Panasonic®

INSTRUCTION MANUAL

**Gas Heat Pump Chiller
Water Heat Exchanger**

S-250WX2E5
S-500WX2E5
S-710WX2E5

CONTENTS

Use a equipment properly and save energy
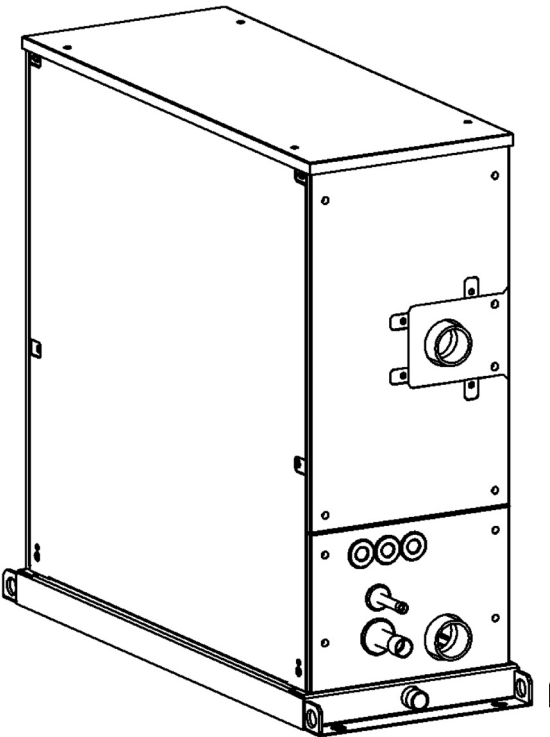
CHARACTERISTICS AND REQUESTS

ABOUT YOUR GAS HEAT PUMP AIR CONDITIONER

The gas heat pump air conditioner (GHP) uses gas as the fuel to drive the compressor.
As it uses gas engine, there are various characteristics.
 • Even on very cold days the unit doesn't almost frost up so it provides stable heating operation.
 • As the electric power consumption is about 3 kW, this leads to be less received power equipment.
However, as with a car engine, periodical inspections by a specialist are for efficient use needed for a comfortable operation. Please make sure you have these periodical inspections.

PLEASE ENSURE YOU SIGN UP FOR A REGULAR CHECK UP CONTRACT

In order to have a comfortable operation of GHP for a long period, periodical inspections are necessary.
Please conduct yearly inspections supported by a specialist.
What will happen if you don't have periodical inspections.
1. The engine oil will deteriorate, causing a malfunction.
2. The air cleaner element will be clog up, causing carbon monoxide and
   occasional reduction of performance.

REQUESTS
Once signed up for a periodical inspection, a specialist will call on depending on the length of time the unit has been in use. After a fixed period of in use hours. the remote controller will display "Oil Inspection". At this time we would appreciate you contacting your dealer or service center for a check up.
For details please refer to page 3.

CHANGING ENGINE OIL

Periodically change engine oil and oil filter.
If you forget to change engine oil or use a non-specified oil, it may have a bad effect on the engine and be the cause of trouble.
* Engine Oil (Genuine Oil)

⚠ CAUTION
 • Filling in too much oil will have a bad effect on the engine.
 • Please consult with your service center or dealer when changing the oil.

PERIODICAL INSPECTION

In order to have a comfortable operation of GHP for a long period, periodical inspections are necessary. When you purchase your GHP, please sign up for Panasonic's periodical inspections contract system.
When you sign up for a periodical inspection, specialist will call on you.
For more details about the inspection contract, please ask your dealer or consult with one of our service centers.

For the details of periodic inspections, refer to the instruction manual included with the outdoor unit.

■ TEST OPERATION

Inspection items	
	(Test operation) • Check the installation work • Inspect the electricity wiring • Inspect the equipment itself • Check an engine system • Check safety protection devices • Operation data collection • Gas leakage check **PLEASE** contact your installer for repairs if something is found to be amiss during the test operation.

SAFETY PRECAUTIONS

Before operating the unit, please be sure to read the SAFETY PRECAUTIONS
Listed below are two types of precautions, one is a ⚠WARNING and the other is a ⚠CAUTION.
Please be sure to obey these instruction for safety sake.

• The expressions have the following meaning.

⚠ WARNING: An assumption that a mistake in use could lead to death or injury.

⚠ CAUTION : An assumption that a mistake in use could lead to injury or could cause physical damage to the equipment.

• The meaning of the symbols

⚠ : "WARNING" or "CAUTION" is urged.

🚫 : Shows that something is "FORBIDDEN".

❗ : Shows that something should be done.

• Please keep this manual in an easy to reach place so the operator can easily refer to it.
If the operator should change, please be sure to hand over this manual for him to read.

