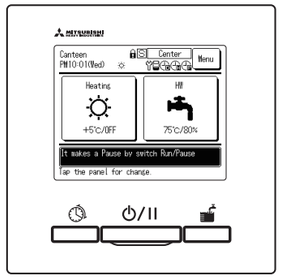
Installation manual of the remote control for heat pump water heater

PJZ012D132

This installation manual describes the installation methods and precautions related to the remote control.
Use this manual together with the user's manuals for the heat pump unit and other optional equipment.
Please read this manual carefully before starting the installation work to install the unit properly.

1. Safety precautions

- Please read this manual carefully before the installation work to install the unit properly.
  Every one of the following instructions is important to be observed strictly.
  ⚠WARNING Failure to follow these instructions may result in serious consequences such as death, severe injury, etc.
  ⚠CAUTION Failure to follow these instructions may cause personal injury or property damage. It could have serious consequences depending on the circumstances.
- The pictograms used in the text have following meanings.
  Never do. Always follow the instructions given.
- Keep this manual at a safe place where you can consult with whenever necessary.
  Show this manual to a installer when moving or repairing the unit.
  When the ownership of this unit is transferred, this "Installation Manual" should be given to a new owner.



⚠ WARNING

- The appliance shall be installed in accordance with national wiring regulations.
- Ask a professional contractor to carry out the installation work according to the installation manual.
  Improper installation work may result in electric shocks, fire or break-down.
- Shut off the main power before starting electrical work.
  Otherwise, it could result in electric shocks, break-down or malfunction.
- Do not install the unit in inappropriate environment or where inflammable gas could generate, flow in, accumulate or leak.
  This unit should not be used in places where the air contains dense oil mist, steam, organic solvent vapor, corrosive gasses (such as ammonium, sulfuric compounds, and acid), or places where acidic or alkaline solutions or special sprays, etc. are used.
  Doing so may cause electric shocks, break-down, smoke or fire due to corrosion or deterioration of the units performance.
- Do not install the unit where water vapor is generated excessively or condensation occurs.
  It could cause electric shocks, fire or break-down.
- Use the specified cables for wiring, and connect them securely with care to protect electronic parts from external force.
  Improper connections or fixing could cause heat generation, fire, etc.
- Seal the inlet hole for remote control cable with putty.
  If moisture, water, insect, etc. enters through the hole, it could cause electric shocks, fire or break-down.
- When installing the unit at a hospital, telecommunication facility, etc., take measures to suppress noises.
  It could cause malfunction or break-down due to hazardous effects on the inverter, in-house power generator, high frequency medical equipment, etc.
  The influences transmitted from the remote control to medical or communication equipment could disrupt medical activities, video broadcasting or cause noise interference.

⚠ CAUTION

- Do not install the remote control at following places.
  It could cause break-down or deformation of remote control.
  (1) Where it is exposed to direct sunlight
  (2) Near the equipment to generate heat
  (3) Where the surface is not flat
- Do not leave the remote control with its upper case removed.
  When the upper case is removed, put it in a packing box or packing bag to protect PCBs or other parts inside of it from dust, moisture, etc.
- The appliance is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction.
- Children shall be supervised not to play with appliance.

2. Accessories & parts prepared at site

Accessories	Remote control main unit, wood screw (ϕ3.5 x 16) 2pcs, User's Manual, Installation Manual (in CD-R)

Parts prepared on site

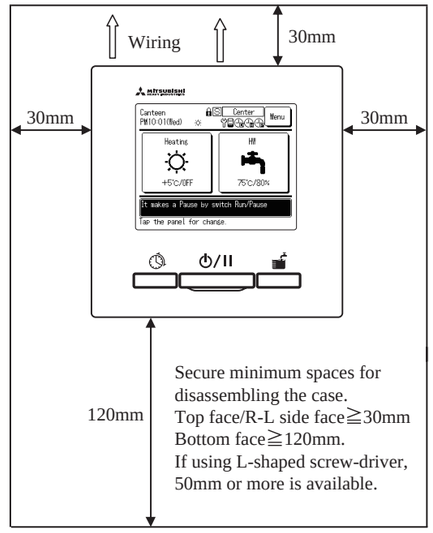
Item name	Q'ty	Remarks
Switch box For 1 piece or 2 pieces (JISC8340)	1pc	There are not necessary when installing R/C directly on a wall
Thin steel conduit tube (JIS C8305)	As required	
Lock nut, bushing (JIS C8330)	As required	
Cable cover	As required	Necessary to run R/C cable on the wall
Putty	Suitably	For sealing gaps
Molly anchor	As required	
R/C cable (0.3mm^2 x 2-core) shielding wire (MVVS)	As required	Be sure to ground both ends. See right table when longer than 100m

The max size for the wires used in the R/C case is 0.5mm^2.
Therefore when the cable length is longer than 100m, connect the wires from R/C to larger size ones near the outside of R/C.
When wires are connected, take measure to prevent water, etc from entering inside of connected part.

