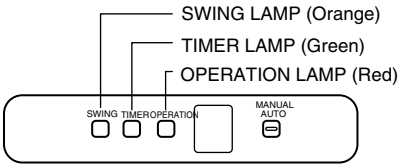
8.INDICACIÓN DE AVERÍAS

8-1 UNIDAD INTERIOR



Operation can be checked by lighting and flashing of the grille display section OPERATION and TIMER lamps. perform judgment in accordance with the following.

- Test running

When the air conditioner is run by pressing the remote controller test run button, the OPERATION and TIMER lamps flash slowly at the same time.

- Error

The OPERATION and TIMER lamps operate as follows (Table 11) according to the error contents.

8-1-1 NORMAL OPERATION DISPLAY

OPERATION FACTOR	INDICATOR LAMP	FLASH / TIME (SEC)
① Test operation	Operation lamp (red)	ON / OFF — 1.0 sec / 1.0 sec
	Timer lamp (green)	ON / OFF — 1.0 sec / 1.0 sec
② Power failure *1 Auto-restart enable (DIP SW 2-4 : ON)	Timer lamp (green)	ON / OFF — 3.0 sec / 1.0 sec
*2 Auto-restart disable (DIP SW 2-4 : OFF)	Operation lamp (red)	ON / OFF — 1.0 sec / 1.0 sec
	Timer lamp (green)	ON / OFF — 1.0 sec / 1.0 sec
③ Defrost operation (Heating operation) Oil recovery operation *3	Operation lamp (red)	ON / OFF — 3.0 sec / 1.0 sec

Note: Display lamps light on the front panel of the indoor unit.

*1: The power is failed during timer operation, then the timer lamp flashes on and off when the power returns.

*2: The power is failed during operation, then both lamps flash on and off when the power returns.

*3: While the indoor fan motor stops, the operation lamp flashes on and off.

8-1-2 ABNORMAL OPERATION DISPLAY

Visualización de errores			Significado
Piloto OPERATION	Piloto TIMER	Piloto VERTICAL SWING	
0.1sec ON/OFF	0.1 sec ON/OFF	Se apaga	Model information error
0.1sec ON/OFF	0.1 sec ON/OFF	0.1 sec ON/OFF	Power supply frequency abnormal
2 times flashing	0.1 sec ON/OFF	Se apaga	Room temperature thermistor error
3 times flashing	0.1 sec ON/OFF	1 times flashing	Indoor unit heat exchanger thermistor (inlet) error
3 times flashing	0.1 sec ON/OFF	2 times flashing	Indoor unit heat exchanger thermistor (middle) error
3 times flashing	0.1 sec ON/OFF	3 times flashing	Indoor unit heat exchanger thermistor (outlet) error
4 times flashing	0.1 sec ON/OFF	Se apaga	Drain abnormal
5 times flashing	0.1 sec ON/OFF	1 times flashing	Standard wired R.C. communication error
5 times flashing	0.1 sec ON/OFF	2 times flashing	Microcomputer error
6 times flashing	0.1 sec ON/OFF	Se apaga	Indoor unit fan error
7 times flashing	0.1 sec ON/OFF	Se apaga	Blower temperature thermistor error
0.1 sec ON/OFF	3 times flashing	3 times flashing	Outdoor unit error
0.1 sec ON/OFF	4 times flashing	1 times flashing	EEPROM access error
0.1 sec ON/OFF	4 times flashing	2 times flashing	EEPROM deletion error
0.1 sec ON/OFF	5 times flashing	1 times flashing	Transmission error
0.1 sec ON/OFF	5 times flashing	2 times flashing	Node setting error
0.1 sec ON/OFF	6 times flashing	Se apaga	Parallel communication error
0.1 sec ON/OFF	7 times flashing	Se apaga	Room temperature abnormal

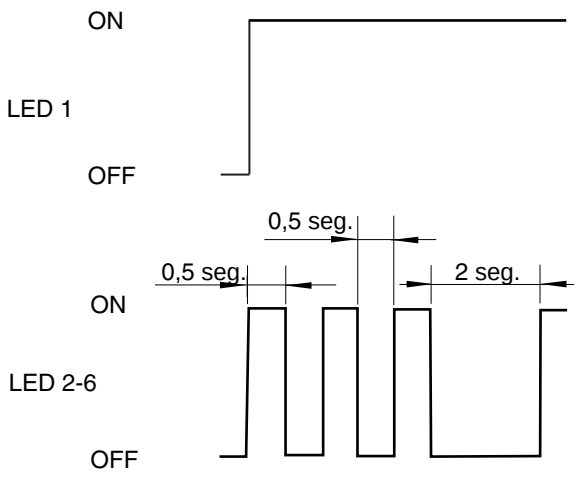
8-2 UNIDAD EXTERIOR

8-2-1 NORMAL OPERATING DISPLAY

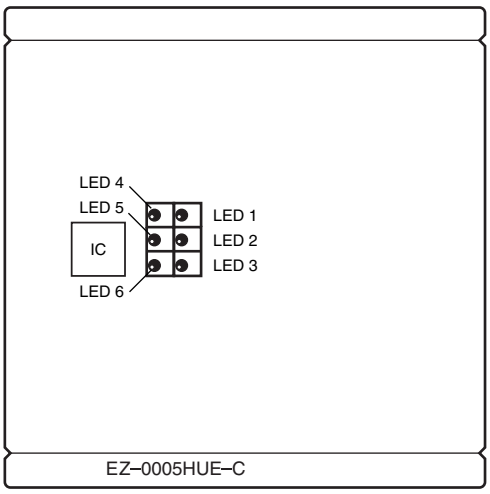
Display Type	LED 1	LED 2	LED 3	LED 4	LED 5	LED 6
Cooling operation	◎	○ (1)				
Heating operation	◎	○ (2)				
Cooling main operation	◎	○ (3)				
Heating main operation	◎	○ (4)				
Same performance operation	◎	○ (5)				
Compressor output STEP1	◎		○ (1)			
Compressor output STEP2	◎		○ (2)			
Compressor output STEP4	◎		○ (3)			
Compressor output STEP5	◎		○ (4)			
Compressor output STEP6	◎		○ (5)			
Compressor output STEP7	◎		○ (6)			
Heat exchanger usage capacity STEP1	◎			○ (1)		
Heat exchanger usage capacity STEP2	◎			○ (2)		
Heat exchanger usage capacity STEP3	◎			○ (3)		
Heat exchanger usage capacity STEP4	◎			○ (4)		
Heat exchanger usage capacity STEP5	◎			○ (5)		
Heat exchanger usage capacity STEP6	◎			○ (6)		
Oil recovery	◎				○ (1)	
Defrosting	◎				○ (2)	
Test operation	◎				○ (3)	
Medium pressure → Low pressure by-pass	◎					○ (1)
High pressure → Low pressure by-pass	◎					○ (2)
Under initialization of expansion valve	◎					◎

Display Method ◎ : Siempre encendido
○ : 0,5seg. ON/0,5seg. OFF parpadeando
( ) : Tiempos de parpadeo

Pantalla de funcionamiento



DISPOSICIÓN DEL CIRCUITO IMPRESO EXTERIOR

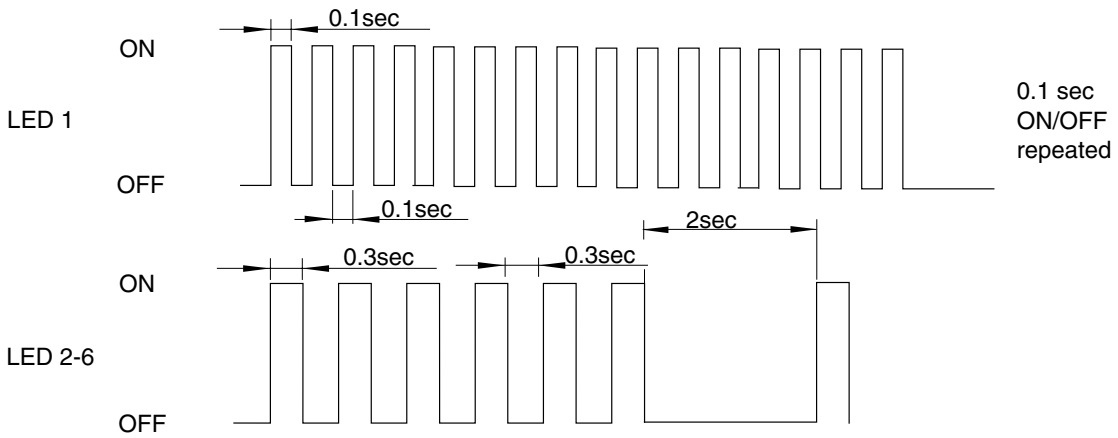


8-2-2 ABNORMAL OPERATION DISPLAY

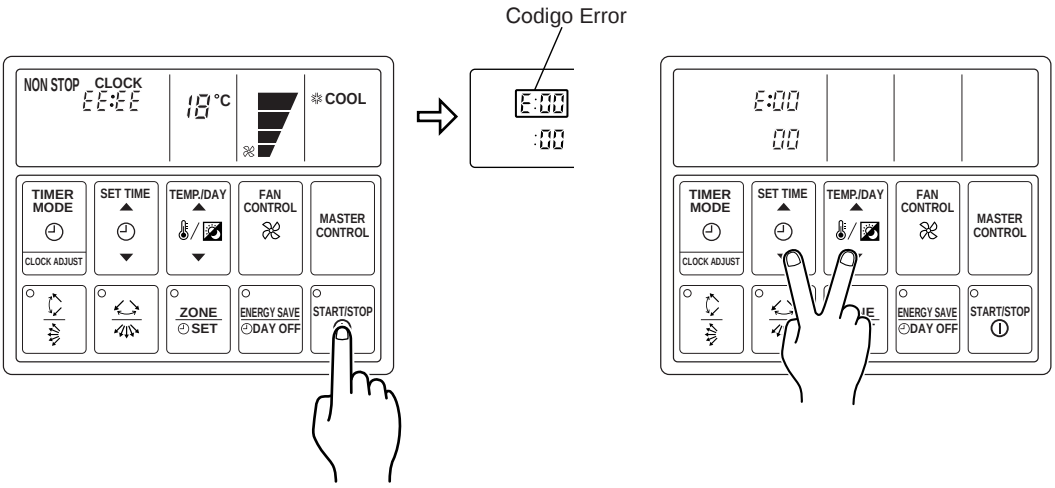
Display type	LED 1	LED 2	LED 3	LED 4	LED 5	LED 6
Compressor 1 error	◇	● (1)				
Compressor 2 error	◇	● (2)				
Compressor 3 error	◇	● (3)				
Discharge temperature 1 error	◇	● (4)				
Discharge temperature 2 error	◇	● (5)				
Discharge temperature 3 error	◇	● (6)				
High-pressure error	◇	● (7)				
Low-pressure error	◇	● (8)				
Pump down error	◇	● (9)				
Discharge temperature thermistor 1 error	◇		● (1)			
Discharge temperature thermistor 2 error	◇		● (2)			
Discharge temperature thermistor 3 error	◇		● (3)			
Heat exchange inlet thermistor 1 error	◇		● (4)			
Heat exchange inlet thermistor 2 error	◇		● (5)			
Heat exchange inlet thermistor 3 error	◇		● (6)			
Heat exchange outlet thermistor 1 error	◇		● (7)			
Heat exchange outlet thermistor 2 error	◇		● (8)			
Heat exchange outlet thermistor 3 error	◇		● (9)			
Suction thermistor error	◇		● (10)			
Outdoor thermistor error	◇		● (11)			
Discharge pressure sensor error	◇			● (1)		
Liquid pressure sensor error	◇			● (2)		
Suction pressure sensor error	◇			● (3)		
Oil sensor error	◇			● (4)		
Oil recovery error	◇			● (7)		
Reverse phase blocker error	◇				● (1)	
Reverse phase blocker error	◇		●	◇		
Power supply frequency abnormal	◇				● (2)	
Model information error	◇	◇	◇	◇	◇	◇
EEPROM access error	◇				● (3)	
EEPROM deletion error	◇				● (4)	
Outdoor unit circuit bord error 1	◇				● (6)	
Outdoor unit circuit bord error 2	◇				● (7)	
Outdoor unit circuit bord error 2	◇	●		◇		
Transmission error	◇				● (8)	
Node setting error	◇				● (9)	
Indoor unit error	◇					● (1)

Display method { ◇ : 0.1 sec ON / 0.1 sec OFF flashing
● : 0.3 sec ON / 0.3 sec OFF flashing
( ) : Flashing times

Error display



8-3 CONTROL REMOTO



When EE : EE blinks at the current time display, there is an error inside the air conditioner. If the SET TIME button (▼) and SET TEMP./DAY button (▼) are pressed simultaneously for more than three seconds, the self diagnosis check will start and the error contents will be displayed at the current time display. In addition, the remote controller address will be displayed at the current time display. In addition, the remote controller address will be displayed below. When the operation lamp lights, press the START/STOP button and after operation lamp goes off, perform the same operation.

