DAIKIN

AIR CONDITIONER
KDU50R63 ・ KDU50R160

Drain Pump Kit Installation manual

Be sure to follow this " SAFETY PRECAUTIONS ".

SAFETY PRECAUTIONS

●This manual classifies the precautions into WARNINGS and CAUTIONS.
Be sure to follow all the precautions below: They are all important for ensuring safety.

⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

●After the installation is completed, test the air conditioner and check if the air conditioner operates properly.
Ask the user to keep this manual in a handy place for future reference.

⚠ WARNING

Ask your local dealer or qualified personnel to carry out installation work.
Improper installation may result in water leakage, electric shocks or a fire.

Perform installation work in accordance with this installation manual.
Improper installation may result in water leakage, electric shocks or a fire.

Be sure to use only the specified parts and accessories for installation work.
Failure to use the specified parts may result in the air conditioner falling down, water leakage, electric shocks, a fire, etc.

Make certain that all electrical work is carried out by qualified personnel according to the applicable legislation (note 1) and this installation manual, using a separate circuit.In addition, Insufficient capacity of the power supply circuit or improper electrical construction may lead to electric shocks or a fire.
(note 1) applicable legislation means " All international, national and local directives, laws, regulations and / or codes which are relevant and applicable for a certain product or domain ".

Make sure that all wiring is secure,using the specified wirings and ensuring that external forces do not act on the terminal connections or wirings.
Incomplete connection or fixing may cause an overheat or a fire.

⚠ CAUTION

Install drain piping according to this installation manual to ensure good drainage, and insulate the piping to prevent condensation.Improper drain piping may cause water leakage, make the furniture get wet.

Do not install the air conditioner in places such as the following:
1. Where there is mist of oil, oil spray or vapour for example a kitchen.
   Resin parts may deteriorate, and cause them to fall out or water to leak.
2. Where corrosive gas, such as sulfurous acid gas, is produced.
   Corrosion of copper pipings or brazed parts may cause the refrigerant to leak.
3. Where there is machinery which emits electromagnetic waves.
   Electromagnetic waves may disturb the control system, and cause malfunction of the equipment.
4. Where flammable gases may leak, where carbon fibre or ignitable dust is suspended in the air or where volatile flammables, such as thinner or gasoline, are handled.
   If the gas should leak and remained around the air conditioner, it may cause ignition.

Caution

●This kit may be attached to a ceiling suspended type air conditioner.
●Check the indoor unit type on the list below before installing.
●When installing,also refer to installation manual attached to the indoor unit.

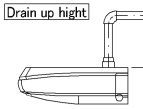
Combination List

Model	Combinable indoor unit models
KDU50R63	FHA35～63 A
KDU50R160	FHA71～140 A FHA50～140 B

Particular caution should be exercised for the following items.
Re-check all items after installation is completed.

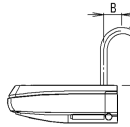
Item to be checked	In case of defective	Check column
Has the installation of the indoor unit and the drain pump kit each been done without fault?	Falling,condensation, vibration	
Are all wiring connected without fault?	Does not operate,burnout	
Is the drain flowing smoothly?	Water leakage	

Drain up hight



220 ～ 600mm
※ From the top of the indoor unit

※ Be sure the drain pump kit is at least 220 mm above the indoor unit , as the sound of the water flowing may otherwise become louder.



The drain up height and the drain hose length
A + B = Less than 600 mm

But , when drain laying of the pipes bends, set a plumbing chief between the drain socket - climax to less than 600 mm.

※A = Be sure the drain pump kit is at least 220 mm above the indoor unit.

Precaution when installing

Place it level, or tilt it slightly to the right or the back. (Within 1 ° .) Fig.1

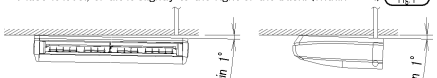
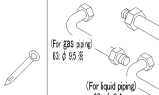
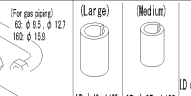
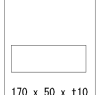


