6 TROUBLESHOOTING

[1] Principal Parts

Pressure Sensor (Discharge Pressure Sensor)

(1) Judging Failure

1) Check for failure by comparing the sensing pressure according to the high pressure/low pressure pressure sensor and the pressure gauge pressure.
Turn on switches 1, 3, 5, 6 (High) of the digital display select switch (SW1) as shown below, and the pressure sensor is displayed digitally by the light emitting diode LD1.

- In the stopped condition, compare the pressure readings from the gauge and from the LD1 display.
  (a) If the gauge pressure is 0~1 kg/cm², the internal pressure is dropping due to gas leakage.
  (b) If the pressure according to the LD1 display is 0~1 kg/cm², there is faulty contact at the connector, or it is disconnected. Proceed to 4.
  (c) If the pressure according to the LD1 display is 32 kg/cm² or higher, proceed to 3.
  (d) If other than (a), (b) or (c), compare the pressure readings during operation. Proceed to 2.

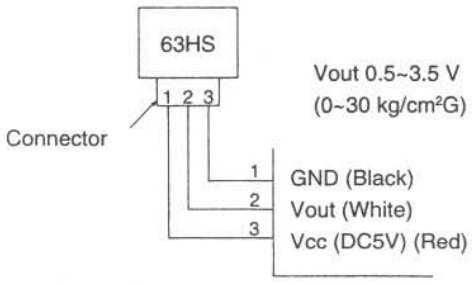
- Compare the pressure readings from the gauge and from the LD1 display while in the running condition.
  (a) If the difference between the two pressures is within 1 kg/cm², both the affected pressure sensor and the main MAIN board are normal.
  (b) If the difference between the two pressures exceeds 1 kg/cm², the affected pressure sensor is faulty (deteriorating performance).
  (c) If the pressure reading in the LD1 display does not change, the affected pressure sensor is faulty.

- Disconnect the pressure sensor from the MAIN board and check the pressure according to the LD1 display.
  (a) If the pressure is 0~1 kg/cm² on the LD1 display, the affected pressure sensor is faulty.
  (b) If the pressure is 32 kg/cm² or higher, the MAIN board is faulty.

- Disconnect the pressure sensor from the MAIN board and short out the No. 2 and No. 3 pins of the connector (63HS), then check the pressure by the LD1 display.
  (a) If the pressure according to the LD1 display is 32 kg/cm² or higher, the affected pressure sensor is faulty.
  (b) If other than (a), the MAIN board is faulty.

2) Pressure sensor configuration.
The pressure sensors are configured in the circuit shown in the figure at right. If DC 5 V is applied between the red and black wires, a voltage corresponding to the voltage between the white and black wires is output and this voltage is picked up by the microcomputer. Output voltages are as shown below.

High Pressure 0.1 V per 1 kg/cm²

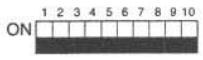


* Connector connection specifications on the pressure sensor body side.
The connector's pin numbers on the pressure sensor body side differ from the pin numbers on the main circuit board side.

	Sensor Body Side	MAIN Board Side
Vcc	Pin 1	Pin 3
Vout	Pin 2	Pin 2
GND	Pin 3	Pin 1

Solenoid Valve (SV1, SV2)

Check if the control board's output signals and the operation of the solenoid valves match.
Setting the self-diagnosis switch (SW1) as shown in the figure below causes the ON signal of each relay to be output to the LED's.
Each LED shows whether the relays for the following parts are ON or OFF. When a LED lights up, it indicates that the relay is ON.

SW1	LED							
	1	2	3	4	5	6	7	8
	Compressor operating.	Crankcase Heater	21S4*	SV1	SV2			Lights up all the time.
							CH 2, 3 Fluid Level Heater	

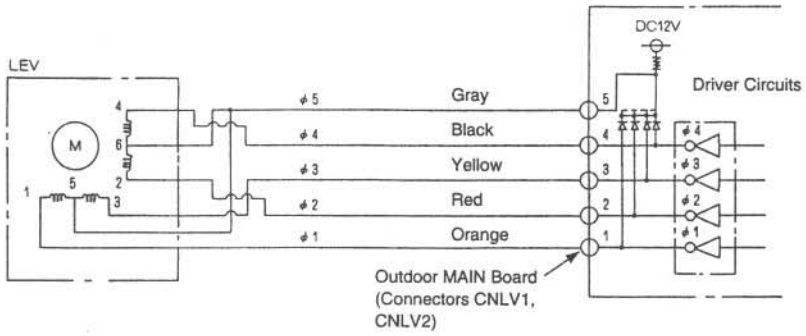
*only for PUHY

1) In the case of SV1 (Bypass Valve)
(a) When the compressor starts, SV1 is ON for 4 minutes, so check operation by whether the solenoid valve is emitting an operating noise.
(b) Changes in the operating condition by solenoid valve operation can be confirmed by the temperature of the bypass circuit and the sound of the refrigerant.

2) In the case of SV2 (Bypass)
(a) SV2 goes ON in accordance with the rise in the high pressure in the cooling mode and heating mode, so check its operation by the LED display and the operating noise emitted by the solenoid valve.
(Conditions during operation: Please refer to p. 27.)
(b) Changes in the operating condition by solenoid valve operation can be confirmed by the temperature of the bypass circuit and the sound of the refrigerant.

Outdoor LEV

The valve opening angle changes in proportion to the number of pulses.
(Connections between the outdoor unit's MAIN board and SLEV, LEV1 (outdoor electronic expansion valve))



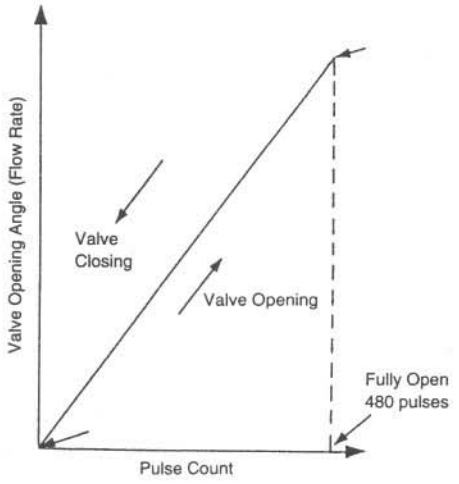
Pulse Signal Output and Valve Operation

Output (Phase) No.	Output State							
	1	2	3	4	5	6	7	8
ø1	ON	OFF	OFF	OFF	OFF	OFF	ON	ON
ø2	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
ø3	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
ø4	OFF	OFF	OFF	OFF	ON	ON	ON	OFF

Output pulses change in the following orders when the
Valve is Closed 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 1
Valve is Open 8 → 7 → 6 → 5 → 4 → 3 → 2 → 1 → 8

* 1. When the LEV opening angle does not change, all the output phases are off.
2. When the output is out of phase or remains ON continuously, the motor cannot run smoothly, but move jerkily and vibrates.

LEV Valve Closing and Valve Opening Operations



* When the power is switched ON, a 520 pulse valve opening signal is output to make sure the valve's position, so that it is definitely at point A. (The pulse signal is output for approximately 17 seconds.)

When the valve operates smoothly, there is no sound from the LEV and no vibration occurs, but when the valve is locked, it emits a noise.

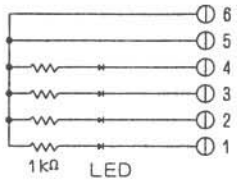
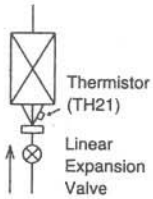
* Whether a sound is being emitted or not can be determined by holding a screwdriver, etc. against it, then placing your ear against the handle.

* If there is liquid refrigerant inside the LEV, the sound may become lower.

Judgment Methods and Likely Failure Mode

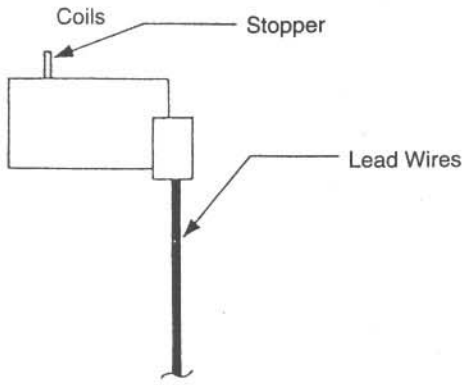
Caution:

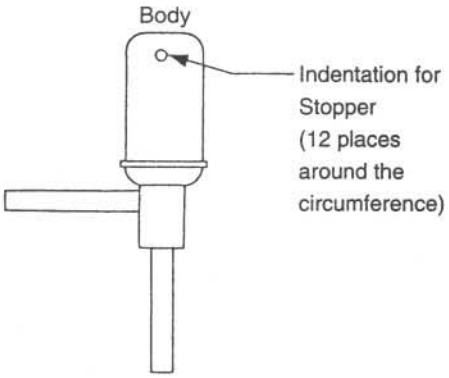
The specifications of the outdoor unit (outdoor LEV) and outdoor units (indoor LEV) differ. For this reason, there are cases where the treatment contents differ, so follow the treatment specified for the appropriate LEV as indicated in the right column.

Failure Mode	Judgment Method	Treatment	Affected LEV
Microcomputer Driver Circuit Failure	Disconnect the control board connector and connect the check LED as shown in the figure below.  When the base power supply is turned on, the indoor LEV outputs pulse signals for 10 seconds. If the LED does not light up, or lights up and remains on, the driver circuit is abnormal.	In the case of driver circuit failure, replace the indoor unit's control board.	Indoor
LEV mechanism is locked.	If the LEV is locked up, the drive motor turns with no load and a small clicking sound is generated. Generation of this sound when the LEV is fully closed or fully open is abnormal.	Replace the LEV.	Indoor Outdoor
The LEV motor coils have a disconnected wire or is shorted.	Measure the resistance between the coils (red - white, red - orange, brown - yellow, brown - blue) using a tester. They are normal if the resistance is within 150Ω ± 10%.	Replace the LEV coils.	Indoor
	Measure the resistance between the coils (gray - orange, gray - red, gray - yellow, gray - black) using a tester. They are normal if the resistance is within 46Ω ± 3%.	Replace the LEV coils.	Outdoor
Fully Closed Failure (valve leaks)	If you are checking the indoor unit's LEV, operate the indoor unit in fan mode and at the same time operate other indoor units in the cooling mode, then check the piping temperatures (liquid pipe temperatures) of the indoor unit by the operation monitor through the outdoor unit controller board. When the fan is running, the linear expansion valve is fully closed, so if there is leakage, the temperature sensed by the thermistor (liquid pipe temperature sensor) will become low. If the temperature is considerably low compared to the remote control's intake temperature display, it can be judged that there is a fully closed failure. In the case of minimal leakage, it is not necessary to replace the LEV if there are no other effects.  	If there is a large amount of leakage, replace the LEV.	Indoor
Faulty wire connections in the connector or faulty contact.	① Check for pins not fully inserted on the connector and check the colors of the lead wires visually. ② Disconnect the control board's connector and conduct a continuity check using a tester.	Check the continuity at the places where trouble is found.	Indoor Outdoor

Outdoor LEV (SLEV, LEV1) Coil Removal Procedure (configuration)

As shown in the figure, the outdoor LEV is made in such a way that the coils and the body can be separated.

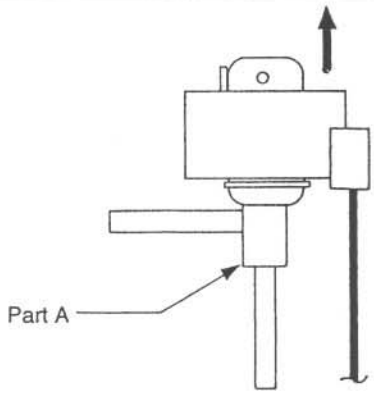




<Removing the Coils>

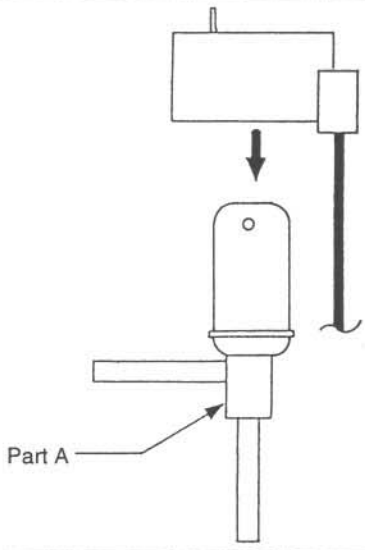
Fasten the body tightly at the bottom (Part A in the figure) so that the body will not move, then pull out the coils toward the top. If they catch on the stopper and are difficult to take out, turn the coils left and right until the stoppers are free from the stopper indentations, then pull the coils out.

If you take out the coils only without gripping the body, undue force will be applied to the piping and the pipe may be bent over, so be sure to fasten the body in such a way that it will not move.



<Installing the Coils>

Fasten the body tightly at the bottom (Part A in the figure) so that the body will not move, then insert the coils from the top, inserting the coils' stopper securely in one of the indentations on the body. (There are four indentations for the stopper on the body around its circumference, and it doesn't matter which indentation is used. However, be careful not to apply undue force to the lead wires or twist them around inside the body.) If the coils are inserted without gripping the body, it may exert undue force on the piping, causing it to become bent, so be sure to hold the body firmly so that it won't move when installing the coils.

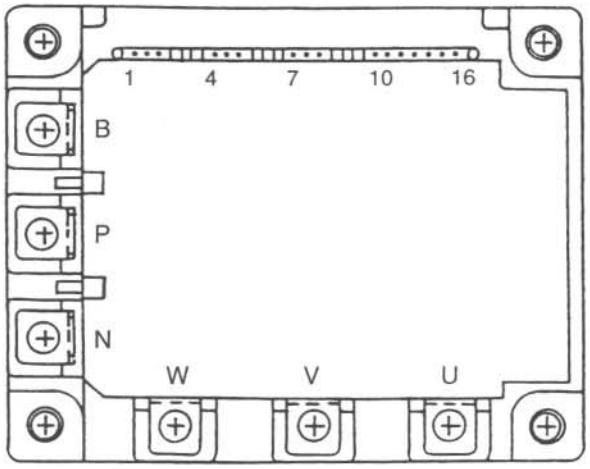


IPM

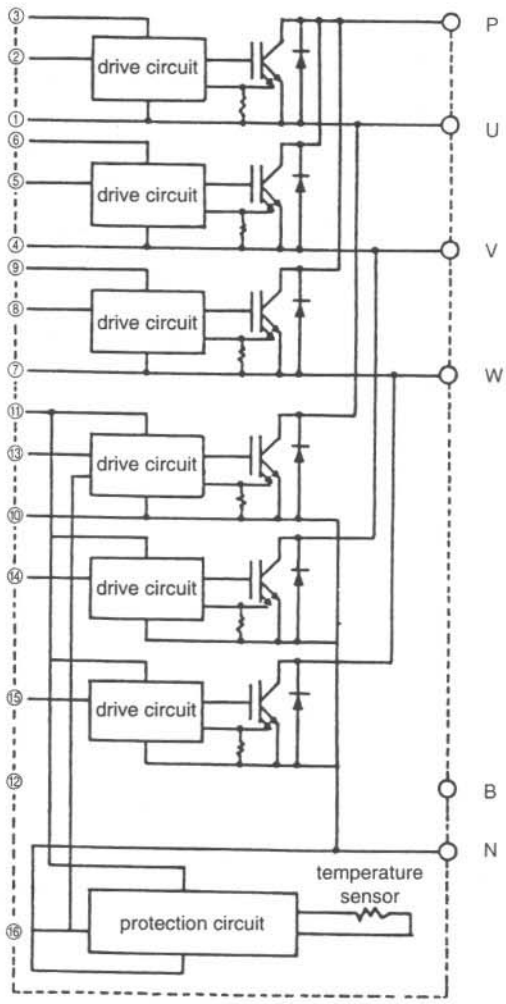
Measure resistances between each terminal of IPM with tester, and use the results for troubleshooting. Specified resistance value is dependent on tester type to be used for resistance measurement, because diode transistor has non-linearity, thus difference of impedance and voltage in tester being influential. As the internal impedance of resistance range of analog tester equals to the center value of meter indication, the affect of internal impedance can be minimized if the tester having close center value of resistance range. Because internal voltage is normally 1.5V, the tester to be used for troubleshooting of transistor module should satisfy the following conditions.

