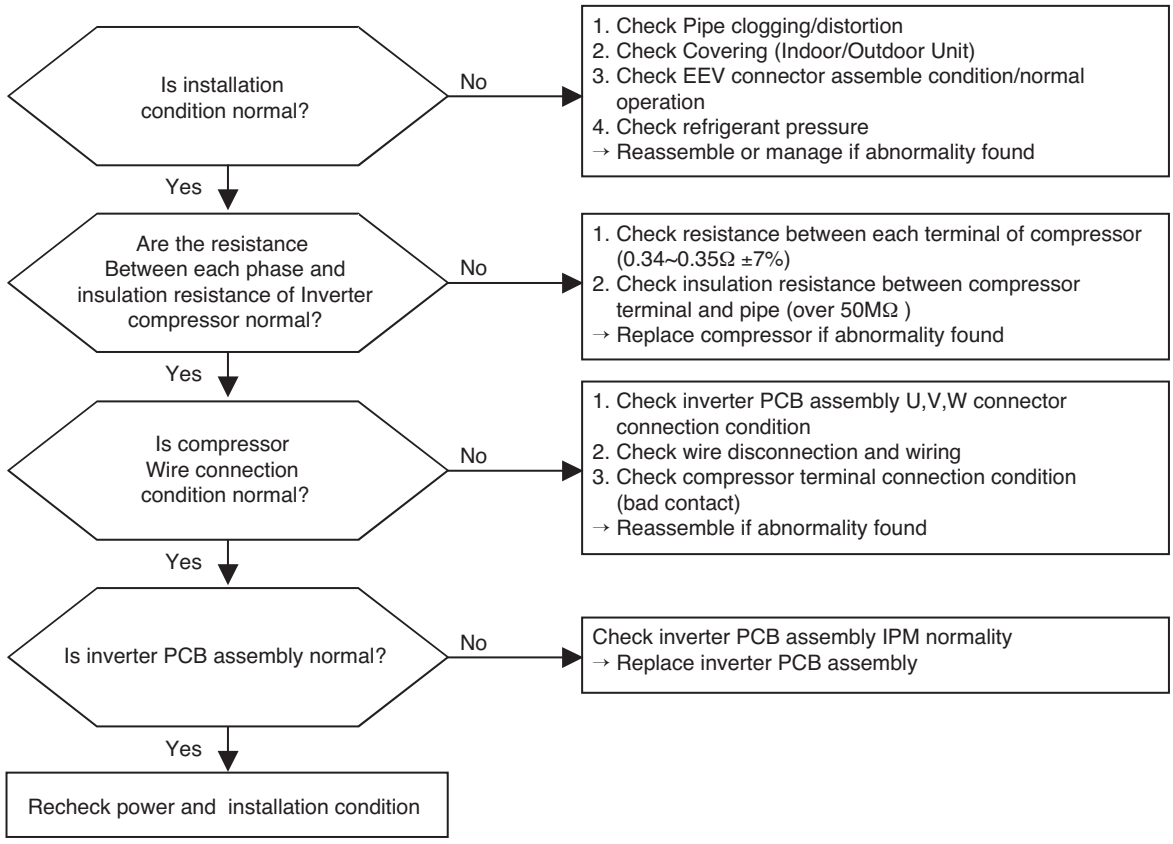


* Inverter PCB assembly power wiring



Error No.	Error Type	Error Point	Main Reasons
26* Master 261 Slave1 262	Inverter compressor starting failure Error	Starting failure because of compressor abnormality	1. Overload operation (Pipe clogging/Covering/EEV defect/Ref. overcharge) 2. Compressor damage (Insulation damage/Motor damage) 3. Compressor wiring fault 4. ODU inverter PCB damage (CT)

■ Error Diagnosis and Countermeasure Flow Chart

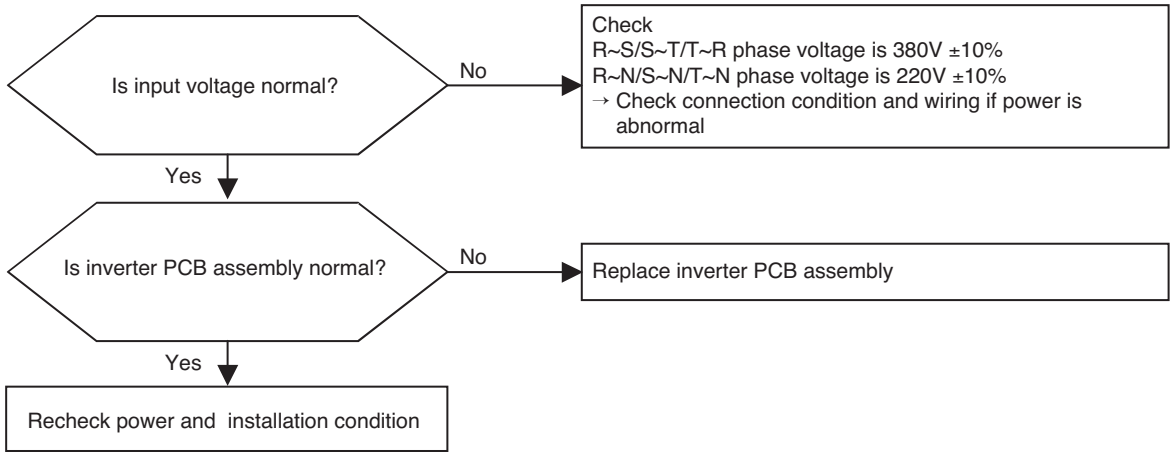


* Measuring resistance between each terminal of compressor

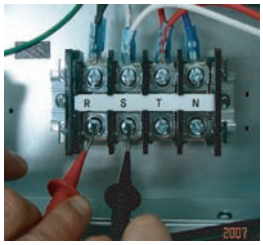
* Compressor wire connection

Error No.	Error Type	Error Point	Main Reasons
28* Master 281 Slave1 282	Inverter DC link high voltage error	Inv PCB DC link voltage supplied over 780V	1. Input voltage abnormal (R,S,T,N) 2. ODU inverter PCB damage (DC Link voltage sensing part)

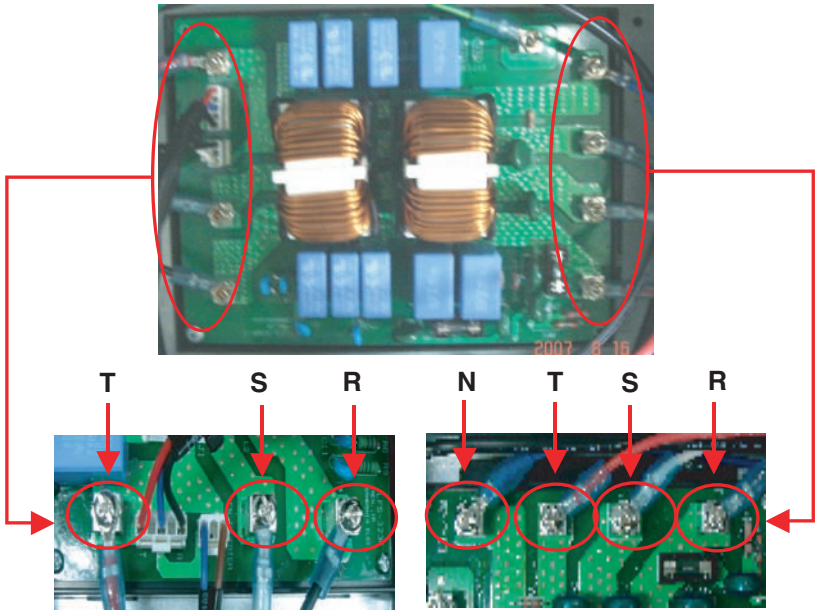
■ Error Diagnosis and Countermeasure Flow Chart



* Measuring input voltage



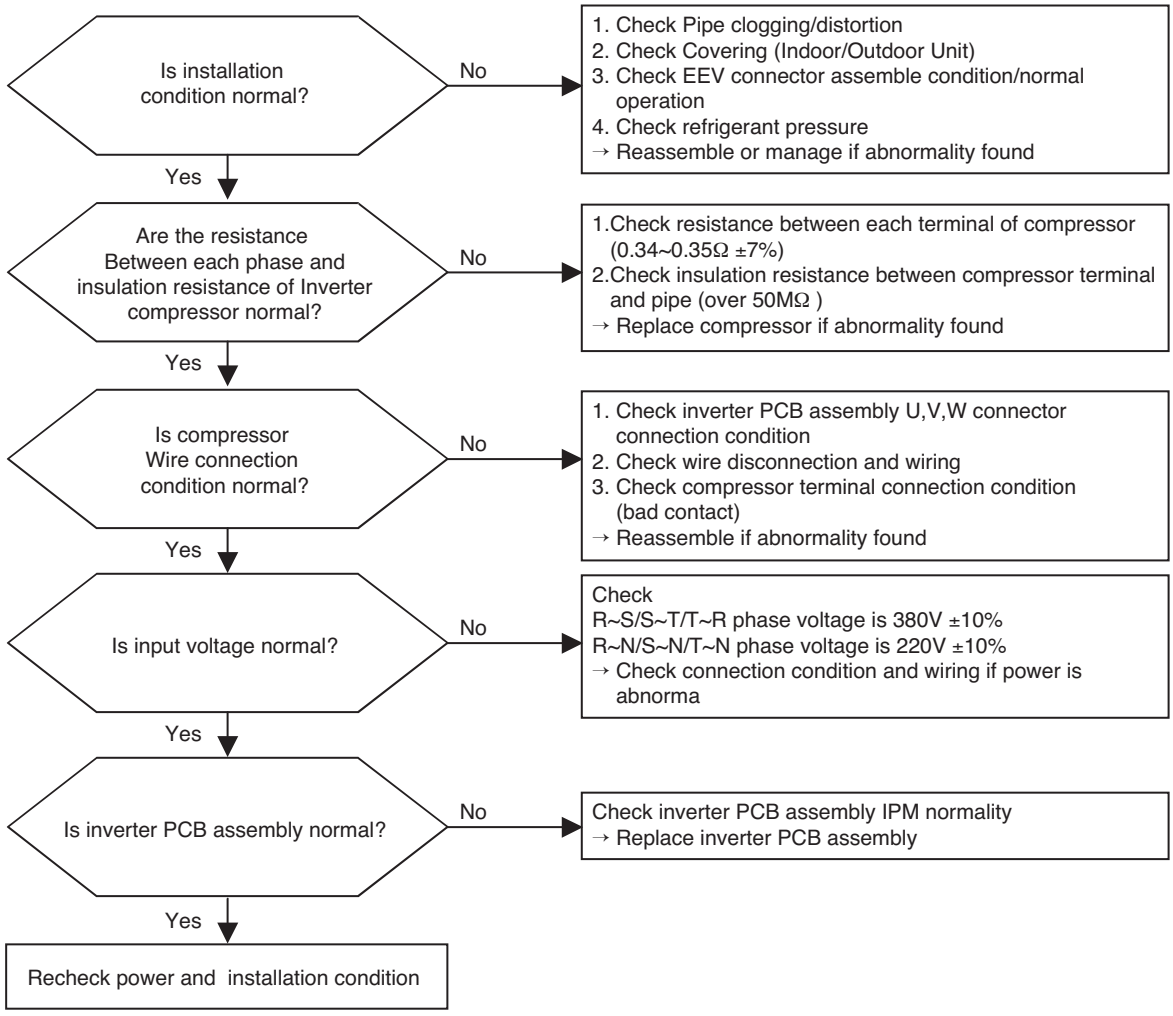
* Noise filter wiring



Noise filter output(lower part) Noise filter input (upper part)

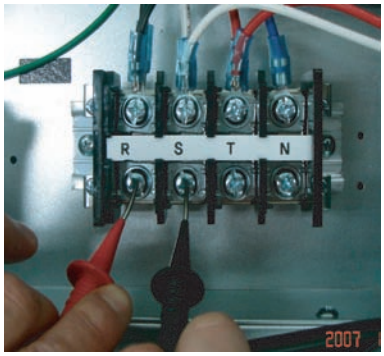
Error No.	Error Type	Error Point	Main Reasons
29* Master 291 Slave1 292	Inverter compressor over current	Inverter compressor input current is over 30A	1. Overload operation (Pipe clogging/Covering/EEV defect/Ref. overcharge) 2. Compressor damage(Insulation damage/Motor damage) 3. Input voltage low 4. ODU inverter PCB assembly damage

