

Total Heat Exchanger HRV (Heat Reclaim Ventilation)

MODELS

(Ceiling mounted duct type)

VAM150FAVE	VAM150F5VE
VAM250FAVE	VAM250F5VE
VAM350FAVE	VAM350F5VE
VAM500FAVE	VAM500F5VE
VAM650FAVE	VAM650F5VE
VAM800FAVE	VAM800F5VE
VAM1000FAVE	VAM1000F5VE
VAM1500FAVE	VAM1500F5VE
VAM2000FAVE	VAM2000F5VE

HRV

HRV; Heat Reclaim Ventilation

Please read this installation manual carefully and install the unit properly to keep it at full capacity for a long time.

Please provide some necessary parts, for example round hoods, air suction/discharge grilles etc., before the installation of the unit.

HRV; Belüftungssystem zur Wärmerückgewinnung

Lesen Sie dieses Installationshandbuch bitte sorgfältig durch, und installieren Sie die Einheit korrekt, so daß sie ihre Leistungsfähigkeit noch lange Zeit behält.

Einige erforderliche Teile wie z. B. Rundkappen, Luftansaug-/Lufausblasgitter müssen bereits vor der Installation der Einheit vorhanden sein.

HRV; Ventilation avec recuperation d'énergie

Veuillez lire attentivement ce Manuel d'installation et installer correctement l'appareil de manière à ce qu'il puisse être utilisé pendant une longue période de temps sans aucun dérangement.

Veuillez vous procurer certains éléments nécessaires, tels que des capuchons de formes arrondies, des grilles d'aspiration/évacuation d'air, avant l'installation de cette unité.

HRV; Ventilación con recuperación de calor

Por favor lea cuidadosamente el manual de instalación e instale correctamente la unidad para que pueda conservar su plena capacidad durante un largo periodo.

Por favor, antes de proceder a la instalación de la unidad, proporcione las piezas necesarias, por ejemplo tapas redondas, rejillas de aspiración y de impulsión de aire, etc.

HRV; Ventilazione con recupero di calore

Leggere attentamente questo manuale ed installare correttamente l'unità in modo da farla funzionare a lungo al massimo delle sue capacità.

Prima dell'installazione, è opportuno disporre delle parti necessarie, come ganci arrotondati, griglie di aspirazione/di mandata, ecc.

HRV Αερισμός ανάκτησης θερμότητας

Διαβάστε προσεκτικά το παρόν εγχειρίδιο εγκατάστασης και εγκαταστήστε σωστά τη μονάδα για να διατηρήσετε την πλήρη απόδοσή της για πολύ καιρό.

Προμηθευτείτε μερικά απαραίτητα εξαρτήματα π.χ. κυκλικά καλύμματα, εσχάρες αναρρόφησης/κατάθλιψης κ.τ.λ. πριν εγκαταστήσετε τη μονάδα.

HRV; Ventilatie met warmterugwinning

Lees eerst zorgvuldig deze installatiehandleiding en installeer de unit op de juiste manier, zodat deze gedurende lange tijd zijn volledige vermogen kan leveren.

Zorg dat alle componenten aanwezig zijn, zoals ronde kappen, luchtaan- en afvoerroosters etc. voordat u de unit gaat installeren.

HRV; Ventilacao com Recuperacao de Calor

Leia atentamente este manual e instale correctamente esta unidade para que esta funcione inteiramente durante um longo periodo de tempo.

Adquirir algumas peças necessárias, por exemplo, tampas redondas, grelhas de aspiracao/exaustao, etc., antes da instalacao da unidade.

HRV; Вентиляция с регенерацией тепла (HRV)

Внимательно ознакомьтесь с данным руководством и установите блок надлежащим образом, чтобы он работал на полную мощность в течение долгого времени.

Перед установкой блока подготовьте необходимые детали, например колпак округлой формы, решетки всасывания/выпуска воздуха и т.п.

HRV; 熱量再生通風装置

請仔細閱讀本安裝手冊，並正確安裝本設備使其發揮全部性能，保證長期有效使用。

在安裝本設備前，請準備好一些必要的部件。如圓形防護罩，進氣/排氣柵格等。

English

Deutsch

Français

Español

Italiano

Ελληνικά

Nederlands

Portugues

Russian

Taiwanese



VAM150F VAM500F VAM1000F
VAM250F VAM650F VAM1500F
VAM350F VAM800F VAM2000F

Total Heat Exchanger
HRV (Heat Reclaim Ventilation)

Installation
manual

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1. SAFETY CONSIDERATIONS

Please read these "SAFETY CONSIDERATIONS" carefully before installing air conditioning equipment and be sure to install it correctly. After completing the installation, make sure that the unit operates properly during the start-up operation. Please instruct the customer on how to operate the unit and keep it maintained. Also, inform customers that they should store this installation manual along with the operation manual for future reference.

This air conditioner comes under the term "appliances not accessible to the general public".

Meaning of warning and caution symbols.

⚠ WARNING Do not install HRV or an air suction/discharge grille in the following places.

⚠ WARNING

- **Place such as machinery plant and chemical plant where gas, which contains noxious gas or corrosive components of materials such as acid, alkali organic solvent and paint, is generated.**
Place where combustible gas leakage is likely.
such gas can cause fire.
- **Place subjected to high temperature or direct flame.**
Avoid a place where the temperature near the HRV unit and the air suction/discharge air grille exceeds 40°C.
If the unit is used at high temperature, deformed air filter and heat exchange element or burned motor result.
- **Place such as bathroom subjected to moisture.**
Electric leak or electric shock and other failure can be caused.
- **Place subjected to much carbon black.**
Carbon black attaches to air filter and heat exchange element, making them unable to use.

2. DIMENSIONS

• VAM150F, VAM250F, VAM350F, VAM500F, VAM650F, VAM800F, VAM1000F

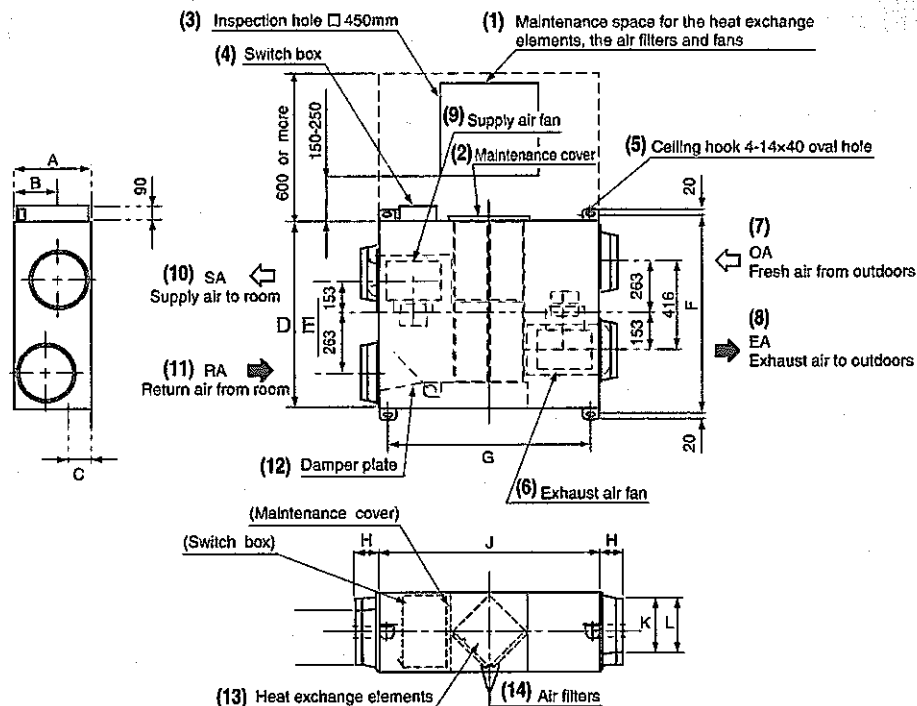


Fig. 1

• VAM1500F, VAM2000F

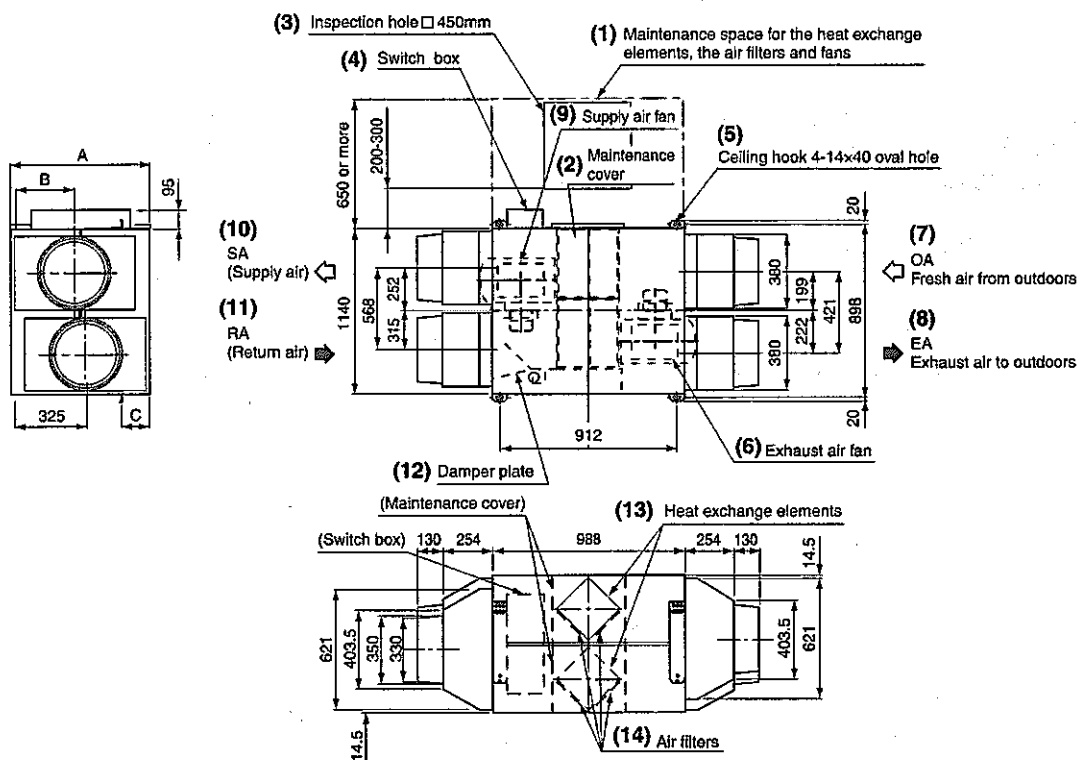


Fig. 1

- (1) Maintenance space for the heat exchange elements, air filters and fan
- (2) Maintenance cover
- (3) Inspection hole □ 450 mm
- (4) Switch box
- (5) 14 × 40 mm Ceiling hook (Oval hole)
- (6) Exhaust air fan
- (7) OA (Outdoor air)
- (8) EA (Exhaust air)

- (9) Supply air fan
- (10) SA (Supply air)
- (11) RA (Return air)
- (12) Damper plate
- (13) Heat exchange elements
- (14) Air filters
- (15) Applicable duct
- (16) Nominal diameter

Model	A	B	C	D	E	F	G	H	J	K	L
VAM150F	269	149	104	509	288	560	718	145	760	97	200
VAM250F								132		146	
VAM350F	285	164	112	800	416	850	758	84	812	197	
VAM500F								137		196	250
VAM650F	348	204	140	852	421	902	912	89	988	246	263
VAM800F		203		1140	568	1190					
VAM1000F											
VAM1500F	710	421	898	—	—	—	—	—	—	—	—
VAM2000F	710	568	1168	—	—	—	—	—	—	—	—

3. INSTALLATION

3-1 INSTALLATION POSITION



CAUTION

1. Install the unit in a place strong enough to support its weight.

Poor installation is hazardous. It also causes vibrations and usual operating noise.

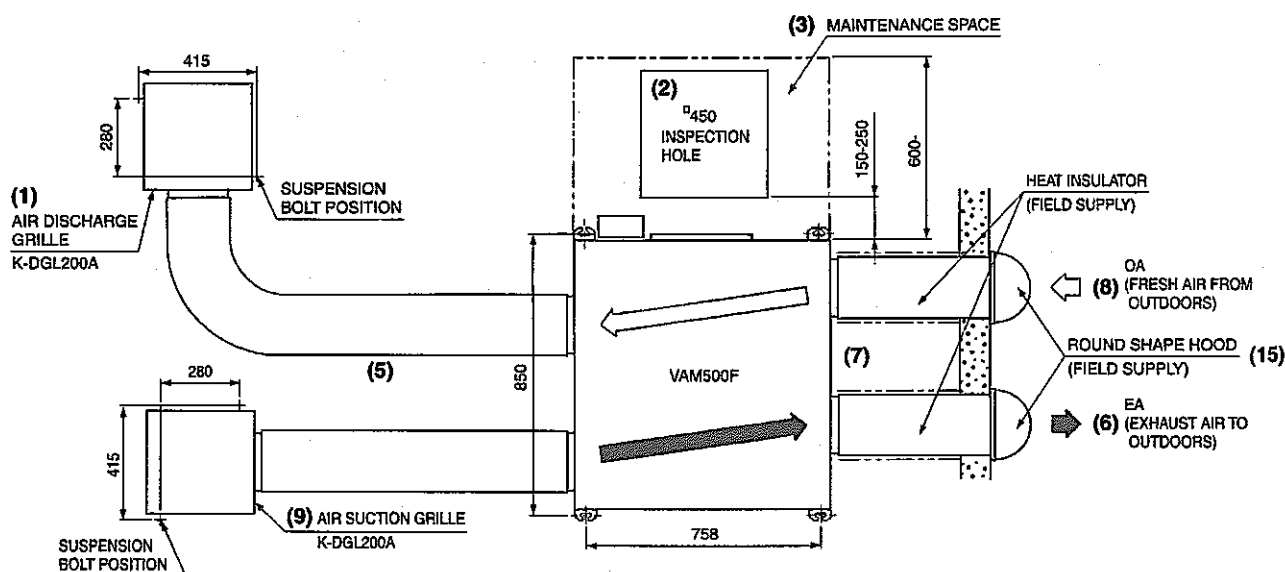
2. Provide the service space and the inspection holes.

