■ **Functions on the ordinary display**

(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
- Double-speed operation of indoor units (Do not use for actual operation. Doing so 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
- Display of individual outdoor unit alarms
- Total operating time of outdoor unit compressors
- Oil level of the outdoor unit oil sensor
- Total outdoor unit power ON time
- Outdoor unit microcomputer version, other information

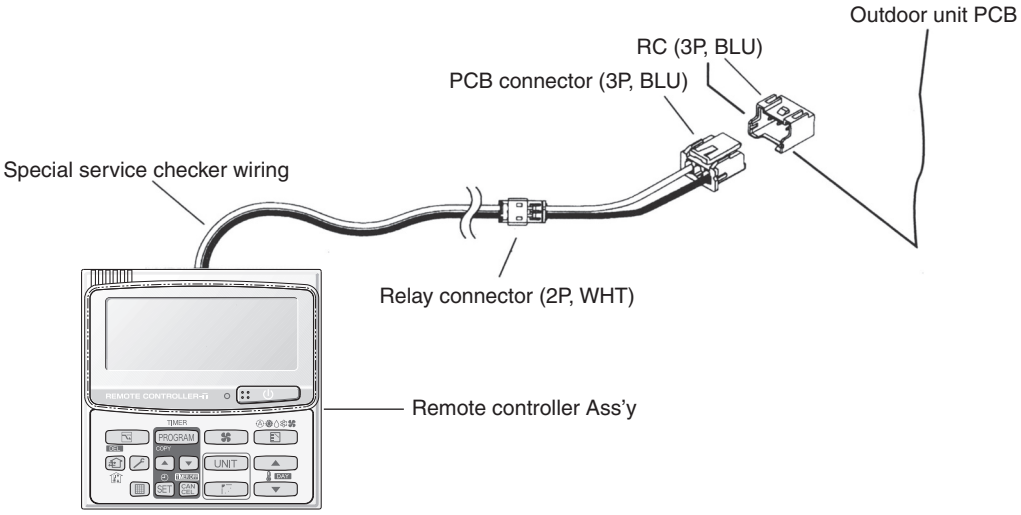
■ **Temperature monitor**
- Displays the indoor/outdoor unit sensor temperatures.

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

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

■ **Functions on the ordinary display**

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



- If the communications line in the inter-unit control wiring is connected, it can be left as-is.
- In case of an independent outdoor unit (1 maintenance remote controller connected to 1 outdoor unit, automatic address setting for indoor units not completed), both setting mode 1 and setting mode 2 can be used.
- The overall system status for that refrigerant system is displayed.

4

- **All units start/stop (Fig. 1)**

<Operation>

The (ON/OFF operation) button can be used to start and stop all the indoor units.

- The LED illuminates if any indoor units is operating.
- The LED blinks if an alarm at any of the operating indoor units occurs.

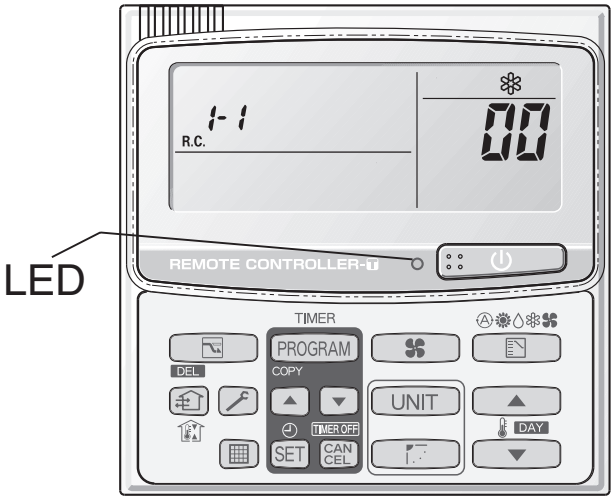


Fig. 1

- **Cooling/heating change (Fig. 1)**

<Operation>

The (MODE) button can be used to change between heating and cooling operation.

- The display indicates the operating mode of the indoor unit with the lowest unit No.

- **All units test run (Fig. 2)**

<Operation>

The (CHECK) button can be used to start and stop a test run for all indoor units.

- Press and hold for 4 seconds to turn ON. During the test run "TEST" is displayed.
- The status of test runs performed from the indoor unit remote controller is not displayed on the outdoor unit maintenance remote controller.

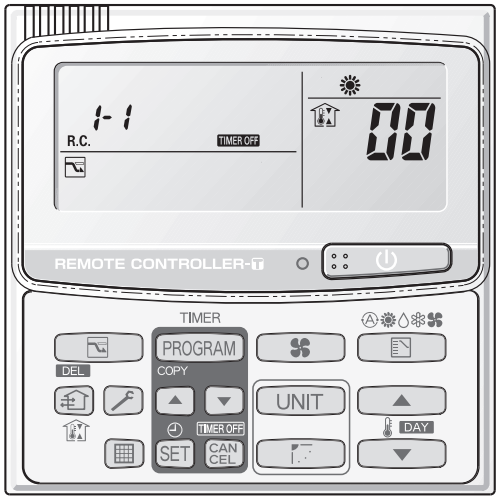
Fig. 2

- **Double-speed**
  - Do not use for actual operation. (Doing so may damage the devices.)

<Operation>

The timer button can be used to change between double-speed and normal operation.

- During double-speed operation, the SLEEPING MODE mark is displayed.



4

■ **Display (functions)**

• Use the temperature setting ▲ and ▼ buttons to change the item code.

Item code	Item	Remarks
00 ①	Outdoor unit alarm ②	Alarm code display
01	No. of connected indoor units	Quantity
02	Unit Nos. of connected indoor unit	7-segment display
03	Operating status of indoor unit	7-segment display
04	Thermostat ON status of indoor unit	7-segment display
05	No. of connected outdoor units	1 – 4
06	Unit Nos. of connected outdoor units	7-segment display
07	Operating status of outdoor unit compressor	7-segment display
08		
09		
10	Compressor 1 operating time	0 – 99999999 hrs
11	Compressor 2 operating time	0 – 99999999 hrs
12	Compressor 3 operating time	
13	Compressor 1 oil level	0 = Empty 1 = Insufficient 2 = Sufficient
14	Compressor 2 oil level	0 = Empty 1 = Insufficient 2 = Sufficient
15	Compressor 3 oil level	
16	Outdoor unit power ON time	0 – 99999999 hrs
17	Compressor 1 operation count	0 – 65535 times
18	Compressor 2 operation count	0 – 65535 times
19	Compressor 3 operation count	
F0	Alarm history 1 (most recent)	Display only. Alarm code and unit No. of unit where alarm occurred are displayed alternately. 0 = CCU 1 – 4 = Outdoor unit
F1	Alarm history 2	
F2	Alarm history 3	
F3	Alarm history 4	
F4	Alarm history 5	
F5	Alarm history 6	
F6	Alarm history 7	
F7	Alarm history 8 (oldest)	
FE	Firmware version	Display the version No. × 100.
FF	Program version	Display the version No. × 100.

(3) XX-YY R.C.

Displays the outdoor unit sub-bus address which is currently selected.
XX = Outdoor system address on main bus line (1 – 30)
YY = Outdoor unit sub-bus address (1 – 8).
"1" appears when there is only 1 outdoor unit.

Locations where ①, ②, and ③ are displayed as shown in Fig. 3.

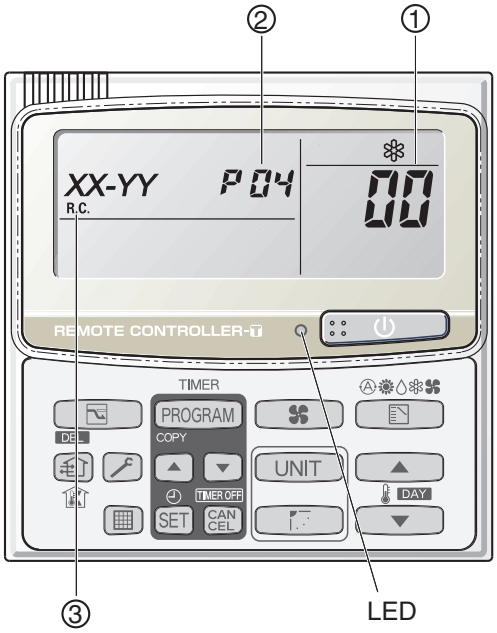
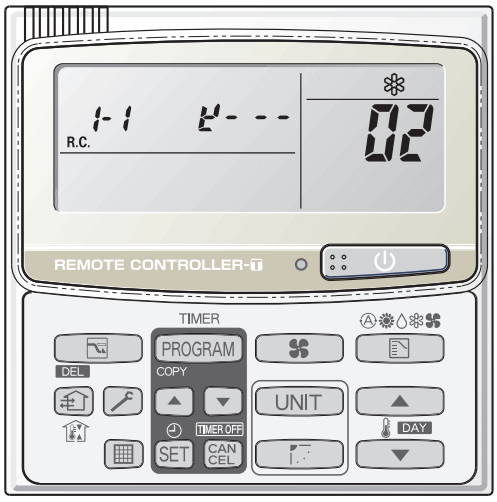


Fig. 3

<Sample displays>

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

Fig. 4



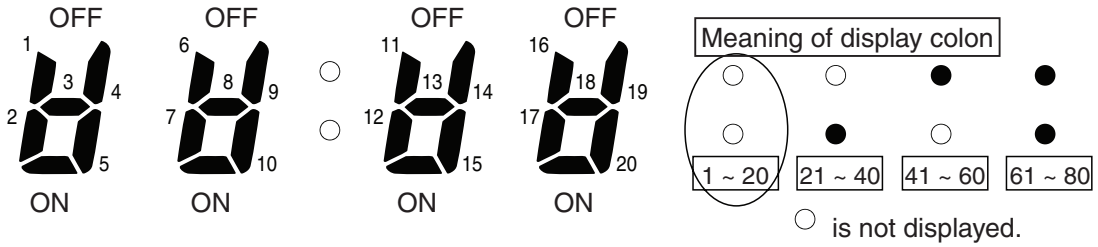
02: <Unit Nos. 1, 2, 3, and 4 are connected>

Fig. 5

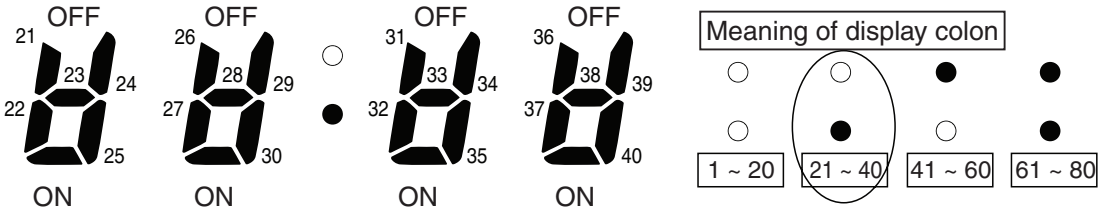
■ **Concerning the 7-segment, 4-digit display remote controller timer display**

The unit Nos. of connected units are indicated by four 7-segment digits (88:88) and a colon.

- **Display of unit Nos. 1 – 20**



- **Display of unit Nos. 21 – 40**



- The meaning of the colon changes in the same way to indicate unit Nos. up to 80.
- Sample displays of the connected indoor unit Nos.:

• Display of unit No. 1

• Display of unit Nos. 1 and 2

• Display of unit Nos. 1, 2, and 3

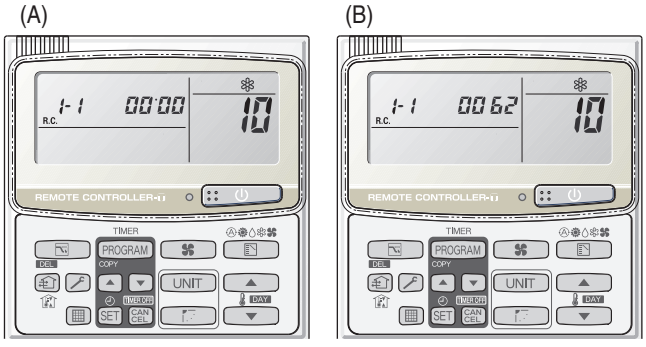
• Display of unit Nos. 1, 2, 3, and 4

NOTE

The change of the colon display (between unit Nos. 1-20 to unit Nos. 21-40) occurs automatically every 10 seconds. (However the display does not change if there are no higher-number units connected.) To change the display to the higher-number units before 10 seconds have passed, press the (FLAP) button.

■ **The total compressor operating time is displayed (in 1-hour units) using 8 digits.**

- When the first 4 digits are displayed, the top dot of the colon is illuminated. (Figure (A))
- When the last 4 digits are displayed, the colon dot is OFF. (Figure (B))
- The display of the first 4 digits and last 4 digits changes automatically after 10 seconds. The display can also be changed by pressing the (FLAP) button.



10: <Compressor's total operating time>
(A) and (B) are displayed alternately.
(The example here (0000, 0062) indicates 62 hours.)

NOTE

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

4. Monitoring Operations

Display the indoor unit and outdoor unit sensor temperatures.

<Operating procedure>

① Press and hold the (CHECK) button and CANCEL buttons simultaneously for 4 seconds or longer to engage temperature monitor mode.

During temperature monitoring, is illuminates.

(The display and operations are the same as for monitor mode using the indoor unit remote controller.)

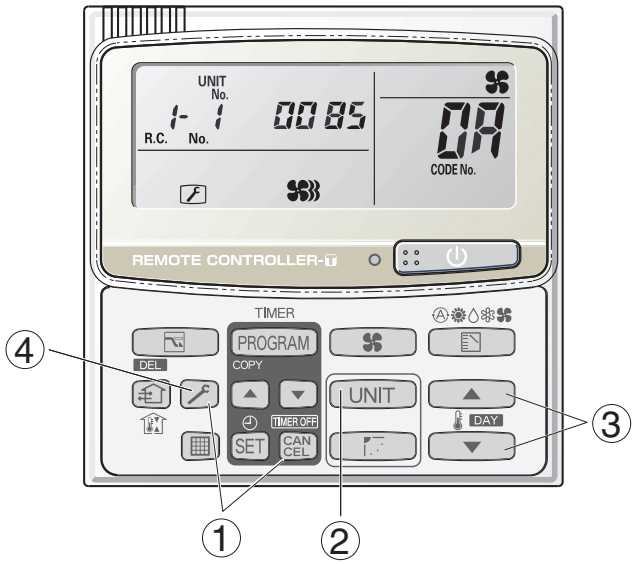
② Press the UNIT button and select the indoor unit to monitor.

③ Press the temperature setting ▲ and ▼ buttons and select the item code of the temperature to monitor.

The unit No. of the selected indoor unit, and the temperature data, are displayed.

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

NOTE The display does not blink.