Internal voltage	1.5V (Power source : one dry cell battery)
Central value of resistance range	10 ~ 40Ω

The measured values for troubleshooting are shown in the table below.
(Use the minimum range for tester resistance range.)

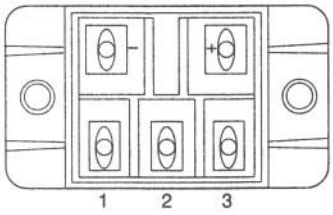


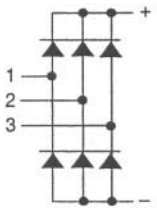
Tester + / Tester −		U	V	W	N
P		∞	∞	∞	∞
U	2~100Ω				∞
V	2~100Ω				∞
W	2~100Ω				∞
N	2~100Ω	2~100Ω	2~100Ω	2~100Ω	



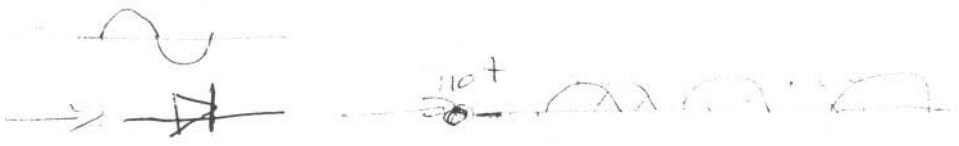
Diode stack

Perform continuity check with tester. Judged as normal if the following characteristics are observed.
(Use the minimum range for tester resistance range.)





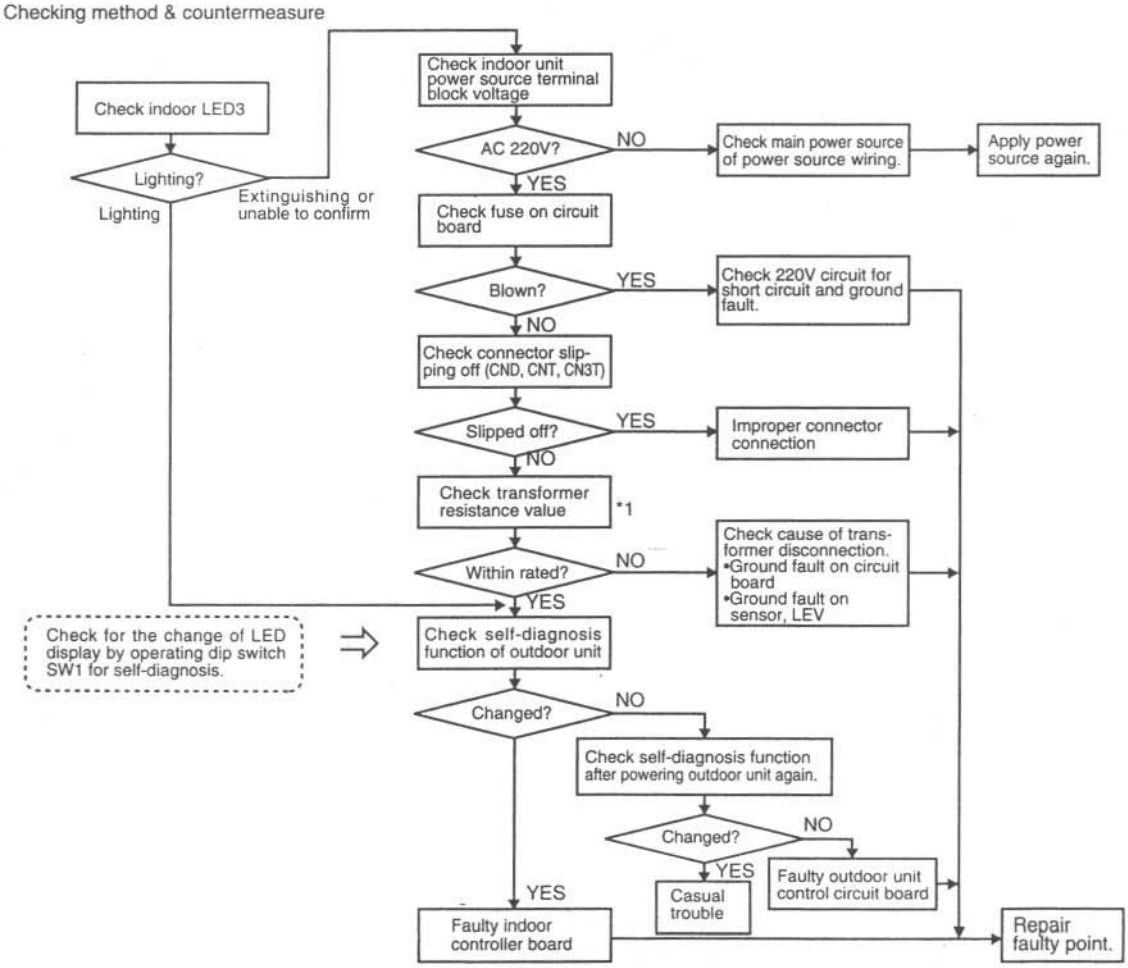
Tester ⊕ / Tester ⊖	+	−
1	10~50Ω	∞
2	10~50Ω	∞
3	10~50Ω	∞
Tester ⊖ / Tester ⊕	**+**	**−**
1	∞	10~50Ω
2	∞	10~50Ω
3	∞	10~50Ω



(5) Trouble and remedy of remote controller

	Symptom	Cause	Checking method & countermeasure
1	Despite pressing of remote controller switch, operation does not start with no electronic sound. (No powering signal ◎ appears.)	1) M-NET transmission power source is not supplied from outdoor unit. ①Main power source of outdoor unit is not connected. ②Slipping off of connector on outdoor unit circuit board Main board : CNS1, CNVCC3 INV board : CNDC2, CNVCC2, CNL2 G/A board : CNDC1 ③Faulty power source circuit of outdoor unit • Faulty INV board, • Blown fuse (F1 on INV board) • Broken diode stack • Broken resistor (R1) for rush current protection 2) Short circuit of transmission line 3) Erroneous wiring of M-NET transmission line at outdoor unit ①Transmission line disconnection or slipping off from terminal block ②Erroneous connection of indoor/outdoor transmission line to TB7 4) Slipping off of transmission wiring at remote controller 5) Faulty remote controller	a) Check transmission terminal block of remote controller for voltage. i) In case of 17 ~ 30V → Faulty network remote controller ii) In case of less than 17V → See "Transmission Power Circuit (30V) Check Procedure" on Page 64. The cause of 2) and 3) is displayed with self-diagnosis LED for 7102 error.
2	At about 10 seconds after turning remote controller operation switch ON, the display distinguishes and the operation stops.	1) Power source is not fed to indoor unit from transformer. ①Main power source of indoor unit is not turned on. ②Slipping off of connector (CND, CNT, CN3T) on indoor controller board ③Blown fuse on indoor controller board ④Faulty or disconnected transformer of indoor unit ⑤Faulty indoor controller board	
		3) Faulty outdoor control circuit board or being out of control As normal transmission is failed between indoor and outdoor units, outdoor unit model can not be recognized.	

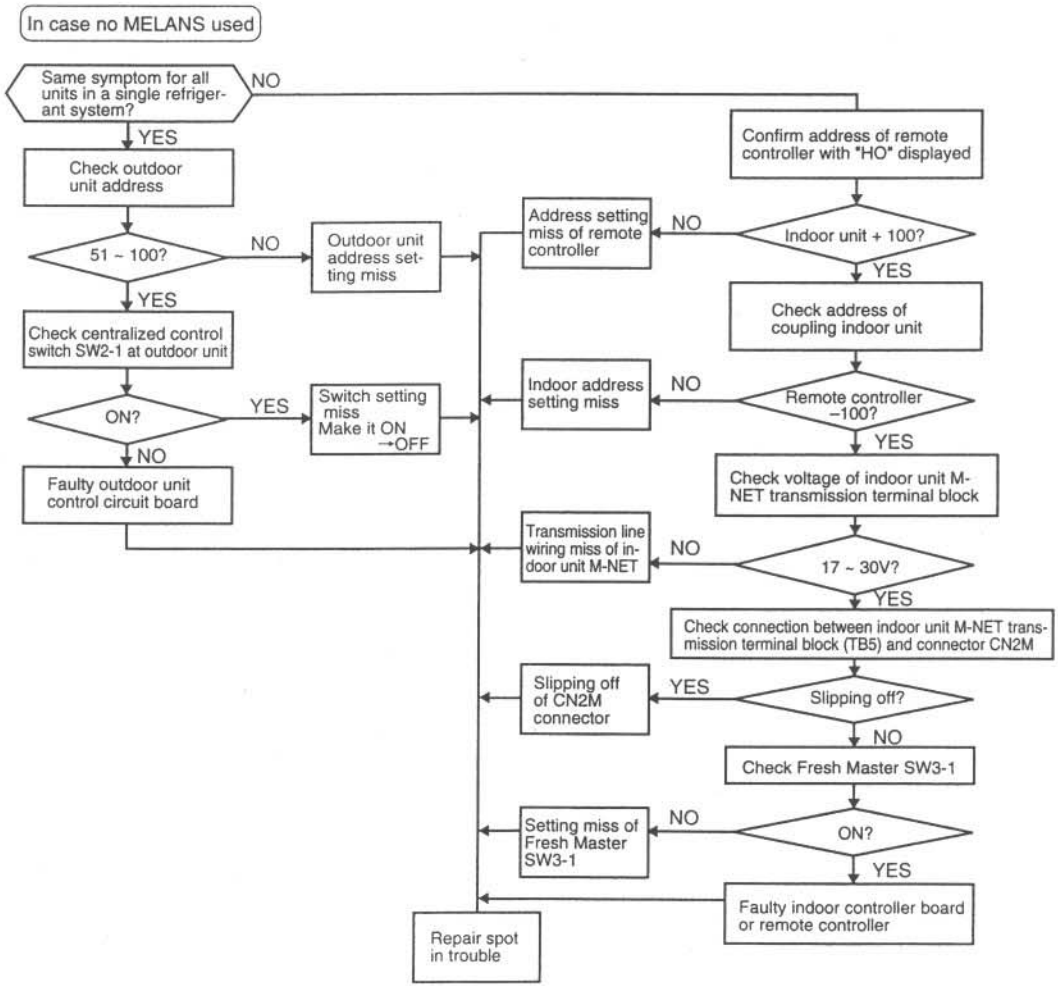
Checking method & countermeasure



*1 Check the transformer in accordance with the "TROUBLE SHOOTING" in the indoor unit's service handbook.

	Symptom	Cause
3	"HO" display on remote controller does not disappear and switch is ineffective.	(Without using MELANS) 1) Outdoor unit address is set to "000." 2) Erroneous address ①Address setting miss of indoor unit to be coupled with remote controller (Remote controller is not set to - 100.) ②Address setting miss of remote controller (Indoor unit is not set to + 100.) 3) Faulty wiring of transmission terminal block TB5 of indoor unit in the same group with remote controller 4) Centralized control SW2-1 of outdoor unit is turned ON. 5) Setting to interlocking system from indoor unit (Switch 3-1 = OFF), while Fresh Master is intended to use by remote controller operation (indoor unit attribute) 6) Disconnection or faulty wiring of indoor unit transmission line 7) Disconnection between indoor unit M-NET transmission line terminal block (TB5) and connector CN2M 8) More than 2 sets of power supply connector (CN40) are inserted into centralized control transmission line of outdoor unit. 9) Faulty outdoor unit control circuit board 10) Faulty indoor controller board 11) Faulty remote controller --- (Interlocking control with MELANS) 12) No grouping registration from MELANS (Neglecting to set the relation between indoor unit and network remote controller) 13) Slipping off of centralized control transmission line (TB7) at outdoor unit 14) At system connected with MELANS, power supply connector (CN40) is inserted to centralized control transmission line of outdoor unit

Checking method & countermeasure



In case with MELANS used

When MELANS is used, "HO" display on the remote controller will disappear at the group registration of the indoor unit and local remote controller.
If "HO" does not disappear after the registration, check the items 12) ~ 14) in the Cause column.

	Symptom	Cause	Checking method & countermeasure
4	"88" appears on remote controller at the registration and access remote controller	[Generates at registration and confirmation] 1) Erroneous address of unit to be coupled 2) Slipping off of transmission line of unit to be coupled (No connection) 3) Faulty circuit board of unit to be coupled 4) Installation miss of transmission line	a) Confirm the address of unit to be coupled. b) Check the connection of transmission line. c) Check the transmission terminal block voltage of unit to be coupled i) Normal if voltage is DC17 ~ 30V ii) Check the item d) in case other than i).
		[Confirmation of different refrigerant system controller] 5) Breaking of power source of outdoor unit to be confirmed 6) Slipping off of centralized control transmission line (TB7) of outdoor unit 7) Power supply connector (CN40) is not inserted into centralized control transmission line in grouping with different refrigerant system without using MELANS 8) More than 2 sets of power supply connector are inserted into the centralized control transmission line of outdoor unit 9) In the system connected with MELANS, power supply connector (CN40) is inserted into the centralized control transmission line of outdoor unit. 10) Short circuit of centralized control transmission line	d) Confirm the power source of outdoor unit to be coupled with the unit to be confirmed e) Confirm that the centralized control transmission line (TB7) of outdoor unit is not slipped off. f) Confirm the voltage of centralized control transmission line. i) Normal in case of 10V ~ 30V ii) Check the items 7) ~ 10) left in case that other than i).