(Be sure to provide the inspection holes to inspect the air filters, the heat exchange elements and fans.)

3. Do not install the unit directly against a ceiling or wall.

(If the unit is in contact with the ceiling or wall, it can cause vibration.)

• Example (1) of Installation VAM500F



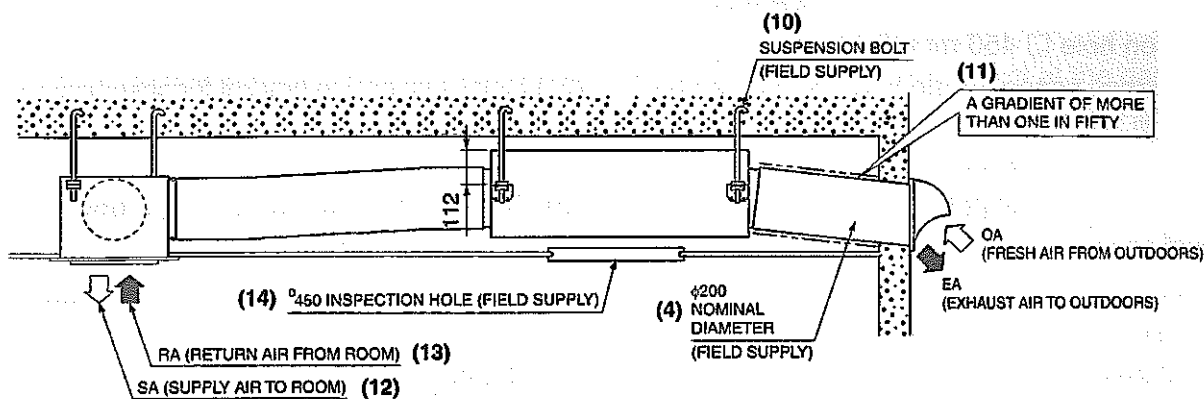


Fig. 2

- (1) Air suction/discharge grille K-DGL200A (option)
- (2) Inspection hole \square 450 mm (field-supply)
- (3) Maintenance space for the heat exchange elements, air filters and fan
- (4) Duct (ϕ 200) (field-supply)
- (5) Duct (ϕ 200) (field-supply) or *Flexible duct K-FDS202C (option)
- (6) EA (Exhaust air)
- (7) Heat Insulator (field-supply)
- (8) OA (Outdoor air)

- (9) Air suction/discharge grille K-DGL 200A (option)
- (10) Suspension bolt (field-supply)
- (11) Gradient of down to outdoor $\geq 1/50$
- (12) SA (Supply air)
- (13) RA (Return air)
- (14) Inspection hole \square 450 mm (field-supply)
- (15) Round hood (field-supply)

• Example (2) of Installation VAM800F (VAM1000F)

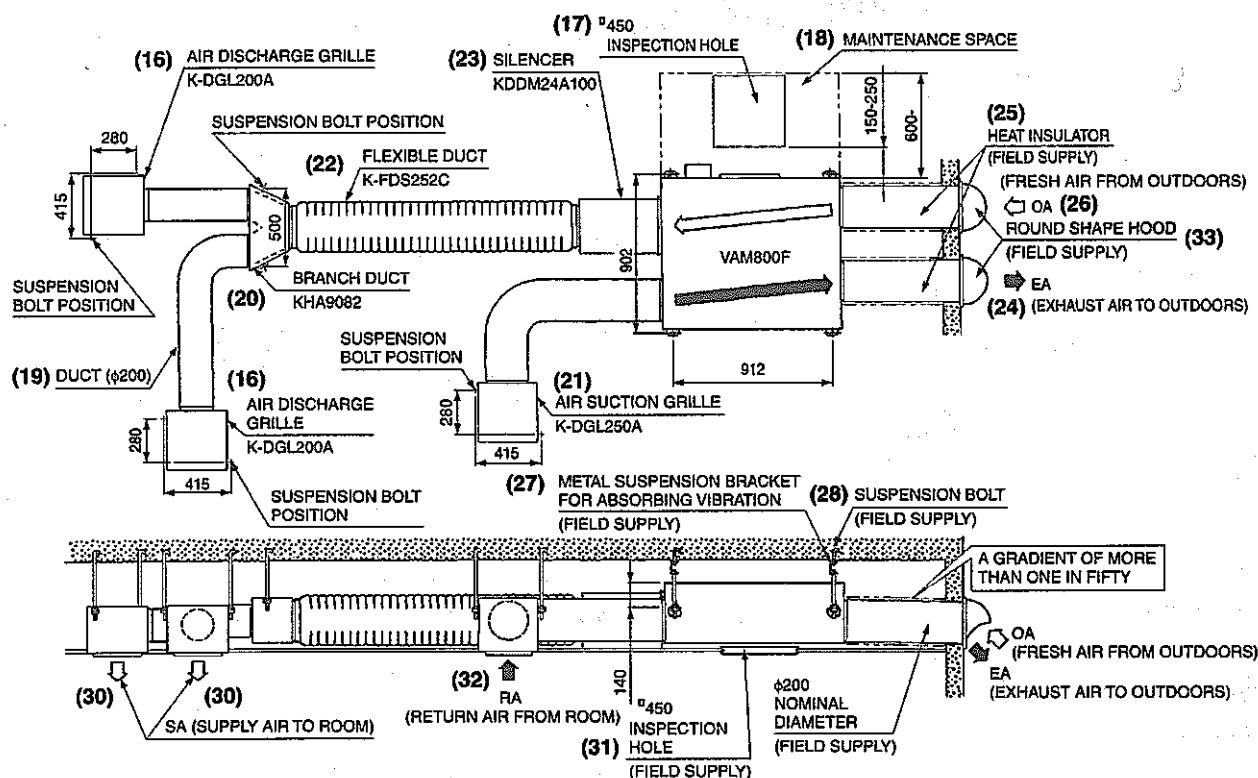


Fig. 2

- (16) Air suction/discharge grille K-DGL200A (option)
- (17) Inspection hole □ 450 mm (field-supply)
- (18) Maintenance space for the heat exchange elements, air filters and fans
- (19) Duct (ø200) (field-supply)
- (20) Branch duct (field-supply)
- (21) Air suction/discharge grille K-DGL250A (option)
- (22) *Flexible duct K-FDS202C (option)
- (23) *Silencer KDDM24A100 (option)
- (24) EA (Exhaust air)
- (25) Heat Insulator (field-supply)
- (26) OA (Outdoor air)
- (27) Metal suspension bracket for absorbing vibration (field-supply)
- (28) Suspension bolt
- (29) Gradient of down to outdoor $\geq 1/50$
- (30) SA (Supply air)
- (31) Inspection hole □ 450 mm (field-supply)
- (32) RA (Return air)
- (33) Round hood (field-supply)

• Example (3) of Installation VAM1500F, VAM2000F

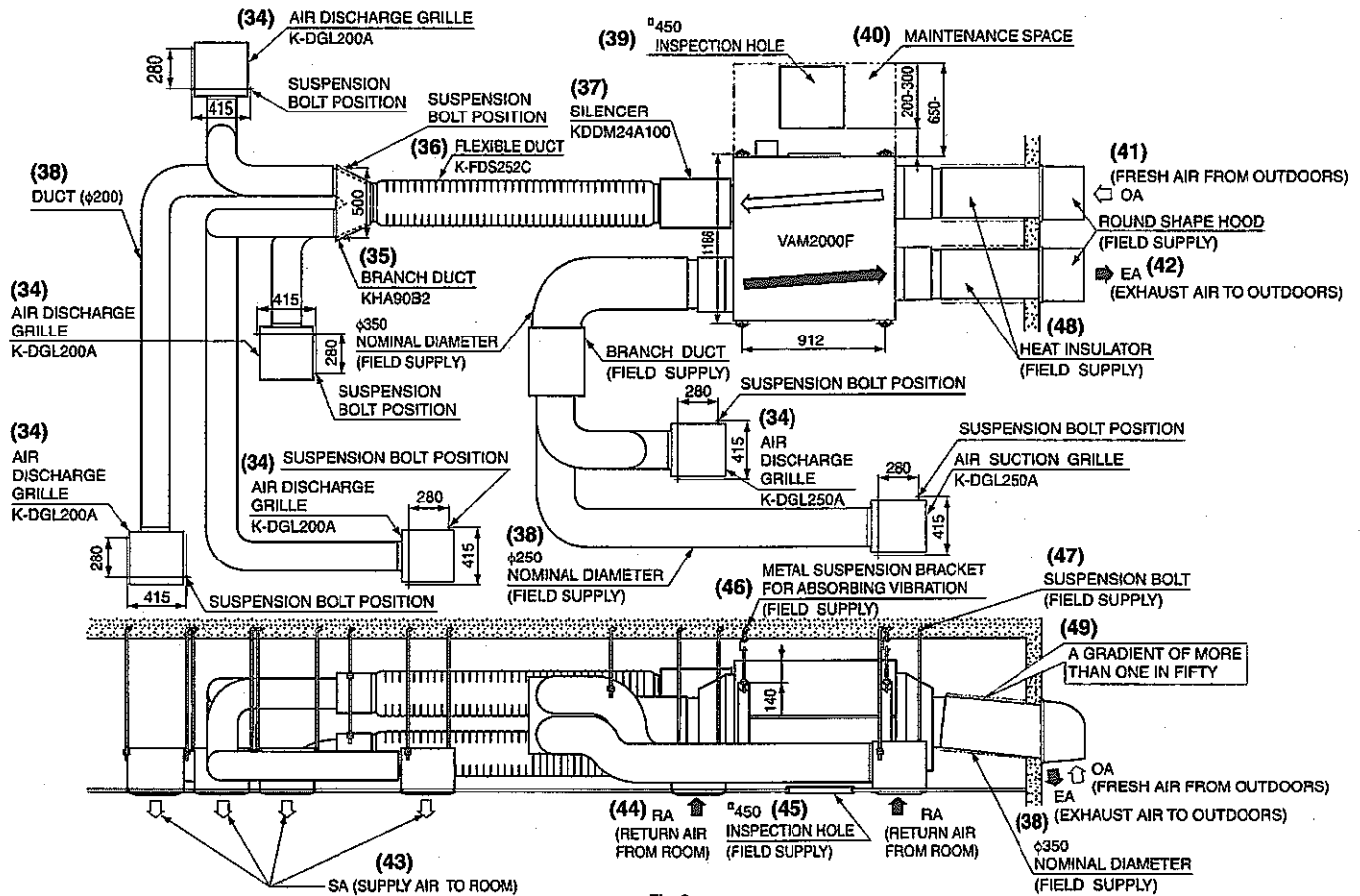


Fig. 2

- (34) Air suction/discharge grille K-DGL200A, 252A (option)
- (35) Branch duct (option)
- (36) *Flexible duct K-FD5252C (option)
- (37) *Silencer KDDM24A100 (option)
- (38) Duct (field-supply)
- (39) Inspection hole □ 450mm (field-supply)
- (40) Maintenance space for the heat exchange elements, air filters and fans
- (41) OA (Outdoor air)
- (42) EA (Exhaust air)
- (43) SA (Supply air)
- (44) RA (Return air)
- (45) Inspection hole □ 450 mm (field-supply)
- (46) Metal suspension bracket for absorbing vibration (field-supply)
- (47) Suspension bolt (field-supply)
- (48) Heat Insulator (field-supply)
- (49) Gradient of down to outdoor $\geq 1/50$

<Cautions on installing the ducts>

- The parts marked with* are effective in reducing blowing noise.
- When using the unit at a quiet place, use the optional silencer box and flexible duct at the part of the air discharge outlet on the indoor side "SA" (supply air to room) of the unit, to counter the noise.
- When selecting installation materials, consider the required volume of air flow and noise level in that particular installation.
- When the outdoor air infiltrates into the ceiling and the temperature and humidity in the ceiling become high, insulate the metal portions of the unit.

3-2 THE METHOD OF INSTALLATION

• VAM150F, VAM250F, VAM350F, VAM500F

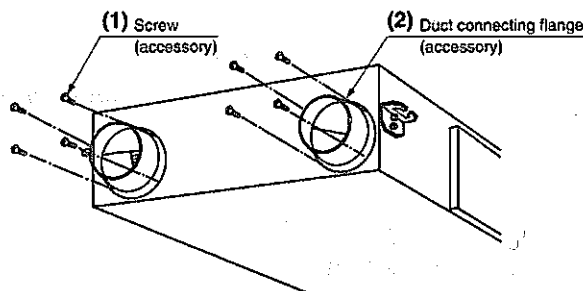


Fig. 3

• VAM650F, VAM800F, VAM1000F, VAM1500F, VAM2000F

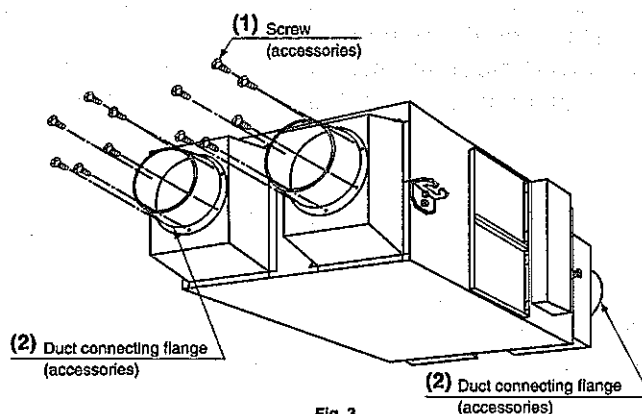


Fig. 3

(1) Screw (accessories)

(2) Duct connecting flange (accessories)

• Installation of duct connecting flanges

Attach the provided duct connecting flanges using screws (accessories).

