Drain Up Kit　Installation Manual

K-KDU572KVE

O.K. KIZAI CO., LTD.

● Please read this manual and the air conditioner manual carefully before use.

Safety Precautions

Please read these "Safety Precautions" carefully before performing installation work.

- The precautions shown here are divided into "⚠Warning" and "⚠Caution", but those that are likely to lead to serious consequences such as death or serious injury if installation is performed incorrectly are noted collectively in the "⚠Warning" area. However, even the items described in the "⚠Caution" area may lead to serious consequences depending on the situation. Observe all of the following, as each contains important information regarding safety.
- After the installation work is complete, perform a test run and check that there are no abnormalities. In addition, please ask the customer to keep this manual.

⚠Warning

For drainage of air conditioners. Do not use for any other application. If the usage application is incorrect, fire/water leakage, etc. may result.	For installation parts, be sure to use accessories and parts with the designated specifications. If parts with the designated specifications are not used, water leakage/electrocution/fire may result.
Regarding installation, ask your dealer or a specialist. If you perform installation yourself and there are imperfections in the installation, water leakage/ electrocution/fire may result.	Be sure to turn off the power supply before performing installation work. If electrical parts are touched while the power supply is turned on, electrocution may result.
Make sure to perform installation work properly according to the installation manual. If there are imperfections in the installation, wataer leakage/ electrocution/fire may result.	Connect the wire securely using the specified power wire, and secure it properly so that the external force from the wire is not applied to the terminal connection part. If connections are incomplete or incompletely secured, heat generation/fire at the terminals may result.
For the safety circuit power wire shape the wire so that the cover does not rise, and install the lid securely. If the lid is not installed completely, electrocution/fire may result.	Install the product securely in a place that can sufficiently withstand the weight of the kit. If the strength is insuficient, injury due to falling of the kit may result.
Please perform earthing work. ⏚ Do not connect earth wire to gas pipes, water pipes, lightning rods, or telephone earth wires. If earthing is incomplete, electrocution may result.	The power supply should be separate from the air conditioner. If power is branched from the power supply wire of the air conditioner, transmission abnormalities/electrocution/fire may result.

⚠ Caution

For drainage work, install the pipes according to this installation manual to ensure proper drainage, and insulate it to prevent condensation.
If there are imperfections in the pipe work, water may leak and cause household goods to get wet.

Do not install in locations such as the following.
- Locations where flammable gas may leak, locations where carbon fibre and flammable dust float, or locations where volatile flammable materials such as thinner and gasoline are handled. If gas leaks and collects around the drain up kit, ignition of fire may result.
- Locations where there are machines that generates electromagnetic waves. It may cause abnormalities to occur in the control system, making normal operation impossible.

Drain up specifications

Main applicable models	Described below	Insulation	Type E
Exterior	White (Munsell 10Y9/0.5)	Drain inlet connection pipe diameter	VP13 (NOTE 2)
Maximum lift (mm)	1,000 (NOTE 1)	Drain outlet connection pipe diameter	VP20 (NOTE 3)
Drain discharge flow rate (L/h)	24	Safety device	Float switch
Power supply	Single-phase 220-240V/220V, 50/60Hz	Operation sound (dB)	25
Power consumption (W)	14.1 ／ 12.9	Product weight (kg)	3.2
Operation current (A)	0.18 ／ 0.16		

(NOTE 1) Height from the bottom of the drain up kit to the drain pipe
(NOTE 2) Connected with the drain hose (accessory)
(NOTE 3) Connected to VP20 with the soft drain pipe (accessory)

Applicable models

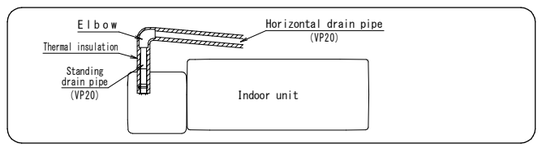
Capacity	Indoor unit model name	Capacity	Indoor unit model name
Low capacity models	FXA20・25・32LVE(C) FXAQ20・25・32M(A)VE FXAQ20・25・32PV1 FXAQ20・25・32PVE	High capacity models	FXA40・50・63LVE FXAQ40・50・63M(A)VE FXAQ40・50・63PV1 FXAQ40・50・63PVE FAY71LVE, FAYP71LV1 FAQ71BUV1B FAQ71BVV1B FAQ71・100CVEB

⚠Caution • Only the above applicable models can be used.