4

■ **Display of unit No. 1 (main unit)**

DN	Description	Remarks	
02	Intake temp.	°C	
03	E1	°C	
04	E2	°C	
05	E3	°C	**Indoor unit**
06	Discharge temp.	°C	
07	Discharge temp. setting	°C	
08	Indoor unit electronic control valve position	STEP	
0A	Discharge temp. 1	°C	
0b	Discharge temp. 2	°C	
0C	High-pressure sensor temp.	°C	
0d	Heat exchanger gas 1	°C	
0E	Heat exchanger liquid 1	°C	
0F	Heat exchanger gas 2	°C	
10	Heat exchanger liquid 2	°C	
11	Outdoor air temp.	°C	
12	Not used		
13	Inverter primary current	A	
14	CT2	A	**Outdoor unit**
15	MOV1 pulse	STEP	
16	MOV2 pulse	STEP	
17	Discharge temp. 3	°C	
18	CT3	A	
19	MOV3 pulse	STEP	
1A	MOV4 pulse	STEP	
1b	Heat exchanger gas 3	°C	
1C	Heat exchanger liquid 3	°C	
1d	Low-pressure sensor temp.	°C	
1E	Suction temp.	°C	
1F	Oil 1	°C	
20	Oil 2	°C	
21	Oil 3	°C	
22	Actual operating frequency	Hz	

NOTE

0A and subsequent items are outdoor unit data. 0A – 22 are for unit No. 1.
2A – 42 are for unit No. 2. 4A – 62 are for unit No. 3. 62 – 89 are for unit No. 4.

5. Outdoor Unit Alarm History Monitor

- Displays outdoor unit alarms only.
- Check the indoor unit alarm histories separately using the indoor unit remote controllers or other control device.

<Operating procedure>

① Press and hold the (CHECK) button and SET button simultaneously for 4 seconds or longer to engage outdoor unit alarm history mode.

During temperature monitoring, illuminates.

The display and operations are the same as for the alarm history monitor performed from the indoor unit remote controller. However the “unit No.” display shows the outdoor unit address.

② Press the UNIT button and select the outdoor unit for which to monitor the alarm history.

③ Press the temperature setting ▲ and ▼ buttons and select the item code for the alarm history.

The select outdoor unit address, the item code, and the alarm history (alarm data) are displayed.

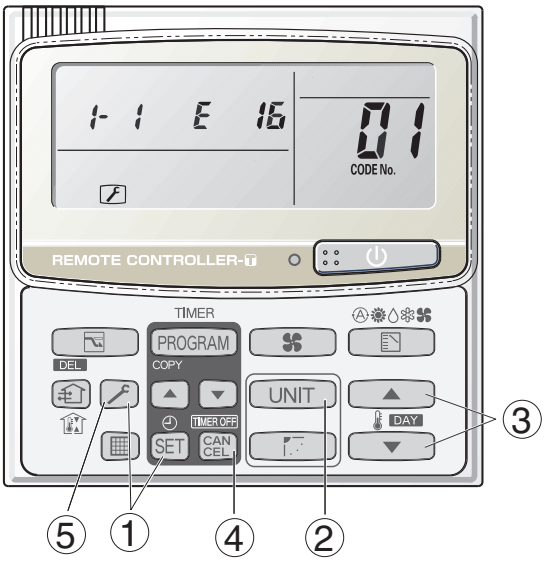
The outdoor unit address is displayed as R.C. XX-YY.
System XX = Outdoor unit system address
R.C. XX = Outdoor unit system address
YY = Outdoor unit sub-bus address

Item codes 01-08 are displayed. 01 indicates the most recent alarm.

The alarm history displays the alarm code. (If no alarm are present, then -- -- is displayed.)

④ To clear the alarm history, press the CANCEL button. (The outdoor unit alarm history will be cleared.)

⑤ To exit, press the (CHECK) button. The display returns to the normal display.



4

■ **Setting mode 1**

<Operating procedure>

① Press and hold the (CHECK) button and (VENTILATION) button simultaneously for 4 seconds or longer.

② Press 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 Press the timer time ▲ and ▼ buttons to change the setting data.

To confirm the changed setting data, press the SET button.

(At this time, "SET DATA" display stops blinking and remains lit.)

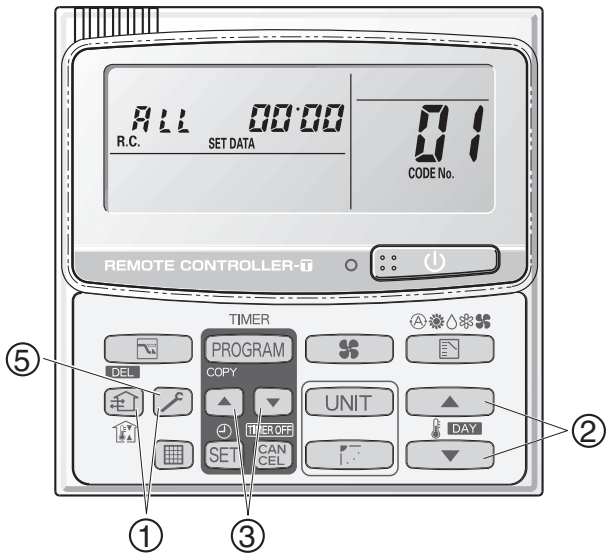
④ During this mode, "SET DATA" is displayed, blinking. The outdoor unit address display section displays "ALL," the item code and number (DN value in the table), and the setting data (8 digits).

(The setting data is displayed in 8 digits. The display changes between the first 4 digits (Fig. Ⓐ) and the last 4 digits (Fig. Ⓑ).

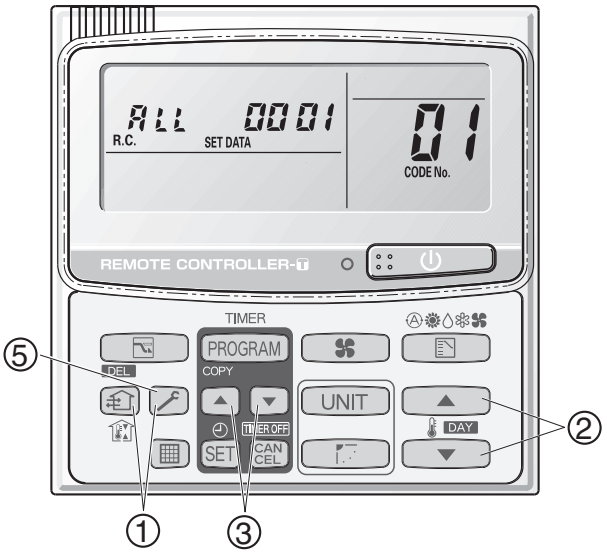
When the first 4 digits are displayed, the top dot of the colon is illuminated.)

⑤ To exit the setting mode, press the (CHECK) button.

Ⓐ **Display of first 4 digits**



Ⓑ **Display of last 4 digits**



Ⓐ and Ⓑ are displayed alternately.
(Example shows display of 0000 0001.)

DN	Parameter	Description
04	Snowfall sensor usage	0 = Sensor input not present. Control is performed. 1 = Sensor input present. Control is performed. 2 = Sensor input not present. Control is not performed. 3 = Sensor input present. Control is not performed.
05	Outdoor unit fan Quiet mode	0 = Disabled 1 = Quiet mode 1 2 = Quiet mode 2 3 = Quiet mode 3 4 = Quiet mode 4
18	Energy saving mode	0 = None 1 = Discharge temp. control only (Mode 3) 2 = Demand only (Mode 2) 3 = Discharge temp. control + Demand (Mode 1)
19	Energy saving operation plug	0 = Independent 1 = All indoor units linked
1A	Demand 1 current	0 = 0% 1 = 40 … 4 = 70 7 = 100 8 = 120 9 = 140 10 = 160 11 = 200 12 = –1 (no limit)
1b	Demand 2 current	0 = 0% 1 = 40 … 4 = 70 7 = 100 8 = 120 9 = 140 10 = 160 11 = 200 12 = –1 (no limit)

■ **Setting mode 2**

<Operating procedure>

① Press and hold the (CHECK) button, SET button, and CANCEL button simultaneously for 4 seconds or longer.

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

③ Press the timer time ▲ and ▼ buttons to change the setting data. To confirm the changed setting data, press the SET button.

(At this time, “SET DATA” display stops blinking and remains lit.)

④ During this mode, “SET DATA” 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 (8 digits).

(The setting data is displayed in 8 digits. The display changes between the first 4 digits (Fig. Ⓐ) and the last 4 digits (Fig. Ⓑ). When the first 4 digits are displayed, the top point of the colon is lit.)

⑤ To exit setting mode, press the (CHECK) button. Returns to the normal display mode.

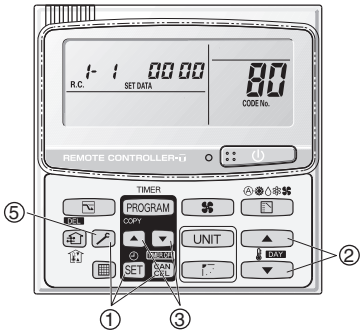
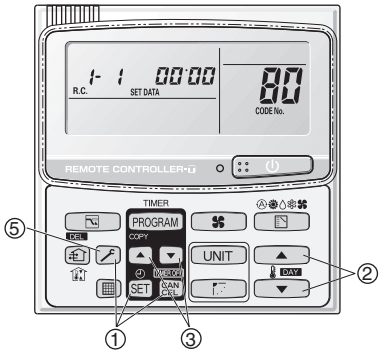
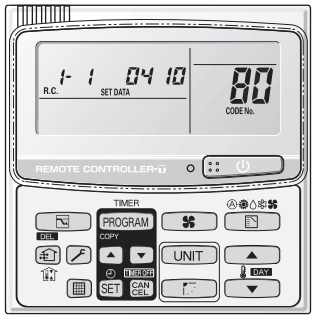


Fig. 7

Ⓐ **Display of first 4 digits**



Ⓑ **Display of last 4 digits**



: **<Refrigerant type>** Ⓐ and Ⓑ are displayed alternately. (Example shows 0000 0410 (R410A).)

List of Item Codes

DN	Parameter	Description
81	Outdoor unit capacity	0 = Disabled, 224 =8HP Type, 280 = 10HP Type, 355 = 12HP Type, 400 = 14HP Type, 450 = 16HP Type, 500 = 18HP Type, 560 = 20HP Type

5. REMOTE CONTROLLER FUNCTIONS

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 "SET DATA," unit No. "1- 1" (or "ALL" in the case of group control), item code "01," and settings data "0000" are displayed blinking on the remote controller LCD display (Fig. 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.

[Remote Controller Functions Section]

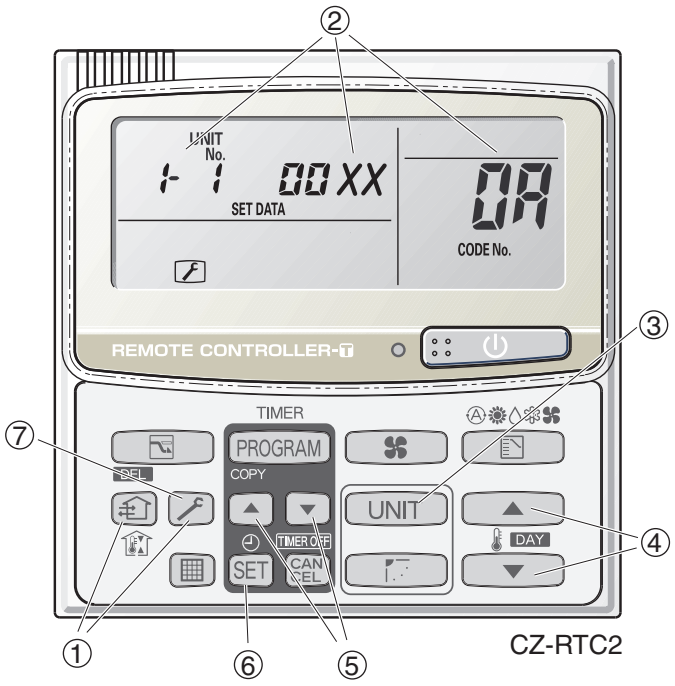


Fig. 1

5

1. Simple Settings Function

List of Simple Setting Items

Item code	Item	Setting data		
		No.	Description	
01	Filter sign ON time (fitlter 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.
- The 10-hp 4-way ceiling cassette has 2 indoor unit addresses. Set both of them.

2. 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 [CANCEL] buttons simultaneously for 4 seconds or longer.

② "SET DATA," unit No. " 1- 1 " (or " ALL " in the case of group control), item code " 10 ," and settings data " 00XX " are displayed blinking on the remote controller LCD display (Fig. 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.

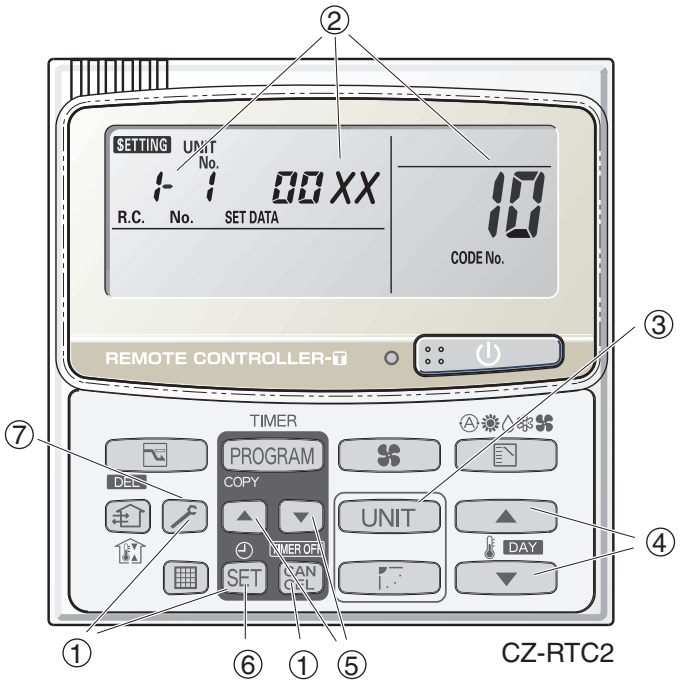
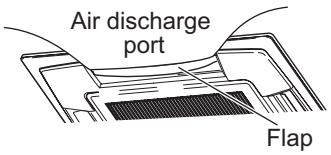


Fig. 2

5

- Setting the Flap Separately (When setting the CZ-RTC2)
  1) The 4-air outlet flap can be adjusted separately during operation. When not adjusted separately, all flaps operate in the same manner.



(adjustment for up-down airflow direction)

<Procedure>

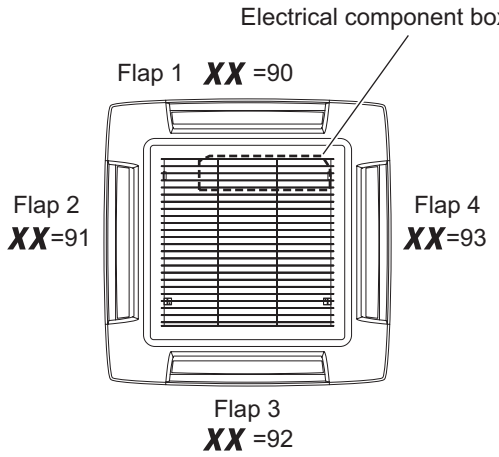
Stop the system before performing these steps.

① Press and hold the [wrench], [SET] and [CANCEL] buttons simultaneously for 4 seconds or longer.

② 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.

③ " SETTING ," unit No. " 1- 1 " (or " ALL " in the case of group control), item code " XX ," and settings data " YYYY " are displayed blinking on the remote controller LCD display.

④ Designate the item code " XX " by adjusting the Temperature Setting [▲] / [▼] buttons.