Cautions before use

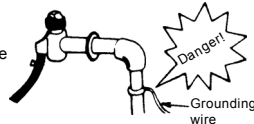| ⚠WARNING		
Do NOT install the equipment yourself. ❗ Ask for the equipment to be installed	**Confirm the kind of gas you use.** ❗ Check the kind of gas	**Confirm that the exhaust drain from the outdoor unit and the drain water from the indoor unit is not commonly connected.** ❗ Check the drains
Please ask your dealer or a specialist to install the equipment. If you improperly install it by yourself, it might lead to an electrical shock, fire and water leakage and so on.	If you use the wrong kind of gas, it might lead to incomplete combustion and be the cause of gas poisoning. Confirm the gas kind.	If these are the common pipes, then exhaust gas could leak into the room and be the cause of poisoning. Confirm the drains are separate.
Confirm that each unit has an exclusive electric circuit. ❗ Check the electric circuit	**In the rare possibility of a leak of refrigerant.** ❗ It is necessary to limit the amount of leakage of the refrigerant.	**Be sure to buy Panasonic specified equipment.** ❗ Please buy Panasonic specified equipment
If you use other electrical equipment(s) on the same circuit, then you may blow a fuse or cause secondary damage to equipment. Confirm the electric circuit.	If the equipment is installed in a small room, steps must be taken to ensure the rare possibility that leakage of the refrigerant does not exceed a certain limit. Before installation, consult with your dealer about this certain limit. In an emergency when the refrigerant leaks, it may cause an accident due to lack of oxygen in the air.	If you buy separate equipment such as an air cleaner or a humidifier (in case of fitting inside the unit), please be sure to buy only Panasonic specified products. And ask a specialist dealer to install it. If you improperly install the equipment by yourself, it may lead to an electric shock, fire or water leakage and so forth. Please buy Panasonic specified equipment.

⚠CAUTION		
Please be sure to install the outdoor unit where there is no volatile or inflammable material. ❗ Install your outdoor unit where there is no inflammable or volatile material.	**Check the condition of grounding work.** ⏚ Ground the equipment	**Check you have a short circuit breaker in place.** ❗ A short circuit breaker is necessary.
Please ascertain there is no occurence, influx or collection of inflammable or volatile gases in the area surrounding the place you install your outdoor unit. If you don't do this, it may cause a fire.	Do not connect the ground wire to any gas pipes, water pipes, lightening rods or telephone ground wires. If the ground wire is faulty, it may result in an electrical shock. **Water pipe** Some parts are made of plastic and are no good for earthing. **Gas pipe** There is a danger a ignition and explosion. **The telephone earth, a lightning rod.** When struck by lightning, there is a great danger of a massive power surge.	A short circuit breaker is required by law. If you don't have one, it may cause an electric shock or fire.

⚠ CAUTION

Check that you have a rated power supply and check the capacity of the circuit breaker.	Only use a fuse of the correct capacity.	Be sure to install the drain pipe of water heat exchager unit with some gradient to drain out properly.
It could lead to damage to the equipment or cause a fire. Confirm the power supply and breaker capacity.	Using wire and the like instead of the correct fuse could lead to an electrick shock and fire.	A water leakage could cause damage to your furniture and other property.
Confirm the power supply and breaker capacity.	Forbidden	Check the drain pipe

Precautions during use

⚠ WARNING

Please make sure that the exhaust gases from the outdoor unit do not seep inside.	Don't operate the equipment with wet hands.	Don't put your hand or foreign objects in the outlet or inlet of both indoor and outdoor units.
If exhaust gases get inside the room, it could cause gas poisoning.	It could cause an electric shock or damage the equipment.	A high speed fan is rotating inside and could cause injury.
Forbidden	Forbidden	Forbidden

Don't block the intake, discharge or the drain of the outdoor unit.	What to do if the outdoor unit leaks fuel gas.
It may lead to incomplete combustion and cause a fire or gas poisoning.	If the outdoor unit leaks fuel gas, then turn off the air conditioner, close the main gas valve and contact your local gas company or service company or dealer for repairs. It could cause a fire.
Forbidden	Turn off the equipment and close the gas valve

What to do if the refrigerant leaks.	If you detect a strange smell (a burning smell, a gas smell), or a abnormal sound or unusual vibrations, then turn off your air conditioner and the electric supply.
If the refrigerant leaks, then turn off the air conditioner and ventilate the room. Then notify your dealer or service center. If the leak exceeds a certain limit, it could cause a lack of oxygen in the air.	If you continue to use the equipment under abnormal circumstances, it could lead to an electric shock, fire or cause a machine breakdown. Please contact your dealer or service center.
Turn off the equipment and do adequate ventilation.	Turn off the equipment and power supply.

⚠ CAUTION

Do NOT open the panel.	Do NOT remove the fan guard.	Do NOT touch the exhaust outlet.
Inside the unit are revolving parts, high temperature parts and high voltage parts and if you touch them it could result in injury or an electric shock.	The fan revolves at high speed and could cause injury.	It is very hot and could cause a burn.
Forbidden	Forbidden	Forbidden

⚠CAUTION

Do NOT spray the units with an inflammable spray. Please do NOT place or use combustible sprays near or on the units. It could lead to ignition. Forbidden	**Please do NOT use the unit for a particular cooling applications such as food supplies, animals and plants, precision machinery or objects of art: things that need a special preservation requirement.** It could cause a deterioration in the quality of food stuffs and so forth. Forbidden	**Use cold-hot water or chilled water that complies with water quality standards.** Deteriorated water quality can cause water leakage and other problems. Use standard compliant water
Do not use cold-hot water or chilled water for drinking or in the hot-water supply. Such use can cause health problems. Forbidden	**When shutting down for extended periods or not using in the winter months, fill the water pipe with antifreeze agent or drain all water from the pipes.** Leaving water in the pipes can cause water leakage and other problems. Fill with Antifreeze Agent, or Drain the Water	**Make no changes in the safety device settings.** Faulty changes can cause fires or other mishaps. Forbidden

For valves, follow the directions in the instruction manual, the Attention Installation Work Coordinators and Attention Test Operation Coordinators pages, confirming open/closed status.