Components

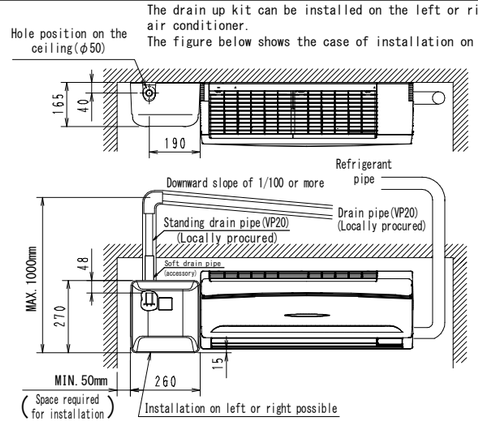
Name	Shape	Quantity	Name	Shape	Quantity	Name	Shape	Quantity
Drain up kit	①	1	Thermal insulation (For drain inlet)	⑥ 30X130Xt5	1	Soft drain pipe (For drain outlet)	⑪ VP20, 200	1
Relay harness	② (Green) (Red)	1	Thermal insulation (For drain outlet)	⑦ 50X180Xt10	1	Screw Washer	⑫ (White)	1
Connection harness	③ (White)	1	Hose clamp	⑧	4	Screw	⑬ M5X35	5
Power supply wire	④ (Blue)	1	Soft socket	⑨ VP13, 80	1	Clamp material	⑭	4
Thermal insulation	⑤ 15X70Xt3	1	Drain hose (For drain inlet)	⑩	1	Installation pattern paper	⑮	1
						Installation manual	⑯	1
						Operation manual	⑰	1

Parts required for installation (locally procured)



Drain position/lift/service space

The drain up kit can be installed on the left or right of the air conditioner.
The figure below shows the case of installation on the left.

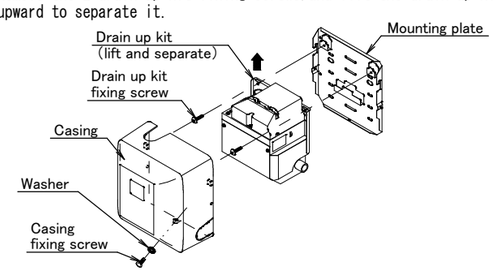


NOTE 1) Please secure the space required for installation on the left or right of the air conditioner, and the space required for service around the drain up kit installation location.
NOTE 2) Local pipe such as PVC pipe cannot be directly connected to the drain inlet and drain outlet of the drain up kit. Be sure to use the accessories described in the installation manual.

① Preparation before installation

Preparation of the drain up kit

● Separate the casing and drain up kit from the mounting plate.
(1) Remove the 1 casing fixing screw and washer, lower the casing, and then pull it forward to separate it.
(2) Remove the 2 drain up kit fixing screws, and lift the drain up kit upward to separate it.

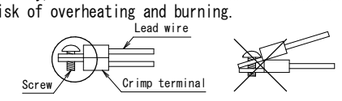


② Preparation of the indoor unit

For things such as the construction procedure of the indoor unit, refer to the installation manual attached to the indoor unit.

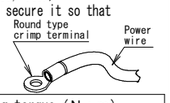
⚠ Caution

● Be sure to work with the power supply turned off
● When connecting terminals to the inter-unit wiring terminal block, attach them correctly as shown in the figure below.
If the crimp terminals are both installed in the same orientation accidentally, the terminal contact area will decrease and there will be a risk of overheating and burning.



《Precautions for power supply wire/earth wire》

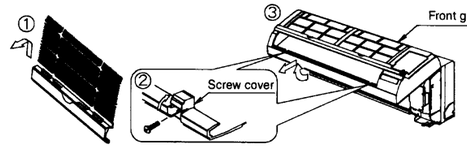
Use round type crimp terminals for connecting the inter-unit wiring terminal block and the earth wire. If you for some reason cannot use round type crimp terminals, be sure to observe the following items.
- Do not connect 2 wires with different diameters to the inter-unit wiring terminal block. (There is a risk of abnormal heat generation due to loose wires, etc.)
- Connect the wire securely using the specified power wire, and secure it so that external force is not applied to the terminal part.
- Use an appropriate screwdriver to tighten the terminal screws. A screwdriver with a head that is too small will damage the screw heads and make proper tightening impossible.
- If the terminal screws are tightened too much, the screws may be damaged.
- Refer to the table on the right for the tightening torque of the terminal screws.