VAM150 : 16 screws provided

VAM650 : 24 screws provided

VAM250 : 16 screws provided

VAM800 : 24 screws provided

VAM350 : 16 screws provided

VAM1000 : 24 screws provided

VAM500 : 16 screws provided

VAM1500 : 24 screws provided

VAM2000 : 24 screws provided

• VAM150F, VAM250F, VAM350F, VAM500F, VAM650F, VAM800F, VAM1000F

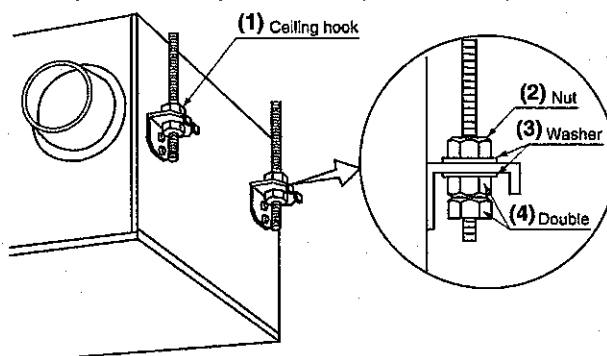


Fig. 4

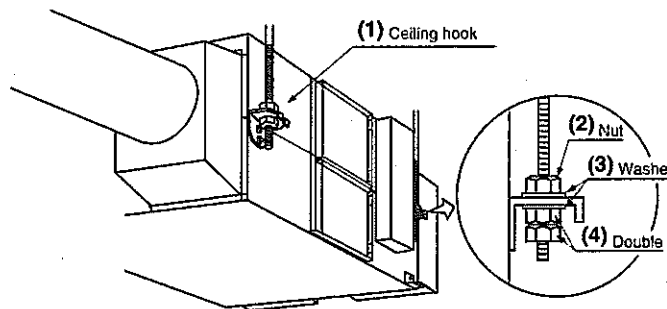


Fig. 4

(1) Ceiling hook

(2) nut

(3) Washer

(4) Double nuts

(5) Fixing metal for transportation

1. Installation of HRV

- Install the anchor bolt (M10 to 12) in advance.
Pass the metal suspension bracket through the anchor bolt and secure the anchor bolt with washer and nut.
(Before installation, check for foreign objects such as vinyl and paper remaining inside the fan housing.)
- The metal suspension bracket is fitted on top of the standard unit.
If the anchor bolt is long, install it on the bottom of the unit.
(Be sure to screw in the removed mounting screw on top to prevent air leakage.)
Install the duct caution name plate properly on the indoor side (SA·RA) and outdoor side (EA·OA).

NOTE

- Remove the two fixing metals for transportation if it prevents installation work. (Be sure to screw in the removed mounting screw on the body side to prevent air leakage.)

3-3 DUCT CONNECTION

• Do not connect the ducts as follows.

- (1) The minimal radius of bends for flexible ducts are as follows.

300-mm duct : 200 mm diameter

375-mm duct : 250 mm diameter

- (2) To prevent air leakage, wind aluminum tape round the section after the duct connecting flange and the duct are connected.

- (3) Install the opening of the indoor air intake as far as from the opening of the exhaust suction.

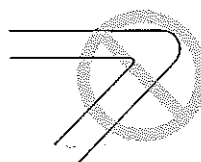
- (4) Use the duct applicable to the model of unit used (Refer to the outline drawing.)

- (5) Install the two outdoor ducts with down slope (slope of 1/50 or more) to prevent entry of rain water. Also, provide insulation for both ducts to prevent dew formation.
(Material : Glass wool of 25 mm thick)

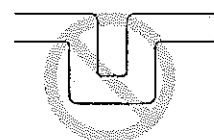
- (6) If the level of temperature and humidity inside the ceiling is always high, install a ventilation equipment inside the ceiling.

- (7) Insulate the duct and the wall electrically when a metal duct is to be penetrated through the metal lattice and wire lattice or metal lining of a wooden structure wall.

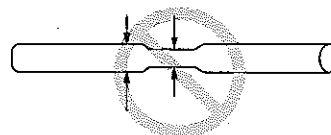
- (1) Extreme bend
Do not bent the duct over 90°



- (2) Multi bend



- (3) Reduce the diameter of the duct to be connected.
(Do not reduce the duct diameter halfway.)



• VAM150F, VAM250F, VAM350F, VAM500F, VAM650F, VAM800F, VAM1000F

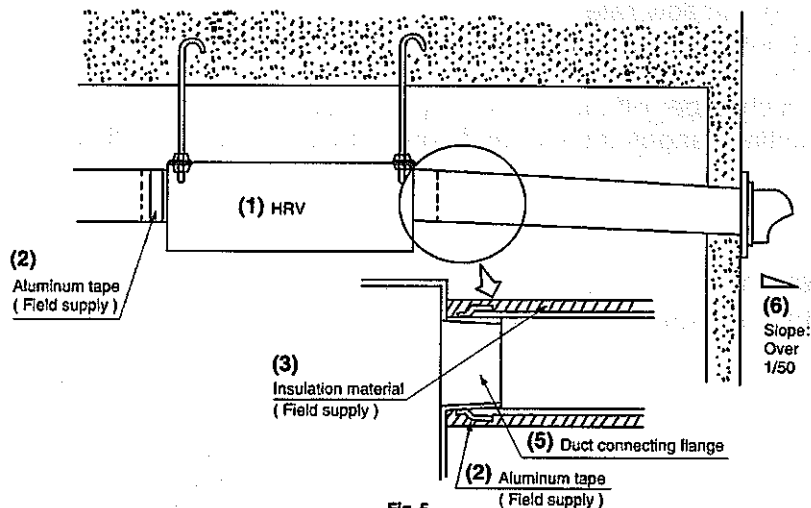


Fig. 5

• VAM1500F, VAM2000F

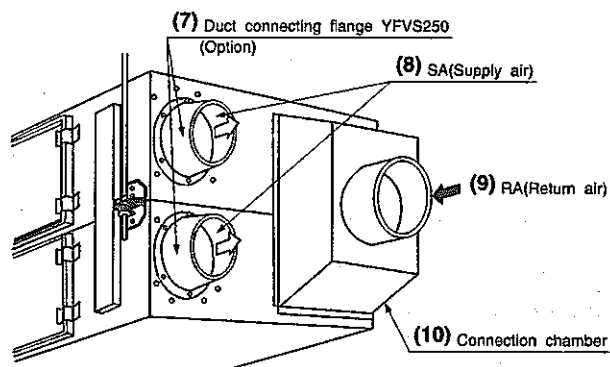
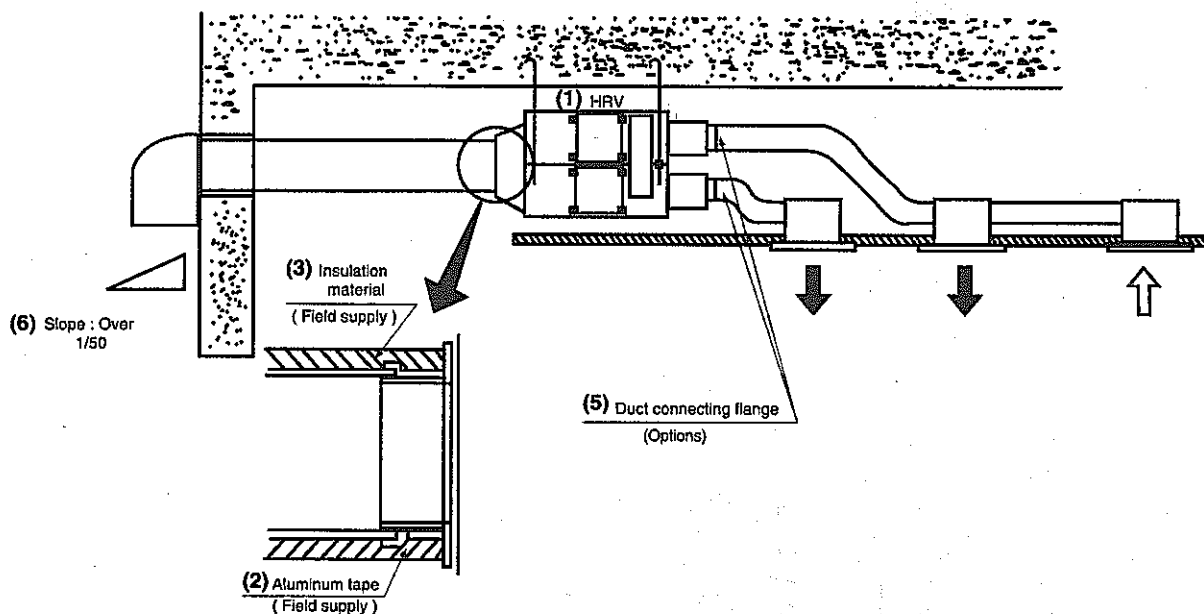


Fig. 5

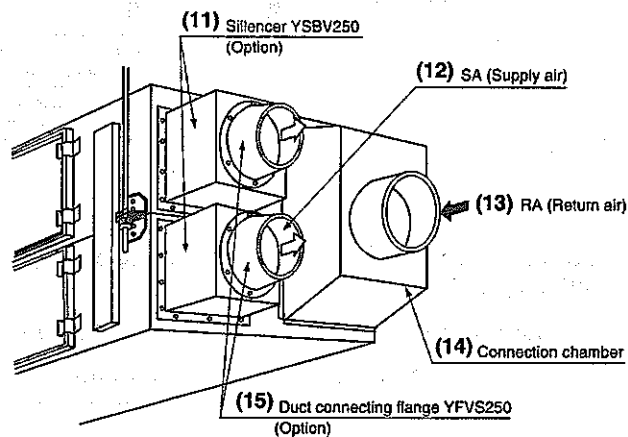


Fig. 5

• Using 250 mm dia. round ducts for the SA (supply air) and RA (return air) sides

- (1) Loosen the 12 screws off the SA (supply air) side and remove the connection chamber. Be sure to tighten up these screws back in position in order not to allow any air leak from the unit.
- (2) Fix the duct connecting flanges (Option) with their accompanying 12 screws.

• **Introducing the silencers and other options.**

This model handles a high air flow rate.

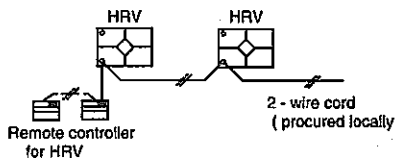
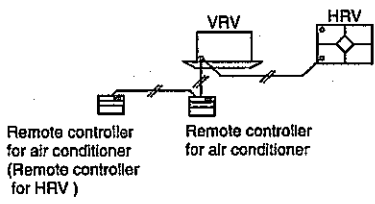
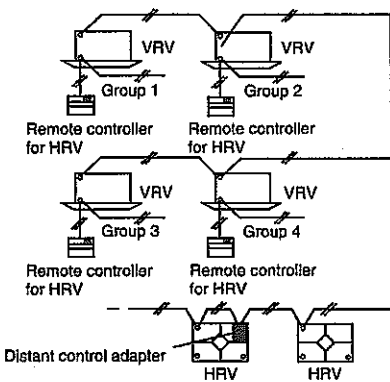
To reduce the blow-out noise, some optional attachments are available silencer, flexible duct, thin air intake/exhaust grille, etc.

Remove the connection chamber off the SA (supply air) side and attach the upper and lower silencers. Now fix the duct connecting flanges (option) and connect the 250 mm dia. flexible ducts.

4. SYSTEM

4-1 Independent system

Air conditioner linked operation system

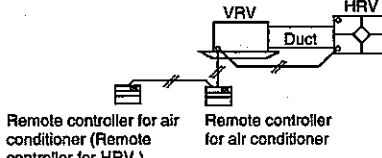
SYSTEM		Standard method	Related items in Electric wiring
Independent system	 <p>Remote controller for HRV</p> <p>2 - wire cord (procured locally)</p>	<ul style="list-style-type: none"> Up to 16 units can be controlled with the remote controller for HRV. (A system with two remote controls can be created in the master/slave switching.) All HRV operations can be used and indicated. Operation monitor output and humidifier operation are possible using Adapter PCB. Remote control cord should be procured locally. (Maximum cord length : 500 m) 	5-2-1
Combined operation system with VRV systems and Sky-air series	1-group linked operation system	 <p>Remote controller for air conditioner (Remote controller for HRV)</p> <p>Remote controller for air conditioner</p>	5-3-1
	Multi-group (2 or more) linked operation system	 <p>Remote controller for HRV</p> <p>Remote controller for HRV</p> <p>Remote controller for HRV</p> <p>Remote controller for HRV</p> <p>Distant control adapter</p> <p>HRV</p> <p>HRV</p>	5-3-3

NOTES

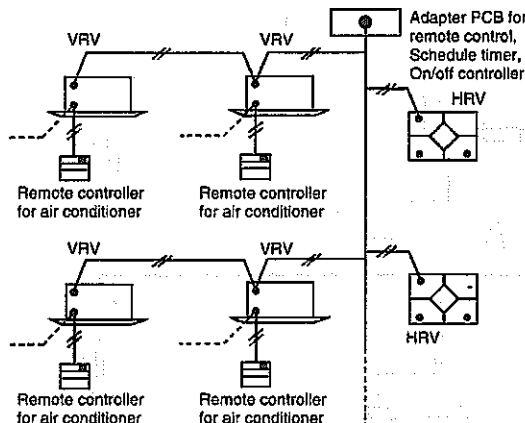
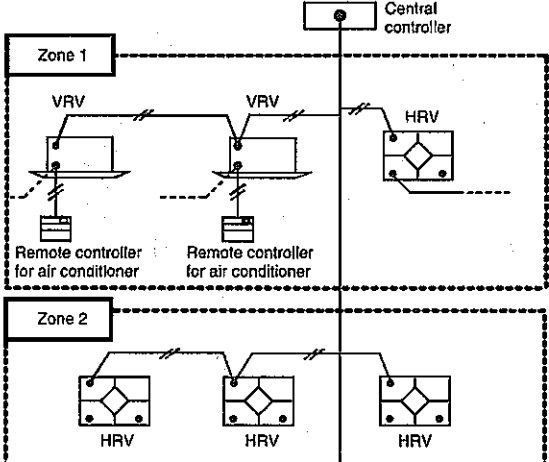
(1) Adapter PCB : KPR50-2 ; Distant control adapter : KRP2A61 : Installation box for adapter PCB : KRP50-2A90

(2) Operation of two or more group is not possible with direct duct connection.

