4. PROCESS AND FUNCTIONS

4

4-1. Control Functions

1. Indoor Air Temprature Control

The thermostat is switched on and off in accordance with ⊿ T shown below.

⊿ T= (Indoor air temperature) - (Temperature set with the remote controller)	
In the body thermostat mode (setting at factory shipment)	Indoor air temperature = (Body sensor) - (Shift temperature *)
In the remote controller thermostat mode	Indoor air temperature = (Remote controller sensor)

* Shift Temperature
  Only valid during heating operation. Set at 0 ℃ during cooling operation.
 The settings at factory shipment during heating operation are as follows:
    Wall-Mounted type : 2℃
    Floor Standing type : 0℃
    All other types (4-way types, Concealed types, etc.) : 4℃
This function acts as the coefficient for adjusting differences in temperature caused by the height of the living space from the floor to the ceiling (the temperature at ceiling height is higher) during heating operation.
The setting can be modified between 0 ℃ and 6 ℃ with mode [06] (Simple Settings Function) on the remote controller. (Refer to the section " 7. REMOTE CONTROLLER FUNCTIONS SECTION ")
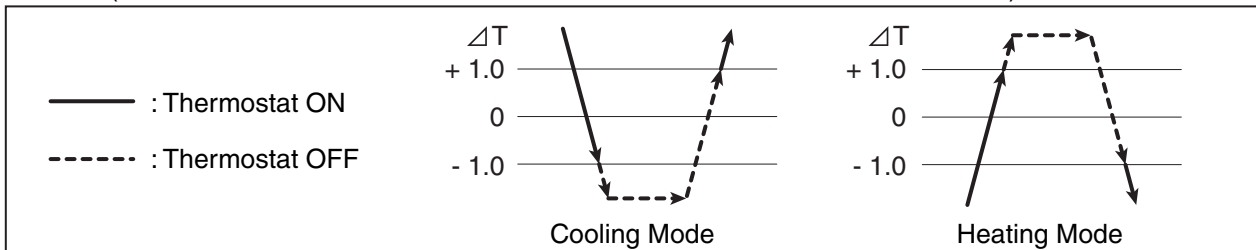
(1) Once the thermostat has been switched on, it cannot be switched off again by indoor air temperature control for a period of 10 minutes.
(2) Once the thermostat has been switched off, it cannot be switched on again for a period of 3 minutes.
(3) The thermostat will not be switched off by indoor air temperature control and operations will continue during the test operation mode.

2. Compressor Frequency Control

The frequency of the compressor's inverter is limited by either of the following controls depending on whether the cooling or heating mode is in operation.

Cooling Mode :

· Indoor air temperature control
· Maximum and minimum frequency control
· Current release control
· Cooling high-load prevention control
· Cooling freeze prevention control
· Discharge temperature control

Heating Mode :

· Indoor air temperature control
· Maximum and minimum frequency control
· Current release control
· Heating high-load prevention control
· Discharge temperature control

1) Indoor Air Temperature Control

By the control method, not only the thermostat is switched on and off, as explained above section " 1. Indoor air Temperature Control ", but also the frequency of the compressor's inverter is controlled in accordance with ⊿T and fluctuations in indoor air temperature. Inverter frequency is controlled as follows:

When ⊿T is high (not yet reached the temperature set with the remote controller).	Controlled so that the inverter frequency is increased.
When ⊿T is low (approximately +1.0 or less in the cooling mode or approximately -1.0 or more in the heating mode).	Controlled so that the inverter frequency is decreased or kept.
When the indoor air temperature is rising in the cooling mode and dropping in the heating mode.	Controlled so that the inverter frequency is increased.
When the indoor air temperature is dropping in the cooling mode and rising in the heating mode.	Controlled so that the inverter frequency is decreased.

* The fluctuations of the compressor inverter frequency adjustments are calculated taking into account not only ⊿T, but also-fluctuations in indoor air temperature.

2) Maximum and Minimum Frequency Control

The compressor's inverter frequency is controlled in accordance with the model and operation mode.
The maximum and minimum frequencies for each model are shown in the chart below.
* There are cases in which frequency is limited with other control functions depending on operational conditions, so operations are not always carried out in accordance with the maximum frequencies listed below.
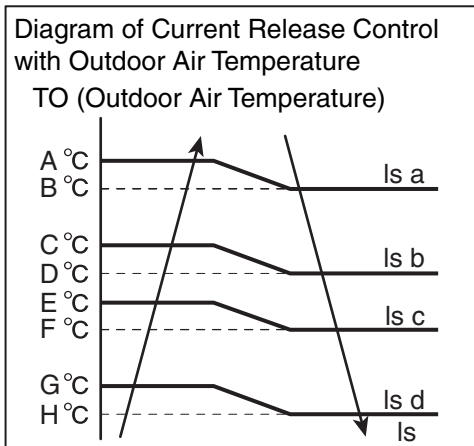
		U-200PE1E8	U-250PE1E8
Maximum Frequency	Cooling	91.2 Hz	80.0 Hz
	Heating	96.0 Hz	85.0 Hz
Minimum Frequency	Cooling	25.0*Hz	25.0*Hz
	Heating	25.0*Hz	25.0*Hz

* There are cases in which the frequency is set at 33.0Hz to protect the compressor in accordance with outdoor air temperature and indoor loads.

3) Current Release Control

The inverter frequency is controlled so that the current value for the inverter compressor is less than the figure listed in the chart below only in the cooling mode in order to prevent abnormal increases in the inverter circuit located within the outdoor unit's electrical box.

(1) Current release control with primary current : The limited values are modified in accordance with outdoor air temperature.

Diagram of Current Release Control with Outdoor Air Temperature
TO (Outdoor Air Temperature)

Cooling Mode

TO	U-200/250PE1E8
A	48
B	47
C	45
D	44
E	43
F	42
G	40
H	39

	U-200PE1E8	U-250PE1E8
Is	12.5	15.0
	Current value	Current value
Is A	6.3	7.5
Is B	7.5	9.0
Is C	8.8	10.5
Is D	10.6	12.8

(2) Current release control with secondary current : Values are fixed regardless of outdoor air temperature.

	U-200PE1E8	U-250PE1E8
I(A)	14.5	15.5

4) Cooling High-Load Prevention Control

This control is performed to limit the inverter frequency in order to restrict abnormal increases in pressure and high-load operations in the cooling mode. In accordance with the temperature of the outdoor heat exchanger temperature sensors (C1, C2), such controls are performed as halting the operations of the indoor unit, decreasing the inverter frequency and restricting its increase, etc. If the temperature max (C1, C2) exceeds 64℃ , operations of the indoor unit are halted and then restarted 3 minutes later. If this start/stop activity is repeated four times consecutively, alarm "P20" (cooling high-load error) occurs.
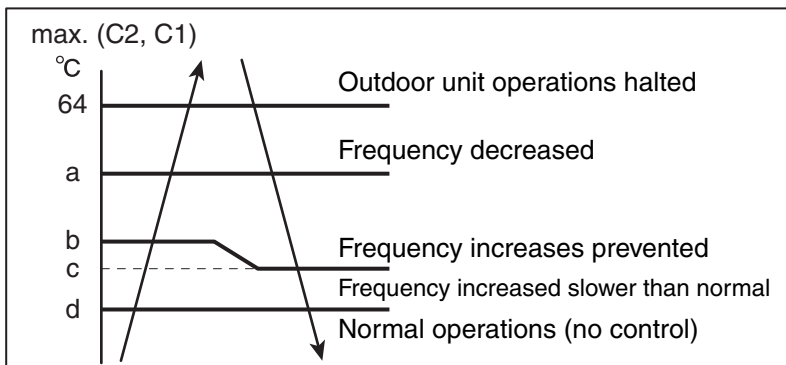

	U-200PE1E8	U-250PE1E8
a	55	53
b	54	52
c	52	50
d	48	47

5) Heating High-Load Prevention Control

The following control is performed in the heating mode in accordance with the indoor heat exchanger temperature max (E1, E2). (See the chart below.)

(1) The operational frequency of the compressor is decreased when the temperature enters the "M" zone.
The operation frequency is modified every 30 seconds while the temperature remains in this zone
(the thermostat is switched off if it continues for 2 minutes).
(2) The "N" zone is the area in which operation frequency increases are prevented.
(3) The operational frequency returns to normal control when the detected temperature enters the "L" zone.
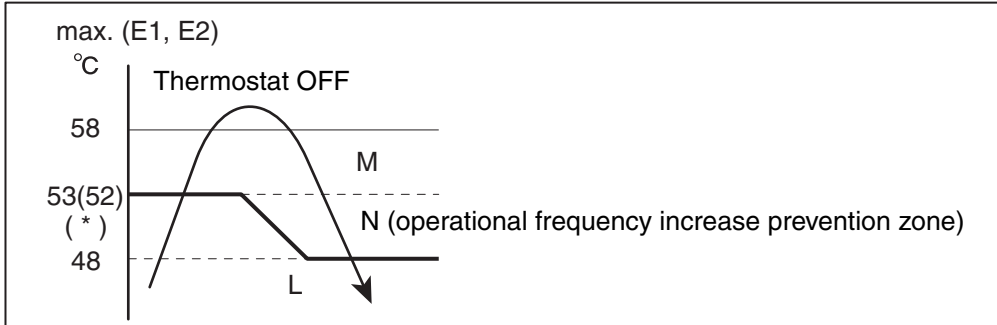
* During the increase of temperature max (E1, E2) after the compressor is switched on, the temperature for entering the "M" zone for the first time is set at 52°C .
The temperature for entering the "M" zone is reset to 52°C after the temperature max (E1, E2) dropped less than 30°C .
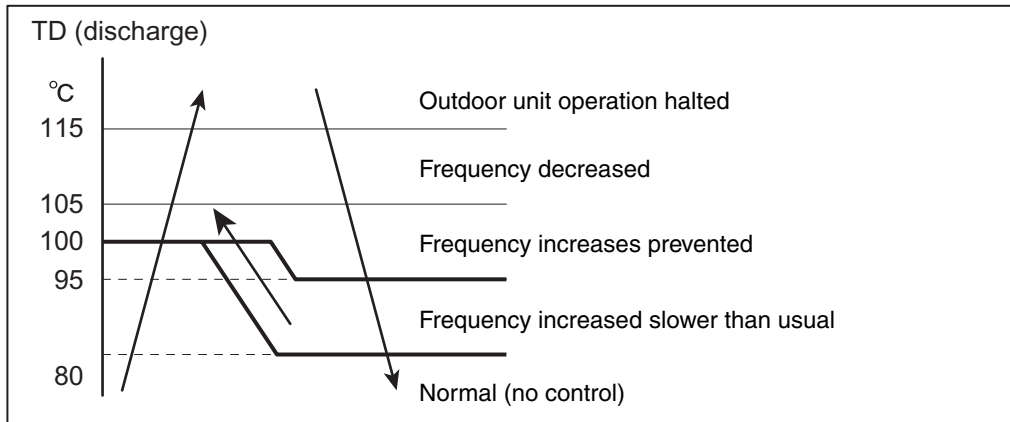
6) Cooling Freeze Prevention Control

The following control is performed during cooling operations (including dehumidifying operation), in accordance with whichever of the indoor heat exchanger temperatures (E1 or E2) is lower. (See the chart below.)

(1) If the temperature remains in the "J" zone (decreasing operation frequency and thermostat OFF zone) for 6 minutes, the operating frequency of the compressor is decreased.
The operation frequency is amended every 30 seconds as long as the temperature is in this zone.
(2) If the temperature is in the "K" zone (operating frequency increase prevention zone), the operating frequency of the compressor is maintained.
(3) If the temperature is in the "H" zone (operating frequency restriction zone) and the outdoor air temperature is less than 32°C , the maximum operating frequency of the compressor is limited in accordance with the indoor unit fan speed.
(4) If the temperature is in the "I" zone (normal operation zone), normal operations are performed.
(5) If the temperature is continuously in the "J" zone with the compressor's operating frequency reaches "0", then temperature A, which is temperature for changing from the "J" zone to the "H" zone, is raised from 5°C to 8°C, and operation continues with the thermostat off until the temperature enters the "H" zone.
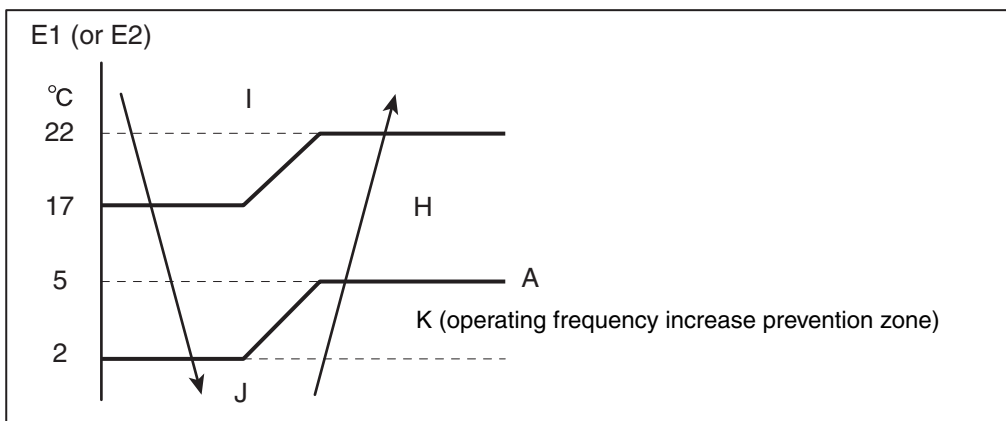
7) Discharge Temperature Control

The following control is performed to prevent the discharge temperature from rising abnormally in order to protect the inverter compressor. In accordance with the temperature of the discharge sensor TD, such controls are performed as to limiting the increase of inverter frequency, decreasing it or halting operation of the compressor.
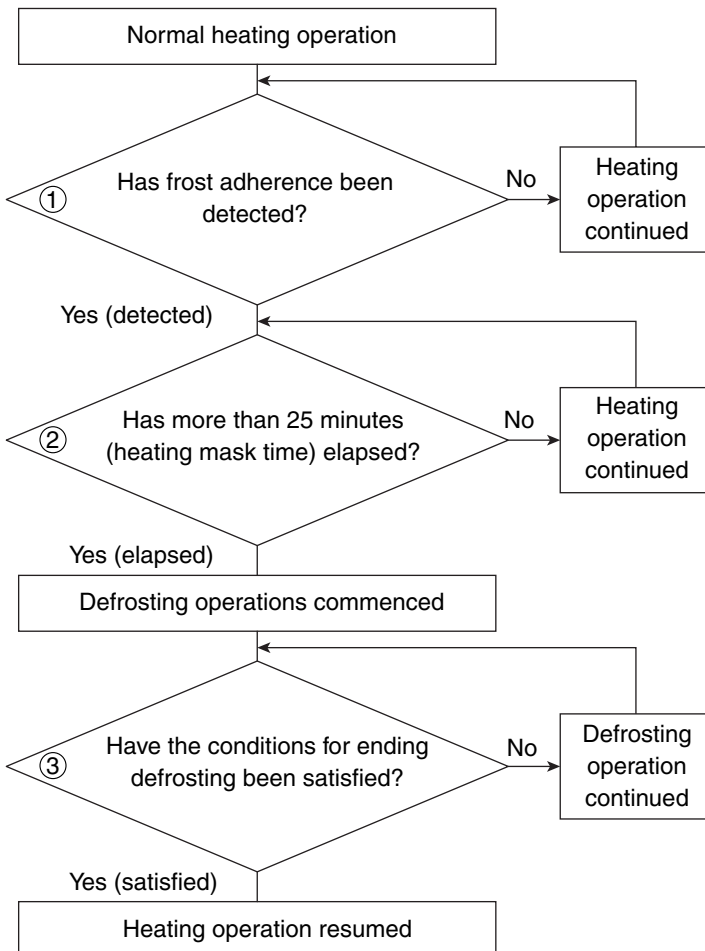

TD (discharge)

°C
115 ——— Outdoor unit operation halted
105 ——— Frequency decreased
100 ——— Frequency increases prevented
95
       Frequency increased slower than usual
80 ——— Normal (no control)

* If the discharge temperature exceeds 115°C , operations of the compressor are halted and then restarted 3 minutes later.
  If this start/stop activity is repeated 4 times consecutively, the alarm "P03" (abnormal discharge temperature) occurs.
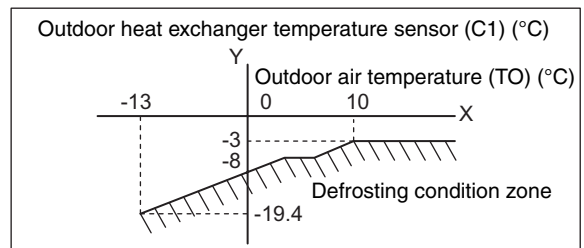
8) Defrosting Control

This control function removes frost that has adhered to the outdoor heat exchanger during the heating operation. The control is performed to prevent the deterioration of the heating capabilities attributed to the adherence of frost, and to prevent the crack or crush of pipes attributed to the accretion of ice.
The following control is performed in accordance with the external temperature and the outdoor heat exchanger temperature sensor (C1).

Overall Flow Chart of Defrosting Control

Normal heating operation

① Has frost adherence been detected? — No → Heating operation continued

Yes (detected)

② Has more than 25 minutes (heating mask time) elapsed? — No → Heating operation continued

Yes (elapsed)

Defrosting operations commenced

③ Have the conditions for ending defrosting been satisfied? — No → Defrosting operation continued

Yes (satisfied)

Heating operation resumed

① Frost adherence detection
- If the following conditions are satisfied during heating operations, it is regarded as "frost adherence is detected".
- Frost adherence detection is performed in accordance with the outdoor air temperature (TO) and the outdoor heat exchanger temperature sensor (C1).
  * However, frost adherence detection is not performed for the first 15 minutes of compressor operations in the normal heating mode.
- Frost adherence detection conditions
  (a) With the outdoor air temperature (TO) being -13 °C or above, the frost adherence condition shown below are satisfied for whether 3 consecutive minutes or a total of 60 intermittent minutes, or the outdoor heat exchanger temperature sensor (C1) remains -18 °C or below for 20 consecutive seconds.

Outdoor heat exchanger temperature sensor (C1) (°C)

Y

Outdoor air temperature (TO) (°C)
-13   0   10
                            X
          -3
          -8
                    Defrosting condition zone
          -19.4

  (b) With the outdoor air temperature (TO) being less than -13 °C , the outdoor heat exchanger temperature sensor (C1) remains less than or equal to outdoor air temperature (TO) - 5 °C for 20 consecutive seconds.
  (c) With the outdoor heat exchanger temperature sensor (C1) being less than - 3°C , a total of 90 minutes has elapsed (defrosting carried out periodically in accordance with the time).

② Heating Mask Time
This refers to the shortest time that heating operations must be performed without defrosting operations being executed.
The mask time for this model is 25 minutes.
* Defrosting operations will not be commenced until the defrosting mask time has elapsed, even if frost adherence has been detected.
③ Ending Defrosting
Defrosting operations are ended when the following conditions are aligned.
• Ending defrosting conditions
(a) When the temperature of the outdoor heat exchanger temperature sensor (C1) is 12°C or higher.
(b) When the temperature of the outdoor heat exchanger temperature sensor (C1) is 7 °C or higher for 60 consecutive seconds.
(c) When defrosting has been initiated for 10 minutes.

9) Outdoor Unit Fan Control

(1) Cooling Mode
The appropriate rotations per minute for the outdoor unit fan are determined in accordance with the outdoor air temperature and the frequency of the compressor inverter.
The outdoor unit fan step is controlled between a range of W1 (Step 1) and WD (Step 14).
(2) Heating Mode
The appropriate rotations per minute for the outdoor unit fan are determined in accordance with the outdoor air temperature and the frequency of the compressor inverter.
The outdoor unit fan step is controlled between a range of W1 (Step 1) and WE (Step 15).
* However, the outdoor unit fan is halted (Step 0) when defrosting is being carried out.

10) Outdoor Unit's Electrical Expansion Valve Control

The electrical expansion valve controls the amount of refrigerant that is allowed to flow in accordance with the operation status.
The valve is adjusted in accordance with the discharge temperature (TD), the outdoor heat exchanger temperature sensor (C1), the suction temperature sensor (TS), and the indoor unit's heat exchanger temperature sensors (E1 and E2).
(1) Cooling Mode
Controlled so that the section temperature (TS) - indoor heat exchange temperature minimum (E1 and E2) is between 1°C and 5 °C under normal conditions.
There are cases where the aperture opens wider than usual if the discharge temperature increases.
(2) Heating Mode
Controlled so that the section temperature (TS) - outdoor heat exchange temperature (C1) is between 1 °C and 5°C under normal conditions.
There are cases where the aperture opens wider than usual if the discharge temperature increases.

11) Solenoid valve Control

The solenoid valve is switched on when normal operations have been halted and before and after defrosting operations in order to stabilize differences between refrigerant pressure (reduced pressure).
There are also cases in which it is switched on at the start of operations when the outdoor air temperature is low in order to stabilize the behavior of the oil.
(1) Normal Operations Mode
It is basically kept off, but there are cases when it is switched on for brief periods at the start of operations when the outdoor air temperature is low.
(2) Defrosting (Heating) Operations
It is switched on for approximately 1 minute before and after defrosting operations.
(3) When Operations are Halted
Switched on for a maximum of 30 minutes in order to stabilize pressure before and after compressor operations.

12) Demand Control

There are two styles of demand operations available as methods of restraining power consumption.

(1) Demand via External Input

Demand input from an external source is carried out from the outdoor unit EXCT (CN030) PCB or the outdoor unit's serial/parallel I/O (optional).

- Demand control with EXCT input

Short-circuit		Control (range of operations)
2P and 3P	1P and 3P	
0	0	No control
0	1	Rated current restricted to A% (A% = 100% at factory shipment)
1	0	Rated current restricted to B% (B% = 70% at factory shipment)
1	1	Control OFF

* The operational current is restricted to either A% or B% as a general indicator during demand input.
  - A% and B% can be amended in calibrations of 5% between 70% and 100% with the outdoor unit's maintenance remote controller.
    For details on how to amend the parameters, see the chapter on the outdoor maintenance remote controller, (Refor to the section "6-6. Settings Modes : Setting the Outdoor Unit EEPROM").
  - A% value amendments: Parameters are amended with item code "50" (demand 1).
  - B% value amendments: Parameters are amended with item code "51" (demand 2).