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

Flap position

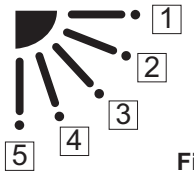


Fig. 3

* Setting data " YYYY " (refer to Fig.3)

Setting data	Flap position during operation
0000	Without separate setting
0001	Swing
0002	Move to position 1 and stay
0003	Move to position 2 and stay
0004	Move to position 3 and stay
0005	Move to position 4 and stay
0006	Move to position 5 and stay

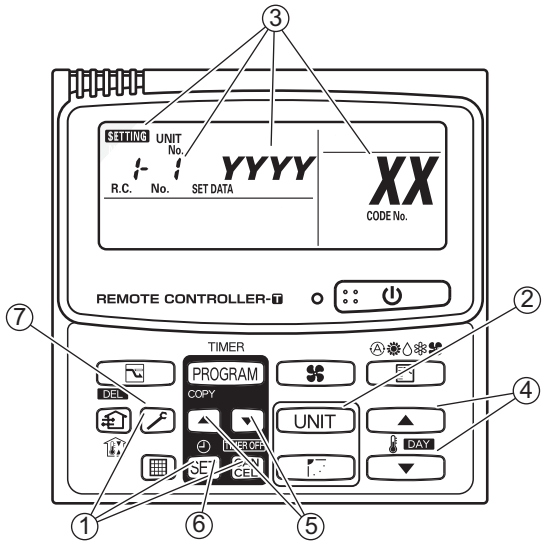
When the flap position is set to 4 or 5 and the unit is in the cooling or dry mode, the flap position is moved to 3 and the operation is started. (refer to Fig.3)

NOTE

The flap swings during the operation under "Setting the Flap Separately".
At this time, the unselected flaps are moved to the position 1. (refer to Fig.3)

⑥ Press the [SET] button.
(The display stops blinking and remains lit, and setting is completed.)
If you wish to change the selected indoor unit, follow the step ② .

⑦ Press the [wrench] button to return to normal remote controller display.



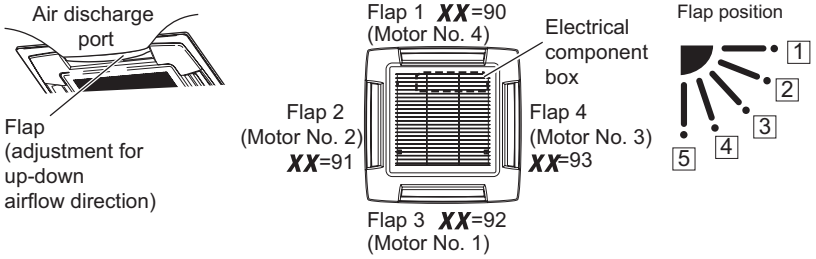
5

List of Detailed Setting Items

Item code	Item	Setting data					
		No.	Description	No.	Description	No.	Description
10	Type	0001	4-Way Casstte (60×60) (U1, Y1)	0002	2-WAY Cassette (L1)	0003	1-Way Cassette (D1)
		0005	Low Silhouette Ducted (F1) Slim Low Static Ducted (M1)	0006	High Static Pressure Ducted (E1)	0007	Ceiling (T1)
		0008	Wall mounted (K1)	0010	Floor Standing (P1)	0011	Concealed Floor Standing (R1)
11	Indoor unit capacity	0001	22 (Type 22)	0003	28 (Type 28)	0005	36 (Type 36)
		0007	45 (Type 45)	0009	56 (Type 56)	0011	71 (Type 73) For S-71MP1E5 and S-71MR1E5
		0012	80 (Type 73) (Except S-71MP1E5, S-71MR1E5)	0013	90 (Type 90)	0015	112 (Type 106)
		0017	140 (Type 140)	0018	160 (Type 160)	0021	224 (Type 224)
		0023	280 (Type 280)				
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.				

Item code	Item		Setting data	
			No.	Description
1b (1B)	Forced thermostat ON time		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

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.
3A	Discharge temperature control	0000	Discharge temperature control OFF
		0001	Discharge temperature control ON
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 upwards.)

<table>
<tr><th rowspan="2">Item code</th><th rowspan="2">Item</th><th colspan="3">Setting data</th></tr>
<tr><th>No.</th><th colspan="2">Description</th></tr>
<tr><td rowspan="8">5d</td><td rowspan="8">Fan tap setting
(Fan tap change in order to prevent drop in air discharge caused by filter installation)</td><td></td><td>DC fan tap operating mode</td><td>Purpose</td></tr>
<tr><td>0000</td><td>Standard</td><td>Standard (setting at shipment)</td></tr>
<tr><td rowspan="2">0001</td><td>High ceiling use</td><td>High ceiling setting 1 (with standard panel)</td></tr>
<tr><td>For low static-pressure filter</td><td>Ultra long-life filter, oil guard panel, ammonia deodorizing filter, optical regenerative deodorizing filter</td></tr>
<tr><td rowspan="3">0003</td><td>High ceiling use</td><td>High ceiling setting 2 (with standard panel)</td></tr>
<tr><td>For low static-pressure filter</td><td>(Antibacterial) high-performance filter (90%)
(Antibacterial) high-performance filter (65%)
Air-cleaning unit, air-cleaning unit + optical regenerative deodorizing filter, deodorant (activated charcoal) filter</td></tr>
<tr><td>For air-blocking material</td><td>For 3-way discharge, when discharge duct is connected</td></tr>
<tr><td>0006</td><td>For air-blocking material</td><td>For 2-way discharge</td></tr>
<tr><td rowspan="6">5E</td><td rowspan="6">Humidifier ON time
(ON time per 60 seconds)</td><td>0000</td><td colspan="2">No humidifier output</td></tr>
<tr><td>0001</td><td colspan="2">1 sec.</td></tr>
<tr><td>0002</td><td colspan="2">2 sec.</td></tr>
<tr><td>( )</td><td colspan="2">( )</td></tr>
<tr><td>0058</td><td colspan="2">58 sec.</td></tr>
<tr><td>0059</td><td colspan="2">59 sec.</td></tr>
<tr><td>5F</td><td>Repeat timer switching</td><td>0000</td><td colspan="2">Function disabled</td></tr>
<tr><td></td><td></td><td>0001</td><td colspan="2">Function enabled</td></tr>
<tr><td rowspan="2">60</td><td rowspan="2">Timer function change prohibit</td><td>0000</td><td colspan="2">Function disabled</td></tr>
<tr><td>0001</td><td colspan="2">Function enabled</td></tr>
<tr><td>62</td><td>Smudging control</td><td>0000</td><td colspan="2">No smudging control</td></tr>
<tr><td>90</td><td>Setting the Flap Separately
*Only for 4-way Cassette type</td><td rowspan="4">0000
0001
0002
0003
0004
0005
0006</td><td colspan="2" rowspan="4"> 
</td></tr>
<tr><td>91</td><td>Setting the Flap Separately
*Only for 4-way Cassette type</td></tr>
<tr><td>92</td><td>Setting the Flap Separately
*Only for 4-way Cassette type</td></tr>
<tr><td>93</td><td>Setting the Flap Separately
*Only for 4-way Cassette type</td></tr>
</table>

Setting data	Flap position during operation
0000	Without separate setting
0001	Swing
0002	Move to position 1 and stay
0003	Move to position 2 and stay
0004	Move to position 3 and stay
0005	Move to position 4 and stay
0006	Move to position 5 and stay

When the flap position is set to 4 or 5 and the unit is in the cooling or dry mode, the flap position is moved to 3 and the operation is started.

NOTE

The flap swings during the operation under "Setting the Flap Separately".
At this time, the unselected flaps are moved to the position 1.

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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										
		Standard		Long-life		Super long-life		High performance 65		High performance 90		Pressure differential switch
		Standard	High fouling	Standard	High fouling	Standard	High fouling	Standard	High fouling	Standard	High fouling	
0001	4-Way cassette (U1, Y1)	×	×	2500	1250	5000	2500	2500	1250	×	×	×
0002	2-Way cassette (L1)	×	×	2500	1250	10000	5000	2500	1250	2500	1250	×
0003	1-Way cassette (D1)	×	×	2500	1250	×	×	×	×	×	×	×
0005	Low Silhouette Ducted (F1) Slim Low Static Ducted (M1)	×	×	×	1250	5000	2500	2500	1250	5000	2500	×
0006	High Static Pressure Ducted (E1)	×	×	×	1250	×	×	2500	1250	5000	2500	×
0007	Ceiling (T1)	×	×	2500	1250	×	×	2500	1250	×	×	×
0008	Wall Mounted (K1)	150	75	×	×	×	×	×	×	×	×	×
0010	Floor Standing (P1)	150	75	×	×	×	×	×	×	×	×	×
0011	Concealed Floor Standing (R1)	150	75	×	×	×	×	×	×	×	×	×

Unit: hour

5

NOTE

- × indicates that there is no corresponding filter.
- 150 indicates the filter sign ON time that is set at shipment.
- High fouling: Set when 0001 is selected for the degree of filter fouling (item code 02).

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.
04	Operating mode priority change	Note (1)

NOTE

(1) Explanation of operation mode priority change

Enabled only in 2WAY System heat-pump models.

<Function>

With indoor units that are installed in combination with an outdoor unit model where either heating or cooling operation can be selected, the operating mode of the indoor unit that starts first takes priority. The first indoor unit to operate can select any operating mode. When any mode other than fan mode is selected, then the operating modes that cannot be selected are not displayed on all remote controllers that are subsequently operated. “Operation change control in progress” is displayed, indicating that there are restrictions on the operating modes that can be selected.

• Controlling the operating mode from a specific remote controller

- When there are multiple remote controllers in the same refrigerant system, it is possible to set one remote controller as the priority remote controller (the remote controller which is given priority for selecting the operating mode). (If 2 or more remote controllers are set as priority remote controllers, an alarm will occur at the remote controllers, and operation will not be possible.)
- When the priority remote controller is set to the operating mode for control, then all other remote controllers can select only the permitted operating mode, regardless of whether the priority remote controller is operating or stopped.
- When a controlled remote controller is operated, “Operation change control in progress” is displayed.

Set mode at priority remote controller	Modes that can be selected at other remote controllers
Cooling or dry	Cooling, dry, fan
Heating	Heating, fan
Fan	Whichever mode (heating/cooling) is selected first

NOTE

There are other methods to avoid control in which the mode selected first takes priority.

Methods of remotely controlling the operating mode

(1) Use the central functions of a central control device.

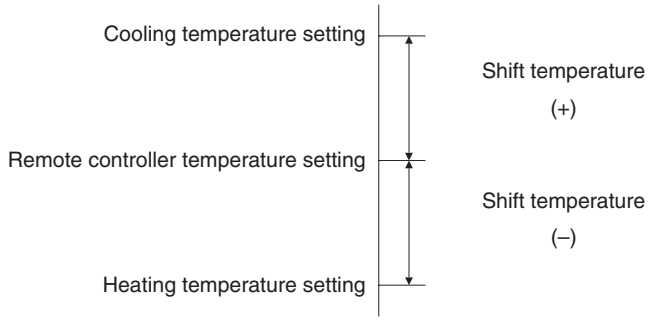
(2) Use a remote control relay PCB at the outdoor unit.

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.

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. These must be set after installation if automatic address setting is not performed.
13	Indoor unit address	
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.
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.



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 total heat exchanger and 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.

Selecting the DC fan motor tap (when setting from the PCB)

● **4-Way Cassette type**

<Procedure> Stop the system before performing these steps.

① Open the electrical component box cover, then check the indoor unit control PCB.

② Connect the jumper connector (2P: yellow) which was supplied with the accessory to the correct connector pin on the indoor unit control PCB according to the setting number which was confirmed in Table for DC Fan Motor Tap Settings.

Setting No. (3) :
Then connect the jumper connector to the connector pin TP3 (2P: yellow) on the indoor unit control PCB.

Setting No. (6) :
Then connect the jumper connector to the connector pin TP6 (2P: white) on the indoor unit control PCB.

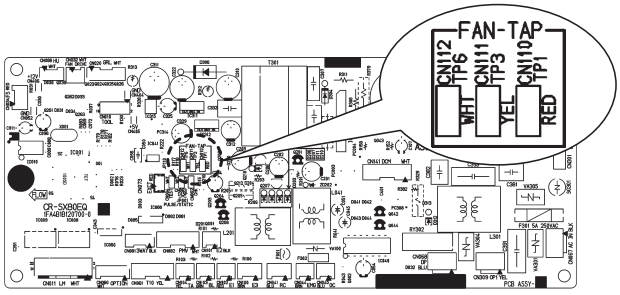


Fig. 4

● **Ceiling type**

<Procedure> Stop the system before performing these steps.

① Open the electrical component box cover, then check the indoor unit control PCB. (Fig. 5)

② Connect the jumper connector (2P: yellow) which was supplied with the accessory to the correct connector pin on the indoor unit control PCB according to the setting number which was confirmed in Table 2 (Table of DC Fan Motor Tap Settings).

- If the setting No. is (1), then connect the jumper connector to the connector pin TP1 (2P: red) on the indoor unit control PCB.
- If the setting No. is (3), then connect the jumper connector to the connector pin TP3 (2P: yellow) on the indoor unit control PCB.

● **1-Way Cassette type**

<Procedure> Be sure to turn OFF the main power source before performing the steps below.

① Open the electrical component box cover, then check the indoor unit control PCB. (Fig. 5)

② Connect the jumper connector (2P: yellow) which was supplied with the accessory to the correct connector pin on the indoor unit control PCB according to the setting number which was confirmed in Table 3 (Table of DC Fan Motor Tap Settings).

- When using with the high ceiling settings
  Connect the jumper connector to the connector pin TP1 (2P: red) on the indoor unit control PCB.
- When using with the discharge grille (purchased separately) attached (2-way lowered ceiling system)
  Connect the jumper connector to the connector pin TP3 (2P: yellow) on the indoor unit control PCB.

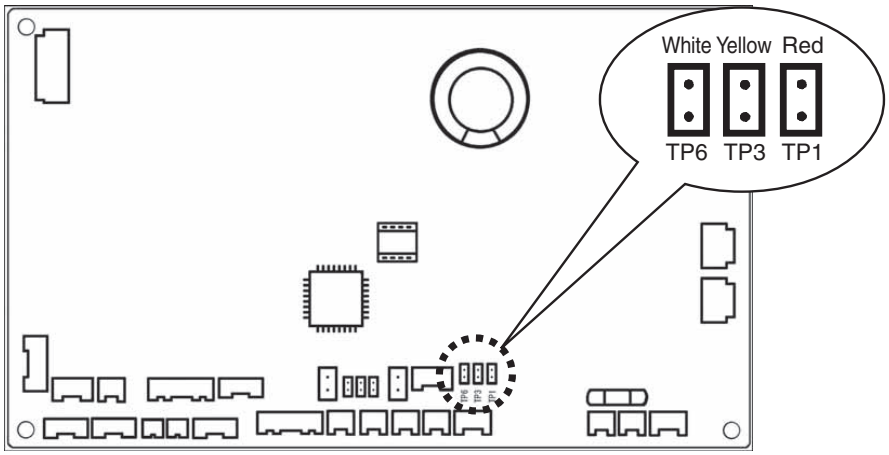


Fig. 5

3. 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 CANCEL 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 life time, 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 , CANCEL 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.	

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. 6).

③ Start operation.