< 200m	0.5mm^2 x 2-core shielding wire (MVVS)
< 300m	0.75mm^2 x 2-core shielding wire (MVVS)
< 400m	1.25mm^2 x 2-core shielding wire (MVVS)
< 600m	2.0mm^2 x 2-core shielding wire (MVVS)

3. Installation place

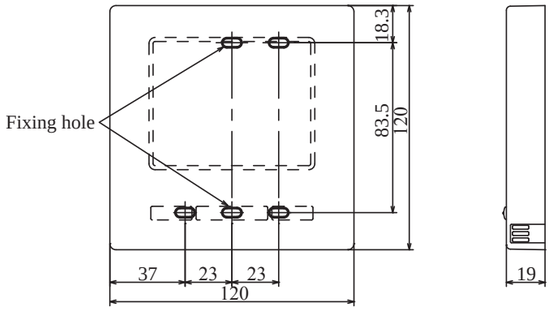
Installing method [With using a switch box]
[Installed directly on a wall]
Wiring direction [Backward]
[Upper center] or [Upper left]
Cautions for selecting installation place
(1) Installation surface must be flat and sufficiently strong.
R/C case must not be deformed.



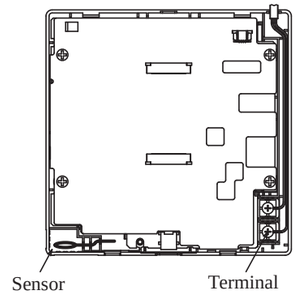
Request
Do not install the R/C at a place where it is exposed to direct sunlight or surrounding air in which temperature exceeds 40ºC or drops below 0ºC.
It could cause discoloration, deformation, malfunction or break-down.

4. Installation and wiring work

Dimensions (View from front side)

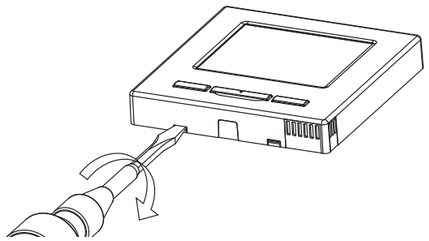


PCB side (View from rear side)



① To remove the upper case from the bottom case of R/C
• Insert the tip of a flat head screwdriver or the like in the recess at the lower part of R/C and twist it lightly to remove

Take care to protect the removed upper case from moisture or dust



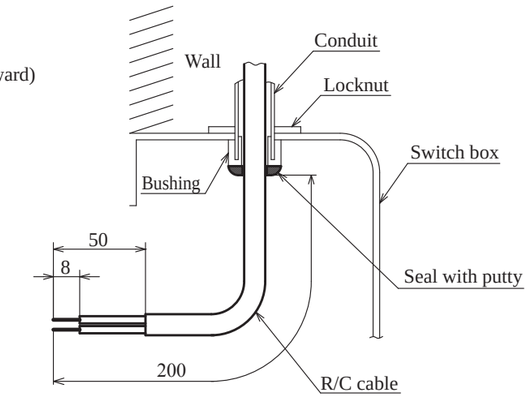
② Connect the wires from X and Y terminals of R/C to X and Y terminals of heat pump unit.
There is no polarity of R/C wiring (X and Y) .

In case of embedding wiring (When the wiring is retrieved backward)

③ Embed the switch box and the R/C wires beforehand.

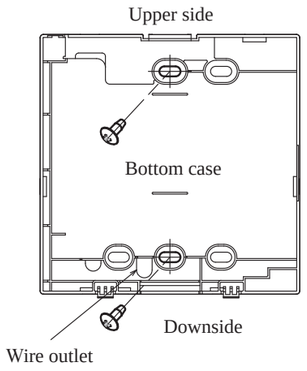
Seal the inlet hole for the R/C wiring with putty.

●If dust or insect enters, it could cause electric shocks, fire or break-down.

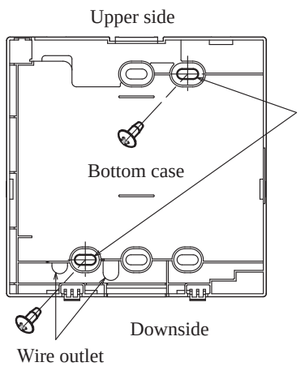


④ When wires are passed through the bottom case, fix the bottom case on the switch box at 2 places.

Switch box for 1



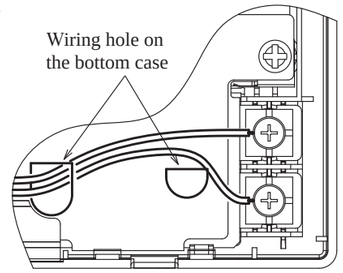
Switch box for 2



Cut out the thin wall part at the screw mounting section with a knife or the like before tightening the screw.

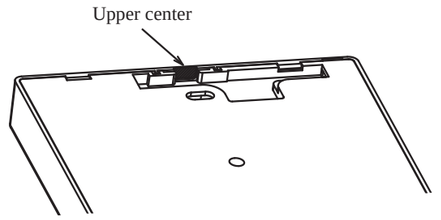
4. Installation and wiring work (Continue)

⑤ When fixing the bottom case diagonally at 2 places, cut out the thin wall part of the case.
⑥ Fix wires such that they will run around the terminal screws on the upper case of R/C.
⑦ Install the upper case with care not to pinch wires of R/C.