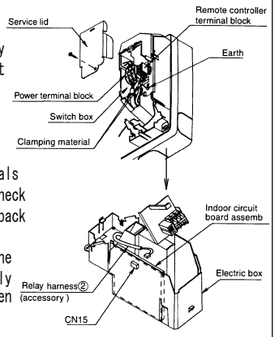
Tightening torque (N・m)	
Inter-unit wiring terminal block	1.18～1.44
Earth terminal	1.44～1.94

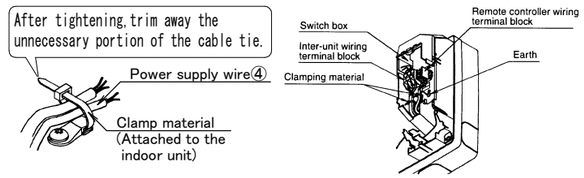
For the FAY71LVE, FAYP71LV1, FXA20・25・32LVE(C) FXA40・50・63LVE, FXAQ20～63M(A)VE FXAQ20～63PV1, FXAQ20～63PVE

(1) Connect the relay harness② and the power supply wire④ to the indoor unit.
(a) Remove the front grill according to the instruction manual that came with the indoor unit.



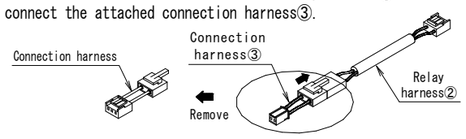
(b) Remove the service lid.
(c) Remove the indoor circuit board assembly CN15 short-circuit connector and connect the relay harness② connector.
(d) Connect the power supply wire④ to the indoor unit inter-unit wiring terminal block.
※The terminal nos. of connection terminals vary depending on models. Be sure to check the electrical wiring diagram on the back side when connecting wires.
(e) Using the earth connection screw from the indoor unit, secure the earth wire (locally procured 2 mm² or more copper wire) between the indoor unit and the drain up kit.





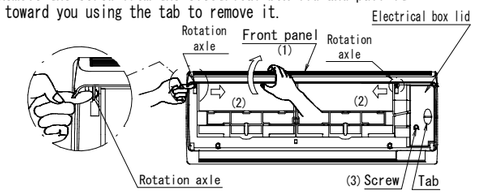
For the FAQ71BUV1B, FAQ71BVV1B, FAQ71・100CVEB

(1) Connect the relay harness②, the connecting harness③, and the power supply wire④ to the indoor unit.
(a) Remove the connection harness of the relay harness② and connect the attached connection harness③.

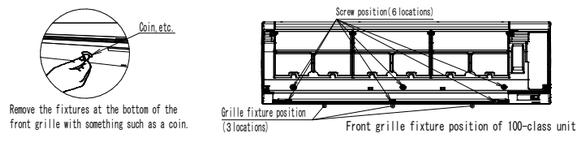


(b) Remove the front panel and electrical box lid according to the indoor unit installation manual.
[How to remove the front panel and electrical box lid]

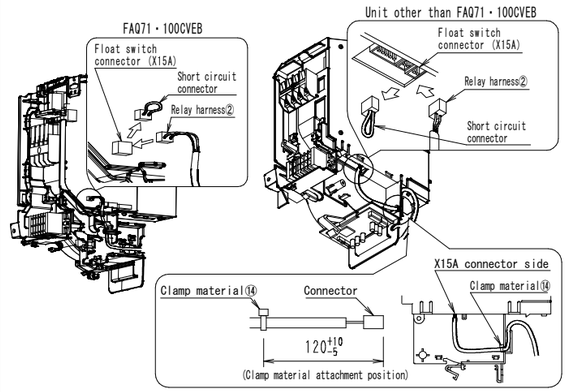
1. Open the front panel until it stops.
2. Push both the left and right rotation axles of the front panel toward the centre of the main unit to remove the front panel. (You can also remove the front panel by sliding it to the left or right and pulling it toward you.)
3. Remove the screw from the electrical box lid and pull it toward you using the tab to remove it.