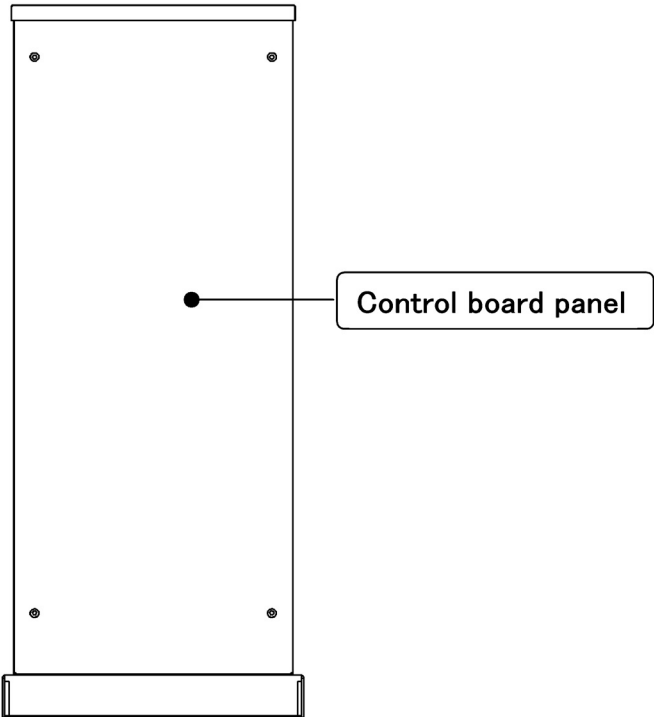In particular, always keep security valves (such as safety valves) open during operation. Mistaken valve operation can cause water leakage, fire, explosions and other mishaps

Confirm Valve Open/Closed Status

Adjustment valve closed

⚠REQUESTS

Please do NOT operate the remote control with a pointed object. It could damage the remote control. Forbidden	**Please obey the following regarding the power source installed nearby the unit:** • Please do NOT operate the equipment with the at hand power source. Your air conditioner is a multi-type air conditioner. If you turn off one of the power sources installed near by the unit, all the units with the same power source will become inoperable. • Please turn on the power switch at least 5 hours before operating the air conditioner. In order to protect the compressor, the crank case heater is provided. Please be sure to carry out the following:

	At inspection times or when you want to use	Leave the switch ON during the seasons you use the equipment.	Turn the switch OFF during the seasons you don't use the equipment.
Power Source	The air conditioner turn the switch ON at least 5 hours beforehand.	Switch ON	Switch OFF

• During maintenance, turn the power switch OFF.
• During seasons of use please do NOT turn the power switch OFF.

• Be careful about cold water (hot water) freezing.

When operating heaters in cold districts (regions where outdoor temperatures remain below 0°C), adding an antifreeze agent to the cold water (hot water) system will increase anti-freezing effects. We recommend use of a proper antifreeze agent for this purpose, following consultation with the dealer where the unit was purchased. In such cases as well, conduct either "water draining" or "pump antifreeze operation when heating operation is shut down."

Do NOT block the inlet or the outlet of both the indoor and outdoor unit. It could result in a loss both of cooling and heating. It could also lead to damage to the equipment. Forbidden

NAMES OF PARTS

Water Heat Exchanger

Control board panel

Front side

Cold-hot water inlet

Refrigerant pipes

Cold-hot water outlet
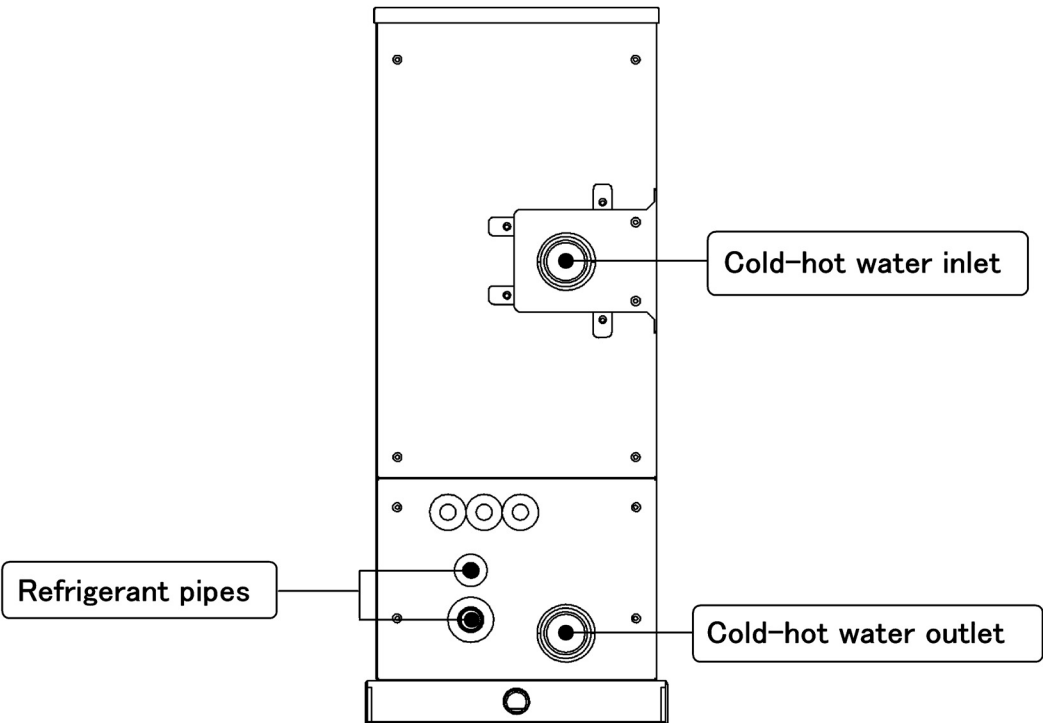
Rear side

Remote Controller   CZ-RTC2 (Available Separately)