Error Code	Error contents
E:00	No hay error
E:02	Información de modelo anormal
E:04	Frecuencia de alimentación anormal
E:06	Acceso EEPROM error
E:07	Error de borrado EEPROM
E:09	Error de termistor de temp. ambiente
E:0A	Error (medio) de termistor intercambiador de calor unidad interior
E:0b	Error (entrada) de termistor intercambiador de calor unidad interior
E:0C	lError (salida) de termistor intercambiador calor unidad interior
E:0d	BError de termistor temp. impulsión
E: 11	Drenaje anormal
E: 12	Temperatura ambiente anormal
E: 13	Error del ventilador unidad interior
E: 1F	Transmission error
E:20	Node setting error
E:21	Parallel communication error
E:32	Outdoor unit error

8-4 ERROR CODE & TROUBLESHOOTING

8-4-1 TROUBLESHOOTING FOR WITH ERROR CODE

■INDOOR UNIT TROUBLESHOOTING

ERROR CODE	ERROR	ERROR CONTENTS	CAUSE	COUNTERMEASURE
00	No error			
02	Model information error	1. Error occurrence condition When power is turned on. Error for the model information, which is memorized in EEPROM, occurs. 2. Relevant operation 1) Relevant indoor unit is stopped (Not started). 2) Error is displayed on LED of indoor unit or output to communication bus line. 3. Clearance Model information, which is memorized in EEPROM is recovered normally.	Model information is not memorized or erased because of some reason.	Replace control printed circuit board of indoor unit.
03	Microcomputer communication error	1. Error occurrence condition Communication between two microcomputers on indoor unit control printed circuit board is not performed correctly. 2. Relevant operation 1) Relevant indoor unit is stopped (not started). 2) Error is displayed on LED of indoor unit or output to communication bus line. 3. Clearance The communication between microcomputers is performed correctly.	1. Effect of extraneous noise	1. When power is turned off, and then turned on again: 1) If error doesn't occur, printed circuit board is normal. Then, remove noise sources near indoor unit. 2) If error occurs again, remove noise sources and take measure with the following countermeasure No.2.
			2. Control printed circuit board of Indoor unit is faulty.	2. Replace indoor unit control printed circuit board.
04	Power supply frequency abnormal	1. Error occurrence condition When control printed circuit board of Indoor unit detects frequency, which is not specified. 2. Relevant operation 1) Relevant indoor unit is stopped (not started). 2) Error is displayed on LED of indoor unit or output to communication bus line. 3. Clearance Control printed circuit board of Indoor unit detects the specified frequency.	Power supply frequency is in the following range. Lower than 45Hz or Higher than 65Hz.	Check power supply frequency and apply the power whose frequency is within the specified frequency.
06	EEPROM access error	1. Error occurrence condition After indoor unit operation is started, EEPROM cannot be accessed because of disturbance or device error. 2. Relevant operation Error is displayed on LED of indoor unit. 3. Clearance Access to EEPROM is performed correctly.	EEPROM cannot be accessed because of disturbance, device error, etc.	1. Remove noise sources near indoor unit. 2. Replace control printed circuit board of indoor unit.

ERROR CODE	ERROR	ERROR CONTENTS	CAUSE	COUNTERMEASURE
07	EEPROM deletion error	1. Error occurrence condition After indoor unit operation is started, error for model information, which is memorized on EEPROM, occurs. 2. Relevant operation 1) Relevant indoor unit is stopped. 2) Error is displayed on LED of indoor unit. 3. Clearance Model information, which is memorized on EEPROM is recovered.	Model information is not memorized, or erased because of some reasons.	Replace control printed circuit board of indoor unit.
09	Room temperature thermistor error	1. Error occurrence condition The condition of thermistor, which is short or open, is detected. 2. Relevant operation Indoor unit stopped. Error is displayed on LED of indoor unit and output to communication bus line. 3. Clearance Thermistor detection is other than short or open.	1. Connector connection is faulty. 2. Room Temperature thermistor is faulty.	1. Check if the connector of Room temperature thermistor loosens or comes off. 2. Check the resistance of Room temperature thermistor. If it's not normal, replace the thermistor.
0A	Heat exchanger thermistor (middle) error	1. Error occurrence condition The condition of thermistor, which is short or open, is detected. 2. Relevant operation Indoor unit is stopped. Error is displayed on LED of indoor unit and output to communication bus line. 3. Clearance Thermistor detection is other than short or open.	1. Connector connection is faulty. 2. Heat exchanger thermistor (middle) is faulty.	1. Check if the connector of Heat exchanger thermistor (middle) loosens or comes off. 2. Check the resistance of heat exchanger thermistor (middle). If it's not normal, replace thermistor.
0B	Heat exchanger thermistor (inlet) error	1. Error occurrence condition The condition of thermistor, which is short or open, is detected. 2. Relevant operation Error is displayed on LED of indoor unit. 3. Clearance Thermistor detection is other than short or open.	1. Connector connection is faulty. 2. Heat exchanger thermistor (inlet) is faulty.	1. Check if the connector of heat exchanger thermistor (inlet) loosens or comes off. 2. Check the resistance of heat exchanger thermistor (inlet). If it's not normal, replace thermistor.
0C	Heat exchanger thermistor (outlet) error	1. Error occurrence condition The condition of thermistor, which is short or open, is detected. 2. Relevant operation Error is displayed on LED of indoor unit. 3. Clearance Thermistor detection is other than short or open.	1. Connector connection is faulty. 2. Heat exchanger thermistor (outlet) is faulty.	1. Check if the connector of heat exchanger thermistor (outlet) loosens or comes off. 2. Check the resistance of heat exchanger thermistor (outlet). If it's not normal, replace thermistor.

ERROR CODE	ERROR	CONTENTS	CAUSE	COUNTERMEASURE
0D	Blower temperature thermistor error	1. Error occurrence condition The condition of thermistor, which is short or open, is detected. 2. Relevant operation Indoor unit is stopped. Error is displayed on LED of indoor unit and output to communication bus line. 3. Clearance Thermistor detection is other than short or open.	1.Connector connection is faulty. 2. Blower temperature thermistor is faulty.	1. Check if the connector of blower temperature thermistor loosens or comes off. 2. Check resistance of blower temperature thermistor. If it's not normal, replace thermistor.
11	Drain abnormal	1. Error occurence condition Float SW is ON continuously for 3 minutes. 2. Relevant operation Indoor unit is stopped. Error is displayed on LED of indoor unit and output to communication bus line. 3. Clearance Float SW is OFF.	1. Drain hose is clogged. 2. Drain outlet is clogged. 3. Drain pump is faulty. 4. Float SW operation is faulty (short)	1. Clean drain hose. 2. Clean drain outlet. 3. Check drain pump operation. If it's faulty, replace pump. 4. If float SW is shorted, replace SW.
12	Room temperature abnormal	1. Error occurence condition Room temperature thermistor detects higher than 60℃ continuously for 30 minutes or longer during indoor unit operation. 2. Relevant operation Indoor unit is stopped. Error is displayed on LED of indoor unit and output to communication bus line. 3. Clearance It's cleared by turning off the power .	1. Connector connection is faulty. 2. Room temperature thermistor is faulty.	1. Check if the connector of room temperature thermistor loosens or comes off. 2. Check resistance of room temperature thermistor. If it's normal, replace thermistor.
13	Indoor unit fan error	1. Error occurr condition Fan speed feedback of large type ceiling model (AB30 or larger unit) is higher than +/-400 rpm against target speed. 2. Relevant operation Indoor fan is stopped, error is displayed on LED of indoor unit and out put to communication bus line. 3. Clearance It's cleared by turning off the power.	1. Indoor fan motor lead wire connection is faulty. 2. Power supply voltage abnormal.	1. Check the wiring of indoor fan motor lead wire . 2. Check if rated power supply voltage is applied.
18	Standard wired R.C. communication error	1. Error occurrence condition Communication can not be performed between standard wired remote controller and indoor unit. 2. Relevant operation Error is displayed on LED of indoor unit. 3. Clearrance Standard wired remote controller communication is recovered.	1. Communication line is not connected, connection fault, or disconnection. 2. Indoor unit control printed circuit board is faulty. 3. Standard wired remote controller printed circuit board is faulty.	1. Check if communication line is connected to each indoor unit. Check if communication line is disconnected or loosen. 2. Replace control printed circuit board of indoor unit. 3. Replace standard wired remote controller printed circuit board.

ERROR COCE	ERROR	ERROR CONTENTS	CAUSE	COUNTERMEASURE
1F	Transmission error	1. Error occurrence condition Communication between indoor unit and outdoor unit cannot be performed for a certain time. 2. Relevant operation Current operation is continued. Error is displayed on standard wired remote controller, and displayed on indoor unit LED. 3. Clearance Communication between indoor unit and outdoor unit is recovered.	1. Effect of extraneous noise.	1. When power is turned OFF and turned ON again: 1) If error doesn't occur, printed circuit board is normal. Then, remove noise sources near outdoor unit. 2) If error occurs again, remove noise sources and take measure with the following countermeasure No.2-4.
			2. Communication line is not connected, connection fault, or disconnection.	2. Check if communication line is connected to all indoor unit. Check if communication line is disconnected.
			3. Insertion for communication printed circuit board of indoor unit or outdoor unit is faulty.	3. Check the insertion of indoor unit communication printed circuit board and outdoor unit communication printed circuit board.
			4. Printed circuit board is faulty.	4. 1) If communication of some indoor units in same refrigerant system is abnormal and the compressor operates, replace printed circuit boards with following procedures and check the operation: ① Replace Indoor unit communication printed circuit board. ② Replace Indoor unit control printed circuit board. 2) If communication of all indoor units in same refrigerant system is abnormal and the compressor does not operate, replace printed circuit boards with following procedures and check the operation: ① Replace Outdoor unit communication printed circuit board. ② Replace Outdoor unit control printed circuit board. ③ Replace Indoor unit communication printed circuit board. ④ Replace Indoor unit control printed circuit board.
20	Node setting error	1. Error occurrence condition Indoor unit communication printed circuit board is not initialized normally. 2. Relevant operation Error is displayed on standard wired remote controller and displayed on LED of indoor unit. 3. Clearance Indoor unit communication printed circuit board is initialized correctly.	1. Effect of extraneous noise.	1. When power turned OFF and turned ON again: 1) If error doesn't occur, printed circuit board is normal. Then, remove noise sources near indoor unit. 2) If error occurs again, remove noise sources and take measure with the following countermeasure No.2-3.
			2. Printed circuit board is faulty.	2. Replace printed circuit boards with following procedures, and check the operation. ① Replace Indoor unit communication printed circuit board. ② Replace Indoor unit control printed circuit board.

ERROR CODE	ERROR	ERROR CONTENTS	CAUSE	COUNTERMEASURE
21	Parallel communication error	1. Error occurrence condition Communication between indoor unit control printed circuit board and indoor unit communication printed circuit board is not performed normally. 2. Relevant operation 1) Current operation is continued. Error is displayed on standard wired remote controller, and displayed on LED of indoor unit. 2) If error continues for 90 seconds after it's occurrence, a new transmission error (1F) is output. 3. Clearance Communication is performed correctly between indoorunit control printed circuit board and indoor unit communication printed circuit board.	1. Effect of extraneous noise.	1. When power is turned OFF and turned ON again: 1) If error doesn't occur, printed circuit board is normal. Then, remove noise sources near indoor unit. 2) If error occurs again, remove noise sources and take measure with the following countermeasure No.2-3.
			2. Indoor unit communication board insertion is faulty.	2. Check the insertion of indoor unit communication printed circuit board.
			3. Printed circuit board is faulty.	3. Replace printed circuit boards with following procedure, and check the operation. (1) Replace Indoor unit communication printed circuit board. (2) Replace Indoor unit control printed circuit board.
22	Outdoor unit error	Error occurs on outdoor unit in same refrigerant system.	Outdoor unit is faulty.	See "Outdoor unit troubleshooting".

■OUTDOOR UNIT TROUBLESHOOTING

ERROR CODE	ERROR	ERROR CONTENTS	CAUSE	COUNTERMEASURE
00	No errors			
02	Model information error	1. Error occurrence condition When power is turned on, error occurs in model information, which is memorized in EEPROM. 2. Relevant operation 1) All compressors are stopped (not started). 2) Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance Model information, which is memorized in EEPROM is recovered.	Model information is not memorized, or erased because of some reason.	Replace outdoor unit control printed circuit board.
03	Circuit board error	1. Error occurrence condition Communication between two microcomputers on outdoor unit control printed circuit board is not performed normally. 2. Relevant operation 1) All compressors is stopped (not started). 2) Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance Communication between microcomputers is recovered.	1. Effect of extraneous noise	1. When power is turned OFF and turned ON again: 1) If error doesn't occur, printed circuit board is normal. Then, remove noise sources near outdoor unit. 2) If error occurs again, remove noise sources and take measure with the following countermeasure No.2.
			2. Outdoor unit control printed circuit board is faulty.	2. Replace outdoor unit control printed circuit board.
04	Power supply frequency error	1. Error occurrence condition Outdoor unit control printed circuit board detects frequency outside of rating. 2. Relevant operation 1) All compressors are stopped (not started). 2) Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance Outdoor unit control printed circuit board detects the specified frequency.	Power supply frequency is in the following range. Lower than 45Hz or higher than 65Hz.	Check power supply frequency and apply the power whose frequency is within the specified frequency.
05	Power supply phase abnormal	1. Error occurrence condition Reverse phase prevention circuit detects the wrong phase of power supply or the correct power supply input is not detected. 2. Relevant operation 1) All compressors are stopped. 2) Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance Reverse phase prevention circuit doesn't detect reverse phase input.	1. Reverse phase wiring.	1. Check power supply wiring.
			2. Reverse phase prevention circuit is faulty.	2. Check power supply wiring. If there are no mistakes, replace outdoor unit control printed circuit board.