Transmission Power Circuit (30 V) Check Procedure

If " ◎ " is not displayed by the remote control, investigate the points of the trouble by the following procedure and correct it.

No.	Check Item	Judgment	Response
1	Disconnect the transmission line from TB3 and check the TB3 voltage.	DC24~30 V	Check the transmission line for the following, and correct any defects. Broken wire, short circuit, grounding, faulty contact.
		Except the above-mentioned	to No. 2
2	Check if the following connectors are disconnected in the outdoor unit's control box. MAIN Board: CNS1, CNVCC3 INV Board: CNVCC2, CNL2, CNDC2	Connector disconnected	Connect the connectors as shown on the electric wiring diagram plate.
		Except the above-mentioned	to No. 3
3	Disconnect the wires from CNVCC3 on the Main board and check the voltage between pins 1 and 3 on the wire side of the CNVCC3. Tester ⊕ ..... 1 pin Tester ⊖ ..... 3 pin	DC24~30 V	Check the wiring between CNS1 and TB3 for the following, and correct any defects. Broken wire, short circuit, grounding, faulty contact. If there is no trouble, replace the Main board.
		Except the above-mentioned	to No. 4
4	Disconnect the wiring from CNVCC2 on the INV board and check the voltage between pins 1 and 3 of CNVCC2. Tester ⊕ ..... 1 pin Tester ⊖ ..... 3 pin	DC24~30 V	Check the wiring between CNVCC2 and CNVCC3 for the following, and correct any defects. Broken wire, short circuit, grounding, faulty contact.
		Except the above-mentioned	to No. 5
5	Disconnect the wiring from CNL2 on the INV board, and check the resistance at both ends of choke coil L2.	0.5~2.5 Ω	to No. 6
		Except the above-mentioned	Replace choke coil L2.
6	Check the voltage between pins 1 and 3 of CNDC2 on the INV board.	DC280~342 V	Replace the INV board.
		Except the above-mentioned	to No. 7
7	Check the resistance at both ends of F01 on the G/A board.	0 Ω	to No. 8
		Except the above-mentioned	Replace F01
8	Check the resistans at both ends of R1	20~24 Ω Except the above-mentioned	to No. 9 Replace R1
9	Chcke the DS	refer to "Judging Diode stack Failure" Except the above-mentioned	to No.10 Replace DS
10	Check the voltage between RS and T on power supply terminal block TB1.	AC198~242 V	Check the wiring to TB1 for the following and correct any defects. Broken wire, faulty contact.
		Except the above-mentioned	Check the power supply wiring and base power supply, and correct any defects.

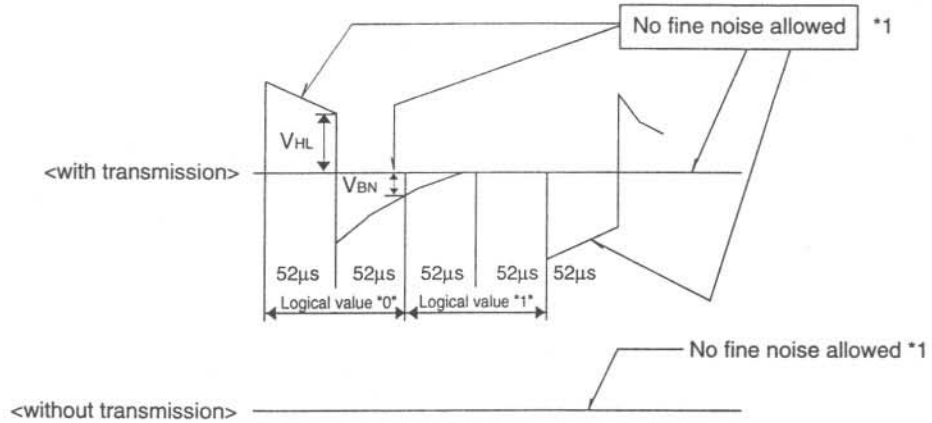
(6) Investigation of transmission wave shape/noise

Control is performed by exchanging signals between outdoor unit, indoor unit and remote controller by M-NET transmission. If noise should enter into the transmission line, the normal transmission will be hindered causing erroneous operation.

1) Symptom caused by the noise entered into transmission line

Cause	Erroneous operation	Error code
Noise entered into transmission line	Signal changes and is misjudged as the signal of other address.	6600
	Transmission wave shape changes to other signal due to noise.	6602
	Transmission wave shape changes due to noise, and can not be received normally thus providing no reply (ACK).	6607
	Transmission can not be made continuously due to the entry of fine noise.	6603
	Transmission can be made normally, but reply (ACK) or answer can not be issued normally due to noise.	6607 6608

2) Method to confirm wave shape



Check the wave shape of transmission line with an oscilloscope to confirm that the following conditions are being satisfied.

① The figure should be 104μs/bit ± 1%.
② No finer wave shape (noise) than the transmission signal (52μs ± 1%) should be allowed. *1
③ The sectional voltage level of transmission signal should be as follows.

Logical value	Transmission line voltage level
0	V_{HL} = 2.0V or more
1	V_{BN} = 1.3V or less

*1 However, minute noise from the DC-DC converter or inverter operation may be picked up.

3) Checking and measures to be taken

(a) Measures against noise

Check the items below when noise can be confirmed on wave shape or the error code in the item 1) is generated.

Items to be checked		Measures to be taken
Checking for wiring method	① Wiring of transmission and power lines in crossing	Isolate transmission line from power line (5cm or more). Never put them in a same conduit.
	② Wiring of transmission line with that of other system in bundle	Wire transmission line isolating from other transmission line. Wiring in bundle may cause erroneous operation like crosstalk.
	③ Use of shield wire for transmission line (for both indoor unit control and centralized control)	Use specified transmission wire. Type : Shield line CVVS/CPEVS Wire diameter : 1.25mm² or more
	④ Repeating of shield at the repeating of transmission line with indoor unit	The transmission line is wired with 2-jumper system. Wire the shield with jumper system as same for transmission line. When the jumper wiring is not applied to the shield, the effect against noise will be reduced.
	⑤ Are the unit and transmission lines grounded as instructed in the INSTALLATION MANUAL?	Connect to ground as shown in the INSTALLATION MANUAL.
Check for earthing	⑥ Earthing of the shield of transmission line (for indoor unit control) to outdoor unit	One point earthing should be made at outdoor unit. Without earthing, transmission signal may be changed as the noise on the transmission line has no way to escape.
	⑦ Arrangement for the shield of transmission line (for centralized control)	For the shield earth of the transmission line for centralized control, the effect of noise can be minimized if it is from one of the outdoor units in case of the group operation with different refrigerant systems, and from the upper rank controller in case the upper rank controller is used. However, the environment against noise such as the distance of transmission line, the number of connecting sets, the type of connecting controller, and the place of installation, is different for the wiring for centralized control. Therefore, the state of the work should be checked as follows. a) No earthing • Group operation with different refrigerant systems One point earthing at outdoor unit • Upper rank controller is used Earthing at the upper rank controller b) Error is generated even though one point earth is being connected. Earth shield at all outdoor units. Connect to ground as shown in the user's manual.

(b) When the wave height value of transmission wave shape is low, 6607 error is generated, or remote controller is under the state of "HO."

Items to be checked		Measures to be taken
	⑧ The farthest distance of transmission line is exceeding 200m.	Confirm that the farthest distance from outdoor unit to indoor unit/remote controller is less than 200m.
	⑨ The types of transmission lines are different.	Use the transmission wire specified. Type of transmission line : Shield wire CVVS/CPEVS Wire dia.of transmission line: 1.25mm² or more
	⑩ No transmission power (30 V) is being supplied to the indoor unit or the remote control.	Refer to "Transmission Power Supply (30 V) Circuit Check Procedure."
	⑪ Faulty indoor unit/remote controller	Replace outdoor unit circuit board or remote controller.

4) Treatment of Inverter and Compressor Troubles

If the compressor does not work when error codes 4240 or 4250 are detected, determine the point of malfunction by following the steps in the appropriate sections on the pages starting from page 75, then perform the procedures below.

No.	Check Item	Symptoms	Treatment
1	How many hours was the power kept on before operation?	① If it was kept on for 2 hours or longer as specified	Go to [2].
		② It was kept on for less than the specified period.	Go to [2] after keeping the power on for the specified time.
2	When it is restarted, does the trouble reappear?	① The compressor stops and the same error code is displayed.	Perform the check of wiring shown in the explanation of each error code.
3	Run the outdoor unit with the wiring to the compressor disconnected. At this time, change SW1-1 on the INV board to ON. Note) The terminals of the 3 disconnected wires should be isolated from each other.	① The compressor stops and the same error code is displayed.	Check the transistor module is faulty. (Go to "Individual Parts Failure Judgment Methods.")
		② If the inverter's output voltage is output with good balance, *1	Check the coil resistance and insulation resistance of the compressor, and if it is normal, run it again, and if the trouble occurs again, replace the compressor. * Insulation resistance : 1MΩ or more Coil resistance : 0.11Ω(20˚C)
		③ If the balance in the inverter's output voltage is not good or if the inverter's output voltages are all 0 V (a digital tester cannot be used) *1	Check the transistor module. Judge that the transistor module is faulty. (Go to "Individual Parts Failure Judgment Methods.") If the transistor module is normal, replace the INV board, then perform this item again with SW1-1 ON. If the problem is solved and you connect the compressor again, turn SW1-1 OFF again. Check the compressor's coil resistance and insulation resistance.

***1 [Cautions when measuring the voltage and current of the inverter's power circuit.]**

Since the voltage and current on the inverter's power supply side and its output side do not have a sine waveform, the measurement values will differ depending on the measuring instrument and the circuit measured.
In particular, as the inverter's output voltage has a pulse waveform, the output frequency also changes, so differences in measurement values will be great depending on the measuring instrument.

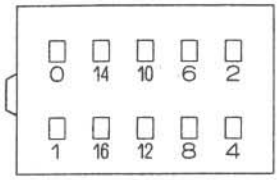
① When checking if the inverter's output voltage is unbalanced or not (relative comparison of the voltages between each of the lines), if you are testing with a portable tester, be sure to use an analog tester.
Use a tester of a type which can be used to judge if the IPM or diode module is faulty.
In particular, in cases where the inverter's output frequency is low, there are cases where the variations in measured voltage values between the different wires will be great when a portable digital tester is used, when in actuality they are virtually equal, and there is danger of judging that the inverter is faulty.

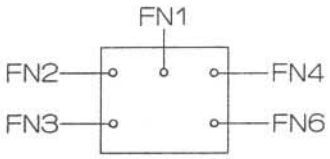
② It is recommended when checking the inverter's output voltage values (when measuring absolute values), that, if a measuring device for business frequencies is used, a rectified voltage meter (with a ⊣▶⊢ symbol) be used.
Correct measurement values cannot be obtained with an ordinary portable tester. (either analog or digital)

5) Troubleshooting at breaker tripping

Check items	Measures to be taken
[1] Check the breaker capacity.	The breaker's capacity should be proper.
[2] Check the a short circuit or grounding in the electrical system other than the inverter.	Correct any defects.
[3] Check the resistance between terminals on the terminal block TB1 for power source. ① 0 ~ several ohms or improper megohm value	Check each part inside the inverter power circuit (resistance, megohm or the like). a) Diode stack Refer to "Troubleshooting of diode stack." b) Power transistor Refer to "Troubleshooting of power transistor." c) Rush current protection resistor d) Electromagnetic contactor e) DC reactor * For c) ~ e), refer to "Individual Parts Failure Judgement Methods."
[4] Checking by powering again. ① Main power source circuit breaker tripping ② No display of remote controller	
[5] Operational check by operating air conditioner	
① Normal operation without breaker tripping.	a) As there is a possibility of instantaneous short circuit generated, find the mark of the short circuit for repair. b) When a) is not applicable, the compressor may be faulty.
② Breaker tripping	The ground fault of inverter output/compressor can be supposed. Disconnect the wiring to the compressor and check the insulation resistance of the following parts with a megger. a) Compressor terminals. b) Inverter output.

6) Individual Parts Failure Judgment Methods.

<table>
<tr><th>Part Name</th><th>Judgment Method</th></tr>
<tr><td>Diode Stack (DS)</td><td>Refer to "Judging Diode Stack Failure."</td></tr>
<tr><td>Transistor Module (TRM)</td><td>Refer to "Judging Transistor Module Failure."</td></tr>
<tr><td>Thyristor Module (SCRM)</td><td>Refer to "Judging Thyristor Module Failure."</td></tr>
<tr><td>Electromagnetic Contactor (52C)</td><td>Measure the resistance value at each terminal.
 

<table><tr><th>Check Location</th><th>Judgment Value</th></tr><tr><td>0-1</td><td>50~100kΩ</td></tr><tr><td>2-4 6-8
10-12 14-16</td><td>∞</td></tr></table></td></tr>
<tr><td rowspan="2">DC Reactor (DCL)</td><td>Measure the resistance between terminals: 1 Ω or lower</td></tr>
<tr><td>Measure the resistance between the terminals and the chassis: ∞</td></tr>
<tr><td>Cooling Fan (MF1)</td><td>Measure the resistance between terminals: 0.1K~1.5KΩ</td></tr>
<tr><td>POWER board</td><td>Measure the resistance valve at each terminal
 

<table><tr><th>Check Location</th><th>Judgment Value</th></tr><tr><td>FN 3-6, FN 2-4</td><td>Under 1Ω</td></tr><tr><td>FN 1-2, FN 2-3, FN4-6</td><td>∞</td></tr><tr><td>FN1, FN2, FN3, FN4, FN6</td><td>∞</td></tr></table></td></tr>
</table>

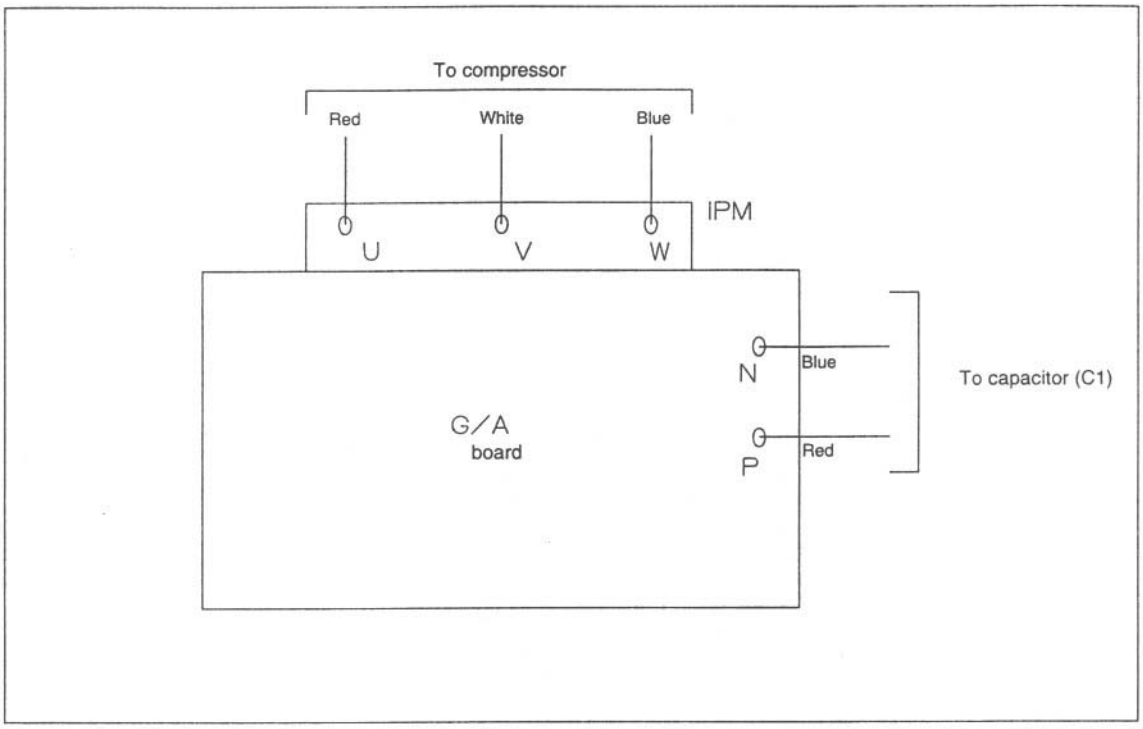
[Caution at replacement of inverter parts]

① The transistor module and INV board should be replaced together at the same time.
When the transistor module is damaged, the INV board may possibly be broken, and the use of the broken INV board damages the normal transistor module. Therefore, replace the transistor module and INV board together at the same time. However, if the INV board is damaged, judge that the transistor module is faulty, then judge whether replacement is necessary or not.