(3) With VAM types, the direct duct connection shown can also be selected for 1-group operation systems.

SYSTEM		Standard method	Related items in Electric wiring
Direct duct connection system	 <p>Remote controller for air conditioner (Remote controller for HRV)</p> <p>Remote controller for air conditioner</p>	<ul style="list-style-type: none"> The HRV will operate only when the air conditioner fan is on. When the air conditioner is not being used, the HRV can be operated in circulation or ventilation modes. Other specifications are the same as those of the standard system. 	5-3-2

4-2 CENTRALIZED CONTROL SYSTEM (VRV SYSTEM)

SYSTEM			Standard method	Related items in Electric wiring
Centralized control system	"All"/individual control system		<ul style="list-style-type: none"> • Use of the on/off controller, Adapter PCB for remote control or schedule timer enables centralized control of the entire system. (maximum of 64 groups) • The on/off controller can turn on or off the individual units. • The schedule timer and on/off controller can be used together. However, the Adapter PCB for remote control cannot be used with another centralized control device. 	5-4-2
	Zone control system		<ul style="list-style-type: none"> • Use of the centralized controller enables zone control via the centralized control line. (maximum of 64 zones) • The central controller displays the "Filter" indication and abnormality warnings, and enables resetting. • The centralized controller allows ventilation operation for each zone independently. 	5-4-3

[Caution]

- (1) Wiring adapter for remote contact : KRP50-2, Adapter PCB for remote control KRP2A61, schedule timer DST30B61, on/off controller: DCS301B61, controller: DCS302B61

5. ELECTRIC WIRING



CAUTION

Before obtaining access to terminal devices, all power supply circuits must be interrupted.

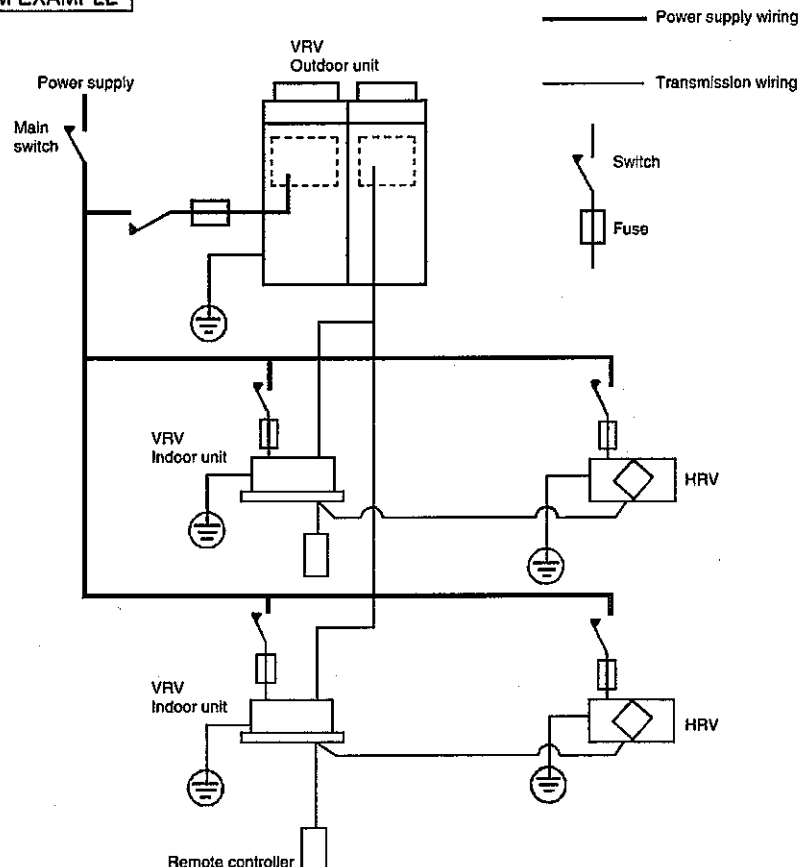
5-1 CONNECTION OF WIRING

- Connect the wires in accordance with the diagram of each system.
- All wiring must be performed by an authorized electrician.
- All field supplied parts and materials and electric works must conform to local codes.
- Use copper wire only.

5-1-1 Connection of wiring

- A circuit breaker capable of shutting down power supply to the entire system must be installed.
- A single switch can be used to supply power to units on the same system. However, branch switches and branch circuit breakers must be selected carefully.
- Fit the power supply wiring of each unit with a switch and fuse as shown in the drawing.
- Be sure to give the electric grounding (earth) connection.

COMPLETE SYSTEM EXAMPLE



1. Component electrical specifications

Units				Power supply		Fan motor	
Model	Type	50Hz	60Hz	MCA	MFA	KW	FLA
VAM150F	AVE, 5VE	Power supply Max.264V Min.198V	Power supply Max.242V Min.198V	0.9	15	0.03 × 2	0.4 × 2
VAM250F				0.9	15	0.03 × 2	0.4 × 2
VAM350F				1.35	15	0.09 × 2	0.6 × 2
VAM500F				1.35	15	0.09 × 2	0.6 × 2
VAM650F	AVE, 5VE			2.3	15	0.14 × 2	1.0 × 2
VAM800F				3.4	15	0.23 × 2	1.5 × 2
VAM1000F				3.4	15	0.23 × 2	1.5 × 2
VAM1500F				6.75	15	0.23 × 4	1.5 × 4
VAM2000F				6.75	15	0.23 × 4	1.5 × 4

Symbol) MCA: Min. Circuit Amps (A) MFA: Max. Fuse Amps (A) KW: Moter Rated Output (kW)

FLA: Full Load Amps (A)

NOTE: For details, refer to ELECTRICAL DATA.

2. Specifications for field supplied fuses and wire

Model	Type	Power supply			Transmission wiring	
		Field supplied fuses	Wire	Size	Wire	Size
VAM150F	AVE, 5VE	15A	H05VV-U3G	Wire size must comply with local codes	Shield wire (2 wire)	0.75-1.25 mm ²
VAM250F						
VAM350F						
VAM500F						
VAM650F	AVE, 5VE					
VAM800F						
VAM1000F						
VAM1500F						
VAM2000F						

PRECAUTIONS

- Do not connect wires of different gauge to the same power supply terminal. Looseness in the connection may cause overheating.
When connecting more than one wire to the power supply wiring, use a 2 mm² (ø1.6) gauge wire.

Same gauge wires

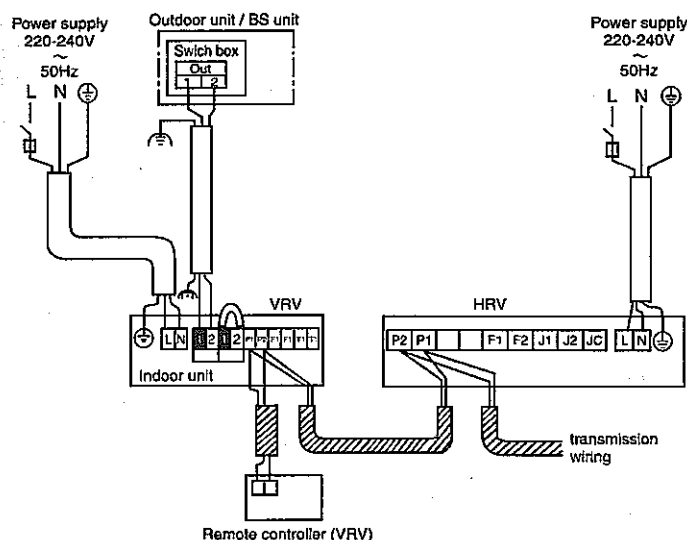


Different gauge wires



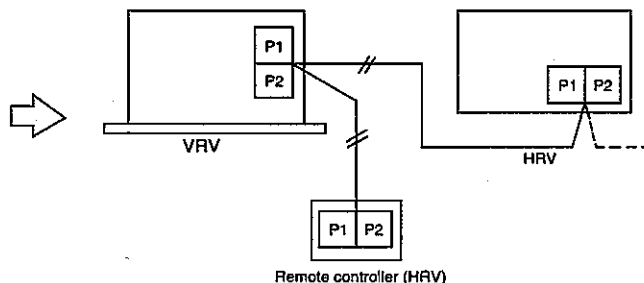
- Keep total current of crossover wiring between indoor units less than 12 A.
When using two power wiring of a gauge greater than 2 mm² (ø1.6), branch the line outside the terminal board of the unit in accordance with electrical equipment standards.
The branch must be sheathed so as to provide an equal or greater degree of insulation as the power supply wiring itself.
- Do not connect wires of different gauge to the same grounding terminal. Looseness in the connection may deteriorate protection.
- Keep the power supply wiring distant from other wires to prevent noise.
- For remote controller wiring, refer to the "INSTALLATION MANUAL OF REMOTE CONTROLLER".

WIRING EXAMPLE



Following item are figured as shown below

—//— : transmission wiring



- All transmission wiring except for the remote controller wires is polarized and must match the terminal symbol.
- Use shield wire in transmission wiring. Ground the shield of the shield wire to "⏏", at the grounding screw, with the C-cup washer.
- Sheathed wire materials may be used for transmission wiring, but they are not suitable for EMC (Electromagnetic Compatibility) (European Directive).
When using sheathed wire, electromagnetic Compatibility must conform to Japanese standards stipulated in the Electric Appliance Regulatory Act.
Transmission wiring need not be grounded when using sheathed wire.

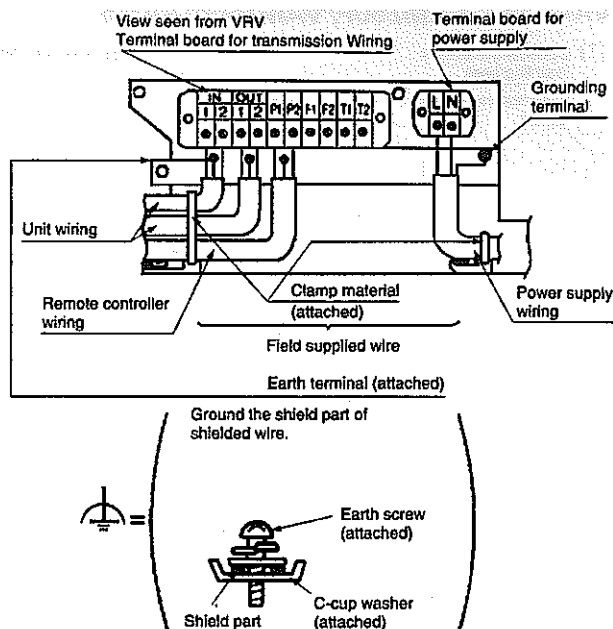
5-1-2 Opening the switch box



CAUTION

Before opening the cover, be sure to turn off the power switches of the main units and other devices connected with the main units.

- Remove the screw securing the cover and open the switch box.
- Secure the power cord control wires with the clamp, as shown in Fig. 6.