ERROR CODE	ERROR	ERROR CONTENTS	CAUSE	COUNTERMEASURE
06	EEPROM access error	1. Error occurrence condition After outdoor unit operation is started, EEPROM cannot be accessed because of disturbance or device error. 2. Relevant operation Error is displayed on LED of outdoor unit. *Outdoor unit operation is not controlled. 3. Clearance EEPROM can be accessed correctly.	EEPROM cannot be accessed because of disturbance, device error, etc.	1. Remove noise sources near outdoor unit. 2. Replace outdoor unit control printed circuit board.
07	EEPROM deletion error	1. Error occurrence condition After outdoor unit operation is started, error occurs in model information, which is memorized in EEPROM. 2. Relevant operation 1) All compressors are stopped. 2) Error is displayed on LED of outdoor unit. 3. Clearance Model information, which is memorized in EEPROM is recovered.	Model information is not memorized, or erased for some reason.	Replace outdoor unit control printed circuit board.
09	Compressor 1 error	1. Error occurrence condition After thirty minutes has elapsed since compressor 1 starts to work, discharge temperature 1 does not reach to outdoor temperature plus 10°C. 2. Relevant operation 1) After compressor error occurs, compressor recovery operation is performed. However, if defrosting control or oil recovery operation is performed, compressor recovery is not operated. 2) Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance When 2 hours have elapsed after error occurrence. *Counting of 2-hour counter starts if error occurs on any compressors. Error is cleared by turning power off.	1. Discharge temperature sensor TH_{D1} is faulty.	1. Check if the wiring of discharge temperature sensor TH_{D1} loosens or comes off. And check the resistance of sensor. If it's abnormal, replace sensor.
			2. Compressor power relay 1 is faulty.	2. Check compressor power relay 1. If it's abnormal, replace power relay.
			3. Outdoor unit control printed circuit board is faulty.	3. Check CN32 (compressor 1) 12V voltage output on outdoor unit control printed circuit board. If it's abnormal, replace printed circuit board.
			4. Magnetic contactor 1 is faulty.	4. Check magnetic contactor 1. If it's abnormal, replace contactor.
			5. Refrigerant level is low.	5. Check additional refrigerant amount and recharge suitable refrigerant.
			6. After 2 and half an hours have elapsed since error is displayed, error detection is performed again and error is not displayed.	6. Temporary data transmission trouble due to Effect of extraneous noise, etc. Operation is not affected.
			7. Compressor motor protector is operated.	7. Compressor overload operation Check "High-pressure error". Motor protector is reset at 61°C +/-9°C.
			8. Compressor is faulty.	8. Check compressor. If it's faulty, replace compressor.

ERROR CODE	ERROR	CONTENTS	CAUSE	COUNTERMEASURE
0A	Compressor 2 error	1. Error occurrence condition After thirty minutes have elapsed since compressor 2 starts to work, discharge temperature 2 does not reach to outdoor temperature plus 10 ℃. 2. Relevant operation 1) After compressor error occurs, compressor recovery operation is performed. However, if defrosting control or oil recovery operation is performed, compressor recovery is not operated. 2) Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance When 2 hours have elapsed after error occurrence. *Counting of 2-hour counter starts if error occurs on any compressors. Error is cleared by turning power off.	1. Discharge temperature sensor TH_{D2} is faulty.	1. Check if the wiring of discharge temperature sensor TH_{D2} loosens or comes off. And check the resistance of sensor. If it's abnormal, replace sensor.
			2. Compressor power relay 2 is faulty.	2. Check compressor power relay 2. If it's abnormal, replace power relay.
			3. Outdoor unit control printed circuit board is faulty.	3. Check CN33 (compressor 2) 12V voltage output on outdoor unit control printed circuit board. If it's abnormal, replace printed circuit board.
			4. Magnetic contactor 2 is faulty.	4. Check magnetic contactor 2. If it's abnormal, replace contactor.
			5. Refrigerant level is low.	5. Check additional refrigerant amount and recharge suitable refrigerant.
			6. After 2 and half an hours have elapsed since error is displayed, error detection is performed again and error is not displayed.	6. Temporary data transmission trouble due to affect of noise, etc. Operation is not affected.
			7. Compressor motor protector is operated.	7. Compressor overload operation Check "High-pressure error". Motor protector is reset at 61°C +/-9°C.
			8. Compressor is faulty.	8. Check compressor. If it's faulty, replace compressor.
0B	Compressor 3 error	1. Error occurrence condition After thirty minutes have elapsed since compressor 3 starts to work, discharge temperature 3 does not reach to outdoor temperature plus 10°C. 2. Relevant operation 1) After compressor error occurs, compressor recovery operation is performed. However, if defrosting control or oil recovery operation is performed, compressor recovery is not operated. 2) Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance When 2 hours has elapsed after error occurrence. *Counting of 2-hour counter starts if error occurs on any compressors. Error is cleared by turning power off.	1. Discharge temperature sensor TH_{D3} is faulty.	1. Check if the wiring of discharge temperature sensor TH_{D3} loosens or comes off. And check the resistance of sensor. If it's abnormal, replace sensor.
			2. Compressor power relay 3 is faulty.	2. Check compressor power relay 3. If it's abnormal, replace power relay.
			3. Outdoor unit control printed circuit board is faulty.	3. Check CN34 (compressor 3) 12V voltage output on outdoor unit control printed circuit board. If it's abnormal, replace printed circuit board.
			4. Magnetic contactor 3 is faulty.	4. Check magnetic contactor 3. If it's abnormal, replace contactor.
			5. Refrigerant level is low.	5. Check additional refrigerant amount and recharge suitable refrigerant.
			6. After 2 and half an hours have elapsed since error is displayed, error detection is performed again and error is not displayed.	6. Temporary data transmission trouble due to affect of noise, etc. Operation is not affected.
			7. Compressor motor protector is operated.	7. Compressor overload operation Check "High-pressure error". Motor protector is reset at 61° C +/-9° C.
			8. Compressor is faulty.	8. Check compressor. If it's faulty, replace compressor.

ERROR CODE	ERROR	CONTENTS	CAUSE	COUTERMEASURE
0D	Discharge temperature thermistor 1 error	1. Error occurrence condition Thermistor condition, which is short or open, is detected. 2. Relevant operation 1) Compressor 1 is stopped. 2) Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance Thermistor detection is other than short or open. *Detection is performed when Compressor continues to operate for 5 minutes or longer.	1. Connector contact is faulty. 2. Discharge temperature thermistor TH_{D1} is faulty.	1. Check if the connector of discharge temperature thermistor TH_{D1} loosens or comes off. 2. Check the resistance of discharge temperature thermistor TH_{D1}. If it's abnormal, replace thermistor.
0E	Discharge temperature thermistor 2 error	1. Error occurrence condition Thermistor condition, which is short or open, is detected. 2. Relevant operation 1) Compressor 2 is stopped. 2) Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance Thermistor detection is other than short or open. *Detection is performed when Compressor continues to operate for 5 minutes or longer.	1. Connector contact is faulty. 2. Discharge temperature thermistor TH_{D2} is faulty.	1. Check if the connector of discharge temperature thermistor TH_{D2} loosens or comes off. 2. Check the resistance of discharge temperature thermistor TH_{D2}. If it's abnormal, replace thermistor.
0F	Discharge temperature thermistor 3 error	1. Error occurrence condition Thermistor condition, which is short or open, is detected. 2. Relevant operation 1) Compressor 3 is stopped. 2) Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance Thermistor detection is other than short or open. *Detection is performed when Compressor continues to operate for 5 minutes or longer.	1. Connector contact is faulty. 2. Discharge temperature thermistor TH_{D3} is faulty.	1. Check if the connector of discharge temperature thermistor TH_{D3} loosens or comes off. 2. Check the resistance of discharge temperature thermistor TH_{D1}. If it's abnormal, replace thermistor.

ERROR CODE	ERROR	CONTENTS	CAUSE	COUNTERMEASURE
10	Outdoor temperature thermistor error	1. Error occurrence condition Each thermistor condition, which is short or open, is detected. 2. Relevant operation 1) All Compressors are stopped. *For suction temperature thermistor error, compressors are not stopped. 2) Error is displayed on LED of outdoor unit and output to communication bus line. *For suction temperature thermistor error, error is only displayed on LED of outdoor unit. 3. Clearance Thermistor detection is other than short or open.	1. Connector contact is faulty. 2. Outdoor temperature thermistor TH_{H0} is faulty.	1. Check if the connector of outdoor temperature thermistor TH_{H0} loosens or comes off. 2. Check the resistance of outdoor temperature thermistor TH_{H0}. If it's abnormal, replace thermistor.
11	Heat exchanger inlet thermistor 1 error		1. Connector contact is faulty. 2. Heat exchanger inlet thermistor TH_{HI1} is faulty.	1. Check if the connector of heat exchanger inlet thermistor TH_{HI1} loosens or comes off. 2. Check the resistance of heat exchanger inlet thermistor TH_{HI1}. If it's abnormal, replace thermistor.
12	Heat exchanger inlet thermistor 2 error		1. Connector contact is faulty. 2. Heat exchanger inlet thermistor TH_{HI2} is faulty.	1. Check if the connector of heat exchanger inlet thermistor TH_{HI2} loosens or comes off. 2. Check the resistance of heat exchanger inlet thermistor TH_{HI2}. If it's abnormal, replace thermistor.
13	Heat exchanger inlet thermistor 3 error		1. Connector contact is faulty. 2. Heat exchanger inlet thermistor TH_{HI3} is faulty.	1. Check if the connector of heat exchanger thermistor TH_{HI3} loosens or comes off. 2. Check the resistance of heat exchanger inlet thermistor TH_{HI3}. If it's abnormal, replace thermistor.
14	Heat exchanger outlet thermistor 1 error		1. Connector contact is faulty. 2. Heat exchanger outlet thermistor TH_{HO1} is faulty.	1. Check if the connector of heat exchanger outlet thermistor TH_{HO1} loosens or comes off. 2. Check the resistance of heat exchanger thermistor TH_{HO1}. If it's abnormal, replace thermistor.
15	Heat exchanger outlet thermistor 2 error		1. Connector contact is faulty. 2. Heat exchanger outlet thermistor TH_{HO2} is faulty.	1. Check if the connector of heat exchanger outlet thermistor TH_{HO2} loosens or comes off. 2. Check the resistance of heat exchanger outlet thermistor TH_{HO2}. If it's abnormal, replace thermistor.
16	Heat exchanger outlet thermistor 3 error		1. Connector contact is faulty. 2. Heat exchanger outlet thermistor TH_{HO3} is faulty.	1. Check if the connector of heat exchanger outlet thermistor TH_{HO3} loosens or comes off. 2. Check the resistance of heat exchanger outlet thermistor TH_{HO3}. If it's abnormal, replace thermistor.
17	Suction temperature thermistor error		1. Connector contact is faulty. 2. Suction temperature thermistor TH_S is faulty.	1. Check if the connector of suction temperature thermistor TH_S loosens or comes off. 2. Check the resistance of suction temperature thermistor TH_S. If it's abnormal, replace thermistor.

ERROR CODE	ERROR	CONTENTS	ERROR CAUSE	REMEDY
19	Discharge pressure sensor error	1. Error occurrence condition 1) Voltage output from output remains under 0.8V for 3 minutes or longer. However, detection isn't performed for 3 minutes after power is applied to outdoor unit. 2) Output sensor detection value is 3.46MPa or higher. 2. Relevant operation 1) All compressors are stopped. *Discharge pressure and liquid line pressure sensor error only. 2) Error is displayed on LED of outdoor unit and output to communication bus line. *For suction pressure sensor error, only error is displayed on LED of outdoor unit. 3. Clearance Output voltage from pressure sensor returns is within 1- 5V.	Discharge pressure sensor P_H is faulty.	Replace discharge pressure sensor P_H.
1A	Liquid pressure sensor error		Liquid line pressure sensor P_M is faulty.	Replace liquid line pressure sensor P_M.
1B	Suction pressure sensor error		Suction pressure sensor P_L is faulty.	Replace suction pressure sensor P_L.
1C	Oil sensor error	1. Error occurrence condition Oil sensor detects "Oil is under oil sensor L level" or "Oil is over oil sensor H level". 2. Relevant operation Error is displayed on LED of outdoor unit. 3. Clearance Oil sensor detects "Oil is under oil sensor L level" or "Oil is over oil sensor H level".	1. Connector contact is faulty.	1. Check contact of connectors CN52 and CN53 in conrol printed circuit board of outdoor unit.
			2. Power supply voltage, which is applied to control printed circuit board of outdoor unit is abnormal.	2. Check voltage output, which is applied to control printed circuit board of outdoor unit. 1) Oscilloscope. (1) Check if 5+/-0.05V is output between pins 1 and 2 of CN52 and CN53. (2) Check if 12V +/-10% is output between pins 3 and 4 of CN52 and CN53. 2) Tester. Check if voltage is output between pins 3 and 4 of CN52 and CN53. (Needle indicates once every 10 seconds.) *Voltage is output once every 10 seconds 250msec.
			3. Oil sensor LED is faulty.	3. Check if 1.0 +/-0.1V is output between connectors 3 and 4 of OIL LV SEN-H (connected to CN52) and OIL LV SEN-L (connected to CN53), selecting tester diode mode. If output voltage is abnormal, replace oil sensor. *Connect tester plus terminal to 3 and minus terminal to 4.