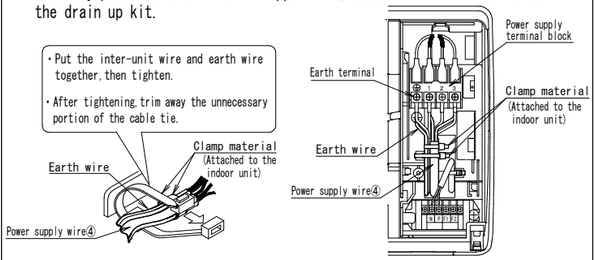
4. Remove the front grille by following the directions described in the installation manual for the indoor unit.
In the case of FAQ100CVEB, remove the griile retaining fixtures.



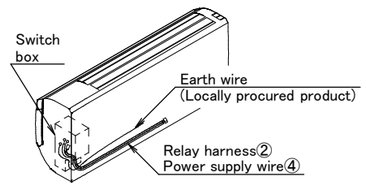
(c) Remove short circuit connector X15A on the indoor unit circuit board and connect the relay harness② connector.



(d) Connect the power supply wire④ to the indoor unit inter-unit wiring terminal block.
※The terminal nos. of connection terminals vary depending on models. Be sure to check the electrical wiring diagram on the back side when connecting wires.
(e) Using the earth connection screw from the indoor unit, secure the earth wire (locally procured 2 mm² or more copper wire) between the indoor unit and the drain up kit.

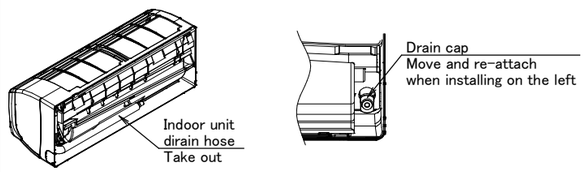


(2) Take out the relay harness②, power supply wire④, and earth wire from the back of the indoor unit, and return the indoor unit to its original position.



(3) Decide on which side of the indoor unit you' d like to install the drain up kit, and perform the following steps.

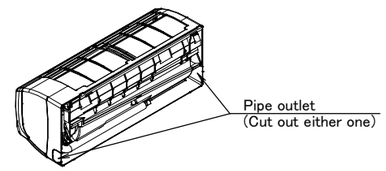
1. Take out the drain hose attached to the indoor unit.
※If installing the drain up kit on the left, move the indoor unit drain cap to the right side and re-attach it.
For how to move and re-attach, check the indoor unit installation manual.



⚠Caution

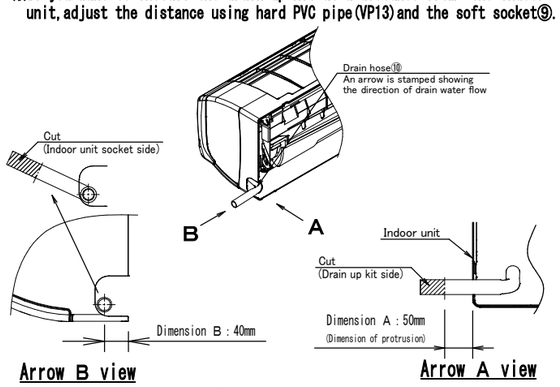
If installing the drain up kit on the left, be sure to move the indoor unit drain cap to the right side and re-attach it. If you forget to re-attach it, water will leak.

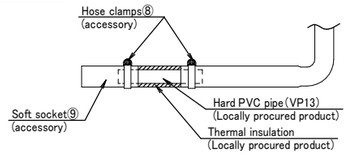
(4) Cut out and remove the covering of the indoor unit pipe outlet on the installation side of the drain up kit with something such as a cutter.



(5) Attach the drain hose⑩ to the drain pan socket of the indoor unit.

(6) When installing the drain up kit right next to the indoor unit, cut the drain hose⑩ with a something such as a cutter to dimension A and dimension B below (in that order).
※Dimension B may not be as specified depending on the size of the indoor unit pipe outlet, so use dimension B as a guide only.
※If you want to install the drain up kit at a distance from the indoor unit, adjust the distance using hard PVC pipe (VP13) and the soft socket⑨.