Fig.1

Tools required for installation

⊕⊖ Flathead screwdriver , nipper , cutter

Parts

Name	① Drain pump kit	② Drain hose	③ Metal clamp	④ Screw (M4)	⑤ Clamp	⑥ Attached piping	⑦ Insulation piping cover	⑧ Insulating material ⑧-1 For internal drain hose	⑧ Insulating material ⑧-2 For external drain hose	⑨ Protection net	⑩ Installation manual
Shape											
Q'ty	1pc.	2pcs.	3pcs.	3pcs.	14pcs. (Spare:9pcs.)	1each （※ 63 type only）	1each （※ 63 type only）	1pc.	1pc.	1pc.	1 sheet (This paper)

(For gas piping) 63: φ 9.5 ※ / (For gas piping) 63: φ 9.5, φ 12.7 160: φ 15.9 / (For liquid piping) 63: φ 6.4 160: φ 9.5 / (Large) LD φ 42 x L160 / (Medium) LD φ 35 x L120 / (Small) LD φ 26 x L100 LD φ 26 x L120※ / 185 x 230 x t5 / 170 x 50 x t10

❶ Preparation before installation of indoor unit

Service space for installation

For mounting this kit, keep a space of 100mm or more (※) on the right side of the indoor unit. Fig.1

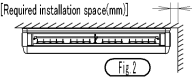


Fig.2

Indoor unit model SPLIT	A	B	C	D	E	F
FHA35・50	960	920	378	324	270	375
FHA60・71	1270	1230	533	479	425	530
FHA100・125・140	1590	1550	693	639	585	690

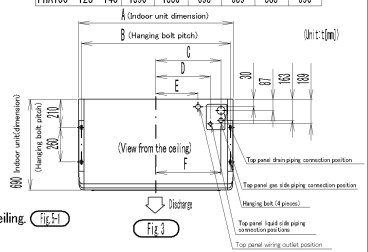


Fig.3

Preparation work

・This kit must be installed after the indoor unit is installed. However, it is necessary to carry out the following preparation works before the indoor unit installation.
(1)Before installing the indoor unit, remove the suction grille and the decoration side panel according to the installation manual attached to the indoor unit.
(2)Determine the outlet location of refrigerant piping, drain piping and electric wiring.Then, make holes for them. Refer to the outlet locations shown in the installation pattern paper attached to the indoor unit. Fig.1
(3)Connect the attached piping ⑥ to the field refrigerant piping. For fixing the flare nut, refer to the installation manual attached to the indoor unit.
(4)Insulate the fittings of refrigerant piping with the joint insulation material attached to the indoor unit and clamp them with the clamps attached to the indoor unit(both gas and liquid piping.) Fig.4
(5)Make sure to use adhesive for connecting the attached drain hose ② and the drain piping installed in the the ceiling. Fig.5-1
(6)Insulate the drain hose using the attached insulation piping cover(large) ⑦. Fig.4

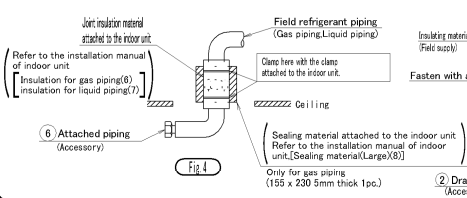


Fig.4

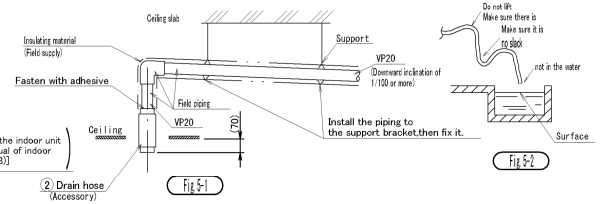


Fig.5-1

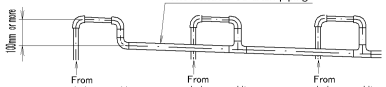
Fig.5-2

Caution

・Install the drain piping as short as possible with downward inclination of 1/100 or more to avoid air stagnation. Fig.5-1

If drain stagnates in the drain piping, the piping may be clogged.

・Do not let the drain piping end go into the water. Fig.5-1
・In case of centralized drain piping, carry out piping work according to the procedure shown in the following(Fig.5-1) . As for the size of centralized drain piping, select the size that meet the capacity of indoor units to be connected.(Refer to the technical document)
・Do not connect the drain piping directly to the sewage that gives off ammonia odor. The ammonia in the sewage may go through the drain piping and corrode the heat exchanger of the indoor unit.
・Make sure to insulate the drain piping and drain socket which go through indoors.
・Install the piping to the support ,then fix it. Fig.5-1



≪ Example of a defect ≫

Install the piping with a downward slope of 1/100 to prevent air from getting trapped in the piping.