Operating buttons
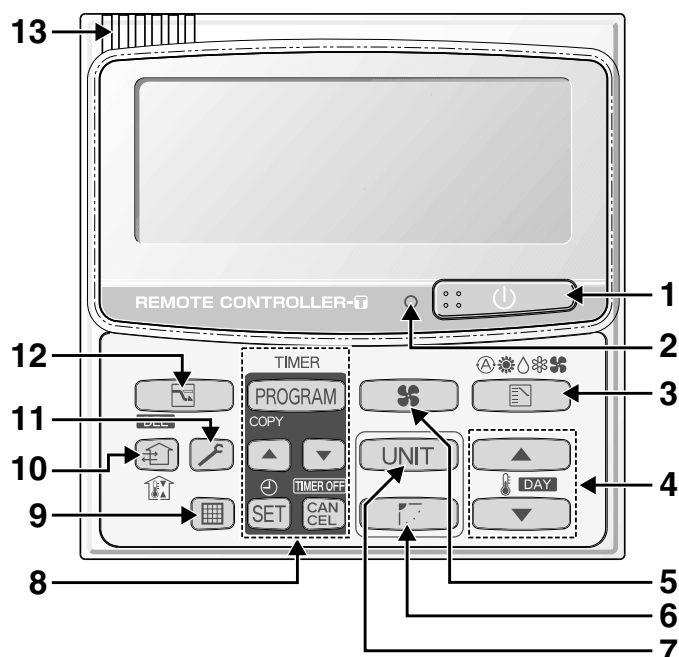
Operation Section	
1. Start/Stop button	Pushing this button starts, and pushing again stops the unit.
2. Operation lamp	This lamp blinks when an error occurs or aprotective device is activated.
3. Mode Select button	Pushing this button to select an operation mode. (AUTO Ⓐ/HEAT ☀ /DRY ◊ /COOL ❄ /FAN ❊).
4. Temperature setting buttons	Changing the temperature setting.
5. FAN speed button	This button is not available.
6. Swing/Air direction button	This button is not available.
7. Unit Select button	When more than one unit is operated by one remote control unit.
8. Timer setting buttons	Use these buttons to set the timer program. (Refer to "Weekly Program Function" on page 10)
9. FILTER reset button	This button is not available.
10. Ventilation button	Use this button when you installed a fan available in the market. Pressing this button turns on and off the fan. When turning off the unit, the fan will be also turned off.
11. Inspection button	Do not use this button.
12. Sleeping button	Refer to "Sleeping Function" on page 15.

Display

Display Section	
1. SETTING indication	Appears when the timer program is being set.
2. UNIT indication	Indicates the unit No. of the water heat exchanger unit and outdoor unit which is selected with the Unit Select button.
3. TIMER No. indication	Appears when the time program is being set.
4. Timer program	The unit starts or stops operation at the programmed time.
5. Today's day of the week	Indicates today's day of the week.
6. Program schedule indication	Appears under days that are scheduled for program operation.
7. Present time	Displays the present time on a 24-hour clock. Indicates the alarm code when the unit in which an abnormality occurs.
8. TIMER OFF indication	Displayed when the timer has been turned OFF.
9. ERROR indication	Displayed when a mistake is made during timer setting.
10. Setting temperature indication	Appears when the upper or lower limit of the temperature is being set manually.
11. Upper and lower limit indication of the temperature	$\overline{\blacktriangle}$: Indicates the upper limit of the temperature $\underline{\blacktriangledown}$: Indicates the lower limit of the temperature
12. Operation Mode indication	Displays the selected operation mode.
13. Temperature indication	Indicates the set temperature.
14. ˚F / ˚C temperature unit indication	Indicates the the temperature unit.
15. Remote control sensor indication	Appears when the remote control sensor isused.
16. Centralized control indication	Appears when operated in centralized control. If the remote control operation is not permitted to the remote unit, when the Start/Stop button,Mode Select button or Temperature setting button is pressed, flashes and rejects the change.
17. Operation mode change controlindication	Displays when an operation mode is enteredby the remote control unit, This indicates that the operation mode cannot be changed.
18. Disabled Feature indication	Displayed if the selected feature was disabled during installation.
19. GHP operation standby indication	Appears when the indoor unit fan is stopped or in low fan speed.
20. Heating standby mode indication	Appears when the indoor unit fan is stopped or in low fan speed.
21. Fan mode select indication	The selected fan mode is displayed.
22. SWING indication	This functions is not used.
23. Flap position indication	This functions is not used.
24. Filter indication	Appears when filter needs cleaning.
25. Inspection indication	Appears when the protective device is activated or when an abnormality occurs.
26. Ventilation indication	Appears when a fan available in the market is installed and is operating.
27. Oil indication	Appears when the engine oil needs to be changed.
28. Repetitive TIMER OFF	Appears when the timer is setted.
29. CAUTION	Appears when the protective device is activated or when an abnormality occurs.
30. Unit No. indication	Indicates the unit No. of the selected indoor unit or the unit No. of the indoor/outdoor unit which an abnormality occurs.
31. TEST indication	Appears while in test operation.