② Fully check wiring for incorrect and loose connection.
The incorrect or loose connection of the power circuit part wiring like transistor module and diode module causes to damage the transistor module. Therefore, check the wiring fully. As the insufficient tightening of screws is difficult to find, tighten them together additionally after finishing other works. For the wiring of the base for transistor module, observe the wiring diagram below carefully as it has many terminals.

③ Coat the grease for radiation provided uniformly onto the radiation surface of transistor/diode modules.
Coat the grease for radiation on the full surface in a thin layer, and fix the module securely with the screw for fastening. As the radiation grease attached on the wiring terminal causes poor contact, wipe it off if attached.

Model PUHY-200TM, 250TM



Check Code List

Check Code	Check Content	
0403	Serial transmission trouble	
0900	Trial operation	
1102	Discharge temperature trouble	
1111	Low pressure saturation temperature sensor trouble (TH2)	
1112	Low pressure saturation temperature trouble	Fluid level sensing temperature sensor trouble (TH4)
1113		Fluid level sensing temperature sensor trouble (TH3)
1302	High pressure trouble	
1500	Refrigerant volume charge trouble	
1505	Suction pressure trouble	
2500	Leakage (water) trouble	
2502	Drain pump trouble	
2503	Drain sensor trouble	
4102	Lacking power source error	
4103	Reverse phase error	
4115	Power supply sync signal trouble	
4116	Fan speed trouble (motor trouble)	
4200	VDC sensor/circuit trouble	
4220	Bus voltage trouble	
4230	Radiator panel overheat protection	
4240	Overcurrent protection	
4250	IPM//VDC trouble	
4260	Cooling fan trouble	
5101	Thermal sensor trouble	Air inlet (TH21:IC)
		Discharge (TH1:OC)
5102		Liquid pipe (TH22:IC)
		Low pressure saturation (TH2:OC)
5103		Gas pipe (TH23:IC)
		Accumulater liquid level (TH3)
5104		Accumulater liquid level (TH4)
5105		Liquid pipe (TH5)
5106		Ambient temperature (TH6)
5107		SC coil outlet (TH7)
5108		SC coil bypass outlet (TH8)
5110		Radiator panel (THHS)
5201	Pressure sensor trouble	
5301	IDC sensor/circuit trouble	
6600	Multiple address error	
6602	Transmission processor hardware error	
6603	Transmission circuit bus-busy error	
6606	Communications with transmission processor error	
6607	No ACK error	
6608	No response error	
7100	Total capacity error	
7101	Capacity code error	

Check Code	Check Content
7102	Connected unit count over
7105	Address setting error
7106	Characteristics setting error
7111	Remote control sensor error

Intermittent fault check code

Trouble Delay Cope	Trouble Delay Content
1202	Preliminary discharge temperature trouble or preliminary discharge thermal sensor trouble (TH1)
1205	Preliminary liquid pipe temperature sensor trouble (TH5)
1211	Preliminary low pressure saturation trouble or preliminary low pressure saturation sensor trouble (TH2)
1212	Preliminary low pressure saturation trouble or preliminary liquid level sensor upper thermal sensor trouble (TH4)
1213	Preliminary low pressure saturation trouble or preliminary liquid level sensor lower thermal sensor trouble (TH3)
1214	Preliminary THHS sensor/circuit trouble
1216	Preliminary sub-cool coil fluid outlet thermal sensor trouble (TH7)
1217	Preliminary sub-cool coil bypass outlet thermal sensor trouble (TH8)
1221	Preliminary ambient temperature thermal sensor trouble (TH6)
1402	Preliminary high pressure trouble or preliminary pressure sensor trouble
1600	Preliminary overcharge refrigerant trouble
1601	Preliminary lacked refrigerant trouble
1605	Preliminary suction pressure trouble
4300	Preliminary IDC sensor/circuit trouble
	Preliminary VDC sensor/circuit trouble
	Preliminary serial transmission trouble
4310	Preliminary overcurrent breaking trouble
4320	Preliminary bus voltage trouble
4330	Preliminary heat sink overheating trouble
4340	Preliminary overload protection
4360	Preliminary cooling fan trouble

[2] Self-diagnosis and Countermeasures Depending on the Check Code Displayed

(1) Mechanical

Checking code		Meaning, detecting method	Cause	Checking method & Countermeasure
0403	Serial transmission trouble	If serial transmission cannot be established between the MAIN and INV boards	1) Wiring is defective.	Check 1, the connections, 2, contact at the connectors and 3, for broken wires in the following wiring. CNRS2 - CNRS3 CNAC2 - TB1A
			2) Switches are set wrong on the INV board.	SW1-4 on the INV board should be OFF.
			3) A fuse (F01) on the INV board is defective.	If the fuse is melted, (if the resistance between the both ends of fuse is ∞), replace the fuse.
			4) The circuit board is defective.	If none of the items in 1) to 3) is applicable, and if the trouble reappears even after the power is switched on again, replace the circuit board by the following procedure (when replacing the circuit board, be sure to connect all the connectors, ground wires, etc. securely). ① If serial transmission is restored after the INV board only is replaced, then the INV board is defective. ② If serial transmission is not restored, reinstall the INV board and replace the MAIN board. If serial transmission is restored, the MAIN board is defective. ③ If serial transmission is not restored by ① and ② above, replace both boards.
1102	Discharge temperature trouble (Outdoor unit)	1. When 140°C or more discharge temperature is detected during op-erations (the first time), outdoor unit stops once, mode is changed to restart mode after 3 minutes, then the outdoor unit restarts. 2. When 140°C or more temp. is detected again (the second time) within 30 minutes after stop of outdoor unit, error stop is observed with code No. "1102" displayed. 3. When 140°C or more temp. is detected 30 or more minutes after stop of outdoor unit, the stop is regarded as the first time and the process shown in 1 is observed. 4. 30 minutes after stop of outdoor unit is intermittent fault check period with LED displayed(1202).	1) Gas leak, gas shortage	See **Refrigerant amount check**.
			2) Overload operations	Check operating conditions and operation status of indoor/outdoor units.
			3) Poor operations of indoor LEV 4) Poor operations of OC controller LEV Cooling : LEV1	Check operation status by actually performing cooling or heating operations. Cooling : Indoor LEV LEV1 Heating : Indoor LEV See **Trouble check of LEV and solenoid valve.**
			5) Poor operations of ball valve	Confirm that ball valve is fully opened.
			6) Outdoor unit fan block, motor trouble, poor operations of fan controller→Heating [3) ~ 6) : Rise in discharge temp. by low pressure drawing]	Check outdoor fan. See **Trouble check of outdoor fan.**
			7) Gas leak between low and high pressures [4-way valve trouble, compressor trouble, solenoid valve SV1 trouble]	Check operation status of cooling or heating.
			8) Poor operations of solenoid valve SV2 [Bypass valve SV2 can not control rise in discharge temp.]	See **Trouble check of solenoid valve.**
			9) Thermistor trouble	Check resistance of thermistor
			10) Thermistor input circuit trouble on control circuit board	Check inlet temperature of sensor with LED monitor.

Checking code			Meaning, detecting method	Cause	Checking method & Countermeasure
1111	Low pressure saturation temperature trouble	Low pressure saturation temperature sensor trouble (TH2)	1. When saturation temperature sensor (TH2) or liquid level detecting temperature sensors (TH3, TH4) detects –40°C or less (the first time) during operations, outdoor unit stops once, mode is changed to restart mode after 3 minutes, then the outdoor unit restarts. 2. When –40°C or less temp. is detected again (the second time) within 30 minutes after stop of outdoor unit, error stop is observed with code Nos. "1111," "1112," or "1113" displayed. 3. When –40°C or less temperature is detected 30 or more minutes after stop of outdoor unit, the stop is regarded as the first time and the process shown in 1. is observed. 4. 30 minutes after stop of outdoor unit is intermittent fault check period with LED displayed. Note: 1. Low press. saturation temperature trouble is not detected for 3 minutes after compressor start, and finish of defrosting operations, and during defrosting operations. 2. In the case of short/open of TH2~TH4 sensors before starting of compressor or within 10 minutes after starting of compressor, "1111," "1112," or "1113" is displayed too.	1) Gas leak, Gas shortage	See **Refrigerant amount check**.
				2) Insufficient load operations	Check operating conditions and operation status of outdoor unit.
				3) Poor operations of indoor LEV 4) Poor operations of OC controller LEV1. Cooling : LEV1	Check operation status by actually performing cooling or heating operations. Cooling : indoor LEV LEV1 Heating : indoor LEV See **Trouble check of LEV and solenoid valve**.
1112		liquid level sensing temperature sensor trouble (TH4)		5) Poor operations of ball valve	Confirm that ball valve is fully opened.
				6) Short cycle of indoor unit 7) Clogging of indoor unit filter 8) Fall in air volume caused by dust on indoor unit fan 9) Dust on indoor unit heat exchanger 10) Indoor unit block, Motor trouble 5)~10) : Fall in low press. caused by lowered evaporating capacity in cooling operation.	Check indoor unit, and take measures to troube
				11) Short cycle of outdoor unit 12) Dust on outdoor heat exchanger	Check outdoor unit, and take measures to trouble
				13) Indoor unit fan block, motor trouble, and poor operations of fan controller [10)~12) : Fall in low press. caused by lowered evaporating capacity in heating operation.]	Check outdoor unit fan. See **Trouble check of outdoor unit fan**.
1113		liquid level sensing temperature sensor trouble (TH3)		14) Poor operations of solenoid valve SV2 [Bypass valve (SV2) can not control low pressure drop.]	See **Trouble check of solenoid valve**.
				15) Thermistor trouble (TH2~TH6)	Check resistance of thermistor
				16) Pressure sensor trouble	See **Trouble check of pressure sensor**.
				17) Control circuit board thermistor trouble and pressure sensor input circuit trouble	Check inlet temp. and press. of sensor by LED monitor.
				18) Poor mounting of thermistor (TH2~TH6)	

Checking code		Meaning, detecting method	Cause	Checking method & Countermeasure
1302	High pressure trouble 1 (Outdoor unit)	1. When press. sensor detects 28kg/cm² or more during operations (the first time), outdoor unit stops once, mode is changed to restart mode after 3 minutes, then the outdoor unit restarts. 2. When 30kg/cm² or more pres- sure is detected again (the second time) within 30 minutes after stop of outdoor unit,error stop is observed with code No. "1302" displayed. 3. When 28kg/cm² or more pres-sure is detected 30 or more minutes after stop of outdoor unit, the detection is regarded as the first time and the process shown in 1 is observed. 4. 30 minutes after stop of outdoor unit is intermittent fault check period with LED displayed. 5. Error stop is observed immediately when press. switch ($30\ ^{+0}_{-1.5}$ kg/cm²) operates in addition to pressure sensor.	1) Poor operations of indoor LEV	Check operations status by actually performing cooling or heating operations. Cooling : Indoor LEV LEV1 Heating : Indoor LEV See **Trouble check of LEV and solenoid valve**.
			2) Poor operations of ball valve	Confirm that ball valve is fully opened.
			3) Short cycle of indoor unit 4) Clogging of indoor unit filter 5) Fall in air volume caused by dust on indoor unit fan 6) Dust on indoor unit heat exchanger 7) Indoor unit fan block, motor trouble [2)~7) : Rise in high pressure caused by lowered condensing capacity in heating operation]	Check indoor unit and take measures to trouble.
			8) Short cycle of outdoor unit 9) Dust on outdoor unit heat exchanger	Check outdoor unit and take measures to trouble.
			10) Outdoor unit fan block, motor trouble, poor operations of fan controller [8)~10) : Rise in high press. caused by lowered condensing capacity in cooling operation]	Check outdoor unit fan See **Trouble check of outdoor unit fan.**
			11)Poor operations of solenoid valves SV1, 2 (Bypass valves (SV1, 2) can not control rise in high pressure)	See **Trouble check of solenoid valve**.
			12)Thermistor trouble (TH2, TH5, TH6)	Check resistance of thermistor.
			13) Pressure sensor trouble	Check **Trouble check of pressure sensor**.