(2) Demand Control with No External Input

Demand control is carried out proportionally with the normal settings from the outdoor unit without any external input.
  - Amendments can be made in calibrations of 5% between 70% and 100%.
    Refor to the section "6-6. Settings Modes : Setting the Outdoor Unit EEPROM" for the outdoor maintenance remote controller for details on how to amend the parameters.
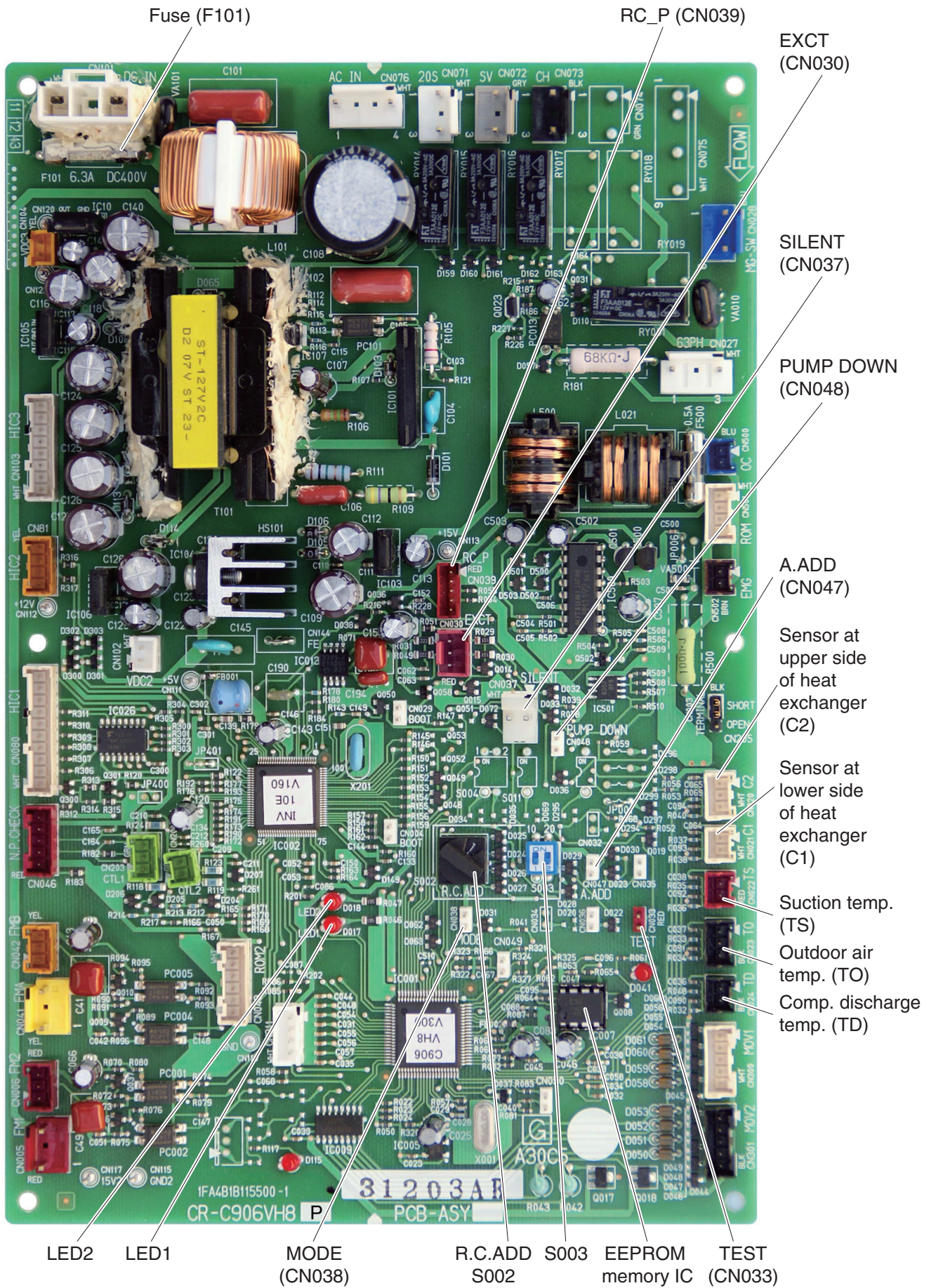   Parameters are amended with item code "52" (current control level).

13) Switching to Silent Mode Setup

Two silent mode settings are available: 50dB (A) and 45dB (A).
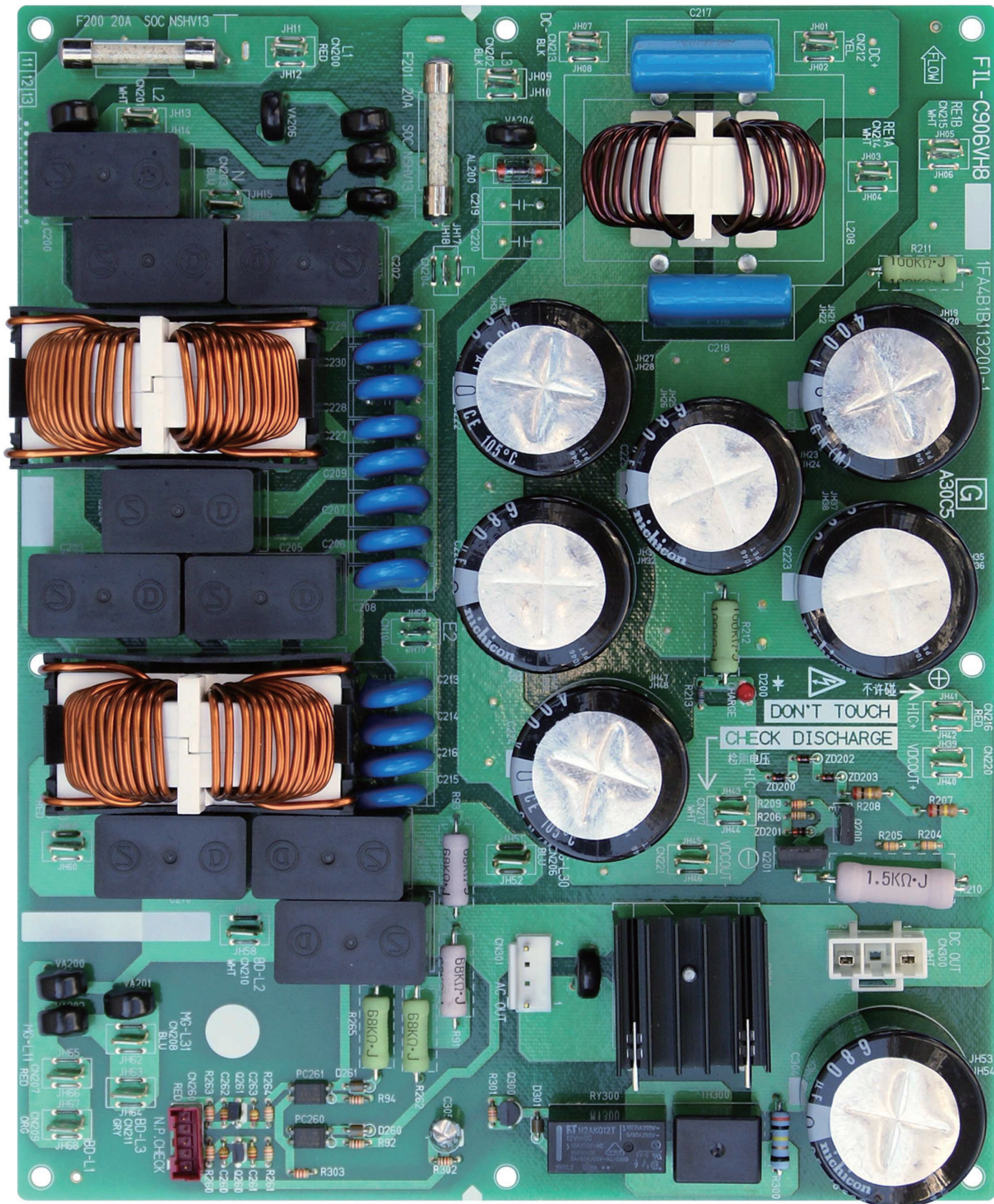This setting can be amended with the detailed settings on the outdoor maintenance remote controller.
  - Item code "21" : 0 (Setting at shipment) Sets silent mode 50dB (A).
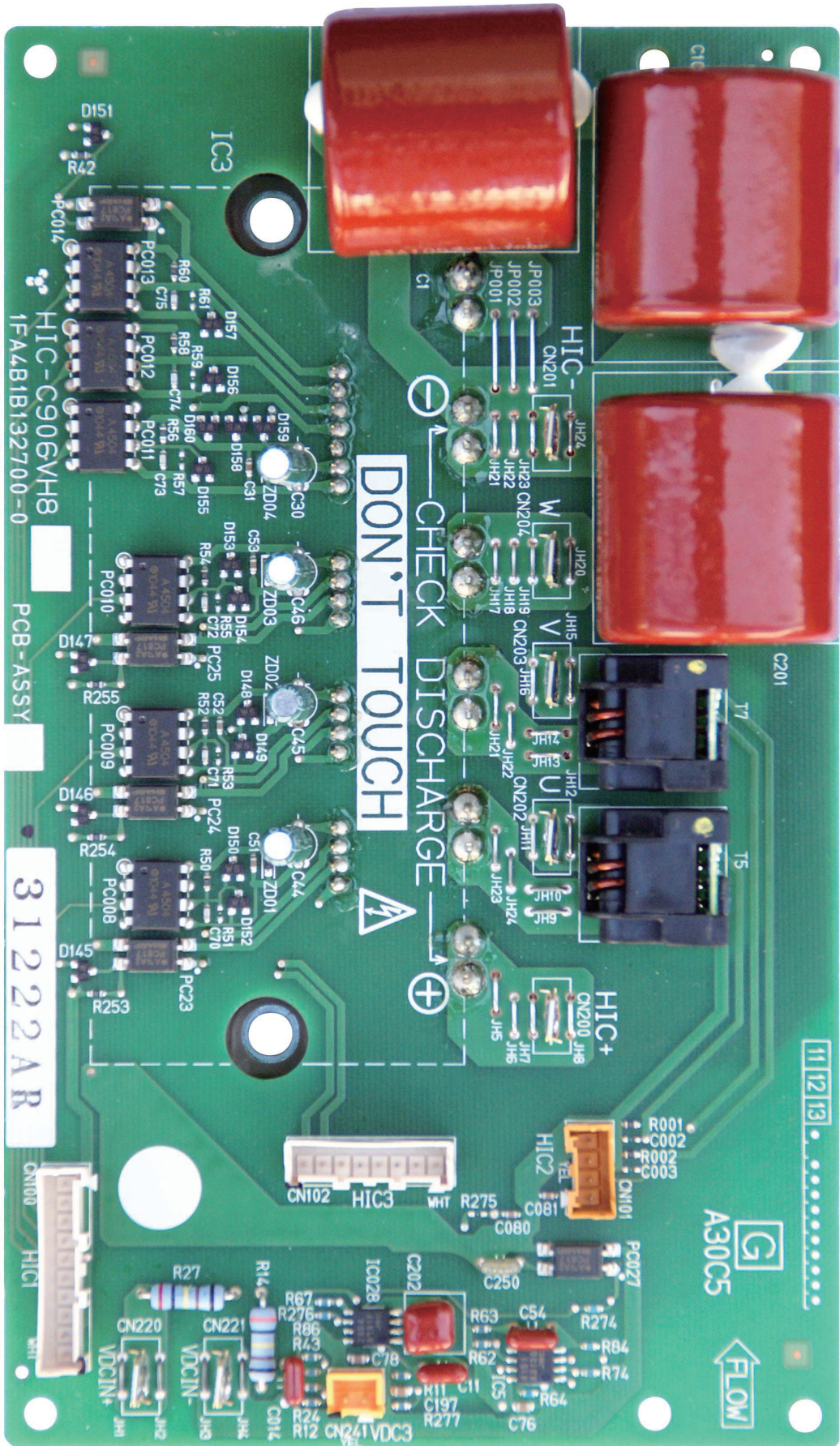 - Item code "21" : 1 Sets silent mode 45dB (A)

4

4-2. Outdoor Unit Control PCB

Layout Diagram (CR-C906VH8P)

Fuse (F101)

RC_P (CN039)

EXCT (CN030)

SILENT (CN037)

PUMP DOWN (CN048)

A.ADD (CN047)

Sensor at upper side of heat exchanger (C2)

Sensor at lower side of heat exchanger (C1)

Suction temp. (TS)

Outdoor air temp. (TO)

Comp. discharge temp. (TD)

LED2 LED1 MODE (CN038) R.C.ADD S002 S003 EEPROM memory IC TEST (CN033)

4-3. Outdoor Unit Filter PCB FIL-C906VH8
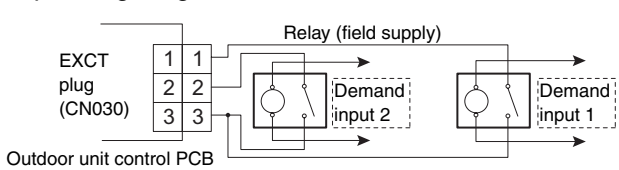
4-4. Outdoor Unit HIC Board HIC-C906VH8

4-5. Outdoor Unit Control PCB (CR-C906VH8P)

Explanation of Functions

Auto Address pin (CN047)	2P (white): Automatic address setting switch • If the system address switch (S002: set to 0 at time of shipment) setting is other than "0"(central control), press this switch once to automatically set the addresses at all indoor units which are in the same system, and are connected to that outdoor unit. During automatic address setting, the 2 LEDs (red) on the outdoor unit control PCB blink alternately. (Pressing this switch again stops automatic address setting.) • If automatic address setting is currently in progress at another system that is subject to central control, only LED 1 on the outdoor unit control PCB blinks to indicate that automatic address setting is in progress at another unit. If automatic address setting is in progress at another unit, automatic address setting cannot be made at this unit, even if S001 is pressed. * After the power is turned ON, automatic address setting will not be functioned for over 1 minute and 30 seconds.
S002	Rotary switch (10 positions, black): System address setting switch • This switch is set to 0 (1 system control) at the time of shipment. However the address for each system must be set when multiple systems are controlled or when central control is used. (Figure 1) • If the system address is set to 0, automatic address setting is started when the power is turned ON. Therefore it is not necessary to use switch SW01 and perform automatic address setting in the case of single or simultaneous-operation multi control of a single system. • When using central control for multiple systems, a maximum of 30 systems (maximum 64 units) can be connected. In the case of group control or central control, set the system address to a setting other than 0 (1 or above). • If the number of systems is greater than 9, this switch can be used in combination with DIP switch S003 to set up to 30 systems. The setting can be made as high as 39, however all settings above 30 are handled as 30 for control. (For details, refer to Table 4-1.) • If system addresses are duplicated (the same address exists more than once), LED 1 on the outdoor unit control PCB lights up, and alarm "L04" is displayed on the remote controller.
S003	DIP switch (2P, blue): System address 10s-digit and 20s-digit place setting switch • When setting 10 systems or more, set this switch in combination with S002. • For 10 – 19 systems, set 1P (10s-digit place) to ON. • For 20 – 29 systems, set 2P (20s-digit place) to ON, and set 1P (10s-digit place) to OFF. • For 30 systems, set both 1P (10s-digit place) and 2P (20s-digit place) to ON. (For details, refer to Table 4-1.)
PUMP DOWN Pin (CN048)	PUMP DOWN Pin (2P, white) • Press this switch to perform refrigerant recovery control using cooling operation.The indoor unit fan will operate at HIGH and 55 Hz for a maximum of 10 minutes. When refrigerant recovery is completed, close the valves and press this switch to stop the operation.
Test (CN033)	2P plug (red): Pin used for PCB inspection at the factory
EXCT (CN030)	3P plug (red): Can be used for demand control • The operating ranges are shown in the table.

Short-circuited		Operating range
2P and 3P	1P and 3P	
0	0	No limit
0	1	100% at shipment
1	0	70% at shipment
1	1	OFF

Note 1:The maximum length of the wiring between the outdoor unit PCB and the relay is 2 m.

• Lead wire with 3P plug (special-order part : CV6231612098)

• Relay (field supply) contact input specifications : minimum compatible load 0.1mA

Quiet mode plug 2P plug (white): Enables operation in quiet mode.
(CN037)
- The outdoor unit fan and compressor frequencies are subject to limits during operation.
- Low-noise operation is enabled when the relay is turned ON. (Non-voltage contact "a")
  - Example of wiring
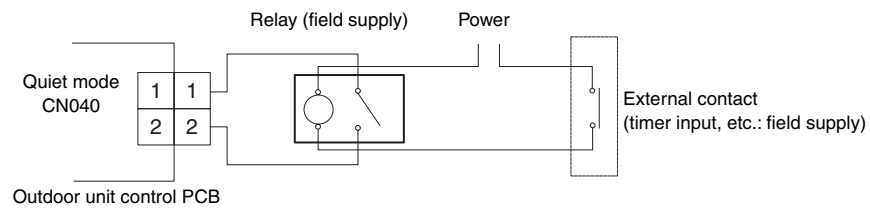
Note 2:The maximum length of the wiring between the outdoor unit PCB and the relay is 2 m.

- Lead wire with 2P plug (special-order part: CV6231612098)
- Relay, (field supply) contact input specifications: DC 5 V, 0.5 mA
  (Recommended relay: Fuji Electric HH62SW, compatible with micro contacts)
- Use a commercially available timer (such as the Omron H5 daily time switch).

Table 4-1. Method of System Address Setting

[S002 (rotary, black), S003 (2P DIP switch, blue)]

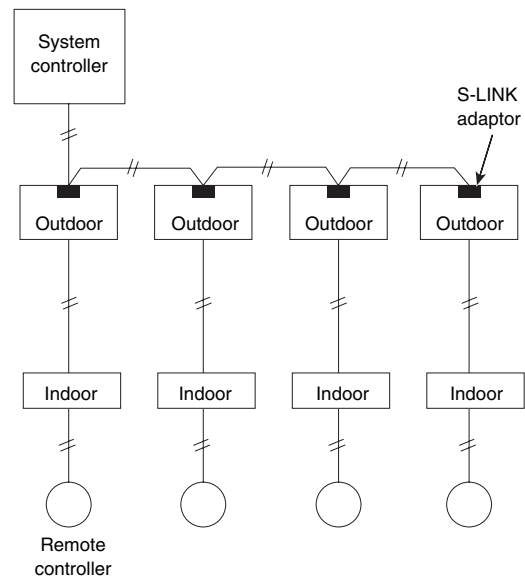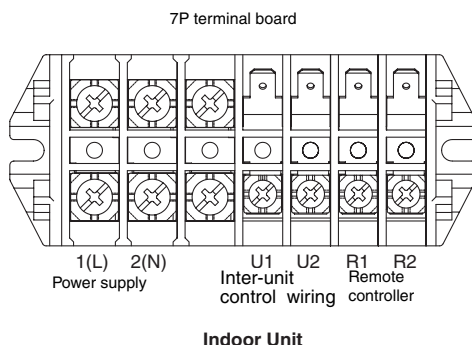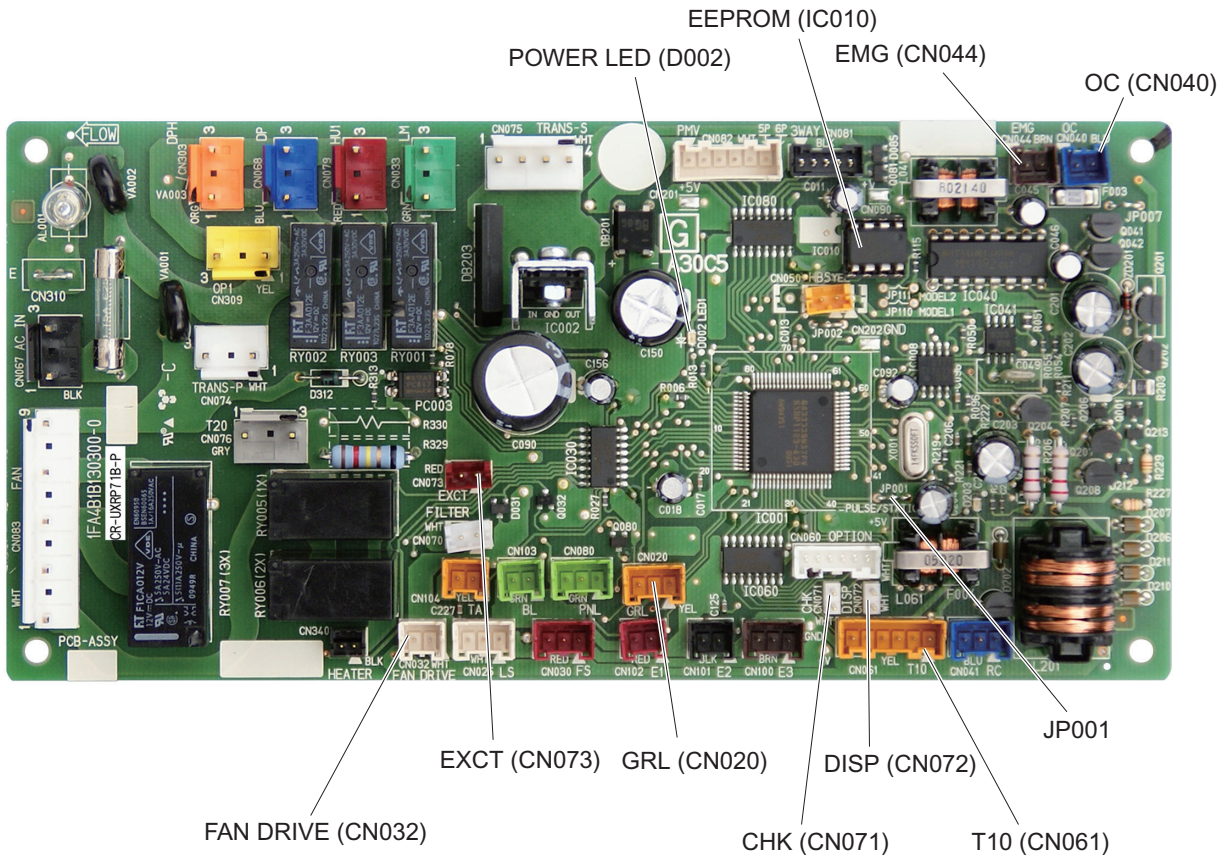|	Outdoor system address No.	S002 setting (system address switch)	S003 setting	
			1P (10s-digit place)	2P (20s-digit place)
1 system only	1	0	OFF	OFF
Central control	1	1	OFF	OFF
	2	2	OFF	OFF
	3	3	OFF	OFF
	4	4	OFF	OFF
	5	5	OFF	OFF
	6	6	OFF	OFF
	7	7	OFF	OFF
	8	8	OFF	OFF
	9	9	OFF	OFF
	10	0	ON	OFF
	11	1	ON	OFF
	12	2	ON	OFF
	13	3	ON	OFF
	14	4	ON	OFF
	15	5	ON	OFF
	16	6	ON	OFF
	17	7	ON	OFF
	18	8	ON	OFF
	19	9	ON	OFF
	20	0	OFF	ON
	21	1	OFF	ON
	22	2	OFF	ON
	23	3	OFF	ON
	24	4	OFF	ON
	25	5	OFF	ON
	26	6	OFF	ON
	27	7	OFF	ON
	28	8	OFF	ON
	29	9	OFF	ON
	30	0	ON	ON

Fig. 1

4

4-6. Indoor Unit Control PCB Switches and Functions

[Indoor unit control PCB]

T10 (CN061): **6P plug (YEL)** / Used for remote control operation. (Refer to the Remote Control Section.)

Control items: (1) Start/stop input   (2) Remote controller prohibit input
(3) Start signal output   (4) Alarm signal output

EXCT (CN073): **2P plug (RED)** / Can be used for demand control. When input is present, forces the unit to operate with the thermostat OFF.

DISP (CN072): **2P plug (WHT)** / Short-circuiting this plug allows operation to be controlled by the remote controller even when an outdoor unit is not connected. (In this case, alarm "E04," which indicates trouble in the serial communication between the indoor and outdoor unit, does not occur.)

CHK: **2P plug (WHT)** / Test pin. Short-circuiting this pin allows the indoor FM (H fan speed), drain pump, flap motor (F1 position), and electronic expansion valve full-open position to be checked.
However this function turns OFF if the indoor unit protection mechanism is activated.
The components will operate even if the remote controller and outdoor unit are not connected, however the remote control cannot be used for control even if it is connected. This plug can be used for short-term tests.