If water stagnates in the drain piping, it may cause clogging of drain piping.

Fig.5-3

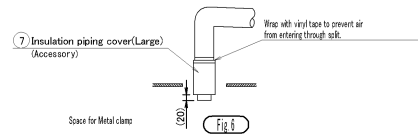


Fig.6

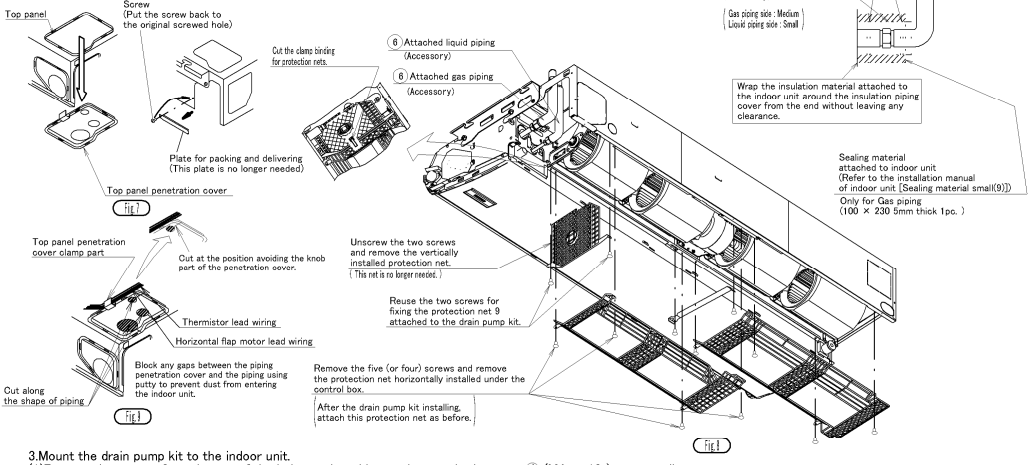
❷ Installation Outline

・Remove the top panel penetration cover fitted to the top panel. Then, install the indoor unit according to the installation manual. Fig.7
Next, unscrew and remove the transport plate(plate for packing and delivering). Put the screws back to the original screwed hole. Fig.7

Installation of drain pump unit

1.Complete the electric wiring work following the installation manual attached to the indoor unit.
(Use the wiring through-hole in the top panel of the indoor unit to pull the wiring into the indoor unit.)
2.Remove the two screws and remove the protection net vertically installed on the fan side.
Remove the five (or four) screws and remove the protection net horizontally installed under the control box.

Then connect the refrigerant piping to the indoor unit. Fig.8
(1)Connect the liquid and gas piping to the indoor unit
※ When connecting the flare nuts,refer to the installation manual attached to the indoor unit.
(2)Wrap the piping connections with the attached insulation piping cover(medium and small) ⑦ and fasten either end with the attached clamp ⑤ .
After the insulation piping cover is clamped , cut off the extra part.
Next,wrap gas piping with the joint insulating material attached the indoor unit on top of the insulation piping cover wrapped on the piping connections.
※ After piping is finished,cut the removed penetration cover along the shape of piping, and install.
Also, for top panel penetration cover, as it was before removed, put the horizontal flap motor and thermistor lead through the clamp of the top panel penetration cover and fix. When doing this, block any gaps between the piping penetration cover and the piping using putty to prevent dust from entering the indoor unit. Fig.9



3.Mount the drain pump kit to the indoor unit.
(1)Remove the screws from the top of the indoor unit,and insert the attached screws ④ (M4 × 12) temporarily.
Next,temporarily put the sorewed clamps on either end of the drain pump kit,and tighten the screws. Fig.10
Take out the lead wirings of drain pump and the float switch from the back of the drain pump kit.
Carry out the wiring according to Fig.11