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

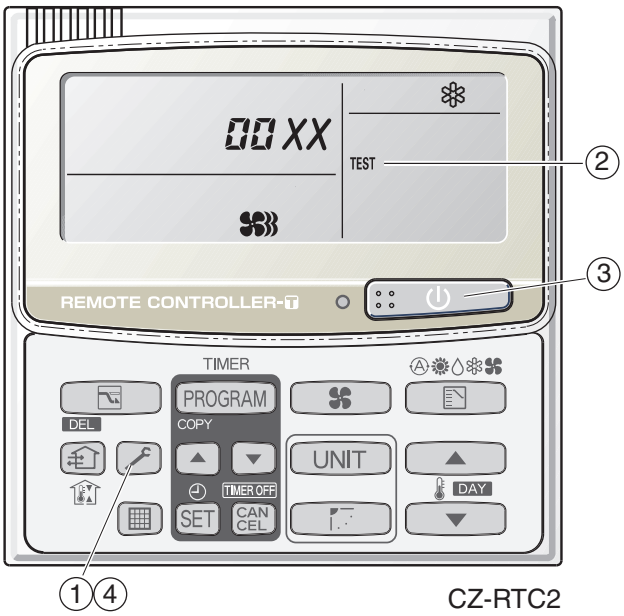


Fig. 6

■ 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>

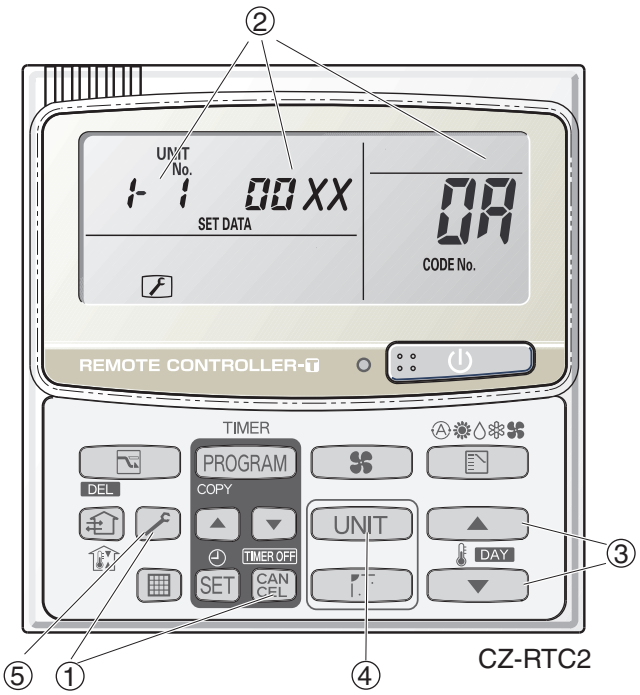
① Press and hold the [🔧] and [CANCEL] buttons simultaneously for 4 seconds or longer.

② The unit No. "X-X" (main unit No.), item code "XX" (sensor address), and servicing monitor " 00XX " (sensor temperature) are displayed on the remote controller LCD display. (See Fig. 7 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 on the next page.)

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.



* Display shows a discharge temperature of 85°C at unit No. 1-1.

Fig. 7

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.

5

3. Remote Controller Servicing Functions

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**	
0A	2A	4A	Discharge temp. 1
0B	2B	4B	Discharge temp. 2
0C	2C	4C	High-pressure sensor temp.
0D	2D	4D	Heat exchanger gas 1
0E	2E	4E	Heat exchanger liquid 1
0F	2F	4F	Heat exchanger gas 2
10	30	50	Heat exchanger liquid 2
11	31	51	Outdoor air temp.
12	32	52	—
13	33	53	For inspection
14	34	54	CT2
15	35	55	For inspection
16	36	56	For inspection
17	37	57	Discharge temp. 3
18	38	58	CT3
19	39	59	For inspection
1A	3A	5A	For inspection
1B	3B	5B	Heat exchanger gas 3
1C	3C	5C	Heat exchanger liquid 3
1D	3D	5D	Low-pressure sensor temp.
1E	3E	5E	Suction temp.
1F	3F	5F	Oil 1
20	40	60	Oil 2
21	41	61	Oil 3
22	42	62	For inspection

6. TROUBLE DIAGNOSIS

ON: ○ **Blinking:** ☼ **OFF:** ●

Possible cause of malfunction			Wired remote control display	Wireless remote controller receiver display: Operation / Timer / Standby for heating
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 unit address, or indoor unit address independent/main/sub unit setting has not been made. (Auto address is not completed.)	<E01>	Operating lamp blinking ☼ ● ●
		Error in transmitting serial communication signal.	<E02>	
	Indoor unit is detecting error signal from remote controller and system controller.		<<E03>>	
	Indoor unit is detecting error signal from outdoor unit.	• Error in receiving serial communication signal. • When turning on the power supply, the number of connected indoor units does not correspond to the number set. (Except R.C. address is "0.") • Group wiring failure of indoor units in the refrigerant system (occurring when remote controller is operated immediately after automatic address setting)	E04	Heating ready lamp blinking ● ● ☼
	Outdoor unit is detecting error signal from indoor unit.	• Error in receiving serial communication signal. • There is an indoor unit which does not send signals when the power is ON.	E06	
	Improper setting	• Indoor unit address setting is duplicated.	<< E08>>	Operating lamp blinking ☼ ● ●
		• Duplicated remote controller "main" setting.	<< E09>>	
	Improper setting	Automatic address setting start is prohibited. AP pin was short-circuited at time when automatic address setting was started.	E12	
	Indoor unit communication error of group control wiring.	Error of main indoor unit in receiving serial communication signal from sub indoor units.	E18	
	During auto. address setting, number of connected units does not correspond to number set.	Number of connected indoor units is less than the number set.	E15	Heating ready lamp blinking ● ● ☼
		Number of connected indoor units is more than the number set.	E16	
		No indoor unit is connected during auto. address setting.	E20	
		Main outdoor unit is detecting error signal from sub outdoor unit.	E24	
		Duplicated outdoor unit address.	E25	
		Mismatch in "No. of outdoor units" setting.	E26	
		Error of sub outdoor unit in receiving serial communication signal from main outdoor unit.	E29	
		Outdoor unit serial communications failure.	E30	
		Communication error between the microcomputers	E31	
	Improper setting	Connected indoor unit is not a multi unit.	<< L02>>	Operating and heating ready lamps blinking simultaneously ☼ ● ☼
		Duplication of main indoor unit address setting in group control.	<L03>	
		Duplicated indoor unit priority (priority indoor unit).	L05	
		Duplicated indoor unit priority (non-priority indoor unit) and outdoor unit.	L06	
		Indoor unit address is not set.	L08	
		Capacity code of indoor unit is not set.	<< L09>>	
		Mismatch of outdoor unit type.	L17	
		4-way valve operation failure	L18	
		Duplication of outdoor R.C. address setting.	L04	Operating and heating ready lamps blinking simultaneously ☼ ○ ☼
		Capacity code of outdoor unit is not set.	L10	
		Group control wiring is connected to individual control indoor unit.	L07	
Thermistor fault	Indoor unit	Indoor coil temp. sensor (E1)	<< F01>>	Operating and timer lamps blinking alternately ☼ ☼ ●
		Indoor coil temp. sensor (E3)	<< F03>>	
		Indoor suction air (room) temp. sensor	<< F10>>	
		Indoor discharge air temp. sensor	<< F11>>	

Continued

ON: ○ Blinking: ☼ OFF: ●

Possible cause of malfunction			Wired remote control display	Wireless remote controller receiver display
				Operation / Timer / Standby for heating
Thermistor fault	Outdoor unit	Compressor 1 (INV) discharge temp. sensor	F04	Operating and timer lamps blinking altemately ☼ ☼ ○
		Compressor 2 (constant speed) discharge temp. sensor	F05	
		Compressor 3 (constant speed) discharge temp. sensor	F22	
		Outdoor air temp. sensor	F08	
		Heat exchanger 1 liquid temp. sensor	F07	
		Heat exchanger 1 gas temp. sensor	F06	
		Compressor intake temp. sensor (suction temp)	F12	
		High-pressure sensor	F16	
		Low-pressure sensor	F17	
		Heat exchanger 2 liquid temp. sensor	F24	
		Heat exchanger 2 gas temp. sensor	F23	
Ceiling panel connection failure			<<P09>>	Timer and heat ready lamp blinking altemately ● ☼ ☼
Protective device	Indoor unit	Thermal protector in indoor unit fan motor is activated.	<<P01>>	
		Float switch is activated.	<<P10>>	
		Fan inverter protection function activated.	<<P12>>	
	Outdoor unit	Oxygen (O_2) gas sensor activated.	P14	Operating and heat ready lamp blinking altemately ☼ ● ☼
		Compressor thermal protector is activated. Power supply voltage is unusual. (More than 260V or less than 160V between L1 and L2 phase.)	P02	
		Compressor 1 (INV) discharge temp. trouble	P03	
		High-pressure switch	P04	
		Reverse phase (missing phase) detected.	P05	
		DCCT, ACCT overcurrent	P16	
		Compressor 2 (constant speed) discharge temp. trouble	P17	
		Compressor 3 (constant speed) discharge temp. trouble	P18	
		High load alarm	P20	
		Outdoor unit fan trouble	P22	
		INV compressor start failure. (Missing phase or lock alarm)	P29	
Failure of nonvolatile memory IC (EEPROM) on indoor unit control PCB			F29	Operating and timer lamp blinking simultaneously ☼ ☼ ●
Failure of nonvolatile memory IC (EEPROM) on outdoor unit control PCB			F31	Operating and timer lamp blinking simultaneously ☼ ☼ ○
Protective device	Overload current detected.	Compressor 2 (constant speed)	H11	Timer lamp blinking ● ☼ ●
		Compressor 3 (constant speed)	H21	
	Lock current detected.	Compressor 2 (constant speed)	H12	
		Compressor 3 (constant speed)	H22	
	No current detected when compressor was ON.	Compressor 1 (INV)	H03	
		Compressor 2 (constant speed)	H13	
		Compressor 3 (constant speed)	H23	
	Discharge temp. sensor trouble	Compressor 1 (INV)	H05	
		Compressor 2 (constant speed)	H15	
		Compressor 3 (constant speed)	H25	
	Outdoor unit protection	Low-pressure trouble	H06	
	Outdoor unit protection	HIC trouble alarm	H31	
Low oil alarm			H07	
Connection failure of oil detection sensor		Compressor 1 (INV)	H08	
		Compressor 2 (constant speed)	H27	
		Compressor 3 (constant speed)	H28	
Fusing of electromagnetic contact (Current detected when compressor was OFF)			CHECK only blinking	(No display changes)
Automatic backup operation				

<< >> alarm indication: Does not affect the operation of other indoor units.
< > alarm indication: In some cases may affect the operation of other indoor units.

2. Outdoor Unit Control Panel LED Display

(○ : ON ☼ : Blinking ● : OFF)

LED (RED)		Display meaning
1	2	
○ (Both ON)	○	After the power is turned ON (and automatic address setting is not in progress), no communication with the indoor units in that system is possible.
● (OFF)	○ (ON)	After power is turned ON (and automatic address setting is not in progress), one or more indoor units are confirmed in that system; however, the number of indoor units does not match the number that was set.
● (Both OFF)	●	Automatic address setting was completed successfully. (After the power is turned ON, and automatic address setting is not in progress, the number of detected indoor units connected to that system matches the number that was set, and regular communications are occurring.)
☼ (Blinking alternately)	☼	Automatic address setting is in progress.
☼ (Both blinking)	☼	At time of automatic address setting, the number of indoor units did not match the number that was set.
☼ (Blinking alternately)	☼	Alarm display LED 1 blinks M times, 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. Example: LED 1 blinks 2 times, then LED 2 blinks 17 times. The cycle then repeats. Alarm is “P17.”

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3. Remote Controller Servicing Functions

Sensor temperature display function (displayed both when unit is running and stopped)

• Use the following check procedure to display the sensor temperatures from the remote controller, indoor unit, and outdoor unit sensors on the remote controller display.

<Check procedure>

① Press and hold the (CHECK) button and CANCEL button simultaneously for 4 seconds or longer.

② The following appears on the remote controller LCD display: unit No. X – X (main unit No.), item code XX (sensor address), and service monitor 00XX (sensor temperature).

(See figure at right. ②)

③ Press the temperature setting ▲ and ▼ buttons to change the item code to the sensor address of the sensor you wish to monitor.

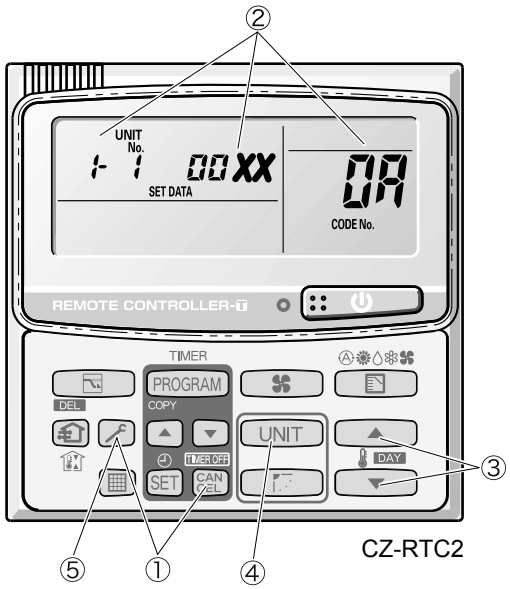
(For the relationship between the sensor address and sensor type, refer to the sensor temperature relationship table on next page.)

④ If group control is in effect, press the UNIT button to change to the unit you wish to monitor.

⑤ Press the (CHECK) button to return to normal remote controller operation.

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

- If monitor mode is engaged during ordinary operation, the only parts of the LCD display that change are those shown in ② in the figure. The other parts remain unchanged during normal operation.



CZ-RTC2

Example
- : Unit No.
- : Item code (sensor address)
- : Discharge temp. (TD)

6

Sensor Temperature Relationship Table

Location where sensor is installed	Sensor address			Sensor type	Sensor address			Sensor type
Indoor unit	01			Remote controller temperature	06			Discharge temperature sensor
	02			Indoor unit intake temperature	07			
	03			Indoor unit heat exchanger temperature (E1)	08			Indoor unit electronic expansion valve position
	04				09			
	05			Indoor unit heat exchanger temperature (E3)				
Outdoor unit	Unit No. 1	Unit No. 2	Unit No. 3		Unit No. 1	Unit No. 2	Unit No. 3	
	0A	2A	4A	Discharge temperature 1	17	37	57	Discharge temperature 3
	0b	2b	4b	Discharge temperature 2	18	38	58	CT3
	0C	2C	4C	High-pressure sensor temperature	1b	3b	5b	Heat exchanger gas 3
	0d	2d	4d	Heat exchanger gas 1	1C	3C	5C	Heat exchanger liquid 3
	0E	2E	4E	Heat exchanger liquid 1	1d	3d	5d	Low-pressure sensor temperature
	0F	2F	4F	Heat exchanger gas 2	1E	3E	5E	Detected reservoir tank temp.
	10	30	50	Heat exchanger liquid 2	1F	3F	6F	Detected oil temp. 1
	11	31	51	Outside air temperature	21	41	61	Detected oil temp. 2
	14	34	54	CT2	22	42	62	Detected oil temp. 3

4. 2WAY Alarm Codes

With type 8HP, the INV compressor is compressor 1 only.

With types 10HP, 12HP, 14HP and 16HP, the INV compressor is compressor 1, and the constant-speed compressors (AC1) are compressors 2 .

With types 18HP and 20HP, the INV compressor is compressor 1, and the constant-speed compressors (AC1, AC2) are compressors 2 and 3.