ERROR CODE	ERROR	CONTENTS	ERROR CAUSE	REMEDY
1F	Transmission error	1. Error occurrence condition Communication from each indoor units are cut off for a certain time. 2. Relevant operation 1) If transmission error occurs after 90 seconds since Parallel communication error occurs, all compressors are stopped and error is displayed on LED of outdoor unit. 2) If communication from all indoor units are cuts of for a certain time, all compressors are stopped and error is displayed on LED of outdoor unit. 3) Except a-fore mentioned operations, only indoor units that completes the commnunications are operated. Error is displayed on LED of outdoor unit. 3. Clearance Communication with indoor units is recovered.	1. Effect of extraneous noise	1. When power is turned off, and turned on again: (1) If error doesn't occur, printed circuit board is normal. Then, remove noise sources near outdoor unit. (2) If error occurs again, remove noise sources and take measure with the following countermeasure No.2-5
			2. Communication line is not connected, contact is faulty, or disconnection.	2. Check if communication line is connected to all indoor units. Check if communication line is disconnected.
			3. Indoor unit power is OFF	3. Check indoor units power supply.
			4. Insertion fault for communication printed circuit board of indoor unit or outdoor unit.	4. Check the insertion of indoor unit communication PC board and outdoor unit communication PC board.
			5. PC board is faulty.	5. 1)If transmission error occurs after Parallel communication error replace PC boards with following procedures and check the operation. (1) Replace Outdoor unit communication printed circuit board. (2) Replace Outdoor unit control printed circuit board. 2) when some indoor units in same refrigerant system are operated, replace printed circuit boards with following procedures and make sure the operation. (1) Replace Communication printed circuit board of indoor unit that occurs transmission error (2) Replace Control printed circuit board of indoor unit that occurs transmission error. 3) When an error occurs on all indoor units of the same refrigerant system and compressor does not operate, replace PC boards with following procedures and make sure the operation. (1) Replace Outdoor unit communication PC board. (2) Replace Outdoor unit control PC board. (3) Replace Indoor unit communication PC board. (4) Replace Indoor unit control PC board.

ERROR CODE	ERROR	CONTENTS	ERROR CAUSE	REMEDY
21	Discharge temperature 1 error	1. Error occurrence condition Discharge temperature 1 rises to 130° C or higher for 40 minutes and compressor 1 is stopped twice or more. 2. Relevant operation Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance When all the following conditions are satisfied: 1) Discharge temperature protector 1 reset. 2) Discharge temperature protector is not operated for 40 minutes or longer.	1. Gas leak or refrigerant level is low.	1. Check the gas leak and additional refrigerant amount, and recharge suitable refrigerant.
			2. Outdoor fan motor is faulty.	2. Check outdoor fan motor operation. Remove the obstruction in wind path. If fan motor is faulty, replace motor.
			3. Discharge temperature sensor TH_{D1} is faulty.	3. Check if the wiring of discharge temperature sensor TH_{D1} loosens or comes off and check the resistance TH_{D1}. If it's abnormal, replace sensor.
			4. Electronic expansion valve operation is faulty.	4. Check operation and coil resistance of following electronic expansion valve. If it's abnormal, replace electronic expansion valve. Coil resistance measurement points. Red-white, red-orange, brown-yellow, brown-blue. (1) Outdoor unit electronic expansion valve EEV1 and EEV2 Coil resistance: 192 +/-19 ohms. (2) Indoor units electronic expansion valve EEV Coil resistance: 150 +/-50 ohms.
			5. Solenoid valve operation is faulty.	5. Check operation of following solenoid valves. If operation is faulty, replace solenoid valve. Cooling operation. (1) Outdoor unit solenoid valve SV1. (2) RB unit solenoid valves SVB and SVS. Heating operation. (3) Outdoor units solenoid valves SV1, SV7, and SV8. (4) RB unit solenoid valve SVD. Heat recovery operation (1), (2), (3), (4).

ERROR CODE	ERROR	CONTENTS	ERROR CAUSE	REMEDY
22	Discharge temperature 2 error	1. Error occurrence condition Discharge temperature 2 rises to 130 ℃ or higher for 40 minutes and compressor 2 is stopped twice or more. 2. Relevant operation Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance When all the following conditions are satisfied: 1) Discharge temperature protector 2 is reset. 2) Discharge temperature protector is not operated for 40 minutes or longer.	1. Gas leak or refrigerant level is low.	1. Check the gas leak and check additional refrigerant amount and recharge suitable refrigerant.
			2. Outdoor fan motor is faulty.	2. Check outdoor fan motor operation. Remove the obstruction in wind path. If fan motor is faulty, replace motor.
			3. Discharge temperature sensor TH_{D2} is faulty.	3. Check if the wiring of discharge temperature sensor TH_{D2} loosens or comes off and check the resistance of TH_{D2}. If it's abnormal, replace sensor.
			4. Electronic expansion valve operation is faulty.	4. Check operation and coil resistance of following electronic expansion valve. If it's abnormal, replace electronic expansion valve. Coil resistance measurement points. Red-white, red-orange, brown-yellow, brown-blue. (1) Outdoor unit electronic expansion valve EEV1 and EEV2 Coil resistance: 192 +/-19 ohms. (2) Indoor units electronic expansion valve EEV Coil resistance: 150 +/-50 ohms.
			5. Solenoid valve operation is faulty.	5. Check operation of following solenoid valves. If operation is faulty, replace solenoid valve. Cooling operation (1) Outdoor unit solenoid valve SV1. (2) RB unit solenoid valves SV_S Heating operation (3) Outdoor units solenoid valves SV1, SV7, and SV8. (4) RB unit solenoid valve SVD Heat recovery operation (1), (2), (3), (4)

ERROR CODE	ERROR	CONTENTS	ERROR CAUSE	REMEDY
23	Discharge temperature 3 error	1. Error occurrence condition Discharge temperature 3 rises 130 °C or greater for 40 minutes and compressor 3 is stopped twice or more. 2. Relevant operation Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance When all the following conditions are satisfied: 1) Discharge temperature protector 3 is reset. 2) Discharge temperature protector is not operated for 40 minutes or longer.	1. Gas leak or refrigerant level is low.	1. Check the gas leak and check additional refrigerant amount and recharge suitable refrigerant.
			2. Outdoor fan motor is faulty.	2. Check outdoor fan motor operation. Remove the obstruction in wind path. If fan motor is faulty, replace motor.
			3. Discharge temperature sensor TH_{D3} is faulty.	3. Check if the wiring of discharge temperature sensor TH_{D3} loosens or comes off and check the resistance of TH_{D3}. If it's abnormal, replace sensor.
			4. Electronic expansion valve operation is faulty.	4. Check operation and coil resistance of following electronic expansion valve. If it's abnormal, replace electronic expansion valve. Coil resistance measurement points. Red-white, red-orange, brown-yellow, brown-blue. (1) Outdoor unit electronic expansion valve EEV1 and EEV2 Coil resistance: 192 +/-19 ohms. (2) Indoor units electronic expansion valve EEV Coil resistance: 150 +/-50 ohms.
			5. Solenoid valve operation is faulty.	5. Check operation of following solenoid valves. If operation faulty, replace solenoid valve. Cooling operation (1) Outdoor unit solenoid valve SV1 (2) RB unit solenoid valves SV_S Heating operation (3) Outdoor units solenoid valves SV1, SV7, and SV8 (4) RB unit solenoid valve SV_D Heat recovery operation (1), (2), (3), (4)

ERROR CODE	ERROR	CONTENTS	ERROR CAUSE	REMEDY
24	High pressure error	1. Error occurrence condition When any of following conditions is satisfied: 1) Compressor is stopped twice or more by high pressure protection within 40 minutes. 2) After 3 minutes have passed since compressor is stopped by high pressur protection and condition of compresser restarting is satisfied, high pressure SW is operated. 2. Relevant operation Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance When all of following conditions satisfied: 1) After 3 minutes have passed since compressor is stopped by high pressure protection and condition of compressor restarting is satisfied, high pressure SW is reset. 2) High pressure protection is not operated for 40 minutes or longer. *High pressure SW setting value 3MPa OFF , 2.4MPa ON	1. Ball valve is not opened completely.	1. Open ball valve fully.
			2. Outdoor unit short cycle	2. Check required installation dimensions.
			3. Outdoor heat exchanger is dirty or clogged with foreign matter.	3. Clean heat exchanger or remove foreign matter.
			4. Outdoor fan motor is faulty.	4. Check outdoor fan motor operation. Remove the obstruction in wind path. If fan motor faulty, replace motor.
			5. Pressure SW is faulty.	5. Check pressure using pressure gauge. If pressure SW is faulty, replace SW.
			6. Indoor unit short cycle	6. Remove obstruction.
			7. Filter is clogged.	7. Clean filter.
			8. Indoor fan motor is faulty.	8. Check indoor fan motor operation. If fan motor is faulty, replace motor.
			9. Electronic expansion valve operation is faulty.	9. Check operation and coil resistance of following electronic expansion valve. If it's faulty, replace electronic expansion valve. Coil resistance measurement points Red-white, red-orange, brown-yellow, brown-blue (1) Outdoor unit electronic expansion valve EEV1 and EEV2 Coil resistance: 192 +/-19 ohms. (2) Indoor units electronic expansion valve EEV Coil resistance: 150 +/-15 ohms.
			10. Solenoid valve operation is faulty.	10. Check operation of following solenoid valves. If operation faulty, replace solenoid valve. Cooling operation (1) Outdoor unit solenoid valve SV_S (2) RB unit solenoid valve SV_S Heating operation (3) Outdoor units solenoid valves SV2, SV7, and SV8 (4) RB unit solenoid valve SV_D Heat recovery operation (1), (2), (3), (4)
			11. Overload	11. Clear the cause of overload (e.g. Caused by indoor unit or outdoor unit installation)

ERROR CODE	ERROR	CONTENTS	ERROR CAUSE	REMEDY
25	Low pressure error	1. Error occurrence condition When any of following conditions satisfied: 1) Compressor is stopped twice or more by low pressure protection within 40 minutes. 2) After 3 minutes have passed since compressor is stopped by low pressure protection and condition of compressor restarting is satisfied, low pressure SW is operated. 2. Relevant operation Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance When all of following conditions is satisfied: 1) After 3 minutes have passed since compressor is stopped by low pressure protection and condition of compressor restarting is satisfied, low pressure SW is reset. 2) Low pressure protection is not operated for 40 minutes or longer. *Low pressure SW setting value 0.2MPa OFF, 0.3MPa ON	1. Ball valve isn't opened completely.	1. Open ball valve fully.
			2. Pressure SW is faulty.	2. Check pressure using pressure gauge. If pressure SW is faulty, replace SW.
			3. Gas leak	3. Repair gas leak, and charge suitable refrigerant.
			4. Indoor unit short cycle	4. Remove obstruction.
			5. Indoor unit filter is clogged.	5. Clean filter.
			6. Indoor unit fan motor is faulty.	6. Check indoor fan motor operation. If fan motor is faulty, replace motor.
			7. Electronic expansion valve operation is faulty.	7. Check operation and coil resistance of following electronic expansion valve. If it's faulty, replace electronic expansion valve. Coil resistance measurement points. Red-white, red-orange, brown-yellow, brown-blue. (1) Outdoor unit electronic expansion valve EEV1 and EEV2. Coil resistance: 192 +/-19 ohms. (2) Indoor units electronic expansion valve EEV.Coil resistance: 150 +/-15 ohms.
			8. Solenoid valve operation is faulty.	8. Check operation of following solenoid valves. If operation is faulty, replace solenoid valve. Cooling operation (1) Outdoor unit solenoid SV2. (2) RB unit solenoid valve SVS. Heating operation (3) Outdoor unit solenoid valves SV2, SV7, and SV8 (4) RB unit solenoid valve SVD. Heat recovery operation (1), (2), (3), (4)
27	Oil recovery error	1. Error occurrence condition Oil is judged under oil sensor L level. Oil recovery operation is performed consecutively 3 times or more. 2. Relevant operation Error is displayed on LED of outdoor unit. 3. Clearance Oil rises over oil sensor L level.	1. Oil recovery solenoid valve is faulty.	1. Check operation of following solenoid valves. If operation is faulty, replace solenoid valve. Compressor 1 solenoid valve SV3. Compressor 2 solenoid valve SV4. Compressor 3 solenoid valve SV5. Central oil return solenoid valve SV6.
			2. Connector connection is faulty.	2. Check if the wiring or connector of solenoid valves loosen or come off.