■ Error Diagnosis and Countermeasure Flow Chart

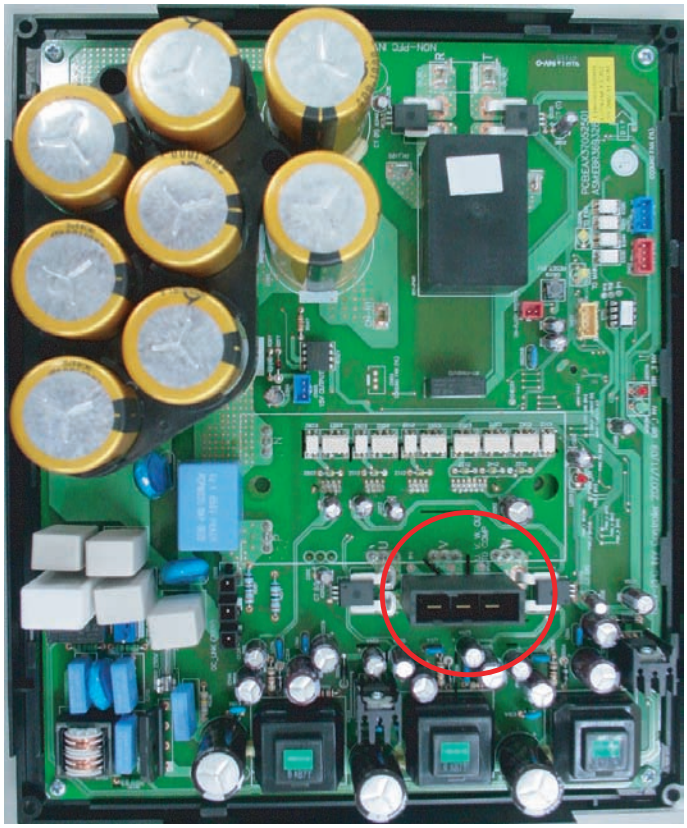


*** Measuring resistance between each terminal of compressor**

*** Measuring input voltage**

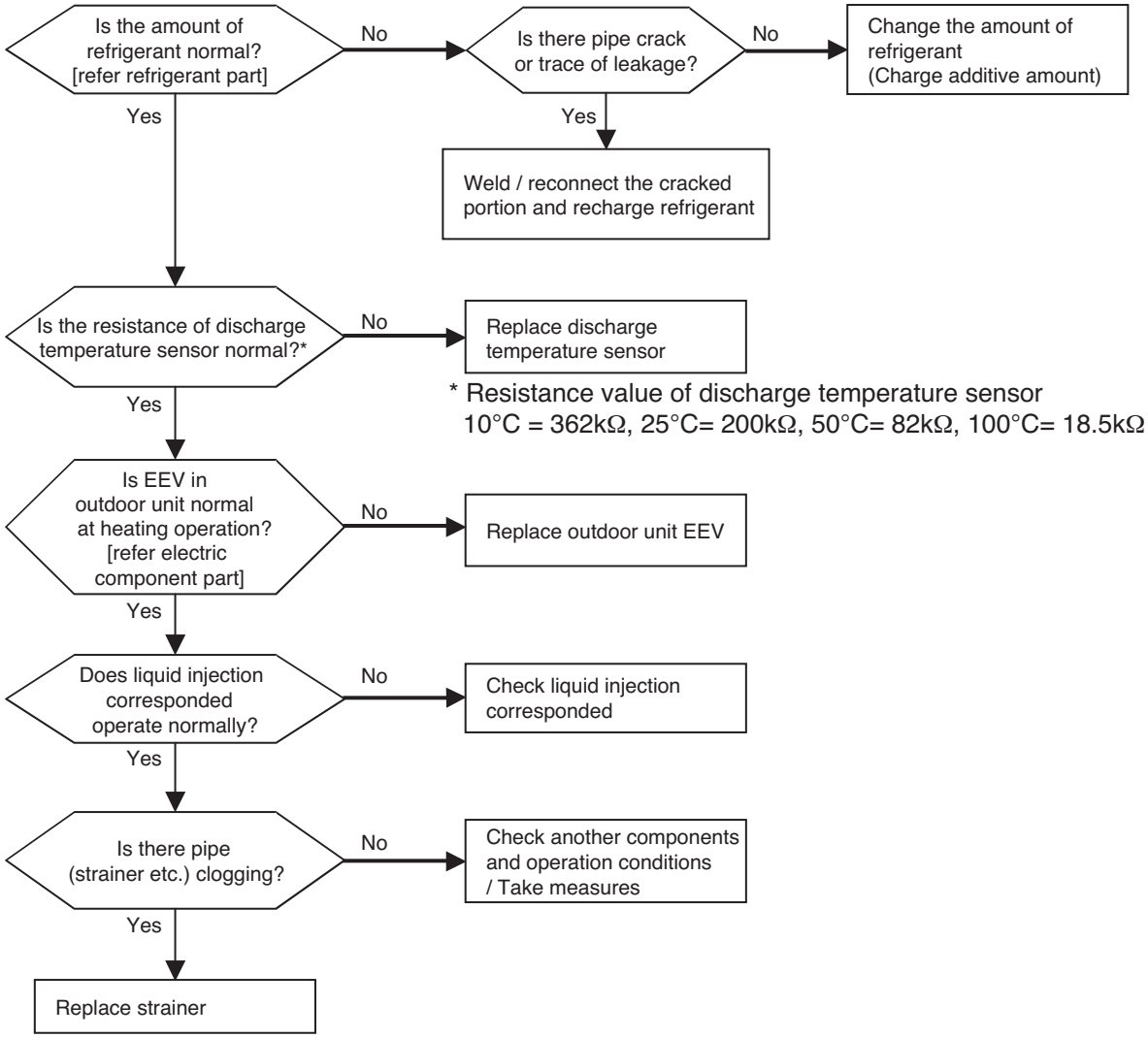


*** Compressor wire connection**



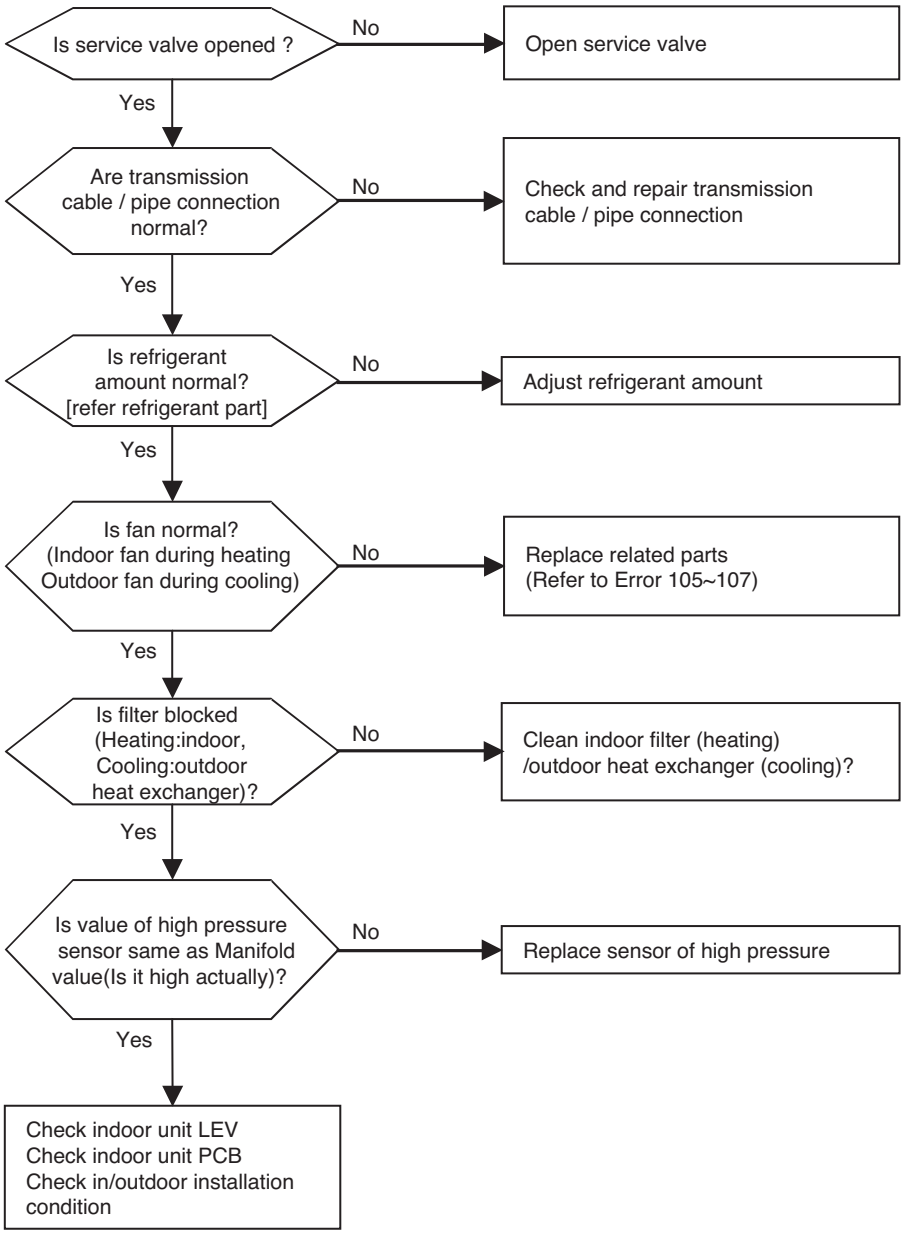
Error No.	Error Type	Error Point	Main Reasons
32* Master 321 Slave1 322	Over-increase discharge temperature of inverter compressor at main outdoor unit	Compressor is off because of over-increase discharge temperature of inverter compressor	1. Temperature sensor defect of inverter compressor discharge pipe 2. Refrigerant shortage / leak 3. EEV defect 4. Liquid injection valve defect
33* Master 331 Slave1 332	Over-increase discharge temperature of constant compressor at main constant outdoor and sub constant outdoor unit	Compressor is off because of over-increase discharge temperature of constant compressor at main and sub outdoor unit	1. Temperature sensor defect of constant compressor discharge pipe? 2. Refrigerant shortage/leak 3. EEV defect 4. Liquid injection valve defect

■ Error diagnosis and countermeasure flow chart



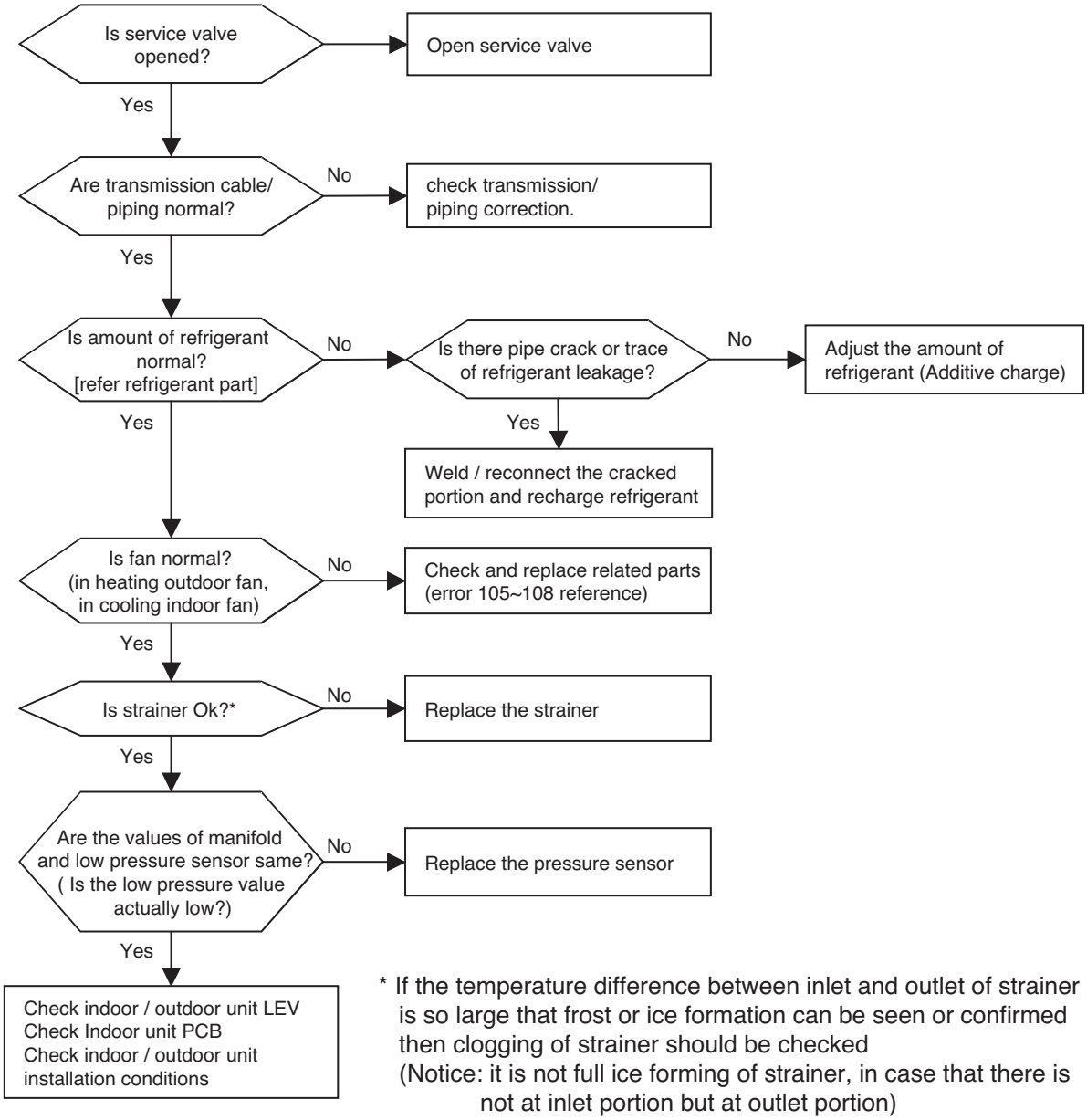
Error No.	Error Type	Error Point	Main Reasons
34* Master 341 Slave1 342	Over-increase of discharge pressure of compressor	Error happens because of 3 times successive compressor off due to over-increase of high pressure by high pressure sensor	1. Defect of high pressure sensor 2. Defect of indoor or outdoor unit fan 3. Deformation because of damage of refrigerant pipe 4. Over-charged refrigerant 5. Defective indoor / outdoor unit EEV 6. When blocked - Outdoor unit is blocked during cooling - Indoor unit filter is blocked during heating 7. SVC valve is clogged 8. PCB defect of outdoor unit 10. Indoor unit pipe temperature sensor defect