JP1 (J01): **Jumper wire** / Allows selection of the T10 terminal start/stop signal. (Refer to the Remote Control Section.)
Setting at time of shipment: Pulse signal
Jumper wire cut: Static signal (continuous signal)

Fan drive: **2P plug (WHT)** / This terminal sends the signal to the ventilation fan when a commercially available ventilation fan is operated by the FAN button on the wired remote controller. (Refer to the Remote Control Section.)
Use a ventilation fan which can accept the no-voltage contact A signal as the external input signal.

Filter: **2P (WHT)** / This terminal is used to connect contact input from the differential-pressure switch, used to detect filter clogging. When the contact is ON, "FILTER" appears on the display of the wired remote controller.

Power LED: **LED (RED)** / Illuminates when the power is ON. Flashes when there is trouble with the EEPROM (IC10, IC010: nonvolatile memory).

EEPROM (IC10): **Nonvolatile memory** / Used to store model information and other data. When replacing the PCB, remove the EEPROM from the old PCB and install it onto the new PCB. If there is IC trouble, replace with a new IC (provided with the servicing PCB), and set the necessary information using the wired remote controller. (For the setting procedure, refer to the servicing technical materials.)

GRL (CN020): • **For AC fan motor (CR-UXRP71B-P) – 3P (YEL)**

7P terminal board

| 1(L) | 2(N) | | U1 | U2 | R1 | R2 |
| Power supply | | | Inter-unit control wiring | | Remote controller | |

Indoor Unit

■ For AC Fan Motor (CR-UXRP71B-P)

EEPROM (IC010)

POWER LED (D002)

EMG (CN044)

OC (CN040)

EXCT (CN073)   GRL (CN020)

DISP (CN072)

JP001

FAN DRIVE (CN032)

CHK (CN071)

T10 (CN061)

5. SERVICE PROCEDURES

5

5-1. Meaning of Alarm Messages

1. Contents of the alarm display on the remote controller

ON:○ Blinking:☼ OFF:●

Possible cause of malfunction			Display	Operation	Timer	Preparing
Serial communication errors Mis-setting	Remote controller is detecting error signal from indoor unit	Error in receiving serial communication signal(Signal from main indoor unit in case of group control)Outdoor system address, indoor system address, or indoor unit individual/main/sub setting is not set (Automatic address setting is not completed)Auto address is not completed	E01	☼	●	●
		Error in transmitting serial communication signal	E02			
	Indoor unit is detecting error signal from remote controller (and system controller)		E03			
	Setting error	Indoor unit address setting is duplicated	E08			
		Remote controller setting is duplicated	E09			
	Indoor unit is detecting error signaled from signal option	Communications error between the DC fan and the driver.	E10			
		Error in receiving serial communications signal	E11			
	Setting error	Main unit duplication in simultaneous-operation multi control (detected by outdoor unit)	E14	●	●	☼
	Indoor unit is detecting error signaled from outdoor unit	Error in receiving serial communications signal	E04			
		Error in transmitting serial communications signal	E05			
	Outdoor unit is detecting error signaled from indoor unit	Error in receiving serial communications signal (including unit quantity verification failure)	E06			
		Error in transmitting serial communications signal	E07			
	Automatic address setting failed	Indoor unit capacity too low	E15			
		Indoor unit capacity too high	E16			
		No indoor units connected	E20			
	Miswiring	Faulty connection between indoor and outdoor units or missing phase in the outdoor unit power supply.	E22			
	An indoor unit detected trouble in the signal from another indoor unit	Error in transmitting serial communications signal	E17	☼	●	●
		Error in receiving serial communications signal	E18			
	Communications trouble between units	Communications failure with MDC	E31	●	●	☼
Mis-setting	Setting error	Indoor unit group settings error	L01	☼	●	☼
		Indoor/outdoor unit type mismatch	L02		Simultaneously	
		Main unit duplication in group control (detected by indoor unit)	L03			
		Outdoor unit address duplication (system address)	L04	☼	○	☼
		Group wiring connected for independent indoor unit	L07		Simultaneously	
		Address not set or group not set	L08	☼	●	☼
		Indoor unit capacity not set	L09		Simultaneously	
		Outdoor unit capacity not set or setting error	L10	☼	○	☼
		Miswiring in group control wiring	L11			
		Indoor unit type setting error (capacity)	L13		Simultaneously	

Continued

ON:○ Blinking:☼ OFF:●

Possible cause of malfunction			Display	Wireless remote controller Lamp display		
				Operation	Timer	Preparing
		Ceiling panel connection failure	P09	●	☼	☼ (Alter. between Timer–Preparing)
Activation of protective device	Indoor protection	Fan protective thermostat	P01	●	☼	☼
		Float switch	P10			
		DC fan error.	P12			
	Outdoor protection	Discharge temperature trouble	P03	☼	●	☼ (Alternately)
		Open phase detected, AC power trouble	P05			
		No gas	P15			
		4-way valve locked	P19			
		High cooling load	P20			
		Outdoor fan trouble	P22			
		Inverter compressor trouble (HIC PCB)	P26			
		Inverter compressor trouble (MDC)	P29			
		Simultaneous-operation multi control trouble	P31			
		Compressor current failure (overload)	H01	●	☼	●
Thermistor fault	Thermistor open circuit •Short circuit (indoor)	Indoor heat exchanger temperature sensor (E1)	F01	☼	☼	● (Alter.)
		Indoor heat exchanger temperature sensor (E2)	F02			
		Indoor temperature sensor	F10			
	Thermistor open circuit •Short circuit (outdoor)	Discharge temperature (TD)	F04	☼	☼	○ (Alter.)
		Outdoor heat exchanger temperature (C1)	F06			
		Outdoor heat exchanger temperature (C2)	F07			
		Outdoor air temperature (TO)	F08			
		Intake temperature (TS)	F12			
		Indoor EEPROM error	F29	☼	☼	● (Simul.)
		Outdoor EEPROM error	F31	☼	☼	○ (Simul.)

5

5-2. Contents of LED Display on the Outdoor Unit Control PCB

	LED 1	LED 2	Remarks
Power ON sequence			
1. No communication from indoor units in system	○	○	If it is not possible to advance to 3,
2. Communication received from 1 or more indoor units in system	●	○	repeats 1 → 2.
3. Regular communication OK (Capacity and unit quantity match)	●	●	At 3, changes to normal control.
Normal operation	○	☼	Displayed during automatic address setting 1 and initial communication.
EEPROM error (F31)			After these are completed, alarm F31 is displayed.
Pre-trip (insufficient gas)	☼(0.25/0.75)	●	**P03**
Pre-trip (P20)	☼(0.25/0.75)	●	
Pre-trip (other)	☼	●	
Alarm	**Alternate blinking during alarms** LED 1 blinks M times, and then LED 2 blinks N times. The cycle then repeats. M = 2: P alarm 3: H alarm 4: E alarm 5: F alarm 6: L alarm N = Alarm No. * Refer to "Examples of alarm display" below.		
Insufficient gas indicator	☼	●	
Refrigerant recovery mode	☼	●	
Automatic address setting			
Automatic address setting in progress	☼	☼	Blinking alternately
Automatic address setting alarm (E15)	☼(0.25/0.75)	☼(0.25/0.75)	Blinking simultaneously
Automatic address setting alarm (E20)	☼(0.75/0.25)	☼(0.75/0.25)	Blinking simultaneously
Automatic address setting alarm (Other than E15 and E20)	☼	☼	Blinking simultaneously

○ :ON

☼ :Blinking (0.25/0.75) indicates that the lamp illuminates for 0.25 seconds, and then is OFF for 0.75 seconds. Unless otherwise indicated, the blinking is (0.5/0.5).

● :OFF

Examples of alarm display (other than E15, E16, and E20)

Alarm / Display	LED 1 ← Alternately → LED 2	
P02	☼ (Blinks 2 times)	☼ (Blinks 2 times)
P03	☼ (")	☼ (Blinks 3 times)
P04	☼ (")	☼ (Blinks 4 times)
P05	☼ (")	☼ (Blinks 5 times)
P31	☼ (")	☼ (Blinks 31 times)
H01	☼ (Blinks 3 times)	☼ (Blinks 1 times)
H02	☼ (")	☼ (Blinks 2 times)
H03	☼ (")	☼ (Blinks 3 times)
•	•	
E04	☼ (Blinks 4 times)	☼ (Blinks 4 times)
•	•	
F07	☼ (Blinks 5 times)	☼ (Blinks 7 times)
•	•	
L13	☼ (Blinks 6 times)	☼ (Blinks 13 times)
•	•	

Note:
This table shows examples of alarms.
Other type of alarms may also be displayed.

5-3. Symptoms and Parts to Inspect

Remote controller alarm display	Alarm contents	Judgement conditions	Eliminating condition of alarm	Judgement and correction
P03	Abnormal discharge temperature error. •Discharge temp. detected at or above the specified value.	Stops when temp. exceeds 115 ℃. Alarm output on 4 pre-trips.	Recovery at restart	1. Check refrigerant cycle (gas leak). 2. Trouble with electronic expansion valve. 3. Check discharge temperature sensor (TD).
P05	Missing phase detected. (CT disconnected or AC power supply error)	The current value transmitted from the microcomputer on the outdoor unit control substrate is low. When no AC power input for more than 3 minutes: Pre-trip 5 times.	Recovery at restart	1. Check R/S/T power supply. 2. Check HIC circuit. 3. Check outdoor unit control PCB.
P15	Insufficient gas level detected.	•Discharge temperature is 100 ℃ or higher. •Electronic expansion valve is at Step 960. •The current value from the MDC is 6.0A (three-phase) / 3.5A (single-phase) or less. When the above has continued for 1 minute.	Recovery at restart	1. Check refrigerant cycle (gas leak). 2. Trouble with electronic expansion valve. 3. Check outdoor unit valve opening.
P19	4-way valve locked trouble. •Judged after 5 minutes had elapsed since the compressor was switched on.	The indoor unit heat exchanger temperature drops even though the compressor is switched on during the heating mode.[min(E1,E2)] is 10℃ or lower. The indoor unit heat exchanger temperature rises even though the compressor is switched on during the cooling mode. E2 is 50℃ or higher Pre-trip 2 times	Recovery at restart	1. Check 4-way valve. 2. Check 4-way valve wiring. 3. Check outdoor unit control PCB.
P20	High-pressure protection error caused by cooling high-load max (C1, C2) temperature.	Halted if the temperature exceeds 64 ℃. Error output on 4 consecutive pre-trips.	Recovery at restart	1. Overload operation of refrigerant cycle. 2. Check outdoor unit heat exchanger temperature sensor C1 and C2.
P22	Outdoor unit fan motor trouble. •Inverter protection circuit was activated, or lock was detected at outdoor unit fan motor.	Inverter stops after alarm is detected. Pre-trip 4 times	Recovery at restart	1. Position detection trouble. 2. Outdoor unit fan motor over-current Protection circuit is activated. •Check outdoor unit control PCB. •Refer to outdoor unit fan judgement methods.
P26	Inverter protector circuit was activated. G-Tr short-circuit within the HIC circuit.(Short time / 0.8 seconds or less) HIC temperature protection	Inverter stops after alarm is detected. Alarm is output when inverter stops (pre-trip) consecutively 4 times.	Recovery at restart Temperature dropped	1. Stops immediately even when operations restarted. •Layer short on the compressor 2. Check HIC circuit. •Wiring trouble 3. Heat sink and PCB (HIC) •Contact trouble

5

Remote controller alarm display	Alarm contents	Judgement conditions	Eliminating condition of alarm	Judgement and correction
P29	Error in current detection circuit. •AC current value is high, even while compressor is halted.	Inverter halted after alarm detected. Alarm output on 4 consecutive (pre-trips.)	Recovery at restart	1.Stops immediately even when operations restarted. •Layer short on the compressor 2.Check HIC circuit •Wiring trouble
F04	Disconnection, open circuit or short circuit in discharge temperature sensor (TD)	Sensor detection error (90 ℃ or more after 60 minutes has elapsed since the compressor was halted.)(Open circuit)	Automatic recovery	1.Check discharge temp. sensor (TD). 2.Check outdoor unit control PCB.
F06	Disconnection, open circuit or short circuit in outdoor unit heat exchanger temp. sensor (C1)	Open circuit or short circuit.	Automatic recovery	1.Check outdoor unit heat exchanger temperature sensor (C1). 2.Check outdoor unit control PCB.
F07	Disconnection, open circuit or short circuit in outdoor unit heat exchanger temp. sensor (C2)	Open circuit or short circuit	Automatic recovery	1.Check outdoor unit heat exchanger temp. sensor (C2). 2.Check outdoor unit control PCB.
F08	Disconnection, open circuit or short circuit in outdoor air temp. sensor (TO)	Open circuit or short circuit	Automatic recovery	1.Check outdoor air temp. sensor (TO). 2.Check outdoor unit control PCB.
F12	Disconnection, open circuit or short circuit in suction temp. sensor (TS)	Open circuit or short circuit	Automatic recovery	1.Check suction temp. sensor (TS). 2.Check outdoor unit control PCB.
F31	EEPROM trouble	Reading/writing failure	Power reset recovery	1.Check EEPROM (IC007). 2.Check outdoor unit control PCB.
L02	Indoor and outdoor units incompatible	Indoor unit judged incompatible with the outdoor unit type.	Power reset recovery	1.Check indoor unit EEPROM. 2.Check indoor unit control PCB.
L04	Settings failure	Duplicated outdoor unit address (system address)	Automatic recovery	1.Check outdoor unit system address. 2.Check inter-unit control wiring.
L07	Settings failure	Group control wiring exists in an individually-controlled indoor unit.	Power reset recovery	1.Check inter-unit control wiring. 2.Check indoor unit EEPROM.
L10	Settings failure	Outdoor unit capacity not set.	Power reset recovery	Check outdoor unit EEPROM.
L13	Indoor and outdoor unit types	Outdoor unit judged incompatible with the outdoor unit type.	Automatic recovery	1.Check indoor unit EEPROM. 2.Check outdoor unit control PCB.
E06	Outdoor unit detected a signal error from the indoor unit	Serial signals receiving failure (including faulty unit quantity confirmation)	Automatic recovery	1.Check inter-unit control wiring. 2.Check indoor and outdoor unit control PCB.
E07	Outdoor unit sending failure to indoor unit	Serial signal sending failure	Automatic recovery	1.Check inter-unit control wiring. 2.Check outdoor unit control PCB.

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Remote controller alarm display	Alarm contents	Judgement conditions	Eliminating condition of alarm	Judgement and correction
E14	Settings failure	Main unit in simultaneous operation multi control duplicated. (Outdoor unit detected)	Power reset recovery	1.Check inter-unit control wiring. 2.Check indoor unit combination.
E15	Automatic address setting failure	Insufficient indoor unit capacity.	Power reset recovery	1.Check inter-unit control wiring. 2.Check indoor and outdoor unit control PCB.
E16	Automatic address setting failure	Excessive indoor unit capacity.	Power reset recovery	1.Check inter-unit control wiring. 2.Check indoor and outdoor unit control PCB.
E20	Automatic address setting failure	Outdoor unit cannot receive any serial signals from indoor units.	Power reset recovery	1.Check inter-unit control wiring. 2.Check indoor and outdoor unit control PCB.
E22	Miswiring error	Inter-unit connection are miswiring error. Missing phase for the outdoor unit power supply.	Power reset recovery	Check wiring.
E31	Communications trouble within unit	No communication possible with MDC for 3 minutes or longer.	Automatic recovery	Check outdoor unit control PCB.
H01	Over-current error	Inverter stops after alarm is detected.	Recovery at restart	1.Refrigerant cycle abnormal overload operations. 2.Screws connecting the HIC circuit between the heat sink are loose. 3.Faulty cooling of heat sink. 4.Check outdoor unit control PCB wiring.

5

5-4. Details of Alarm Messages

Alarm Details

(1-1) [Alarm "P29"]

Start-up failure of the compressor (will not start up)
Related parts
- HIC PCB (Model: [U-200PE1E8, U-250PE1E8] HIC-C906VH8)
- Outdoor unit control PCB (Model: [U-200PE1E8, U-250PE1E8] CR-C906VH8P)
- Filter PCB (Model: [U-200PE1E8, U-250PE1E8] FIL-C906VH8)

Start of defect diagnosis

① Is the power voltage correct? — **No** → Improve the power voltage line.

Check the following:
Check to ascertain that the power voltage is within the permissible range of 198 to 264V for indoor unit or 342 to 456V for outdoor unit regardless of whether the compressor is operating or not.
* Pay special attention to whether the voltage drops after compressor operations while measuring.

Yes

② Are the wiring connector connections OK? — **No** → Repair the wiring connectors.

Check the following wiring

	U-200PE1E8			U-250PE1E8		
	HIC PCB	Outdoor unit control PCB	Filter PCB	HIC PCB	Outdoor unit control PCB	Filter PCB
HIC+	CN200 red		CN317 red	CN200 red		+
HIC-	CN201 white		CN318 white	CN201 white		-
VDCIN+	CN220 red		CN321 red			
VDCIN-	CN221 red		CN322 white			
HIC1(10P white)	CN100 white	CN080 white		CN100 white	CN080 white	
HIC2 (yellow)	CN101 yellow 4P	CN81 yellow 4P		CN101 yellow 3P	CN081 yellow 4P	
HIC3 (8P white)	CN102 white	CN103 white		CN102 white	CN103 white	
VDC2 (2P)	CN240 yellow	CN102 white		CN240 yellow	CN102 yellow	

Yes

③ Are the U/V/W connections on the HIC PCB and compressor terminal OK? — **No** → Repair the wiring connectors.

HIC PCB side
U (CN202) pink
V (CN203) white
W (CN204) blue

Yes

④ Are the capacity setting for the outdoor unit of the outdoor unit — **No** → Correct the capacity setting for the outdoor unit.

As the compressors used with the U-200PE1E8 and U-250PE1E8 are different, there is a possibility that a P29 error will be triggered if the unit's capacity settings are incorrect.

Yes

⑤ Are the resistance values permissible at all areas in HIC PCB? — **No (Abnormal resistance value)** → Repair the HIC PCB.

- Inspection Method: Remove the HIC PCB and measure the resistance at all areas.
  → See attached documentation.
  Replace the HIC PCB if the readings are below permissible values.

Yes (No problem with the resistance value)

⑥ Is the insulation on the compression OK? — **No (Defective insulation)** → Repair the compressor.

- Potential cause: PCB Insulation failure caused by the compressor lock.
- Verification Method
  Remove the wires from the connectors on the top of the compressor. Measure the insulation resistance of the U, V and W phases and confirm that they are 1M or more.

Yes (No problem with the insulation)

⑦ Has the HIC PCB been replaced? — **No** → Repair the HIC PCB.

Potential problems are most likely in accordance with the following sequence when it is determined that the PCB is trouble with an alarm P29.
1. HIC PCB
2. Outdoor unit control PCB
3. Filter PCB
Replace the relevant PCB in accordance with the diagnosis flow.

Yes

⑧ Has the outdoor unit control PCB been replaced? — **No** → Replace the outdoor unit control PCB.

Yes

⑨ Has the filter PCB been replaced? — **No** → Replace the filter PCB.

Yes

Replace the compressor

5

(2) [Alarm "P26"]

Start of defect diagnosis

Start-up failure of the compressor (will not start up)
Related parts
• HIC PCB (Model: [U-200PE1E8, U-250PE1E8] HIC-C906VH8)
• Outdoor unit control PCB (Model: [U-200PE1E8, U-250PE1E8] CR-C906VH8P)
• Filter PCB (Model: [U-200PE1E8, U-250PE1E8] FIL-C906VH8)

① Is the power voltage correct? — No → Implement the same check processes for ① to ④ in the diagnosis flow of alarm P29.

Yes ↓

② Was everything OK when ① to ④ in the diagnosis flow of alarm P29 were checked? — No → Correct the connection between the HIC PCB and heat sink.

Abnormal temperature rise in the HIC PCB is prevented by radiating the heat, with HIC being coated evenly with thermal conduction putty and the heat sink being attached firmly to the HIC PCB by screws. The HIC PCB cannot radiate heat properly if the screws are loose or the thermal conduction putty is not applied correctly. Consequently, the temperature inside the HIC PCB can rise abnormally and the alarm P26 occurs.

Yes ↓

③ Is the high-pressure for the refrigerant cycle within the range? (High load operating?) — No → **Operating on high load.**
Recovery methods differ in accordance with the cause.
• Recharge refrigerant
• Replace the thermistor
• Repair the pipes, etc.

1. Potential Causes
• Refrigerant overcharge
  Has the refrigerant been overcharged?
  *Verifying Overcharge
  There is no problem if the difference between the temperature on the indoor unit "E2" and the saturated temperature of the outdoor unit's gas pipe service valve pressure is within 2 ℃ during the heating mode. Any of the following could be the reason if the former is two or more degrees lower than latter.
  •Faulty operations of the outdoor unit electronic expansion valve.
  •Pipe blockage, crushed pipes, etc.
   (Assumed to be on the liquid pipes during the cooling mode and the gas pipes during the heating mode.)
  •C1 and C2 thermistor error on the outdoor unit (during the cooling mode.)
  •E1 and E2 thermistor error on the indoor unit (during the heating mode.)
2.Temperature on the high-pressure side during normal operations.
  Cooling: Temperature of the C2 thermistor on the outdoor unit is approximately between 45 ℃ and 55℃.
  Heating: Temperature of the E2 thermistor on the indoor unit is approximately between 40 ℃ and 50 ℃.
 * There are cases in which the above temperatures will be lower depending on the operation conditions.

Yes ↓ (Not operating on high load)

④ Does the alarm P26 occur when the U / V / W wires (pink/white/blue) are disconnected from the HIC PCB and operation was started? — No (alarm P26 output) → Replace the HIC PCB.

The HIC PCB is considered faulty if the alarm P26 occurs even if the compressor is not operating owing to the U, V and W wires being disconnected.
Replace the HIC PCB.

Yes ↓ (An alarm other than the alarm P26 occur)

⑤ Was everything OK when ⑤ to ⑨ in the diagnosis flow of alarm P29 were checked? — No → Implement the same check processes for ⑤ to ⑨ in the diagnosis flow of alarm P29.

Potential problems are most likely in accordance with the following sequence when it is determined that the PCB is trouble with an alarm P26.
1. HIC PCB
2. Outdoor unit control PCB
3. Filter PCB
Replace the relevant PCBs in accordance with the above sequence.

Yes ↓

Replace the compressor

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Resistance

Between terminals		Resistance	Between terminals		Resistance
Tester terminal (+)	Tester terminal (-)		Tester terminal (+)	Tester terminal (-)	
HIC +	HIC −	5 k Ω ~ 10 k Ω	HIC −	HIC +	100 k Ω ~ ∞ Ω
HIC +	U	1 k Ω ~ 5 k Ω	HIC −	U	100 k Ω ~ ∞ Ω
HIC +	V	1 k Ω ~ 5 k Ω	HIC −	V	100 k Ω ~ ∞ Ω
HIC +	W	1 k Ω ~ 5 k Ω	HIC −	W	100 k Ω ~ ∞ Ω

Resistance (Common use in reversed tester measuring terminal)

Between terminals		Resistance	Between terminals		Resistance
Tester terminal (-)	Tester terminal (+)		Tester terminal (-)	Tester terminal (+)	
HIC +	HIC −	100 k Ω ~ ∞ Ω	HIC −	HIC +	100 k Ω ~ ∞ Ω
HIC +	U	100 k Ω ~ ∞ Ω	HIC −	U	1 k Ω ~ 5 k Ω
HIC +	V	100 k Ω ~ ∞ Ω	HIC −	V	1 k Ω ~ 5 k Ω
HIC +	W	100 k Ω ~ ∞ Ω	HIC −	W	1 k Ω ~ 5 k Ω

* Be sure to measure by an analog tester.
* The table shows the value measured in k Ω.