• VAM150F, VAM250F, VAM350F, VAM500F, VAM650F, VAM800F, VAM1000F

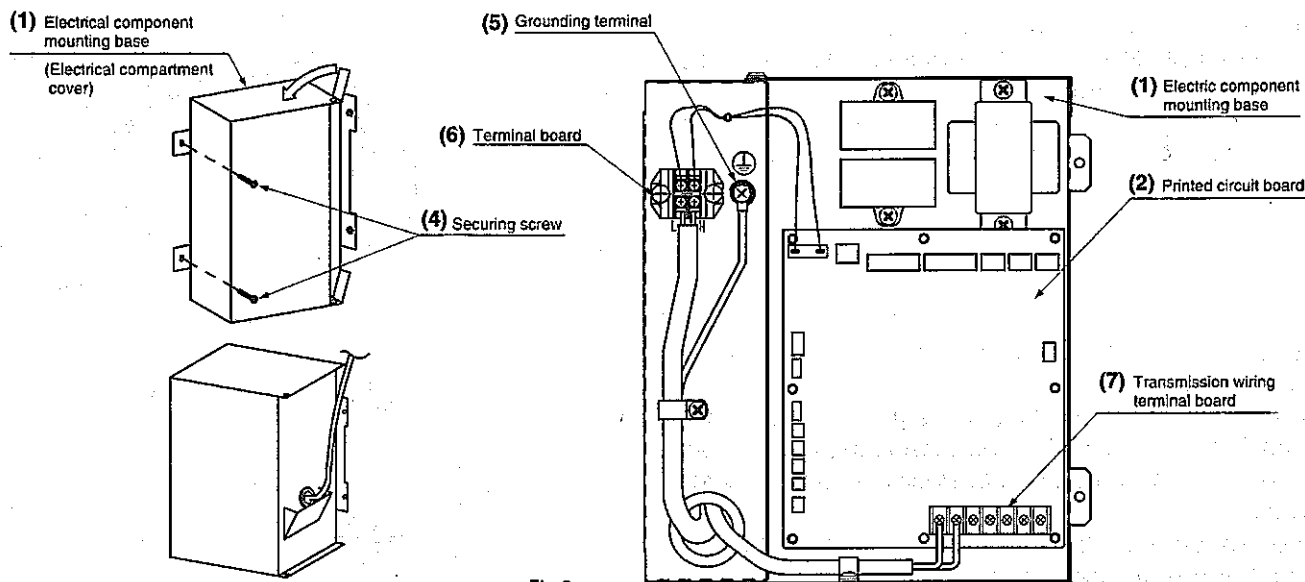


Fig. 6

• VAM1500F, VAM2000F

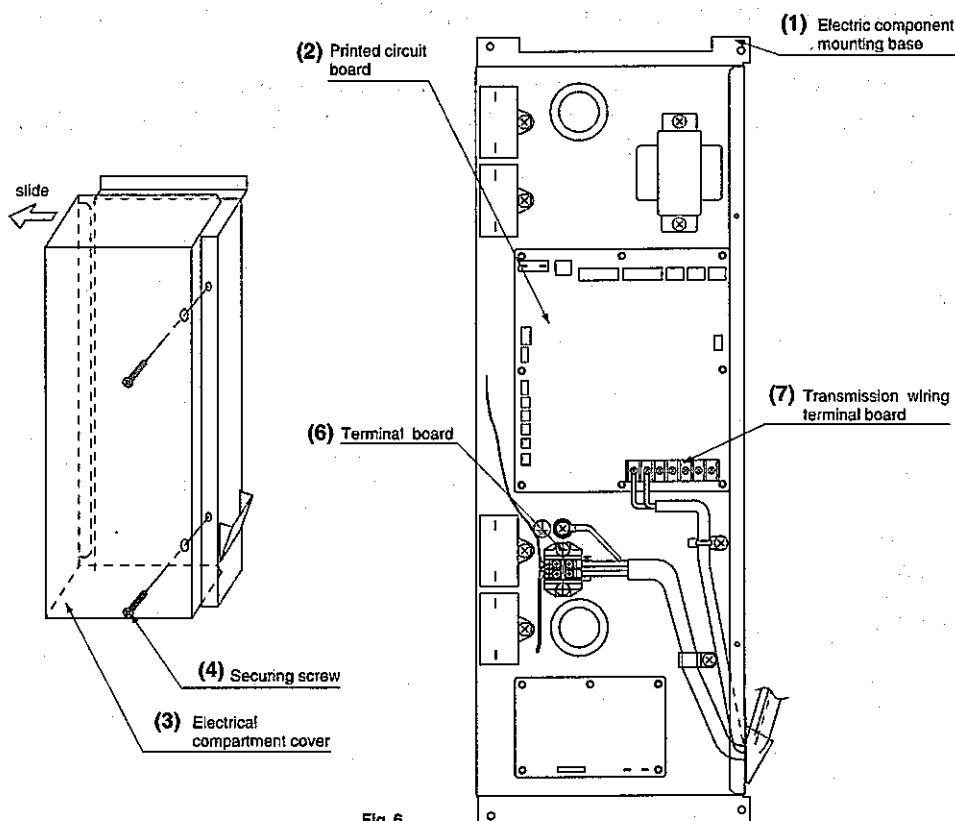


Fig. 6

- | | |
|--------------------------------------|--|
| (1) Electric component mounting base | (5) Grounding terminal |
| (2) Printed circuit board | (6) Terminal board |
| (3) Electrical compartment cover | (7) Transmission wiring terminal board |
| (4) Securing screw | |

5-1-3 How to install the optional adapter circuit board (KRP2A61, KRP50-2)

When install the optional adaptor circuit board, it is necessary to prepare the fixing box (KRP50-2A90)

1. Open the electrical compartment cover by following the procedure described in the "5-1-2 Opening the switch box" section.
2. Remove the securing screw, and install the adapter circuit board.
3. After the wires are connected, fasten the electrical compartment cover.

• VAM150F, VAM250F, VAM350F, VAM500F, VAM650F, VAM800F, VAM1000F, VAM1500F, VAM2000F

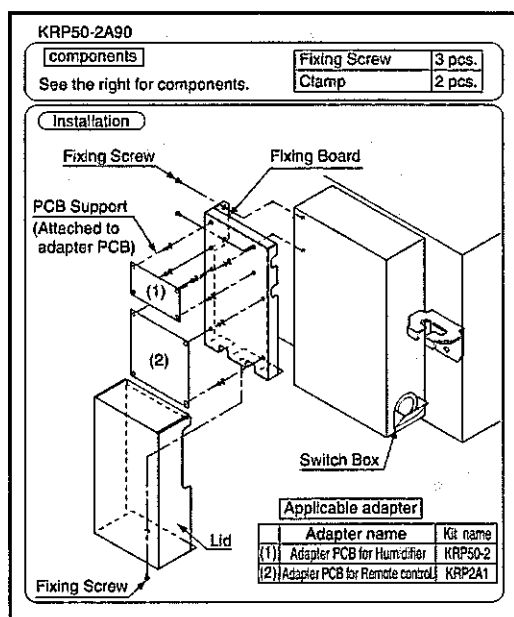


Fig. 7

(1) Electric component mounting base

(3) Installation hole (for KRP2A61)

(2) Installation hole (for KRP50-2)

5-1-4 Power cord connection, control wire terminals and switches on the electronic control unit (printed circuit board)

- Connect the power cord to the L and N terminals.
- Secure the power cord with the power cord clamp, as shown in Fig. 6.
- Be sure to give the electric grounding (earth) connection.

• VAM150F, VAM250F, VAM350F, VAM500F, VAM650F, VAM800F, VAM1000F

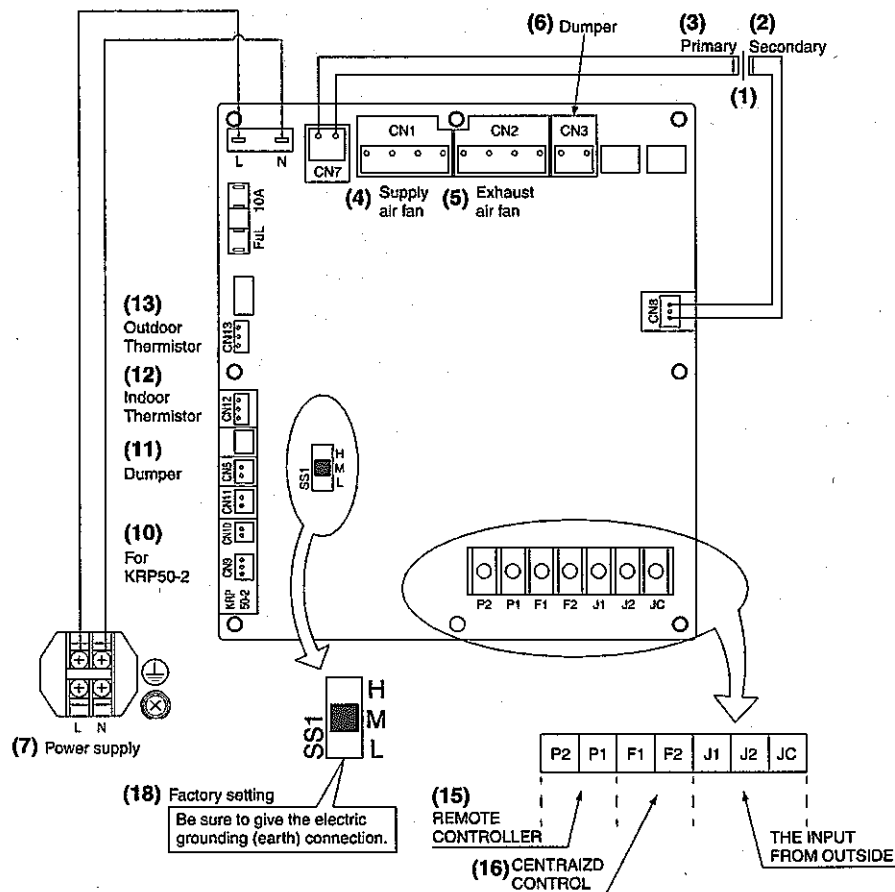


Fig. 8

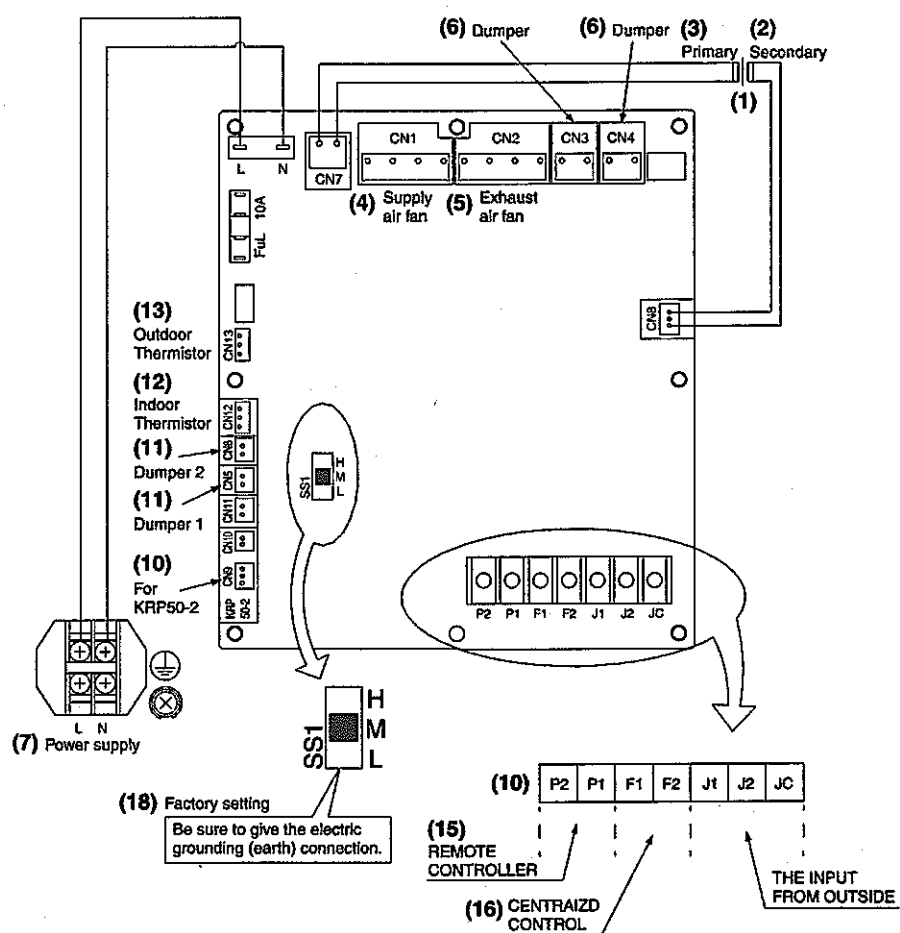


Fig. 8

- | | |
|----------------------|--------------------------------|
| (1) Transformer | (10) For KRP50-2 |
| (2) Secondary | (11) Dumper |
| (3) Primary | (12) Indoor air thermistor |
| (4) Supply air fan | (13) Outdoor air thermistor |
| (5) Exhaust air fan | (14) Air flow |
| (6) Dumper | (15) Remote controller |
| (7) Power supply | (16) Centralized control |
| (8) Power transistor | (17) No-voltage external input |
| (9) Terminals | (18) Factory setting |

5-1-5 Local setting

Using the remote controller of the VRV-system air conditioner to make HRV unit settings

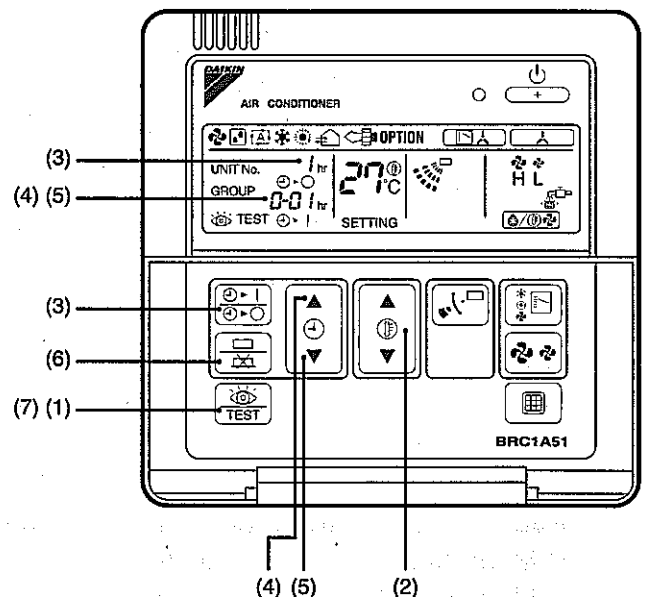
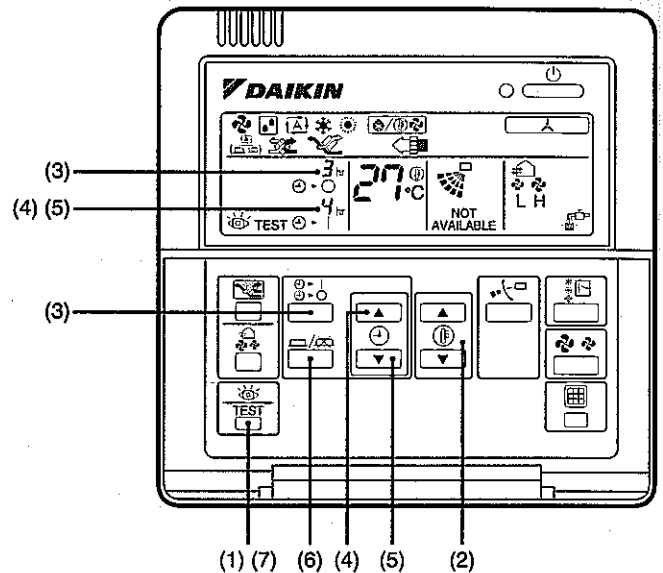
(1) Initial setting

- (1) Mode nos. 17, 18 and 19: Group control of HRV units.
- (2) Mode nos. 27, 28 and 29: individual control

Operating procedure

The following describes the operating procedure and settings.