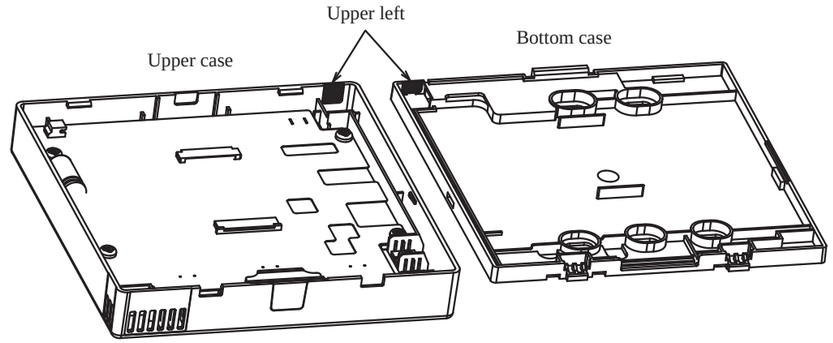
In case of exposing wiring (When the wiring is taken out from the "upper center" or "upper left" of R/C)

③ Cut out the thin wall parts of the cases for the hole size to fit to the wire size.



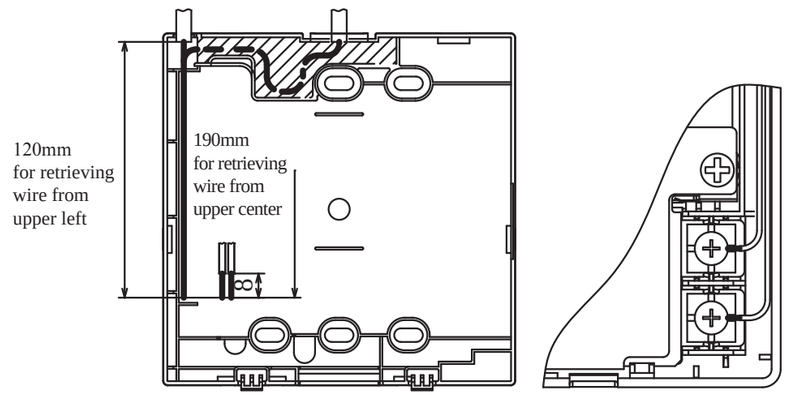
When taking the wiring out from the upper center, open a hole before separating the upper and bottom cases. This will reduce risk of damaging the PCB and facilitate subsequent work.

When taking the wiring out from the upper left, take care not to damage the PCB and not to leave any chips inside.



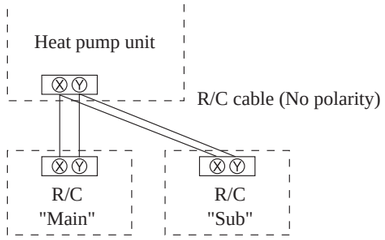
If the hole is cut too large, moisture, dust or insects may enter.
Seal gaps with putty or the like.

④ Fix the bottom case on a flat surface with wood screws
⑤ In case of the upper center, pass the wiring behind the bottom case (hatched section).
⑥ Fix wires such that the wires will run around the terminal screw of the upper case of R/C.
⑦ Install the upper case with care not to pinch wires of R/C.



5. Main/Sub setting when more than one remote controls are used.

Up to two units of R/C can be used at the maximum for one heat pump unit or one group.
One is main R/C and the other is sub R/C.
Operation range is different depending on the main or sub R/C.



R/C function	Main	Sub
Run/Pause	○	○
Setting of hot water temp	○	-
Setting of hot water amount	○	-
Hot water amount	○	○
Heating ON/OFF	○	-
Heating Set temp	○	-
Schedule setting	○	-
Operation to fill up	○	○
Test run	○	-
Error history display	○	○
R/C function setting	○	-

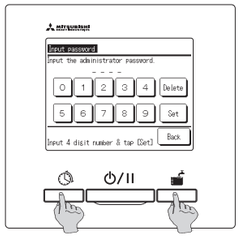
Set the "Main" and "Sub" with same procedure as shown in Section 6.

Note: Initializing of password

Administrator password (for daily setting items) and service password (for installation, test run and maintenance) are used

○ Default setting of Administrator password is "0000". This setting can be changed (Refer to the Instruction Manual).
If the administrator password is forgotten, it can be initialized by pressing [Schedule setting] switch and [Operation to fill up] switch on the administrator password input screen simultaneously for 5 seconds.

○ Service password is "9999", which cannot be changed.
When inputting the administrator password, the service password is also acceptable.



Note: Test run

When starting operation of the heat pump unit for the first time, [Water pump test run] and [Primary setting of operation] shall be done in advance.
Regarding the way for test run, please refer to the item [7. installation setting and test run] in this manual.

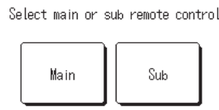
6. Power supply and initial setting

Set the main and sub R/C according to the display at the power on

(1) If the main and sub are not set yet, [Select Main/sub set input] screen is displayed. (Screen ②)
When tapping the [Main] or [Sub] button, the initial setting starts.
If wrong button is tapped by mistake, it is available to change the setting after completion of the initial setting.
(2) If the main and sub have been set already, [Set continue acknowledge] screen is displayed. (Screen ⑨)
(3)When using 2 sets of R/C, if the first one is set for the main, the other is set for the sub automatically.