OPERATION

Setting the Present Time

1. **Press and hold [SET] for more than 2 seconds to enter in the present day and time setting mode.**
   Once you enter in the setting mode, **SETTING**, "➤"(day) and "time" flash.

2. **Set "➤" to today's day of the week.**
   Press **DAY** *1 **[▲]** to move "➤" (flashing on the display) in the order of : Su → Mo → Tu → .... Press **[▼]** to move it in the order of : Su → St → Fr → ....

   *1 While in time setting mode, the temperature setting buttons function as **DAY** (changing day) button.

3. **Press [▲] [▼] to change the present "hour" in the range of 0 to 23*2.**
   Set the present hour and press [SET].
   The "hour" digits light up, and the "minute" digits start flashing.

   *2 If the clock uses the 12 hours AM/PM setting, the hour is displayed in the range of AM 0 to 11/PM 0 to 11.

4. **Press [▲] [▼] , to change the present "minute" in the range of 0 to 59.**
   Set the present minute and press [SET]. The day and time are set and finishes the setting mode.

3,4   1,3,4   2
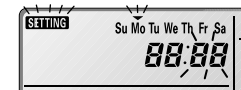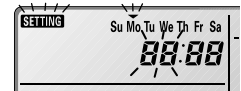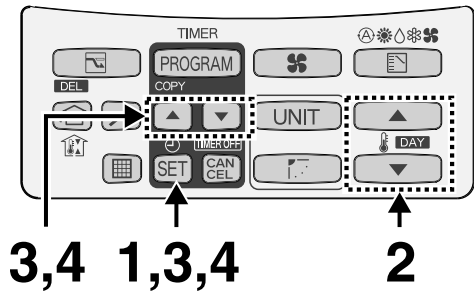
| Note |

- The unit returns to the normal mode if [CAN CEL] is pressed or there is no operation made for 3 minutes during the setting. In this case, all the settings in progress will be lost.

- If the present time is invalid, "– – : – –" is displayed.

  If the power failure for more than 1 hour occurs, check if the set data of day and time are valid.

Weekly Program Function

Checking Weekly Timer

Set the weekly program assigning a given timer to each day of the week.
Maximum of 6 programs a day and 42 programs a week can be set.
Select the day and the TIMER number you want to program.

Program image diagram

Vertical scale indicates the TIMER No., and horizontal scale indicates the day.

* If the day is changed, the TIMER No. returns to "1".

DAY button

TIMER No.

Select a section from the 42 programs.
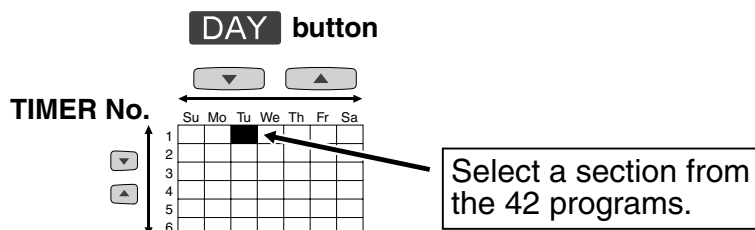
1. **Press PROGRAM to enter the program confirmation mode "$\mathcal{CH}$" and start setting.**
   Once you enter the program confirmation mode, the present day is indicated as TIMER No. "1".

2. **Select the day.**
   Press **DAY** and ▲ / ▼ to move the "➥" horizontally on the day to select.
   Press ▲ to move "➥" (flashing on the display) in the order of : Su   Mo   Tu···.
   Press ▼ to move it in the order of : Su → Sa → Fr···.
   "– – : – –" is displayed when the program is not set.

3. **Select a Timer number.**
   Press ▲ / ▼ to select a TIMER No. from 1 to 6.
   Press ▲ to move up from 1.
   Press ▼ to move down from 6.

1   **3**

program CHeck   **2**

TIMER No. 1~6
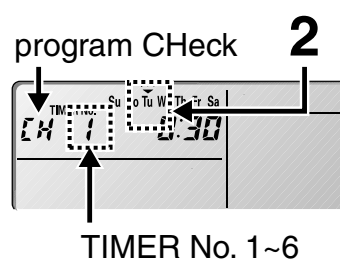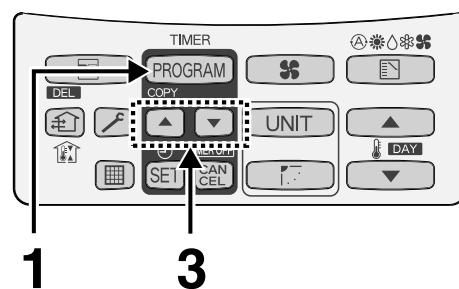
• Changing the Program Timer

To set the weekly program, follow the steps below.