Checking code		Meaning, detecting method	Cause	Checking method & Countermeasure
1302	High pressure trouble 1 (Outdoor unit)		16) Control circuit board thermistor trouble, press. sensor input circuit trouble	Check inlet temperature and press. of sensor with LED monitor.
			17) Poor mounting of thermistor (TH2, TH5, H6) 18) Coming loose the connecter of pressure switch or cut of the wire.	
	High pressure trouble 2 (Outdoor unit)	When press. sensor detects 1kg/cm² or less just before starting of operation, erro stop is observed with code No. "1302" displayed.	1) Fall in internal press. caused by gas leak 2) Press. sensor trouble 3) Film breakage 4) Coming off of pin in connector portion, poor contact 5) Broken wire 6) Press. sensor input circuit trouble on control circuit board	See **Trouble check of pressure sensor.**
1500	Refrigerant volume charge trouble	1. When liquid level of accumulator reaches AL=2 (overflow level) during operations (the first time), outdoor unit stops once, mode is changed to restart mode after 3 minutes, then the unit restarts. 2. When liquid level of accumulator reaches AL=2 (overflow level) again (the second time), error stop is observed with code No."1500" displayed. 3. When liquid level of accumulator reaches AL=2 (overflow level) 30 or more minutes after stop of outdoor unit, the detection is regarded as the first time and the process shown in 1. is observed.	1) Excessive refrigerant charge 2) Broken wire of liquid level heater 3) Poor heater output caused by con-trol circuit board trouble	See **Refrigerant amount check.**
			4) Thermistor trouble (TH2, TH3, TH4)	Check resistance of thermistor
			5) Thermistor input circuit trouble on control circuit board	Check temperature and pressure of sensor with LED monitor.
			6) Poor mounting of thermistor (TH1, TH2, TH3, TH4)	
			4. 30 minutes after stop of outdoor unit is intermittent fault check period with LED displayed.	5. In the case of ignore error indication switch (SW2-6) ON, the detection for the second time is followed by the first time.
1505	Suction pressure trouble	<Condition 1> 1. Judging that the state when the suction pressure reaches 0kg/cm²G during compressor operation indicates high pressure by the discharge temperature and low pressure saturation temperature, the back-up control by gas bypassing will be conducted. 2. The outdoor unit once stops entering into the 3-minutes restart mode if the state of 1 continues for 3 minutes, and restarts after 3 minutes. 3. After restarting, if the same state as 1 continues within 30 minutes from the stopping of 2, error stop will be commenced displaying "1505". 4. Ineffective if the compressor operating time (integrated) exceeds 60-minutes not detecting trouble.	• Operation while neglecting to open ball valve. Especially for the ball valve at low pressure side. At cooling : Gas side ball valve At heating : Liquid side ball valve • When plural systems are existing, the low pressure abruptly drop at indoor stopping by the erroneous wiring of transmission line (different connection of transmission line and refrigerant piping). • Temporary vacuum condition due to refrigerant distribution unbalance (insufficient refrigerant of low pressure line) immediately after charging refrigerant.	Once vacuum operation protection is commenced, do not attempt to restart until taking the measures below. <Checking method> • Check ball valve for neglecting to open. • Check extended piping for clogging when ball valve is opened. • Check transmission line for erroneous wiring. (Confirm the correct wiring and piping connection between indoor and outdoor units by operating indoor unit one by one.) <Countermeasure> • After checking with the above method, make error reset by power source reset. • Then operate for 10~15-minutes under the operation mode reverse to that when the vacuum operation protection occurred (Heating if error occurred in cooling, while cooling if it occurred in heating), and then enter into the ordinary operation state.

Checking code		Meaning, detecting method	Cause	Checking method & Countermeasure
2500	Leakage (water) trouble	When drain sensor detects flooding during drain pump OFF.	1) Water leak due to humidifier or the like in trouble.	Check water leaking of humidifier and clogging of drain pan.
2502	Drain pump trouble	The drain sensor's water drain* and after the drain pump is turn on for more than three minuites. * Drain sensor's water drain condition when indirect heater of drain after 40 second's. • Rise in temperature of drain sensor is 20 deg or less or • The temperature of the drain sensor is 63°C or less.	1) Drain sensor sinks in water because drain water level rises due to drain water lifting-up mechanism trouble.	Check operations of drain pump.
			2) Broken wire of indirect heater of drain sensor	Measure resistance of indirect heater of drain sensor. (Normal: Approx. 82Ω between 1–3 of CN50)
			3) Detecting circuit (circuit board) trouble Indoor LEV operation is faulty. 4) The trable of indoor LEV	Indoor board trouble if no other problems is detected. Operate in fan mode checking to make sure that the temperature of TH2 and TH3 rise to the around the same level.
2503	Drain sensor trouble	Short/open is detected during drain pump operations. (Not detected when drain pump is not operating.) Short : 90°C or more detected Open : −40°C or less detected	1) Thermistor trouble 2) Poor contact of connector (insufficient insertion) 3) Full-broken of half-broken thermistor wire	Check resistance of thermistor 0°C : 15kΩ 10°C : 9.7kΩ 20°C : 6.4kΩ 30°C : 4.3kΩ 40°C : 3.1kΩ
			4) Indoor unit circuit board (detecting circuit) trouble	Check contact of connector Indoor port trouble if no other problem is detected.
2600	Water leak trouble	—	Water leak from piping of humidifier	Confirm water leaking section.
2601	Water suspension trouble	—	1) Water is not supplied to water tank for humidifying. 2) The solenoid valve for humidifying is set to OFF. 3) Disconnection of float switch. 4) Faulty operation of float switch. 5) Freezing of water tank.	Confirm supply water volume. Solenoid valve and connection Confirm connector section. Confirm connecting section. Faulty float switch. Turn power source OFF once, and turn ON after thawaing.
	Operation of float switch	When Float switch operates (point of contact : OFF), error stop is observed with code No. "2503" displayed.	1) Drain up input trouble 2) Poor contact of float switch circuit 3) Float switch trouble	Check drain pump operations Check connect contact. Check float switch operations.

Checking code		Meaning, detecting method	Cause	Checking method & Countermeasure
4102	Open phase error	Open phase in the power system is being detected, so operation cannot be started.	1) Open phase has occurred in the power supply (R, S, T).	Check before the breaker, after the breaker or at the power supply terminal blocks TB1, and if there is an open phase, correct the connections. a) Check if a wire is disconnected. b) Check the voltage between each of the wires.
			2) The wiring is faulty.	Check 1 the connections, 2, the contact at the connector, 3, the tightening torque at screw tightening locations and 4 for wiring disconnections. TB1~EN20 Refer to the circuit number and the wiring diagram plate.
			3) The fuse is faulty.	If F1, F2 or F3 on the MAIN board is melted, (Resistance between both ends of the fuse is ∞), replace the fuses.
			4) The circuit board is faulty.	If none of the items in 1) to 4) is applicable, and if the trouble reappears even after the power is switched on again, replace the MAIN board (when replacing the circuit board, be sure to connect all the connectors, etc. securely).
4103	Reverse phase error	Reverse phase (or open phase) in the power system is being detected, so operation cannot be started.	1) The phases of the power supply (R, S, T) have been reversed.	If there is reverse phase before the breaker, after the breaker or at the power supply terminal blocks TB1, reconnect the wiring.
			2) Open phase has occurred in the power supply (R, S, T).	Check before the breaker, after the breaker or at the power supply terminal blocks TB1, and if there is an open phase, correct the connections. a) Check if a wire is disconnected. b) Check the voltage between each of the wires.
			3) The wiring is faulty.	Check 1 the connections, 2, the contact at the connector, 3, the tightening torque at screw tightening locations and 4 for wiring disconnections. TB1~EN20 Refer to the circuit number and the wiring diagram plate.
			4) The fuse is faulty.	If F1 or F2 or F3 on the MAIN board is melted, (Resistance between both ends of the fuse is ∞), replace the fuses.
			5) The circuit board is faulty.	If none of the items in 1) to 4) is applicable, and if the trouble reappears even after the power is switched on again, replace the MAIN board (when replacing the circuit board, be sure to connect all the connectors, etc. securely).

Checking code		Meaning, detecting method	Cause	Checking method & Countermeasure
4115	Power supply sync signal trouble	The frequency cannot be determined when the power is switched on. (The power supply's frequency cannot be detected. The outdoor fan cannot be controlled by phase control.)	1) There is an open phase in the power supply (L1, L2, L3, N)	Check before the breaker, after the breaker or at the power supply terminal blocks TB1 or TB1A, and if there is an open phase, correct the connections.
			2) The power supply voltage is distorted.	If the power supply voltage waveform is distorted from a sine wave, improve the power supply environment.
			3) A fuse is defective.	If F1 on the MAIN board, or F3 is melted, (Resistance between both ends of the fuse is ∞), replace the fuses.
			4) T01 is defective.	To judge failure of the T01, go to "Individual Parts Failure Judgment Methods."
			5) The circuit board is defective.	If none of the items in 1) to 4) is applicable, and if the trouble reappears even after the power is switched on again, replace the MAIN board (when replacing the circuit board, be sure to connect all the connectors, ground wires, etc. securely).
4116	Fan speed trouble (motor trouble)	(Detects only for PKFY-NAM) 1. Detecting fan speed below 180rpm or over 2000rpm during fan operation at indoor unit (first detection) enters into the 3-minute restart prevention mode to stop fan for 30 seconds. 2. When detecting fan speed below 180rpm or over 2000rpm again at fan returning after 30 seconsd from fan stopping, error stop (fan also stops) will be commenced displaying 4116.	1) Slipping off of fan speed detecting connector (CN33) of indoor controller board	• Confirm slipping off of connector (CN33) on indoor controller board.
			2) Slipping off of fan output connector (FAN1) of indoor power board	• Confirm slipping off of connector (FAN1) on indoor power board.
			3) Disconnection of fan speed detecting connector (CN33) of indoor controller board, or that of fan output connector (FAN1) of indoor powr board.	• Check wiring for disconnection.
			4) Filter cologging	• Check filter.
			5) Trouble of indoor fan motor	• Check indoor fan motor.
			6) Faulty fan speed detecting circuit of indoor controller board, or faulty fan output circuit of indoor power board.	• When aboves have no trouble. 1) For trouble after operating fan. Replace indoor controller board. If not remedied, replace indoor power board. 2) For trouble without operating fan. Replace indoor power board.

Checking code		Meaning, detecting method	Cause	Checking method & Countermeasure
4200	VDCsensor/ circuit trouble	① If VDC ≦ 150 V is detected just before the inverter starts. ② If VDC ≧ 400 V is detected just before the inverter starts. ③ If the voltage of the INV board's sensor circuit input is what it should not normally be.	1) Power supply voltage is abnormal.	• Check if an instantaneous power failure or power failure, etc. has occurred. • Check if the voltage is the rated voltage value.
			2) The wiring is defective.	Check 1, the connections, 2, contact at the connectors, 3 tightening torque at screw tightened portions, 4, wiring polarities, 5, for broken wires, and 6, for grounding in the following wiring. TB1 ~ DS ~ POER Board ~ 52C ~ R1 ~ DCC~C1 ~ IPM ~ GA Board (F1) ~ CNDC1 ~ CNDC2 wiring * Check if the wiring polarities are as shown on the electric wiring diagram plate.
			3) The rush current prevention resistors (R1) are defective.	To judge failure of R1, go to "Individual Parts Failure Judgment Methods."
			4) The electromagnetic contactor (52C) is defective.	To judge failure of the 52C, go to "Individual Parts Failure Judgment Methods."
			5) The diode stack (DS) is defective.	To judge failure of the DS, go to "Individual Parts Failure Judgment Methods."
			6) The reactor (DCL) is defective.	To judge failure of the DCL, go to "Individual Parts Failure Judgment Methods."
			7) The INV board is defective.	If none of the items in 1) to 6) is applicable, and if the trouble reappears even after the power is switched on again, replace the INV board, (when replacing the circuit board, be sure to connect all the connectors, etc. securely)

Checking code		Meaning, detecting method	Cause	Checking method & Countermeasure
4220	Bus voltage trouble	If VDC ≦ 220 V is detected during inverter operation.	1) The power supply voltage is abnormal.	• Check if an instantaneous stop or power failure, etc. has occurred. • Check if the voltage is the rated voltage value.
			2) The wiring is defective.	Check 1, the connections, 2, contact at the connectors, 3 tightening torque at screw tightened portions, 4, wiring polarities, 5, for broken wires, and 6, for grounding in the following wiring. TB1 ~ DS ~ Power Board ~ 52C ~ R1 ~ DCC ~ C1 ~IPM ~ GA Board (F1) ~ CNDC1 ~ CNDC2 Wiring CN1501 ~ CN1502 Wiring CNDR1 ~ CNDR2 Wiring * Check if the wiring polarities are as shown on the wiring diagram plate.
			3) The rush current prevention resistors (R1) are defective.	To judge failure of R1 and R5, go to "Individual Parts Failure Judgment Methods."
			4) The electromagnetic contactor (52C) is defective.	To judge failure of the 52C, go to "Individual Parts Failure Judgment Methods."
			5) The diode stack (DS) is defective.	To judge failure of the DS, go to "Individual Parts Failure Judgment Methods."
			6) The reactor (DCL) is defective.	To judge failure of the DCL, go to "Individual Parts Failure Judgment Methods."
			7) The inverter output is grounded.	• Check the wiring between the IPM and the compressor. • Check the compressor's insulation resistance.
			8) The capacitor (C1) is defective	Check the capacity of C1. (If C1<3700 μF is defective)
			9) The circuit board is defective.	If none of the items in 1) to 8) is applicable, and if the trouble reappears even after the power is switched on again, replace the INV board (when replacing the circuit board, be sure to connect all the connectors, ground wires, etc. securely).
4230	Radiator panel overheat protection	If the cooling fan stays ON for 5 minutes or longer during inverter operation, and if THHS ≧ 92°C is detected.	1) The wiring is defective.	Check 1 connections, 2 contact at the connectors and 3 for broken wires in the following wiring. MF1~CNFAN
			2) The INV board fuse (F01) is defective.	If the fuse is defective, replace the fuse.
			3) The cooling fan (MF1) is defective.	To judge failure of the MF1, go to "Individual Parts Failure Judgment Methods."
			4) The THHS sensor is defective.	To judge failure of the THHS, go to error code "5110".
			5) The air passage is clogged.	If the air passage of the heat sink is clogged, clear the air passage.
			6) The INV board is defective.	If none of the items in 1) to 5) is applicable, and if the trouble reappears even after the power is switched on again, replace the INV board (when replacing the circuit board, be sure to connect all the connectors, ground wires, etc. securely).

Checking code		Meaning, detecting method	Cause	Checking method & Countermeasure
4240	Overcurrent protection	If IDC ≧ 103 A is detected continuously for 10 minutes during operation of the inverter after 5 or more seconds have passed since the inverter started.	1) Air passage Short Cycle	Is the unit's exhaust short cycling?
			2) The heat exchanger is clogged.	Clean the heat exchanger.
			3) Power Supply Voltage	If the power supply voltage is less than 198 V, it is outside specifications.
			4) External Air Temperature	If the external air temperature is over than 43°C it is outside the specifications.
			5) Capacity Setting Error	• Is the indoor unit capacity total appropriate? • Are the outdoor/indoor unit capacity settings appropriate?
			6) The THHS sensor is defective.	To judge failure of the THHS, go to the item for error code "5110."
			7) The solenoid valves (SV1, 2) are defective, or the solenoid valve drive circuit is defective.	To judge failure of the solenoid valve, go to "Individual Parts Failure Judgment Methods" for the "Solenoid Valve."
			8) The wiring is defective.	Check 1 connections, 2 contact at the connectors and 3 for broken wires in the following wiring. CNFAN1-MF1
			9) Fan motor (MF) operation is defective.	Go to "Treating Fan Motor Related Trouble."
			10) The inverter/compressor is defective.	Go to "Treating Inverter/Compressor Related Trouble."
			11) The circuit board is defective.	If none of the items in 1) to 10) is applicable, and if the trouble reappears even after the power is switched on again, replace the MAIN board (when replacing the circuit board, be sure to connect all the connectors, ground wires, etc. securely).
4250	Breaking of overcurrent	1) IPM/VDC trouble	1) Self protection by IPM break out, (over current, over heat, under control voltage)	Go to the item for error code 4230, 4240.
		2) If IDC ≧ 200 A is detected during inverter operation.	1) The power supply voltage is abnormal.	• Check if an instantaneous power failure or power failure, etc. has occurred. • Check if the voltage is the rated voltage value.
			2) The wiring is defective.	Check 1, the connections, 2, contact at the connectors, 3 tightening torque at screw tightened portions, 4, wiring polarities, 5, for broken wires, and 6, for grounding in the following wiring. * Check if the wiring polarities are as shown on the wiring diagram plate. * Check the coil resistances and insulation resistance of the compressor.
			3) The inverter/compressor is defective.	Go to "Treatment of Inberter/Compressor Releated Trouble."
		3) If VDC ≧ 350V or VDC ≦ 190V is detected during inverter operates.	(the same as error code 4220)	Go to the item for error code 4220.