Alarm code	Alarm meaning	Page
E06	Outdoor unit failed to receive serial communication signals from indoor unit.	**6**-9
E12	Automatic address setting start is prohibited.	**6**-9
E15	Automatic address setting alarm (too few units)	**6**-9
E16	Automatic address setting alarm (too many units)	**6**-10
E20	No indoor units at automatic address setting.	**6**-10
E24	Outdoor unit (INV) failed to receive communications from another outdoor unit (constant-speed).	**6**-10
E25	Outdoor unit address setting failure (duplication)	**6**-11
E26	Mismatch in outdoor unit quantity	**6**-11
E29	Outdoor unit failed to receive communication from outdoor unit (main)	**6**-11
E31	Communication error between the microcomputers	**6**-11
F04	Compressor 1 discharge temperature sensor trouble	**6**-12
F05	Compressor 2 discharge temperature sensor trouble	**6**-12
F22	Compressor 3 discharge temperature sensor trouble	**6**-12
F06	Gas temperature sensor trouble at outdoor heat exchanger 1 (In)	**6**-13
F07	Liquid temperature sensor trouble at outdoor heat exchanger 1 (Out)	**6**-13
F08	Outdoor air temperature sensor trouble	**6**-14
F12	Compressor intake temperature sensor trouble	**6**-14
F16	High-pressure sensor trouble	**6**-15
F17	Low-pressure sensor trouble	**6**-16
F23	Gas temperature sensor trouble at outdoor heat exchanger 2 (In)	**6**-13
F24	Liquid temperature sensor trouble at outdoor heat exchanger 2 (Out)	**6**-13
F31	Outdoor unit non-volatile memory (EEPROM) trouble	**6**-16
H11	Constant speed compressor 2 overcurrent alarm	**6**-17
H12	Constant speed compressor 2 lock current alarm	**6**-17
H03	Compressor 1 CT sensor disconnected or short-circuit	**6**-18
H05	Compressor 1 discharge temperature sensor disconnected	**6**-18
H06	Low-pressure switch activated	**6**-19
H08	Compressor 1 oil detection sensor (connection) trouble	**6**-20
H13	Compressor 2 CT sensor disconnected or short-circuit	**6**-18
H15	Compressor 2 discharge temperature sensor disconnected	**6**-18
H21	Compressor 3 overcurrent alarm	**6**-17
H22	Compressor 3 lock current alarm	**6**-17
H23	Compressor 3 CT sensor disconnected or short-circuit	**6**-18
H25	Compressor 3 discharge temperature sensor disconnected	**6**-18
H27	Compressor 2 oil detection sensor (connection) trouble	**6**-20
H28	Compressor 3 oil detection sensor (connection) trouble	**6**-20
H31	HIC trouble alarm	**6**-21
L04	Outdoor system address duplication	**6**-21
L10	Outdoor unit capacity not set	**6**-22
L17	Outdoor unit model mismatch	**6**-22
L18	4-way valve operation failure	**6**-22

4. 2WAY Alarm Codes

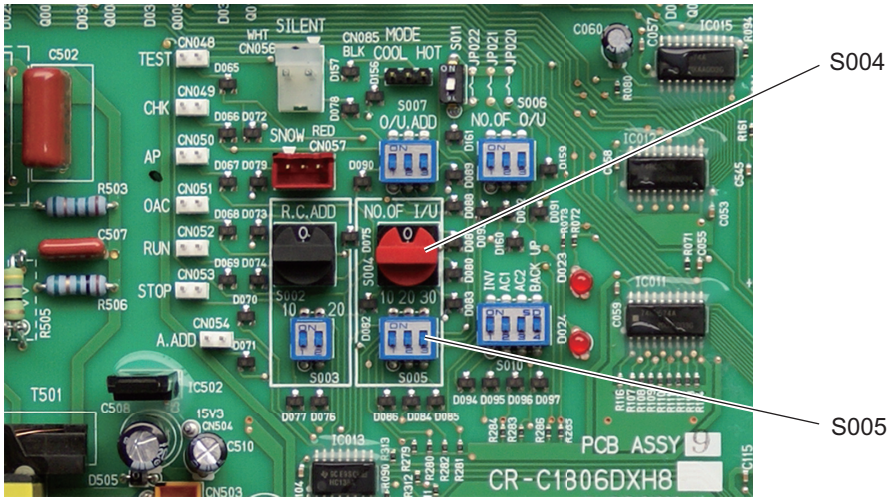
E06 Alarm

Alarm code	E06
Alarm meaning	Outdoor unit failed to receive serial communication signals from indoor unit.
Alarm conditions	Outdoor unit failed to receive serial communication signals from indoor unit.
Probable cause	(1) The indoor unit power was cut OFF after initial communications were completed. (2) An open circuit or short-circuit occurred in the inter-unit control wiring after initial communications were completed.
Check	Check the power at the indoor and outdoor units, and check the inter-unit control wiring.
Correction	—
Example	—
Notes	This alarm is detected after initial communications are completed. Therefore, it does not occur in cases of “disconnected serial connector,” “no terminal unit set,” or other trouble that occurs before initial communications are completed. If initial communications have not been completed, alarm E04 occurs.

E12 Alarm

Alarm code	E12
Alarm meaning	Automatic address setting start is prohibited.
Alarm conditions	Automatic address setting was started when automatic address setting was in progress at another outdoor unit in the same link.
Probable cause	Automatic address setting is in progress at another outdoor unit.
Check	This alarm is not displayed on the remote controller. Therefore check the blinking on the outdoor unit PCB.
Correction	Wait for automatic address setting to be completed at the outdoor unit where it is currently in progress. Then start automatic address setting again.
Example	—
Notes	—

E15 Alarm

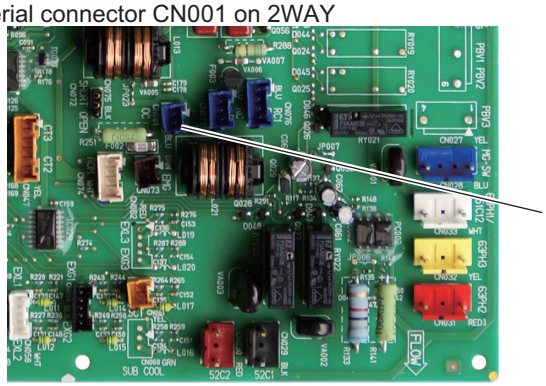
Alarm code	E15
Alarm meaning	Automatic address setting alarm (too few units)
Alarm conditions	The number of indoor units was too few when automatic address setting was performed.
Probable cause	(1) The number of indoor units set at the indoor unit quantity setting SW (S004, S005) on the outdoor unit PCB is too many. (2) The inter-unit control wiring between indoor units has been cut.
Check	(1) Refer to the test run servicing materials and check the indoor unit quantity setting SW (S004, S005). (2) Check the inter-unit control wiring at the indoor and outdoor units.
Correction	After correcting the indoor unit quantity setting or the inter-unit control wiring, perform automatic address setting again.
Example	—
Notes	2WAY switch position 

6

E16 Alarm

Alarm code	E16
Alarm meaning	Automatic address setting alarm (too many units)
Alarm conditions	• The number of indoor units was too many when automatic address setting was performed. • After initial communications were completed, an unrecognized unit was detected.
Probable cause	(1) The number of indoor units set at the indoor unit quantity setting SW (S004, S005) on the outdoor unit PCB is less than the number set. (2) The inter-unit control wiring is wired incorrectly.
Check	(1) Refer to the test run servicing materials and check the number of indoor units that is set. (2) Check the inter-unit control wiring at the indoor and outdoor units.
Correction	After correcting the indoor unit quantity setting or the inter-unit control wiring, perform automatic address setting again.
Example	—
Notes	—

E20 Alarm

Alarm code	E20
Alarm meaning	No indoor units at automatic address setting.
Alarm conditions	When automatic address setting was performed, no indoor units were recognized.
Probable cause	(1) The inter-unit control wiring from the outdoor unit to the indoor units has been cut. (2) Serial connector 1 (CN001) is disconnected at the outdoor unit. (3) The power is OFF at all indoor units in the system.
Check	(1) Check whether the inter-unit control wiring from the outdoor unit to the indoor units is cut. (2) Check whether serial connector 1 (CN001) is disconnected at the outdoor unit. (3) Check the power at the indoor units.
Correction	(1) Reconnect the inter-unit control wire from the outdoor unit to the indoor unit.
Example	—
Notes	Position of serial connector CN001 on 2WAY 

E24 Alarm

Alarm code	E24
Alarm meaning	Outdoor unit (INV) failed to receive communications from other outdoor unit (constant-speed).
Alarm conditions	After initial communications were completed, communications from an outdoor unit stopped.
Probable cause	(1) After initial communications were completed, the control wiring between main and sub outdoor units was cut. (2) After initial communications were completed, the outdoor unit power was turned OFF.
Check	—
Correction	—
Example	—
Notes	—

E25 Alarm

Alarm code	E25
Alarm meaning	Outdoor unit address setting failure (duplication)
Alarm conditions	Communication by outdoor unit main-sub control wiring was received that contained the same address as that unit 5 times or more within 3 minutes.
Probable cause	The unit number is set incorrectly.
Check	Check the unit number again.
Correction	Correct the incorrect unit number setting.
Example	—
Notes	Recovery from this alarm occurs automatically (when communication that contains the same address is not received for 3 minutes).

E26 Alarm

Alarm code	E26
Alarm meaning	Mismatch in outdoor unit quantity
Alarm conditions	After power initialization, the set outdoor unit quantity did not match the number of outdoor units detected on the outdoor unit main-sub control wiring for 3 minutes or longer.
Probable cause	(1) The outdoor unit quantity is set incorrectly. (2) The outdoor unit main-sub control wiring is cut.
Check	(1) Check the outdoor unit quantity setting again. (2) Check the outdoor unit main-sub control wiring.
Correction	(1) Correct the incorrect outdoor unit quantity setting. (2) Repair the outdoor unit main-sub control wiring.
Example	—
Notes	Recovery from this alarm occurs automatically (when the set outdoor unit quantity matches the number of outdoor units detected on the outdoor unit main-sub control wiring).

E29 Alarm

Alarm code	E29
Alarm meaning	Outdoor unit failed to receive communication from outdoor unit (main).
Alarm conditions	Outdoor unit communications from outdoor unit (main) were interrupted for 3 minutes or longer.
Probable cause	(1) After initial communications were completed, the outdoor unit main-sub control wiring was cut. (2) After initial communications were completed, the RC connector became disconnected. (3) The power at the outdoor unit (main unit) is turned OFF.
Check	(1) Check the outdoor unit main-sub control wiring. (2) Check the RC connectors. (3) Check the power at the outdoor unit (main).
Correction	(1) Repair the outdoor unit main-sub control wiring. (2) Correct the RC connector connection. (3) Turn ON the outdoor unit (main) power.
Example	—
Notes	—

E31 Alarm

Alarm code	E31
Alarm meaning	Communication error between two microcomputers on the Control P.C. Board
Alarm conditions	—
Probable cause	When does it occur? (1) When failed in rewriting microcomputer. (2) When the unit power shut down during rewriting microcomputer. (3) When wiring between PCB and ROM writer disconnected.
Check	(1) Rewrite microcomputer again. (2) Switch on the unit power again.
Correction	Replace Control PCB.
Example	—
Notes	—

F04, F05, F22 Alarm

Alarm code	F04, F05, F22
Alarm meaning	Compressor 1 discharge temperature sensor trouble, compressor 2 discharge temperature sensor trouble, Compressor 3 discharge temperature sensor trouble.
Alarm conditions	(1) Discharge temp. of 100°C or higher was detected 20 minutes or more after that compressor stopped operating. (2) Discharge temp. of 70°C or higher was detected after all compressors had been stopped for 60 minutes or longer. (3) A/D step is 10 steps or less (short circuit).
Probable cause	(1) Sensor malfunction • Sensor element malfunction • Sensor wiring is partially disconnected, resulting in increased electrical resistance. ☆This alarm does not occur when the wiring is cut or when the connector is not connected to the outdoor unit PCB. (2) Crossed wiring or installation error • The discharge temperature sensor of that compressor is connected to the discharge tube of the other compressor. • The connector for the discharge temperature sensor of the problem compressor is connected to the outdoor unit PCB connector for the other compressor. (3) Outdoor unit PCB failure (4) The check valve on the discharge tube for that compressor is wet. (5) An air short blockage in the area around the outdoor unit has increased the outdoor unit ambient temperature, reducing the cooling effects after the compressor stops. (6) There is a cause that results in P03, P17, or P02 alarm. (7) Electrical noise
Check	(1) Sensor malfunction and outdoor unit PCB failure Trouble: • Constantly indicates a high temperature. • When monitoring software or other means are used for monitoring, the discharge temperature at times fluctuates suddenly and wildly. • In some cases, the precise temperature may not be known, even when monitoring software is used. Check: • Wiggle the sensor and check whether the trouble continues. • Check whether the connector is partially disconnected from the PCB. ☆An F04 alarm will not result if the connector is completely disconnected (circuit is open). • If the cause is still uncertain, check the following to determine whether a sensor or PCB failure has occurred. Step 1: Connect the other compressor discharge sensor, or a discharge sensor where the F04 alarm has not occurred, to the connector for this compressor on the PCB. Measure the temperature at the same point (a location where temperature fluctuations are small), and check whether there is a temperature difference. Difference → A PCB or sensor failure is possible. No difference → PCB and sensor are normal. Step 2: If an abnormality was found at Step 1, connect the problem compressor sensor to the other compressor connector on the PCB, or to the PCB connector of a device where the F04 alarm has not occurred. Measure the temperature at the same point (a location where temperature fluctuations are small), and check whether there is a temperature difference. Difference → Sensor failure. No difference → PCB failure. ☆ It is convenient at this time to have a discharge temperature sensor on hand. (2) Crossed wiring or installation error Trouble: Although the other compressor is operating and this compressor is stopped, the discharge temperature of the other compressor does not increase and the discharge temperature of this compressor rises. * The discharge temperature remains high immediately after the compressor stops. Wait for some time after the compressor stops and observe. Check: Check for crossed wiring and installation errors.

Continued

Check	(3) Leakage from the discharge tube check valve Trouble: Although the other compressor is operating and this compressor is stopped, the discharge temperature of this compressor rises together with the temperature of the other compressor. (4) The ambient temperature around the outdoor unit when it is stopped is 43 °C or higher. (5) If the cause is still unknown after checking the above, then it is possible that electrical noise is the cause of the trouble. It is necessary to provide a line filter or carry out other noise countermeasures.
Correction	(1) Replace the sensor. (2) Replace the outdoor unit PCB. (3) Carry out noise countermeasures. (4) Repair the refrigerant tubing. (5) Adjust the amount of refrigerant. (6) Correct the trouble.
Example	(1) Sensor wiring is partially cut.
Notes	This alarm does not indicate that the sensor is disconnected. In order to prevent overheating during operation, the outdoor units in this system will not allow a compressor to start if the discharge temperature does not decrease while the compressor is stopped. If a sensor malfunction results in continuous detection of a high discharge temperature, then the compressor may stop for no apparent reason. The purpose of this alarm is to facilitate identification of the problem in this case.