① Start screen

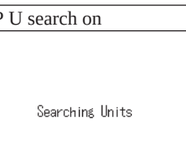
② Select Main/sub set input



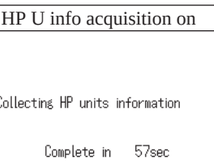
Caution
If only one set of R/C, tap [Main] button. in the state of initial setting, it will keep on waiting till either one of the buttons is selected.
If two sets of R/Cs are used, when either one of them is tapped, the setting starts.

[Main] ⇒③⇒④⇒⑤⇒⑥⇒⑦⇒⑧
[Sub] ⇒⑪⇒⑤⇒⑥⇒⑧

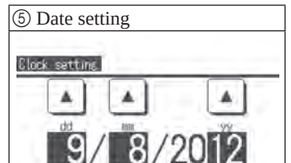
③ HP U search on



④ HP U info acquisition on

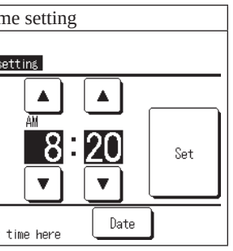


⑤ Date setting

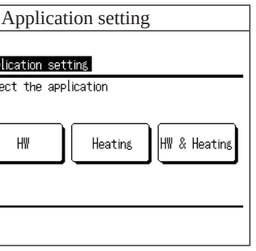


*HP U: Heat pump unit

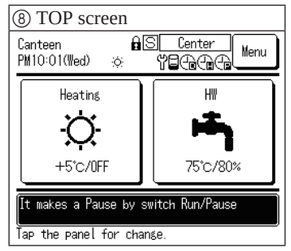
⑥ Time setting



⑦ Application setting



⑧ TOP screen

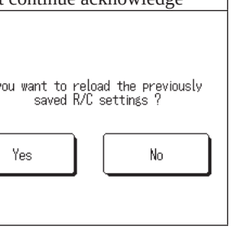


Caution
⑤ date setting and ⑥ time setting are necessary also for the sub R/C.
Set these for both the main and the sub R/C.

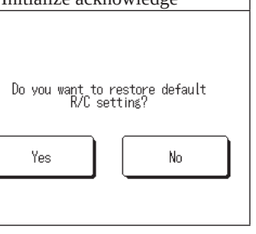
HW: The HP U is used to make hot water.
Heating: The HP U is used for heating.
HW&Heating: The HP U is used for both HW and heating.

The mode of operation at the power on is [Pause].
(In Pause, the operation to top up does not start)

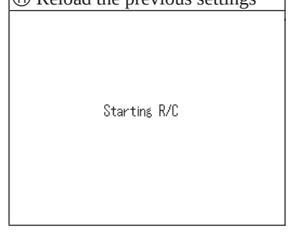
⑨ Set continue acknowledge



⑩ Initialize acknowledge



⑪ Reload the previous settings



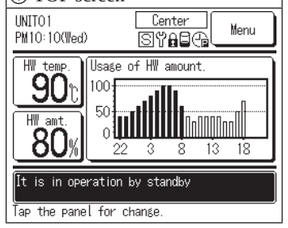
[Yes] Continue ⇒⑪⇒⑤⇒⑥⇒⑦⇒⑧
[No] Change ⇒⑩
If the screen is not tapped for 15seconds or more, [Yes] (Continue) is selected and the display changes to the screen ⑤.

[Yes] ⇒①⇒②
[No] ⇒⑨
If initializing, it restores to the factory default settings.

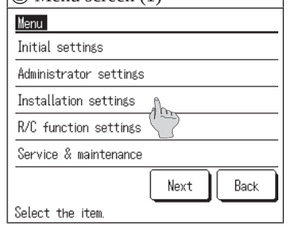
7. Installation settings and Test run

[TOP screen] ⇒ [Menu] ⇒ [Installation setting]

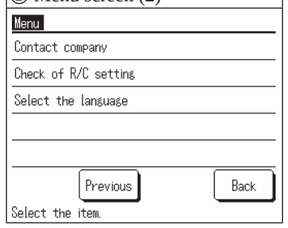
① TOP screen



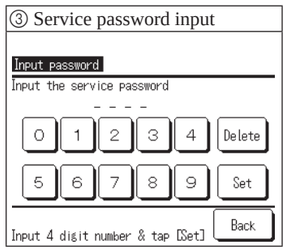
② Menu screen (1)



② Menu screen (2)

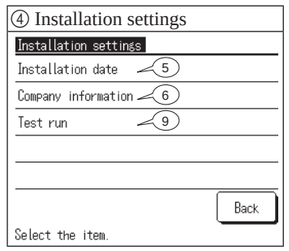


③ Service password input

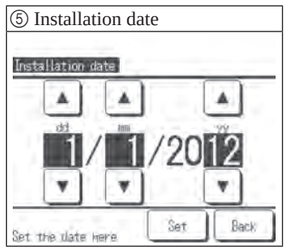


Service password is "9999".

④ Installation settings

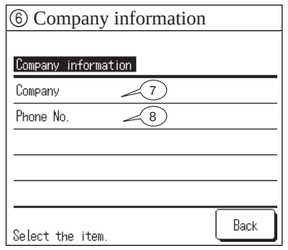


⑤ Installation date



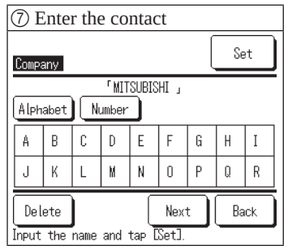
Set with [▲] [▼] buttons.
Tap [Set] to save.