■ Error diagnosis and countermeasure flow chart



Error No.	Error Type	Error Point	Main Reasons
35* Master 351 Slave1 352	Excessive drop of discharge pressure of compressor	Error happens because of 3 times successive compressor off due to excessive drop of low pressure by the low pressure sensor	1. Defective low pressure sensor 2. Defective outdoor/indoor unit fan 3. Refrigerant shortage/leakage 4. Deformation because of damage of refrigerant pipe 5. Defective indoor / outdoor unit EEV 6. Covering / clogging (outdoor unit covering during the cooling mode/ indoor unit filter clogging during heating mode) 7. SVC valve clogging 8. Defective outdoor unit PCB 9. Defective indoor unit pipe sensor

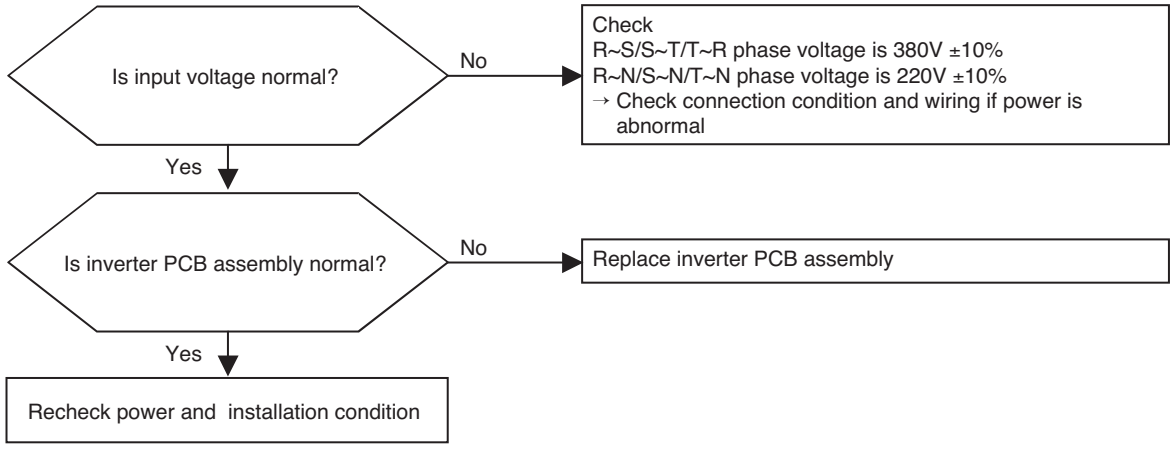
■ Error diagnosis and countermeasure flow chart



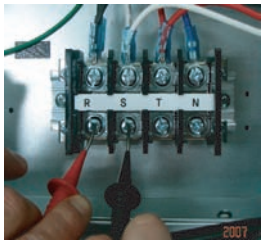
* If the temperature difference between inlet and outlet of strainer is so large that frost or ice formation can be seen or confirmed then clogging of strainer should be checked
(Notice: it is not full ice forming of strainer, in case that there is not at inlet portion but at outlet portion)

Error No.	Error Type	Error Point	Main Reasons
40* Master 401 Slave1 402	Inverter compressor CT sensor error	Micom input voltage isn't within 2.5V ±0.3V at initial state of power supply	1. Input voltage abnormal (T-N) 2. ODU inverter PCB damage (CT sensing part)

■ Error Diagnosis and Countermeasure Flow Chart

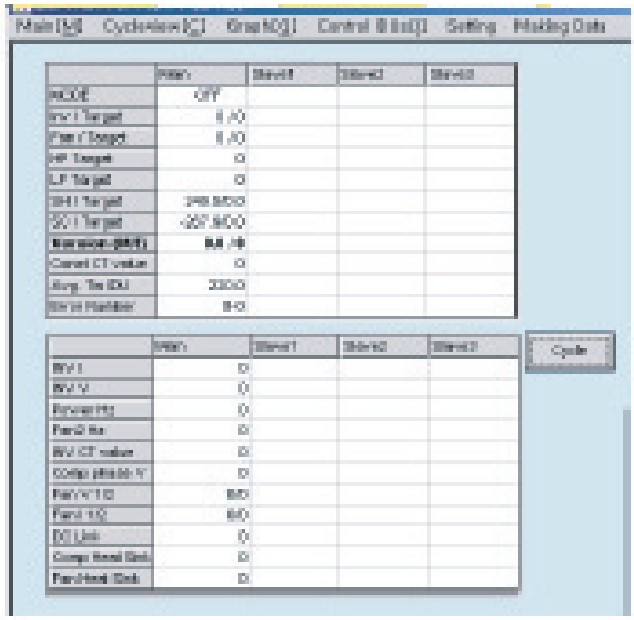


* Measuring input voltage



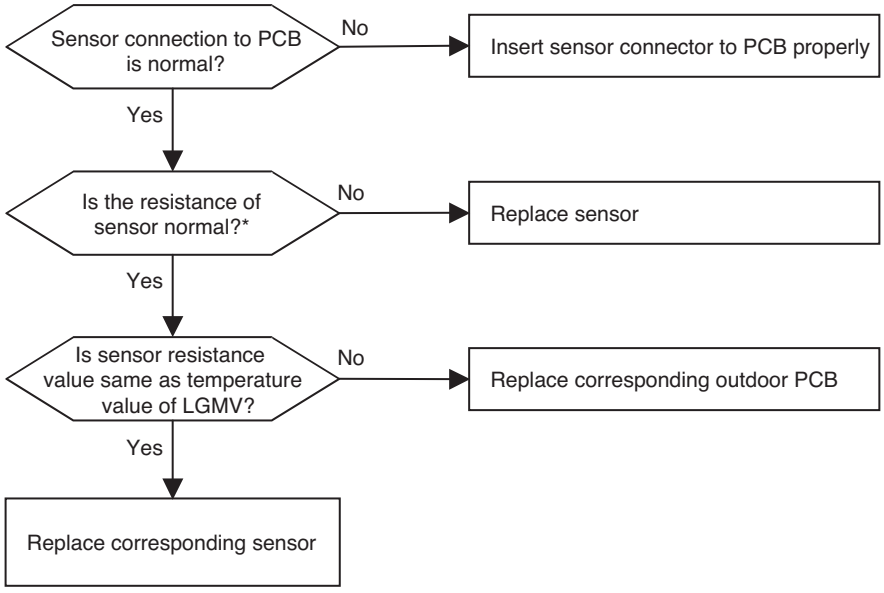
* Inverter PCB assembly

* LGMV Part



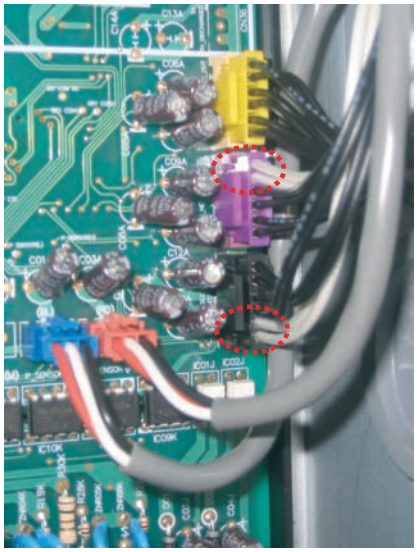
Error No.	Error Type	Error Point	Main Reasons
41* (Inverter) Master 411 Slave1 412 47* (Constant) Master 471 Slave1 472	Compressor discharge pipe temperature sensor error	Sensor measurement valve is abnormal (Open/Short)	1. Defective connection of the compressor discharge pipe temperature sensor 2. Defective discharge pipe compressor sensor of the compressor (open/short) 3. Defective outdoor PCB

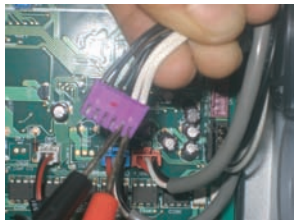
■ Error diagnosis and countermeasure flow chart



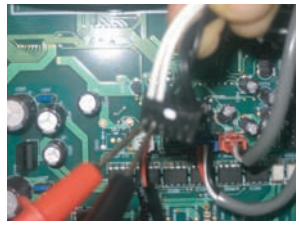
* Error is generated if the resistance is more than 5MΩ(open) and less than 2kΩ (short)

Note: Standard values of resistance of sensors at different temperatures (±5% variation)
10°C = 362kΩ : 25°C= 200kΩ : 50°C= 82kΩ : 100°C= 18.5kΩ





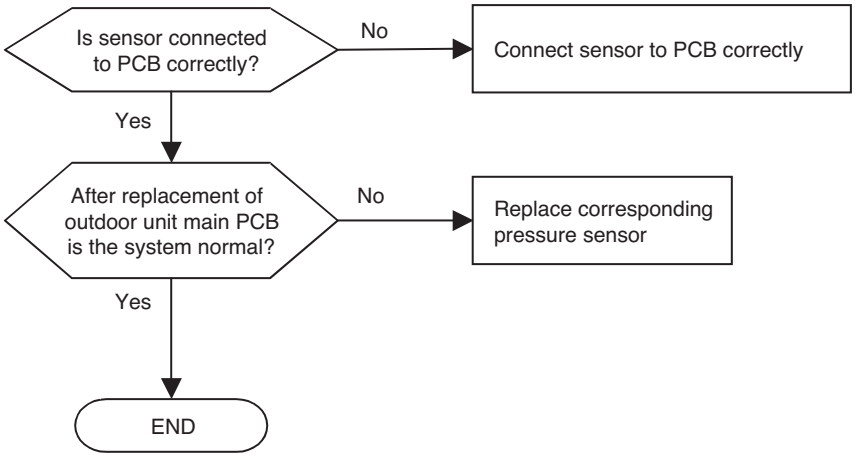
Check the resistance inverter compressor discharge temperature sensor