Checking code		Meaning, detecting method	Cause	Checking method & Countermeasure
4260	Cooling fan trouble	If the heat sink temperature (THHS) ≧ 60°C for 18 minutes or longer just before the inverter starts.	1) Same as "4230."	Same as "4230."
5110	Radiator panel	If a heat sink temperature of (THHS) ≦ 40°C is detected just before starting of, and during operation of the inverter.	1) The THHS Sensor is defective.	Judge that the THHS has failed. Go to error code "5110."
			2) Contact is faulty.	Check the contacts of CNTH on the INV board.
			3) The INV board is defective.	If none of the items in 1) to 2) is applicable, and if the trouble reappears even after the power is switched on again, replace the INV board (when replacing the circuit board, be sure to connect all the connectors, ground wires, etc. securely).
5301	IDC sensor/ circuit trouble	• If IDC ≧ 20 A is detected just before the inverter starts, or • If IDC ≦ 10 A is detected during inverter operation after 5 seconds has passed since the inverter started when the INV board's SW1-1 is OFF.	1) Contact is faulty.	Check the contacts of CNCT on the INV board.
			2) The current sensor (DCCT) is connected with reverse polarity.	Check the DCCT polarity.
			3) An error was made in the SW1-1 setting.	• With SW1-1 OFF, is the inverter's output wiring open? • With SW1-1 OFF, is a compressor which is not specified for this model connected to the inverter's output?
			4) The INV board is defective. The current sensor (DCCT) is defective.	If none of the items in 1) to 3) is applicable, and if the trouble reappears even after the power is switched on again, replace the INV board and the DCCT (when replacing the circuit board, be sure to connect all the connectors, ground wires, etc. securely) by the following procedure. ① Replace the INV board only. If it recovers, the INV board is defective. ② If it does not recover, reinstall the INV board and replace the DCCT. If it recovers, the DCCT is defective. If it does not recover after ① and ② above, both the INV board and the DCCT are defective.
7130	Different indoor model connected error	An exclusive R22 refrigerant indoor unit was connected to a R407C retrigerant outdoor unit.	1) An error was made in the MAIN board of the outdoor unit (replaced with the wrong circuit board).	If the model name plate on the outdoor unit says that it is an exclusive R22 model, and if error "7130" has occurred, the MAIN board for the outdoor unit is a R407C model circuit board, so replace it with the MAIN board for the R22 model.
			2) An error was made in selecting the indoor unit (installation error).	If the model name plate for the indoor unit is an exclusive R22 model. Install a unit which can also operate with R407C.
			3) An error was made in the indoor unit's circuit board (replaced with the wrong circuit board).	If the model name plate on the indoor unit indicates that it is also capable of operating with R407C, and error "7130" occurs, the indoor unit's circuit board is for an exclusive R22 model, so replace it with the circuit board for a unit which is also capable of using R407C.

Checking code			Meaning, detecting method	Cause	Checking method & Countermeasure
5101	Thermal Sensor Error, Outdoor Unit	Discharge (TH1)	<Other than THHS> ① A short in the thermistor or an open circuit was sensed. The outdoor unit switches to the temporary stop mode with restarting after 3 minutes, then if the temperature detected by the thermistor just before restarting is in the normal range, restarting takes place. ② If a short or open circuit in the thermistor is detected just before restarting, error code "5101", "5102", "5104", "5105", "5106", "5107", "5108" or "5109" is displayed. ③ In the 3 minute restart mode, the abnormal stop delay LED is displayed. ④ The above short or open circuit is not detected for 10 minutes after the compressor starts, or for 3 minutes during defrosting or after recovery following defrosting. <THHS> If a heat sink (THHS) temperature of ≦ -40°C is detected just after the inverter starts or during inverter operation.	1) Thermistor	Check the thermistor's resistance.
5102		Low pressure saturation (TH2)		2) Lead wires are being pinched.	Check if the lead wires are pinched.
5103		Accumulater liquid level (TH3)		3) Insulation is torn.	Check for tearing of the insulation.
				4) A connector pin is missing, or there is faulty contact.	Check if a pin is missing on the connector.
				5) A wire is disconnected.	Check if a wire is disconnected.
5104		Accumulater liquid level (TH4)		6) The thermistor input circuit on the MAIN circuit board is faulty. (In the case of the THHS, replace the INV board.)	Check the temperature picked up by the sensor using the LED monitor. If the deviation from the actual temperature is great, replace the MAIN circuit board. (In the case of the THHS, replace the INV board.)
5105		Liquid pipe (TH5)			
5106		Ambient temperature (TH6)			
5107		SC coil outlet (TH7)			
5108		SC coil bypass outlet (TH8)			
5110		Radiator panel (THHS)			

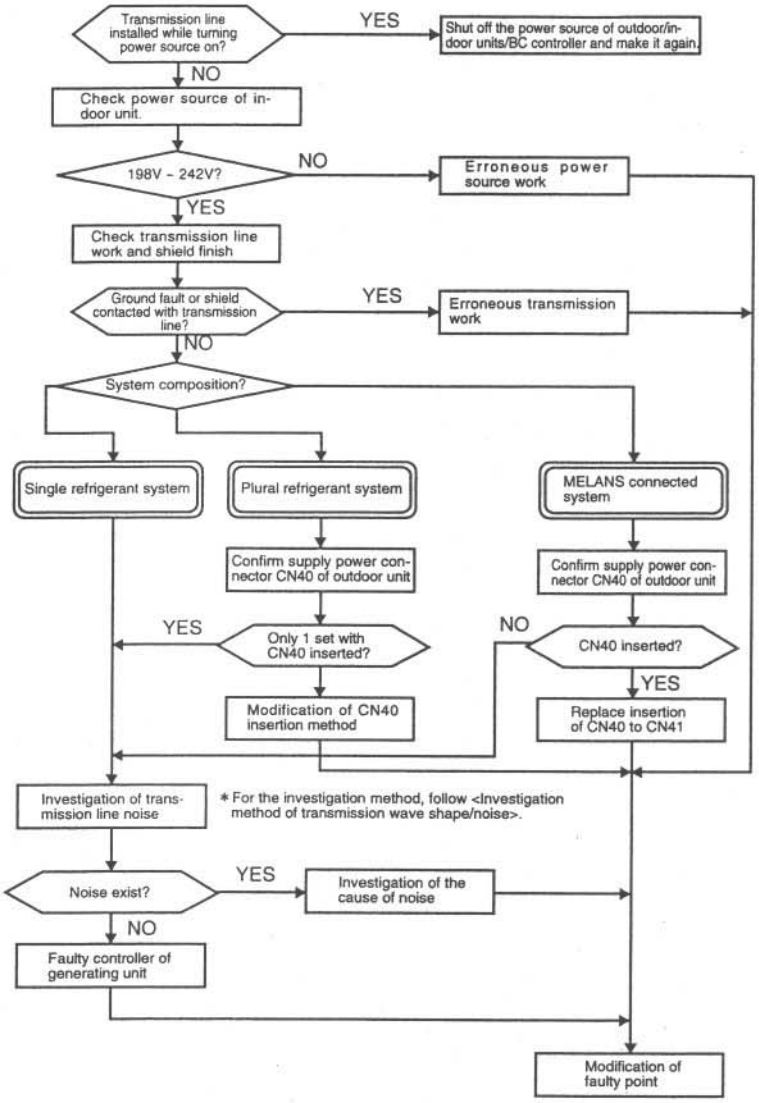
	Short Circuit Detection	Open Circuit Detection
TH1	240°C or higher (0.57 kΩ)	15°C or lower (321 kΩ)
TH2	70°C or higher (1.14 kΩ)	-40°C or lower (130 kΩ)
TH3	70°C or higher (1.14 kΩ)	-40°C or lower (130 kΩ)
TH4	70°C or higher (1.14 kΩ)	-40°C or lower (130 kΩ)
TH5	110°C or higher (0.4 kΩ)	-40°C or lower (130 kΩ)
TH6	110°C or higher (0.4 kΩ)	-40°C or lower (130 kΩ)
TH7	70°C or higher (1.14 kΩ)	-40°C or lower (130 kΩ)
TH8	110°C or higher (0.4 kΩ)	-40°C or lower (130 kΩ)
THHS	100°C or higher (3.0 kΩ)	-40°C or lower (2.5 kΩ)

5201		Pressure sensor trouble	① When pressue sensor detects 1kg/cm² or less during operation, outdoor unit once stops with 3 minutes restarting mode, and restarts if the detected pressure of pressure sensor exceeds 1kg/cm² imediately before restarting. ② If the detected pressure of sensor is less than 1kg/cm² immediately before restarting, error stop is commenced displaying 5201. ③ Under 3 minutes restarting mode, LED displays intermittent fault check. ④ During 3 minutes after compressor start, defrosting and 3 minutes after defrosting operations, trouble detection is ignored.	1) Pressutre sensor trouble. 2) Inner pressure drop due to a leakage 3) Broken cover. 4) Coming off of pin at connector portion, poor contact. 5) Broken wire 6) Faulty thermistor input circuit of MAIN board.	See **Troubleshooting of pressure sensor.**

(2) Communication/system

Checking code	Meaning, detecting method	Cause	Checking method & Countermeasure
6600	**Multiple address error** Transmission from units with the same address is detected. Note: The address/attribute shown on remote controller indica tes the controller which has detected error.	1) Two or more controllers of outdoor unit, indoor unit, remote controller, etc. have the same address. 2) In the case that signal has changed due to noise entered into the transmission signal.	At the genration of 6600 error, release the error by remote controller (with stop key) and start again. a) If the error occures again within 5 minutes → Search for the unit which has the same address with that of the source of the trouble. When the same address is found, turn off the power source of outdoor unit, and indoor unit for 5 minutes or more after modifying the address, and then turn on it again. b) When no trouble is generated even continuing operation over 5 minutes → The transmission wave shape/noise on the transmission line should be investigated in accordance with <Investigation method of transmission wave shape/noise>.
6602	**Transmission processor hardware error** Though transmission processor intends to transmit "0", "1" is displayed on transmission line. Note: The address/attribute shown on remote controller indicates the controller which has detected error.	1) At the collision of mutual transmission data generated during the wiring work or polarity change of the transmission line of indoor or outdoor unit while turning the power source on, the wave shape is changed and the error is detected. 2) 100V power source connection to indoor unit. 3) Ground fault of transmission line. 4) Insertion of power supply connector (CN40) of plural outdoor units at the grouping of plural refrigerant systems. 5) Insertion of power supply connector (CN40) of plural outdoor units in the connection system with MELANS. 6) Faulty controller of unit in trouble. 7) Change of transmission data due to the noise in transmission. 8) Connection system with plural refrigerant systems or MELANS for which voltage is not applied on the transmission line for central control.	

Checking code	Meaning, detecting method	Cause	Checking method & Countermeasure
6602	**Transmission processor hardware error**	Checking method and processing	



6603	**Transmission circuit bus-busy error** ①Collision of data transmission: Transmission can not be performed for 4~10 consecutive minutes due to collision of data transmission. ②Data can not be transmitted on transmission line due to noise for 4~10 consecutive minutes. Note: The address/attribute shown on remote controller indicates the controller which has detected error.	1) As the voltage of short frequency like noise is mixed in transmission line continuously, transmission processor can not transmit. 2) Faulty controller of generating unit.	a) Check transmission wave shape/noise on transmission line by following <Investigation method of transmission wave shape/noise>. → No noise indicates faulty controller of generating unit. → Noise if existed, check the noise.

Checking code	Meaning, detecting method	Cause	Checking method & Countermeasure
6606	**Communications with transmission processor error** Communication trouble between apparatus processor and trans-mission processor. Note: The address/attribute shown on remote controller indicates the controller which has detected error.	1) Data is not properly transmitted due to casual errouneous operation of the generating controller. 2) Faulty generating controller.	Turn off power sources of indoor unit and outdoor unit. (When power sources are turned off separately, microcomputer is not reset and normal operations can not be restored.) → Controller trouble is the source of the trouble when the same trouble is observed again.

Checking code	Meaning, detecting method
6607	No ACK error — When no ACK signal is detected in 6 continuous times with 30 second interval by transmission side controller, the transmission side detects error. Note: The address/attribute shown on remote controller indicates the controller not providing the answer (ACK).

System composition	Generating unit address	Display of trouble	Detecting method	Cause	Checking method & countermeasure
(1) Single refrigerant system	① Outdoor unit (OC)	Remote controller (RC)	No reply (ACK) at IC transmission to OC	1) Poor contact of transmission line of OC or IC. 2) Damping of transmission line voltage/signal by acceptable range of transmission wiring exceeded. Farthest : Less than 200m Remote controller wiring : Less than 10m 3) Erroneous sizing of transmission line (Not within the range below). Wire diameter : 1.25mm² or more 4) Faulty control circuit board of OC	Shut down OC unit power source, and make it again. It will return to normal state at an accidental case. When normal state can not be recovered, check for the 1) ~ 4) of the cause.
	② Indoor unit (IC)	Remote controller (RC)	No reply (ACK) at RC transmission to IC	1) When IC unit address is changed or modified during operation. 2) Faulty or slipping off of transmission wiring of IC 3) Slipping off of IC unit connector (CN2M) 4) Faulty IC unit controller 5) Faulty remote controller	Shut down both OC and IC power sources simultaneously for 5 minutes or more, and make them again. It will return to normal state at an accidental case. When normal state can not be recovered, check for the 1) ~ 5) of the cause.
	③ Remote controller (RC)	Remote controller (RC)	No reply (ACK) at IC transmission to RC	1) Faulty transmission wiring at IC unit side 2) Faulty transmission wiring of RC 3) When remote controller address is changed or modified during operation 4) Faulty remote controller	Shut down OC power sources for 5 minutes or more, and make it again. It will return to normal state at an accidental case. When normal state can not be recovered, check for the 1) ~ 4) of the cause.