(3) [Alarm "E31"]
(communications trouble at unit)
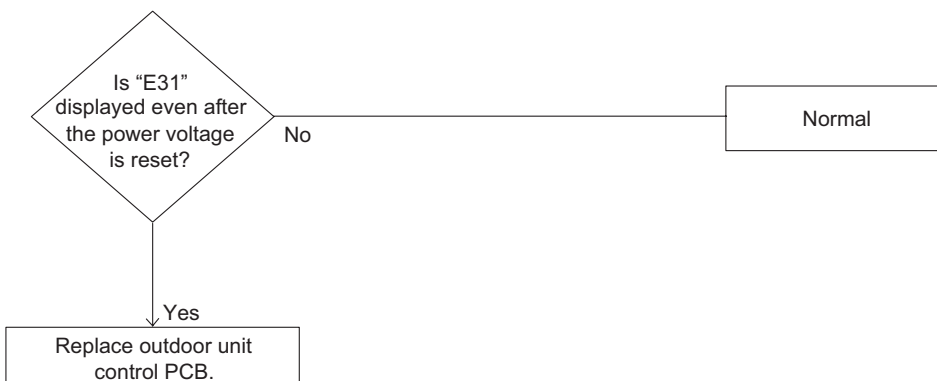
(4) [Alarm "P22"] ─────── Outdoor unit fan motor drive circuit trouble

```
                    ┌──────────────────────────────┐
                    │   Start of defect diagnosis    │
                    └──────────────────────────────┘
                                  │
                                  ▼
                 ╱──────────────────────────────╲
                ╱  Are the connectors CN003, CN005,╲      No    ┌──────────────────────────┐
               ╱  CN041 and CN042 connected correctly to╲─────▶│  Correct the connections  │
               ╲    the outdoor unit control PCB?       ╱      └──────────────────────────┘
                ╲──────────────────────────────╱
                                  │ Yes
                                  ▼
                 ╱──────────────────────────────╲
                ╱          Does the               ╲
               ╱    fan rotate without resistance  ╲     No    ┌──────────────────────────┐
              ╱ when spun manually after the connectors╲──────▶│ Fan motor trouble → Replace│
              ╲ CN003, CN005, CN041 and CN042 are      ╱       └──────────────────────────┘
               ╲  disconnected from the outdoor       ╱
                ╲      unit control PCB?             ╱
                 ╲──────────────────────────────╱
                                  │ Yes
                                  ▼
        ┌────────────────────────────────────────────┐
        │  Outdoor unit control PCB is faulty. → Replace │
        └────────────────────────────────────────────┘
                                  │
                                  ▼
                 ╱──────────────────────────────╲
                ╱                                  ╲      No
                ╲         Normal operation?        ╱────────────┐
                 ╲──────────────────────────────╱              │
                                  │ Yes                         │
                                  ▼                             ▼
                    ┌──────────────────┐      ┌──────────────────────────┐
                    │     Complete      │      │ Fan motor trouble → Replace│
                    └──────────────────┘      └──────────────────────────┘
```

5

(5) [Alarms "F04," "F06," "F07," "F08," "F12"] ———— **Sensor trouble**

```
                    ┌─────────────────────────────┐
                    │   Start of defect diagnosis  │
                    └─────────────────────────────┘
                                   │
                                   │
                          ╱────────────────╲
                         ╱     Are the       ╲
                        ╱  connectors of the  ╲
                       ╱  sensor 020 (C2), 021 ╲      No     ┌──────────────────────────┐
                      ╱  (C1), 022 (TS), 023    ╲──────────→│  Correct the connections. │
                       ╲  (TO) and 024 (TD)     ╱            └──────────────────────────┘
                        ╲ connected correctly  ╱
                         ╲  to the outdoor unit╱
                          ╲  control PCB ?    ╱
                           ╲────────────────╱
                                   │ Yes
                                   │
                          ╱────────────────╲
                         ╱ Are the          ╲
                        ╱  characteristics    ╲        No    ┌──────────────────────────────┐
                       ╱  of resistance values ╲──────────→ │ Replace the sensors C2, C1,   │
                        ╲ of the sensors C2,   ╱             │ TS, TO and TD.                │
                         ╲ C1, TS, TO and TD  ╱              └──────────────────────────────┘
                          ╲ sensors normal? * ╱
                           ╲────────────────╱
                                   │             * Refer to "5-5. Table of Thermistor Characteristics."
                                   │ Yes
                    ┌─────────────────────────────────────┐
                    │ Check the outdoor unit control PCB.  │
                    │ Replace if PCB has failed.           │
                    └─────────────────────────────────────┘
```

5

Sensor Temperature Display Function (Displayed regardless of operation and stop)

The below check procedure can be used to display all remote controller, indoor unit, and outdoor unit sensor temperatures.

<Check procedure>

(1) Press and hold the [CAN CEL] button and [🔧] button simultaneously for 4 seconds or longer.

(2) Unit No. X-X (main unit No.), item code XX (sensor address), and service monitor 00XX (sensor temperature) appear on the remote controller LCD. (See figure.)

(3) Press the temperature setting [▲] and [▼] buttons and change the item code to the sensor address of the sensor that you want to monitor.
(For the relationship between the sensor address and the sensor type, refer to the below Sensor Temperature Correlation Table.)

(4) During group control and simultaneous-operation multi control, press the [UNIT] button and change to the unit that you want to monitor.

(5) Press the [🔧] button to return to normal remote controller operation.

CZ-RTC2
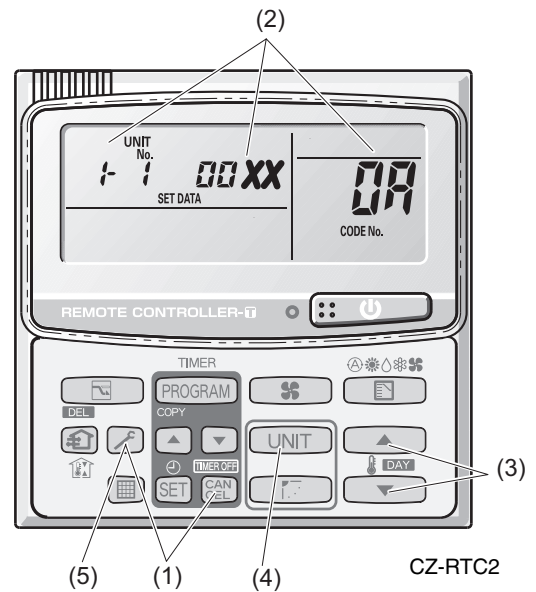
Fig.2

Example
1-1 : Unit No.
0A : Item code (sensor address)
00 XX : Discharge temp. (TD)

NOTE

The temperature display reads "- - - -" for units that are not connected.

* If monitor mode is selected during normal operation, the only parts of the LCD that change are those shown in the figure 2.
All other displays do not change, and remain as they were during normal operation.

5

Sensor Temperature Correlation Table

Sensor installation location	Sensor address	Sensor type	Sensor address	Sensor type
Indoor unit	00	Room temp. (temp. used for control)*	05	–
	01	Remote controller temp.	06	Discharge temp.
	02	Indoor intake temp.	07	–
	03	Indoor heat exchanger temp. (E1)	08	–
	04	Indoor heat exchanger temp. (E2)	09	–
Outdoor unit	0A	Discharge temp. (TD)	12	–
	0b	–	13	–
	0C	Outdoor heat exchanger temp. (C2)	14	Current (AC current or CT 10 times value)
	0d	Intake temp. (TS)	15	Outdoor electronic control valve position (PMV1)
	0E	Outdoor heat exchanger temp. (C1)	16	Outdoor electronic control valve position (PMV2)
	0F	–	17	–
	10	–	18	–
	11	Outdoor air temp.(TO)	19	Compressor frequency

* Main unit only when group control is enabled.

5-5. Table of Thermistor Characteristics

(1) Outdoor Air Temp. (TO) Sensor,
   Intake Temp. (TS) Sensor,
   Heat Exchanger Temp. (C1) Sensor,
   Heat Exchanger Temp. (C2) Sensor
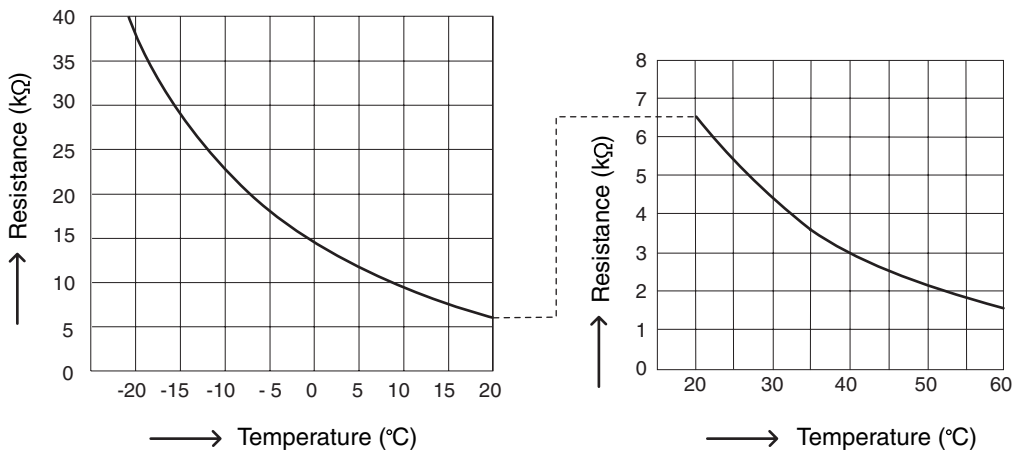
(2) Discharge Temp. (TD) Sensor
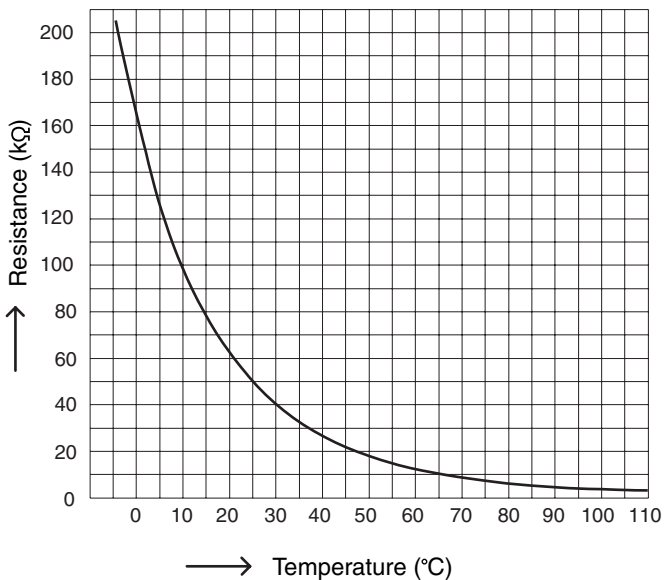
5-6. How to Remove the Compressor

Pay careful attention to prevent water or foreign objects from entering into the refrigerant tubing when removing or installing the compressor.

Removing

1. After collecting the refrigerant in the system, replace nitrogen gas from the service port of the gas tubing valve.
2. Remove the sound absorbing material protecting the compressor.
3. Remove the cap of the compressor's terminal and then remove the power source terminal and TD sensor.
4. Remove the crank case heater.
5. Remove the bolts (x3) and then remove the washer and rubber spacer.
6. Cut off the compressor side's suction tube because the suction tube is solid and unmovable. See the diagram below.
7. Remove the discharge side's brazing part (x1). See the diagram below.

   NOTE: Protect the sensor part, sheet metal, rubber, lead wire and clamper.
8. Pull the compressor toward you.
9. Remove the suction side's brazing part (x1) of the cut-off compressor side's suction tube connected to the suction tube.

Suction tube

Compressor side's suction tube

Compressor

Discharge side's brazing part

Suction side's brazing part
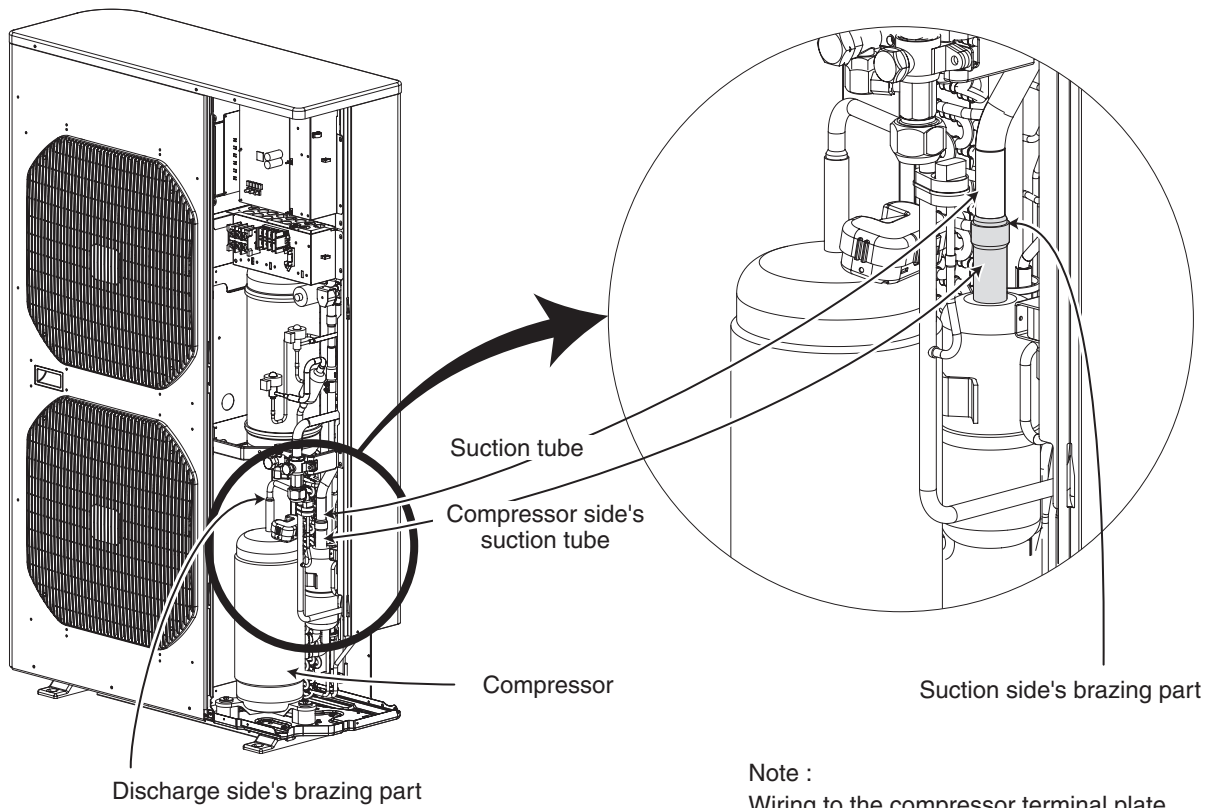
Note :
Wiring to the compressor terminal plate shoud be made without failure.

U   V   W
RED   WHT   BLU
R   S   T
MS 3~
BRN/ YEL
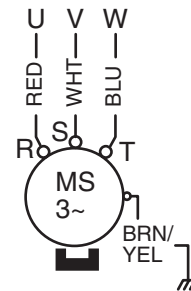
5-7. How to Remove the Electrical Component Box

Removing

1. Remove the front panel and inspection panel from the outdoor unit.
2. Remove all local wires connected to the electrical component box.
3. Remove the wires (temperature sensor, coils of every sort of valve, pressure switch, fan motor and wires for connecting compressor) connected to the electrical component box in the unit.
4. Remove the fixture screws (x6) as shown in the diagram and remove the electrical component box.

   NOTE:

   Be sure to remove the upper left side screw marked by * in the diagram because that screw cannot be seen from the front side.

Front panel

Inspection panel
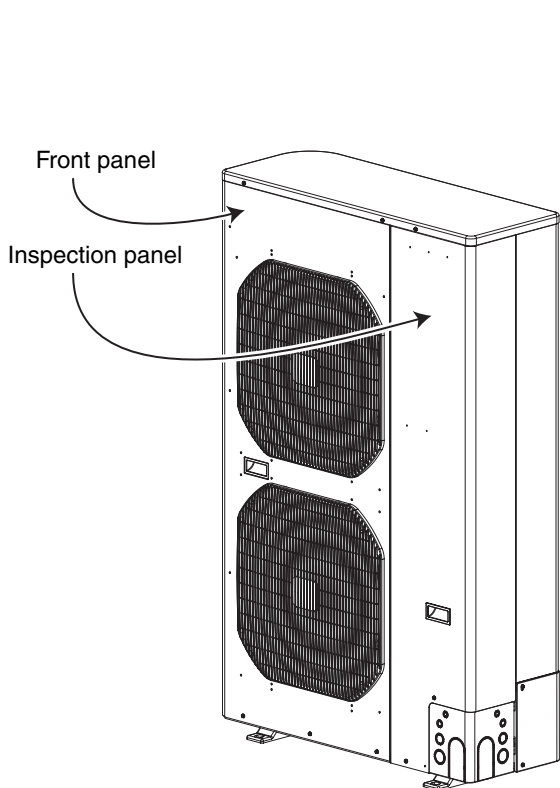
Outdoor unit before removal of front panel
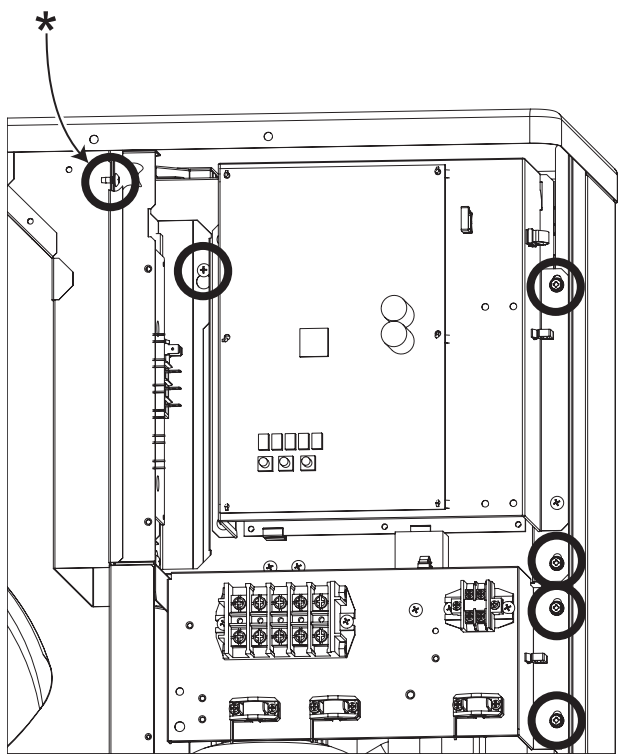
Fixture screws (x6) for electrical component box

Electrical component box after removal

6. OUTDOOR UNIT MAINTENANCE REMOTE CONTROL

6

6-1. Overview

What is the outdoor unit maintenance remote controller?

Beginning with the DC-INV series of outdoor units, nonvolatile memory (EEPROM) is used in the outdoor unit PCB. In this way, the setting switches that were located on earlier PCBs have been converted to EEPROM data. This remote controller is an outdoor unit maintenance tool that is used to make and change the EEPROM settings.

This remote controller can be used for checking the outdoor unit EEPROM settings and contents, and also can be used to monitor the outdoor unit alarm history and indoor/outdoor unit temperatures, and to check the status of the indoor unit connections (No. of units, operating status, etc.).

CZ-RTC2

Note: Because this tool does not function as a remote controller, it is used only during test runs and servicing.

System diagram

Outdoor unit maintenance remote controller

Interface for outdoor unit maintenance remote controller

Special service checker wiring (Optional, Servicing No:CV6231785082)

Optional, Servicing No.CV6233039848

Outdoor unit

Inter-unit control wiring (main bus)

Remote controller

Outdoor unit control PCB

Indoor unit

Indoor unit

Remote controller

Remote controller

※ Manual supplied
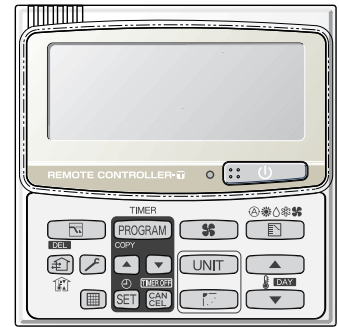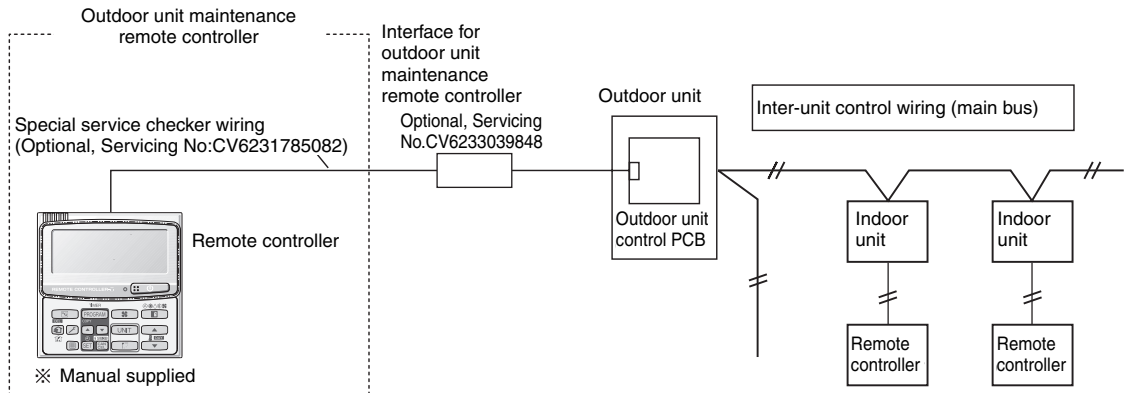
* The special service checker wiring is required in order to connect the outdoor unit maintenance remote controller to the outdoor unit PCB.
* Even when the outdoor unit maintenance remote controller is connected, a separate remote controller or other control device must be connected to the indoor unit.

6-2. Functions

■ Normal display functions

(1) Functions: Button operations can be used to perform the following functions.

- Start/stop of all indoor units
- Switching between cooling and heating
- Test run of all indoor units
- High-speed operation of indoor units (Do not use with actual units. This may damage the devices.)

(2) Display: The following can be displayed.

- Alarm details display
- No. of indoor/outdoor units
- Unit Nos. of connected indoor/outdoor units
- Indoor/outdoor unit operating status (blinks when an alarm occurs)
- Indoor unit thermostat ON
- Individual display of outdoor unit alarms
- Outdoor unit compressor total operating time
- Outdoor unit oil sensor oil level
- Outdoor unit total power ON time
- Outdoor unit microcomputer version
- Other

■ Temperature monitor
- Displays the indoor/outdoor unit sensor temperatures.

■ Outdoor unit alarm history monitor
- Displays the outdoor unit alarm history.

■ Setting modes
- Setting mode 1 and setting mode 2 are used to make the outdoor EEPROM setting.

6-3. Normal Display Operations and Functions

■ Normal display functions
- Connect the special service checker wiring to the outdoor unit PCB.
  The connection is shown in the figure below.