1. **Select the program you want to set in the program confirmation mode, and press [SET]. The unit enters the setting mode of the program currently displayed.**
   * In the program setting mode, **SETTING**, "hour", "minute" and "item" flash on the display.

   2,3,4   1,2,3,4   4
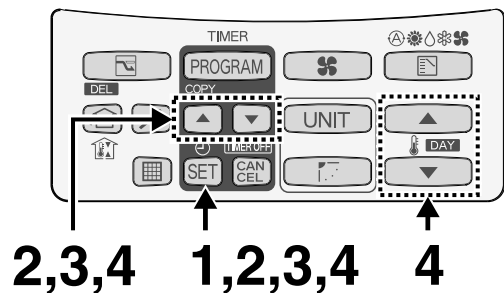
2. **Set the "hour". (program step 1)**
   Press [▲] / [▼] to set the "hour".
   Confirm the "hour" and press [SET]. The unit enters the program changing mode *P2* (setting of the "minute").

3. **Set the "minute". (program step 2)**
   Press [▲] / [▼] to set the "minute".
   Confirm the "minute" and press [SET]. The unit enters *P3* (the program pattern selection mode).

Program step1

SETTING TIMER No. Su Mo Tu We Th Fr Sa
P1 *2* *00:00*

Program step2

SETTING TIMER No. Su Mo Tu We Th Fr Sa
P2 *2* *00:00*

```
            ┌──────────────────────────────┐
            │   normal remote controller    │
            └──────────────────────────────┘
   PROGRAM  ↓↑  CANCEL
                         SET
 ┌──────────────┐  ──────────▶  ┌───────────────────────────┐
 │ [H Program   │               │ P1   Changing hour digits │
 │              │  ◀──────────  └───────────────────────────┘
 │              │   CANCEL,DEL           │ SET
 │ program check│               ┌───────────────────────────┐
 │              │  ◀──────────  │ P2   Changing minute digits│
 │              │   CANCEL,DEL  └───────────────────────────┘
 │              │                        │ SET
 │              │               ┌───────────────────────────┐
 │              │  ◀──────────  │ P3   Changing patterns    │
 │              │  SET,CANCEL,DEL └──────────────────────────┘
 │              │   PROGRAM
 │              │  ──────────▶  ┌───────────────────────────┐
 │              │               │ [1   Selecting copy source│
 │              │  ◀──────────  └───────────────────────────┘
 │              │   CANCEL               │ SET
 │              │               ┌─────────────────────────────────┐
 │              │  ◀──────────  │ [2  Selecting copy destination  │
 └──────────────┘  SET,CANCEL   └─────────────────────────────────┘
```

4. Set the program pattern.
   (program step 3)
   There are 4 program patterns.
   Pressing ▲ / ▼ repeats the following
   display patterns.

   Pattern 1

The water heat exchanger unit starts operation at the programmed time.

   Pattern 2

The water heat exchanger unit stops operation at the programmed time.

   Pattern 3

The water heat exchanger unit starts operation at the programmed time and changes the temperature settings.

   Press ▲ / ▼ to change the
   temperature setting.

   Pattern 4

The water heat exchanger unit changes the temperature setting at the programmed time.

   Press ▲ / ▼ to change the
   temperature setting.
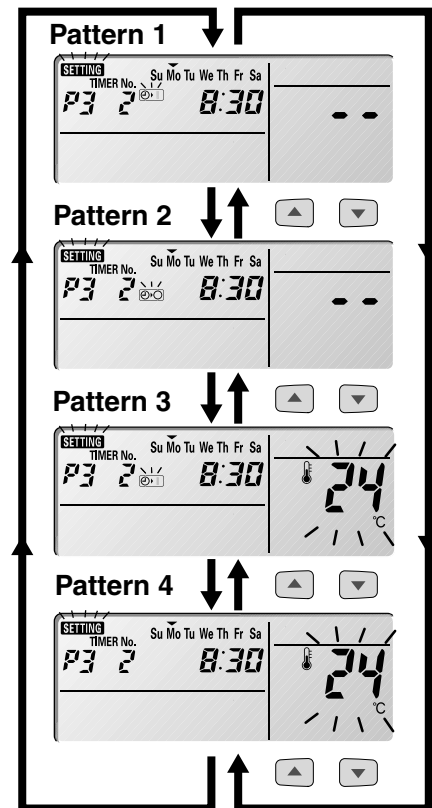
Select the program pattern and press [⏱SET]. The program timer setting is confirmed and the unit enters the confirmation mode *C H*.

Note

- If you press [CAN CEL] during the setting, it returns to the program confirmation mode.
- If there is no operation made for 3 minutes during the setting, it returns to the normal mode. In this case, all the settings in progress will be invalid.

• Deleting the Program Timer

To delete the program timer setting, follow the steps below.