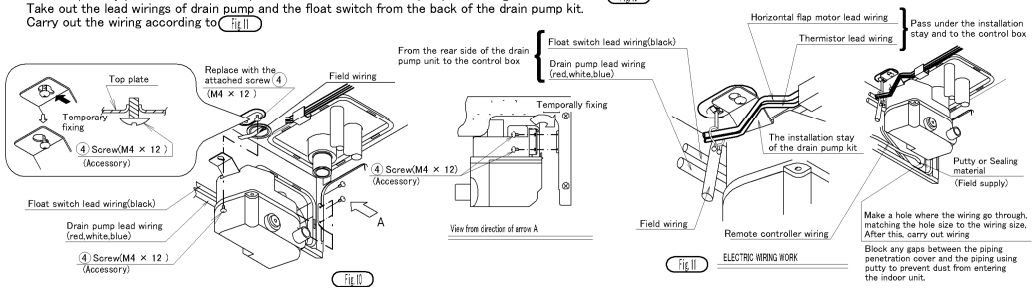


Fig.10 Fig.11

see reverse

(2) Insert the drain hose ② (external) into the metal clamp ③ , firmly insert the drain hose ② (external) all the way into the drain socket of the drain pump kit, and wrap it firmly with the metal clamp ③ within the area designated by the black tape on the hose end. Fig.12

(3) Put the attached insulating material 8-2 to the drain hose ② (external) connector, as shown in Fig.13

(4) Connect the attached drain hose ② (internal) completely to the root of the indoor unit drain socket and the drain pump kit socket. Then, securely tighten the metal clamp ③ over the black tape wrapped around both the hose ends. Arrange both the tightened ends to be located on the control box side and let the tightened part position at the center of the side. Fig.14 Fig.15 Fig.15

Fold the tip of the metal clamp 3 so that the insulation to be wrapped later may not rise.

(5) Insulate the drain hose ② (internal) set by (4) with the attached insulating material 8-1. Stick the both hose ends tightly to the drain pan and the drain pump unit so that the clearance A and the clearance B do not remain. Wrap the sealing material around the metal clamp of drain hose. The insulating material 8-1 must not cover the suction grille pressing plate. Fig.16

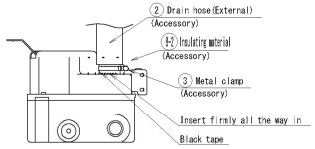


Fig.12

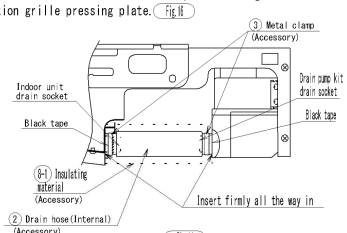
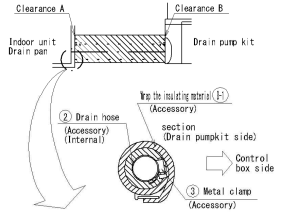


Fig.14

Stick the both hose ends tightly to the drain pan and the drain pump unit so that the clearance A and the clearance B do not remain.



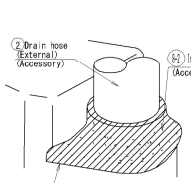
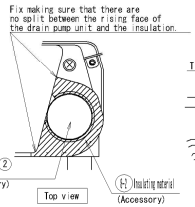


Fig.13



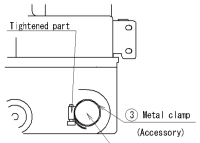


Fig.15

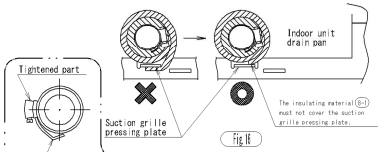


Fig.16

③ Electric wiring work 《 Refer also the installation manual of indoor unit 》

- Make certain that all electrical work is carried out by qualified personnel according to the applicable legislation (note 1) and this installation manual, using a separate circuit.
  (note 1) applicable legislation means " All international, national and local directives, laws, regulations and / or codes which are relevant and applicable for a certain product or domain " .
- Do not turn on the power supply (branch switch, earth leakage breaker) until all the works are finished.
- For electric wiring work, refer to also the " WIRING DIAGRAM " attached to the control box lid of the indoor unit.
- Wire the float switch lead wiring (black) and the drain pump lead wiring (yellow) that come out from the drain pump kit according to the following procedure shown below. Fig.17 Fig.18