F06, F23 Alarm

Alarm code	**F06, F23**
Alarm meaning	Gas temperature sensor trouble at outdoor heat exchanger 1; Gas temperature sensor trouble at outdoor heat exchanger 2.
Alarm conditions	(1) A/D step is 10 steps or less (short circuit). (2) A/D step is 1014 steps or more (open circuit).
Probable cause	(1) Sensor malfunction (including connector) (2) PCB malfunction
Check	(1) Measure the sensor resistance. Check that the sensor is operating normally. (2) Use a remote controller monitor or PC monitor to check the temperature that is recognized by the microcomputer.
Correction	—
Example	—
Notes	—

F07, F24 Alarm

Alarm code	**F07, F24**
Alarm meaning	Liquid temperature sensor trouble at outdoor heat exchanger 1; Liquid temperature sensor trouble at outdoor heat exchanger 2.
Alarm conditions	(1) A/D step is 10 steps or less (short circuit). (2) A/D step is 1014 steps or more (open circuit).
Probable cause	(1) Sensor malfunction (including connector) (2) PCB malfunction
Check	(1) Measure the sensor resistance. Check that the sensor is operating normally. (2) Use a remote controller monitor or PC monitor to check the temperature that is recognized by the microcomputer.
Correction	—
Example	—
Notes	—

F08 Alarm

Alarm code	**F08**
Alarm meaning	Outdoor air temperature sensor trouble
Alarm conditions	(1) A/D step is 10 steps or less (short circuit). (2) A/D step is 1014 steps or more (open circuit)
Probable cause	(1) Sensor malfunction (including connector) (2) PCB malfunction
Check	(1) Measure the sensor resistance. Check that the sensor is operating normally. (2) Use a remote controller monitor or PC monitor to check the temperature that is recognized by the microcomputer.
Correction	—
Example	—
Notes	—

F12 Alarm

Alarm code	**F12**
Alarm meaning	Compressor intake temperature sensor trouble
Alarm conditions	(1) A/D step is 10 steps or less (short circuit). (2) A/D step is 1014 steps or more (open circuit)
Probable cause	(1) Sensor malfunction (including connector) (2) PCB malfunction
Check	(1) Measure the sensor resistance. Check that the sensor is operating normally. (2) Use a remote controller monitor or PC monitor to check the temperature that is recognized by the microcomputer.
Correction	—
Example	—
Notes	—

F16 Alarm

Alarm code	F16
Alarm meaning	High-pressure sensor trouble (abnormal rise in high pressure) (In some cases this may not be the result of a high-pressure sensor malfunction.)
Alarm conditions	• High-pressure SW activated although the detected pressure was lower (3.03 MPa or below) than the high-pressure SW activation pressure: Undershift • High-pressure SW failed to activate although the detected pressure was higher (3.43 MPa or above) than the high-pressure SW activation pressure: Overshift • The saturation temperature at the detected pressure is 5°C or more below the highest indoor-unit E1 temperature continuously for 30 minutes. • High-pressure sensor disconnected or open circuit.
Probable cause	(1) High-pressure sensor malfunction (2) Failure to connect the connector to the outdoor unit PCB (3) Failure to open the service valve (4) Clogged tubing (5) Valve leakage (6) Over-charging (7) Outdoor unit PCB failure (8) Electrical noise
Check	(1) High-pressure sensor failure • Check the sensor resistance value. (Use a tester and measure the resistance between sensor No. 1 and No. 3) Resistance of less than 10kΩ indicates a short circuit or other trouble. Resistance of 10kΩ - 200kΩ is normal. Resistance of more than 200kΩ indicates an open circuit or other trouble. • Connect a gauge to the high-pressure outlet and check for changes in the value dispalyed by the monitoring software, and for large deviation of the gauge pressure. • During heating, check whether the temperature is lower than the highest indoor-unit E1 temperature. * The pressure detected by the high-pressure sensor is the highest pressure in the system. Therefore during heating the converted saturation temperature will never be lower than any indoor-unit E1 temperature. During cooling this temperature will never be lower than the outdoor unit liquid temperature. (2) Failure to open the service valve, clogged tubing, valve leakage, over-charging. In all of these cases an alarm occurs when there are rapid pressure fluctuations and tracking of the detected pressure is poor. • Check the open/closed status of the valve. • Check for clogging of the tubing. To check for clogging, disconnect the high-pressure sensor from the PCB and check whether the high-pressure SW activates. • Check for valve leakage and over-charging When valve leakage or over-charging occurs, refrigerant is likely to accumulate in the oudoor units or indoor units, resulting in a sudden rise in pressure at start that occurs before the refrigerant in the heat exchanger is discharged. * The representative valves to check are the liquid valves and mechanical valves. (3) Outdoor unit PCB failure • The check items are the same as for a high-pressure sensor malfunction. A normal PCB is needed to determine whether the problem is a PCB failure or a pressure sensor malfunction. If an abnormality was found at the check items for a high-pressure sensor malfunction, first try replacing the PCB and check again. Trouble is corrected: Outdoor unit PCB failure Trouble is not corrected: High-pressure sensor malfunction

Continued

Correction	(1) Replace the high-pressure sensor. Caution: Because the high-pressure sensor connection employs a Schrader-type valve, it can be removed and replaced. However, the high-pressure sensor can be easily damaged by high voltage; therefore use sufficient caution with regard to static electricity. (2) Replace the PCB. (3) Correct the locations of problems in the refrigeration cycle. • Correct locations where clogging or leakage has occurred. • In the case of over-charging, recover refrigerant. (Adjust the amount of refrigerant). ∗ Guide for over-charging Be sure to connect the gauge to the high-pressure pressure outlet when checking for over-charging. During cooling: The following does not apply when outdoor air temperature is low or when fan speed is controlled. When both compressor 1 and compressor 2 are operating, and the fan mode is 14 (maximum fan speed), then the high pressure saturation temperature should be approximately 15°C above the outdoor air temperature. If it is 5°C or more above this level, then it is possible that over-charging may have occurred. During heating: There is an indoor unit where refrigerant flow is poor (E1 temperature and discharge temperature are low), and the mechanical valve of that unit is opened to 300 pulses or more, and the E1 temperature is close to room temperature. However be aware that this kind of data results often when there is a height difference between indoor units. Reducing the amount of refrigerant will improve the refrigerant flow, however reducing it too much will increase the likelihood of alarms related to low oil level (scroll-side), the low pressure SW, and discharge temperature. Use caution.
Example	This alarm may result when the service valve is closed or when valve leakage (particularly from the mechanical valve) occurs.

F17 Alarm

Alarm code	**F17**
Alarm meaning	Low-pressure sensor trouble
Alarm conditions	(1) Sensor short circuit (2) Sensor open circuit
Probable cause	(1) Sensor malfunction (including connector) (2) PCB malfunction
Check	(1) Measure the sensor resistance. Check that the sensor is operating normally. (2) Use a remote monitor or a PC monitor to check the temperature that is recognized by the microcomputer.
Correction	—
Example	—
Notes	—

F31 Alarm

Alarm code	**F31**
Alarm meaning	Outdoor unit non-volatile memory (EEPROM) trouble
Alarm conditions	(1) Non-volatile memory is not present when power initialization occurs. (2) Read values do not match after writing to non-volatile memory is complete.
Probable cause	(1) Memory was not inserted after the PCB was replaced. (2) The lifetime of the non-volatile memory has been reached. (3) Non-volatile memory is installed incorrectly (wrong direction, bent pins, etc.).
Check	(1) Check the non-volatile memory on the PCB.
Correction	—
Example	—
Notes	—

H11, H12, H21, H22 Alarm

Alarm code	**H11, H12, H21, H22**
Alarm meaning	H11: Constant speed compressor 2 overcurrent alarm H12: Constant speed compressor 2 lock current alarm H21: Constant speed compressor 3 overcurrent alarm H22: Constant speed compressor 3 lock current alarm
Alarm conditions	Hx1: During operation, the compressor current value exceeded 12 A for 30 seconds or longer. However this alarm is not detected for 4 seconds after the compressor starts. Hx2: During operation, the compressor current value exceeded 14 A for 4 seconds or longer. However this alarm is not detected for 2 seconds after the compressor starts.
Probable cause	(1) Compressor failure (locked or partially locked) (2) CT circuit failure (including cut wiring) (3) Missing power phase (4) Low power voltage (5) PCB failure
Check	(1) Compressor failure (partially locked) Trouble: Current value during operation greatly exceeds the value shown above. Check: When the current for each phase is measured with a clamp meter or similar instrument, check that the current value for all phases is not high. If MG was forced ON (use caution), check that compressor noise will not occur or the compressor will not run with a groaning sound. (2) CT circuit failure, PCB failure Trouble: Check: • Check for poor connector contact. • Check the continuity of the CT circuit. • Install a normal CT in place of this CT and check. If current is detected, then the PCB can be jedged OK. →CT circuit failure • Check that current is flowing in the phase where the CT circuit is connected. →Check voltage and current. (3) Missing power phase Trouble: This alarm primarily occurs when the T-phase is missing. When the R-phase or S-phase is missing, CT trouble or PCB continuity trouble occur. However this may not be true in the case of a missing phase caused by magnet SW trouble. Check: There is the possiblility of a magnet SW failure. Therefore, check the phase voltage at a location that is as close to the compressor as possible. (4) Low power voltage Trouble: In most cases, this occurs when another constant-speed compressor (including compressors in other units) or other device starts. It also occurs when the power wiring is extremely long. Check: Check the voltage between each of the phases. However if this troube occors when other devices or compressors start, then an oscilloscope is required. (5) PCB failure Trouble: Check: Check that the current value measured with the clamp meter is not lower than the value measured with the PC or remote controller. (6) If the cause is still unknown after checking the above, then it is possible that noise is the cause of the trouble. It is necessary to connect a PC or other instrument.
Correction	(1) Replace the compressor. (2) Replace the CT circuit. (3) Repair the power circuit. (4) Adjust the primary-side power. Repair the power wiring. (5) Replace the outdoor unit PCB. (6) Correct the trouble. * In the case of a compressor failure, it is likely that steps must be taken to correct the cause of the compressor failure (such as liquid back-up) in order to prevent recurrence. Be sure to check that there is no cause which may resuit in compressor locking.
Example	—

H03, H13, H23 Alarm

Alarm code	H03, H13, H23
Alarm meaning	Compressor 1 CT sensor disconnected or short-circuit; Compressor 2 CT sensor disconnected or short-circuit; Compressor 3 CT sensor disconnected or short-circuit
Alarm conditions	Current value at compressor 1 was 18 A or less, and at compressors 2 and 3 was 2 A or less when 2 seconds or more had passed after the compressor began operation and output. * No current is detected even though the compressor is operating.
Probable cause	(1) CT circuit failure (including cut wiring, etc.) (2) Disconnected CT circuit connector (3) Missing phase where CT circuit is connected (4) This CT circuit is connected to the connector of the other CT circuit. (5) PCB failure (6) Electrical noise
Check	(1) CT circuit failure, PCB failure Trouble: • Current value during compressor operation is below the threshold value. Check: • Check that the connector is not disconnected. • Check the continuity of the CT circuit. • Install a normal CT in place of this CT and check. If current is detected, then the PCB can be judged OK. →CT circuit failure • Check that current is flowing in the phase where the CT circuit is connected. →Check voltage and current. (2) Crossed wiring or installation error Trouble:When the compressor is stopped, the current value at the other compressor is high. ☆ When this type of condition occurs, seizing-detection control takes priority. (3) If the cause is still unknown after checking the above, then it is possible that noise is the cause of the trouble. It is necessary to connect a PC or other instrument.
Correction	(1) Replace the CT circuit. (2) Replace the outdoor unit PCB. (3) Correct the problem.
Example	(1) The connector was not inserted after the PCB was replaced.
Notes	Use a normal CT as a tool to determine whether the trouble is a PCB failure or CT failure.

H05, H15, H25 Alarm

Alarm code	H05, H15, H25
Alarm meaning	Compressor 1 discharge temperature sensor disconnected; Compressor 2 discharge temperature sensor disconnected; Compressor 3 discharge temperature sensor disconnected
Alarm conditions	• This alarm occurs when the discharge sensor temperature detector is not inserted into the tube's sensor holder, or when the sensor itself has suffered some kind of malfunction other than a cut wire. • When outdoor air temperature is 10°C or higher: Alarm occurs if the temperature detected by the discharge sensor has changed by less than 2°C when the compressor has operated for 10 minutes immediately after start. • When outdoor air temperature is below 10°C: Alarm occurs if the temperature detected by the discharge sensor has changed by less than 2°C when the compressor has operated for 30 minutes immediately after start.
Probable cause	(1) Discharge sensor temperature detector is not inserted into the tube's sensor holder. (2) Discharge sensor itself has suffered some kind of malfunction other than a cut wire.
Check	(1) Check that the discharge temperature sensor is inserted into the sensor holder. (2) Check that sufficient heat-conducting putty is applied. (3) Remove the discharge sensor from the sensor holder and expose the sensor to the outside air for approximately 5 minutes. Check that the temperature detected by the sensor changes to match the outside air temperature. (However the sensor cannot detect temperatures at or below 0 °C.)
Correction	(1) Install the sensor into the holder, and apply sufficient heat-conducting putty. (2) If the sensor is malfunctioning, replace it.
Example	
Notes	The discharge temperature sensor is generally a sensor intended for accurate detection of high temperatures. Therefore, it will not accurately detect the temperature if the temperature at the measurement point is 20 °C or below.