⑥ Company information



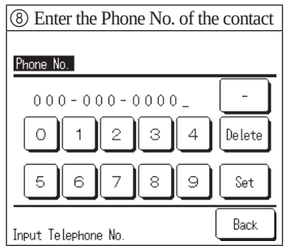
Set the Contact for the customer to ask servicing.

⑦ Enter the contact



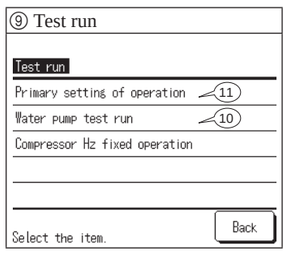
Enter the company name with up to 5x 2-byte letters (10x 1-byte letters).
Tap [Set] to save.

⑧ Enter the Phone No. of the contact



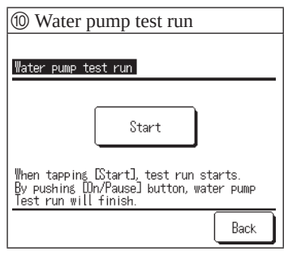
Enter the contact phone No. with up to 13x 1-byte letters.
Tap [Set] to save.

⑨ Test run



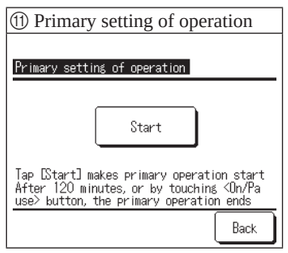
Move to the screen of a selected menu.

⑩ Water pump test run



After feeding water, please start [Water pump test run] and purge air.

⑪ Primary setting of operation



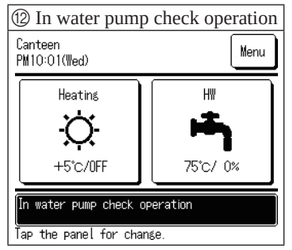
After end of [Water pump test run], please start [Primary setting of operation].
Please refer to next page for detail.

7. Installation settings and Test run (Continue)

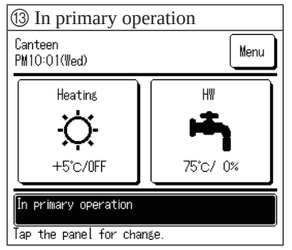
Test run procedure ＊ When operating the unit initially, [Water pump test run] and [Primary setting of operation] is required.

(1) Please prepare for the test run according to instruction described on the installation manual of the heat pump unit.
(2) Tap the [Start] button on the [⑩ Water pump test run] screen of item 7 [Installation settings and Test run].
[Information]
[Water pump test run] can be implemented with the Dip SW of the heat pump unit as well.
Please refer to the installation manual of the heat pump unit for detail.
(3) Return to the TOP screen. When the [Water pump test run] starts, the message of "In water pump check operation" is displayed. (Screen ⑫)
Please purge air, and then open the drain valve and relief valve for the cylinder and check the water drain off continuously.
(If gurgling sound is heard or the drain is drawn off intermittently, purging air is not completed.)
(4) After the end of the [Water pump test run], please stop the water pump.
When pushing the [Run/Pause] switch, the [Water pump test run] is stopped.
(5) Tap the [Start] button on the [⑪ Primary setting of operation] screen of item 7 [Installation settings and Test run].
[Information]
[Primary setting of operation] can be implemented with the Dip SW of the heat pump unit as well.
Please refer to the installation manual of the heat pump unit for detail.
(6) Return to the TOP screen. When the [Primary setting of operation] starts, the message of "In Primary operation" is displayed. (Screen ⑬)
The actual hot water temperature during primary operation is different from the displayed hot water temperature on the TOP screen, because the heat pump unit is operated by changing hot water temperature during primary operation.
(7) After the end of the [Primary setting of operation], The heat pump unit is paused and the message "In primary operation" is disappeared and the message of "It is in operation by standby" is displayed. (Screen ⑭)
If starting the operation to top up, pushing the [Run/Pause] switch.
However, if the primary operation does not completed within 120 minutes or this operation is stopped forcibly by pushing [Run/Pause] switch before completion, this operation ends and the heat pump unit pauses.
Please restart [Primary setting of operation] from the procedure (5).

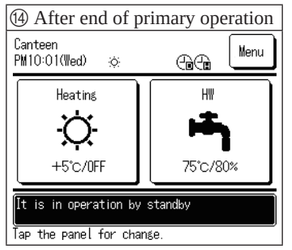
⑫ In water pump check operation



⑬ In primary operation



⑭ After end of primary operation



(8) After end of [Primary setting of operation], please clean up strainers in the water circuit.
After finishing the cleaning of strainers, please check no leakage in the system and purge air again.

Caution

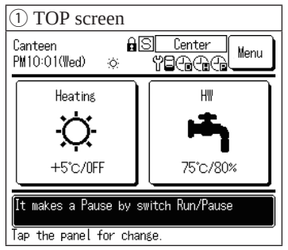
- Because of the risk for the heat pump unit to have failure, after the completion of the [Water pump test run] and [Primary setting of operation], please start operation to top up.
- After the completion of the [Primary setting of operation], it does not start operation to top up, because the heat pump unit is pausing.
  In case of staring operation, please push [Run/Pause] switch.
- Despite pausing, the water pump and compressor may start operation for preventing water in the water pipe from freezing.