Checking code	Meaning, detecting method
6607 (continued)	No ACK error — When no ACK signal is detected in 6 continuous times with 30 second interval by transmission side controller, the transmission side detects error. Note: The address/attribute shown on remote controller indicates the controller not providing the answer (ACK).

System composition	Generating unit address	Display of trouble	Detecting method	Cause	Checking method & countermeasure
(2) Group operation system using plural refrigerants	① Outdoor unit (OC)	Remote controller (RC)	No reply (ACK) at IC transmission to OC	As same that for single refrigerant system	Same as measure for single refrigerant system
	② Indoor unit (IC)	Remote controller (RC)	No reply (ACK) at RC transmission to IC	1) Cause of 1) ~ 5) of "Cause for single refrigerant system" 2) Slipping off or short circuit of transmission line of OC terminal block for centralized control (TB7) 3) Shut down of OC unit power source of one refrigerant system 4) Neglecting insertion of OC unit power supply connector (CN40) 5) Inserting more than 2 sets of power supply connector (CN40) for centralized control use. For generation after normal operation conducted once, the following causes can be considered. • Total capacity error (7100) • Capacity code setting error (7101) • Connecting set number error (7102) • Address setting error (7105)	a) Shut down the power source of both IC and OC for over 5 minutes simultaneously, and make them again. Normal state will be returned incase of accidental trouble. If it does not return to normal, follow b). b) Check for 1) ~ 5) of causes. If cause is found, remedy it. If no cause is found, follow c). c) Check other remote controller or OC unit LED for troubleshooting for trouble. Trouble → Modify the trouble according to the content of check code. No trouble → Faulty indoor controller
	③ Remote controller (RC)	Remote controller (RC)	No reply (ACK) at IC transmission to RC	1) Cause of 1) ~ 3) of "Cause for single refrigerant system" 2) Slipping off or short circuit of transmission line of OC terminal block for centralized control (TB7) 3) Shut down of OC unit power source of one refrigerant system 4) Neglecting insertion of OC unit power supply connector (CN40) 5) Inserting more than 2 sets of power supply connector(CN40) for centralized control use At generation after normal operation conducted once, the following causes can be considered. • Total capacity error (7100) • Capacity code setting error (7101) • Connecting set number error (7102) • Address setting error (7105)	a) Shut down the power source of OC for over 5 minute, and make it again. Normal state will be returned in case of accidental trouble. If it does not return to normal, follow b). b) Check for 1) ~ 5) of causes. If cause is found, remedy it. If no cause is found, follow c). c) Same as that of c) for IC unit When normal state can not be obtained, check 1) ~ 5) of causes.

Checking code	Meaning, detecting method
6607 (continued)	No ACK error — When no ACK signal is detected in 6 continuous times with 30 second interval by transmission side controller, the transmission side detects error. Note: The address/attribute shown on remote controller indicates the controller not providing the answer (ACK).

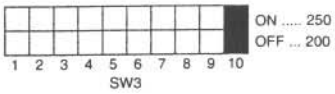
System composition	Generating unit address	Display of trouble	Detecting method	Cause	Checking method & countermeasure
(3) Connecting system with system controller (MELANS)	① Outdoor unit (OC)	Remote controller (RC)	No reply (ACK) at IC transmission to OC	As same that for single refrigerant system	Same countermeasure as that for single refrigerant system
	② Indoor unit (IC)	Remote controller (RC)	No reply (ACK) at transmission of SC to IC	Trouble of partial IC units: 1) Same cause as that for single refrigerant system	→ Same countermeasure as that for single refrigerant system
				Trouble of all ICs in one refrigerant system: 1) Cause of total capacity error (7100) 2) Cause of capacity code setting error (7101) 3) Cause of connecting number error (7102) 4) Cause of address setting error (7105) 5) Slipping off or short circuit of transmission line of OC unit terminal block for central control (TB7) 6) Power source shut down of OC unit 7) Trouble of OC unit electrical system	Confirm OC trouble diagnosis LED →At trouble generation, check for the content according to check code. →At no trouble, follow b). Check the content of 5)~7) shown left.
				Trouble of all ICs: 1) Cause of 1) ~ 7) of (b) 2) Insertion of power supply connector (CN40) into OC unit transmission line for centralized control 3) Slipping off or power source shut down of power supply unit for transmission line 4) Faulty system controller (MELANS)	Confirm voltage of transmission line for centralized control • More than 20V →Confirm 1) 2) left. • Less than 20V →Confirm 3) left.
	③ Remote controller (RC)	Remote controller (RC)	No reply (ACK) at transmission of IC to RC	Same cause as that for plural refrigerant system	Same countermeasure as that for plural refrigerant system
			No reply (ACK) at transmission of MELANS to RC	Trouble of partial IC units: 1) Same cause of that for single refrigerant system	→ Same countermeasure as that for single refrigerant system
				Trouble of all ICs in one refrigerant system: 1) Error detected by OC unit Total capacity error (7100) Capacity code setting error (7101) Connecting number error (7102) Address setting error (7105) 2) Slipping off or short circuit of transmission line of OC unit terminal block for central control (TB7) 3) Power source shut down of OC unit 4) Trouble of OC unit electrical system	Confirm OC trouble diagnosis LED → At trouble generation, check for the content according to check code. → At no trouble, follow (b). Check the content of 2)~4) shown left.
				Trouble of all ICs: 1) Cause of 1) ~ 7) of (b) 2) Insertion of power supply connector (CN40) into OC unit transmission line for centralized control 3) Slipping off or power shutdown of power supply unit for transmission line 4) Faulty MELANS	Check the causes of 1) ~ 4) left.

Checking code	Meaning, detecting method
6607 (continued)	No ACK error — When no ACK signal is detected in 6 continuous times with 30 second interval by transmission side controller, the transmission side detects error. Note: The address/attribute shown on remote controller indicates the controller not providing the answer (ACK).

System composition	Generating unit address	Display of trouble	Detecting method	Cause	Checking method & countermeasure
(3) Connecting system with system controller (MELANS)	④ System controller (SC)	Remote controller (RC)	No reply (ACK) at transmission of IC to SC	Trouble of partial remote controller: 1) Faulty wiring of RC transmission line 2) Slipping off or poor contact of RC transmission connector. 3) Faulty RC	Check 1) ~ 3) left.
				Trouble of all ICs in one refrigerant system 1) Error detected by OC unit Total capacity error (7100) Capacity code setting error (7101) Connecting number error (7102) Address setting error (7105) 2) Slipping off or short circuit of transmission line of OC unit terminal block for central control (TB7). 3) Power source shut down of OC unit 4) Trouble of OC unit electrical system	a) Confirm OC trouble diagnosis LED →At trouble generation, check for the content according to check code. →At no trouble, follow b). b) Check the content of 2) ~ 4) shown left.
				Trouble of all RC: 1) Cause of 1) ~ 7) of (b) 2) Inserting supply power connector (CN40) to OC transmission line for centralized control 3) Slipping off or power shutdown of power supply unit for transmission line 4) Faulty MELANS	Check the causes 1)~4) left.
No relation with system	Address which should not be exist-ed	–	–	IC unit is keeping the memory of the original group setting with RC although the RC address was changed later. The same symptom will appear for the registration with SC.	As some IC units are keeping the memory of the address not existing, delete the information. Employ one of the deleting method among two below. 1) Deletion by remote controller Delete unnecessary information by the manual setting function of remote controller. 2) Deletion by connecting information deleting switch of OC unit Be careful that the use of this method will delete all the group information set with RC and all the interlocking information of IC unit. ① Shut down OC unit power source, and wait for 5 minutes. ② Turn on the dip switch SW2-2 provided on OC unit control circuit board. ③ Make OC unit power source, and wait for 5 minutes. ④ Shut down OC unit power source, and wait for 5 minutes. ⑤ Turn off the dip switch SW2-2 provided on OC unit control circuit board. ⑥ Make OC unit power source.

Checking code	Meaning, detecting method	Cause	Checking method & Countermeasure
6608	**No response error** Though acknowledgement of receipt (ACK) is received after transmission, no response command is returned. Detected as error by transmission side when the same symptom is re-peated 10 times with an interval of 3 seconds Note: The address/attribute shown on remote controller indicates the controller which has detected error.	1) At the collision of mutual transmission data when transmission wiring is modified or the polarity is changed while turning the power source on, the wave shape changes detecting error. 2) Repeating of transmission error due to noise. 3) Damping of transmission line voltage/signal due to exceeding of the acceptable range for transmission wiring. • Farthest Less than 200m • RC wiring Less than 12m 4) Damping of transmission voltage/signal due to improper type of trans-mission line. • Wire size : More than 1.25mm²	a) Generation at test run Turn off the power sources of OC unit, IC unit and Fresh Master for more than 5 minutes simultaneously, and make them again. → Returning to normal state means the trouble detection due to transmission line work while powering. → If generated again, follow b). b) Check 3) and 4) of the causes left. → If cause is found, remedy it. → If cause is not found, follow c). c) Investigate the transmission wave shape/noise on transmission line according to <Investigation method of transmission wave shape/noise>. Much possibility if 6602 is generated.

(3) System error

Checking code	Meaning, detecting method	Cause	Checking method & Countermeasure
7100	**Total capacity error** Total capacity of indoor units in the same refrigerant system exceeds limitations. Trouble source: Outdoor unit	1) Total capacity of indoor units in the same refrigerant system exceeds the following: Model / Total capacity PU(H)Y-200 / 260 PU(H)Y-250 / 325	a) Check for the model total (capacity cord total) of indoor units connected. b) Check whether indoor unit capacity code (SW2) is wrongly set. For erroneous switch setting, modify it, turn off power source of outdoor unit, and indoor unit simultaneously for 5 minutes or more to modify the switch for setting the model name (capacity coad).
		2) Erroneous setting of OC model selector switch (SW3-10)  	Check for the model selector switch (Dip switches SW3-10 on outdoor unit control circuit) of OC.
7101	**Capacity code error** Error display at erroneous connection of Indoor unit of which model name can not be connected Trouble source : Outdoor unit Indoor unit	1) The Indoor unit model name (model code) connected is not connectable. Connectable range ..... 20~250 2) Erroneous setting of the switch (SW2) for setting of model name of Indoor unit connected.	a) Check for the model name of the Indoor unit connected. b) Check for the switch (SW2 if indoor controller for setting of Indoor unit model name of generating address. When it is not agreed to the model name, modify the capacity code while shutting off the power source of Indoor unit. * The capacity of Indoor unit can be confirmed by the self-diagnosios function (SW1 operation) of Indoor unit.
7102	**Connected unit count over** Number of units connected in the same refrigerant system exceeds limitations. Trouble source: Outdoor unit	1) Number of unit connected to terminal block (TB3) for outdoor/indoor transmission line exceeds limitations given be-lows: Item / Limitation ① Total of Indoor unit / 1~13 (200) 1~16 (250) ② Total of Indoor unit & RC / 1~35	a) Check whether the connection of units to the terminal block for indoor/outdoor transmission wiring (TB3) of outdoor unit is not exceeding the limitation. (See ① ~ ② left.) b) Check for 2), 3), 4), left. c) Check for the connection of transmission wiring to the terminal block for centralized control is erroneously connected to the indoor/outdoor transmission wiring terminal block (TB3).

Checking code	Meaning, detecting method	Cause	Checking method & Countermeasure
7102	**Connected unit count over**	2) The Outdoor unit address is being set to 51~100 under automatic address mode (Remote controller displays "HO"). 3) Slipping off of transmission wiring at Outdoor unit. 4) Short circuit of transmission line in case of 3) & 4), remote controller displays "HO".	a) Check for the model total (capacity code total) of indoor units connected.
7105	**Address setting error** • Erroneous setting of Outdoor unit address Trouble source : Outdoor unit	1) Setting error of Outdoor unit address The address of Outdoor unit is not being set to 51~100.	Check that the address of Outdoor unit is being set to 51~100. Reset the address if it stays out of the range, while shutting the power source off.
7111	**Remote control sensor error** Error not providing the temperature designed to remote controller sensor. Trouble source : Indoor unit	1) In case when the old type remote controller for M-NET is used and the remote controller sensor is designed on indoor unit. (SW1-1 turned ON)	a) Replace the old remote controller by the new remote controller.

[3] LED Monitor Display

E: E2 Contents stored in the E2PROM; M: Monitored by the IC through communications; E*: Stored in service memory.

No	SW1	Item	Display								Remarks
	12345678910		LD1	LD2	LD3	LD4	LD5	LD6	LD7	LD8	
0	0000000000	Relay Output Display 1 (Lights up to display)	COMP Operating	Crankcase Heater	21S4*	SV1	SV2			Lights for Normal Operation	LD8 is a relay output indicator which lights u at all times when the microcomputer's power is ON. When sending of a monitoring request to IC/BC is terminated, if there is no error, "----" is displayed. E* *only for PUHY
		Check Display 1 OC Error	0 ~ 9999 Address and error code reversed								
1	1000000000	Relay Output Display 2							SSR		E*
2	0100000000	Check Display 2 (Including the IC)	0 ~ 9999 Address and error code reversed								If there is no error, "----" is displayed. E*
3	1100000000										
4	0010000000										
5	1010000000										
6	0110000000										E*
7	1110000000	Outdoor Unit Operation Display		Packet being sent	3 minutes, restart	Compressor operating	Preliminary Error	Error			E*
8	0001000000	Indoor Unit Check	Unit No. 1	Unit No. 2	Unit No. 3	Unit No. 4	Unit No. 5	Unit No. 6	Unit No. 7	Unit No. 8	Lights up if an abnormal stop has occurred in the IC. The indicator for Unit No. 1 goes off when error reset is carried out from the smallest address. M
9	1001000000		Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No.14	Unit No. 15	Unit No. 16	
10	0101000000	Indoor Unit Operation Mode	Unit No. 1	Unit No. 2	Unit No. 3	Unit No. 4	Unit No. 5	Unit No. 6	Unit No. 7	Unit No. 8	Lights up during cooling. Blinks during heating. Goes off during stop and blower operation. M
11	1101000000		Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No.14	Unit No. 15	Unit No. 16	
12	0011000000	Indoor Unit Thermostat	Unit No. 1	Unit No. 2	Unit No. 3	Unit No. 4	Unit No. 5	Unit No. 6	Unit No. 7	Unit No. 8	Lights up when thermostat is ON. Goes off when thermostat is OFF. M
13	1011000000		Unit No. 9	Unit No. 10	Unit No. 11	Unit No. 12	Unit No. 13	Unit No.14	Unit No. 15	Unit No. 16	
14	0111000000										
15	1111000000	Outdoor Unit Operation Mode	Permissible Stop	Standby	Defrosting	Cooling		Heating			E*
16	0000100000	Outdoor Unit Control Mode	Cooling Refrigerant Recovery		Heating Refrigerant Recovery		Cooling High Oil Recovery	Cooling Low Oil Recovery	Heating High Oil Recovery	Heating Low Oil Recovery	
17	1000100000	Error Delay in Outdoor Unit	High Pressure Error 1, 2		Outlet Temperature Error	Overcurrent Protection	Heat Sink Thermostat Operating	Overcurrent Break	INV Error	Refrigerant Overcharge	The flag corresponding to the item where there is an error delay lights up. E*
18	0100100000		Suction Pressure Error	Configuration Detection Error		Reverse Phase, Open Phase Error					
19	1100100000		TH1 Error	TH2 Error	TH3 Error	TH4 Error	TH5 Error	TH6 Error	HPS Error	THHS Error	
20	0010100000		TH7 Error	TH8 Error							