- (1) Press the INSPECTION/TRIAL button for more than four seconds with the unit in the normal mode to enter the local setting mode.
- (2) Use the TEMPERATURE ADJUSTMENT button to select the desired "mode number." (The code display will blink.)
- (3) To make settings for individual units under group control (when mode No. 27, 28 or 29 is selected), press the TIMER SETTING ON/OFF button to select the "unit No." for which the settings are to be made. (This process is not necessary when settings are made for the entire group.)
- (4) Press the top section of the TIMER button to select the "setting switch No."
- (5) Press the lower section of the TIMER button to select "setting position No."
- (6) Press the PROGRAM/CANCEL button once to enter the settings. (The code display will stop blinking and light up.)
- (7) Press the INSPECTION/TRIAL button to return to normal mode.



<Example>

When adjusting the ventilation air flow to low setting in the group setting mode, enter the mode No., "19" setting switch No., "0" and setting position No., "01".

List of Settings

Mode No.		Setting switch No.	Description of Setting	Setting position No. (Caution *1)					
Group settings	Individual settings			01	02	03	04	05	06
17	27	0	Filter cleaning time setting	Approx. 2500 hours	Approx. 1250 hours	No counting	—	—	—
		2	Pre-cool/pre-heat on/off setting	Off	On	—	—	—	—
		3	Pre-cool/pre-heat time setting	30 min	45 min	60 min	—	—	—
		4	Fan speed initial setting	Normal	Ultra high	—	—	—	—
		5	Yes/No setting for direct duct connection with VRV system	No duct (Air flow setting)	With duct (fan off)	—	—	—	—
			Setting for cold areas (Fan operation selection for heater thermo OFF)	—	—	No duct		With duct	
						Fan off	Fan L	Fan off	Fan L
		7	Centralized/individual setting	Centralized	Individual	—	—	—	—
		8	Centralized zone interlock setting	No	Yes	Priority on operation	—	—	—
18	28	9	Pre-heat time extension setting	0 min	30 min	60 min	90 min	—	—
		0	External signal JC/J2	Last command	Priority on external input	—	—	—	—
		1	Setting for direct Power ON	Off	On	—	—	—	—
		2	Auto restart setting	Off	On	—	—	—	—
		3	External damper operation	—	—	On	—	—	—
		4	Indication of ventilation mode/Not indication	Indication	No Indication	—	—	—	—
		7	Fresh up air supply/exhaust setting	No Indication	No Indication	Indication	Indication	—	—
				Supply	Exhaust	Supply	Exhaust	—	—
		8	External input terminal function selection (between J1 and JC)	Fresh-up	Overall alarm	Overall malfunction	Forced off	Fan forced off	Air flow increase
19	29	9	KRP50-2 output switching selection (between 1 and 3)	Fan on/off	Abnormal	—	—	—	—
		0	Ventilation air flow setting	Low	Low	Low	Low	High	High
		2	Ventilation mode setting	Automatic	Exchange	By pass	—	—	—
		3	"Fresh Up" on/off setting	Off	On	—	—	—	—
		8	Electric heater setting	No delay	Exchange	On, off delay	On, off delay	—	—

[Caution]

- (1) The setting positions are set at "01" at the factory.
The ventilation air flow, however, is set at "06" (medium) in the HRV unit. When lower or higher setting is desired, change the setting after installation.

(2) Group number setting for centralized controller

(1) Mode No. 00: Group controller

(2) Mode No. 30: Individual controller

* Regarding the setting procedure, refer to the section "Group number setting for centralized control" in the operating manual of either the on/off controller or the central controller.

5-1-6 Operation with the remote control exclusively for Air conditioning operation HRV units. (BRC301B61)

For non-independent systems, starting/stopping operation and timer operation may not be possible. Use the air conditioner remote control or the Centralized controller in such cases.

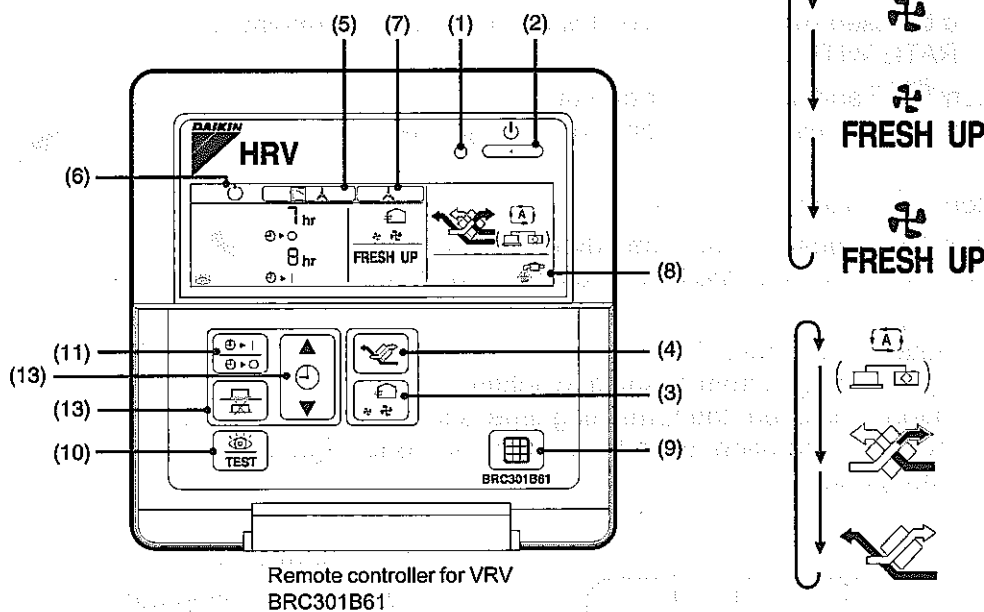
(1) Operation lamp

This pilot lamp (red) light up while the unit is in Operation.

(2) Operation/Stop button

When pushed once, the unit starts operating.

When pushed twice, the unit stops.



Remote controller for VRV
BRC301B61

(3) Air flow rate changeover button

Air flow rate can be changed over to “” [Low] mode or “” [High] mode,
“ FRESH UP” [Low FRESH UP] mode,
“ FRESH UP” [High FRESH UP] mode.

For “FRESH UP” operation

When this indication does not show: The volume of outdoor air supplied into the room and that of the room air exhausted outdoors is equivalent.

For “FRESH UP” operation,

- If it is set to “Fresh up air supply”: The volume of outdoor air supplied into the room is larger than that of room air exhausted outdoors.
(This operation prevents the odor and moisture from kitchens and toilets from flowing into the rooms.)
- If it is set to “Fresh up air exhaust”: The volume of room air exhausted outdoors is larger than that of outdoor air supplied into the room.
(This operation prevents the hospital odor and floating bacteria from flowing out to the corridors.)

(4) Ventilation mode changeover button

“” (Automatic) mode.....The temperature sensor of the unit automatically changes the ventilation of the unit in [Bypass] mode and [Heat Exchange] mode.

“” (Heat Exchange) mode.....In this mode, the air passes through the heat exchange element to effect [Total Heat Exchanging] ventilation.

“” (Bypass) mode.....In this mode, the air does not pass through the heat exchange element but passes it to effect [Bypass] ventilation.

(5) Indication of operation control method:

When the operation of HRVs are linked with the air conditioners, this indication may be shown.

While the indication is shown, the ON/OFF of HRVs cannot be operated by the HRV remote controller.

(6) Indication of operation standby:

It indicates the pre-cooling/pre-heating operation. This unit is at stop and will start operation after the pre-cooling/pre-heating operation is over.

Pre-cooling/pre-heating operation means the operation of HRVs is delayed during the startup operation of linked air conditioners such as before the office hours.

During this period the cooling or heating load is reduced to bring the room temperature to the set temperature in a short time.

(7) Indication of centralized control:

When a remote controller for air conditioners or devices for centralized control are connected to the HRVs, this indication may show.

During this indication appears on the display, the ON/OFF and timer operation may not be possible with the HRV remote controllers.

(8) Indication of air filter cleaning

When the indication " " appears on the display, clean the filter.

(9) Filter signal reset button

(10) Inspection button

This button is to be used only for service. It is not to be used normally.

HOW TO OPERATE WITH TIMER

(11) Push the button " " and select either one of " " or " ".

Each time the button is pushed, the indication changes as shown right.

(12) Push the button " " and set the time.

Each time when " " is pushed, the time advances one hour.

Each time when " " is pushed, the time goes back one hour.

(13) Push the button " ".

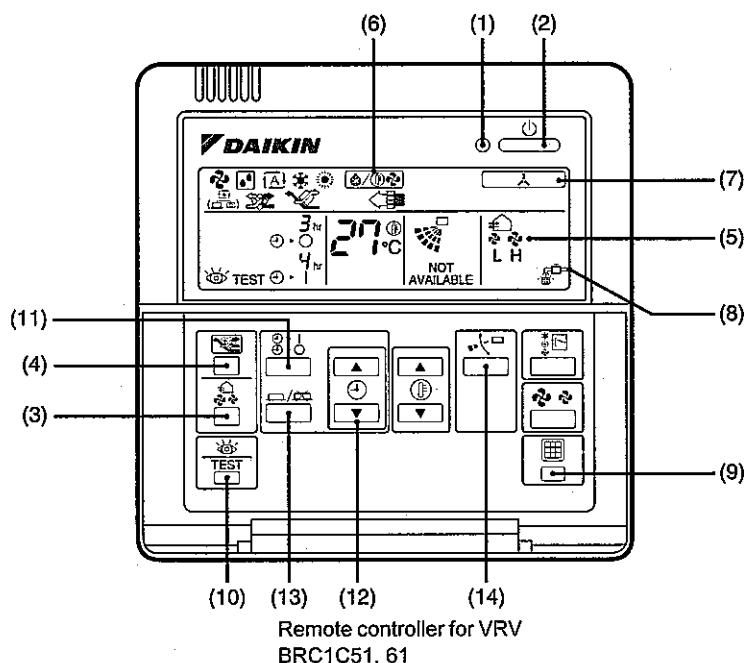
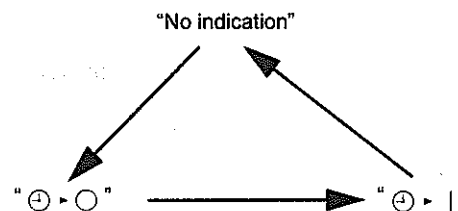
Then, the reservation is finished.

Either " " or " " changes from flashing to lighting.

After the reservation is finished, the remaining time is indicated in the display.

For cancelling the timer operation, push the button " " once again.

The indication disappears.



(1) Operation lamp

(2) Operation/stop button

(3) Air flow rate changeover button

(4) Ventilation mode changeover button

(5) Indication of air flow rate

(6) Indication of operation control method

(7) Indication of centralized control

(8) Indication of air filter cleaning

(9) Filter signal rest button

(10) Inspection button

(11), (12), (13) See page 19 "HOW TO OPERATE WITH TIMER"

(14) If you press these buttons when using independent operation of the HRV unit, the message "NOT AVAILABLE" will appear on the display for a few seconds.

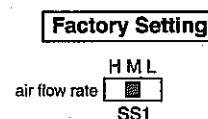
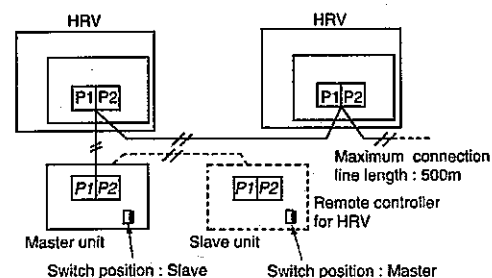
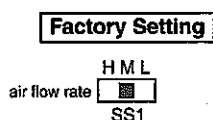
5-2 INDEPENDENT SYSTEM

5-2-1 When connecting to Remote controller for HRV

For raising the remote-controlled ventilation air flow rate from "High" to "Ultra-High", connect the remote controller for the air conditioner to HRV and make settings on site.

(Refer to "Initial setting" under item "5-1-5 Local setting".)

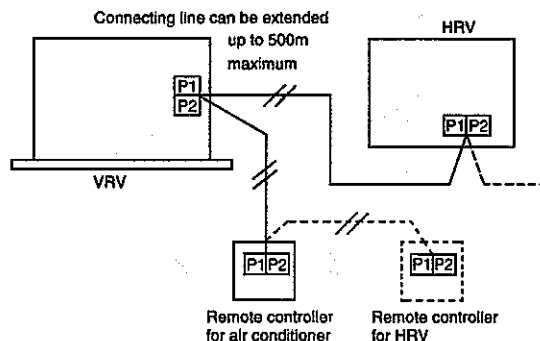
Set the switches on the printed circuit board to the factory setting.



5-3 Wiring and connections in combination with "VRV-SYSTEM"

5-3-1 Standard 1-group linked-control system

- The remote control of the air conditioner can be used to control up to 16 air conditioner indoor units and HRV units.
- Initial settings can be made for the functions of the HRV units (pre-cool/pre-heat, ventilation air flow, ventilation mode and "Fresh-Up").
Use the remote controller of the air conditioner to make the initial settings for the HRV units.
Refer to "Initial setting" under Item "5-1-5 Local setting."



Pre-cool/pre-heat function

When the pre-cool/pre-heat function is set, the HRV unit switches on at the preset time (30, 45 or 60 minutes) after the VRV-system air conditioner begins cooling or heating operation. The function is set OFF at the factory.

Therefore, to use this function, the initial setting must be made using the remote controller of the air conditioner.

If the air conditioner is re-started within two hours after the operation was stopped, this function does not operate.

Example 1:

To switch on the pre-cool/pre-heat function, and turn on the HRV unit 60 minutes after the air conditioner is turned on.

- (1) Set the mode No. to "17" for group control, or "27" for individual control, the setting switch No. to "2" and the setting position No. to "02"
- (2) Set the mode No. to "17" for group control, or "27" for individual control, the setting switch No. to "3" and the setting position No. to "03"

Example 2:

To switch the ventilation air flow to ultra high setting.

(The units are set at the high air flow setting at the factory)

Set the mode No. to "17" for group control, or "27" for individual control, the setting switch No. to "4" and the setting position No. to "02"

Example 3:

To switch the ventilation air flow to low setting.