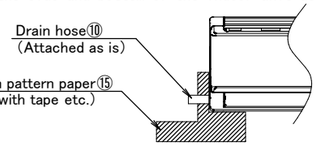




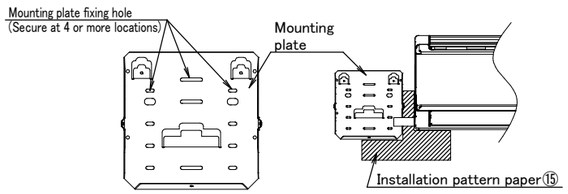
When installing at a distance from the indoor unit

❸ Installation of mounting plate and tentative placement of Drain Up Kit

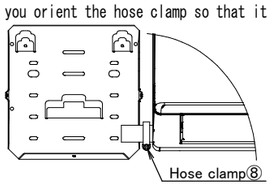
(1) Install the indoor unit with the drain hose⑩ attached as it is.
(2) Secure the installation pattern paper⑮ with something such as tape, using the side and bottom of the indoor unit as a guide.



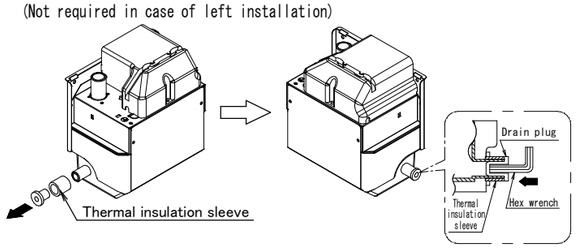
(3) Install the mounting plate of the drain up using the installation pattern paper⑮ as a guide.
・Using screws⑬, attach at 4 or more locations.
After installation, remove the installation pattern paper.



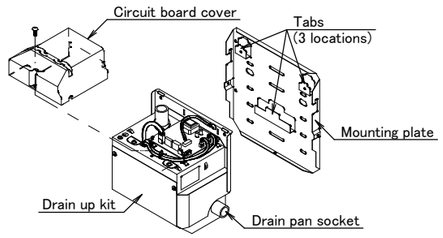
(4) Insert the drain hose⑩ into the hose clamp⑧.
※Work will be easier if you orient the hose clamp so that it can be tightened from below.



(5) When installing the drain up kit on the right, move the drain plug and thermal insulation sleeve of the drain up kit to the left side and re-attach. (Not required in case of left installation)



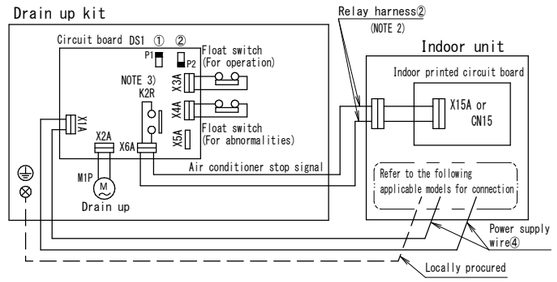
(6) Insert the drain pan socket of the drain up kit into the drain hose, then place it tentatively by hooking it on the tabs (3 locations) of the mounting plate.
※Do not tighten the hose clamp⑧ until wiring work is completed, and do not screw it to the mounting plate. Wiring work may be difficult.
(7) Remove the circuit board cover.



❹ Installation of relay harness/connection harness/power supply wire

< ⚠ Caution >
Be sure to work with the power supply turned off

Electrical wiring diagram



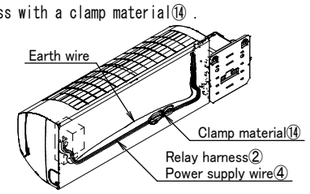
The earth wire (copper) must be 2 mm² or more or ϕ1.6 mm or more.