ERROR CODE	ERROR	CONTENTS	ERROR CAUSE	REMEDY
28	Pump down error	1. Error occurrence condition Six minutes have elapsed since pump down is performed, or discharge pressure sensor P_H is 3MPa or higher. 2. Relevant operation 1) All compressors and outdoor fan are stopped. 2) Error is displayed on LED of outdoor unit and output to communication bus line. 3. Clearance Pump down DIP SW1-3 is switched ON and then OFF.	Pump down SW remains ON.	Switch pump down DIP SW1-3 in control printed circuit board of outdoor unit ON and then OFF.
—	Node setting error	1. Error occurrence condition Communication printed circuit board of outdoor unit isn't initialized correctly. 2. Relevant operation Error is displayed on LED of outdoor unit. 3. Clearance Communication printed circuit board of outdoor unit is initialized correctly.	1. Effect of extraneous noise	1. When power turned off, then turned back on: 1) If error doesn't occur, PC board is normal. Then, remove noise sources near outdoor unit. 2) If error occurs again, remove noise sources and take measure with the following countermeasure No.2.
			2. Printed circuit board is faulty.	2. Replace printed circuit boards with following procedure, and check the operation. (1) Replace Outdoor unit communication PC board (2) Replace Outdoor unit control PC board
—	Parallel communication error	1. Error occurrence condition Communication between control printed circuit board and communication printed circuit board of outdoor unit isn't performed correctly. 2. Relevant operation 1) Current operation is continued. Error is displayed on LED of outdoor unit. 2) If error is kept for 90 seconds since error occurs, new communication error (1F) occurs. 3. Clearance The communication between control printed circuit board and communication printed circuit board of outdoor unit is performed correctly.	1. Effect of extraneous noise	1. When power is turned off, and turned on again: 1) If error doesn't occur, printed circuit board is normal. Then, remove noise sources near outdoor unit. 2) If error occurs again, remove noise sources and take measure with the following countermeasure No.2.
			2. Outdoor unit communication PC board insertion is faulty.	2. Check the insertion of outdoor unit communication printed circuit board.
			3. Printed circuit board is faulty.	3. Replace printed circuit boards with the following procedure, and check the operation. (1) Replace outdoor unit communication printed circuit board (2) Replace outdoor unit control printed circuit board
—	Indoor unit error	Error occurs on indoor unit in same refrigerant system.	Indoor unit is faulty.	See indoor unit troubleshooting.

■CENTRAL REMOTE CONTROLLER TROUBLESHOOTING

ERROR CODE	ERROR	CONTENTS	CAUSE	COUNTERMEASURE
00	No errors			
02	Printed circuit board error (Control panel)	1. Error occurence condition Error occurs at control panel printed circuit board and central remote controller cannot be operated. 2. Relevant operation Error display.Only error code display is operated. Other operations are ineffective. 3. Clearance Error is cleared and central remote controller bcomes operable again.	1. Effect of extraneous noise.	1. After ACL key is pressed, or power is turned on again: 1) If error dosen't occur, printed circuit board is normal. Then, remove noise sources near operation panel. 2) If error occurs again, remove noise sources and take measure with the following countermeasure No.2.
			2. Conrol panel printed circuit board is faulty.	2. Replace operation panel printed circuit board.
03	PC board error (Transmission adapter)	1. Error occurence condition Error occurs at transmission adaptor control printed circuit board and central remote controller cannot be operated. 2. Relevant operation Error display.Only error code display operation can be paformed.Other operations are ineffective. 3. Clearance Error is cleared and central controller bcomes operable again.	1. Effect of extraneous noise	1. After reset key on transmission adaptor control printed circuit board is pressed, or power is turned on again: 1) If error doesn't occur,printed circuit board is normal. Then, remove noise sources near transmission adaptor. 2) If error occurs again, remove noise sources and take measure with the following countermeasure No.2.
			2. Transmission adaptor conrol printed circuit board is faulty.	2. Replace transmission adaptor control printed circuit board.
04	Memory error	1. Error occurrence condition Control panel momory is failed, or model infomation and remote controller group registration, which are stored in memory is failed 2. Relevant operation 1) Error occurs in normal state. Error and error code are displayed . Only pressing key SW42 on control panel printed circuit boad is effective. Other operations are ineffective. 2) When error occurs in initialize menu mode. Error and error code display. Only pressing SET key is effective. Other operations are ineffective.	1. Effect of extraneouse noise	1. Initialize the setting again, after initial setting. 1) If error doesn't occur, printed circuit board is normal. Then, remove noise sources near operation panel. 2) If error occurs again, remove noise sources and take measurre with the following countermeasure NO.2.
			2. Control panel PC board is faulty.	2. Replace control panel printed circuit board. 3. Clearances 1) If error occurs in normal condition, Key SW42 on control panel printed circuit board is pressed and the memory is cleared. 2) If error occurs on the initial setting menu mode. Set key is pressed and the memory is cleared.

ERROR CODE	ERROR	CONTENTS	CAUSE	COUNTERMEASURE
05	Node setting error	1. Error occurrence condition Control panel printed circuit board isn't initialized normally. 2. Relevant operation Error display. Only error display operation can be performed. Other operations are ineffective. 3. Clearance Operation panel printed circuit board initialization operation is performed normally.	1. Effect of extraneous noise	1. After ACL key is pressed or power is turned on again : 1) If error doesn't occur, printed circuit board is normal. Then, remove noise sources near operation panel. 2) If error occurs again, remove noise sources and take measure with the following coutermeasure No.2.
			2. Printed circuit board is faulty.	2. Replace printed circuit boards with following procedure and confirm the operation. ① Replace Transmission adapter control printed circuit board. ② Replace Transmisson adapter communication printed circuit board. ③ Operation panel printed cicuit board.
06	Parallel communication error	1. Error occurrence condition Communication between transmission adapter control printed circuit board and transmission adapter communication printed circuit board is not performed normally. 2. Relevant operation 1) Error indication. Central Remote operation is available. 2) If error is kept to detect for a while after error occurs, transmission error (1F) is output. 3. Clearance The communication between the control printed circuit board and communication printed circuit board of transmission adaptor is performed correctly.	1. Effect of extraneous noise	1. After RESET key on control printed circuit board of transmission adapter is pressed, or power is turned on again : 1) If error doesn't occur, printed circuit board is normal. Then, remove noise sources near transmission adaptor. 2) If error occurs again, remove noise sources and take measure with the following countermeasure No.2,3.
			2. Transmission adapter communication printed circuit board insertion is faulty.	2. Check insertion for the communication printed circuit board of transmission adapter.
			3. Printed circuit board is faulty.	3. Replace printed circuit boards with following procedure and confirm the operation. ① Replace Transmission adapter communication board. ② Replace Transmission adapter control board.

ERROR CODE	ERROR	ERROR CONTENTS	CAUSE	COUNTERMEASURE
1C	Connection error	1. Error occurrence condition Communication between transmission adapter and control panel is not performed correctly. 2. Relevant operation Error display. Only error code display operation can be performed. Other operations are ineffective. 3. Clearance The communication between transmission adapter and operation panel is performed correctly.	1. Effect of extraneous noise	1-1. Check error continuity. 1) If error is cleared automatically, printed circuit board is normal. Then, remove noise sources near central remote controller. 2) If error isn't cleared automatically, check following. 1-2. After ACL key is pressed, RESET key on control board of transmission adaptor is pressed, or power is turned on again : 1) If error doesn't occur, printed circuit board is normal. Then, remove noise sources near central remote controller. 2) If error occurs again, remove noise sources and take measure with the following countermeasure No.2,3,4.
			2. Communication line between transmission adapter and control panel connection is faulty or disconnecting.	2. Check if communication line between transmission adapter and control panel is disconnected or the other problem for connection occurs.
			3. Communication parameter setting error.	3. Check setting of DIP-SW1-1∿7 on control panel and DIP-SW2-1∿4 and DIP-SW3-1∿3 on transmission adapter printed circuit board.
			4. Printed circuit board is faulty.	4. Replace printed circuit boards with following procedure and confirm the operation. ① Replace Transmission adaptor control board. ② Replace Control panel printed circuit board.

ERROR CODE	ERROR	ERROR CONTENTS	CAUSE	COUNTERMEASURE
1D	Initial setting error	1. Error occurrence condition Initialization is not performed normally. When recognized as only indoor or outdoor unit in the same refrigerant system, or when not recognizing In / Out at all. 2. Relevant operation Error display. Central remote controller operation can be performed. 3. Clearance Initialization is performed again from key operation.	1. Effect of extraneous noise	1. Initialize the setting again. 1) If error doesn't occur, printed circuit board is normal.Then, remove noise sources near control panel. If error occurs again, remove noise sources and take measure with the following countermeasure No.2,3.
			2. Other remote controller (Standard wired remote controller, wireless remote controller, Central remote controller) is operated.	2. Stop operation of other remote controller, and initialize again.
			3. Printed circuit board is faulty.	3. Check the power supply, wiring, address set-up of Indoor / Outdoor unit. ① Replace Transmission adaptor communication printed circuit board. ② Replace Transmission adaptor control printed circuit board ③ Replace Control panel printed circuit board
1E	Manual storing 2 error	1. Error occurrence condition Manual store 2 is not performed normally. 2. Relevant operation Error display. Central remote controller operation can be performed. 3. Clearance Storing (automatic allocation, manual storing 1, manual storing 2) is performed from key operation, or initial setting menu mode is cancelled.	1. Effect of extraneous noise	1. Perform allocation again. After manual storing 2 setting: 1) If error doesn't occur, printed circuit board is normal.Then, remove noise sources near control panel. If error occurs again, remove noise sources and take measure with the following countermeasure No.2.
			2. Printed circuit board is faulty.	2. Replace printed circuit boards with following procedures, and confirm the operation. ① Replace Transmission adaptor commutation board. ② Replace Transmission adaptor control board. ③ Replace Control panel printed circuit board.
1F	Transmission error	1. Error occurrence condition Communication between indoor unit and central remote controller is cut off for a certain time. 2. Relevant operation 1) Error Indication. Central Remote can be operated. 2) If parallel communication error occurs and communication error occurs after a certain time, error is displayed. Central remote control can be operated.	1. Effect of extraneous noise	1-1. After indoor unit power is turned on again: 1) If error doesn't occur, printed circuit board is normal.Then, remove noise sources near indoor unit. If error occurs again, remove noise sources and take measure with the following countermeasure 1-2. 1-2. After ACL key is pressed, or power is turned on again: 1) If error doesn't occur, printed circuit board is normal. Then, remove noise sources near control panel. If error occurs again, remove noise sources and take measure with the following countermeasure No.2-6.
			2. Communication line is not connected, connection fault, or disconnection.	2. Check if communication line is wired to each indoor unit.
			3. Indoor unit power off.	3. Check power supply for indoor unit.

ERROR CODE	ERROR	CONTENTS	ERROR CAUSE	REMEDY
1F	Transmission error	3. Clearance For 2-1), the communication with indoor unit is restored. For 2-2), the communication between control printed circuit board and communication printed circuit board of transmission adapter is performed.	4. Transmission adapter communication printed circuit board or indoor unit communication printed circuit board insertion is faulty. 5. Initialing setting after indoor unit address is changed, is forgotten.	4. Check insertion of the communication printed circuit board of transmission adaptor and the communication printed circuit board of indoor unit. 5. Perform initialization.
			6. Printed circuit board faulty.	6. 1) If communication error occurs after parallel communication error occurs, replace printed circuit boards with the following procedure, and make sure the operation. ① Replace Transmission adapter communication printed circuit board. ② Replace Transmission adapter control printed circuit board. 2) For other cases, replace printed circuit boards with following procedure and make sure the operation ① Replace Indoor unit communication printed circuit board. ② Replace Indoor unit control printed circuit board.
21	Software error (OUTPUT)	1. Error occurrence condition If CPU of central remote controller is initialized by momentary power interruption during the operation setting or changing, the setting is reset. 2. Relevant operation Error display. Only error code display can be operated. Other operations are ineffective.	1. Effect of extraneous noise	1-1 Check continuity error. 1) If error is cleared automatically, printed circuit board is normal. Then, remove noise sources near central remote controller. 2) If error isn't cleared automatically, check following. 1-2 After ACL key is pressed, or power is turned on again: 1) If error doesn't occur, printed circuit board is normal. Then, remove noise sources near control panel. 2) If error occurs again, remove noise sources and take measure with the following countermeasure No.2,3.
			2. The power supply is shut down or power supply voltage is abnomal.	2. Check power supply voltage and operate after turning on power.
			3. Printed circuit board is faulty.	3. Replace printed circuit boards with following procedures and check the operation. ① Replace Transmission adapter control printed circuit board. ② Replace Operation panel printed circuit board.
22	Software error (INPUT)	1. Error occurrence condition Operation condition of indoor units, which is memorized in transmission adapter is abnormal. 2. Relevant operation Error display. Central remote controller can be operated. 3. Clearance When contents of memory, which is memorized in transmission adapter is normal.	1. Effect of extraneous noise	1-1 Check error continuity. 1) If error is cleared automatically, printed circuit board is normal. Then, remove noise sources near central remote controller. 2) If error isn't cleared automatically, check following. 1-2 After RESET key on control printed circuit board of transmission adapter is pressed, or power is turned on again: 1) If error doesn't occur, printed circuit board is normal. Then, remove noise sources near operation panel. 2) If error occurs again, remove noise sources and take measure with the following countermeasure No.2.
			2. Transmission adapter control printed circuit board is faulty.	2. Replace transmission adapter control printed circuit board.