Set the mode No. to "19" for group control, or "29" for individual control, the setting switch No. to "0" and the setting position No. to "01"

• Connecting the remote controller for HRV

The remote controller for HRV cannot be used for starting/stopping operation or for timer operation.
(The centralized control indication will be lit.)

To set pre-cool/pre-heat function settings, change the remote control air flow rate setting from medium (M) to high (H), etc., perform initial settings from the remote controller for HRV.

Since it will become a two-remote-control system, perform master/slave setting as shown below.

Remote control	Master/slave setting
Remote controller for air conditioner	Slave
Remote controller for HRV	Master

Refer to "performing initial settings" in the remote control instruction manual.

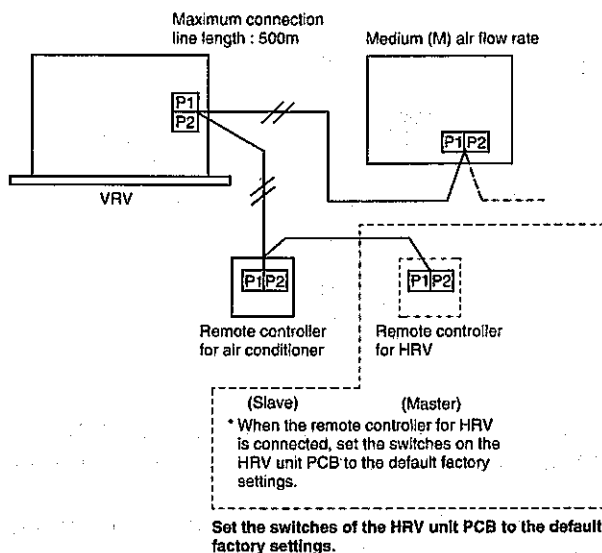
Example 4:

To set the pre-cool/pre-heat reservation function to on and have the HRV start operating 60 minutes after the air conditioner has started, set the same numbers as shown in example 1 using the remote controller for HRV.

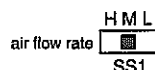
Example 5:

To increase the remote control air ventilation rate setting from Medium to High, set the same numbers as shown in example 2 using the remote controller for HRV.

Air ventilation rate setting using remote control	Default factory settings	When set as in example 5
Low	Low (L) air flow rate	Low (L) air flow rate
High	Medium (M) air flow rate	High (H) air flow rate



Default factory settings



- **Determination of heating/cooling selection rights for VRV-systems is performed using the remote controller for HRV.**

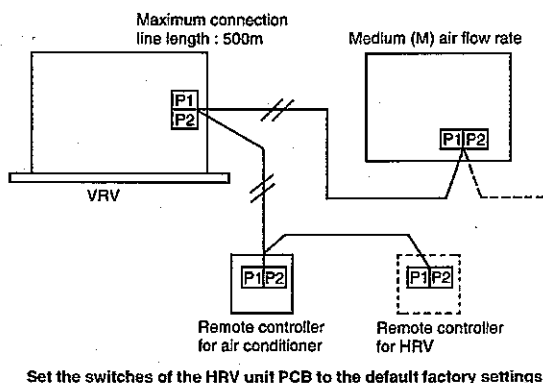
The heating/cooling selection rights can be enabled or disabled using the ventilation mode button of the remote controller for HRV.

This operation cannot be performed with the remote controller for air conditioner.

Heating/cooling selection rights	Operation switchover control display
Enabled	Not lit
Disabled	Lit
Not set	Blinking

5-3-2 Direct duct connection system for 1-group operation system

Line connections and the settings of the switches on the HRV unit PCB should be the same as for "5-3-1 Standard system for 1-group system".



1. Be sure to set the initial settings to Direct duct connection: Enabled.

- When the remote controller for HRV is not yet connected, initial settings can be performed using the air conditioner remote control. Set the mode number to "17", the setting switch number to "5", and the setting position number to "02" according to the procedure in "1: Making local settings".
- When the remote controller for HRV, initial settings should be performed using the remote controller for HRV. Set the same numbers as described above when using the remote controller for air conditioner according to the procedure "Making initial settings" in the remote control instruction manual.

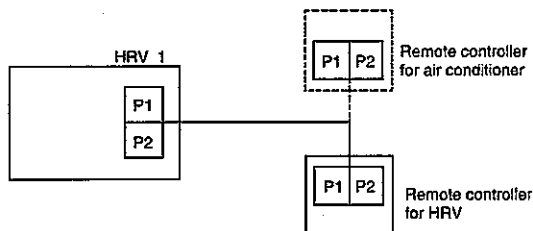
2. Settings for other HRV functions should be made using the same method as in "5-3-1 Standard system for 1-group system".

5-3-3 Linked control with more than two groups

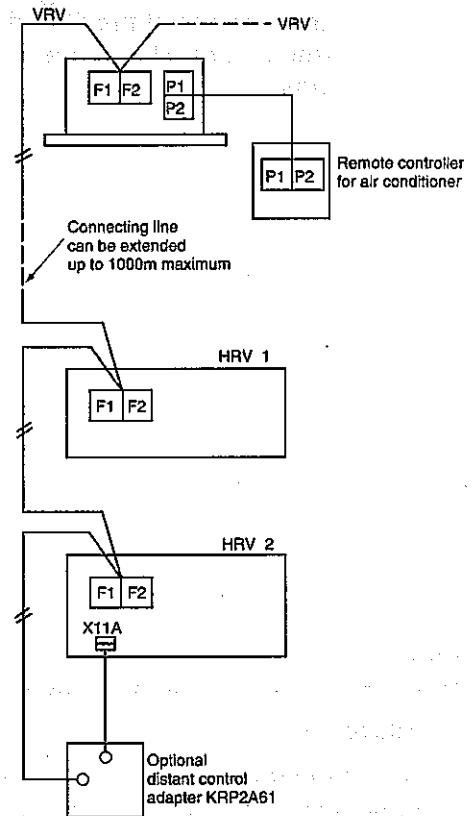
- Mount the optional KRP2A61 Adapter PCB for remote control on the electric component mounting base of one HRV unit.
- A maximum of 64 air conditioners and HRV units can be connected to the F1 and F2 terminals.
- Use the remote controller of the air conditioner to make the initial settings.

<Procedure>

1. Turn off the main power.
2. Connect the air-conditioner remote controller.



3. Turn on the main power.
 4. Make the remote controller settings on site; Set the collective zone interlock to ON. Mode number "17", setting switch number "8" and setting position number "02".
 5. Turn off the main power.
 6. Disconnect the remote controller.
- Now the on-site settings are complete.



For raising the remote-controlled ventilation air flow rate "High" to "Ultra-High", connect the remote controller for the air conditioner to HRV and make settings on site. (Refer to "Initial setting" under item "5-1-5 Local setting".)

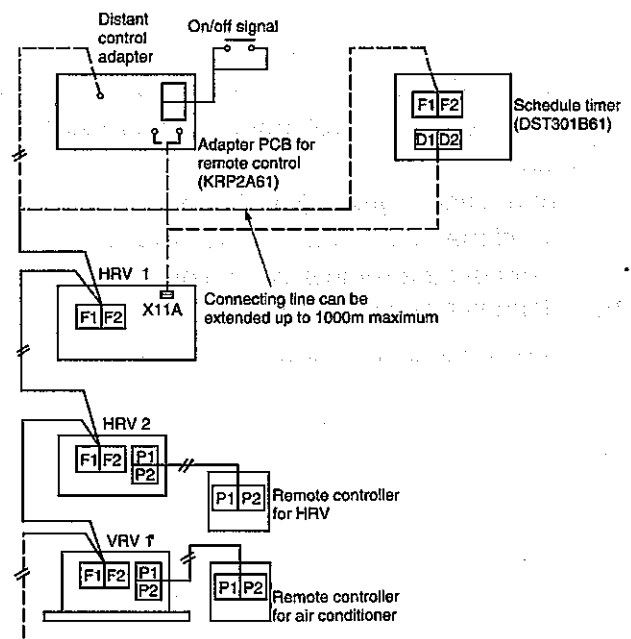
5-4 Centralized control system

5-4-1 "All" control

When using Adapter PCB for remote control (KRP2A61, 62, 63) or schedule timer (DST301B61)

- A maximum of 64 air conditioners and HRV units can be connected to the F1 and F2 terminals.
- This system does not require group number setting for centralized control. (auto-address system)
- The Adapter PCB for remote control and schedule timer cannot be used together.
- The Adapter PCB for remote control can be mounted on the electric component mounting base of either the HRV unit or air conditioner. (The HRV unit can accept only the KRP2A61)
- For raising the remote-controlled ventilation air flow rate from "High" to "Ultra-High", connect the remote controller for the air-conditioner to HRV and make settings on site.

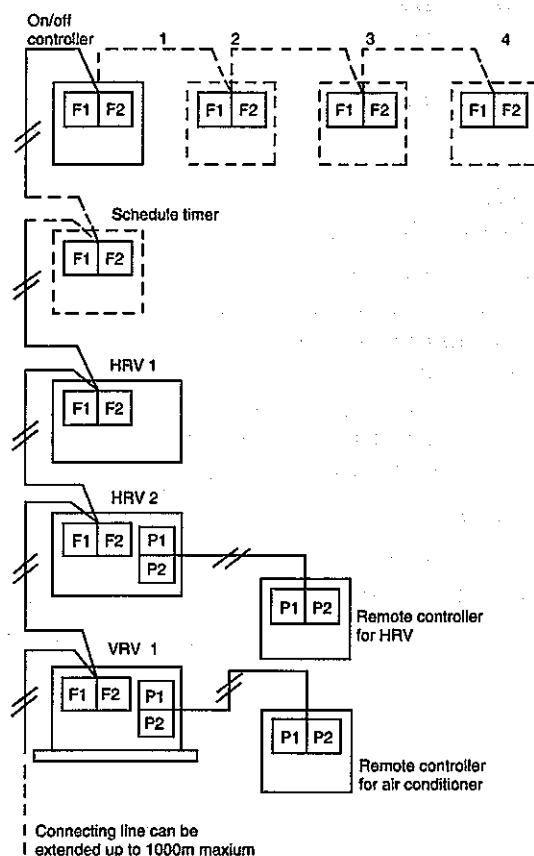
(Refer to "Initial setting" under item "5-1-5 Local setting".)



5-4-2 "All"/"individual" control

When using the on/off controller (DCS301B61)

- A maximum of 64 air conditioners and HRV units can be connected to the F1 and F2 terminals.
 - This system allows connection of four on/off controllers.
 - It is necessary to assign a central control group number to each HRV unit and air conditioner.
- Regarding the setting of the group number, refer to the section on "the centralized control group number setting" in the operating instructions of the On/off controller.
- Use the remote controller of the air conditioner to make the initial settings.

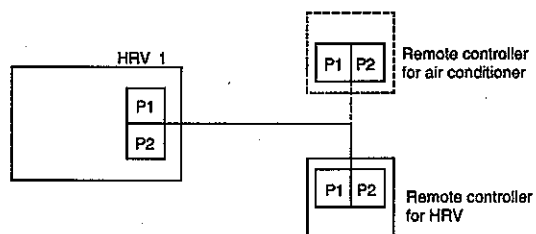


Example:

Follow the procedure below to set the centralized group No. 2-05 to HRV 1.

Procedure

1. Turn off the main switch of the HRV-1 and On/off controller.
2. Connect the air conditioner's remote controller.



3. Turn on the main switch of the HRV-1 and On/off controller.
 4. Set the central control group number using the local setting on the remote controller.
Mode No.: "00"
Central control group No.: "2-05"
 5. Turn off the main switch of the HRV and On/off controller.
 6. Disconnect the remote controller.
- The setting is now complete.
- For the ventilation air flow setting, follow the procedure described in the 5-4-1 section.

5-4-3 Zone control system

- A maximum of 64 air conditioners and HRV units can be connected to the F1 and F2 terminals.
- The HRV units will turn on and off in according with the zone operation command from the centralized controller.

Zone 2

The HRV units operate in the zone-linked mode, as described in the section, "5-3-3 Linked control with more than two groups." For the initial setting, follow the procedure described in the 5-3-3 section.

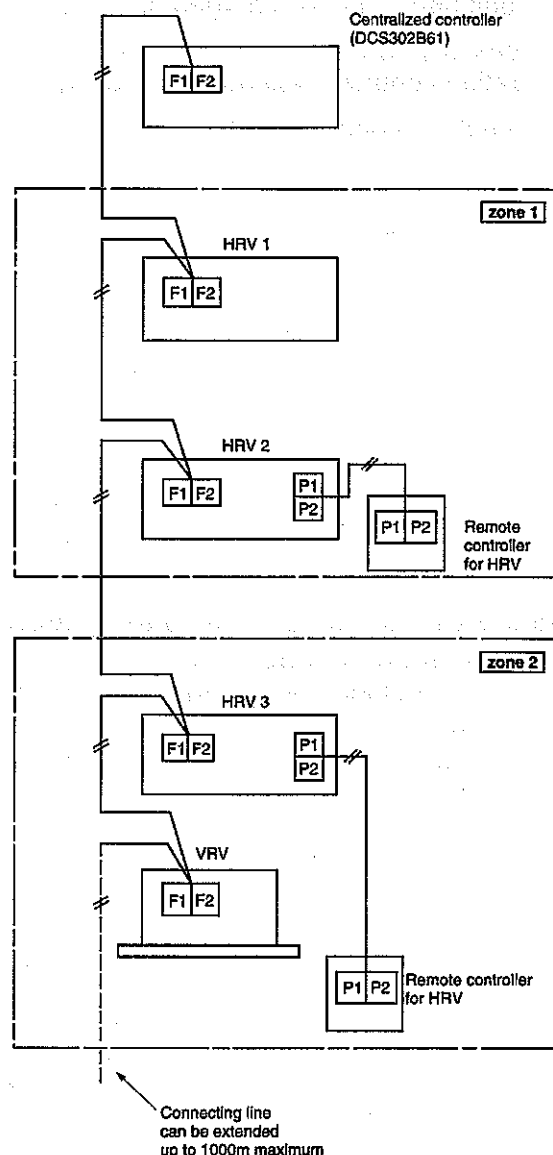
It is necessary to assign a central control group number to each HRV unit and air conditioner.