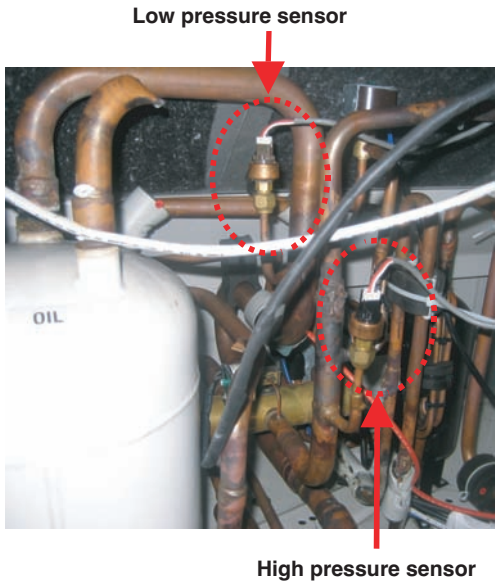


Check the resistance of constant compressor discharge temperature sensor

Error No.	Error Type	Error Point	Main Reasons
42* Master 421 Slave1 422 Slave2 423	Sensor error of low pressure	Abnormal value of sensor (Open/Short)	1. Bad connection of low pressure connector 2. Defect of low pressure connector (Open/Short) 3. Defect of outdoor PCB
43* Master 431 Slave1 432	Sensor error of high pressure	Abnormal value of sensor (Open/Short)	1. Bad connection of high pressure connector 2. Defect of high pressure connector (Open/Short) 3. Defect of outdoor PCB

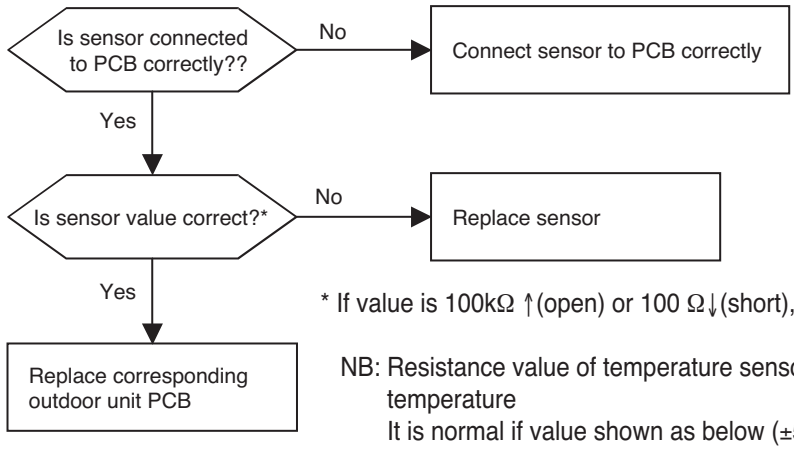
■ Error diagnosis and countermeasure flow chart





Error No.	Error Type	Error Point	Main Reasons
44* Master 441 Slave1 442	Sensor error of outdoor air temperature	Abnormal value of sensor (Open/Short)	1. Bad connection of air temperature connector 2. Defect of air temperature connector(Open/Short) 3. Defect of outdoor PCB
45* Master 451 Slave1 452 48* Master 481 Slave1 482	Piping temperature sensor error of heat exchanger in master & slave outdoor unit heat exchanger (A,B)	Abnormal value of sensor (Open/Short)	1. Bad connection of air temperature connector 2. Defect of air temperature connector(Open/Short) 3. Defect of outdoor PCB
46* Master 461 Slave1 462	Compressor suction temperature sensor error	Abnormal value of sensor (Open/Short)	1. Bad connection of air temperature connector 2. Defect of air temperature connector(Open/Short) 3. Defect of outdoor PCB

■ Error diagnosis and countermeasure flow chart



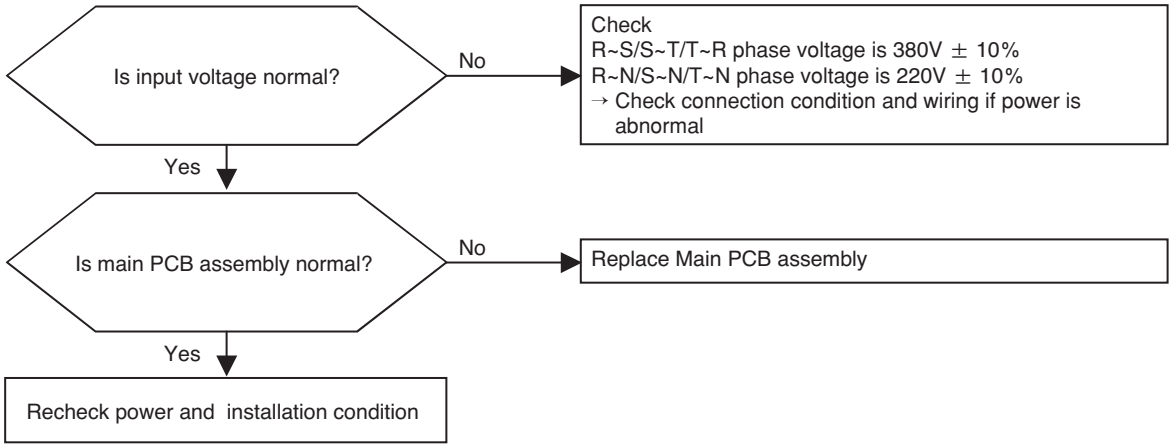
* If value is 100kΩ ↑(open) or 100 Ω↓(short), error occurs

NB: Resistance value of temperature sensor change according to temperature
It is normal if value shown as below (±5% error)
Sensor of air temperature: 10°C = 20.7kΩ : 25°C= 10kΩ : 50°C= 3.4kΩ
Sensor of piping temperature: 10°C = 10kΩ : 25°C= 5kΩ : 50°C= 1.8kΩ

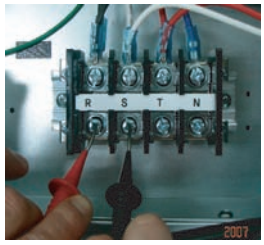
Error No.	Error Type	Error Point	Main Reasons
47* Master 471 Slave1 472	Discharge piping temperature sensor error of constant compressor	Abnormal value of sensor (Open/Short)	Refer to CH41
48* Master 481 Slave1 482	Piping temperature sensor error of heat Exchanger in master & slave outdoor unit heat exchanger (B)	Abnormal value of sensor (Open/Short)	Refer to CH45

Error No.	Error Type	Error Point	Main Reasons
50* Master 501 Slave1 502	ODU 3phase power omission error	Omitting one or more of R,S,T input power	1. Input Voltage abnormal (R,S,T,N) 2. Check power Line connection condition 3. Main PCB damage

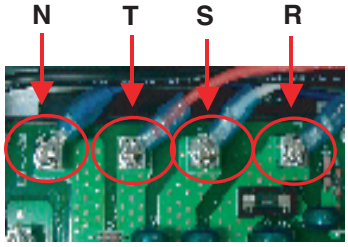
■ Error Diagnosis and Countermeasure Flow Chart

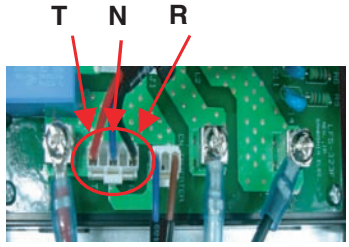


* Measuring input voltage

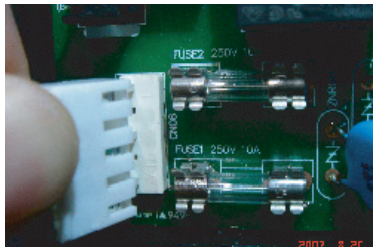


* Noise filter wiring



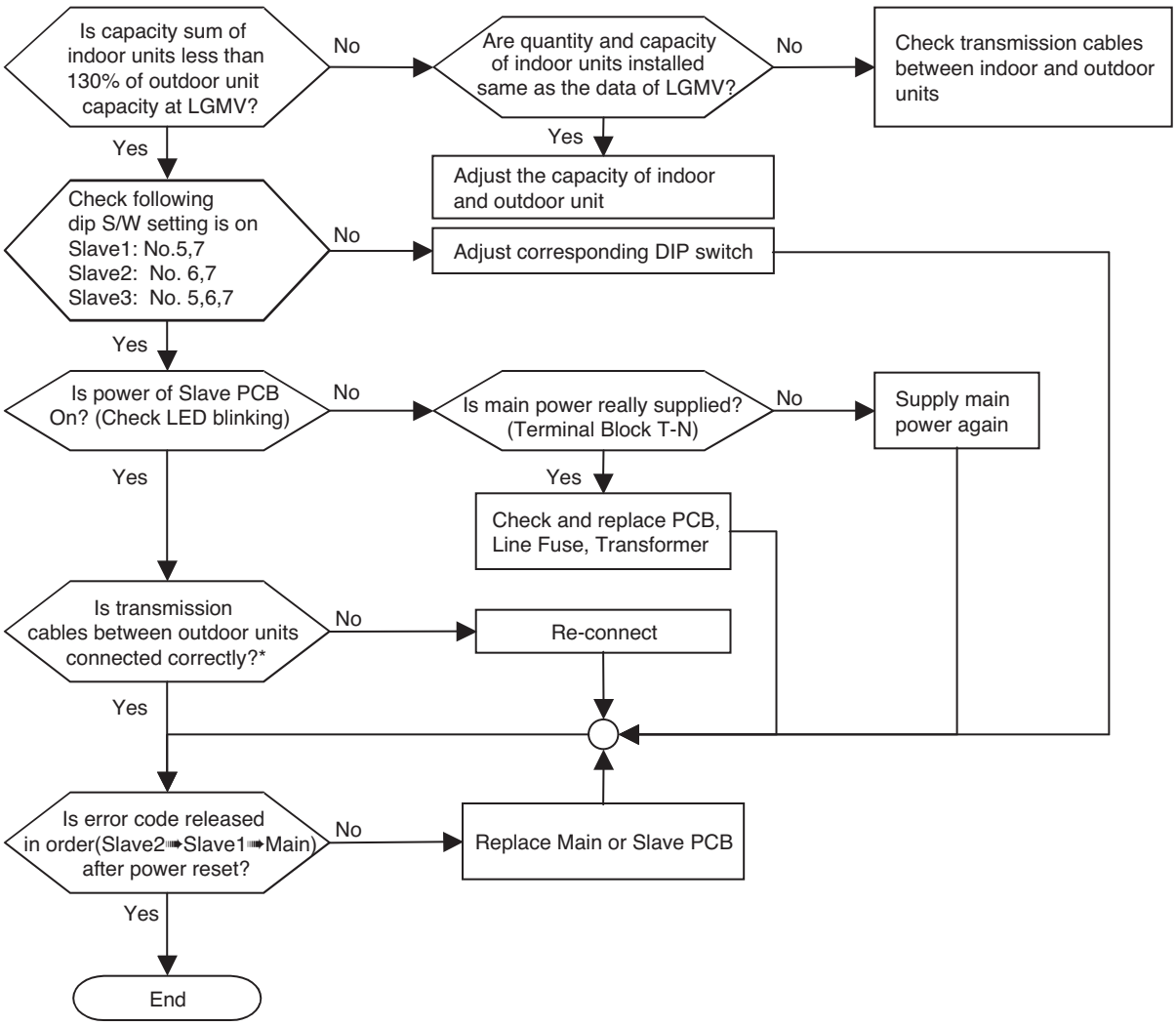


* Main PCB power connection



Error No.	Error Type	Error Point	Main Reasons
51	Over-Capacity (Sum of indoor unit capacity is more than outdoor capacity)	Sum of indoor unit capacity exceed outdoor unit capacity specification	1. 130% more than outdoor unit rated capacity 2. Wrong connection of transmission cable/piping 3. Control error of slave outdoor unit Dip switch 4. Power supply defect of slave unit PCB 5. Defect of outdoor unit PCB