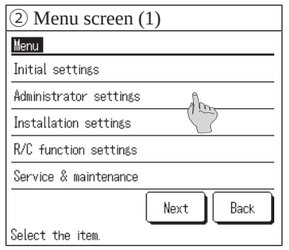
8. User environment (Simplified setting for operation pattern)

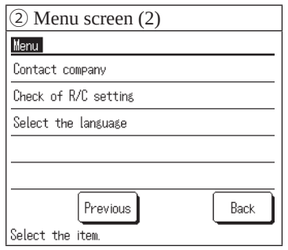
This heat pump unit is operated to top up hot water according to the target hot water amount set at each time zone.
By selecting the operation pattern for the typical business type which is similar to your actual usage pattern of hot water, you can set the operation pattern easily.

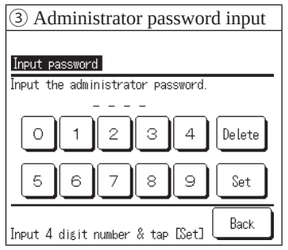
Setting method

(1) [② Menu] ⇒ [③ Administrator password (Service password "9999"] ⇒ [④ Admin settings] ⇒ [⑤ User environment]
And then select the business model, and tap Yes on the [⑥User Environment acknowledge] screen

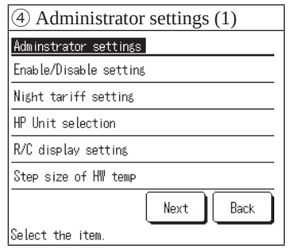


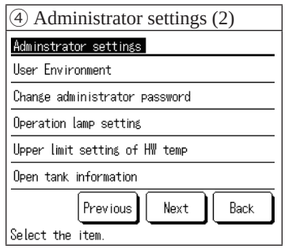


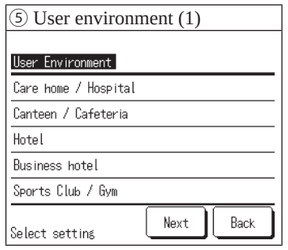




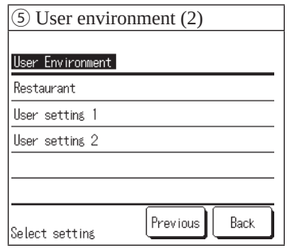
Factory default: "0000"
Service password "9999" is also acceptable.



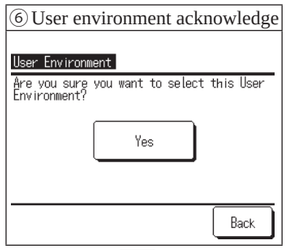




By selecting the business type whose operation pattern is similar to yours, the operation pattern can be set easily.



By selecting user setting 1 or 2, you can save or load your operation pattern. For more detail please see the instruction manual.



When tapping Yes, the operation pattern is overwritten by the selected one.
Refer to followings for details

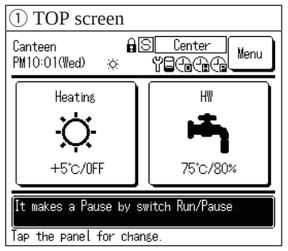
(2) To edit the operation pattern set by [User environment], please edit it by following procedure.
Push the Schedule setting switch on the panel ⇒ [Setting of weekly operation pattern].

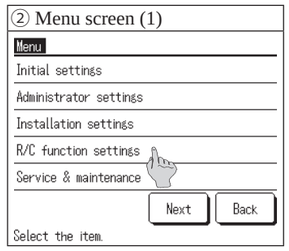
Target water level for the business model

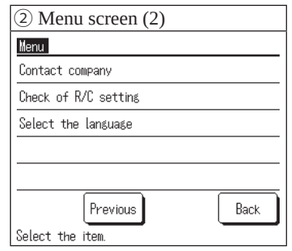
Time	Default value	Care home/ hospital	Canteen/ cafeteria	Restaurant	Hotel	Business hotel	Sports Club/ gym	Sports Club/gym	HW temp (common)
22:00	100%	60%	60%	60%	40%	40%	40%	40%	65°C
0:00	100%	100%	100%	100%	100%	100%	100%	100%	75°C
4:00	100%	100%	100%	100%	100%	100%	100%	100%	65°C
8:00	30%	80%	80%	80%	80%	40%	100%	100%	65°C
10:00	30%	50%	60%	80%	70%	40%	80%	80%	65°C
13:00	30%	30%	40%	60%	60%	100%	60%	60%	65°C
16:00	30%	30%	20%	40%	50%	100%	40%	40%	65°C
19:00	30%	30%	20%	30%	40%	40%	30%	30%	65°C

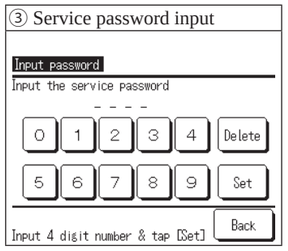
9. R/C function settings

[TOP screen] ⇒ [Menu] ⇒ [R/C function settings]