Applicable models	FAY71LVE FAY71LV1	FXA20~32LVE(C) FXA40~63LVE FXAQ20~32M(A)VE FXAQ40~63M(A)VE FXAQ20~63PV1 FXAQ20~63PVE	FAQ71BUV1B FAQ71BVV1B	FAQ71・100CVEB
Connection diagram	X2M Tes2 ⏚ 1 2 3	X2M ⏚ L N	X2M ⏚ 1 2 3	X2M 1 2 3 ⏚

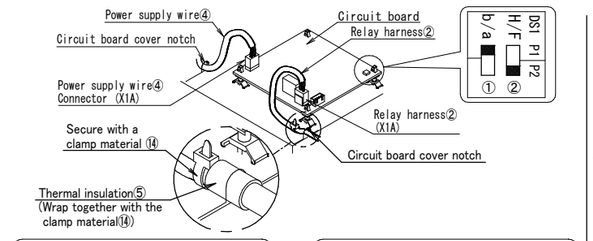
When connecting the relay harness, remove either the CN15 or X15A short circuit connector.

NOTE 1) Be sure to turn on the drain up kit power supply. If the power supply is not turned on, the air conditioner will stop abnormally and operation will not be possible.
NOTE 2) The relay harness cannot be extended. (It may malfunction due to noise)
NOTE 3) When the power supply is turned on, the K2R contact closes and becomes a non-voltage constant B contact.

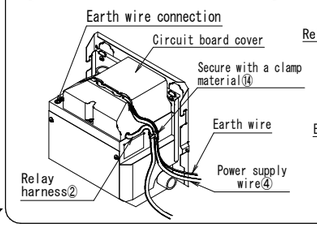
(1) Lay the relay harness②, power supply wire④, and earth wire in the indoor unit piping space.
(2) Connect the relay harness② to the circuit board connector (X6A) of the drain up kit
(3) Connect the power supply wire④ to the circuit board connector (X1A) of the drain up kit.
(4) Secure the earth wire (locally procured 2 mm² or more copper wire) to the drain up kit using the earth connection screw.
※Bundle excess harness with a clamp material⑭ .



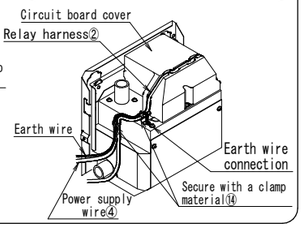
(5) Secure the relay harness② with a clamp material⑭.
(6) Wrap the thermal insulation⑤ around the relay harness②.
(To ensure protection, wrap it so that there is no gap between the relay harness and the circuit board cover)
(7) Check that the DIP switch (DS1②) on the circuit board assembly of the drain up kit is set to P2 and (DS1①) is set to P1.
(8) Attach the circuit board cover.
(9) Secure the relay harness②, power supply wire④, and earth wire (locally procured) with a clamp material⑭.
(10) Connect the earth wire.
・Be sure to perform Class D earthing work.
・The earth resistance value should be 100 ohms or less.



In case of installation on the left

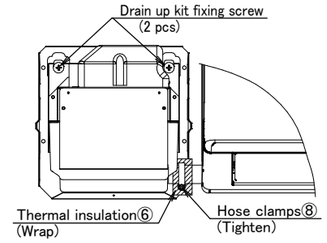


In case of installation on the right



❺ Drain up kit installation and drain piping procedure

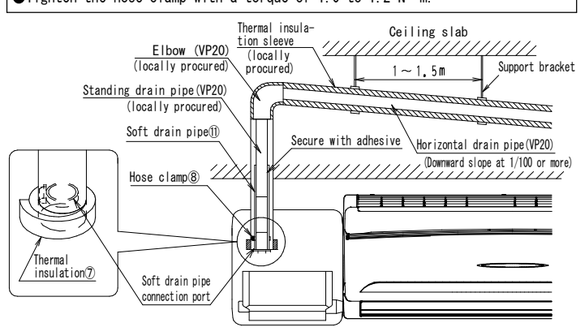
(1) Install the drain up kit fixing screws (2 pcs) and secure the drain up kit to the mounting plate.
(2) Tighten the hose clamp⑧ around the drain hose⑩.
(3) Wrap the thermal insulation⑥ around the hose clamp to insulate it.



< ⚠ Caution >
●Local pipe such as PVC pipe cannot be directly connected to the drain socket. Be sure to use the attached drain hose⑩.
●Tighten the hose clamp with a torque of 1.0 to 1.2 N・m.