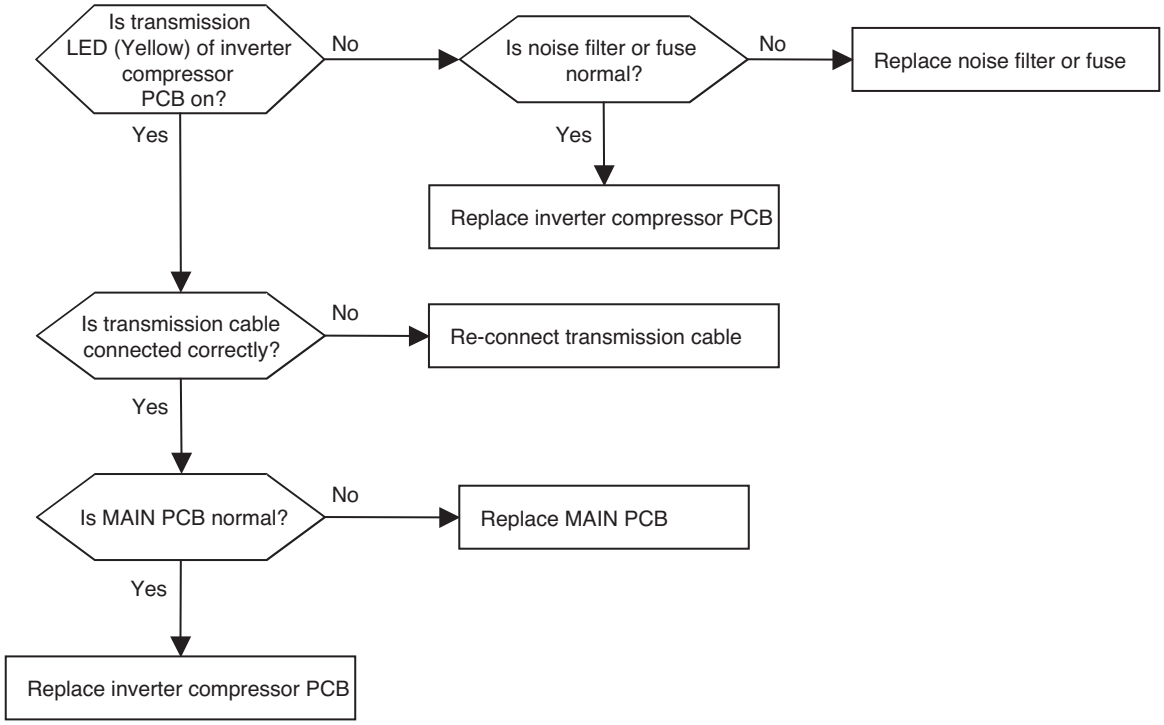
■ Error diagnosis and countermeasure flow chart



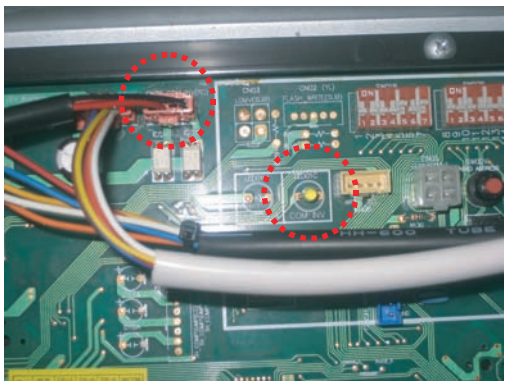
* In order to check transmission cables between outdoor units, check in order as below
: PCB connectors ➠ terminal block ➠ transmission cables

Error No.	Error Type	Error Point	Main Reasons
52* Master 521 Slave1 522	Transmission error between (Inverter PCB ➔ Main PCB)	Main controller of Master unit of Master unit can't receive signal from inverter controller	1. Power cable or transmission cable is not connected 2. Defect of outdoor Main fuse/Noise Filter 3. Defect of outdoor Main / inverter PCB

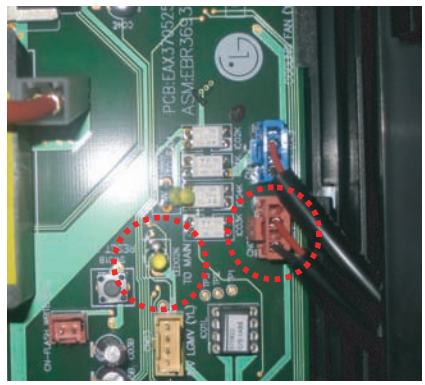
■ Error diagnosis and countermeasure flow chart



* The method of checking MAIN PCB and inverter compressor PCB (If normal, transmission LED blinks)



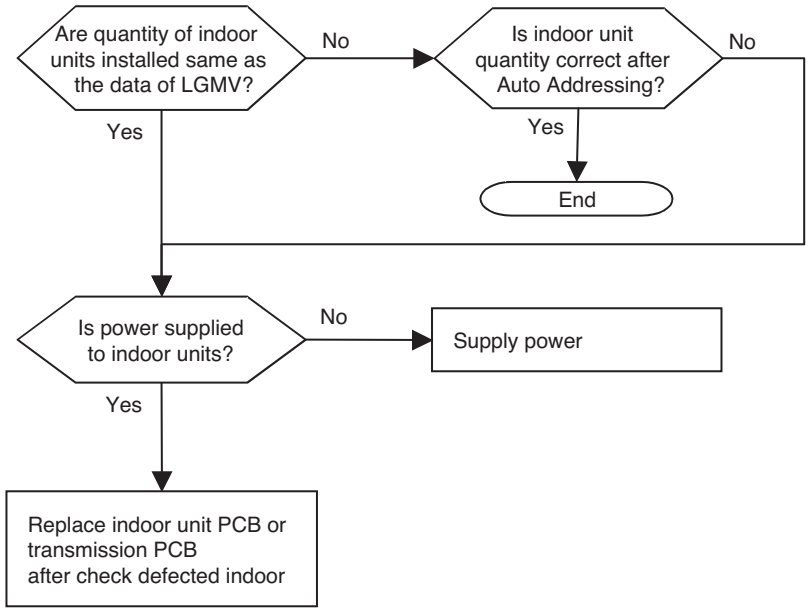
Transmission connector & LED in MAIN PCB



Transmission connector & LED in inverter compressor PCB

Error No.	Error Type	Error Point	Main Reasons
53	Transmission error (Indoor unit ➔ Main PCB)	In case Main PCB can't receive signal from indoor unit	1. Transmission cables are not connected 2. Transmission cables are short / open 3. Defect of outdoor Main / indoor PCB

■ Error diagnosis and countermeasure flow chart



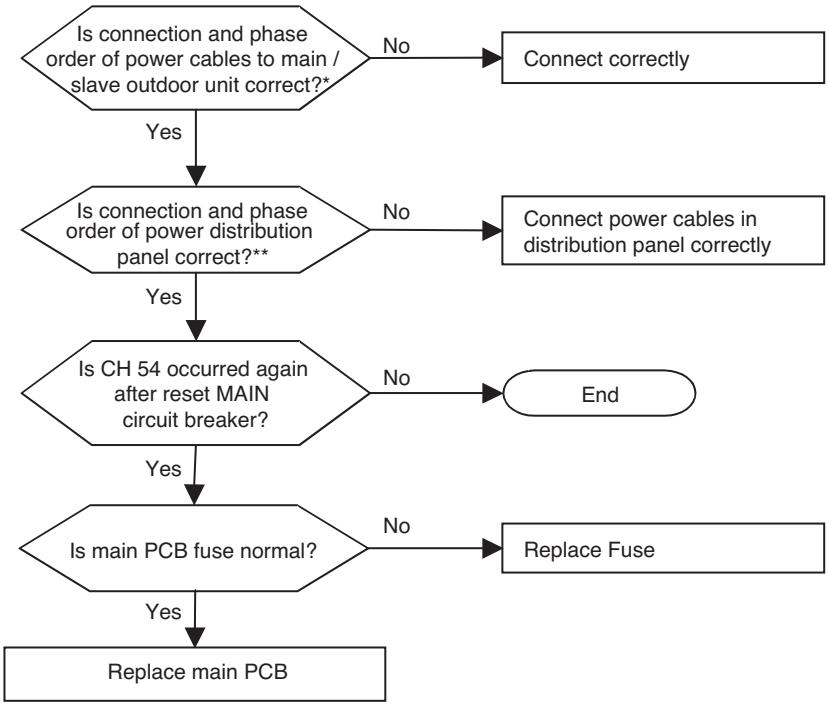
In case of CH53, almost happened with CH05, the indoor units not operated actually are normal so check with same method of CH05. and additionally check as shown as below and above flow chart

- Although the quantity of indoor units installed is same as LGMV data there may be a few indoor units with which the number of transmission is not increased with LGMV
- Although the quantity of indoor units installed is not same as LGMV data, and if transmission of the indoor unit displayed at LGMV is done well then the indoor unit suspected to have some problem (and is not appear at LGMV) may have following problems
  ① wrong connection of transmission cable or power cable
  ② fault of power / PCB / transmission cable
  ③ duplication of indoor unit number
- If transmission is not doing well wholly then the Auto Addressing is not done
- The case that CH53 appear at indoor unit also Auto Addressing is not done so indoor unit address may be duplicated

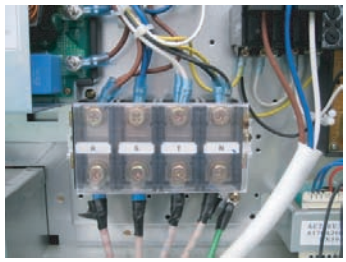
* After replacement of indoor unit PCB, Auto Addressing should be done, if central controller is installed then the central control address also should be input.
  In case that only transmission PCB is replaced above process is not needed

Error No.	Error Type	Error Point	Main Reasons
54* Master 541 Slave1 542	Wrong connection of 3Ø power supply cable (Reverse direction / missing a phase)	Wrong connection of 3Ø power supply cable (Reverse direction / missing a phase)	1. Main PCB defect 2. No power of R,S,T supplied 3. Wring connection of R,S,T cables 4. Main Pcb Fuse failure

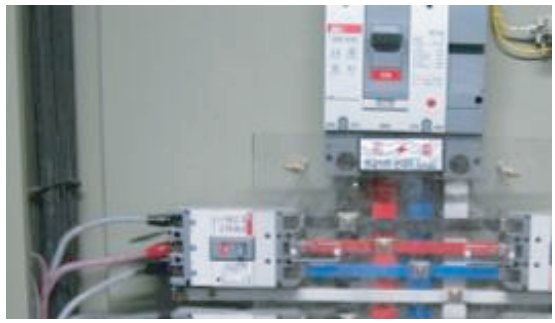
■ Error diagnosis and countermeasure flow chart



* Check power cable connection state, phase (R-S-T) order, power supply state in control box of product

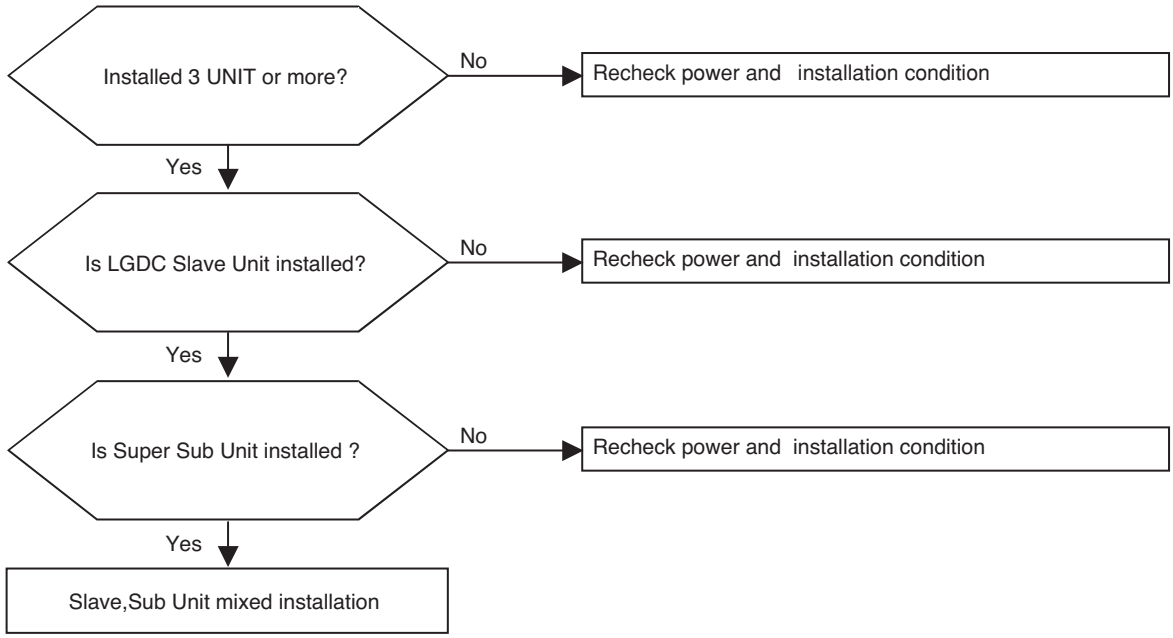


** Check power cable connection state, phase order, power supply state in distribution panel



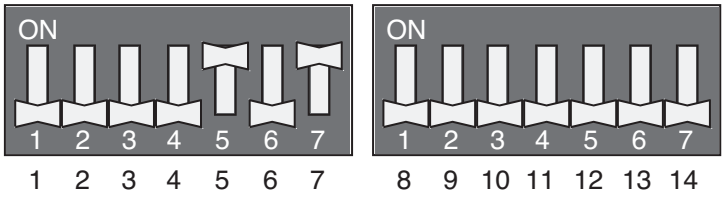
Error No.	Error Type	Error Point	Main Reasons
59	Slave ODU mixed installation	Installing old Sub ODU and new slave ODU together	Installing LGDC Slave Unit and Super sub Unit together