Interface for outdoor unit maintenance remote controller (Optional, Servicing No.CV6233039848)

Outdoor unit control PCB

RC (5P, red)

Relay connector (2P, white)

Special service checker wiring

PCB connector (3P, blue)

PCB connector (5P, red)

Remote controller Assy
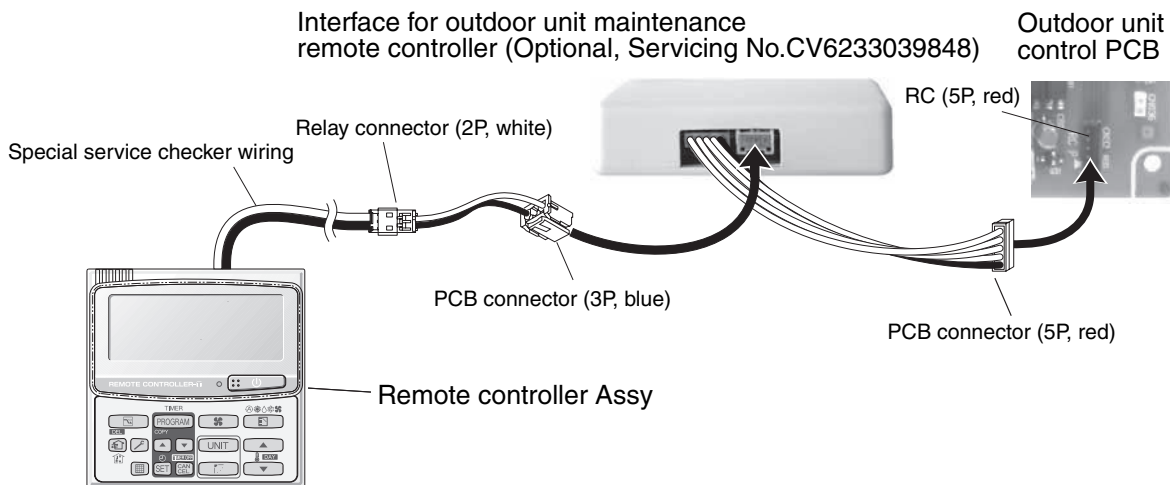
* It is not necessary to disconnect the communications line in the inter-unit control wiring if it has already been connected at this time.
* Setting modes 1 and 2 can be used even when the outdoor unit is independent (when 1 maintenance remote controller is connected to 1 outdoor unit and automatic address setting for the indoor units has not been completed).
* Displays the overall system status for that refrigerant system.

● All units start/stop (Fig. 6-1)
<Operation>
The ⏻ button can be used to start and stop all the indoor units.
- The LED turns ON when 1 or more indoor units is operating.
- The LED blinks when an alarm has occurred at 1 or more indoor units during operation.

● Switching between cooling/heating (Fig. 6-1)
<Operation>
The ▤ button switches between heating and cooling modes.
- The specifications are equivalent to the heating/cooling input that was present on earlier outdoor unit PCBs.
- The display shows the operating mode of the indoor unit with the lowest number.

● All units test run (Fig. 6-2)
<Operation>
The ⟋ button switches test run ON/OFF for all indoor units.
- Press and hold for 4 seconds to turn ON.
  "Test run" is displayed while the test run is in progress.
- Conditions of test runs that are started from the unit remote controller are not displayed on the outdoor unit maintenance remote controller.

Fig. 6-1

Fig. 6-2

6
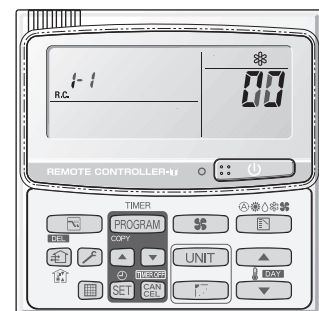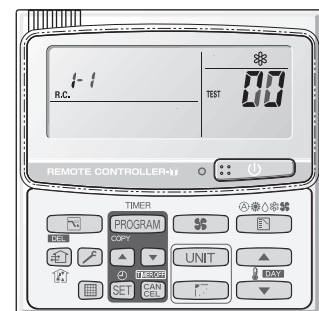
■ Display (functions)

- Use the temperature setting ⏶ and ⏷ buttons to change the item code.

Item code	Display contents	Remarks
00 (1)	Outdoor unit alarm contents (code): OFF when normal Blinking 8-alarm code display at pre-trip, LED (2)	At initial status
01	No. of indoor units connected in that refrigerant system	
02	Unit. Nos. of connected indoor units in that refrigerant system *2	
03	Operating status of indoor units in that refrigerant system (blinks when alarms occur) *2	
04	Unit Nos. of indoor units in that refrigerant system where the thermostats are ON *2	
05	No. of outdoor units connected in that refrigerant system	No. of connected units: 1
06	Unit Nos. of connected outdoor units in that refrigerant system *2	
07	Operating status of outdoor units in that refrigerant system (blinks when alarms occur) *2	
08		
09		
0A		
0b		
0C		
0d		
0E		
0F		
10	Total compressor operating time (in 1-hr. units) *3	
11		
12		
13		
14		
15		
16	Total power ON time of outdoor unit (in 1-hr. units)	
17	Compressor start count	
18		
19		
FE	Outdoor unit microcomputer firmware version	
FF	Outdoor unit microcomputer software version	

- XX-YY R.C.
  Displays the outdoor unit address of the selected outdoor sub-bus.
  XX = Main bus line outdoor system address (1 – 30)
  YY = Outdoor unit address in outdoor sub-bus (1 – 8). This is "1"
  when there is only 1 outdoor unit.

* See following page for *2 and *3.
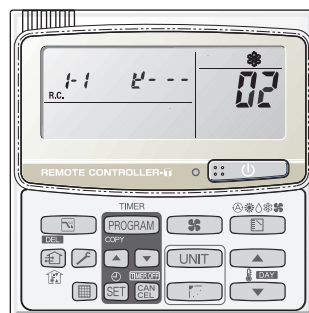
Locations where (1), (2), and (3) are displayed as shown below.

<Sample displays>

01: <No. of connected indoor units>
   4 units connected

02: <Unit Nos. 1, 2, 3, and 4 are connected>
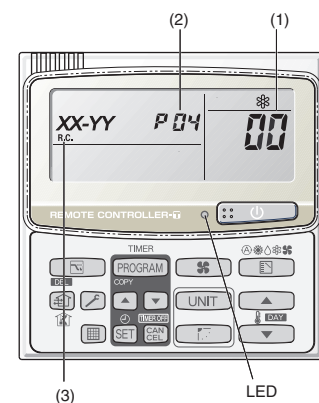
*2: 7-segment, 4-digit display for remote controller timer display

The connected unit Nos. are displayed as shown below, using the 7-segment 4-digit (**88:88**) display and the colon.

● Display for unit Nos. 1 – 20

Meaning of display colon

○ is not displayed.

● Display for unit Nos. 21 – 40
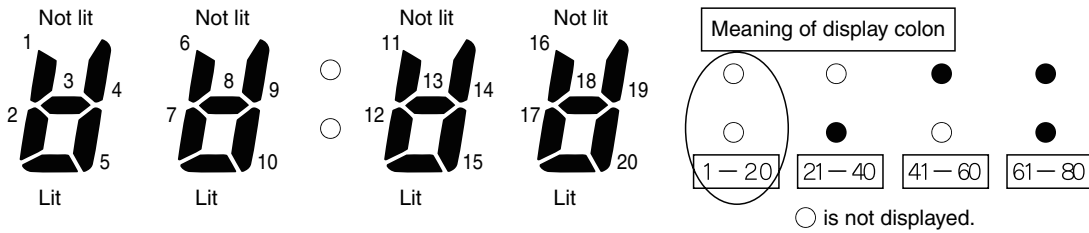
Meaning of display colon
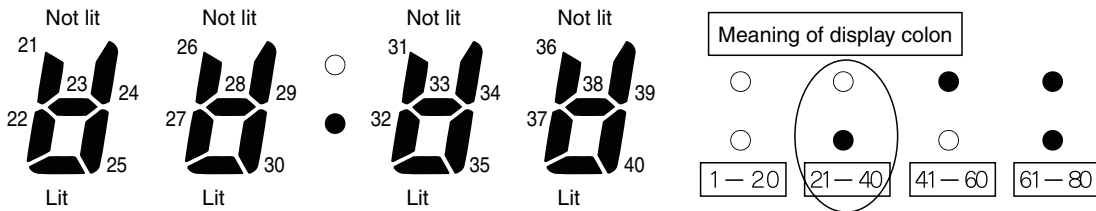
● The meaning of the colon display changes in the same way, allowing unit Nos. up to 80 to be displayed.
● Sample displays of the unit Nos. of connected indoor units

• Display of unit No. 1

• Display of unit Nos. 1 and 2

• Display of unit Nos. 1, 2, and 3

• Display of unit Nos. 1, 2, 3, and 4
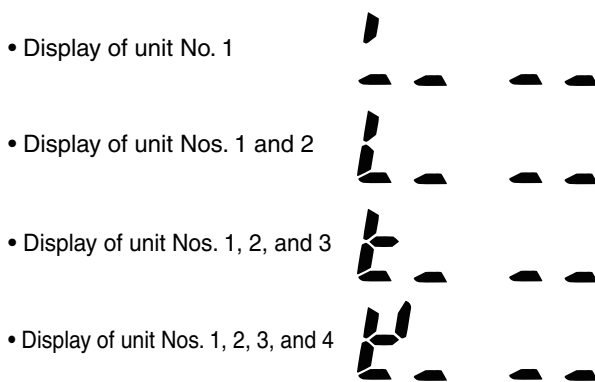
NOTE

The colon display (Unit Nos. 1 – 20, 21 – 40) changes automatically every 10 seconds.

(The display does not change if higher unit numbers do not exist.)
Pressing the [   ] button switches the display immediately to the next higher level, even if 10 seconds have not passed.

6

*3: The total compressor operating time is displayed (in 1-hour units) using 8 digits.
  • When the first 4 digits are displayed, the top point of the colon is lit.
  • When the last 4 digits are displayed, the colon points are not lit.
  • The display of the first 4 and last 4 digits changes automatically every 10 seconds. It can also be changed by pressing the [   ] button.

10: <Total compressor operating time>   (A) and (B) are displayed alternately.

NOTE

With the outdoor unit maintenance remote controller (when connected to the outdoor unit), the unit remote controller check functions will not operate.

6-4. Monitoring Operations: Display of Indoor Unit and Outdoor Unit Sensor Temperatures

<Operating procedure>

(1) Press and hold the ⟟ button and ⟨CAN⟩ button simultaneously for 4 seconds or longer to switch to temperature monitor mode.
During temperature monitoring, "Service Monitor" is lit.
(The display and operations are the same as when monitor mode is started from the unit remote controller.)

(2) Press ⟨UNIT⟩ the button and select the indoor unit to monitor.

(3) Use the temperature setting ⟨▲⟩ and ⟨▼⟩ buttons to select the item code of the temperature to monitor.
The selected indoor unit No. and the temperature data are displayed.

(4) To end monitoring, press the ⟟ button. The display returns to the normal display.

* The display does not blink.
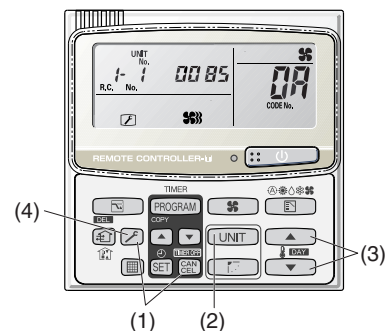
	Item code	Meaning of Code
Indoor unit data	02	Indoor unit intake temp.
	03	Indoor unit heat exchanger temp. (E1)
	04	Indoor unit heat exchanger temp. (E2)
	05	–
	06	–
	07	–
	08	–
	09	
Outdoor unit data	0A	Discharge temp. (TD)
	0b	–
	0C	Outdoor unit heat exchanger temp. (C2)
	0d	Intake temp. (TS)
	0E	Outdoor unit heat exchanger temp. (C1)
	0F	–
	10	–
	11	Outdoor air temp. (TO)
	12	–
	13	–
	14	Current value
	15	Outdoor MV value (1)
	16	Outdoor MV value (2)
	19	Frequency

* Depending on the model, some items may not be displayed.

6-5. Monitoring the Outdoor Unit Alarm History: Display of Outdoor Unit Alarm History

* Displays outdoor unit alarms only. Does not display indoor unit alarms.
* Check the indoor unit alarm histories separately using the indoor unit remote controllers or other control device.

<Operating procedure>
(1) Press and hold the 🔧 button and SET button simultaneously for 4 seconds or
    longer to change to outdoor unit alarm history mode.
    During the alarm history display, "Service Check" is lit.
    The display and operations are the same as the monitoring of the alarm device
    history that is performed using the unit remote controller. However, the outdoor
    unit address appears instead of the unit No.
                    ↓
(2) Press the UNIT button and select the outdoor unit for alarm history monitoring.
                    ↓
(3) Use the temperature setting ▲ and ▼ buttons to select the item code for the alarm history.
    The display shows the address of the selected outdoor unit, the item code, and the alarm history (alarm data).
    The outdoor unit address is displayed as system XX-YY.
    System XX = Outdoor unit system address
                    ↓
        YY = Outdoor unit sub-bus address
    The item code is displayed as 01 – 08. 01 indicates the most recent alarm.
    The alarm history is indicated by the alarm code. (If there have been no alarm codes, "----" is displayed.)
(4) To clear the alarm history, press the CAN CEL button. (The outdoor unit alarm history will be cleared.)
                    ↓
(5) To end, press the 🔧 button. The display returns to the normal remote controller display.
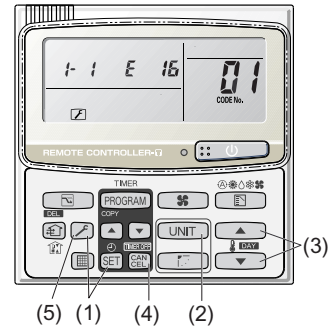
6-6. Settings Modes: Setting the Outdoor Unit EEPROM

● Setting mode 1

<Operating procedure>
(1) Press and hold the 🔧 button and ⏏ button simultaneously for
    4 seconds or longer.
(2) Use the temperature setting ▲ and ▼ buttons to
    change the item code. The item codes and setting data are
    shown in the table of "List of Item Codes" on the next page.
(3) Use the timer time ▲ and ▼ buttons to change the setting
    data.
    To confirm the changed setting data, press the SET button.
    (At this time, "Setting" stops blinking and remains lit.)
(4) During this mode, "Setting" is displayed, blinking. The outdoor
    unit address display section displays "ALL," the item code and
    number (DN value in the table), and the setting data (6 digits).
    (The setting data is displayed in 6 digits. The display changes
    between the first 3 digits (Fig.Ⓐ) and the last 3 digits (Fig.Ⓑ).
    When the first 3 digits are displayed, the top point of the colon is
    lit.)
(5) To end the setting mode, press the 🔧 button.

Ⓐ Display of first 3 digits
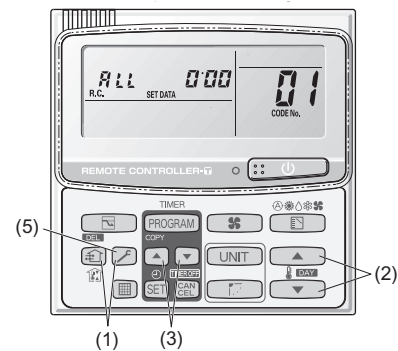
Ⓑ Display of last 3 digits
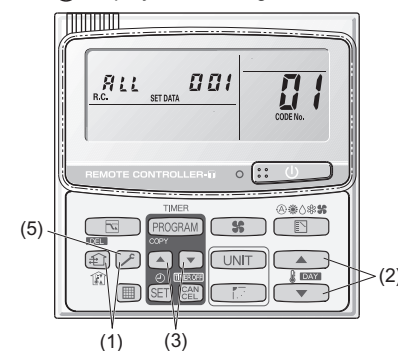
Ⓐ and Ⓑ are displayed alternately.
(Example shows display of 000 001.)

6

6-7

List of Item Codes (Some item codes cannot be set due to the type of models.)

Item code		Parameter
01	Control system schedule	Do not set
02	Control system schedule	Do not set
03	Control system schedule	Do not set
04	Snowfall sensor operation	0 = No sensor, control performed
		1 = No sensor, control not performed
		2 = Sensor present, control performed
		3 = Sensor present, control not performed
05	Control system schedule	Do not set
06	Control system schedule	Do not set
07	Ignore capacity	0 = Disabled 1 = Ignores capacity ratio
08	Control system schedule	Do not set
09	Control system schedule	Do not set
0A	Control system schedule	Do not set
0b	Control system schedule	Do not set
0C	Forced operation of indoor unit drain pump	0 = Disabled
		1 = During cooling only, 2 hours stopped + 20 minutes operating
		(regardless of whether the unit is running or stopped)
		2 = During cooling only, 4 hours stopped + 20 minutes operating
		(regardless of whether the unit is running or stopped)
		3 = At all times, 4 hours stopped + 20 minutes operating
		4 = At all times, 2 hours stopped + 20 minutes operating
0d	Control system schedule	Do not set
0E	Cooling only	0 = Heat pump 1 = Cooling only
0F	Control system schedule	Do not set
10	Control system schedule	Do not set
11	Multi-floor installation	0 = Non 1 = Available
12	Control system schedule	Do not set
13	Control system schedule	Do not set
20	Cool OL control	Do not set
21	Silent mode	0 = 50dB(A) mode , 1 = 45dB(A) mode
50	Demand 1	70% ~ 100% (40% ~ 160% setting capable)
51	Demand 2	70% ~ 100% (40% ~ 160% setting capable)
52	Current control level	70% ~ 100% , -1 (No control) (40% ~ 160% setting capable)
57	Silent mode	0 = Normal (at shipment) 1 = Auto silent 2 = Capacity priority
58	Silent mode starting time (hour)	22 = 22 o'clock (at shipment)
59	Silent mode starting time (minute)	00 = 00 minute (at shipment)
5A	Silent mode finishing time (hour)	08 = 8 o'clock (at shipment)
5B	Silent mode finishing time (minute)	00 = 00 minute (at shipment)

* Figures in parentheses indicate the data at the time of shipment from the factory.

6

● Setting mode 2

<Operating procedure>

(1) Press and hold the ⌨ button, SET button, and CAN/CEL button simultaneously for 4 seconds or longer.

(2) Use the temperature setting ▲ and ▼ buttons to change the item code. The item codes and setting data are shown in the table below.

(3) Use the timer time ▲ and ▼ buttons to change the setting data.
To confirm the changed setting data, press the SET button.
(At this time, "Setting" stops blinking and remains lit.)

(4) During this mode, "Setting" is displayed, blinking. The display shows the set outdoor unit address "System XX-YY" (System XX = System address, YY = Address at outdoor unit sub-bus), item code number (DN value in the table below), and the setting data (6 digits).
(The setting data is displayed in 6 digits. The display changes between the first 3 digits (Fig. Ⓐ) and the last 3 digits (Fig. Ⓑ). When the first 3 digits are displayed, the top point of the colon is lit.)

(5) To end the setting mode, press the ⌨ button. The display returns to the normal display mode.

Ⓐ Display of first 3 digits   Ⓑ Display of last 3 digits
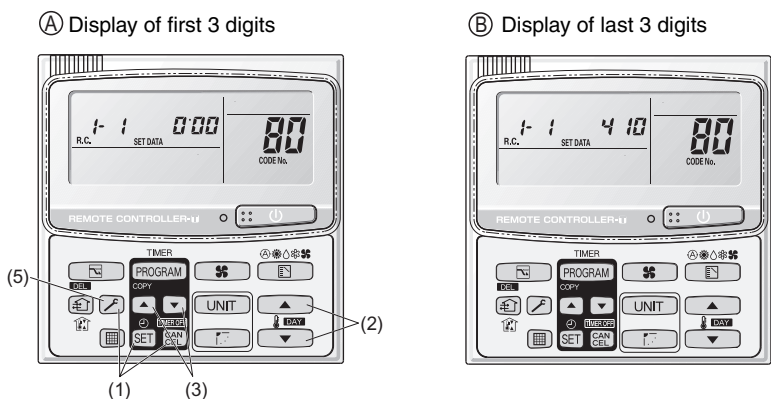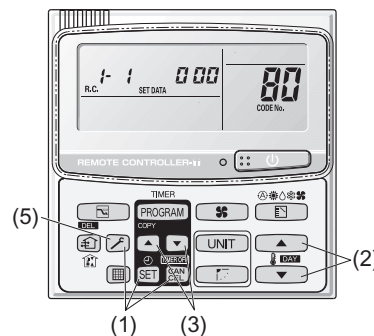
80: <Refrigerant type> Ⓐ and Ⓑ are displayed alternately. (Example shows 000 410 (R410A).)

List of Item Codes

Item code	Parameter	
80	Refrigerant type	407 = R407C 22 = R22 410 = R410A
81	Outdoor unit capacity*	0 = Disabled 22 25 28 32 36 40 45 50 56 63 71 80 90 100 112 125 140 160 180 200 224 250 280 340 355 400 450 500 560 600 630 670 710 800 840
82	Control system schedule	Do not set
83	Control system schedule	Do not set
84	3-phase or single-phase	0 = 3-phase 1 = single-phase
85	Power frequency	0 = Disabled 1 = 50Hz
86	Control system schedule	Do not set
87	Control system schedule	Do not set
88	Control system schedule	Do not set
89	Control system schedule	Do not set
8A	Control system schedule	Do not set
8b	Control system schedule	Do not set
8E Upward fan model only available	Control temp. for outdoor fan's crack prevention	Setting temperature range : -125°C ~ +125°C Crack prevention of outdoor fan actuates when the outdoor temp. reaches lower than the setting values.

(*) Figures represent the capacity data for each model.

6

– MEMO –

7. REMOTE CONTROLLER FUNCTIONS SECTION

7

7-1. Simple Settings Function

• This allows the filter lifetime, operating mode priority change, central control address, and other settings to be made for an individual or group-control indoor unit to which the remote controller used for simple settings is connected.

  When simple settings mode is engaged, operation stops at the individual or group-control indoor unit to which the remote controller for simple settings is connected.

<Procedure>

① Press and hold the 🔧 and 🏠 buttons simultaneously for 4 seconds or longer.

② "SETTING," unit No. "*1- 1*" (or "*ALL*" in the case of group control), item code "*01*," and settings data "*00 XX*" are displayed blinking on the remote controller LCD display (Fig. 7-1). At this time, the indoor unit fan (or all indoor unit fans in the case of group control) begins operating.

③ If group control is in effect, press the UNIT button and select the address (unit No.) of the indoor unit to set. At this time, the fan at the indoor unit begins operating.

  *If unit No. "*ALL*" is displayed, the same setting will be made for all indoor units.

④ Press the temperature setting ▲/▼ buttons to select the item code to change.

⑤ Press the timer time ▲/▼ buttons to select the desired setting data.

  *For item codes and setting data, refer to the following page.

⑥ Press the SET button. (The display stops blinking and remains lit, and setting is completed.)

⑦ Press the 🔧 button to return to normal remote controller display.