(1) After making sure that the power supply is turn off, Remove the two screws and remove the control box lid of the indoor unit.
(2) Remove the two screws and take out the control box. Then, hook the control box to the indoor unit back plate.
(3) Connect the drain pump lead wiring (red, white, blue) to the X25A (white connector) on the indoor unit Printed Circuit Board.
(4) Remove the short circuiting connector connected to the X15A (white connector) on the Printed Circuit Board and connect the float switch lead wiring (black). Throw away the short circuiting connector. It is no longer needed.
(5) After the wiring is finished, bring the drain pump lead wiring (red, white, blue) and the float switch lead wiring (black) together with the existing internal wiring at the control box wiring outlet and bind them there with the clamp ⑤ .
(6) Put the drain pump lead wiring (red, white, blue) through four clamps (A), bundle the extra wiring, bring it together with the indoor unit existing internal wiring and bind them together with the clamp ⑤ . After the wirings are clamped , cut off the extra part.
(7) Put the float switch lead wiring (black) through the clamp (B) and bring it together with the indoor unit internal existing wiring and bind them together with the clamp ⑤ at 2 places. After the wirings are clamped , cut off the extra part.
(8) Mount the control box. When carrying out this work, tilt the control box toward the arrow shown in . Fig.17

Then,
- In case of FHA35 ~ 71, clamp the internal wiring to the top panel (※ 1)
- In case of FHA100 ~ 140, clamp the internal wiring to the control box upper part (※ 2)

(9) Mount the control box
※When wiring , from the wiring orderly so that the control box lid can be securelyfastened. if the control box lid is not in place , the wirings may float up or be sandwished by the box and the lid and cause electric shocks or a fire.

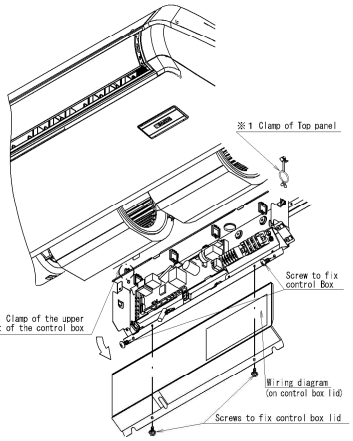
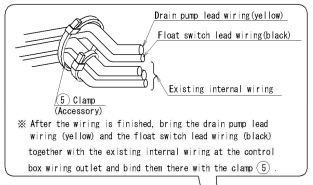


Fig.17



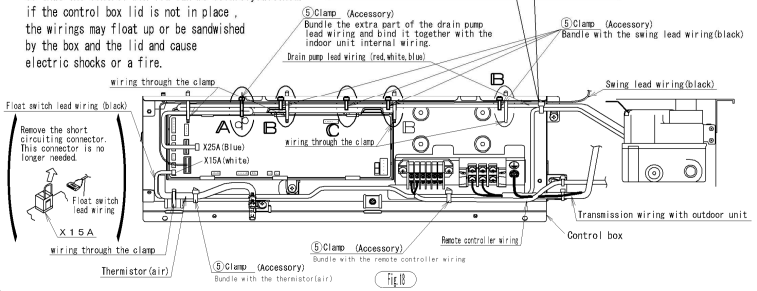
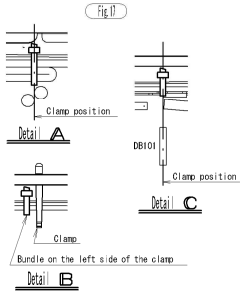


Fig.18



④ Mounting the protection net, decoration side panel, suction grille

(1) Remount the control box side protection net which was removed according to the procedure described in 2. Fig.19
(2) Mount the attached protection net ⑨ with one screw. Firmly bind the protection net ⑨ and the control box side protection net with the clamp 5 at the location mentioned in . Fig.20 Cut off the extra part of clamp ⑤ .
(3) Making reference to the indoor unit installation manual, mount the decoration side panel and suction grille in the reverse order carried out for removing them.
- Give caution not to sandwich the wiring when mounting the protection net.