■ Error Diagnosis and Countermeasure Flow Chart



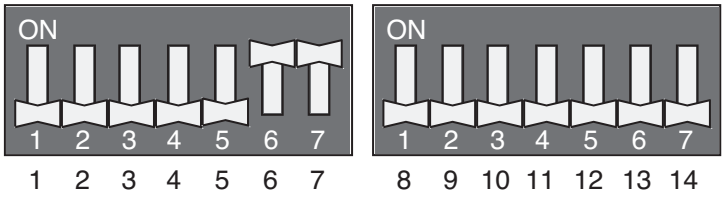
✻ Slave Unit Dip S/W Setting

Slave 1



1 2 3 4 5 6 7 8 9 10 11 12 13 14

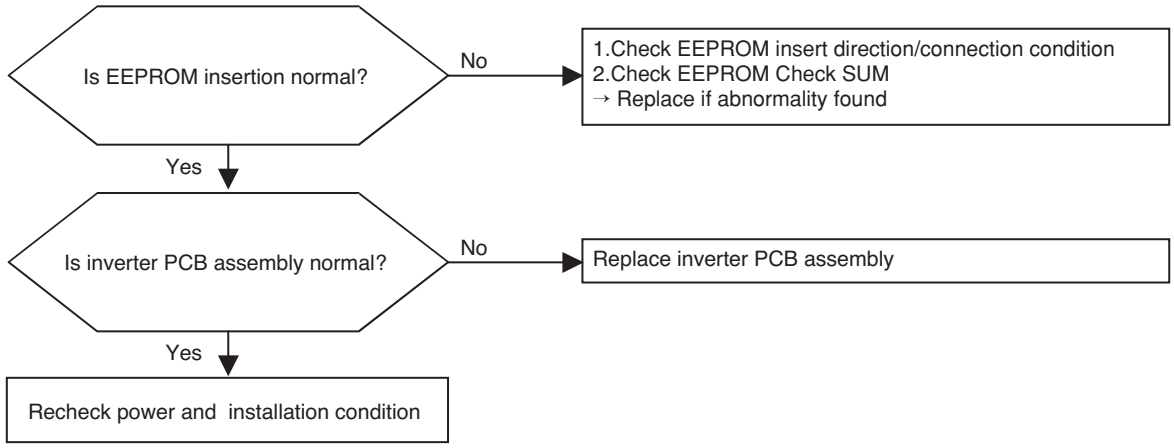
Slave 2



1 2 3 4 5 6 7 8 9 10 11 12 13 14

Error No.	Error Type	Error Point	Main Reasons
60* Master 601 Slave1 602	Inverter PCB EEPROM error	EEPROM Access error and Check SUM error	1. EEPROM contact defect/wrong insertion 2. Different EEPROM Version 3. ODU inverter PCB assembly damage

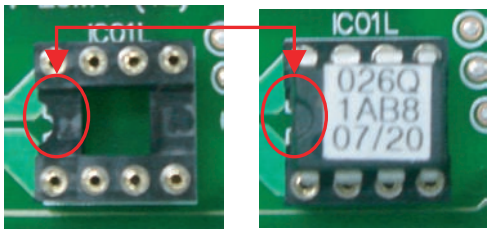
■ Error Diagnosis and Countermeasure Flow Chart



* Inverter EEPROM inserting point

EEPROM enlarged picture

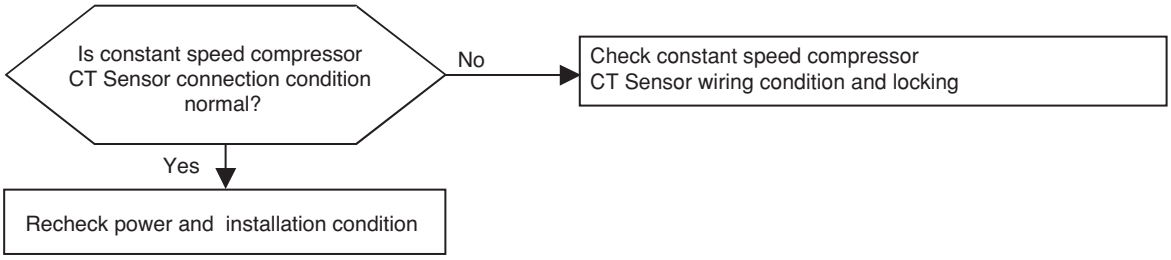
* Right inserting direction of inverter EEPROM



※ Note : Replace after power off

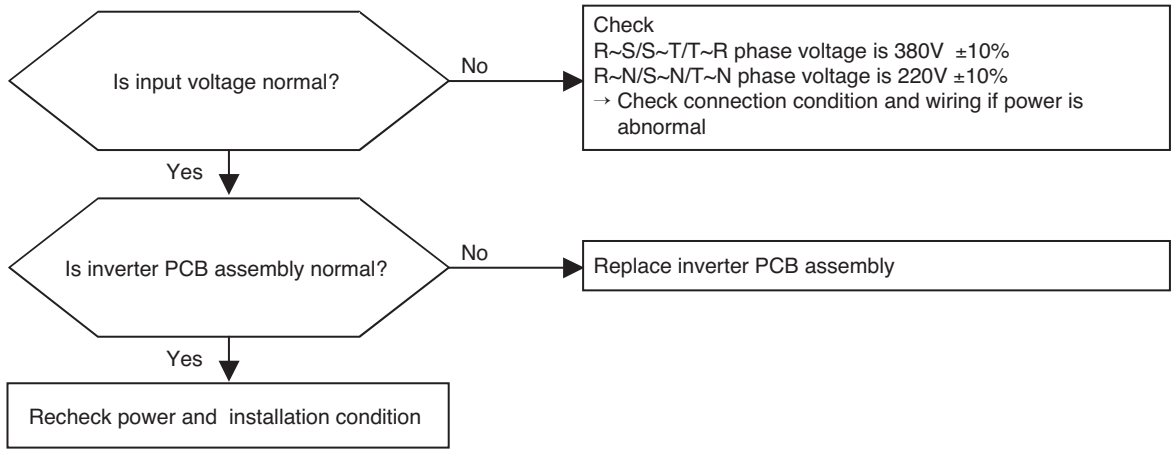
Error No.	Error Type	Error Point	Main Reasons
70* Master 701 Slave1 702	Constant Speed Compressor CT Sensor Error	Constant Speed Compressor CT Sensor Open/short	1. Constant Speed Compressor CT Sensor defect

■ Error Diagnosis and Countermeasure Flow Chart

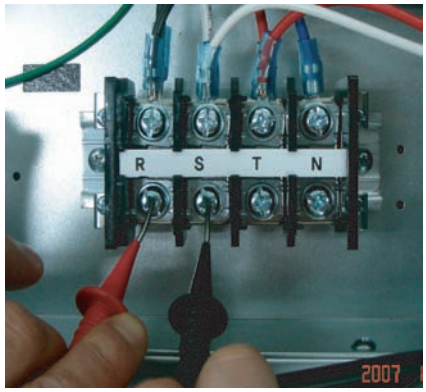


Error No.	Error Type	Error Point	Main Reasons
71* Master 711 Slave1 712	Inverter input current CT sensor error	Micom input voltage isn't within 2.5V ±0.3V at initial state of power supply	1. Input voltage abnormal (T-N) 2. ODU inverter PCB damage (CT sensing part)

■ Error Diagnosis and Countermeasure Flow Chart

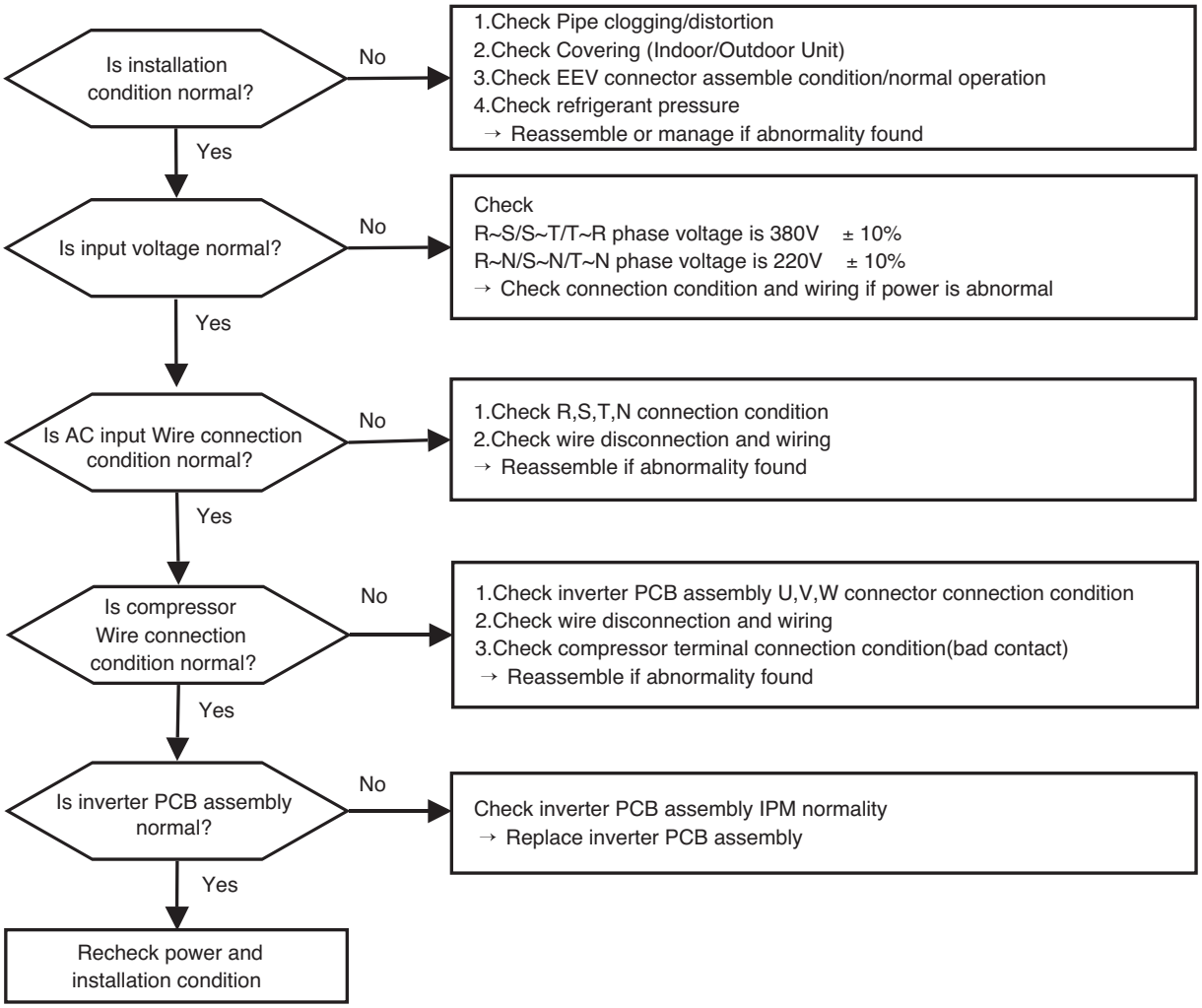


* Measuring input voltage

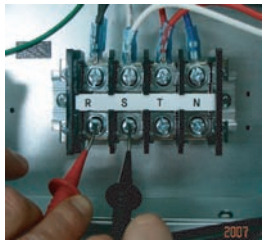


Error No.	Error Type	Error Point	Main Reasons
73* Master 731 Slave1 732	AC input instant over current error (Matter of software)	Inverter PCB input 3 phase power current is over 50A(peak) for 2ms	1.Overload operation (Pipe clogging/Covering/EEV defect/Ref. overcharge) 2.Compressor damage(Insulation damage/Motor damage) 3.Input voltage abnormal(R,S,T,N) 4.Power line assemble condition abnormal 5.Inverter PCB assembly damage(input current sensing part)

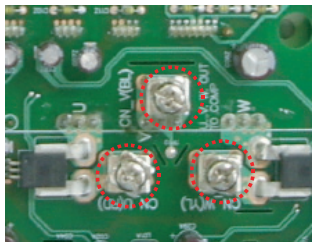
■ Error Diagnosis and Countermeasure Flow Chart