Fig. 7-1

CZ-RTC2

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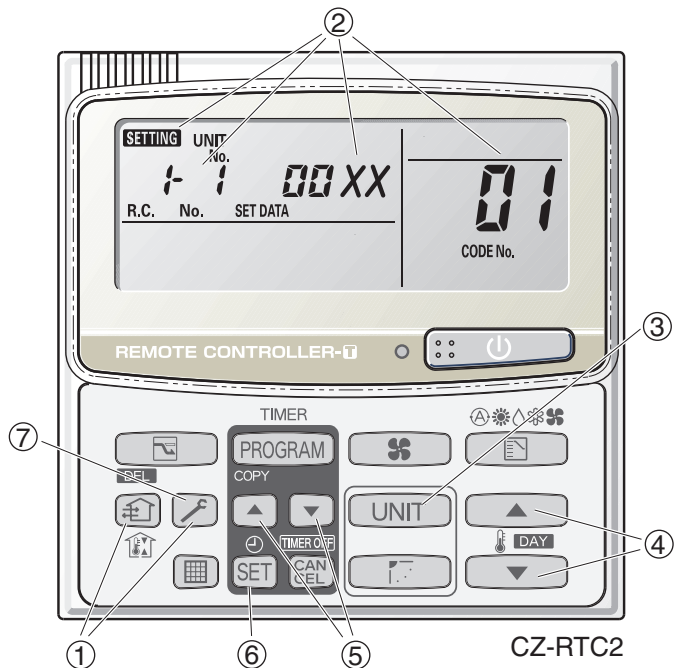
7-2. List of Simple Setting Items

Item code	Item	Setting data		
		No.	Description	
01	Filter sign ON time (filter life time)	0000	Not displayed	
		0001	150 hours	
		0002	2,500 hours	
		0003	5,000 hours	
		0004	10,000 hours	
		0005	Use the filter clogging sensor.	
02	Degree of filter fouling	0000	Standard (setting at time of shipping)	
		0001	Highly fouled (Filter sign ON time is reduced to one-half the set time.)	
03	Central control address	0001	Central control address 1	
		0002	Central control address 2	
		0003	Central control address 3	
		⟩	⟩	
		0064	Central control address 64	
		0099	No central control address set (setting at time of shipping)	
04	Operating mode priority change	0000	Normal (setting at time of shipping)	
		0001	Priority	
05	Fan speed when heating thermostat is OFF		Compressor ON	Compressor OFF
		0000	MED 1 min., LO 3 min.	LO
		0001	MED	LO
		0002	LO	LO
		0004	MED 1 min., LO 3 min.	MED
		0005	MED	MED
		0006	LO	MED
06	Heating intake temperature shift	0000	No shift	
		0001	Shifts intake temperature 1 °C down.	
		0002	Shifts intake temperature 2 °C down.	
		0003	Shifts intake temperature 3 °C down.	
		0004	Shifts intake temperature 4 °C down.	
		0005	Shifts intake temperature 5 °C down.	
		0006	Shifts intake temperature 6 °C down.	
07	Electric heater installation	0000	No heater	
		0001	Heater installed	
08	Humidifying when heater thermostat is OFF	0000	No (setting at time of shipping)	
		0001	Yes	
0d	Permit/prohibit automatic heating/cooling	0000	Permit	
		0001	Prohibit	
0F	Cool-only	0000	Normal	
		0001	Cool only (Set "1" for item code OD.)	

NOTE

- In order to avoid water leakage and damage to the fan, do not set for humidifying when the thermostat is OFF unless a vaporizing humidifier is used.
- Consider the device purpose and type when changing the settings. Incorrect settings may result in malfunction.
- Do not change any setting data that does not appear in this list.

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7-3. Detailed Settings Function

• This allows the system address, indoor unit address, and other settings to be made for the individual or group-control indoor unit to which the remote controller used for detailed settings is connected.

When detailed settings mode is engaged, operation stops at the individual or group-control indoor unit where the remote controller used for detailed settings is connected. Simple settings items can also be set at this time.

<Procedure>

① Press and hold the 🔧, SET and CAN CEL buttons simultaneously for 4 seconds or longer.

② "SETTING," unit No. "*I- I*" (or "*ALL*" in the case of group control), item code "*IO*," and settings data "*OO XX*" are displayed blinking on the remote controller LCD display (Fig. 7-2).

At this time, the indoor unit fan (or all indoor unit fans in the case of group control) begins operating.

③ If group control is in effect, press the UNIT button and select the address (unit No.) of the indoor unit to set. At this time, the fan at the indoor unit begins operating.

④ Press the temperature setting ▲/▼ buttons to select the item code to change.

⑤ Press the timer time ▲/▼ buttons to select the desired setting data.

　*For item codes and setting data, refer to the following page.

⑥ Press the SET button. (The display stops blinking and remains lit, and setting is completed.)

⑦ Press the 🔧 button to return to normal remote controller display.
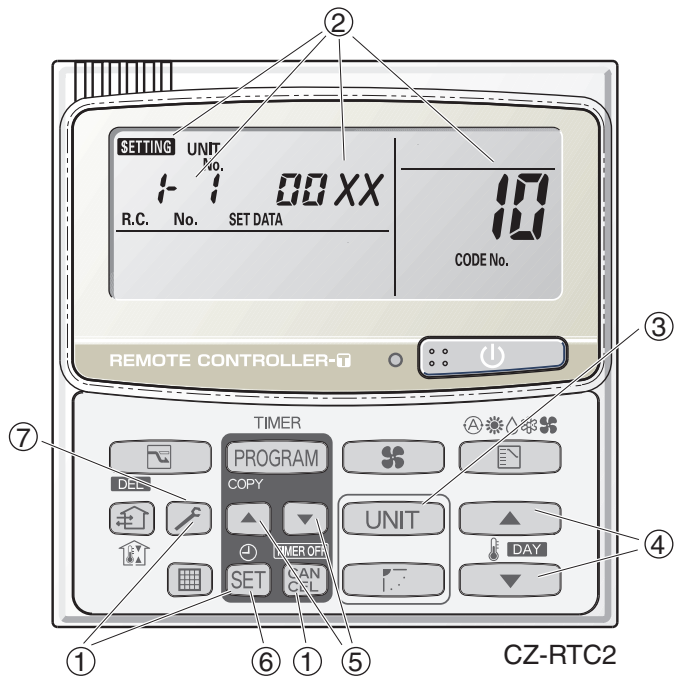
Fig. 7-2

7-4. List of Detailed Setting Items

Item code	Item	Setting data					
		No.	Description	No.	Description	No.	Description
10	Type	0000	———	0001	———	0002	———
		0003	———	0005	———	0006	High Static Pressure Ducted (E1)
		0007	———	0008	———	0010	———
		0011	———				
11	Indoor unit capacity	0001	———	0003	———	0005	———
		0007	———	0009	———	0011	———
		0012	———	0015	———	0017	———
		0018	———	0021	224 (Type 200)	0023	280 (Type 250)
12	System address	0001	Unit No. 1				
		0002	Unit No. 2				
		0003	Unit No. 3				
		⟩	⟩				
		0030	Unit No. 30				
		0099	Not set				
13	Indoor unit address	0001	Unit No. 1				
		0002	Unit No. 2				
		0003	Unit No. 3				
		⟩	⟩				
		0064	Unit No. 64				
		0099	Not set				
14	Group control address	0000	Individual (1:1 = Indoor unit with no group wiring)				
		0001	Main unit (One of the group-control indoor units)				
		0002	Sub unit (All group-control indoor units except for main unit)				
		0099	Not set				
17	Cooling intake temperature shift	–010	Shifts intake temperature by –10°C.				
		–009	Shifts intake temperature by –9°C.				
		⟩	⟩				
		–001	Shifts intake temperature by –1°C.				
		0000	No intake temperature shift				
		0001	Shifts intake temperature by +1°C.				
		⟩	⟩				
		0009	Shifts intake temperature by +9°C.				
		0010	Shifts intake temperature by +10°C.				
18	Automatic stop time after operation start * Can be set in 5-minute units.	0000	Function disabled				
		0001	Stops automatically 5 minutes after operation starts.				
		0002	Stops automatically 10 minutes after operation starts.				
		⟩	⟩				
		0123	Stops automatically 615 minutes after operation starts.				
		0124	Stops automatically 620 minutes after operation starts.				
		0125	Stops automatically 625 minutes after operation starts.				

7

Item code	Item	Setting data		
		No.	Description	
1b (1B)	Forced thermostat ON	0000	5 minutes	
		0001	4 minutes	
1C	Cooling discharge temperature shift	–010	–10°C	
		–009	–9°C	
		–008	–8°C	
		⟨	⟨	
		0010	10°C	
1d	Heating discharge temperature shift	–010	–10°C	
		–009	–9°C	
		–008	–8°C	
		⟨	⟨	
		0010	10°C	
1E	Temperature shift for cooling/heating change in auto heat/cool mode	0001	± 1°C	
		0002	± 2°C	
		0003	± 3°C	
		⟨	⟨	
		0007	± 7°C	
1F (Upper limit) **20** (Lower limit)	Change to remote control temperature setting range	Cooling	0018	18°C (Lower limit at shipment)
			0019	19°C
			⟨	⟨
			0029	29°C
			0030	30°C (Upper limit at shipment)
21 (Upper limit) **22** (Lower limit)		Heating	0016	16°C (Lower limit at shipment)
			0017	17°C
			⟨	⟨
			0029	29°C
			0030	30°C (Upper limit at shipment)
23 (Upper limit) **24** (Lower limit)		Drying	0018	18°C (Lower limit at shipment)
			0019	19°C
			⟨	⟨
			0029	29°C
			0030	30°C (Upper limit at shipment)
25 (Upper limit) **26** (Lower limit)		Auto heat/cool	0017	17°C (Lower limit at shipment)
			0018	18°C
			⟨	⟨
			0026	26°C
			0027	27°C (Upper limit at shipment)
29	Humidifier operation	0000	Normal	
		0001	Ignore heat exchanger temperature conditions.	
2A	Filter (CN70) input switching	0000	Filter input (differential pressure switch input)	
		0001	Alarm input (for trouble input about air cleaner or similar device)	
		0002	Humidifier input (Operates linked with drain pump when humidifier is ON.)	
2C	Indoor unit electronic control valve	0000	Present (Setting at shipment)	
		0002	None	
2E	T10 terminal switching	0000	Normal (Used as optional relay PCB or JEMA standard HA terminal.)	
		0001	Used for OFF reminder	
		0002	Fire prevention input	

7

Item code	Item	Setting data	
		No.	Description
2F	Automatic drain pump operation	0000	No forced operation
		0001	Forced operation for 1 minute
		⟨	⟨
		0060	Continuous operation
31	Ventilation fan operation	0000	None
		0001	Ventilation fan operated by remote controller.
32	Wired remote controller sensor	0000	Not used. (Body sensor is used.)
		0001	Remote control sensor is used.
34	"Operation change control in progress" display	0000	Normal (displayed)
		0001	Not displayed
35	OFF reminder function for when weekly timer is used	0000	None
		0001	Only stop time setting is enabled.
3C	Heat exchanger temperature for cold air discharge (Heat exchanger control point for control to prevent cold air)	0013	Control temperature 13°C
		0014	Control temperature 14°C
		⟨	⟨
		0025	Control temperature 25°C
		0026	Control temperature 26°C
3d	Fan output switching	0000	Output linked with fan. (ON when indoor unit fan is operating.)
		0001	Fan mode operation output
3E	Drain pump delayed start time	0000	No delayed start
		0001	1 sec. delayed start
		0002	2 sec. delayed start
		⟨	⟨
		0058	58 sec. delayed start
		0059	59 sec. delayed start
		0060	60 sec. delayed start
40	Humidifier setting	0000	Humidifier output OFF. Drain pump stopped.
		0001	Humidifier output ON. Drain pump operates.
		0002	Humidifier output ON. Drain pump operates for 1 minute when total humidifier operating time reaches 60 minutes.
		0003	Humidifier output ON. Drain pump stopped.
45	Flap operation mode	0000	Standard setting
		0001	Draft reduction mode (Flap lower-limit position is shifted upwards.)
46	Flap swing mode	0000	Smudging reduction mode (Flap swing upper-limit position is shifted downwards.)
		0001	Normal mode
		0002	Draft reduction mode (Flap swing lower-limit position is shifted upwards.)

7

Item code	Item	Setting data		
		No.	Description	
5d	Fan tap setting (Fan tap change in order to prevent drop in air discharge caused by filter installation)		DC fan tap operating mode	Purpose
		0000	Standard	Standard (setting at shipment)
		0001	High ceiling use	High ceiling setting 1 (with standard panel)
			For low static-pressure filter	Ultra long-life filter, oil guard panel, ammonia deodorizing filter, optical regenerative deodorizing filter
		0003	High ceiling use	High ceiling setting 2 (with standard panel)
			For low static-pressure filter	(Antibacterial) high-performance filter (90%) (Antibacterial) high-performance filter (65%) Air-cleaning unit, air-cleaning unit + optical regenerative deodorizing filter, deodorant (activated charcoal) filter
			For air-blocking material	For 3-way discharge, when discharge duct is connected
		0006	For air-blocking material	For 2-way discharge
5E	Humidifier ON time (ON time per 60 seconds)	0000	No humidifier output	
		0001	1 sec.	
		0002	2 sec.	
		⟩	⟩	
		0058	58 sec.	
		0059	59 sec.	
		0060	Continuously ON	
5F	Repeat timer switching	0000	Function disabled	
		0001	Function enabled	
60	Timer function change prohibit	0000	Function disabled	
		0001	Function enabled	
62	Smudging control	0000	No smudging control	

7-5. Simple Setting Items

Item code	Item	Description
01	Filter sign ON time setting (filter lifetime)	Changes the indoor unit filter lifetime when a high-performance filter or other optional product is installed.
02	Degree of filter fouling	Reduces the filter sign ON time to 1/2 of the standard time (setting at the time of shipping) for cases when filter fouling is more severe than normal.

Filter sign ON times for each model

Model data	Model	Filter sign ON time												Pressure differential switch
		Standard		Long-life		Super long-life		High performance 65		High performance 90			
		Standard	High fouling	Standard	High fouling	Standard	High fouling	Standard	High fouling	Standard	High fouling			
0006	High Static Pressure Ducted (E1)	x	x	2500	1250	x	x	2500	1250	5000	2500			x

NOTE

• x indicates that there is no corresponding filter.

Item code	Item	Description
03	Central control address	Set when using a central control device. Used when setting the central control address manually from the remote controller.

7

When the operating mode at the priority remote controller is changed, the operating modes of other remote controllers change as shown below.

Mode change at priority remote controller		Operating modes at other remote controllers	
Current mode	New mode	Current mode	New mode
Cooling or dry	Heating	Cooling or dry	Heating
		Fan	Fan (not changed)
Heating	Cooling	Heating	Cooling
		Fan	Fan (not changed)
Cooling	Dry	Cooling	Cooling (not changed)
		Dry	Dry (not changed)
Heating	Dry	Heating	Cooling
		Fan	Fan (not changed)
Cooling or dry	Fan	Cooling	Cooling (not changed)
		Dry	Dry (not changed)
		Fan	Fan (not changed)
Heating	Fan	Heating	Heating (not changed)
		Fan	Fan (not changed)

Item code	Item	Description
05	Fan speed setting when heating thermostat is OFF	Changes the fan speed setting when the heating thermostat is OFF.
06	Heating intake temperature shift	Shifts the intake temperature during heating. Can be set when the body thermostat is used.
07	Electric heater installation	Set when cost distribution is performed using an AMY central control system or similar system, and when an optional electric heater is installed. (This is unrelated to control of the electric heater.)
08	Humidifying when heater thermostat is OFF	Normally humidifying does not occur when the thermostat is OFF during heating operation. However, this setting can be changed in order to increase the amount of humidifying. Caution: In order to avoid water leakage and damage to the fan, do not use this setting unless a vaporizing humidifier is used.
0D	Permit/prohibit automatic heating/cooling	This setting can be used to prevent the automatic heating/cooling display on the remote control if the unit configuration permits automatic heating/cooling operation.
0F	Cooling-only	This setting allows a heat pump indoor unit to be operated as a cooling-only unit.

7

7-6. Detailed Setting Items

Item code	Item	Description
10	Unit type	Set when the indoor unit EEPROM memory is replaced during servicing.
11	Indoor unit capacity	
12	System (outdoor unit) address	These are not set at the time of shipping from the factory.
13	Indoor unit address	These must be set after installation if automatic address setting is not performed.
14	Group address	
17	Cooling intake temperature shift	Shifts the intake temperature during cooling and dry operation. (Enabled only when the body thermostat is used.) Increase this value when it is difficult to turn the thermostat ON.
18	Automatic stop time after operation start	The time at which an indoor unit is automatically stopped after operation starts can be set in increments of 5 minutes
1b	Forced thermostat ON time	Use this setting to change the time for forced operation at installation or servicing from 5 minutes to 4 minutes.
1E	Temperature shift for cooling/heating change in "auto heat/cool" mode	"Auto heat/cool" selects the operating mode automatically based on the difference between the room temperature and the temperature set on the remote controller. This setting establishes a shift temperature for the heating/cooling temperature setting relative to the remote controller temperature setting.

Cooling temperature setting

Shift temperature
(+)

Remote controller temperature setting

Shift temperature
(−)

Heating temperature setting

7

Item code	Item		Description
1F (Upper limit) **20** (Lower limit)	Change to the remote control temperature setting range	Cooling	This setting changes the temperature range (upper limit and lower limit) which is set from the remote controller or central control device. The set upper limit must be greater than or equal to the lower limit. If the temperature setting is to be a single point, set the upper limit and lower limit to the same temperature.
21 (Upper limit) **22** (Lower limit)		Heating	
23 (Upper limit) **24** (Lower limit)		Drying	
25 (Upper limit) **26** (Lower limit)		Auto heat/cool	
29	Humidifier operation which ignores the heat exchanger temperature		During heating operation, the humidifier operates when the heat exchanger temperature is suitable for humidifying. This setting is used to ignore this condition for humidifier operation and operate the humidifier more.
2A	Filter input switching		This setting switches the filter input according to the purpose of use.
2C	Indoor unit electronic control valve		This setting indicates whether or not an indoor unit electronic control valve is present. At the time of shipping, this setting is set according to the conditions of the indoor unit.
2E	T10 terminal input switching		Ordinarily, the T10 terminal is used as the HA terminal at the time of shipping. However, this setting is used when the T10 terminal is used for OFF reminder or for fire prevention input.
31	Ventilation fan operation from remote controller		It is possible to install a ventilation fan in the system, which can be started and stopped by the wired remote controller. The ventilation fan can operate linked with the start and stop of the indoor unit, or can be operated even when the indoor unit is stopped. Use a ventilation fan that can accept the no-voltage A contact as the external input signal. In the case of group control, the fans are operated together. They cannot be operated individually.
32	Switching to remote controller sensor		This setting is used to switch from the body sensor to the remote controller sensor. Check that "remote controller sensor" is displayed. Do not use this setting with models that do not include a remote controller sensor. Do not use this setting if both the body sensor and remote sensor are used.
34	ON/OFF of "Operation change control in progress" display		In a MULTI system with multiple remote controllers, switching between heating and cooling is restricted, and "Operation change control in progress" is displayed. This setting is used to prevent this display from appearing. Refer to the item concerned with operating mode priorities.
35	OFF reminder function for weekly timer		This setting switches the operation when the weekly timer is connected to the remote controller. This can be used to prevent cases in which the unit is accidentally left ON. There is no change when this setting is ON, however it is necessary to set the weekly timer ON time.

(Continued)

(Continued from previous page)

Item code	Item	Description
3C	Heat exchanger temperature for cold air discharge	The heat exchanger temperature control point for prevention of cold air discharge during heating operation can be changed.
3d	Fan output switching	The indoor unit PCB optional output for the fan can be switched according to the purpose of use.
3E	Drain pump delayed start time	The drain pump starts after the set time delay after cooling operation stops.
40	Humidifier drain pump setting	This specifies the humidifier and drain pump setting.
45	DC flap operation mode	Changes flap operation to draft reduction mode.
46	DC flap swing mode	Selects the swing operation mode for the flap.
5d	DC fan tap setting	Sets the DC fan tap according to the purpose of use. Change the settings data at the same time.
5E	Humidifier ON time	Sets the humidifier output ON time for when the humidifier is operating. ON/OFF control is performed during humidifier operation. This setting therefore sets the ON time per 60-second interval.
5F	Stop at time set for OFF timer after operation starts	This setting enables a function that stops operation when the amount of time set for the OFF timer has passed after remote controller operation was started.
60	Timer function change prohibit	This function prohibits changes from being made to the remote controller time setting.
62	Smudging control	Smudging control is disabled when 0000 is set.

7

7-7. Remote Controller Servicing Functions

• The remote controller includes a number of servicing functions. Use these as needed for test runs and inspections.

List of Servicing Functions

Functions	Description	Button operation	Reset operation	Unit status
Test run	Operation with forced thermostat ON	Press and hold the 🔧 button for 4 seconds or longer.	Press the 🔧 button.	Current operation is maintained.
Sensor temperature display	Temperature display from each sensor	Press and hold the 🔧 and CAN/CEL buttons for 4 seconds or longer.		
Servicing check display	Alarm history display	Press and hold the 🔧 and SET buttons for 4 seconds or longer.		
Simple settings	Filter lifetime, operating mode priority, central control address, and other settings	Press and hold the 🔧 and ⬜ buttons for 4 seconds or longer.		When settings are made from a remote controller, the indoor unit where that remote controller is connected stops.
Detailed settings	System address, indoor unit address, central control address, and other settings	Press and hold the 🔧, CAN/CEL and SET buttons for 4 seconds or longer.		
Automatic address	Automatic address setting based on command from the wired remote controller	Press and hold the 🔧 and the timer operation ▲ buttons for 4 seconds or longer.	Automatic reset	Entire system stops.
Address change	Change of indoor unit address	Press and hold the 🔧 and the timer operation ▼ buttons for 4 seconds or longer.	Press the 🔧 button.	

7-8. Test Run Function

Operates the unit with the thermostat forced ON.

<Procedure>

① Press and hold the 🔧 button for 4 seconds or longer.

② "Test" appears on the remote controller LCD display (Fig. 7-3).

③ Start operation.

④ Press the 🔧 button to return to normal remote controller display.

CZ-RTC2
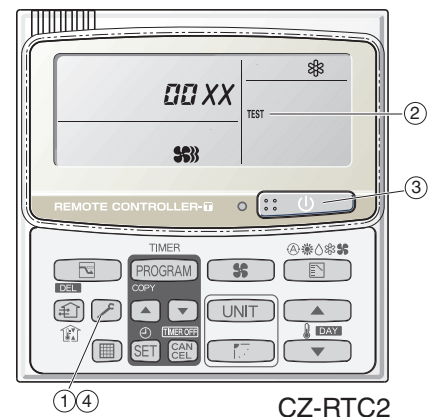
Fig. 7-3

■ Sensor Temperature Display Function (displayed regardless of whether unit is operating or stopped)

The procedure below displays the sensor temperatures from the remote controller, indoor unit, and outdoor unit on the remote controller.

<Procedure>

① Press and hold the 🔧 and [CAN CEL] buttons simultaneously for 4 seconds or longer.

② The unit No. "X-X" (main unit No.), item code "XX" (sensor address), and servicing monitor "☐☐ XX" (sensor temperature) are displayed on the remote controller LCD display. (See Fig. 7-4 at right.)

③ Press the temperature setting [▲]/[▼] buttons and select the item code to the address of the sensor to monitor.
(For the relationships between the sensor addresses and sensor types, refer to the table of temperature sensors and addresses at below.)

④ If group control is in effect, press the [UNIT] button to select the unit to monitor.
Press the temperature setting buttons to select the item code to change.

⑤ Press the 🔧 button to return to normal remote controller display.