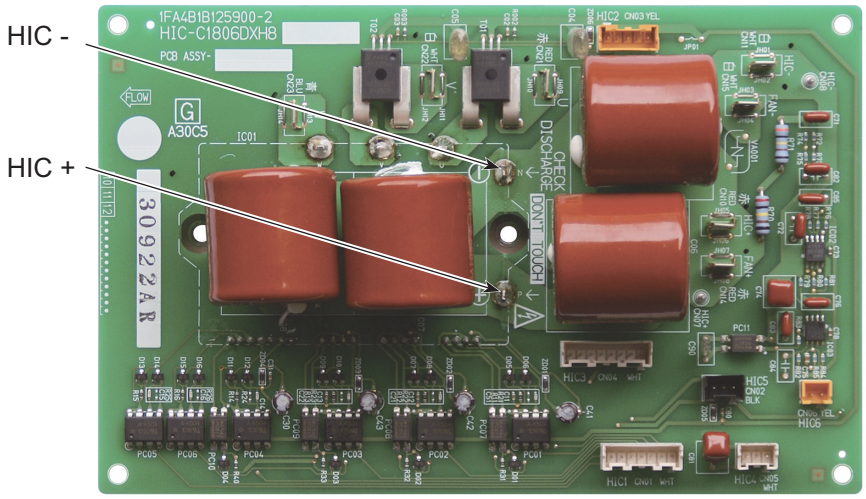
H06 Alarm

Alarm code	**H06**
Alarm meaning	Low-pressure switch activated
Alarm conditions	A report occurs during A/C operation when the low-pressure sensor installed at constant low-pressure parts detects a pressure of 0.05 MPa or less continuously for 2 minutes, or an instantaneous pressure of 0.02 MPa or less. (These values represent abnormal low pressure which may damage the compressor.) However, the alarm does not actually occur the first 2 times that the above operation takes place. At these times, the outdoor unit is stopped and the conditions are monitored. The alarm occurs when the above operation occurs for the fifth time. The first 4 times before the alarm occurs are called “pre-trip.” After pre-trip occurs, if the low-pressure sensor detects a pressure of 0.15 MPa or more for 3 minutes of continuous operation, the pre-trip count is reset to 0. If the low-pressure sensor detects a pressure of 0.16 MPa or less continuously for 30 minutes when the compressor is stopped, an alarm occurs immediately (no pre-trip).
Probable cause	The A/C unit low pressure has dropped to a level that does not occur under ordinary conditions. (1) The absolute amount of gas in the system is too low (as a result of insufficient refrigerant charge or leak). (2) The refrigerant has accumulated in the circuit and has not returned to the compressor. Refrigerant has accumulated in a location of one-way flow and cannot escape. High-pressure level is low, resulting in poor flow of refrigerant in the circuit. (A lower high-pressure level results in a smaller difference between low pressure and high pressure, that may be insufficient to cause refrigerant flow.) (3) The refrigerant circuit has become closed, and refrigerant has not returned to the compressor. In some cases when moisture enters the refrigerant circuit, it can freeze at the low-pressure locations and the resulting ice can block the circuit. ☆If the alarm occurs when there is sufficient refrigerant in the system ((1) and (3)), liquid refrigerant has definitely accumulated somewhere in the system. Liquid refrigerant generally accumulates in high-pressure locations. In this case the high pressure gradually increases (however it may not increase if the location where the liquid accumulates is sufficiently large). Depending on the refrigerant saturation temperature, it may also accumulate in low pressure locations. In this case the high pressure is unlikely to increase.
Check	(1) Check that the service valve is open. (2) Check that none of the valves (solenoid valves, mechanical valves) in the main refrigerant circuit is closed due to an operation failure. (3) Check that there is no possibility of foreign objects or water having entered the refrigerant circuit. (4) Check that valve leakage at a stopped sub unit has not resulted in accumulation of refrigerant at that sub unit. (5) Check that no refrigerant leakage has occurred.
Correction	(1) If there was a valve operation failure, in general it is necessary to replace the valve. (2) If a foreign object or moisture has entered the circuit, install a strainer or dry core (depending on the degree of the problem). (3) If refrigerant has leaked into stopped sub units, it is likely that valve leakage has occurred. The valve must be replaced.
Example	
Notes	

H08, H27, H28 Alarm

Alarm code	**H08, H27, H28**
Alarm meaning	Trouble (open circuit) with the oil sensor (connection) at compressor 1, compressor 2, or compressor 3
Alarm conditions	This alarm occurs when a connector connection (pins 1 and 2 for compressor 1, pins 4 and 5 for compressor 2, and pins 7 and 8 for compressor 3) is open.
Probable cause	Disconnected connector
Check	Check that the connector is securely connected.
Correction	(1) Connect the connector. (2) Correct the connection at connector pins 4 and 5.
Example	—
Notes	

H31 Alarm

Alarm code	H31
Alarm meaning	HIC trouble alarm
Alarm conditions	This alarm occurs when the microcomputer identifies a trouble signal (indicating abnormal HIC temperature or other trouble) from the HIC. The HIC judges the current and temperature, and outputs the trouble signal. In general this indicates trouble with the HIC itself.
Probable cause	Overcurrent in HIC circuit, and the resultant abnormal heating, caused by HIC failure
Check	Check the power wiring and connector wiring. If the wiring and connectors are normal, use a tester to measure the resistance between the compressor HIC power (HIC+) and ground (HIC–). If there is a short-circuit, there is an HIC malfunction.  **HIC PCB**
Correction	If an HIC failure is found, replace the PCB.
Example	—
Notes	Turn OFF the power, and check the continuity of HIC+ and HIC– on the HIC PCB.

L04 Alarm

Alarm code	L04
Alarm meaning	Outdoor system address duplication
Alarm conditions	Communication by inter-unit control wiring was received that contained the same address as that unit 5 times or more within 3 minutes.
Probable cause	Incorrect outdoor system address settings
Check	Check the system address settings again.
Correction	Correct the system address settings.
Example	—
Notes	Recovery from this alarm occurs automatically (when communication that contains the same address as that unit is not received for 3 minutes after detection).

L10 Alarm

Alarm code	L10
Alarm meaning	Outdoor unit capacity not set
Alarm conditions	The outdoor unit capacity has not been set, or the setting is not allowed by the system.
Probable cause	This alarm occurs because the capacity has not been set.
Check	Connect the outdoor unit maintenance remote controller. On the outdoor unit EEPROM detailed setting mode screen, check the value for the outdoor unit capacity (item code 81). Check that it is not set to “0” or to a capacity that is not allowed.
Correction	If item code 81 is incorrect, use the outdoor unit maintenance remote controller and set it correctly. * After changing the setting, be sure to reset both the indoor and outdoor power.
Example	—
Notes	The outdoor unit maintenance remote controller is required in order to set the capacity in the outdoor unit EEPROM.

L17 Alarm

Alarm code	L17
Alarm meaning	Outdoor unit model mismatch
Alarm conditions	This alarm occurs when a unit other than a R410A refrigerant model is connected.
Probable cause	(1) A unit that uses R407C refrigerant, or a R22 model unit, was connected by mistake. (2) The connected unit is correct, however the refrigerant type setting in the outdoor unit EEPROM (item code 80) is incorrect.
Check	(1) Check the refrigerant type at the connected unit. (2) Use the outdoor unit maintenance remote controller and check the item code 80 refrigerant type. If the setting is incorrect, change it to R410A.
Correction	—
Example	—
Notes	The outdoor unit maintenance remote controller is required in order to set the refrigerant type in the outdoor unit EEPROM.

L18 Alarm

Alarm code	L18
Alarm meaning	4-way valve operation failure
Alarm conditions	During heating operation (Comp. ON), the highest detected temperature at an outdoor unit heat exchanger (EXG 1, EXG 2, EXL 1, or EXL 2) was 20°C or more above the outdoor air temperature (Air Temp.) continuously for 5 minutes or longer, or the detected suction temperature (SCT) was 20°C or more above the outdoor air temperature continuously for 5 minutes or longer.
Probable cause	(1) The 4-way valve connector (20S CN022) has become disconnected from the control PCB. (2) The 4-way valve circuit is locked (malfunctioning).
Check	(1) Check the 4-way valve connector (20S CN022). (2) If the connector is normal, check the 4-way valve wiring and the PCB circuit.
Correction	If the connector is normal, correct or replace the problem locations.
Example	—
Notes	—

P02 Alarm

Alarm code	P02
Alarm meaning	Compressor thermal protector is activated. (trip only and no alarm)
Alarm conditions	When the current is not detected over 4 seconds long after the compressor ON.
Probable cause	Activating condition of the compressor thermal protector (The voltage is more than 260V or less than 160V between L and N phase.)
Check	(1) Check the constant speed compressor. (2) Check the current transformer.
Correction	• Put the constant speed compressor OFF over 60 minutes and cool the thermostat. • Replace defective parts with new ones.
Example	—
Notes	—

P03, P17, P18 Alarm

Alarm code	P03, P17, P18
Alarm meaning	Compressor 1 discharge temperature trouble; Compressor 2 discharge temperature trouble; Compressor 3 discharge temperature trouble
Alarm conditions	Temperature is 106°C or higher and pre-trip stop has occurred. The alarm occurs when pre-trip stop occurs more than once. However the pre-trip counter is cleared if the compressor operates continuously for a specified length of time.
Probable cause	(1) Clogging of liquid valve capillaries (2) Insufficient amount of refrigerant (including trouble resulting from an insufficient initial charge and from gas leakage) (3) Blocking of low-pressure parts caused by intrusion of foreign objects (moisture, scale, etc.) (4) Crossing (tubing or PCB connectors) with the other compressor thermistor (5) Expansion valve operation failure (6) Accumulation of refrigerant at stopped outdoor units (7) Compressor discharge sensor failure (8) PCB failure (A/D conversion failure) (9) Electrical noise
Check	(1) Clogging of capillaries Trouble: Compressor discharge temperature does not decrease even when the liquid valve is ON. Check: When the liquid valve is operating and the liquid valve is ON, check that the secondary side of the liquid capillaries is cold. (2) Insufficient refrigerant Trouble: Liquid effectiveness is poor. Check: Check whether or not the superheating temperature is declining if the evaporator mechanical valve is opened to 300 pulses or more (after checking for foreign object intrusion). (3) Foreign object intrusion Trouble: Liquid valve effectiveness is poor. Check: Check that there is no difference in the condensation or frost conditions between the strainer primary-side and secondary-side tubing. (4) Crossed thermistor Trouble: The discharge temperature of the other compressor is high although only this compressor is operating. When the liquid valve turns ON, the discharge temperature of the other compressor decreases. (5) Accumulation of refrigerant in stopped outdoor units Trouble: • System is OK when all outdoor units are operating, however symptoms of insufficient gas occur when a certain outdoor unit is stopped. • Condensation or frost is visible up to the top of the accumulator of the stopped outdoor unit. • After an outdoor unit stops, there is the sound of refrigerant flowing into an outdoor unit that was stopped for a long time. • When an outdoor unit starts after being stopped for a long time, the start is accompanied by much vibration. Check: • Representative parts include the liquid capillaries (secondary side of capillaries will be cool during cooling operation), mechanical valve, mechanical valve bypass check valve (sound of refrigerant flow can be heard, and stops when the liquid valve is closed), hot gas defrost valve (if valve secondary side remains hot even after much time has passed, be careful not to mistake transmitted heat for a valve failure). • Ice is growing on the lower parts of some outdoor unit heat exchangers but not on others. Because this trouble may occur even in outdoor units with a high operating rate under conditions of insufficient gas, caution is needed. (6) Sensor failure Check: • This alarm is likely to occur when wiring is partially cut. (It is difficult to identify, even when continuity is checked.) The detected discharge temperature is high. • Although such conditions rarely occur, a P02 alarm is likely if the detected discharge temperature is low. • Replace the sensor with another discharge sensor and compare the temperature conditions. (7) If the cause is still unknown after checking the above, then it is possible that electrical noise is the cause of the trouble.
Correction	(1) Replace the sensor. (2) Replace the outdoor unit PCB. (3) Correct the problem locations.
Example	All of the probable causes
Notes	Operates continuously for a set length of time. Indicates 2.5 minutes or longer for an inverter unit and 30 seconds or longer for a constant-speed compressor.

P04 Alarm

Alarm code	P04
Alarm meaning	High-pressure switch activated.
Alarm conditions	The operation of the electronic circuit in the high-pressure switch may short-circuit the terminal depending on the pressure. A pressure of 3.3 MPa or above will short-circuit the terminal. Once the terminal is short-circuited, it will remain in that state until the pressure goes below 2.6 MPa.
Probable cause	(1) Failure of the check valve in the compressor discharge tube. (2) The service valve is closed. (3) Clogging of the outdoor heat exchanger during cooling. (4) An air short in the outdoor unit during cooling. (5) Failure of the outdoor fan during cooling. (6) Clogging of the air filter in the indoor unit during heating. (7) An air short in the indoor unit during heating. (8) Failure of the indoor fan during heating. (9) Clogging of the refrigerant circuit. (10) Failure of the mechanical valve. (11) Failure of the solenoid valve kit. (12) Too much refrigerant has been charged. (13) Failure of the high-pressure switch.
Check	(1) Make sure that the high-pressure switch connector has been properly connected. (2) If the high-pressure switch is properly connected, connect a high-pressure gauge to the high-pressure outlet port and monitor the pressure during operation to check the pressure when the high-pressure switch is activated. Check valve failure is likely if the pressure is less than 3.3 MPa. The following describes checks to be made when the pressure is high. (3) During cooling, check whether the outdoor unit heat exchanger is clogged. Remove any foreign material that prevents ventilation. (4) During cooling, check whether an air short blockage has occurred in the outdoor unit. The system is operating normally unless the temperature around the outdoor unit is excessively high. (5) During cooling, check for outdoor fan failure. Check whether the screws securing the fan are loose and whether the fan connector in the outdoor unit PCB is properly connected. (6) During heating, check whether the air filters in the indoor unit are clogged. If clogged, clean the filters. (7) During heating, check whether an air short blockage has occurred in the indoor unit. The system operates normally unless the temperature around the indoor unit is excessively high. (8) During heating, check for indoor fan failure. (9) Check whether the refrigerant circuit is clogged. Check that all service valves are closed. Check whether welded locations are clogged. (10) Check for mechanical valve failure. Check whether the mechanical valves make a clattering sound when the power is reset. Since the mechanical valve in the indoor unit is in a location that makes aural inspection difficult, use an electric means to check. Check that the connector pin of the mechanical valve on the PCB outputs 4 V. In addition, check that the coil resistance of the mechanical valve is several tens of Ω. (11) Check for solenoid valve kit failure. Removing a coil that is on will result in a clicking sound. Also, removing a coil that is off will not produce such a sound. (12) Check whether too much refrigerant has been charged. Too much refrigerant has been charged if the sub-cool temperature of the condenser is 15ºC or more.
Correction	Replace damaged components and correct the amount of charged refrigerant.
Example	—
Notes	—

P05 Alarm

Alarm code	P05
Alarm meaning	Reverse phase (or missing phase) detected
Alarm conditions	This alarm occurs when a reverse phase or missing phase is detected in the L1-L2-L3-N phases.
Probable cause	Reverse phase or missing phase in the L1-L2-L3-N phases
Check	Check the wiring at the power terminal plate.
Correction	Switch the phases and reinsert. Check if the result is OK.
Example	—
Notes	—

P14 Alarm

Alarm code	**P14**
Alarm meaning	O_2 sensor operation
Alarm conditions	(1) It is judged an error whenever the outdoor unit receives the signal "O_2 Alarm Generated" from the indoor unit. (2) With the indoor unit's EEPROM setting (item code 0B) set to 0001, the EXCT input was shorted.
Probable cause	—
Check and Correction	(1) System configuration 1-1 Is an O_2 sensor being used? If "Yes", see "3-1". If "No", see "2-1". (2) Indoor EEPROM setting 2-1 Is the EEPROM setting, item code 0B, on the indoor control board set to 0001? If "Yes", see "3-1" after modification. If "No", see "4-1". (3) EXCT wiring 3-1 Is the EXCT socket (wire) shorted? If "Yes", Modify the wiring. If "No", see "4-1". (4) Indoor control board 4-1 Is the alarm triggered if the EXCT socket (wire) is disconnected, and the power is reset? If "Yes", see "4-3". If "No", see "4-2 ". 4-2 Since there is no error, see what happens. 4-3 Indoor control board defective → replace board
Example	—
Notes	—

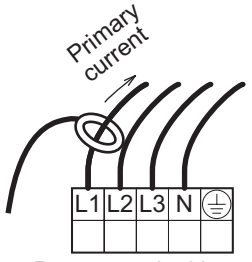
P16 Alarm

Alarm code	**P16**
Alarm meaning	Compressor 1 (INV) overcurrent alarm
Alarm conditions	This alarm occurs when current trouble or current detection trouble occur (when trouble judgment current is detected in the primary or secondary current, or when an instantaneous secondary current of 18A* or higher is detected). * Changed to output error by current regardless of the inverter frequency. In addition, there are 6 horsepower and 10 horsepower compressors. (1) When more than the over-current values shown in the table were detected in the primary and secondary current.

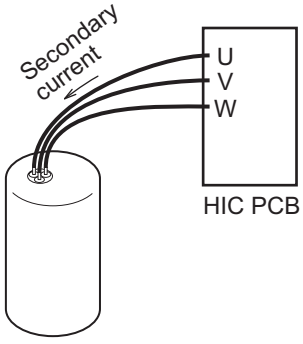
	Primary	Secondary
6 horsepower compressors	18A	18A
10 horsepower compressors	21A	21A

(2) When more than the current values shown in the table are instantly detected in the secondary current.