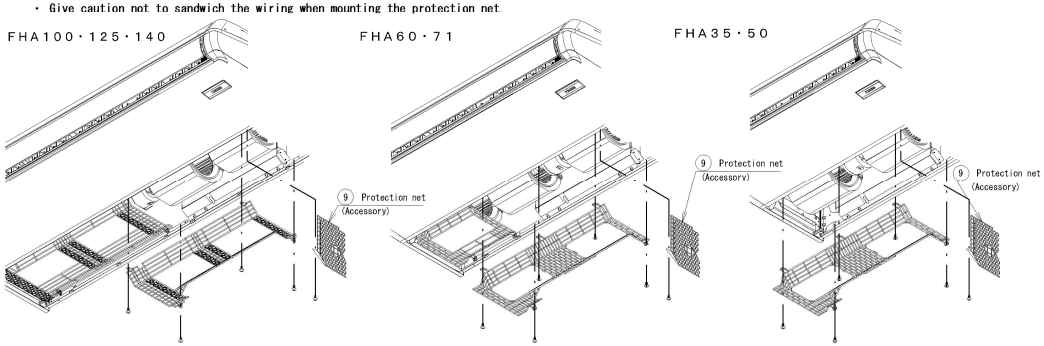


Fig.19

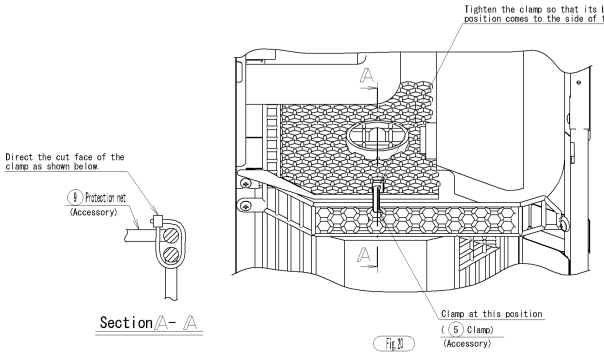


Fig.20

⑤ Test operation

Gradually pour 1 liter of water from the air outlet into the drain pan . And confirm drainage by followed method. Fig.21

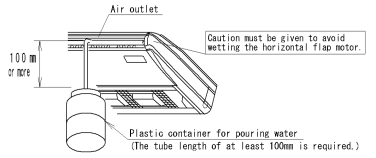


Fig.21

When the wiring work is finished

(1) After making sure that the power supply is turn off, remove the control box cover and reconfirm that the wiring is properly carried out. After reconfirmation, mount the cover securely.
(2) After having confirmed that the cover is closed, turn on the power supply and start cooling operation. Then, confirm that the condensate from the indoor unit is properly drained and no water leakage is found.

When the wiring work is not finished

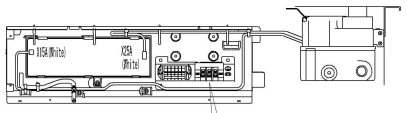
- Make certain that all electric wiring work is carried out by qualified personnel according to the applicable legislation (note 1) and this installation manual, using a separate circuit.
  (note 1) applicable legislation means " All international, national and local directives, laws, regulations and / or codes which are relevant and applicable for a certain product or domain " .
- Do not turn on the power supply (outdoor unit) until all the works are finished.
- For electric wiring work, refer to also the " WIRING DIAGRAM " attached to the control box lid.

(1) After making sure that the power supply is turn off, remove the control box cover. Then,

Connect the single phase 220-240V power supply to the terminals 1 and 2 on the terminal, and the earth wiring to the earth terminal. Fig.22

⚠ · Do not connect the power supply to the terminal 3. (The drain pump does not operate). If connected, the PCB of the indoor unit may be broken.

(2) For safety, make sure to turn on the power supply after the control box cover is securely closed. Only the drain pump will operate for 10 minutes. Therefore, confirm that water is securely drained and no water leakage occurs during this 10 minutes.
(3) After the confirmation of drainage is finished, turn off the power supply and remove the power supply wiring.



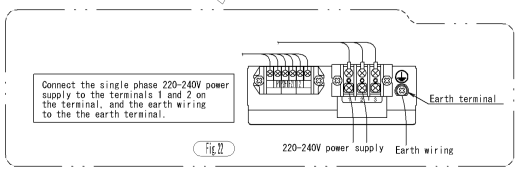


Fig.22