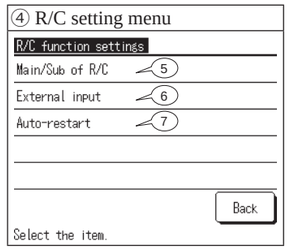


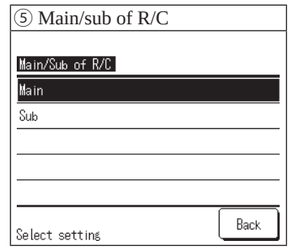


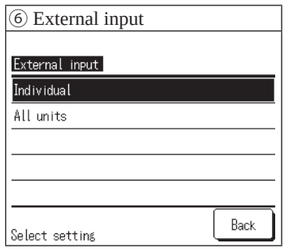




The service password is "9999".
(Unable to change)

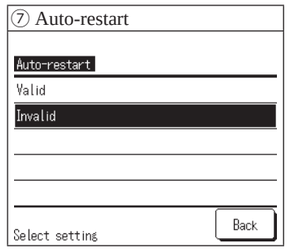






When several heat pump unit is connected, with this function, the range to apply the external input can be set.

[Individual]: This is applied only to the HP Unit received the input signal
[All units]: This is applied to all HP Units connected in the system.



If power failure occurs during operation

[Valid]: It returns to the state before the power failure, soon after power recovery.

[Invalid]: It pauses after power recovery

Information

What is the Auto-restart?
This is the function to restart the unit automatically under the same operating state as that before power failure, when power is recovered, by memorizing the operating state before power failure. In case that the setting of [Auto-restart] is [Valid], even though the power failure occurs, the unit can restart automatically after power recovery.

Factory default: [Valid]

Information

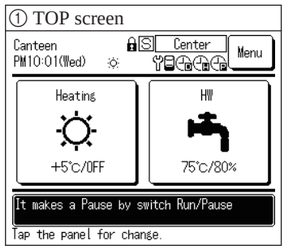
Regarding the following settings for daily use, please refer to the user's manual.

- Initial settings
  Clock setting, Date and Time display, Contrast, Backlight, Controller sound, Priority setting and Summer time.
- Schedule setting
  Setting of weekly schedule (HW), Setting of weekly schedule (Heating), Setting of day off, Setting of day off and Setting of peak-cut.
- Administrator settings
  Enable/Disable setting, Step size of HW temp, R/C display setting, HW unit selection, User environment, Change administrator password, Operation lamp setting, Open tank information, Application setting and Cancel weekly timer (HW).

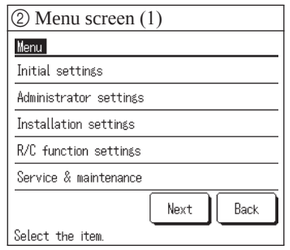
10. Service & Maintenance

[TOP screen] ⇒ [Menu] ⇒ [Service & Maintenance]

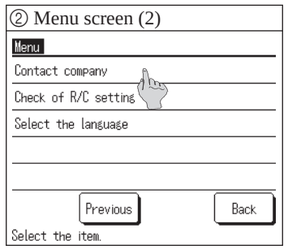
① TOP screen



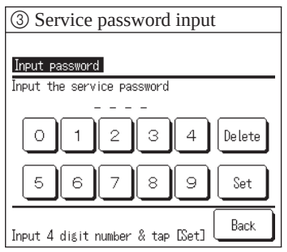
② Menu screen (1)



② Menu screen (2)

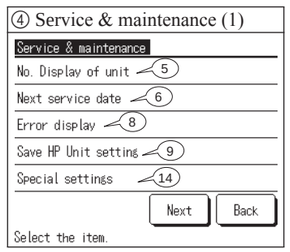


③ Service password input



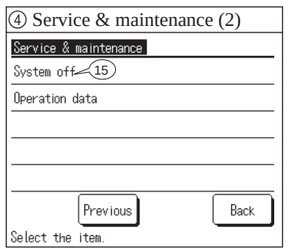
The service password is "9999". (Unable to change)

④ Service & maintenance (1)

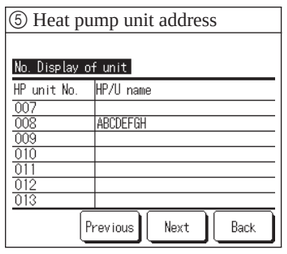


Move to the screen of a selected menu.

④ Service & maintenance (2)

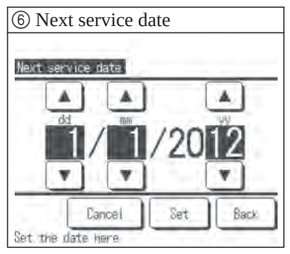


⑤ Heat pump unit address



When 8 or more units are connected, the 8th and the subsequent units are displayed on the next page.

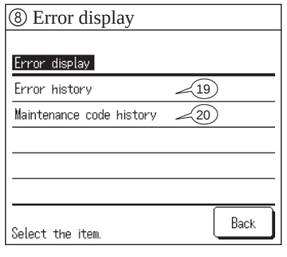
⑥ Next service date



If next service date is entered, messages are displayed at the every Run/Pause of operation on the service month. ⑦
If the Cancel button is tapped, messages are not displayed.