8-4-2 TROUBLE SHOOTING FOR WITH NO ERROR CODE

How to read the tables

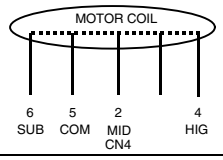
1.Select the relevant item errors 1 to 5 below,and decide the table to be used.
2.Deduce "Cause" from "LED display" and "Symptom that can occur other than title".
3.Check if the deduced "Cause" is correct by means of "Check" and "Remarks".

When there is no error code display at the indoor unit ,outdoor unit or centralized remote controller, but there is one of the following operation errors,check the cause in the following order:

1.Indoor fan does not operate normally
2.System does not cool or heat
3.Indoor unit makes an abnormal sound
4.Water leaking from indoor unit
5.Others

1. Indoor unit fan does not operate normally

LED display			Symptom that can occur other than title	Cause	Check method (Error state check method)	Remarks
Indoor unit	Outdoor unit	Remote controller				
Body LED	PCB LED 1 to 6	LCD				
No display	Error display (Transmission line error) ※	No display	—	Power not supplied to indoor unit Circuit breaker OFF Power line faulty	Check the voltage across indoor unit power supply terminal board (Power Supply) terminals 1-2.	Voltage across 1-2: 220~240V
				Indoor unit leakage (short circuit). (Circuit to which voltage is applied when energized is leaking electricity.)	Drop the indoor unit power supply terminal board (Power Supply1,2) and indoor unit metal part resistance value to near zero by opening the circuit breaker immediately after setting the indoor unit circuit breaker to ON.	When shorted,the resistance across indoor unit power supply terminal board(Power Supply) terminals 1-2 approaches zero.
※Normal after the power reset.				Indoor unit leaking (short circuit). (Circuit to which voltage is applied only during operation is leaking electricity.)	When the indoor unit circuit breaker trips during operation, locate the faulty indoor unit by disconnecting the PCBs one by one (disconnect CN1). Then check the individual electric parts for leakage.	If short-circuited,the resistance across the electric parts will indicate a value near zero.
Error display (Remote controller communi-cation system error) ※	Error display (Indoor-unit error) ※	Normal display or no display	—	Communication faulty between indoor unit and remote controller (wired). Open circuit.	When 1-2, 2-3, and 3-1 at the indoor unit terminal board (Remote Control) are shorted, the resistance across red-white, white-black, and black-red does not indicate a value near zero.	
※ Normal after the power reset.				Remote control group control interior communication line faulty. Open circuit	Check the wiring color and wiring connection of indoor unit terminal board(Remote Control) terminals 1,2, and 3.	Wiring color and indoor unit terminal board(Remote Control) combinations are red-1,white-2, and black-3.
Normal display	Normal display	Normal display or no display	—	Communication line faulty between indoor unit and remote controller(wired) Erroneous connection (polarity incorrect)	When terminals 1-2, 2-3, and 3-1 at the indoor unit terminal board (Remote Control) are shorted, the resistance across red-white, white-black, and black-red at the remote control terminals does not indicate a value near zero.	
				Remote control group control interior communication line faulty. Erroneous connection (Polarity incorrect)	Check the wiring color and wiring connection of indoor unit terminal board(Remote Control) terminals 1,2, and 3.	Wiring color and indoor unit terminal board(Remote Control) combinations are red-1,white-2, and black-3.
Normal display	Normal display	Normal display	—	Remote controller master/slave setting switch (DIP SW 1-4) setting incorrect.	When indoor unit operated for each remote control group, operation is abnormal.	Does not operate when there is no master unit (SW 1-4 set to OFF) in one remote control group.
				Capacity of indoor fan capacitor faulty.	Check the indoor unit Model No. and capacity of the capacitor.	
				Thermo-control	Set temperature is set to near room temperature and louver operation signal is not received.	Indoor fan operates a little every five minutes during thermo-control.
				Cold air blow prevention control in progress(heating operation)	Area (heat exchanger) near indoor unit outlet is not warm and up-down louvers are set to horizontal position.	Wait several minutes, then restart the heating operation.
				Cool/heat switching control in progress (heat recovery type)	At least 3 minutes did not elapse after switching from cooling to heating or from heating to cooling.	When the operating state was switched from cool to heat, heat to cool ,or stop to heat, it takes 3 minutes to balance the refrigerant pressure in the RB unit.

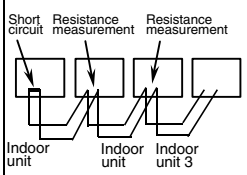
LED display			Symptom that can occur other than title	Cause	Check method (Error state check method)	Remarks
Indoor unit	Outdoor unit	Remote controller				
Body LED	PCB LED 1 to 6	LCD				
Normal display	Normal display	Filter display※	—	Filter clogged	Check if the filter is dirty.	When the indoor unit fan motor starting time exceeds 150 hours, the filter cleaning display appears at the wired remote controller. The starting time is reset by pressing the ZONE/SET button of the wired remote controller for 3 seconds or more and is performed side-by-side with ZONE setting. ※ At filter change display, the set temperature display flashes at a 1 second ON, 1 second OFF cycle.
Controlling display (Operation display LED flashes) ※	Controlling display (Oil recovery operation)	Normal display	Indoor unit makes an abnormal sound.	Oil recovery operation being controlled.	All indoor unit fans stop and signal not received during operation.	After the initial hour after the outdoor unit power was turned on, the oil recovery operation is performed every 6 hours without regard to the operating state of the indoor unit. ※ Operation display LED flashes at a 3 seconds ON, 1 second OFF cycle.
Error display (Indoor unit fan error) ※	Normal display	Error display (Indoor unit fan error) ※	—	Indoor fan capacitor faulty.	Check the resistance value of the capacitor. (If normal, the resistance will show a value of several hundred kilohms.)	AB30-54(large ceiling suspended type) are error display. (Others are normal display.) 
				Indoor fan motor faulty.	Check the fan motor resistance values (4-5, 5-6).	
Error display (Thermistor error) ※	Error display (Indoor unit error)	Error display (Thermistor error) ※	System does not cool/heat.	Indoor unit thermistor faulty.	Measure the thermistor resistance and compare it to the ambient temperature.	Refer to the service manual (section 8-5-1) for the temperature and thermistor resistance relationship. ※ When thermistor shorted or open.
Normal display	Normal display or error display (Discharge temperature error)	Normal display	System does not cool/heat.	Indoor unit short circuit.	Air discharged from an indoor unit is sucked directly into the same indoor unit or into another indoor unit.	
No display or error display (Cannot be specified.)	Cannot be specified	No display or error display (Cannot be specified.)	System does not cool/heat. Indoor unit makes an abnormal sound.	Indoor control PCB faulty.	Symptom has many branches, depending on the error contents, and there is no effective check method.	When a PCB or connection wire is faulty, the trouble is often corrected by changing the PCB.
Cannot be specified.	No display or error display (Cannot be specified.)	Cannot be specified.	System does not cool/heat. Abnomal noise coming from indoor unit.	Outdoor control PCB faulty.	Symptom has many branches, depending on the error contents, and there is no effective check method.	When a PCB or connection wire is faulty, the trouble is often corrected by changing the PCB.

2. System does not cool or heat

LED display			Symptom that can occur other than title	Cause	Check method (Error state check method)	Remarks
Indoor unit	Outdoor unit	Remote controller				
Body LED	PCB LED 1 to 6	LCD				
Error display (Communi-cation error) ※	No display	Error display (Communi-cation error) ※	—	Power not supplied to outdoor unit. Circuit breaker OFF. Power line faulty.	Check each outdoor unit power supply terminal board(Power) voltage.	Voltage across R-S, S-T, and T-R: 380~415V Voltage across R-N,S-N, and T-N: 220~ 240V.
				Outdoor unit is leaking(shorted). (Circuit to which a voltage is applied when energized is leaking electricity.)	Trip the outdoor unit circuit breaker immediately after setting the circuit breaker to ON. The resistance across each outdoor unit power supply terminal board(Power) terminal and outdoor unit metal part approaches zero.	When shorted,there is a combination that shows an outdoor unit power supply wires(R-S,S-T,T-R,R-N,S-N,T-N) correlative resistance of nearly zero.
				Outdoor unit is leaking(shorted). (Circuit to which a voltage is applied only when operating is leaking electricity.)	Trip the outdoor unit circuit breaker during operation. The resistance value of the outdoor unit electric parts and outdoor unit metal part approaches zero.	When shorted,there is a combination,which indicates an electric parts correlative resistance near zero.
Normal display	Normal display	Normal display	—	Outdoor unit system type selector switch (DIP SW7-1,7-2) setting error. Set to heat recovery type/ cooling only type with cooling/ heating pomp type piping.	Cold air is blown from the indoor unit during the cooling operation, but warm air is not blown from the indoor unit during the heating operation.	
				Indoor unit refrigerant system address setting (SW 7,8) error.	When the indoor units are operated one by one,there is an indoor unit whose outdoor unit does not operate.	Set the address to the same refrigerant system address of the outdoor unit to which the refrigerant piping is connected.
				Indoor unit indoor unit address (SW 5) setting error. (address duplicated)	Operate each indoor unit for 5 minutes or more. The relevant outdoor unit stops and starts midway. (Compressor capacity and heat exchange capacity at outdoor unit LED is not correct.)	Multiple indoor units in one refrigerant system must not be set to the same indoor unit address.
				Installed piping is unsuitable. piping is too long. (Real length 100m or more)	Check the outdoor unit and indoor unit installation site and estimate the piping length.	When the piping is too long, the cooling capacity may be insufficient. Heating capacity may also be insufficient,but cooling capacity is made insufficient.
				Installed piping is unsuitable. Gas piping diameter is incorrect.	Check the indoor unit capacity and piping diameter.	When the gas piping diameter is large,cooling capacity will be insufficient. Heating capacity may also be insufficient at heating,but cooling capacity is made insufficient.
				Refrigerant leakage.	Check for leaks using a gas detector.(Refrigerant charged state)	Regarding air tightness test after installation or repair,pressurize the system with nitrogen(3.5MPa) and test for leaks with soapy water and allow the system to stand for 24 hours,and then check that there is no drop in pressure.(Note: When the outdoor temperature changes 5℃,the pressure changes 0.06MPa.)
				Insufficient gas (light)	During the cooling operation,the discharge temperature does not become low when all the indoor units are operated. During the heating operation, the discharge temperature does not become high when only one indoor unit is operated.	For light gas insufficiency, capacity drops only in a specific operation state.(Note that this symptom resembles faulty indoor unit electronic expansion valve opening.)

※Normal after the power reset.

LED display			Symptom that can occur other than title	Cause	Check method (Error state check method)	Remarks
Indoor unit	Outdoor unit	Remote controller				
Body LED	PCB LED 1 to 6	LCD				
Normal display	Normal display	Normal display	—	Indoor unit electronic expansion valve faulty. Full closed state (Not open)	When the relevant indoor unit performs the cooling operation, the compressor operates, but the indoor unit discharge temperature is not cool. When the relevant indoor unit performs the heating operation, the compressor operates, but the indoor unit discharge temperature is not warm. (cooling/heating pump type system only) when the heating operation is stopped, the liquid pipe of the relevant indoor unit is not warm. (At fully closed open ing, the liquid pipe is cold.)	Coil resistance (red-white, red-orange, brown-blue, brown-yellow): 100~200Ω (Cooling/heating pump type only.) When heating stops, and the electronic expansion valve is fully closed, the liquid refrigerant collects at the stopped indoor unit and the insufficient gas symptom appears.
				RB unit solenoid valve faulty. SVd solenoid valve faulty.	During heating operation, a voltage (AC 220V) is applied to indoor control PCB CN6(across terminals 1-4), but the indoor unit discharge temperature does not become warm.	During the cooling operation with a faulty SVd, the gas pipe is cold. Coil resistance : 1,200 ~ 1,500 Ω
				RB unit solenoid valve faulty. SVs solenoid valve faulty.	During cooling operation, a voltage(AC 220V) is applied to indoor unit control PCB CN6 (across terminals 2-4), but the indoor unit discharge temperature does not become cool.	
				Outdoor unit electronic expansion valve(EEV1, EEV2) opening faulty. 1.Fully closed state (Not opened) Heating operation.	When a voltage(AC220V) is applied to the coil of the heat exchange 4-way valve(4WV2, 4WV3, 4WV4) and to the heat exchange solenoid valve(SV7, SV8) corresponding to the electronic expansion valve, the electronic expansion valve outlet pipe does not become cold.	During the heating operation, when EEV1 and 2 are fully closed, the low pressure and high pressure both drop. Coil resistance(red-white, red-orenge, brown-blue, brown-yellow): 170~210Ω
				Outdoor unit electronic expansion valve(EEV1, EEV2) opening faulty. 2. Open excessively (fully open)	There is no effective check method.	At low outdoor temperatures, cooling may become poor when EEV1 or EEV2 is open excessively. If the outdoor power supply is reset 3~5 times, the electronic expansion valve may return to normal opening. Coil resistance (red-white, red-orange, brown-blue, brown-yellow): 170~210Ω