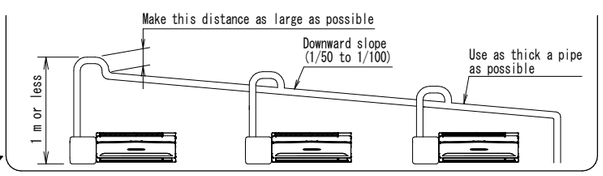
(4) Connect the outlet pipe.
・Connect the soft drain pipe⑪ to the soft drain pipe connection port.
・Tighten the connection between the drain up kit and the soft socket with a hose clamp⑧ and wrap it with thermal insulation⑦.
・Be sure to use adhesive to connect the soft drain pipe⑪ and the local drain pipe in the ceiling.

< ⚠ Caution >
●Outlet pipe parts are locally procured.
●Be sure to thermally insulate the drain pipe.
●Be sure to make a downward slope (1/100 or more) for the horizontal section of the drain pipe so that there will be no trapped air.
If the horizontal section is long, install a support bracket in the middle to prevent the pipe from sagging.
●Local pipe such as PVC pipe cannot be directly connected to the soft drain pipe connection port. Be sure to use the attached soft drain pipe ⑪.
●Tighten the hose clamp with a torque of 1.0 to 1.2 N・m.



In case of centralised pipe

● When branching into one central pipe, follow the procedure shown below to absolutely prevent water from flowing backward into the unit.

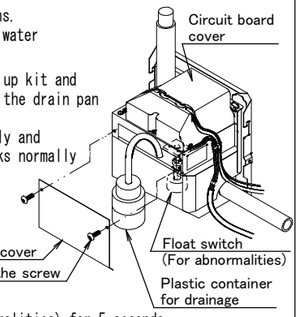


❻ Test run

< ⚠ Caution >
●Work with the circuit board cover attached.
Using something such as a tester, check whether single-phase 220-240V/220V, (50/60Hz) power supply voltage is supplied to the drain up kit.
●Do not splash water onto the drain up motor.

Drainage check

●Check that the pump operates and drains.
●When draining, check that there is no water leakage from the pipe.
(1) Remove the front cover of the drain up kit and pour water into the drain pan until the drain pan is about half-full of water.
(2) Turn on the drain up kit power supply and check that the drain up process works normally and the drain water flow is smooth.

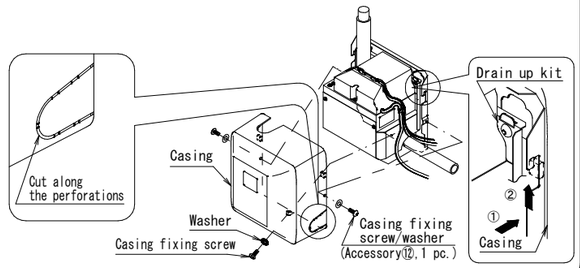


Abnormal stop check

(3) Start the air conditioner.
(4) Push up the float switch (for abnormalities) for 5 seconds or more and check that the air conditioner stops.
●After checking, reattach the front cover.

❼ Installation of casing

● Cut out and remove the covering of the casing pipe outlet with something such as a cutter.
● Install the casing as shown in the figure below and secure it with the fixing screws and washers. Use the 1 accessory screw and washer⑫ when securing the casing on either the left or the right.



❽ Check for after installation work is completed

Please check these items again after the construction is completed.

Check item	Check column	Check item	Check column
Are the indoor unit and drain up kit level?		Is the drain pipe pointing downward? (1/50 to 1/100)	
Is the drain pipe securely connected? Is there any risk of water leakage?		Is the drain hose insulated properly?	
		Is all the wiring correct?	

After the air conditioner test run, perform cooling operation and check the operating sound coming from the drain up kit.

❾ Precautions when operating

● The pump will repeatedly stop and start operating due to the action of the cooling operation float switch.
● After cooling operation is stopped, remaining water needs to be discharged, so do not turn off the power supply immediately.
● If turning off the power supply, be sure to wait at least 5 minutes after stopping operation. If the power supply is not turned off, the drain pump will stop after about 20 minutes of residual operation. If the safety circuit is activated, the operation of the air conditioner will stop.
● If water leaks from the inside of the air conditioner or the drain up kit during cooling operation, stop operation immediately. The drain outlet may be clogged or the safety circuit may not be working properly, so contact your dealer.