CZ-RTC2
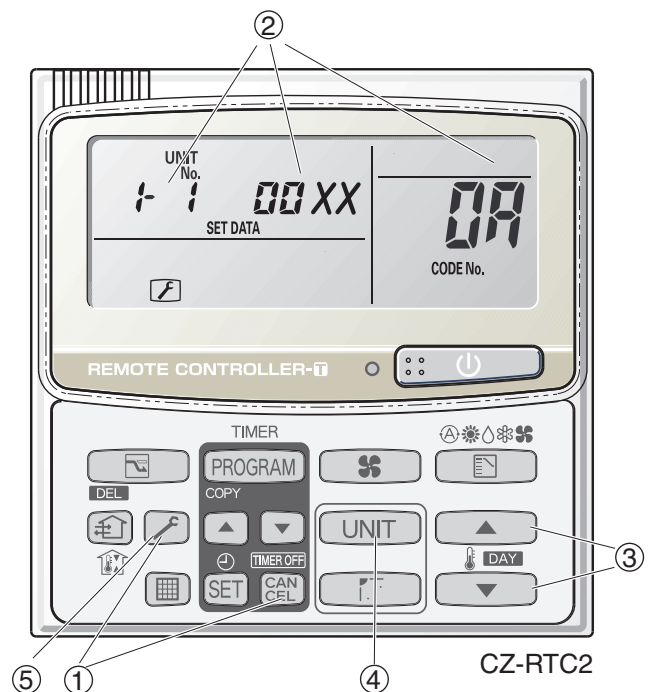
Fig. 7-4

Note:

The temperature display appears as "- - - -" for units that are not connected.

* If monitor mode is engaged while normal operation is in progress, only the parts of the LCD display shown in the figure will change. Other parts continue to display the same information as during normal operation.

Indoor unit sensors	
02	Intake temp.
03	E1
04	E2
05	E3
06	Discharge temp.
07	Discharge temp. setting
08	Position of indoor unit electronic control valve

Outdoor unit sensors				
Unit No.1	Unit No.2	Unit No.3	Unit No.4	
0A	2A	4A	6A	Discharge temp. 1
0B	2B	4B	6B	Discharge temp. 2
0C	2C	4C	6C	High-pressure sensor temp.
0D	2D	4D	6D	Heat exchanger gas 1
0E	2E	4E	6E	Heat exchanger liquid 1
0F	2F	4F	6F	Heat exchanger gas 2
10	30	50	70	Heat exchanger liquid 2
11	31	51	71	Outdoor air temp.
12	32	52	72	–
13	33	53	73	For inspection
14	34	54	74	CT2
15	35	55	75	For inspection
16	36	56	76	For inspection
17	37	57	77	Discharge temp. 3
18	38	58	78	CT3
19	39	59	79	For inspection
1A	3A	5A	7A	For inspection
1B	3B	5B	7B	Heat exchanger gas 3
1C	3C	5C	7C	Heat exchanger liquid 3
1D	3D	5D	7D	Low-pressure sensor temp.
1E	3E	5E	7E	Receiver temp.
1F	3F	5F	7F	Oil 1
20	40	60	80	Oil 2
21	41	61	81	Oil 3
22	42	62	82	For inspection

7

– MEMO –

8. HOW TO INSTALL THE WIRELESS REMOTE CONTROLLER RECEIVER

8

■ Warning

8-1. Warning about Installation of Receivers

The wireless remote uses a very weak infrared light for its signal, which can result in the signal not being received because of the following influences, so take care in where the unit is installed.

· Inverter or rapid-start type fluorescent lights. (Models without glow lamps)

· Plasma display or LCD televisions.

· Direct sunlight or other sources of bright light.

8-2. Warning about Installing Remote Controls

(1) If a remote control is to be operated from a remote control holder that is hung on a wall, turn on the lights in the room as well as any electrical appliances and then check to make sure the air conditioner works with the remote control in the location where it will be installed. If it works, continue with installation.

(2) If the air conditioner is to be switched from the main sensor to a remote control sensor, pay attention to the following when installing.

· Locate where no warm or cold drafts will affect it.

· Locate in a place free from direct sunlight.

· Locate where it will not be affected by any other heat/cold source.

8

■ Optional Controller (Remote Controller)

Wireless Remote Controller / CZ-RWSC2

One remote control can control a group of up to eight indoor units.

8-3. Names and Functions

REMOTE CONTROLLER

1. Operation Display	Displays the operation status. (The figure shows all the statuses.)	**15. Sensor button**	Use this when switching to detect the temperature at the remote control. At shipping the default setting is set to detect the temperature at the unit. At this time ⬚ is shown on the display.
2. Start/Stop button ⏻	Pressing this button once starts and pressing again stops the operation. The auto-flap display may be different, depending on the installed unit.	**16. Clock button** 🕐	Use this when setting the clock.
3. Fan speed button ✺			
4. Swing/Wind Direction button			
5. Timer setting button	Use for operating with a timer.		
6. Reset button	Use this button after changing the batteries.		
7. Cover	Press at the top center and then slide down.		
8. Transmitter			
9. Remote control sensor	Detects the temperature at the remote controller when detection has been switched to the remote control by the sensor button.		
10. Temperature setting buttons	△ raises the temperature setting 1 °C at a time. ▽ lowers the temperature setting 1 °C at a time.		
11. Filter button ▦	Press to turn off the filter lamp on the receiver.		
12. Mode Select button	Press to switch the operation mode.		
13. Ventilation button	Use this when connected to an aftermarket fan. Pressing this button starts and stops the fan. When the air conditioner is started or stopped, the fan starts or stops at the same time. (⬚ appears on the display of the remote control when the fan is operating.)		
14. Address button ADR			

From this page on the names of remote control buttons will be abbreviated as the illustration of the "button".
E.g.: Start/Stop button ⟶ ⏻

8

RECEIVER

1. Receiver	Receives the signal sent from the remote control.
2. Emergency operation button	**Display lamps** When an error occurs, one of the lamps flashes. When a display lamp is blinking, refer to " Before Requesting Service ".
3. Operating lamp	This lamp is lit when the unit is operating.
4. Timer lamp	This lamp is lit when the timer is set.
5. Standby lamp	• When the heater is working, the lamp lights at the following times. When the thermostat has operated during defrosting at the time of the startup. • The lamp flashes when an error occurs.
6. Filter lamp	This lamp is for notifying you when the filter needs to be cleaned.
7. Swing button	
8. Normal/Stop All switch	Use in the **Normal** position. It does not operate in the **Stop All** position. **Remote control, main / remote control, secondary, switch** In normal use this should be on remote control, main. It is also possible to use both in conjunction with a wired remote control (sold separately). (Consult with the dealer where the product was purchased about making the settings.) **Test/On switch** This is used during service. It is not for normal use. **Test Run/On switch** This is used during service. It is not for normal use.
9. Address switch	Differentiate between incoming and outgoing signals.

CZ-RWSC2
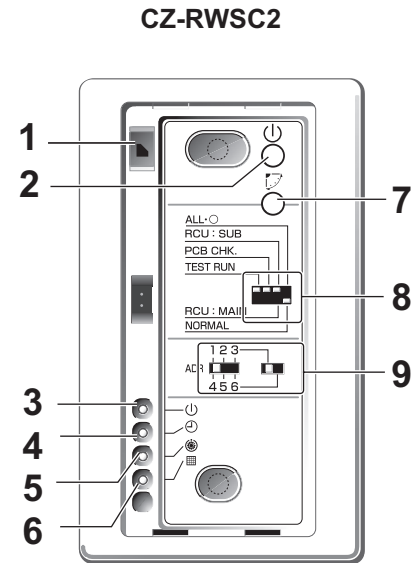
NOTE

• If a heat pump model is being used, it will beep twice and the operating lamp will light up on the display; if the timer and standby lamps blink alternately, a confict between the heating and cooling exists, so the unit cannot operate in the desired mode.
(On models that do not have an Auto function, even if Auto is selected, it works in the same way.)

• When the local operation is disabled by such as the centralized control, and if the Start, Stop, Mode or Temperature setting buttons are pressed, the unit will beep five times and the change will not be made.

8

8-4. Installing Batteries

1. **Remove the cover.**
2. **Insert two AAA alkaline batteries.**
   Put the batteries in with the polarity [+/–] as shown in the figure.
3. **Gently insert one end of an unfolded paper clip (or a similar object that can fit) into the Reset hole and press the Reset button inside the hole and then put the cover back on.**

Reset hole

Cover
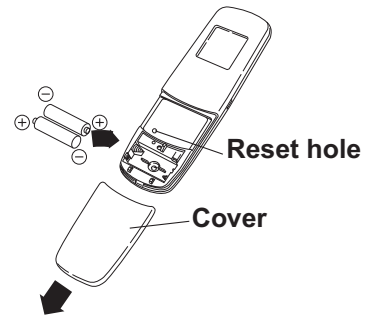
NOTE

- Change the batteries when the display of the remote control gets weak or if it will not work unless close to the receiver. (Alkaline batteries generally last about one year.)
- When changing batteries, always use two fresh batteries of the same make.
- If the remote control will not be used for a long period of time, remove the batteries.
- Please dispose of batteries appropriately.
- After changing the batteries, follow the procedures described below to reset the current time.

8-5. Setting the Current Time

After changing the batteries and pressing reset, be sure to reset the current time.
(When reset is pressed, the current time reverts to [0:00])

1. **Press ⏱ for two seconds or more.**
   Once the clock displays starts blinking, the clock can be set.
2. **Set the hour with ▲ / ▼ of the ⏱▸l.**
   If you press and hold the button, the time changes quickly.
3. **Set the minutes with ▲ / ▼ of the ⏱▸○.**
   If you press and hold the button, the time changes quickly.
4. **Pressing ⏱ completes the time setting.**
- While you are setting the current time, the time display flashes but the colon does not.
- If the buttons are not pressed for three minutes while setting the current time, it is set to the displayed time.

2   3 1,4

NOTE

• When reset is pressed, the timer settings are deleted.

8-6. Operation

Auto Ⓐ , Heat ☀ , Dry ◊ , Cool ❅ , Fan ❀
Models that only provide the cooling function cannot operate in the auto or heating modes.
Power : Turn on the power of the indoor unit at least 14 hours before operation.
1. **Press ⏻ .**
2. **Press 🗒 and select from among Auto Ⓐ, Heat ☀, Dry ◊, Cool ❅ and Fan ❀.**
3. **Press ❀ and select the desired speed.**
   If set to Auto Ⓐ ❀ , the fan speed switches automatically.
   (Auto does not work when in the Fan mode.)
4. **Press one of the ▽ △ buttons and set the desired temperature.**
   Temperature settings cannot be made when in the Fan mode.

3

1

4

2

8
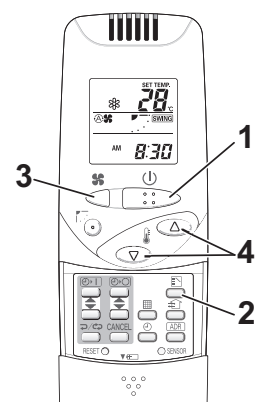
	Auto Ⓐ	Heat ☀	Dry◊ / Cool ❅
MAX	27	30	30
MIN	17	16	18

Stop: Press (⏻)

> When the unit is stopped with the remote control, even though the compressor of the outdoor unit stops, the fan on the outdoor unit may continue to run for a while.

If the unit is not heating very effectively with a Low fan speed ❀ , switch the fan speed to High ❀❀ or ❀❀ Medium.
Depending on the indoor unit being used, it may indicate a function that it does not have. (The fan speed is set.)

If you cannot turn the air conditioner off in the normal way.
Disconnect the power to the indoor unit and contact the dealer where the product was purchased.

<Auto Op eration>
If all the indoor units are identical in a cooling system and are under control as one group, it heats or cools automatically via the differences between the set temperature and the room temperature.

<Dry Operation>

- Depending on the indoor unit used, the remote control may have a [Dry ◊] indicator on its display even though the unit does not have the Dry function. (Same as cooler operation)
- When the room temperature approaches the temperature setting, the unit continues to start up or stop automatically.
- When the drying mode stops operating, the indoor unit's fan blows a gentle breeze in order to keep the moisture from returning to the room at a minimum.
- Depending on the indoor unit used, and/or the temperature in the room, the fan speed may not be adjustable.
- Depending on the unit used, when the outside air temperature is 15 °C or less, the dry function will not operate.

8-7. Timer Operation

- When setting the timer, make sure the current time on the remote control is accurate.
- The timer's clock can only be set when the display of the remote control is ON.
- After setting the timer, put the remote control in a place where its signal will reach the receiver of the indoor unit. (When the time set for the timer is reached, a signal is sent from the remote control to Start/Stop the unit.)

Using the Timer

1. **Press either ▲ / ▼ of the ⏲▸| or ⏲▸○ , and while the time is being displayed, if you press ▲ / ▼ again, a scheduled time can be set.**
    The time last set on the timer is displayed.
    "--:--" indicates time to change the batteries.

2. **Press either ▲ / ▼ of the ⏲▸| or ⏲▸○ and set the timer to the desired time.**
    Every time you press ▲ / ▼ , the time changes in 10 minutes increments.
    If you press and hold the button, the time changes quickly.

3. **After setting the timer, if you press ⟳/⟲ , the time you set changes to a steady display, indicating settings are complete.**
    After the timer setting is displayed for three seconds, the display reverts to the current time.
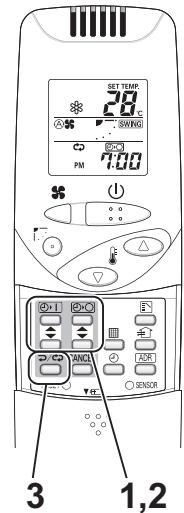
Combining ON and OFF Timers

- Setting the ON and OFF timers, respectively.

Checking the timer setting

- If you press either ▲ / ▼ for the ⏲▸| or the ⏲▸○ , the scheduled time is displayed for four seconds.
- When no timer setting has been made, it displays --:--. (Initial Setting)

8

Changing a timer setting

- Press ▲/▼ for the ⏲→| or the ⏲→○ , and then when the timer setting is displayed, press ▲/▼ for the timer again.

Canceling a timer setting

- If you press [CANCEL], the timer setting is canceled.
- If you wish to cancel the setting for either the ⏲→| or the ⏲→○ timer, press ▲/▼ or the desired timer and when the scheduled time is displayed, press [CANCEL].

Using the same timer setting every day

- If you press ⟲/⟳ for 2 or more seconds, " ⟳ " is displayed and the **ON timer** or the **OFF timer** will operate the unit at the same time every day.
- If you press ⟲/⟳ again for two seconds or more, " ⟳ " goes off and the timer operates just once.

8-8. Adjusting the Wind Direction

- Never try to manually move the flap (up-down wind direction plate) that is operated by the remote control.
- When the unit stops, the flap (up-down wind direction plate) automatically faces downwards.
- When the unit is in heating standby, the flap (up-down wind direction plate) faces upward.
  Also, bear in mind that the flap starts swinging after the heating standby mode is released, but the display on the remote control indicates Auto Flap during standby heating as well.

8-9. Operating Multiple In/Outdoor Units Simultaneously (Group Control)

Group control works well for providing air conditioning to one, large room with more than one air conditioning units.

- One remote control can operate up to eight indoor units.
- All the indoor units have identical settings.
- Set temperature sensing to the indoor unit (Main Sensor).

Indoor Unit
Receiver
Indoor Unit
Signal Line
▢Wireless Remote Control
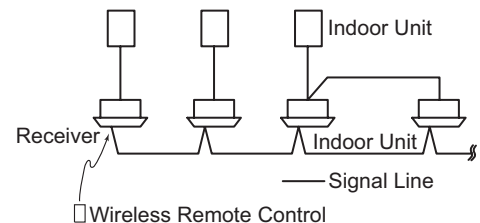
8-10. Using the Remote Control

- Point the transmitter of the remote control at the receiver. When the signal is received correctly it will beep once. (It beeps twice only when the unit starts operating.)
- The signal can be received at a distance of about 6 meters. This distance should be used only as a guide. It depends on battery strength.
- Make sure nothing is between the remote control and the receiver that could block the signal.
- Do not leave the remote in direct sunlight, where the wind from the air conditioner can blow directly on it, or near any other heat source.
- Take care not to drop, throw or wash the remote control with water.
- The signal from the remote control may not be received in rooms with rapid start fluorescent lighting, inverter lights, plasma displays, LCD televisions (monitor), etc. For more information, please contact the dealer where the product was purchased.

Fasten the remote control mount with screws.

Fitting the remote control in the mount.

2 Press
1 Put in

Remote control mount
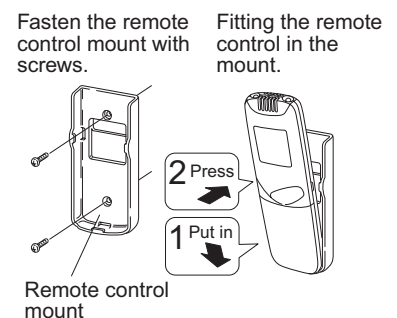
Wall Mount Use

- Press ⏻ from the location you wish to mount the remote and make sure the signal is received correctly.
- Pull the remote control forward to remove it.

8

8-11. For Best Results

Don't get the remote control too far away from the receiver.
This may cause a malfunction. Be sure to keep the remote control in the same room as the receiver.

Point the remote control at the receiver.
When the signal is received correctly it will beep one time.

Avoid locating the remote control where it is covered, such as behind a curtain.
Keep it out in the open.

8-12. Addresses

In both multi and single unit installations, when more than one indoor unit is installed in the same room with a compatible remote control, addresses can be set up to avoid crosstalk. By setting the address switches on the receivers and matching them with the number of addresses on the remote control, up to six indoor units can be controlled separately with the remote control. (When using units in a flexible combination or operating multiple units simultaneously, as they are operated at the same time, they cannot be controlled individually.)

- These settings are saved in nonvolatile memory in the remote control, so even when its batteries are changed, the settings do not have to be made again.

Checking Addresses
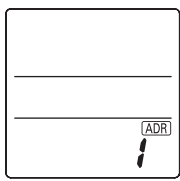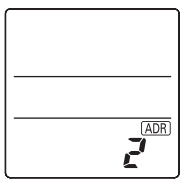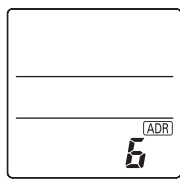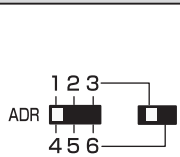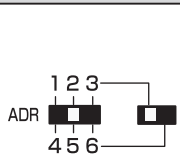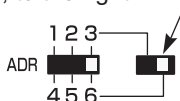
When you press ADR on the remote control, its current address is shown in the display. If this address corresponds to the address of a receiver, the buzzer sounds. (If it is on ALL, the buzzer will always sound.)
If it is on ALL, it can be operated regardless of receiver addresses. Point the remote control at the receiver you wish to operate and transmit.

Matching up Addresses

Setting Remote Control Addresses

1. **If you press** ADR **and** ⊃/ᖙ **at the same time, "** SET **" will blink.**
2. **While holding** ADR **down, every time you press** ⊃/ᖙ**, it cycles from ALL → 1 → 2 → 3...6 → ALL.**
   Set it to the receiver address switch of the indoor unit you wish to operate.
3. **When you release** ADR **, the address that was displayed is set.**
   When you do this, if it corresponds to the receiver's address setting, the buzzer sounds.

Address Display on the Remote Control	ALL ADR	1 ADR	2 ADR	● ● ● ● ●	6 ADR
CZ-RWSC.2					
Position of the Receiver's Address Switch	The position of the receiver's address switch does not matter.	1 2 3 ADR ▮ 4 5 6	1 2 3 ADR 4 5 6	● ● ● ● ●	For 1, 2 and 3, set the switch on the left and for 4, 5 and 6, to the right. 1 2 3 ADR 4 5 6

NOTE

- Please do not hold the [Emergency Operation] ⏻ button of the indoor unit down while the indoor unit's display lamps are blinking one after another.
- Make sure to operate while the indoor unit is stopped.
- The address of indoor unit is set to "ALL" at the time of the shipment.

8-13. Emergency Operation

Use [Emergency Operation] (¹) in the following situations when there is an urgent need.

- When the remote control's batteries have failed.
- When the remote control is broken.
- When the remote control is lost.

1. **Press [Emergency Operation] (¹) of the receiver**

   If the indoor temperature is 24°C or greater when the unit starts running,
   it will act as a cooler.
   If the indoor temperature is less than 24°C when the unit starts running,
   it will act as a heater.

2. **If you press ⌐ , the wind direction automatically oscillates up and down.**
   Stop: press [Emergency Operation] (¹) of the receiver again.

CZ-RWSC2
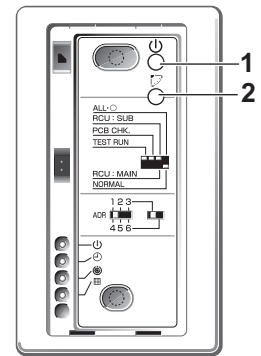
NOTE

- The Test Run/On and Test/On switches are for use when the unit is installed and test run. It is not for normal use.
- If the [Normal/Stop ALL] switch is on **Stop ALL** , the unit cannot receive signals from the remote control.

8-14. Miscellaneous Settings

A variety of changes can be made to settings, depending on the indoor unit being used.

Wind direction (flap) indicator, operation mode indicator, time display (24 hour, AM/PM), heat max temp

- For information about the flap function, refer to the users' manual of the unit being used.
- (These settings are saved in nonvolatile memory in the remote control, so even when its batteries are changed, the settings do not have to be made again.)
- First check the display of the remote control when the unit is stopped and then make any desired settings.

How to Operate

- While holding down the buttons below, every time ⊃/⊂⊃ is pressed the remote control's display changes.
- Whatever is being displayed when you release ⊃/⊂⊃ is set.

Setting Item	Operation Button	Setting Content	Remote Control Display
Remote control flap display setting for when ⌐ is pressed	Press ⊃/⊂⊃ while pressing ⌐ ○	Models with movable flaps	⟋⟍ SWING
		Swing only models	SWING
		Models w/o lamps	None
Remote control operation mode display setting when ▦ is pressed	Press ⊃/⊂⊃ while pressing ▦	Heat Pump (with Auto)	Ⓐ ◊ ☀ ❄ ❄
		Heat Pump (without Auto)	◊ ☀ ❄ ❄
		Dedicated air conditioner	◊ ❄ ❄
Clock display setting	Press ⊃/⊂⊃ while pressing ⏱	24 Hour	23:59
		AM/PM	PM 11:59
Max possible temperature setting in the Heat mode	Press ⊃/⊂⊃ while pressing 🌡 △	Maximum heating temperature range is 26°C – 30°C	26→27→28 ⌐30←29⌐

8

8-15. Before Requesting Service

Before requesting service, please check the followings.

Problem	Cause	Solution
The unit doesn't work even when ⏻ is pressed on the remote control.	The power to the indoor unit is not ON.	Make sure the power to the indoor unit is ON.
	Is the Normal/Stop All switch in the Stop All (See Page 8-4)position?	Switch it to the Normal position and cancel operation.
	Are the remote control's batteries dead?	Change the batteries.
	Is there a mismatch between the display lamp and cooling/heating or is it set to something other than Auto? (The operating lamp stays lit, while the timer lamp and the standby lamp blink alternately.)	Change the operating mode.
	Do the addresses match one another?	Check the addresses of the receiver and the remote control. (See Page 8-8)
The air conditioner starts and stops on its own.	Has the timer been set to repeat?	Check the timer settings.(See Page 8-6)
"𝐸𝑃" is displayed on the remote control when the unit is stopped.	An error has occurred in the non-volatile memory.	Please contact your sales outlet.
Although the unit is for air conditioning only, either Auto or Heat is indicated in the display.		Make settings to the remote control's operation mode display. (See the previous page.)
After putting the batteries in the remote control, even when it is operated, the display does not change.		Press the Reset button on the remote control. (See Page 8-5)
The timer cannot be set.		Make the settings when the remote control is in Operation Display. (See Page 8-6)

If the problem persists even after you check the foregoing items, stop the unit, disconnect the power to the indoor unit and contact the dealer where the product was purchased with the model number and problem you are having.
As it is dangerous, under no circumstances should you undertake repairs yourself.
Further, when the receiver's lamps are blinking; please contact your retailer with that information.