LED display			Symptom that can occur other than title	Cause	Check method (Error state check method)	Remarks
Indoor unit	Outdoor unit	Remote controller				
Body LED	PCB LED 1 to 6	LCD				
Normal display	Normal display	Normal display	Indoor unit makes an abnormal sound.	Installed piping not suitable. Liquid piping diameter incorrect.	Check the indoor unit capacity and piping diameter.	When the diameter is large, a refrigerant rushing sound is generated and when the diameter is small, capacity will be insufficient.
				Outdoor unit refrigerant switching 4-way valve (4WV1) faulty. (Cooling/heating pump type only)	28 dia. pipe temperature corresponding to 4WV1 energized state (cooling : de-energized, heating : energized (AC220V)) is abnormal (cooling : cold, heating : hot).	Four-way valve coil resistance : 1200~1500Ω
				Outdoor heat exchange switching 4-way valve (4WV2, 4WV3, 4WV4) or solenoid valve (SV7, SV8) faulty.	Check the heat exchange operation capacity at the LED on the outdoor control PCB. Corresponding heat exchange 4-way valve and solenoid valve energized state (AC220V) is abnormal. (Refer to section 5-2 of the service manual for the energized states.)	When a 4-way valve or solenoid valve is faulty, the high pressure will rise during the cooling operation and the low pressure will fall during the heating operation. Coil resistance : 1200~1500Ω
			Overall refrigerant pressure rises (in particular, high pressure rises abnormally) or falls.	Refrigerant additional charge is unsuitable.	Check the Model No., liquid piping diameter, length of the connected indoor unit, and the additional charge amount.	When gas is insufficient, the capacity drops and when gas is excessive, the high pressure rises abnormally.
Error display (Outdoor unit error) ※	Error display (Communi-cation error) ※	Error display (Outdoor unit error) ※	—	Indoor~outdoor unit communication line faulty.	When communication terminal board (Trans Mission) terminals 1-2 of one indoor unit was shorted, the resistance across communication terminal board (Trans Mission) terminals 1-2 of all the indoor units does not indicate a value near zero.	
※ Normal after power reset.						
Normal display	Error display (High pressure error)	Normal display	—	Indoor unit system type selector switch (DIP SW7-1, 7-2) setting error. Set to cooling/heating pump type/cooling only type with heat recovery type piping.	Cool air or warm air not discharged from indoor unit during both the cooling and heating operations.	Refer to the service manual (section 4-4 "Outdoor Unit") for the switches.
Normal display	Normal display or error display (Compressor error)	Normal display	—	Insufficient gas (serious)	When the number of operating indoor units was changed, the indoor unit discharge temperature does not become low (does not become high).	For serious gas insufficiency, the high pressure always drops and the low pressure always rises during all operations.
Error display (Thermistor error) ※	Error display (Indoor unit error)	Error display (Thermistor error) ※	Indoor fan unit not operating.	Indoor thermistor faulty.	Measure the thermistor resistance and compare it to the ambient temperature.	Refer to the service manual (section 8-5-1) for the temperature and thermistor resistance relationship. ※ When a thermistor is shorted or open.
Normal display	Error display (High pressure error)	Normal display	—	RB unit solenoid valve wiring faulty.	When a relevant indoor unit performs the heating operation, the high pressure becomes high and warm air is not discharged from the indoor unit.	Solenoid valve wiring corresponding to the connection piping must not be connected to the same indoor unit. (Trouble occurs especially easily with the UTF-Y90A1A.)

LED display			Symptom that can occur other than title	Cause	Check method (Error state check method)	Remarks
Indoor unit	Outdoor unit	Remote controller				
Body LED	PCB LED 1 to 6	LCD				
Error display (Outdoor unit error)	Error display (Thermistor error) ※	Error display (Outdoor unit error)	—	Outdoor thermistor faulty.	Check by measuring the thermistor resistance and comparing it to the ambient temperature.	Refer to the service manual (section 8-5-1) for the temperature and thermistor resistance relationship. ※When thermistor is shorted or open.
Normal display	Normal display or error display (High pressure error)	Normal display	—	Outdoor fan capacitor faulty.	Check the capacity (11uF) and resistance of the capacitor. (When normal, the resistance is several hundred kilohms or more.)	Resistance value across fan motor wires: Blue-white : 60 ohms, white-red : 40 ohms, red-blue : 20 ohms
				Outdoor fan motor faulty.	Voltage (AC 30V) is applied to motor, but motor does not rotate.	
				Outdoor unit electronic expansion valve (EEV1, EEV2) opening faulty. Fully closed state (not open) Cooling operation	When the heat exchange 4-way valve (4WV2, 4WV3, 4WV4) corresponding to the electronic expansion valve is not energized, the temperature (warm) of the piping before and after the electronic expansion valve is clearly different.	When EEV1 and 2 are fully closed during the cooling operation, the high pressure may rise abnormally and the gas may become insufficient and both the high pressure and low pressure may drop. Coil resistance (red-white, red-orange, brown-blue, brown-yellow) : 170~210 Ω
			Indoor unit makes an abnormal sound.	Ball valve opening faulty.	Turn the knob of the liquid pipe, discharge pipe, and suction pipe clockwise.	When the ball valve is fully open, the knob of the liquid pipe and discharge pipe is vertical and the knob of the suction pipe is horizontal.
Normal display	Normal display or error display (Discharge temperature error)	Normal display	—	Outdoor unit short circuit	Air discharged from an outdoor unit is sucked directly into the same outdoor unit or into another outdoor unit.	
				Outdoor unit heat exchanger block	Not enough space around outdoor unit. Dirt or other foreign matter stuck to outdoor unit heat exchanger.	Refer to the design technical manual for the service space.

LED display			Symptom that can occur other than title	Cause	Check method (Error state check method)	Remarks
Indoor unit	Outdoor unit	Remote controller				
Body LED	PCB LED 1 to 6	LCD				
Controlling display (Operation display LED flashing) ※1	Controlling display (Defrosting operation)	Normal display ※2	—	Defrosting operation in progress	Outdoor unit heat exchanger extremely cold (-5℃ or less)	※1 Operation display LED repeats 3 seconds ON, 1 second OFF cycle. ※2 DEFROST is displayed at bottom of set temperature display position.
Error display (Outdoor unit error display)	Error display (Compressor error)	Error display (Outdoor unit error)	—	Compressor faulty	Voltage (AC380-415V) is applied to secondary side of power line, but compressor does not operate. → Compressor lock → Compressor motor burned	While checking for a compressor error, the other compressors perform the backup operation. Resistance across compressor wires : 5 Ω each.
				Compressor faulty Compressor lock	When the compressor does not operate, measure the resistance across the compressor wires and the ground resistance. (When the compressor is locked, the resistance across the wires and the ground resistance will be the normal value, the same as when the compressor is stopped.)	When this trouble occurs, the oil in the compressor has deteriorated (changed to black color). Therefore, long-term operation is impossible. (Another compressor locks.)
				Compressor faulty Compressor motor burned	When the compressor does not operate, measure the resistance across the compressor wires and the ground resistance. (When the motor is burned, the resistance across wires increases / open and the ground resistance drops.)	When this trouble occurs, the oil does not deteriorate. Therefore, operation can be continued, but since the possibility of electric leakage is high, the compressor power line must always be disconnected.
Error display (Outdoor unit error)	Error display (Reverse phase error)	Error display (Outdoor unit error)	—	Compressor faulty Reverse phase	The compressor operates normally, but the high pressure does not rise.	The compressor wiring is red-R, white-S, and black-T.
Error display (Communi-cation error) ※	Error display (Communi-cation error) ※	Error display (Communi-cation error) ※	—	Outdoor unit communication PCB faulty.	When outdoor unit power reset is repeated, a communication error is generated.	When the display returns to normal (not communicating) after reset, the communication PCB or communication line is abnormal.
No display or error display (Cannot be specified)	Cannot be specified.	No display or error display (Cannot be specified)	Indoor unit fan not operating. Indoor unit makes an abnormal sound.	Indoor unit control PCB faulty.	The symptom has many branches, depending on the error contents, and there is no effective check method.	When the PCB or the connection wiring is faulty, operation can often be restored by replacing the PCB.
Cannot be specified.	No display or error display (Cannot be specified)	Cannot be specified.	Indoor unit fan not operating. Indoor unit makes an abnormal sound.	Outdoor unit control PCB faulty.	The symptom has many branches, depending on the error contents, and there is no effective check method.	When the PCB or the connection wiring is faulty, operation can often be restored by replacing the PCB.

※ Normal after power reset.

3. Abnormal sound is heard from the indoor unit.

LED display			Symptom that can occur other than title	Cause	Check method (Error state check method)	Remarks
Indoor unit	Outdoor unit	Remote controller				
Body LED	PCB LED 1 to 6	LCD				
Normal display	Normal display	Normal display	—	RB unit solenoid valve faulty. SVb1, 2 solenoid valve faulty.	When heating operation starts, a voltage (AC220V) is applied to indoor unit control PCB CN6 (across terminals 3-4), but 3 minutes later a loud refrigerant rushing sound is generated from the RB unit.	Coil resistance : 1200~1500Ω
				Indoor electronic expansion valve opening faulty.	—	Coil resistance (red-white, red-orange, brown-blue, brown-yellow) : 100~200Ω
			Indoor unit other than the relevant indoor unit does not perform cooling.	Indoor electronic expansion valve opening faulty. Fully open (open excessively) Cooling operations performed.	The area (heat exchanger) near the air diffuser is not cooled even after several minutes have elapsed since the relevant indoor unit was stopped. (Gas pipe is cold.)	When the electronic expansion valve is open excessively, other indoor units may not operate at full capacity or a loud refrigerant rushing sound may be generated.
			Indoor unit other than the relevant indoor unit does not perform cooling. Indoor unit heat exchanger icing.	Indoor unit electronic expansion valve opening faulty. Fully open (open excessively) Cooling stopped	The area (heat exchanger) near the air diffuser of the stopped relevant indoor unit is cold. (Gas pipe is cold.)	When the electronic expansion valve opens, the indoor heat exchanger may ice while stopped and water leakage or other trouble may occur.
			Indoor unit other than relevant indoor unit does not perform heating.	Indoor unit electronic expansion valve opening faulty. Full open (open excessively) Heating operation	When the relevant indoor unit performs the heating operation or another indoor unit performs the heating operation, the indoor unit discharge temperature does not become high and the high pressure becomes low.	
				Indoor unit electronic expansion valve opening faulty. Full open (open excessively) Heating stopped.	When the relevant indoor unit or another indoor unit performs the heating operation, the indoor unit discharge temperature does not become high and the high pressure become low.	
			System does not cool/heat	Outdoor cool/heat switching 4-way valve (4WV1) faulty. (Cooling/heating pump type only)	28 dia. gas piping temperature corresponding to 4WV1 energized state(cooling, de-energized, heating, energized(AC220V) is abnormal (cooling : cold, heating : hot).	4-way valve coil resistance : 1200~1500Ω
				Outdoor heat exchanger switching 4-way valve (4WV2, 4WV3, 4WV4) or solenoid valve (SV7, SV8) faulty.	Check the heat exchange operation capacity at the outdoor control PCB LED. The energized state (AC220V) of the heat exchange 4-way valve and solenoid valve corresponding to it is abnormal. (Separate sheet 1)	When a 4-way valve or solenoid valve is faulty, the high pressure rises during the cooling operation and the low pressure drops during the heating operation. Coil resistance : 1200~1500Ω
				Installed piping is unsuitable. Liquid piping diameter is incorrect.	Check the indoor unit capacity and pipe diameter.	When the diameter is large, a refrigerant rushing sound will be generated and when the diameter is small, capacity will be insufficient.

LED display			Symptom that can occur other than title	Cause	Check method (Error state check method)	Remarks
Indoor unit	Outdoor unit	Remote controller				
Body LED	PCB LED 1 to 6	LCD				
Normal display	Normal display or error display (High pressure error)	Normal display	System does not cool/heat.	Ball valve opening faulty.	Turn the knob of the liquid pipe, discharge pipe, and suction pipe ball valve counter-clockwise.	When the ball valve is fully open, the knob of the liquid pipe and discharge pipe is vertical and the knob of the suction pipe is horizontal.
Controlling display (Operation display LED flash) ※	Controlling display (Oil recovery operation)	Normal display	Indoor unit not operating.	Oil recovery operation control in progress.	All the operating indoor unit fans are stopped and signals are not received.	Oil recovery operation is performed even though the indoor unit operation state is entered every 6 hours after the initial hour after the outdoor unit power is turned on. ※Operation display LED repeats 3 seconds ON, 1 second OFF cycle.
No display or error display (Cannot be specified.)	Cannot be specified.	No display or error display (Cannot be specified.)	Indoor unit fan is not operating. System does not cool/heat.	Indoor control PCB faulty.	The symptom has many branches, depending on the error contents, and there is no effective check method.	When the PCB or connection wiring is faulty, operation can often be restored by replacing the PCB.
Cannot be specified.	No display or error display (Cannot be specified.)	Cannot be specified.	Indoor unit fan is not operating. System does not cool/heat.	Outdoor control PCB faulty.	The symptom has many branches, depending on the error contents, and there is no effective check method.	When the PCB or connection wiring is faulty, operation can often be restored by replacing the PCB.