No	SW1	Item	Display								Remarks
	12345678910		LD1	LD2	LD3	LD4	LD5	LD6	LD7	LD8	
21	1010100000	Outdoor Unit Preliminary Error History	High Pressure Error 1, 2	Low Pressure Error	Outlet Tempera-ture Error	Overcur-rent Protection	Heat Sink Thermostat Operation	Overcur-rent Break		Refrigerant Over-charge	Lights up if an error delay has occurred between the time the power was turned on and the present time. To turn the indicators off, switch the power OFF briefly. E*
22	0110100000		Suction Pressure Error	Configuration Detection Error		Reverse Phase, Open Phase Error					
23	1110100000		TH1 Error	TH2 Error	TH3 Error	TH4 Error	TH5 Error	TH6 Error	HPS Error	THHS Error	
24	0001100000		TH7 Error	TH8 Error							
25	1001100000	Error History 1	0 ~ 9999								The error and error delay code are displayed. If the address and error code are shown in reverse, or there is no error, "- - - -" is displayed. E
26	0101100000	Inverter Error Detail	Inverter Error Detail (1 ~ 9)								If there is no error, "- - - -" is displayed. E
27	1101100000	Error History 2	0 ~ 9999								E
28	0011100000	Inverter Error Detail	Inverter Error Detail (1 ~ 9)								
29	1011100000	Error History 3	0 ~ 9999								
30	0111100000	Inverter Error Detail	Inverter Error Detail (1 ~ 9)								
31	1111100000	Error History 4	0 ~ 9999								
32	0000010000	Inverter Error Detail	Inverter Error Detail (1 ~ 9)								
33	1000010000	Error History 5	0 ~ 9999								
34	0100010000	Inverter Error Detail	Inverter Error Detail (1 ~ 9)								
35	1100010000	Error History 6	0 ~ 9999								
36	0010010000	Inverter Error Detail	Inverter Error Detail (1 ~ 9)								
37	1010010000	Error History 7	0 ~ 9999								
38	0110010000	Inverter Error Detail	Inverter Error Detail (1 ~ 9)								
39	1110010000	Error History 8	0 ~ 9999								
40	0001010000	Inverter Error Detail	Inverter Error Detail (1 ~ 9)								
41	1001010000	Error History 9	0 ~ 9999								
42	0101010000	Inverter Error Detail	Inverter Error Detail (1 ~ 9)								
43	1101010000	Error History 10	0 ~ 9999								
44	0011010000	Inverter Error Detail	Inverter Error Detail (1 ~ 9)								
45	1011010000	Type of Prelimi-nary Inverter Error (Details of the inverter error in No. 17)	0 ~ 9999								If there is no error, "- - - -" is always overwritten. E*
46	0111010000	TH1 Data	-99.9 ~ 999.9								E*
47	1111010000	TH2 Data	↑								[No. 52 THHS data are monitored by the inverter microcomputer.]
48	0000110000	TH3 Data	↑								
49	1000110000	TH4 Data	↑								
50	0100110000	TH5 Data	↑								
51	1100110000	TH6 Data	↑								

No	SW1	Item	Display								Remarks
	12345678910		LD1	LD2	LD3	LD4	LD5	LD6	LD7	LD8	
52	0010110000	THHS Data	-99.9 ~ 999.9								E*
53	1010110000	HPS Data	↑								
54	0110110000	TH7 Data	↑								
55	1110110000	TH8 Data	↑								
56	0001110000		↑								
57	1001110000		↑								
58	0101110000		↑								
59	1101110000	Accumulator Level	0~9 ("AL=" is also displayed)								
60	00111100	Change in Hz AK	Δ Hz −	Δ Hz 0	Δ Hz +	−	−	Δ AK −	Δ AK 0	Δ AK +	
61	10111100	Difference from target TC	Low -3 deg. or less	Low -3 ~ -2 deg.	Low -2 ~ -1 deg.	Stable region		High 1~2 deg.	High 2~3 deg.	High 3 deg. or more	
62	01111100	Difference from target ET	Low -3 deg. or less	Low -3 ~ -2 deg.	Low -2 ~ -1 deg.	Stable region		High 1~2 deg.	High 2~3 deg.	High 3 deg. or more	
63	11111100	Target TC	-99.9 ~ 999.9								
64	00000010	Target ET	↑								
65	10000010	Temporary requency	0 ~ 9999								
66	01000010	Compressor output frequency	↑								Actual frequency output from inverter
67	11000010	AK	↑								
68	00100010	SLEV	↑								
69	10100010	LEV1	↑								
70	01100010	Fan controller output value	0000 ~ 9999								Display fan controller output value used for control.
71	11100010	DC buss current	-99.9 ~ 999.9								
72	00010010										
73	10010010	OC address	0000 ~ 9999								
74	01010010	IC1 address	↑								
75	11010010	IC2 address	↑								
76	00110010	IC3 address	↑								
77	10110010	IC4 address	↑								
78	01110010	IC5 address	↑								
79	11110010	IC6 address	↑								
80	00001010	IC7 address	↑								
81	10001010	IC8 address	↑								
82	01001010	IC9 address	↑								
83	11001010	IC10 address	↑								
84	00101010	IC11 address	↑								
85	10101010	IC12 address	↑								
86	01101010	IC13 address	0000 ~ 9999								

When there is an error stop with No92-111, the data on error stops or the data immediately before the error postponement stop, which is stored in service memory, are displayed.

No	SW1	Item	Display								Remarks
	12345678910		LD1	LD2	LD3	LD4	LD5	LD6	LD7	LD8	
87	11101010	IC14 address	↑								
88	00011010	IC15 address	0000 ~ 9999								
89	10011010	IC16 address	↑								
90	01011010	Compressor operat-ion hour upper 4 digits	↑								
91	11011010	Lower 4 digits	↑								
92	00111010	OC operation mode	Permitted mode stop	Standby	Defrost	Cooling		Heating			No.92-111 display the data immediately before error stop or error intermittent foult stop.
93	10111010	OC operation mode	Cooling Refrigerant recovery		Heating Refrigerant recovery		Cooling High oil recovery	Cooling Low oil recovery	Heating High oil recovery	Heating Low oil recovery	
94	01111010	Relay output display 1 Lighting display	Com-pressor operation	52C	21S4	SV1		SV4			
95	11111010	TH1 data	-99.9 ~ 999.9								
96	00000110	TH2 data	↑								
97	10000110	TH3 data	↑								
98	01000110	TH4 data	↑								
99	11000110	TH5 data	↑								
100	00100110	TH6 data	↑								
101	10100110	Pressure sensor data	↑								
102	01100110	THHS data	↑								
103	11100110	TH7 datata	↑								
104	00010110	TH8 data	↑								
105	10010110										
106	01010110	Compressor output frequency	0 ~ 9999								
107	11010110	AK	↑								
108	00110110	SLEV	↑								
109	10110110	LEV1	↑								
110	01110110	Compressor operating current	-99.9 ~ 999.9								
111	11110110	OC operation display		In forcible powering	3-minute restart	Compres-sor Operating	Intermit-tent fault check	Trouble			
112	00001110	IC1 inlet temperature	-99.9 ~ 999.9								
113	10001110	IC2 inlet temperature	↑								
114	01001110	IC3 inlet temperature	↑								
115	11001110	IC4 inlet temperature	↑								
116	00101110	IC5 inlet temperature	↑								

No	SW1	Item	Display								Remarks
	12345678910		LD1	LD2	LD3	LD4	LD5	LD6	LD7	LD8	
117	10101110	IC6 inlet temperature	-99.9 ~ 999.9								
118	01101110	IC7 inlet temperature	↑								
119	11101110	IC8 inlet temperature	↑								
120	00011110	IC9 inlet temperature	↑								
121	10011110	IC10 inlet temperature	↑								
122	01011110	IC11 inlet temperature	↑								
123	11011110	IC12 inlet temperature.	↑								
124	00111110	IC13 inlet temperature	↑								
125	10111110	IC14 inlet temperature	↑								
126	01111110	IC15 inlet temperature	↑								
127	11111110	IC16 inlet temperature	↑								
128	00000001	IC1 liquid piping temp.	↑								
129	10000001	IC2 liquid piping temp.	↑								
130	01000001	IC3 liquid piping temp.	↑								
131	11000001	IC4 liquid piping temp.	↑								
132	00100001	IC5 liquid piping temp.	↑								
133	10100001	IC6 liquid piping temp.	↑								
134	01100001	IC7 liquid piping temp.	↑								
135	11100001	IC8 liquid piping temp.	↑								
136	00010001	IC9 liquid piping temp.	↑								
137	10010001	IC10 liquid piping temp.	↑								
138	01010001	IC11 liquid piping temp.	↑								
139	11010001	IC12 liquid piping temp.	↑								
140	00110001	IC13 liquid pipe temp.	↑								
141	10110001	IC14 liquid piping temp.	↑								
142	01110001	IC15 liquid piping temp.	↑								
143	11110001	IC16 liquid piping temp.	↑								
144	00001001	IC1 gas piping temp.	↑								
145	10001001	IC2 gas piping temp.	↑								
146	01001001	IC3 gas piping temp.	↑								
147	11001001	IC4 gas piping temp.	↑								
148	00101001	IC5 gas piping temp.	↑								
149	10101001	IC6 gas piping temp.	↑								
150	01101001	IC7 gas piping temp.	↑								
151	11101001	IC8 gas piping temp.	↑								
152	00011001	IC9 gas piping temp.	↑								
153	10011001	IC10 gas piping temp.	↑								
154	01011001	IC11 gas piping temp.	↑								

No	SW1	Item	Display								Remarks
	12345678910		LD1	LD2	LD3	LD4	LD5	LD6	LD7	LD8	
155	11011001	IC12 gas piping temp.	-99.9 ~ 999.9								
156	00111001	IC13 gas piping temp.	↑								
157	10111001	IC14 gas piping temp.	↑								
158	01111001	IC15 gas piping temp.	↑								
159	11111001	IC16 gas piping temp.	↑								
160	00000101	IC1SH	↑								
161	10000101	IC2SH	↑								
162	01000101	IC3SH	↑								
163	11000101	IC4SH	↑								
164	00100101	IC5SH	↑								
165	10100101	IC6SH	↑								
166	01100101	IC7SH	↑								
167	11100101	IC8SH	↑								
168	00010101	IC9SH	↑								
169	10010101	IC10SH	↑								
170	01010101	IC11SH	↑								
171	11010101	IC12SH	↑								
172	00110101	IC13SH	↑								
173	10110101	IC14SH	↑								
174	01110101	IC15SH	↑								
175	11110101	IC16SH	↑								
176	00001101	IC1SC	↑								
177	10001101	IC2SC	↑								
178	01001101	IC3SC	↑								
179	11001101	IC4SC	↑								
180	00101101	IC5SC	↑								
181	10101101	IC6SC	↑								
182	01101101	IC7SC	↑								
183	11101101	IC8SC	↑								
184	00011101	IC9SC	↑								
185	10011101	IC10SC	↑								
186	01011101	IC11SC	↑								
187	11011101	IC12SC	↑								
188	00111101	IC13SC	↑								
189	10111101	IC14SC	↑								
190	01111101	IC15SC	↑								
191	11111101	IC16SC	↑								
192	00000011	IC1 LEV Opening	↑								
193	10000011	IC2 LEV Opening	↑								

No	SW1	Item	Display								Remarks
	12345678910		LD1	LD2	LD3	LD4	LD5	LD6	LD7	LD8	
194	01000011	IC3 LEV Opening	-99.9 ~ 999.9								
195	11000011	IC4 LEV Opening	↑								
196	00100011	IC5 LEV Opening	↑								
197	10100011	IC6 LEV Opening	↑								
198	01100011	IC7 LEV Opening	↑								
199	11100011	IC8 LEV Opening	↑								
200	00010011	IC9 LEV Opening	↑								
201	10010011	IC10 LEV Opening	↑								
202	01010011	IC11 LEV Opening	↑								
203	11010011	IC12 LEV Opening	↑								
204	00110011	IC13 LEV Opening	↑								
205	10110011	IC14 LEV Opening Angle	↑								
206	01110011	IC15 LEV Opening	↑								
207	11110011	IC16 LEV Opening	↑								
208	00001011	IC1 operation mode	0: Stopped 1: Fan 2: Cooling 3: Heating 4: Dry								
209	10001011	IC2 operation mode									
210	01001011	IC3 operation mode									
211	11001011	IC4 operation mode									
212	00101011	IC5 operation mode									
213	10101011	IC6 operation mode									
214	01101011	IC7 operation mode									
215	11101011	IC8 operation mode									
216	00011011	IC9 operation mode									
217	10011011	IC10 operation mode									
218	01011011	IC11 operation mode									
219	11011011	IC12 operation mode									
220	00111011	IC13 operation mode									
221	10111011	IC14 operation mode									
222	01111011	IC15 operation mode									
223	11111011	IC16 operation mode									
224	00000111	IC1 capacity code	0000 ~ 9999								
225	10000111	IC2 capacity code	↑								
226	01000111	IC3 capacity code	↑								
227	11000111	IC4 capacity code	↑								
228	00100111	IC5 capacity code	↑								
229	10100111	IC6 capacity code	↑								
230	01100111	IC7 capacity code	↑								
231	11100111	IC8 capacity code	↑								

No	SW1	Item	Display								Remarks
	12345678910		LD1	LD2	LD3	LD4	LD5	LD6	LD7	LD8	
232	00010111	IC9 capacity code	0000 ~ 9999								
233	10010111	IC10 capacity code	↑								
234	01010111	IC11 capacity code	↑								
235	11010111	IC12 capacity code	↑								
236	00110111	IC13 capacity code	↑								
237	10110111	IC14 capacity code	↑								
238	01110111	IC15 capacity code	↑								
239	11110111	IC16 capacity code	↑								
240	00001111	IC1 filter	↑								
241	10001111	IC2 filter	-99.9 ~ 999.9								
242	01001111	IC3 filter	↑								
243	11001111	IC4 filter	↑								
244	00101111	IC5 filter	↑								
245	10101111	IC6 filter	↑								
246	01101111	IC7 filter	↑								
247	11101111	IC8 filter	↑								
248	00011111	IC9 filter	↑								
249	10011111	IC10 filter	↑								
250	01011111	IC11 filter	↑								
251	11011111	IC12 filter	↑								
252	00111111	IC13 filter	↑								
253	10111111	IC14 filter	↑								
254	01111111	IC15 filter	↑								
255	11111111	IC16 filter	↑								