1. **Press PROGRAM to enter the program confirmation mode.**

2. **Press ▲ / ▼ to select the day of the program you want to delete.**

3. **Press ▲ / ▼ to select a TIMER No. (from 1 to 6).**

4. **Press SET to display the program setting mode P1.**

5. **Press DEL to delete the program.**

5   3   4   1   2
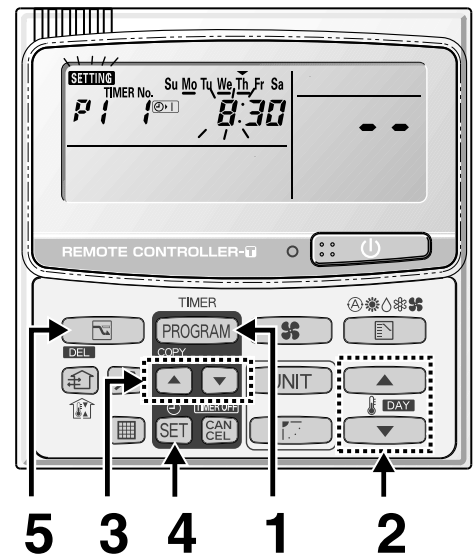
Note

*   After deleting, the unit returns to the program confirmation mode *CH*.
*   If you press CAN CEL during the setting, the unit returns to the program comfirmation mode.
*   If there is no operation made for 3 minutes during the setting, the unit returns to the normal mode.

• Invalidating Program Timer

If you want to adjourn the program operation for more than 1 week, you can invalidate all the timer settings. Once the timer settings are invalidated, the program will not be operated until the invalidation is cancelled.

<<How to invalidate the program timer>>

Press and hold CAN CEL (TIMER OFF) for more than 2 seconds.

**TIMER OFF** is displayed and the programs will be invalidated from the next one.

<<How to cancel the program timer invalidation>>

Press and hold CAN CEL (TIMER OFF) for more than 2 seconds.

TIMER OFF disappears and the programs will be validated from the next one.

If Power Failure Occurred
If the power recovers in a short time period, the program after the recovered time will be valid.
If the power recovered more than 1 hour after the failure, the present time information will be lost. In this case, the program will not be operated.

• Duplicating the Program Timer

You can duplicate the preset program by day.

Select the copy source.

1. If PROGRAM COPY is pressed in program checking mode CH, it enters the copy mode (Selecting the copy source $C1$) of the program timer.
   While in the copy mode of the program timer, **SETTING** and ▼ (day) of the copy source flash on the display.

2. Press [▲] / [▼] to select the day of the copy source.
   Select the copy destination.

3. If SET is pressed in the mode of selecting the copy source $C1$, it enters the copy mode (Selecting the copy destination $C2$) of the program timer.

4. Press [▲] / [▼] to select the day of the copy source. Then, press SET to complete copying and return to the program checking mode.
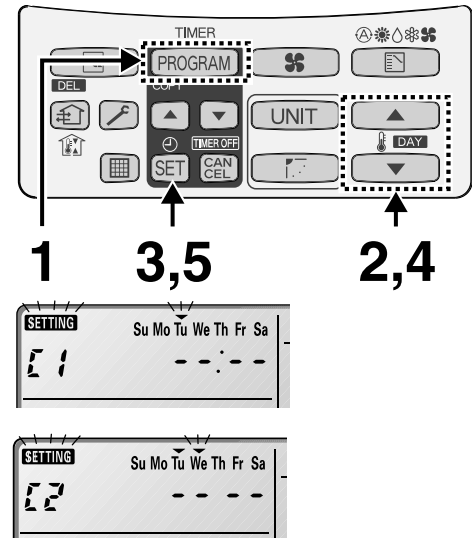
| Note |

The program will be overwritten if the preprogrammed day is selected as a copy source.

• Before Asking Repair Work

Before asking repair work, please check the followings.

Trouble	Possible Cause/Remedy
"ERROR" is displayed when the minute digits are entered.	If there is another TIMER No. which has the program of the same time and same day, you cannot overlap the setting.
The set data is not stored.	The stored programs are automatically sorted by the time. Check if the data is stored in the other TIMER No.
Program does not function.	Check if the time indication is not "– – : – –". When the time is invalid, the program is also invalid.
	Check the remote controller prohibition inside. In that case, the program is invalid.

Setting temperature

This function is not used.

Sleeping Function

* This function leads you to a comfortable sleep and changes the room temperature during your sleep.

* You can set the off timer every one hour from 1 to 10 hours.

Operating time | Display of remote control unit (during the time setting)

Sleeping function indication

Off time | In case the present time is 23:00.

Display of remote control unit (during repetitive timer OFF function setting)

Sleeping function indication
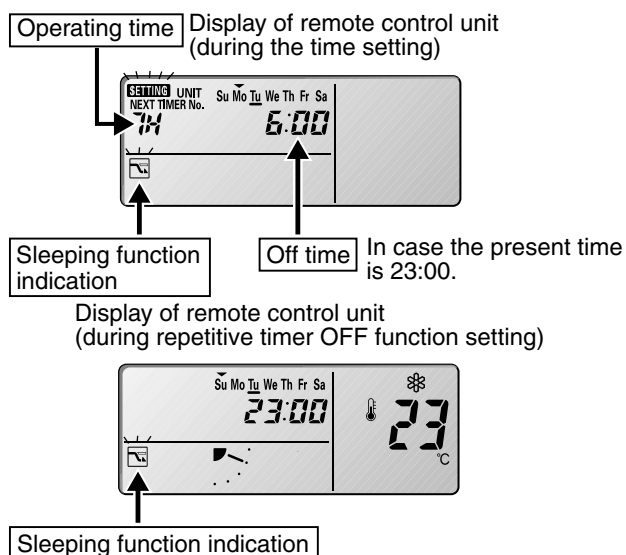
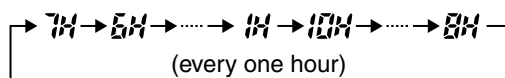* If no operation is made for 3 minutes, the time setting mode will be automatically finished.