Regarding the setting of the group number, refer to the section on "the centralized control group number setting" in the operating instructions of the Centralized controller. Refer to the "5-4-2 "All"/individual control" section for the setting procedure.

For the ventilation air flow setting, follow the procedure described in the 5-4-1 section.

For the zone setting from the centralized controller, refer to the operating instructions of the centralized controller.

The centralized controller can be used to control the individual units in the zone for ventilation operation.

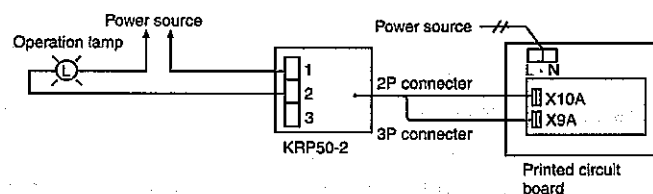


5-5 REMOTE CONTROL

5-5-1 Monitor of operation

The operation of the HRV can be monitored from the outside by the connection of the adaptor PCB for remote control KRP50-2 (option)

Be sure to connect the terminal strip on the adaptor PCB for remote control KRP50-2 (option).



Wiring adapter for remote contact KRP50-2 (option)
(To be placed in the switch box of the HRV)

5-5-2 Fresh-up operation

<Purposes>

When Combined with a local ventilating fan (such as the one in toilet and kitchen), the air flow rate of HRV is balanced by either fan operation or exhaust operation.

However, a circuit with voltaged and low current (16V, 10 mA) is formed between the JC and J1, so a relay with low-load contact point must be used.

<Functions>

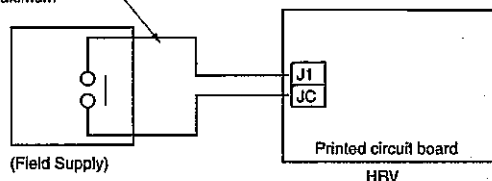
The unit performs overcharged operation to prevent back flow of odor.

<Necessary parts>

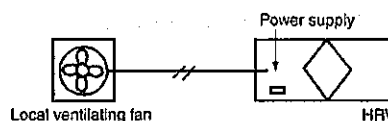
Operation contact of exhaust ventilating fan (Field supply)

<Example of control wiring>

Connecting line can be extended up to 50m maximum



<System Description>



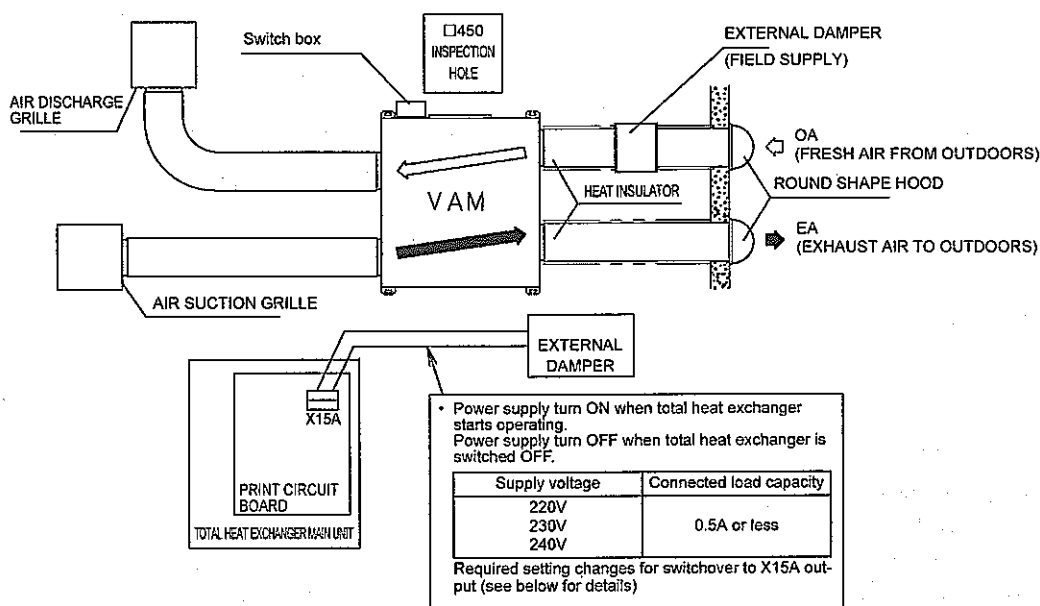
The local setting by the remote controller for the air conditioner (5-1-5 Local setting)	"J1", "JC" normal open	"J1", "JC" normal close
Fresh-up "OFF" (Factory setting)	Normal	Fresh-up
Fresh-up "ON"	Fresh-up	Fresh-up

5-5-3 External Damper Operation (FIELD SUPPLY)

• Explanation of Functions

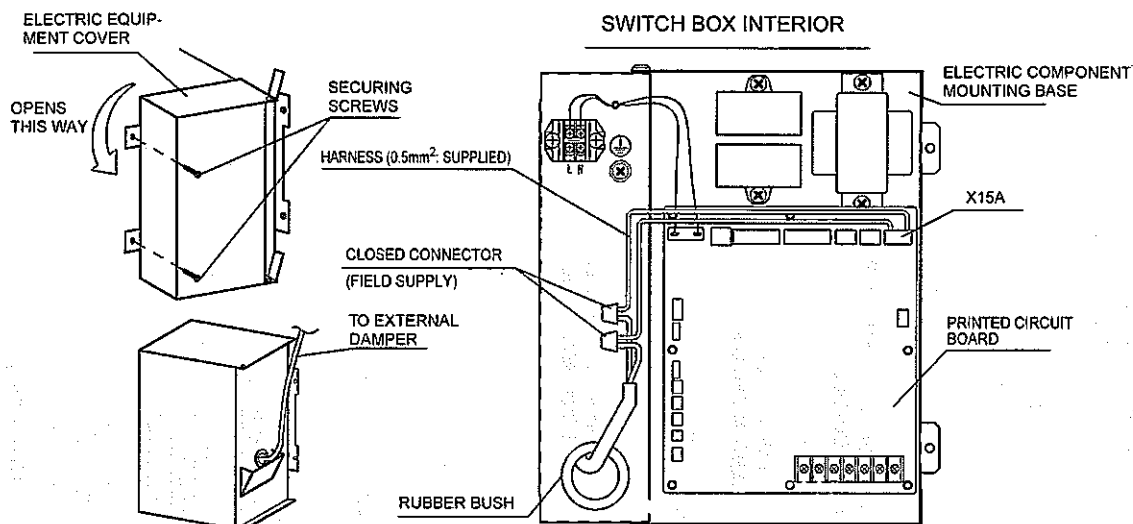
Intake of outdoor air can be prevented when HRV is switched OFF if this damper is incorporated in the system.

1. The total heat exchanger's main unit print board supplies power for external damper.



• Essential Wiring

1. Connect one end of the harness to the X15A on the print board and the other end to the harness leading to the damper via a connector such as a closed connector.



With regard to closed connector, select one that suits wire diameter.

- **Essential Setting Changes**

The X15A output is at the default setting and is not in operation, so the output setting should be changed at the LCD of the remote controller.

- Setting changes should be made in the following way.

Mode No.: 18 (group tie up) or 28 (per each unit)

Setting switch No.: 3

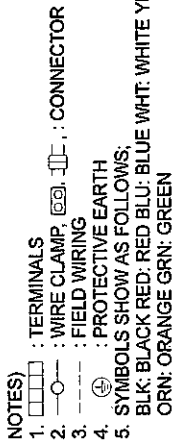
Setting position No.: 03

6. TEST RUN

After completing the installation of the system, check again to make sure that No error was made in wiring or switch setting on the printed circuit boards of the HRV units.

Then, turn on the power of the HRV units. Refer to the manual of the remote controller of each unit (remote controller for air conditioner, central control unit, etc.) for conducting a trial operation.

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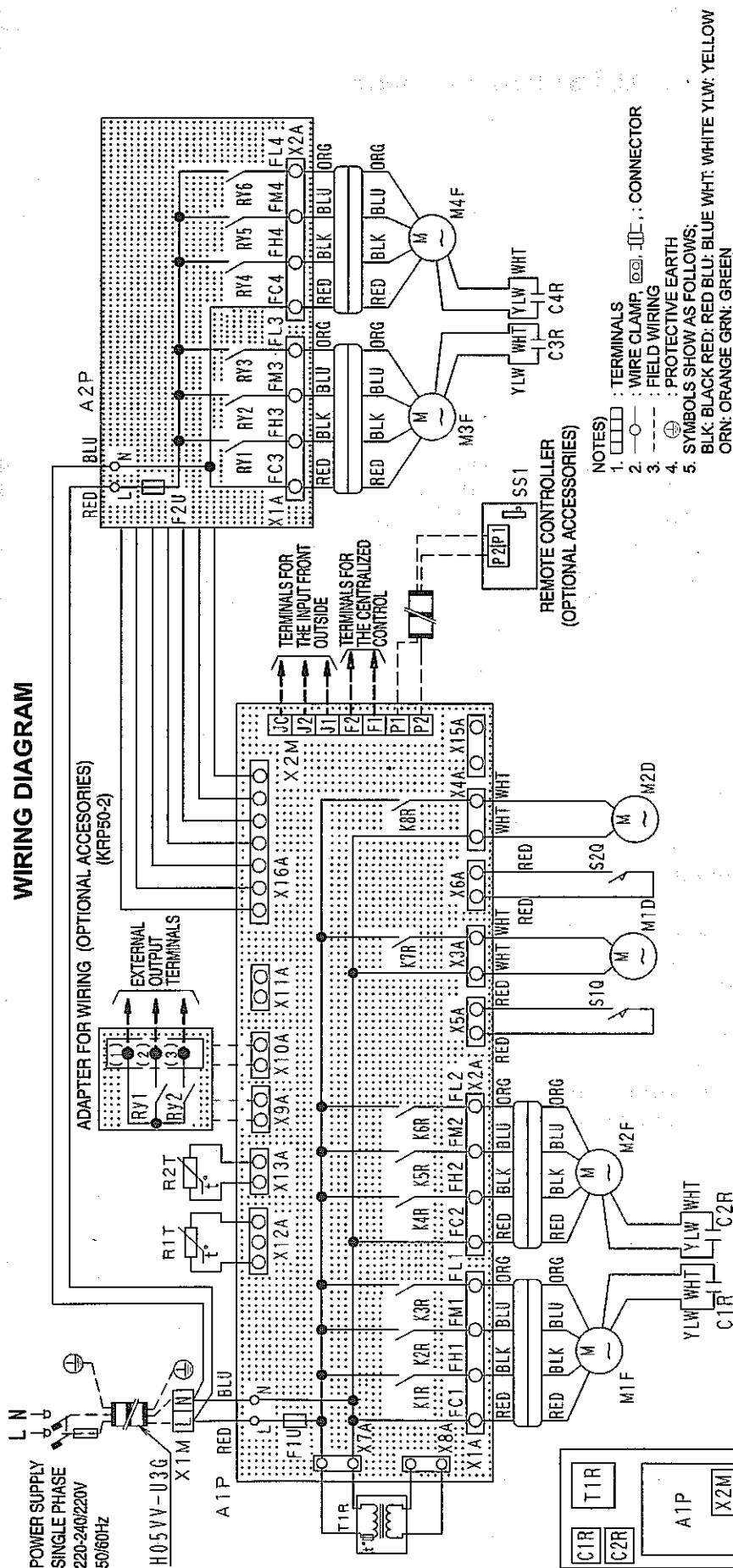
⚠ Cleaning Precautions Clean the heat exchange elements once every two years or more often and the air filter once a year or more often. (Before cleaning, make sure that the unit is not operating.)

⚠ BEFORE OBTAINING ACCESS TO TERMINAL DEVICES, ALL POWER SUPPLY CIRCUITS MUST BE INTERRUPTED.

- To prevent electric shock hazards, provide grounding work according to the installation manual.

VAM 150 · 250 · 350 · 500 · 650 · 800 · 1000 FAVE

WIRING DIAGRAM



OPTIONAL ACCESSORIES	
A1P	ADAPTER FOR WIRING (KRP50-2)
A2P	MAGNETIC RELAY (ON/OFF)
C1R-C4R	MAGNETIC RELAY (HUMIDIFIER OPERATION)
F1U-F2U	REMOTE CONTROLLER
K1R-K3R	SELECTOR SWITCH (MAIN/SUB)
K4R-K6R	CONNECTOR FOR OPTIONAL PARTS
K7R	CONNECTOR (FOR KRP50-2)
K8R	CONNECTOR (FOR KRP50-2)
M1D-M2D	CONNECTOR (ADAPTER POWER SUPPLY)
M1F-M3F	CONNECTOR
M2F-M4F	MOTOR (EXHAUST FAN MOTOR)
Q1M-Q4M	THERMO SWITCH (M1F-M4F BUILT-IN)
RY1-RY3	MAGNETIC RELAY (M3F)
RY4-RY6	MAGNETIC RELAY (M4F)
R1T	THERMISTOR (INDOOR AIR)
R2T	THERMISTOR (OUTDOOR AIR)
S1Q-S2Q	LIMIT SWITCH
T1R	TRANSFORMER (SUPPLY 220-240V/22V)
X1M	TERMINAL (POWER SUPPLY)
X2M	TERMINAL (CONTROL)

▲ Cleaning Precautions Clean the heat exchange elements once every two years or more often and the air filter once a year or more often. (Before cleaning, make sure that the unit is not operating.)

▲ BEFORE OBTAINING ACCESS TO TERMINAL DEVICES, ALL POWER SUPPLY CIRCUITS MUST BE INTERRUPTED.

Grounding

- To prevent electric shock hazards, provide grounding work according to the installation manual.