	Secondary
6 horsepower compressors	28A
10 horsepower compressors	36A



Power terminal board



Inverter compressor

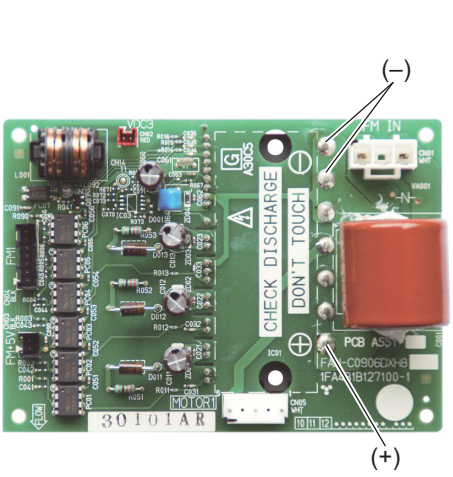
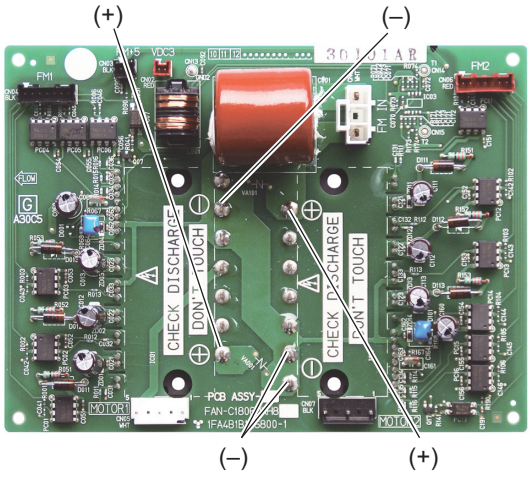
Probable cause	There is a strong possibility of a compressor failure. An alarm occurs for current detection trouble when it is judged that no current is flowing after start (DCCT is damaged). In this case, the cause is a DCCT failure.
Check	Check the power wiring and connector wiring.
Correction	It is possible to resolve this trouble by limiting the maximum frequency.
Example	—
Notes	—

4. 2WAY Alarm Codes

P20 Alarm

Alarm code	**P20**
Alarm meaning	High load alarm
Alarm conditions	The high pressure increase is not rapid but the alarm occurs when the horsepower down does not meet the anticipated time.
Probable cause	(1) Forgot to open the valve. (2) Operation failure of mechanical valve (3) Idle away of outdoor fan
Check	Check the valve, mechanical valve and outdoor fan.
Correction	—
Example	—
Notes	—

P22 Alarm

Alarm code	**P22**
Alarm meaning	Fan motor trouble
Alarm conditions	Fan motor start failure, fan motor Hall IC input failure
Probable cause	Possible causes are a Hall IC input circuit failure and a fan HIC failure.
Check	Check the fan motor wiring, the Hall IC wiring, and the connector connections. If the wiring and connectors are normal, then check that the capacitor of the Hall IC input circuit is securely soldered on the outdoor unit control PCB. Also use a tester and measure the resistance between fan HIC power (HIC+) and ground (HIC–). If there is a short-circuit, there is an HIC malfunction.  **Fan PCB FAN-C0906DXH8**  **Fan PCB FAN-C1806DXH8**
Correction	If the fan does not start, the below corrections may be effective. (1) If there is a fan HIC failure or circuit failure, replace the PCB. (2) If the fan motor is locked, replace the fan motor.
Example	—
Notes	Turn OFF the power, and check the continuity of “+” and “–” on the fan circuit PCB.

6

P29 Alarm

Alarm code	**P29**
Alarm meaning	Inverter compressor missing phase or lock alarm
Alarm conditions	This alarm may occur at start, and occurs when missing phase or lock is detected, and when a DCCT failure occurs.
Probable cause	Generally this alarm occurs when the refrigerant pressure balance is uneven at start, or when inverter compressor lock occurs, there is a missing phase in the inverter compressor wiring, or a DCCT failure occurs. This can be judged to be starting trouble which is not caused by HIC.
Check	Check the power wiring and connector wiring.
Correction	DCCT failure (replace PCB) or compressor failure
Example	—
Notes	Use a tester to measure the voltage between the DCCT output terminal on the rear of the PCB and the ground. If the voltage is not within 2 – 3 V, then the DCCT has malfunctioned.

CAUTION Currently the blinking inspection display can be displayed only on the wired remote controller and system remote controller.

Blinking inspection display (1) (Automatic backup)

Alarm code	**(Blinking inspection display)**
Alarm meaning	Automatic backup is in progress. A/C units can be operated. Status: The compressor at one of the outdoor units where the outdoor unit fan is running should be operating. * Blinking inspection display also occurs when seizing of the compressor magnet SW is detected. Because this may also be the case, refer to “Blinking inspection display (compressor magnet SW seizing detection).”
Alarm conditions	When alarm P16, P22, P29, Hx1, Hx2, or H31 has occurred, correcting the control device (remote controller, etc.) input engages this mode.
Probable cause	Because alarm P16, P22, P29, Hx1, Hx2, or H31 has occurred, check the alarm history then refer to the corresponding items.
Correction	Follow the instructions in the corresponding items to correct the trouble.
Recovery	After repairing the malfunctioning locations, reset the power for the system (all outdoor units). Caution: Automatic backup mode will not be canceled until the power is reset.
Notes	Automatic backup mode is not engaged in cases of alarms other than those listed above. Reasons: • There is no need for automatic backup if recovery is possible by correcting the remote controller input. • With alarms for which automatic recovery is possible (such as sensor alarms), the presence of electrical noise may result in a new alarm. However, it is believed that this occurs for a comparatively short time only. In these cases, a mode (automatic backup mode) that limits operation may be engaged. • Control is not possible when a communications system alarm has occurred. Automatic backup mode is not engaged in order to avoid causing secondary damage.

Blinking inspection display (2) (compressor magnet SW seizing detection)

Alarm code	**(Blinking inspection display)**
Alarm meaning	Compressor magnet SW seizing detected Status: Although an outdoor unit exists where the outdoor unit fan is running, no compressors in the system are operating. ☆ Because the fan is running only at the outdoor unit where seizing was detected, check the corresponding outdoor unit. * The fan may also run on its own when fan cracking prevention control is in effect or when snowfall sensor input is present. Therefore monitor for approximately 10 minutes if the outdoor unit fans are operating at multiple units.
Alarm conditions	Current is detected in the CT circuit when the compressor is stopped. (1) This control is not engaged for the first 30 seconds after the compressor turns ON → OFF. (2) For 1 minute following the first 30 seconds after the compressor turned ON → OFF, the threshold for the detected current is 10 A or more continuing for 2 seconds. (3) All times other than the above: • If the low-pressure SW has not activated, the threshold for the detected current is 7A or more continuing for 5 seconds. • If the low-pressure switch has activated, the threshold for the detected current is 7A or more continuing for 2 seconds.
Probable cause	(1) Magnet SW malfunction • The magnet SW has seized, and the compressor is continuing to run. → Even when the power is turned OFF, the primary side and secondary side contacts remain together. • The conditions of magnet SW operation are poor (difficult to open). → When a magnet SW is used in a DC circuit, it may be difficult for the SW to open at times. In an AC circuit the magnet SW should open instantaneously as long as the current is within the allowable range. However, this kind of trouble can occur if excessive current flows, and may prevent the SW from opening. (2) CT circuit failure or PCB failure (A/D failure) • CT circuit contact failure → Check that the connector is not partially disconnected. Wiggle the connector to check the connection.* * These symptoms will not occur if the connector is completely disconnected or the wire is cut. In these cases alarm Hx3 occurs. • Current of 7A or higher was detected although the compressor was stopped, or a higher current was detected at occasional intervals. • The compressor continues to operate at a time when the outdoor unit should be stopped (such as when all indoor units are stopped). → Check whether or not 200 V is output from the PCB to the magnet SW. If the voltage is output, there is a PCB failure. (3) Installation error • CT2 connector is connected to the compressor 3 side • CT2 circuit is connected to the compressor 3 side • CT3 connector is connected to the compressor 2 side • CT3 circuit is connected to the compressor 2 side (4) Electrical noise
Correction	(1) Replace the CT circuit. (2) Replace the magnet SW. (3) Replace the PCB. If the above probable causes are not the cause of the alarm, it is possible that in rare cases the alarm may be caused by the effects of noise. See notes.
Notes	The effects of electrical noise are difficult to identify unless a PC is connected and the conditions are monitored for a long period of time.

(1) High-pressure switch (63PH1, 63PH2, 63PH3)

63PH1	Disconnect the CN033 connector (3P, white) from the outdoor unit control panel. Measure the resistance between socket pins 1 and 3. The resistance is OK if the result is 0 Ω.
63PH2	Disconnect the CN031 connector (3P, red) from the outdoor unit control panel. Measure the resistance between socket pins 1 and 3. The resistance is OK if the result is 0 Ω.
63PH3	Disconnect the CN032 connector (3P, yellow) from the outdoor unit control panel. Measure the resistance between socket pins 1 and 3. The resistance is OK if the result is 0 Ω.

(2) Electronic control valve (MOV1, MOV2, MOV4)
After removing the connector from the PCB, use the following methods to check the valves.

MOV1	Measure the voltage between plug pin 5 and pins 1 through 4 at the CN079 connector (5P, white) on the outdoor unit control PCB. (Because of the pulse output, a simplified measurement method is used. Set the tester to the 12 V range; if the value displayed is approximately 4 V, then the voltage is normal.) When the voltage is normal, measure the resistance between each pair of pins on the electronic control valve connector. The connector is normal if all results (pin 5 – pin 1, pin 5 – pin 2, pin 5 – pin 3, pin 5 – pin 4) are approximately 46Ω. (If the results are 0Ω or ∞, replace the coil.)
MOV2	Measure the voltage between plug pin 5 and pins 1 through 4 at the CN080 connector (5P, red) on the outdoor unit control PCB. (Because of the pulse output, a simplified measurement method is used. Set the tester to the 12 V range; if the value displayed is approximately 4 V, then the voltage is normal.) When the voltage is normal, measure the resistance between each pair of pins on the electronic control valve connector. The connector is normal if all results (pin 5 – pin 1, pin 5 – pin 2, pin 5 – pin 3, pin 5 – pin 4) are approximately 46Ω. (If the results are 0Ω or ∞, replace the coil.)
MOV4	Measure the voltage between plug pin 5 and pins 1 through 4 at the CN082 connector (5P, blue) on the outdoor unit control PCB. (Because of the pulse output, a simplified measurement method is used. Set the tester to the 12 V range; if the value displayed is approximately 4 V, then the voltage is normal.) When the voltage is normal, measure the resistance between each pair of pins on the electronic control valve connector. The connector is normal if all results (pin 5 – pin 1, pin 5 – pin 2, pin 5 – pin 3, pin 5 – pin 4) are approximately 46Ω. (If the results are 0Ω or ∞ , replace the coil.)

(3) Crankcase heater

- Connect a clamp meter to 1 of the 2 crankcase heater wires and measure the current.
  The current is normal if the result is 0.15 A or higher.
  (As a guide, the current should be 0.14 A (180 V) – 0.17 A (220 V).)

7. Test Pin

When the test pin on the outdoor unit control PCB is short-circuited, each part can be operated individually.

- After turning OFF the main unit power, short-circuit the test pin (CN048, white), then turn the power back ON. Output is performed in the sequence shown in the table below, for 0.5 seconds each.

	Output	Operation		Output	Operation
1	Relay RY012	Supercooling valve 1 (SCV1)	11	Relay RY008	Save valve (SAVE)
2	Relay RY013	Supercooling valve 2 (SCV2) *	12	Relay RY019	Pressure balance valve 2 (PBV2)*
3	Relay RY016	Discharge valve 2 (DCV2)*	13	Relay RY002	Crankcase 2 (CH2)
4	Relay RY015	Discharge valve 1 (DCV1)*	14	Relay RY001	Crankcase 1 (CH1)
5	Relay RY014	Bypass valve (BPV)	15	Relay RY014	Supercooling valve 3 (SCV3) *
6	Relay RY006	Recovery valve (ORVR)	16	Relay RY017	Discharge valve 3 (DCV3) *
7	Relay RY005	Balance valve (BALV)	17	Relay RY020	Pressure balance valve 3 (PBV3)*
8	Relay RY018	Pressure balance valve 1 (PBV1)	18	Relay RY003	Crankcase 3 (CH3)
9	Relay RY011	Refrigerant balance valve (RBV)			
10	Relay RY010	Refrigerant adjustment valve (RCV)			

* The asterisk (*) mark stands for the series of “3Way”.

8. Symptom: Thermostat in OFF continues or cycles OFF & ON too frequently

1. How to detect abnormality

- Abnormality does not occur. Protective function can be checked when the outdoor maintenance remote controller is connected.

2. Error Diagnosis

1 Indoor control PC board	1-1	Setting temperature reaches the level set ON thermostat. Setting temperature is too low in heating mode and too high in cooling and dry mode.	Yes	Adjust setting temperature
			No	1-2
	1-2	Check if the sensors are connected correctly. Are all connection made properly? Room temp. (TA) in yellow, heat exchanger (E1) in red, heat exchanger (E2) in black, heat exchanger (E3) in brown, air outlet (BL) in green	Yes	Connect correctly
			No	1-3
	1-3	DISP (display mode) is applied.	Yes	Turn OFF(OPEN)
			No	1-4
	1-4	With a thermostat OFF in heating mode, wind speed (item code 05) is out of range 0 - 6. (Use Simple Setting Function on standard timer remote controller.)	Yes	Choose one of 0 to 6
			No	1-5
	1-5	EXCT(demand control) is applied.	Yes	Turn OFF(OPEN)
			No	2-1
2 Outdoor control PC board	2-1	Outdoor unit and protective function of a system are operating. (Connect outdoor maintenance remote controller to RC socket on outdoor unit main control PC board and check alarm messages.)	Yes	See operational status
			No	2-2
	2-2	Discharge temperature is over 80°C in stop mode and does not decrease. (Connect outdoor maintenance remote controller to RC socket on outdoor unit main control PC board and check alarm messages.)	Yes	Replace discharge temperature sensor
			No	2-3
	2-3	Demand value always stays low. (The value is lower than 70. Excluding -1 (unlimited))(Connect outdoor maintenance remote controller to RC socket on outdoor unit main control PC board and check alarm messages.)	Yes	Increase values (over 70)
			No	2-4
	2-4	DEMAND or EXCT(demand control) is applied.	Yes	Turn OFF(OPEN)
			No	3-1
3 Control equipment	3-1	Demand setting is made by control units (P-AIMS, Seri-Para I/O unit for outdoor unit, Seri-Para I/O each indoor unit.)	Yes	Turn OFF
			No	4-1
4 System	4-1	When operating in cooling (including auto cooling & heating) and dry mode, lowest temp. of indoor E1, E2 and E3 sensor is less than 2°C (under anti-freeze control).	Yes	Wait until more than 2°C reaches
			No	4-2
	4-2	During defrosting operation	Yes	Wait for a few minutes to 10 minutes or so
			No	4-3
	4-3	Outdoor unit PC board failure → Replacement		

- According to the type of models, the indoor sensors will not be supplied in some cases.
- According to the type of models, the outdoor DEMAND or EXCT will not be supplied in some cases.
- When LINE Checker is used, the temperature sensors can be observed (display, record) simultaneously.
- According to some areas, some of the models are unreleased.