Ex. In case of 7 hours timer

1. Press [⌐\ ].
* Each time the button is pressed, the indication changes in the following order.

→ 7H → 6H → ···· → 1H → 10H → ···· → 8H ─

(every one hour)

(Press [CAN CEL] to stop the time setting.)

2. Press [SET].
* The sleeping operation starts.

When the off time comes:

* The water heat exchanger unit stops.
  * The temperature returns to the setting at the time when sleeping function operation started.

To cancel the sleeping function operation:

* Press [⌐\ ].
  * The temperature setting remains at the time cancelled.

* The following buttons also cancel the sleeping function operation.

[∷ ⏻] button

Stop the water heat exchanger unit after the sleeping function operation is cancelled.

[▤] button

Changes the operation mode after the sleeping function operation is cancelled.

15

• If [⊡] button does not work.

Or if the operation does not start even if [SET] is pressed.

Check the following table.

Item	Display of the remote control unit (Lighting/flashing indication)	Contents
1	[ERROR] The Error indication flashes (for several seconds).	The clock is not set.
2	⊘ "This function is not available" indication lights up (for several seconds).	When the operation mode is set to AUTO or FAN, this function is not available.
3	⊡ Centralized control indication flashes (for several seconds).	The centralized control device is prohibited from starting/stopping the unit or change the temperature setting.

The sleeping function operation will be cancelled in the following cases:

1: When the unit is operated to stop or change the temperature setting by the other remote control unit or centralized control device.
2: When the unit is operated to stop or change the temperature setting with the weekly program function.
3: When the centralized control unit is prohibited from stopping the unit or changing the temperature setting .

Note

Trouble	Possible Cause/Remedy
The temperature setting does not decrease (increase).	The temperature over the upper or lower limit or each operation mode cannot be set.
Operation under the sleeping function does not finish.	Note if you change the time after the sleeping function started. The operation does not finish until it reaches to the set starting time.

CARE AND CLEANING

■At the first of the season

⚠ **REQUESTS**	
! Clean	When cold water (hot water) passes through the unit for an extended period of time, scales will collect inside the heat exchanger and impede the performance level. This can result in breakdowns, and creates the need to remove the scales with a chemical cleaner. Consult with the dealer where the unit was purchased or a service company, and arrange to have the heat exchanger cleaned or take other necessary steps.

■At the end of the season or when not using for an extended period

• Remove dirt collected in the drain pan, then rinse with water to cleanse out the dirt inside the drain pipe.
• Turn the local power supply switch on the gas heat pump unit to OFF.
• Fully close the fuel gas main valve.
• When water-draining, remove the water so that none remains inside the unit, the cold water (hot water) pipes, pump, fan coil units and other components. For further details, inquire at the dealer of purchase or a service company.

⚠ Caution
• **During winter or when temporarily suspending heating operation, take measures to prevent the water inside the cold water (hot water) system from freezing.**
When temporarily suspending heating operation in cold districts and not performing "water-draining," turn the local power supply switch (unit and pump) to "ON" to prevent freezing. When these switches are left "ON," declines in temperature will cause the pump to automatically activate and circulate the water, thereby preventing freezing. (Based on the premise that electric wiring work has been performed in accordance with the electric circuit diagram attached to the unit.)
For "water-draining," refer to the "Caring for the Unit" page.

POINTS TO CONFIRM FOR INSTALLATION

Maintenance Space

The dimensions indicated in the following diagram are necessary for the unit to function correctly and to conduct periodic inspections.
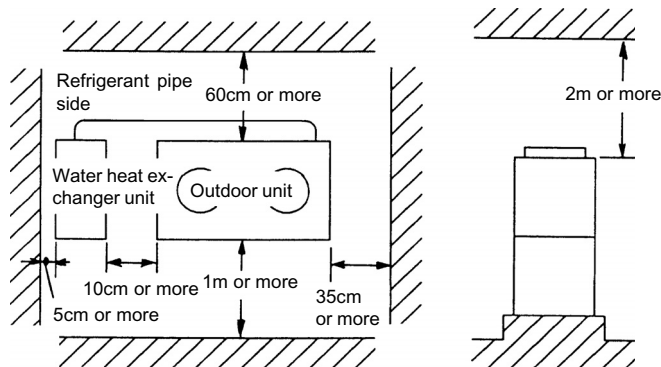
Water Pipes

⚠ Cautions
- Connect the cold water (hot water) outlet and inlet and the drain opening to the pipes at a caliber equal to or greater than that of the unit connecting mouth.
- Install the cold water (hot water) pipes near the main unit using a union joint or flange joint, making it easy to separate the main unit.
- Always insulate the cold water (hot water) pipes with insulation materials.
- Install a water temperature gauge and cold water (hot water) flow rate adjustment valve to the cold water (hot water) pipe, thereby enabling adjustments of the cold water (hot water) flow rate to be made while monitoring the water temperature gauge during test operation. Do not touch the adjustment valve after performing adjustments.
- Adjust the hydraulic pressure on the water heat exchanger to 0.7MPa or below.
- Attach a water-draining use pipe.
- Always install an expansion tank inside the cold water (hot water) system.

DG0312-0

Printed in Japan