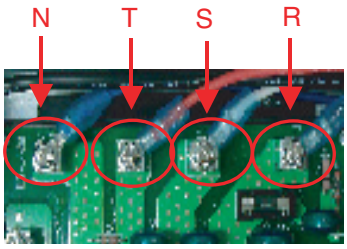
Measuring input voltage



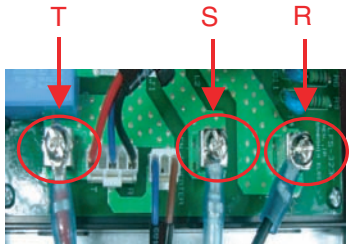
Compressor Wire Connection



Noise filter wiring

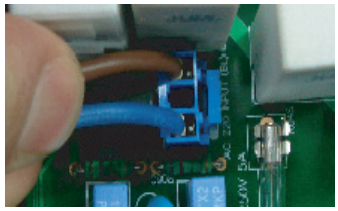


Noise filter input (upper part)

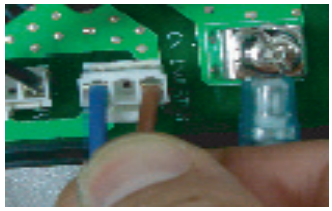


Noise filter output(lower part)

Inverter PCB assembly/Wiring power to inverter PCB on Noise filter



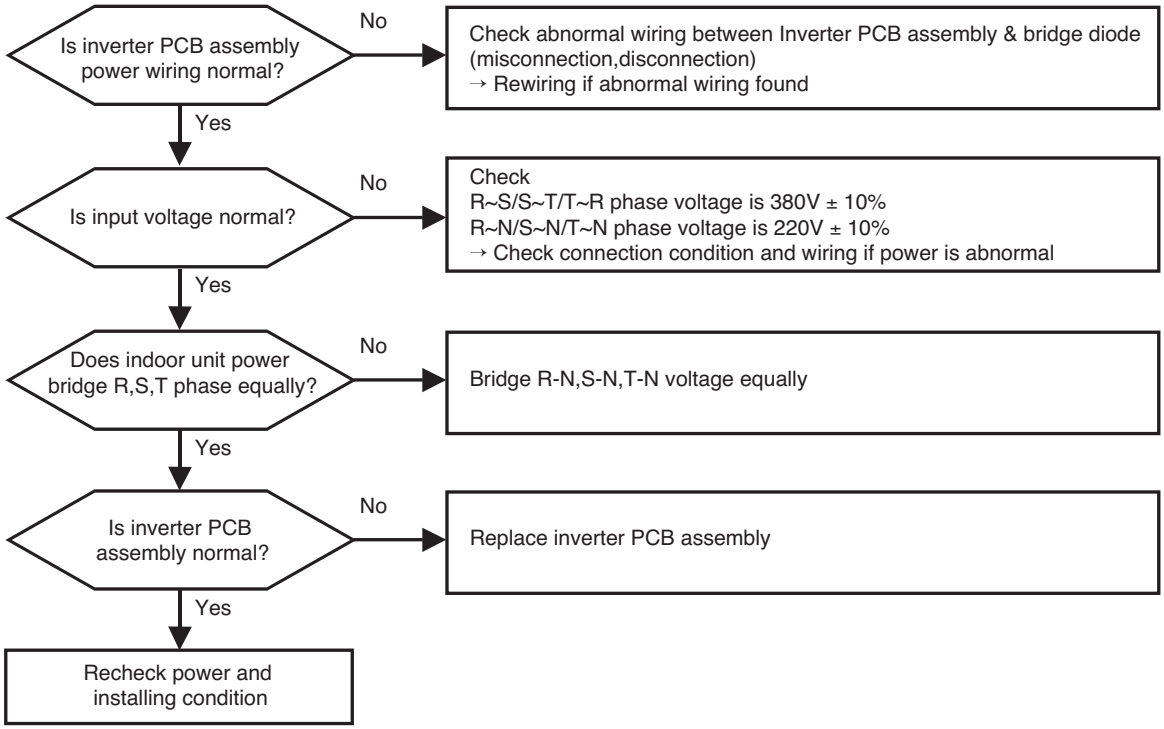
Inverter PCB assembly power connection



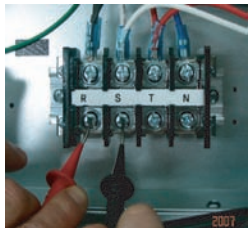
Noise filter power connection

Error No.	Error Type	Error Point	Main Reasons
74* Master 741 Slave1 742	3 Phase Power Unbalance	During operation(compressor frequency is over 50Hz), difference between R & T phase is 5A for 10 seconds.	1. CT sensor defect 2. Capacity over of AVR 3. Bridge R-N or S-N or T-N phase voltage unequally at indoor unit etc.

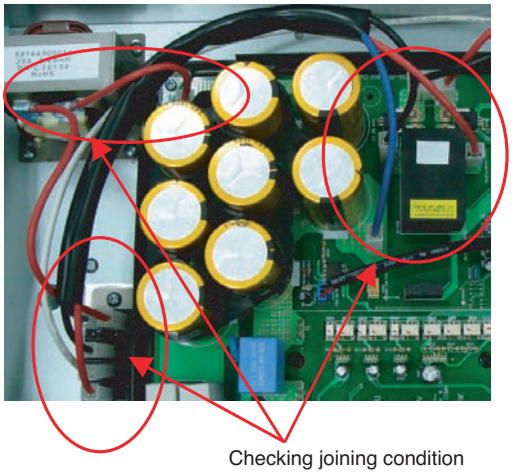
■ Error Diagnosis and Countermeasure Flow Chart



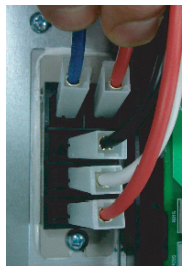
Measuring input voltage

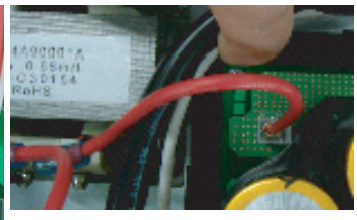


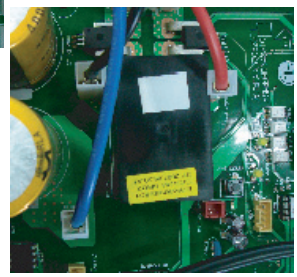
Inverter PCB & Bridge Diode wiring



Checking joining condition

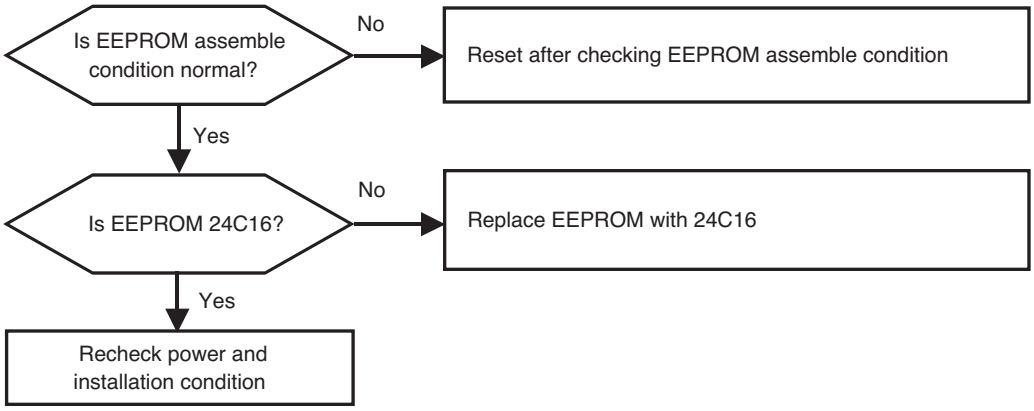






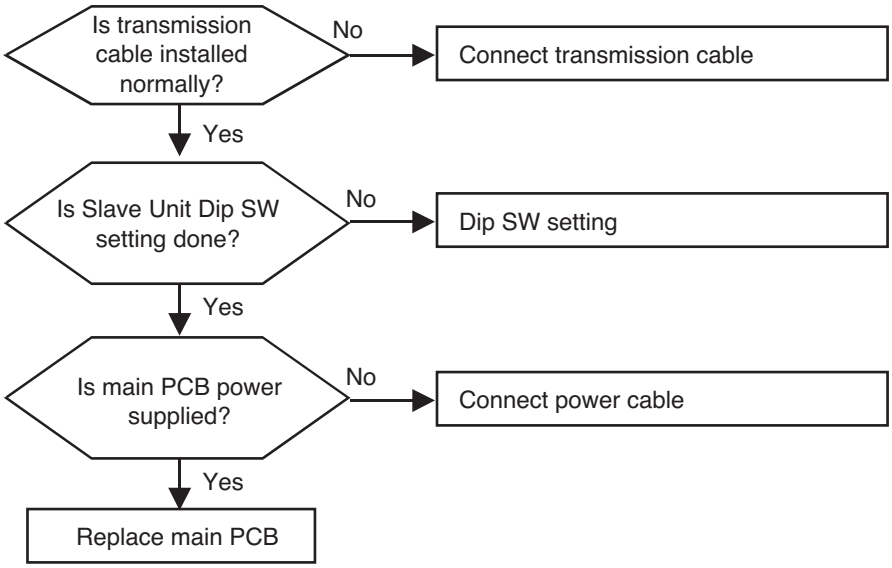
Error No.	Error Type	Error Point	Main Reasons
86* Master 861 Slave1 862	Main PCB EEPROM Error	EEPROM Access Error	1. No EEPROM 2. EEPROM wrong insertion

■ Error Diagnosis and Countermeasure Flow Chart

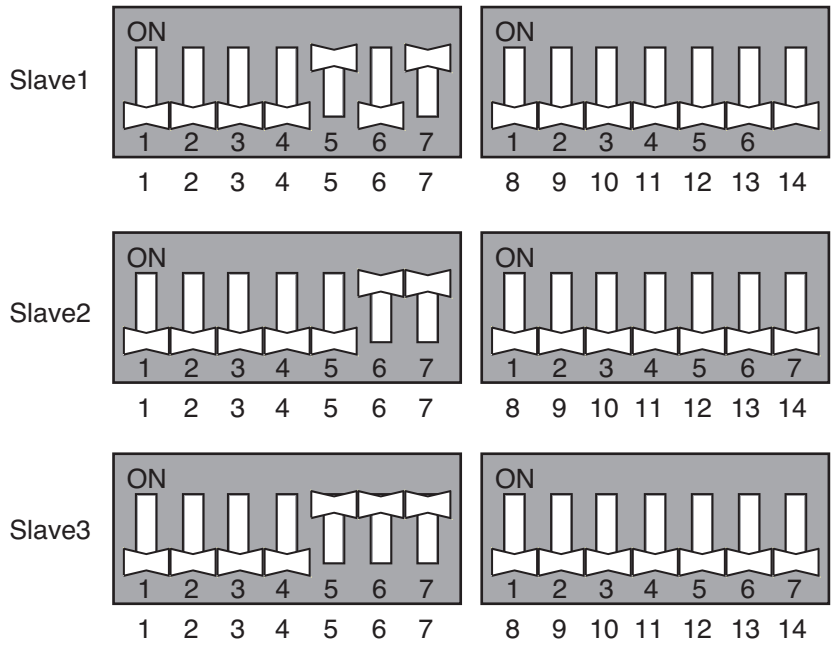


Error No.	Error Type	Error Point	Main Reasons
104* Master 11 → 041 Slave1 12 → 042	Transmission Error Between Outdoors	Master displays ODU number which is not communicated. Slave displays own error number	1.Loose connection of power cable/transmission cable¿¸(Open/Short) 2.Defect of each outdoor unit PCB