8-16. How to Install the Wireless Remote Controller Receiver

1. Warning about Installation of Receivers

The wireless remote uses a very weak infrared light for its signal, which can result in the signal not being received because of the following influences, so take care in where the unit is installed.
   • Inverter or rapid-start type fluorescent lights. (Models without glow lamps)
   • Plasma display or LCD televisions.
   • Direct sunlight or other sources of bright light.

2. Warning about Installing Remote Controls

(1) If a remote control is to be operated from a remote control holder that is hung on a wall, turn on the lights in the room as well as any electrical appliances and then check to make sure the air conditioner works with the remote control in the location where it will be installed. If it works, continue with installation.

(2) If the air conditioner is to be switched from the main sensor to a remote control sensor, pay attention to the following when installing.
   • Locate where no warm or cold drafts will affect it.
   • Locate in a place free from direct sunlight.
   • Locate where it will not be affected by any other heat/cold source.

8

3. Things to remember when wired and wireless remotes are installed at the same time

Two remote controls can be used to control the unit if the wireless remote control kit is installed at the same time as the wired remote control. (Up to 2 remotes [a wireless remote kit and the wired remote control] can be installed.)
When using 2 remotes, one or more units can be operated by the remotes.

NOTE

1. When wiring remote controls, be sure to double-check the terminal numbers of the indoor unit before connecting them so there are no mistakes in the wiring. (Damage will occur if high voltage [e.g. supply voltage] is applied.)
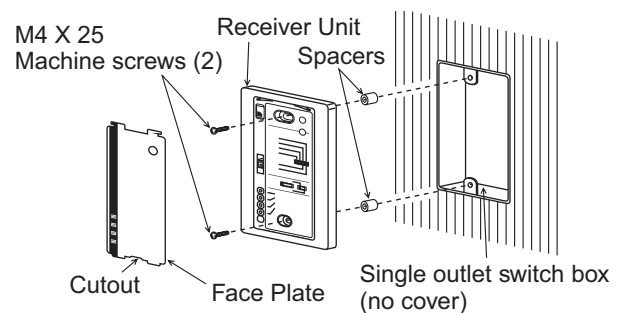2. It is not possible to use more than one wireless remote control kit with one indoor unit.
   (A receiver located separately can be used at the same time.)
3. If both a wireless and a wired remote control are to be installed and used at the same time, one of them must be set up as the sub remote control.
• If the wired remote control is to be the sub remote, change the wired remote control to the sub remote.
• If the wireless remote control is to be the secondary, turn the #3 switch on the wireless receiver (operation panel) from OFF to ON.

When 1 indoor unit is operated by 2 remote controls:
※ Either of the remotes can be set to main/sub.
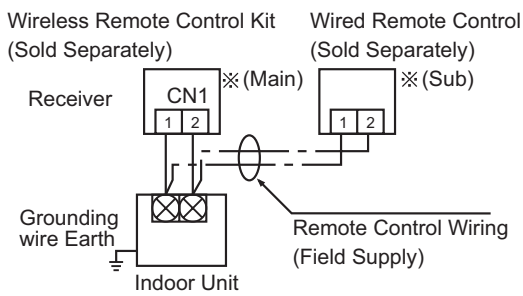
Wireless Remote Control Kit (Sold Separately)   Wired Remote Control (Sold Separately)
Receiver   CN1   ※(Main)   ※(Sub)
1 | 2   1 | 2
Grounding wire Earth   Remote Control Wiring (Field Supply)
Indoor Unit

• Use wiring of 0.5 mm^2 to 2 mm^2 for field supply.
• Use a total wire length of no more than 400 m.

CZ-RWSC2

RCU: MAIN
→ RCU: SUB

ALL·○
RCU : SUB
PCB CHK.
TEST RUN

RCU : MAIN
NORMAL

If a group of units are to be controlled by 2 remote controls;
※ Main/sub remote controls will work regardless of which indoor unit they are installed to.

Cross-wiring Remotes for Group Control (Field Supply)
Wireless Remote Control Kit   Wired Remote Control
CN1   ※(Main)   ※(Sub)
1 | 2   1 | 2
Grounding wire Earth
1st Indoor Unit   2nd Indoor Unit   3rd Indoor Unit   4th Indoor Unit
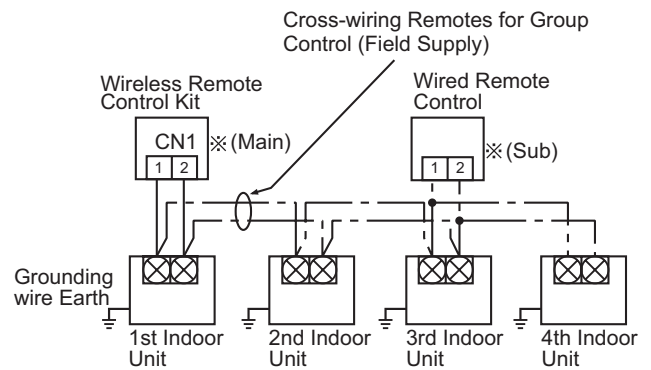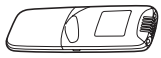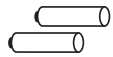
• Use wiring of 0.5 mm^2 to 2 mm^2 for field supply.
• Make the total wire length when cross-wiring a group no more than 200 m.

8
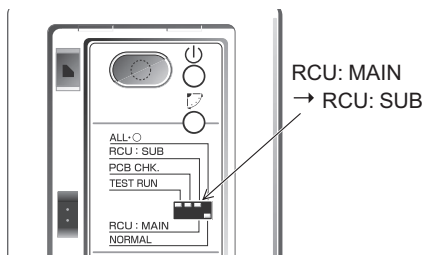
4. Accessories

No.	Accessories	Quantity
1	Receiver (Enclosed 200 mm wiring)	1
2	Remote controller	1
3	Remote controller's holder	1
4	AAA alkaline batteries	2

No.	Accessories	Quantity
5	Users Manual	1
6	Truss self-tapping screws 4 X 16	2
7	Machine screws	2
8	Wood screws	2
9	Cable tie	1

5. Installing the Receiver Unit

When using a separately installed receiver as a built-in model, install it to the JIS switch box (field supply) shown in the diagram on the right, which has been built into the wall on site in advance.

(1) Remove the face plate of the receiver by slipping a flathead screwdriver or the like into the cutout on the bottom.

(2) Install the receiver with the 2 enclosed machine screws (M4).

(3) Connect the receiver's wiring (2 cores) with the wiring from the indoor unit. (Refer to the chapter on wiring the receiver) When wiring receivers, be sure to double-check the terminal numbers of the indoor unit before connecting them so there are no mistakes in the wiring. (Damage will occur if high volt-age [e.g. supply voltage] is applied.)

(4) Attach the face plate.

M4 X 25 Machine screws (2)   Receiver Unit   Spacers

Cutout   Face Plate   Single outlet switch box (no cover)

Fig. 8-1

• When using a separately installed receiver as an exposed model, attach it to a wall where the receiver can be affixed.

(1) Put a flathead screwdriver or the like into the groove on the bottom of the receiver unit and twist it to remove the bottom of the case. (Fig. 8-2)

(2) To enable the receiver's wiring to stick out from the upper part of the case (thin part at center-top), use side-cutters or the like to cut a hole in the case big enough for the remote control cord (sold separately). (Fig. 8-3)

(3) Disconnect the wires that were connected at shipment from the connector.

(4) After installing the remote control cord (sold separately) at the position in Fig. 8-4 with the enclosed cable tie, connect it to the connector on the receiver.

(5) Shape the remote control cord at the top of the PCB so it fits inside the receiver and after configuring the wiring like it is in Fig. 8-5, attach the lower case. When doing this, arrange the head of the cable tie so it faces side-ways.

(6) Remove the face plate and use the wood screws (2) to install the receiver unit.

(7) Use the cord clip that comes enclosed with the remote control cord to fasten it to the wall.

(8) Attach the face plate.
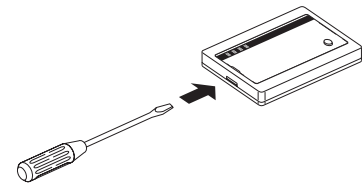
Fig. 8-2

Outlet in the upper part of the case for the remote control cord

Fig. 8-3

Cable tie (Enclosed)

About 2 to 3 mm

Connector   Remote control cord (Sold separately)

Fig. 8-4

Remote control cord (Sold separately)

Wood screws (2)   Receiver unit

Cable tie (Enclosed)

Fig. 8-5

8
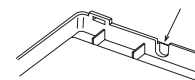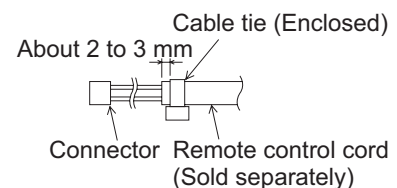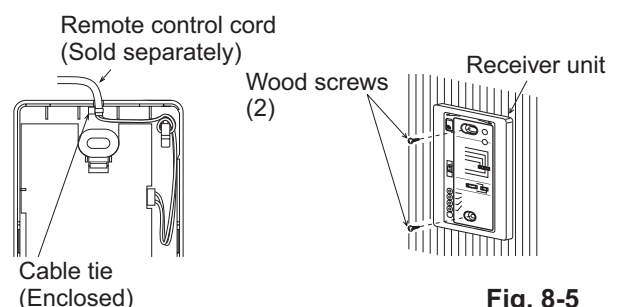
When using a receiver that has been installed separately into the ceiling, use the enclosed fittings for installing to a ceiling.

(1) Remove the metal plate of the receiver by slipping a flathead screwdriver or the like into the cut-out on the bottom.

(2) Cut out a hole in the ceiling to match the dimensions of the enclosed template. (95 X 51 mm)

(3) Pass the wiring through the enclosed installation metal fitting and put it into the hole. (Fig. 8-6)

(4) Bend parts A and B of the metal fitting so they hold onto the ceiling firmly. (Fig. 8-7)

(5) Connect the receiver's wiring (2 cores) with the wiring from the indoor unit. (Refer to the chapter on wiring the receiver.) When wiring receivers, be sure to double-check the terminal numbers of the indoor unit before connecting them so there are no mistakes in the wiring. (Damage will occur if high voltage [e.g. supply voltage] is applied.)

(6) Adjust the enclosed spacers so they are several millimeters thicker than the ceiling material and hold the receiver in place temporarily with the 2 enclosed machine screws. (M4 X 40)

(7) Bend parts A and B back so they fit in the opening and are in the gap between the surface of the ceiling and the receiver; then tighten the screws. Do not use too much force when tightening the screws. Doing so may warp or damage the case. Move the receiver by hand and check that it can move just a little. (Fig. 8-8)

(8) Attach the face plate.

Fig. 8-6

Part A
Part B
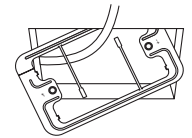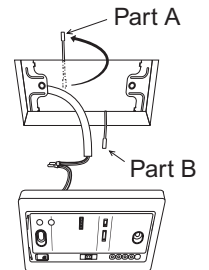
Fig. 8-7
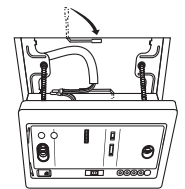
Fig. 8-8

6. Wiring the Receiver

• Use wiring of 0.5 mm^2 to 2 mm^2 for field supply.

• Use a total wire length of no more than 400 m. Polarity does not matter.

If it is to be used as an embedded model ;
Wiring Diagram

Terminal strip for wiring the remote control of the indoor unit

Connections

1 ⊕
2 ⊕

White   1
Black   2

Receiver

Receiver wires (Field supply)

Wires from the receiver unit

Enclosed wire joints (2, white)
Receiver wires (Field supply)

Receiver wires (Field supply)

Wire joint CE-1 (Enclosed)
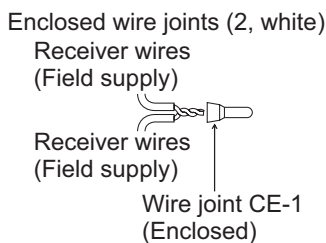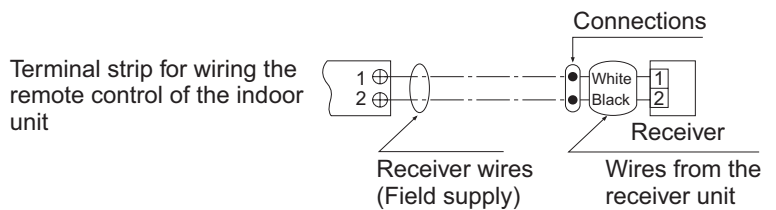
1. Strip the wire to be connected of its sheathing for 14 mm.
2. Twist the two wires together and crimp the enclosed wire joint.
3. If a special crimping tool is not used, or if the connection is made using solder, wrap the joint with insulating tape.

If it is to be used as an exposed model :
Wiring Diagram

Terminal strip for wiring the remote control of the indoor unit

1 ⊕
2 ⊕

White   1
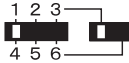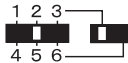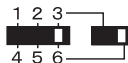Black   2

Receiver

Remote Control Cord (Sold Separately)
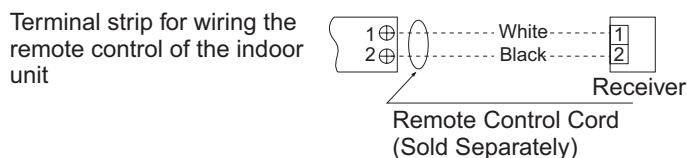
• Use remote control cord (sold separately) for wiring a separately installed receiver.

(1) For instructions on how to install a remote control cord (sold separately), refer to the chapter on Using as an Embedded Model in Installing Separate Receivers.

(2) If a remote control cord (sold separately) is to be used, refer to the Mounting Instructions attached to the remote control cord.

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1. When wiring remote controls, be sure to double-check the terminal numbers of the indoor unit connecting them so there are no mistakes in the wiring. (Damage will occur if high voltage [e.g. supply voltage] is applied.)
2. If the wiring to the operation panel is bundled together with other wiring, such as the incoming line from the power source, it can cause a malfunction, avoid doing so.
3. If something causes the unit's power source to make noise, it will be necessary to resolve the problem, such as by installing a noise filter.

7. Setting Address Switches

- When more than one receiver and remote control are installed in the same room, setting up addresses allows them to avoid interfering with each other.
- Refer to the Users Manual for information on how to change the addresses of the remote controls.
- Changing the address of a receiver can be done after removing the screw to the receiver's PCB cover.
  Once the change is complete, put the cover back in place; while holding the wiring with the cable clamp, tighten its screw.

Address Display on the Remote Control	ALL	1	2	•••••	6
Position of the Receiver's Address Switch	It doesn't matter where the Receiver's Address Switch is.	1 2 3 / 4 5 6	1 2 3 / 4 5 6	•••••	1 2 3 / 4 5 6

8. Test Operation

(1) Remove the face plate of the receiver's PCB and turn the DIP switch to RUN/On (Down → Up) and operate the wireless remote control with its Start/Stop button.
(2) During a test run, all display lamps on the display will light up.
(3) During a test run, it is not possible to adjust the temperature.
(4) After completing a test run, be absolutely sure to return the Test Run switch to OFF (Up → Down) and make sure none of the display lamps are blinking. Also, put the face plate back in place.

NOTE

1. This is hard on the device, so only use this for the test run.
2. After turning on the power, the unit will not receive any commands from the remote control for about 1 minute. This is not an error. (In fact it does receive signals, but they are cancelled.)
3. Make sure to operate while the indoor unit is stopped.
4. The address of indoor unit is set to "ALL" at the time of the shipment.

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9. The Self-Diagnosis Function Display and What is Detected

Alarm Display in the table below indicates the content of alarms that are displayed when a wired remote control is connected. For information on how to deal with the alarms, refer to the Mounting Instructions for the indoor unit or to Test Run or servicing materials.

Error Detected		WL Remote Control LED Display			
	Alarm Display	Run	Timer	Standby	Blinking
Communication error in the remote control circuit	E01–E03, E08–E14, E17, E18	◎	●	●	
Communication error either in the in/outdoor operation line or the sub-bus of the outdoor unit	E04–E07, E15, E16, E19–E31	●	●	◎	
Operation of indoor protection device	P01, P09–P14	●	◎	◎	Alternately
Operation of outdoor protection device	P02–P08, P15–P31	◎	●	◎	Alternately
Error in the indoor thermistor	F01–F03, F10–F11	◎	◎	●	Alternately
Error in the outdoor thermistor	F04–F09, F12–F28	◎	◎	○	Alternately
Error in the indoor EEPROM	F29	◎	◎	●	Simultaneously
Error in the outdoor EEPROM	F30, F31	◎	◎	○	Simultaneously
Error related to the compressor	H01–H31	●	◎	●	
Error in indoor settings	L01–L03 L05–L09	◎	●	◎	Simultaneously
Error in outdoor settings	L04, L10–L31	◎	○	◎	Simultaneously
Inconsistency in Air/Heat (Including an auto-temp setting for a model without auto-temp settings)		○	◎	◎	Alternately
Oil Alarm (Same as operation of outdoor protection device)		◎	●	◎	Alternately
Test Run		◎	◎	◎	Simultaneously

● : Off / ○ : On / ◎ : Blinking (0.5 sec. intervals)

When using CZ-RWSC2

If you have either an outdoor maintenance remote control or a wired remote control and a service checker special wiring (CV6231785082 : for service use) at hand, you can get more detailed information about an alarm by connecting one to the service connecter as in the diagram. For information such as how to connect to receivers, etc., refer to the Users Manual that came attached with the service checker special wiring.

Service Connector
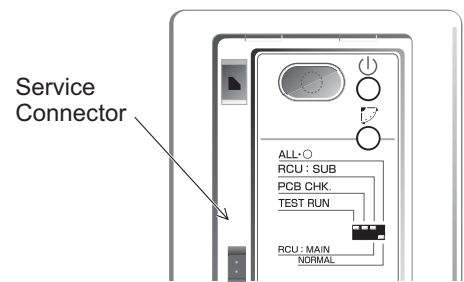
Fig. 8-9

10. Room Temperature Sensor Settings

- The indoor unit and the wireless remote control are equipped with indoor temperature sensors. The sensing of indoor temperature works via one of them.
- When the unit is shipped, it is set to the indoor unit, but to switch to the remote control, press the Sensor button (diagram at right) inside the remote control's cover and then check to make sure that Main Sensor on the LCD screen goes off.

NOTE

Even when the Sensor switch has been set to the remote control, if the unit does not receive any room temperature data from the remote control for ten minutes, it automatically switches back to the indoor unit sensor, so be sure to install the remote control facing the receiver.
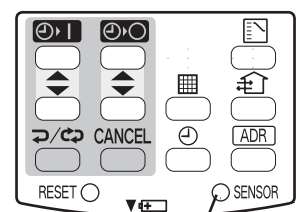
Sensor Button

Fig. 8-10

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11. Setting Up Remote Control Functions

The functions of the wireless remote can be set on site.
(These settings are saved in nonvolatile memory in the remote control, so even when its batteries are changed, the settings do not revert to the defaults.)
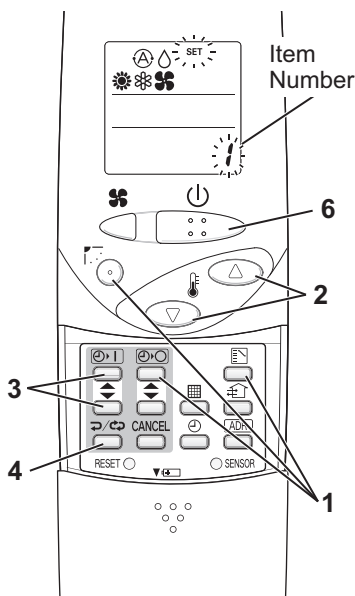
NOTE

The operation of the air conditioner can be impacted, depending on the settings made, so only service personnel should make the settings.
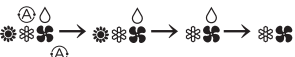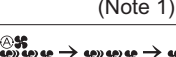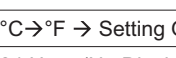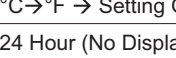Furthermore, making changes to these settings may cause actual operation to deviate from what is printed in the Users Manual, so be sure to explain this to the customer fully.
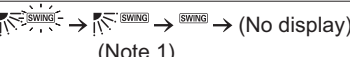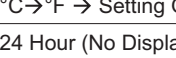
Making Settings (Do with unit stopped)

(1) Holding down the Swing/Wind Direction + OFF Timer [▲] + Mode Select buttons at the same time for 4 or more seconds makes the Display switch to the setting screen. (See diagram below.)
(2) Use the Temperature setting buttons, (△) / (▽) , to select the number of the item to be set.
(3) Use the ON Timer buttons, [▲] / [▼] , to change settings.
(4) The settings are saved with the Once/Every Day button. When this is done, the settings display of the LCD changes from blinking to light.
(5) If other settings are to be changed as well, repeat steps 2 to 4.
(6) When all settings have been made, press the Start/Stop button.

Example: Operation mode setting screen

Item Number & Setting Item		Setting Content	Setting when Shipped
1	Operation Mode	❄☀💧🌀 → ☀💧🌀 → 💧🌀 → ❄🌀 → ❄☀🌀 → ☀❄🌀	❄☀💧🌀
2	Flap Display	(SWING blinking) → (SWING) → (SWING) → (No display) (Note 1)	(SWING)
3	Select Fan Speed	🌀🌀🌀 → 🌀🌀 → 🌀 → (No display)	🌀🌀🌀
4	Display of Set Temperature	°C→°F → Setting Off (Note 2)	°C
5	Time Display	24 Hour (No Display) →AM/PM	24 Hour
6	Ventilation Fan ON/OFF	Off (No Display) →On	OFF(Note 3)
7	Cool temp Max	18 – 30°C	30
8	Cool temp Min	18 – 30°C	18
9	Heat temp Max	16 – 30°C	30 (Note 4)
10	Heat temp Min	16 – 30°C	16
11	Dry temp Max	18 – 30°C	30
12	Dry temp Min	18 – 30°C	18
13	Auto temp Max	17 – 27°C	27
14	Auto temp Min	17 – 27°C	17
16	Address Setting Max Value	00 (ALL only) → 01 – 31	06 (Note 5)
17	Heat temp Max ON/OFF	JP (Heater Max Temp Change Off) → EP (On)	JP

NOTE

(1) While the unit is in the swinging mode (Swing/Wind Direction), the flap cannot be stopped in a desired position.
(2) When Setting OFF is selected, "°C" is displayed on the LCD screen.
(3) You can toggle between ON and OFF by pressing Ventilation for 4 seconds or more.
(4) If the Heater Max ON/OFF setting is not changed to EP (ON), the setting change will not be reflected.
(5) This is the number of addresses that can be set in the address change mode. Do not set it to 07 or above.

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