4. Water leaks from the indoor unit.

LED display			Symptom that can occur other than title	Cause	Check method (Error state check method)	Remarks
Indoor unit	Outdoor unit	Remote controller				
Body LED	PCB LED 1 to 6	LCD				
Normal display	Normal display	Normal display	—	Drain hose faulty.	Tilt the drain hose from the indoor unit to the drain outlet.	The same symptom will also appear when the drain hose is clogged.
Error display (Drain error) ※	Error display (Indoor unit error)	Error display (Drain error) ※	—	Drain pump faulty (Cassette type only)	During cooling operation, drain pump is not effective even though a voltage (DC5V) is applied across CN5 terminals 1-2.	※ Generated when the float switch does not return even though 3 minutes have elapsed after the operation signal was sent from the float switch.
				Float switch faulty.	Remove the float switch and move the float up and down and check the resistance.	When the float is lowered, the circuit is open (high resistance) and when the float is raised, the circuit is closed (low resistance). ※ Generated when the float switch does not return even though 3 minutes have elapsed after the operation signal was sent from the float switch.

5. Others

LED display			Symptom that can occur other than title	Cause	Check method (Error state check method)	Remarks
Indoor unit	Outdoor unit	Remote controller				
Body LED	PCB LED 1 to 6	LCD				
Normal display	Normal display	Normal display		Indoor unit electronic expansion valve opening faulty.		When the indoor unit power is reset 5~10 times at a 2~3 minutes interval, the expansion valve may close. Coil resistance (red-white, red-orange, brown-blue, brown-yellow) : 100~200Ω
			Indoor unit other than relevant indoor unit does not perform cooling. Indoor unit makes an abnormal sound.	Indoor unit electronic expansion valve opening faulty. Fully open (open excessively) Cooling operation.	Area (heat exchanger) near the air diffuser is not cooled even after several minutes have elapsed after the relevant indoor unit was stopped. (Gas pipe is cold.)	When the electronic expansion valve is open excessively, other indoor units may not operate at full capacity or a loud refrigerant rushing sound may be generated.
			Indoor unit other than relevant indoor unit does not perform cooling. Indoor unit makes an abnormal sound. Icing at indoor unit heat exchanger.	Indoor unit electronic expansion valve opening faulty. Fully open (open excessively) Cooling stopped.	The area (heat exchanger) near the air diffuser of the stopped relevant indoor unit is cold. (Gas pipe is cold.)	When the electronic expansion valve opens, the stopped indoor heat exchanger may ice and water leakage or other trouble may occur.
			Indoor unit other than relevant indoor unit does not perform heating. Relevant indoor unit is making an abnormal sound.	Indoor unit electronic expansion valve opening faulty. Fully open (open excessively) Heating operation.	When a relevant indoor unit or another indoor unit performs the heating operation, the indoor unit discharge temperature does not become high and the high pressure becomes low.	When the electronic expansion valve is open excessively, a loud refrigerant rushing sound may be generated.
				Indoor unit electronic expansion valve opening faulty. Fully open (open excessively) Heating stopped.		
			Discharge temperature is high.	Up - down (left - right) swing switching motor faulty.	Louver does not move even when a voltage (DC12V) is applied to the CN10 terminals (across 1-2) at swing input.	For the left - right swing switching motor, check the voltage across the CN11 terminals (1-2).
			Discharge temperature is high. ※Remakes	Liquid injection solenoid valve (SV1) faulty.	When a voltage (AC220V) is applied to CN7, the liquid injection solenoid valve outlet pipe is not cold.	When SV1 is faulty, the discharge gas temperature may rise and a discharge temperature error may be generated. Coil resistance : 1200~1500Ω
				High pressure gas bypass solenoid valve (SV2) faulty.	When a voltage (AC220V) is applied to CN8, the high pressure gas bypass solenoid outlet pipe is not warm.	When SV2 is faulty, the high pressure may rise and a high pressure error may be generated. Coil resistance : 1200~1500Ω
			Compressor error ※Remakes	Oil return solenoid valve (SV3, SV4, SV5, SV6) faulty.	When a voltage (AC220V) is applied to CN9, CN10, CN11, and CN12, the outlet pipe of the respective solenoid valve (SV3, SV4, SV5, SV6) does not become hot.	When SV3, SV4, SV5, and SV6 do not operate normally, the oil may not return to the compressor and compressor trouble may occur. Coil resistance : 1200~1500Ω
			High pressure is high. ※Remakes	High pressure switch faulty.	There is a voltage difference across terminals 1-2 of CN42 even though the high pressure exceeds 3.0MPa.	When the pressure switch is faulty, protection control will not be entered even if the high pressure rises and a high pressure error may be generated.
Error display (Outdoor unit error)	Error display (Discharge, liquid pipe pressure sensor error)	Error display (Outdoor unit error)	High pressure is high. ※Remakes	Pressure sensor (HP, MP) faulty.	Measure the pressure sensor output voltage (across terminals 2-3 of CN33 and CN34) and compare the result to the pressure gauge indication.	When the pressure sensor is faulty, protection control is not entered even if the high pressure rises and a high pressure error may be generated. Refer to the service manual (section 8-5-2) for the pressure and pressure sensor output voltage relationship.

8-5 OTROS

8-5-1 CARACTERÍSTICAS DE TERMISTOR

Valores de resistencia de termistor < Unidad interior >

1) Temperatura de termistor de aspiración (TH_{0A}, TH_{ZA})

Temperatura (℃)	0	2.5	5	7.5	10	12.5	15	17.5	20	22.5	25	27.5	30
Valor resistencia (kΩ)	33.6	29.5	25.9	22.8	20.2	17.9	15.8	14.1	12.5	11.2	10.0	9.0	8.0

Temperatura (℃)	32.5	35	37.5	40	42.5	45	47.5	50
Valor resistencia (kΩ)	7.2	6.5	5.9	5.3	4.8	4.3	3.9	3.6

2) Temperatura de termistor del intercambiador de calor interior (TH_{HM})

Temperatura intercambiador (℃)	0	2.5	5	7.5	10	12.5	15	17.5	20	22.5	25	27.5	30
Valor resistencia (kΩ)	176.0	153.5	134.2	117.6	103.3	91.0	80.3	71.0	62.9	55.9	49.7	44.3	39.6

Temperatura intercambiador (℃)	32.5	35	37.5	40	42.5	45	47.5	50	52.5	55	57.5	60
Valor resistencia (kΩ)	35.4	31.7	28.5	25.6	23.1	20.8	18.8	17.1	15.5	14.1	12.8	11.6

Valores de resistencia de termistor < Unidad exterior >

1) Termistor de temperatura del intercambiador de calor exterior

Temperatura de tubo (°C)	-50	-40	-30	-20	-10	-7.5	-5.0	-2.5	0	2.5	5.0	7.5	10
Valor resistencia (kΩ)	384,8	182,8	92,3	49,2	27,5	24,0	20,9	18,3	16,1	14,1	12,4	11,0	9,7

Temperatura de tubo (°C)	12.5	15.0	17.5	20	22.5	25.0	27.5	30	32.5	35	37.5	40	50
Valor resistencia (kΩ)	8,6	7,7	6,8	6,1	5,5	4,9	4,4	3,9	3,6	3,2	2,9	2,6	1,8

Temperatura de ture (°C)	60	70	80	90	100
Valor resistencia (kΩ)	1,2	0,9	0,6	0,5	0,4

2) Termistor de temperatura del tubo de descarga

Temperatura de tubo (°C)	-40	-30	-20	-10	0	5.0	10	12.5	15	17.5	20	22.5	25
Valor resistencia (kΩ)	2183	1076	561	307	176	135	105	92,4	81,8	72,6	64,5	57,5	51,3

Temperatura de ture (°C)	27,5	30	32,5	35	37,5	40	50	60	70	80	90	100	120
Valor resistencia (kΩ)	45,8	41,1	36,9	33,1	29,8	26,9	18,1	12,5	8,8	6,3	4,6	3,4	2,0

Temperatura de tubo (°C)	140	161	180
Valor resistencia (kΩ)	1,2	0,8	0,5

3) Termistor de temperatura exterior

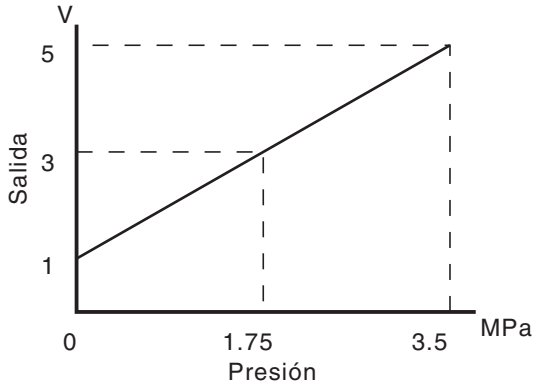
Temperatura de tubo (°C)	-50	-40	-30	-20	-10	-7,5	-5,0	-2,5	0	2.5	5,0	8,0	10
Valor resistencia (kΩ)	859	402	200	105	58,2	50,6	44,0	38,4	33,6	29,5	25,9	22,3	20,2

Temperatura de tubo (°C)	12,5	15	17,5	20	22,5	25	27,5	30	32.5	35	37,5	40	50
Valor resistencia (kΩ)	17,9	15,8	14,1	12,5	11,2	10,0	9,0	8,0	7,2	6,5	5,9	5,3	3,6

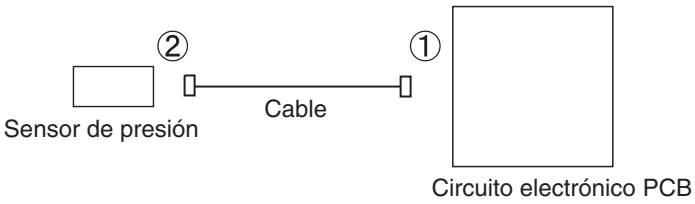
Temperatura de tubo (°C)	60	70	80
Valor resistencia (kΩ)	2,5	1,8	1,3

8-5-2 SENSOR DE PRESIÓN

1) Características del sensor de presión



2) Revise los puntos, para reemplazar el sensor de presión



Cuando instale el sensor de presión, conecte el cable al circuito PCB (①), después conecte el otro extremo al sensor de presión (②). Cuando lo desconecte proceda en caso inverso. Ponga atención de instalar de la manera indicada, sino podría falla el sensor de presión.

8-5-3 VÁLVULA DE EXPANSIÓN ELECTRÓNICA

When the electric expansion valve is locked cause by failure, it emits click noise. Confirming the noise emission is done by touching any implement like a screw driver.

8-5-4 DISTRIBUIDOR (SOLO RECUPERADOR DE C.)

When the RB unit is failed, it can be concerned one of the valve such as discharge valve, suction valve and bypass is locked. The discharge valve will be ON during heating operation, the suction valve will be ON during cooling operation and the bypass valve will be ON during stopping.

8-5-5 OTROS

1) Solving the problem is nesessary since following can be occured.

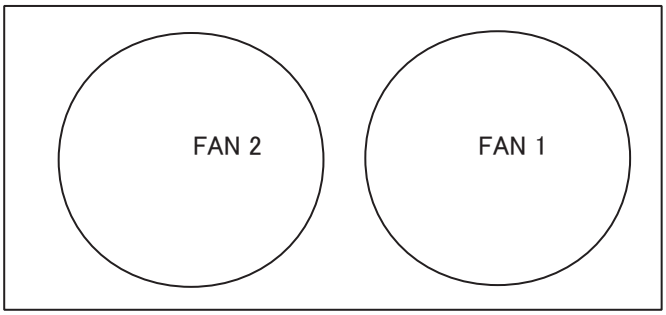
① Gas leakage, capacity declining cause by gas shortage.
② Dirt from the filter and the EEV.
③ Capacity declining by mis-setting of the indoor unit capacity.
④ Unfit of the refrigerant pipe.
⑤ Increasing the indoor unit by mis-piping.
⑥ Increasing the indoor unit by mis-setting the refrigerant system address.
⑦ Disconnection of the transmission line.

2) The air conditioner operates intermittently or an error message appears.

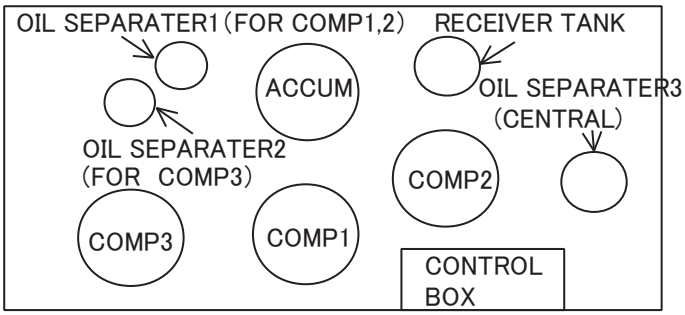
① Wiring method of the transmission line.
② Loose contact of the transmission line
③ Mis-selecting the transmission line.
④ Over the limit of the transmission line length.
⑤ Noise influences the transmission line.
⑥ In case of the specified indoor unit, the indoor unit PCB is defected.
⑦ In case of all units or the specified unit, the outdoor unit PCB is defected.

8-5-6 OUTDOOR INTERNAL LAYOUT

OUTDOOR UNIT INTERNAL LAYOUT



(FRONT)



(FRONT)

OUTDOOR UNIT CONTROL BOX
INTERNAL LAYOUT