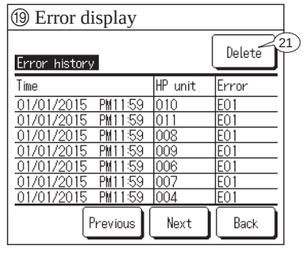
⑦ Service message

⑧ Error display



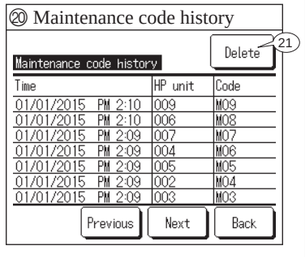
Move to the screen of a selected menu.

⑲ Error display



Date and time of error occurrence, HP unit address and Error code are displayed.

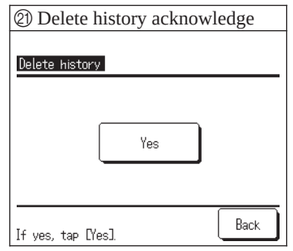
⑳ Maintenance code history



Date and time of Maintenance code occurrence, HP unit address and Maintenance code are displayed.

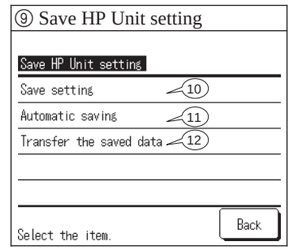
10. Service & Maintenance (Continue)

㉑ Delete history acknowledge



When tapping YES, history is deleted.

⑨ Save HP Unit setting

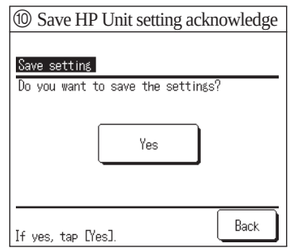


[Saving HP unit setting]
The data of all heat pump units connected is saved in the R/C.
[Automatic saving]
The time to save the data of the heat pump units automatically can be set.
At the set time, the data are saved everyday. (* Factory default: 24:00)
[Transfer the saved data]
The data saved in the R/C is transferred to the heat pump unit.
In case of several heat pump units, the data can be transferred individually.

Information

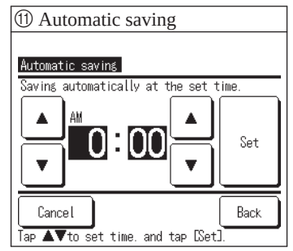
The remote controller can save the cumulative operation hours of the components for water and refrigerant circuit memorized in the heat pump unit as backup. If the PCB of the heat pump unit has malfunction, the data saved in R/C can be written in the new PCB of the heat pump unit with the [Transfer the saved data] function.

⑩ Save HP Unit setting acknowledge



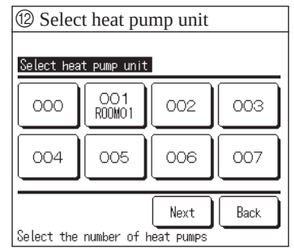
When tapping Yes, the setting of the heat pump unit connected is saved.

⑪ Automatic saving



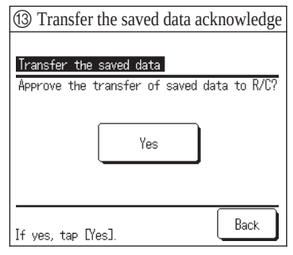
After setting the time and tapping Set, the time to save automatically can be set.

⑫ Select heat pump unit



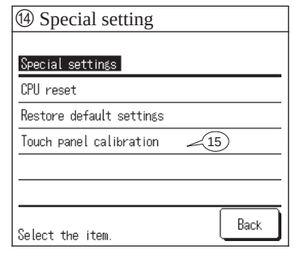
If several heat pump units are connected, the unit to be sent the saved data can be selected.

⑬ Transfer the saved data acknowledge



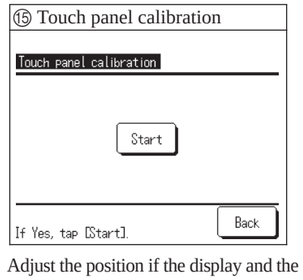
When tapping Yes, the following data is transferred to the heat pump unit selected.
- Hot water set temp
- Cumulative operation hours of compressor
- Cumulative operation hours of water pump
- HP 7seg P01, P78, P79 data
- CW FV1 compensation value
- Upper limit of HW temp

⑭ Special setting



Move to the screen of a selected menu.

⑮ Touch panel calibration



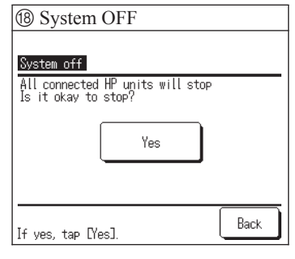
Adjust the position if the display and the touch position are unmatched.

[CPU reset]
The microcomputer of the heat pump unit connected is reset.
(Like a state of recovery after power fail)

[Restore default settings]
The settings of the R/C and the HP unit connected are restored to the factory settings.

[Touch panel calibration]
Adjust the position if the display and the touch position are unmatched.

⑱ System OFF



When tapping Yes, all HP Units connected are stopped.
With this, anti-freezing operation cannot work. as well.
If leaving the hot water supply system for long period, be sure to drain off.