■ Error Diagnosis and Countermeasure Flow Chart



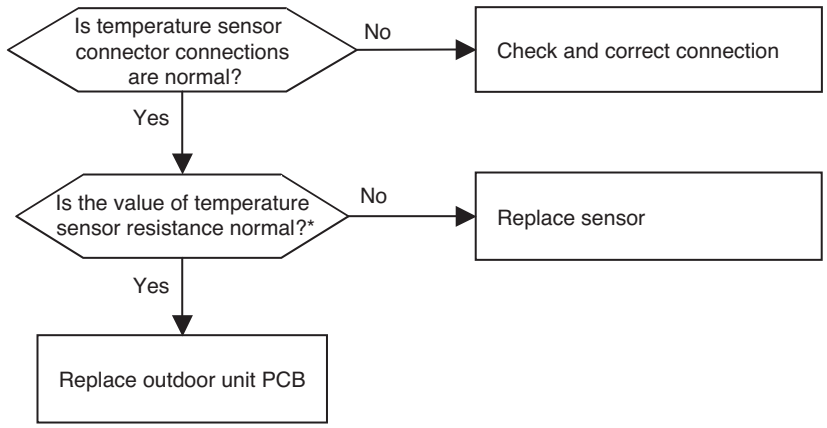
* Slave Unit Dip SW



Error No.	Error Type	Error Point	Main Reasons
113* Master 11 → 131 Slave1 12 → 132	Outdoor unit liquid pipe (condenser) temperature sensor error	Abnormal sensor resistance value (Open/Short)	1. Defective temperature sensor connection 2. Defective temperature sensor (Open / Short) 3. Defective outdoor unit PCB

Error No.	Error Type	Error Point	Main Reasons
114* Master 11 → 141 Slave1 12 → 142	Outdoor unit sub-cooling inlet / outlet temperature sensor error	Abnormal sensor resistance value (Open/Short)	1. Defective temperature sensor connecter connection 2. Defective temperature sensor (Open/Short) 3. Defective outdoor PCB

■ Error diagnosis and countermeasure flow chart

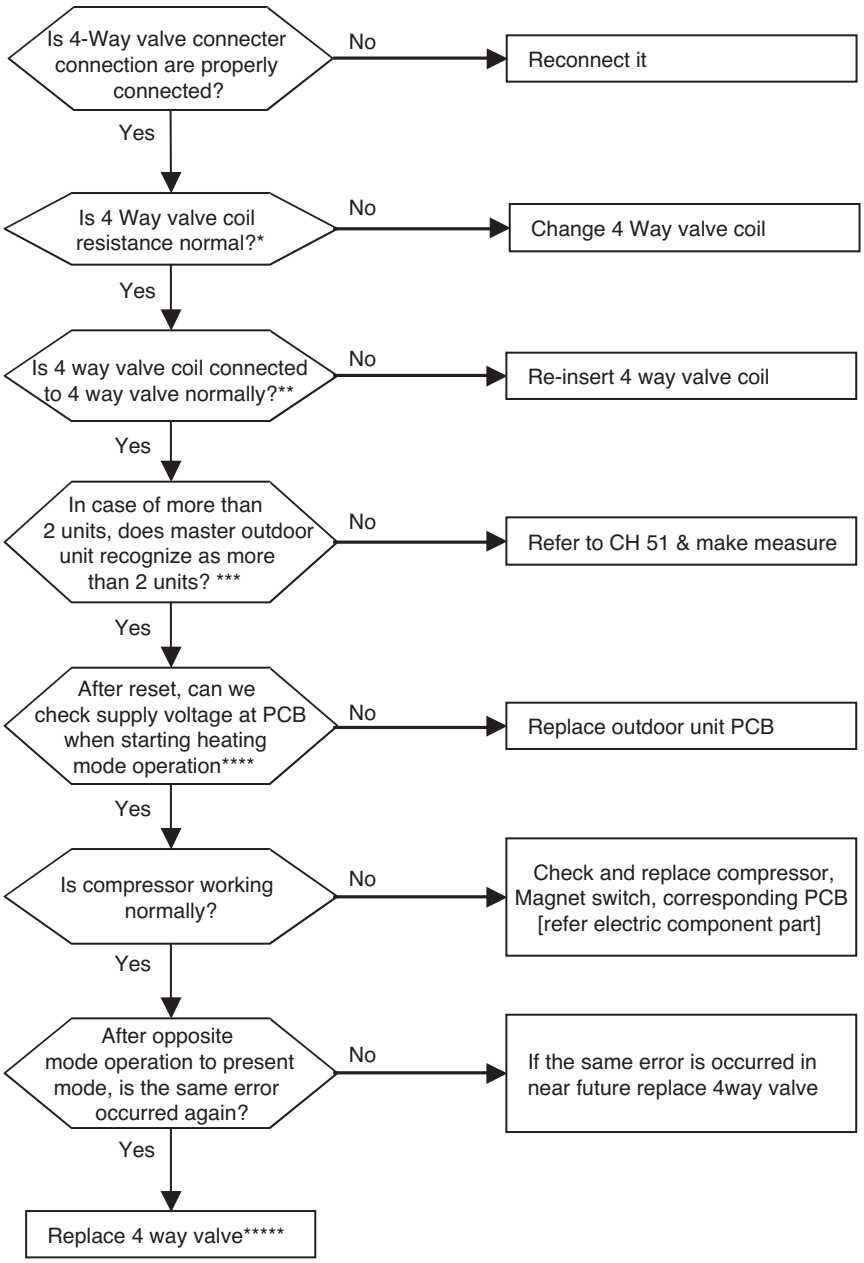


* Sensor resistance 100 kΩover (open) or 100 Ω below (short) will generate error

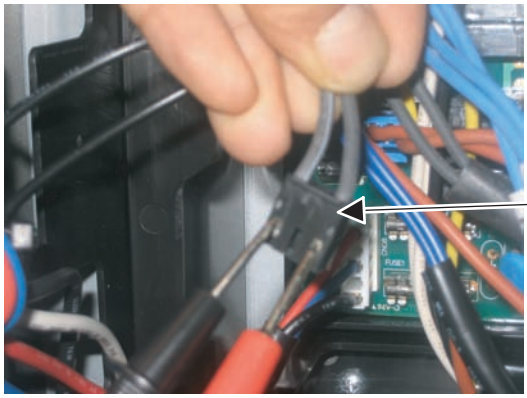
Note: Temperate sensor resistance vary with temperature, So compare temperature sensor resistance value according to outdoor unit temperature by referring below table (±5% tolerance)
Air temperature sensor: 10°C = 20.7kΩ : 25°C = 10kΩ : 50°C= 3.4kΩ
Pipe temperature sensor: 10°C = 10kΩ : 25°C = 5kΩ : 50°C= 1.8kΩ

Error No.	Error Type	Error Point	Main Reasons
151* Master 11→511 Slave1 12→512	Function error of outdoor 4way (reversing valve)	Function error of 4way (reversing valve) in Main or Slave outdoor units	1. Wrong operation of 4way valve because of sludge etc. inflow 2. No pressure difference because of compressor fault 3. Wrong installation of In/outdoor common pipe 4. Defect of 4way valve

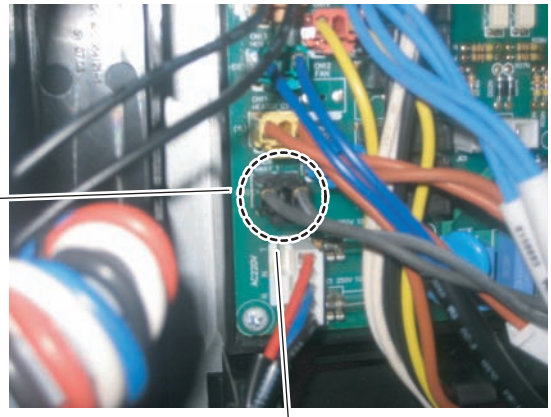
■ Error diagnosis and countermeasure flow chart



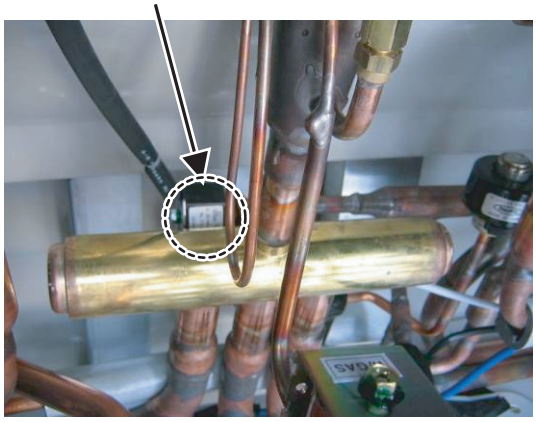
* Measure the resistance of 4way valve



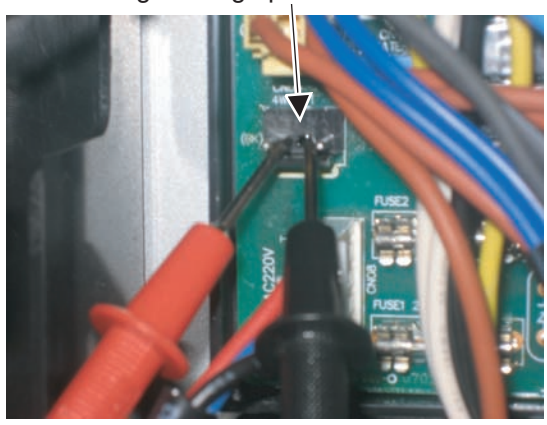
Location of 4way valve connector on Main PCB(marked as 4way,CN09)



** Confirm the 4way valve coil is inserted to the end



**** Check the output voltage of terminal socket during heating operation



*** When power is supplied in order as follow
(Slave2 → Slave1 → Mater)
ODU information is displayed one after the other at main PCB 7-segment

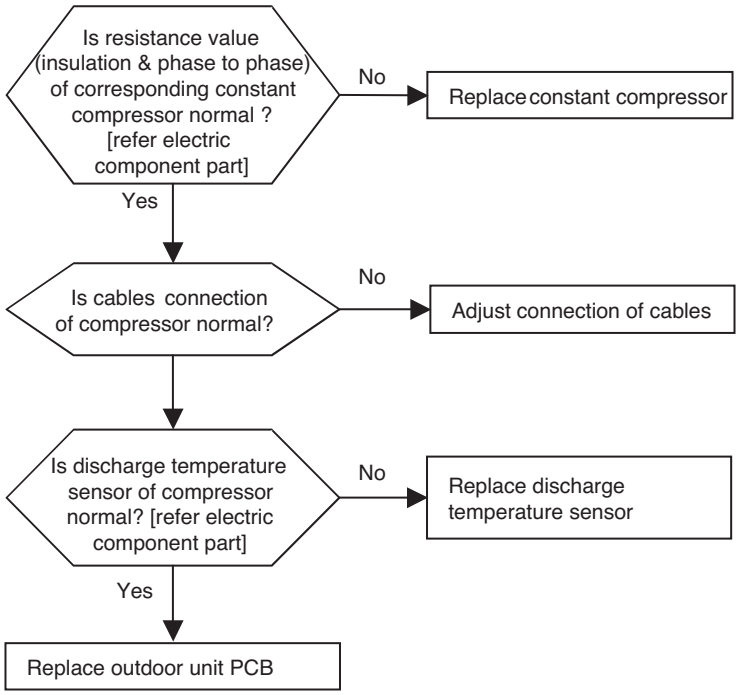
1. Model ID
   → 5HP:60 , 6HP:61 , 8HP:62 , 10HP:63, 12HP:64, 14HP:65
2. Total Capacity
   → Displayed with HP
3. ODU Type
   → HEAT PUMP : 2, Cooling : 0
4. Normal mode : 25
5. Refrigerant
   → R410a : 41

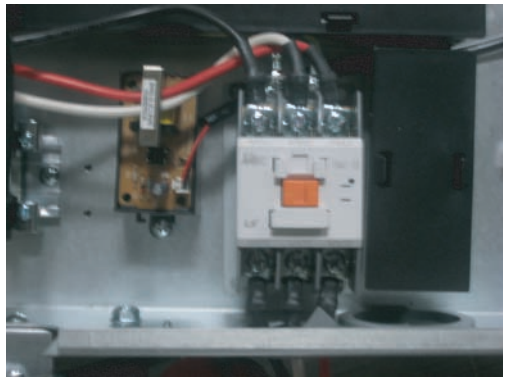
***** Checking method for outdoor unit of 3unit system
(Master + Slave1 + Slave2)

① Close all the SVC valves of high / low pressure common pipe
② Operate system
③ Check the difference of high and low pressure with LGMV for each unit (Master, Slave1, Slave2)
④ If there is a unit in which the difference is not increased then the 4way valve of that unit is defective

Error No.	Error Type	Error Point	Main Reasons
173* Master 11 → 731 Slave1 12 → 732	Constant compressor defect	Defect according to constant compressor damage or locking, over current	1. Constant compressor damage 2. Constant compressor input over current 3. Discharge temperature sensor defect

■ Error diagnosis and countermeasure flow chart





* cables connection between constant compressor and magnetic switch